UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ENCOUNTERS WITH ALCABITIUS: READING ARABIC ASTROLOGY IN PREMODERN EUROPE

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

Degree of

DOCTOR OF PHILOSOPHY

By

MARGARET GAIDA
Norman, Oklahoma
2017

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ENCOUNTERS WITH ALCABITIUS: READING ARABIC ASTROLOGY IN PREMODERN EUROPE

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF HISTORY OF SCIENCE

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For my children

Acknowledgements

I had the very generous support of many mentors, colleagues, librarians, institutions, friends, and family members throughout the research and writing of this dissertation. First I would like to thank my advisor, Rienk Vermij, whose office door was always open for my endless questions, no matter how big or small, and who was supportive and understanding during the most challenging periods of my graduate career. Conversations with Steve Livesey shaped much of my thinking about transmission, and he was a regular supplier of catalogs and other resources that I had overlooked. Kerry Magruder's enthusiasm for my research and for the history of science more generally, as well as his thoughtful questions, brought new energy to the project on several different occasions. The dissertation would have been impossible without the extensive scaffolding constructed by Charles Burnett's decades of research on the subject, and I am extremely grateful for his careful reading and criticism of my work. Kathleen Crowther and Roberta Magnussen provided thoughtful feedback in conversations and on chapter drafts throughout the writing process.

I have been very fortunate to have worked with other extraordinary teachers and mentors. Jamil Ragep and Rob Wiznofsky were patient and willing instructors of Islamic Science and Arabic during my semester at McGill. Katherine Pandora has been a challenging mentor and friend for the duration of my studies at the University of Oklahoma. Marilyn Ogilvie provided a much-welcomed perspective over the years on navigating the discipline and simultaneously managing a career and a household.

I would like to express my thanks to several institutions who supported the research and writing of this dissertation. The American Academy in Rome provided a gorgeous backdrop and a stimulating environment to conduct research at the Vatican Library. I was grateful to have the support of the Council for American Overseas Research Centers to work in Istanbul. And I was very fortunate to receive the Mellon/ACLS Dissertation Completion Fellowship from the American Council of Learned Societies. Lastly, the History of Science Collections at the University of Oklahoma Libraries was central to my research both at home and abroad. I wish to thank the Head Librarian JoAnn Palmeri for her support and friendship over the years, as well as the rest of the Collections staff.

There are several colleagues and friends whom I also wish to thank, especially Stella Stuart, whose regular supply of coffee, friendly discussion, and administrative support got me through many trying times. Henry Zepeda gave thoughtful comments on chapter three, and John Stewart, Petar Markovski, Emily Margolis, Leila McNeill, and Amy Rodgers, for kept me sane during the first few years. Carolyn Scearce deserves special mention for her enormous support as a friend and colleague, but also as a babysitter for two of my children when they were infants. More recently, I have slogged along the graduate school path with Brent Purkaple, James Burnes, Anna Reser, Nathan Kapoor, Jackson Pope, and Kraig Bartel. In Rome, I wish to thank my fellow Fellows David Morris, Joseph Viscomi, Nathan Dennis, Marilynn Desmond, Paula Matthusen, Abinadi Meza, and Cynthia Madansky. I was also very grateful in Rome for the friendship of Maria Robles, Pina Pasquantonio, and Kim Bowes.

When I started the program, my oldest child, now seven, was 10 months old. I now have two additional children, the most recent now almost 10 months old. My children travelled with me to Montreal and Rome. They attended conferences. They put up with the stress of a parent in graduate school. I am extremely grateful for their love and their support, which they provided in their own way. My work also would have been impossible without the support of extended family. My mother-in-law Nejiba Gaida, may she rest in peace, stayed with us for two months in Rome before she passed away unexpectedly three months later. My father-in-law Essaied Gaida and sister-in-law Chiraz Gaida spent five months with us last summer so that I could write in peace during my pregnancy. My father Michael Gleason swooped in at precisely the right moments to help me navigate various crises. My aunt, Suzanne Gonzalez, has made numerous trips to Norman and also came to Rome to help. My mother, Vicki Gleason, has given countless hours of her time and energy shepherding me through the stresses of motherhood and graduate life. She spent two months looking after the children while I was in Istanbul, and made many, many trips to Norman in the months leading up to the dissertation defense.

Lastly, my husband Chekib spent six years keeping the wheels spinning for the family so that I could pursue my dream. His love, encouragement, and constant support during difficult circumstances enabled me to continue the program and finish the degree. I could not have done it without him.

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Abstract

This project examines the transmission and reception in medieval and early modern Europe of the *Introduction to Astrology*, written by the tenth-century Arabic author al-Qabīṣī and known to his Latin readers as Alcabitius. First composed in Aleppo and translated into Latin in the twelfth century, the work became one of the most influential texts on astrology in medieval and early modern Europe, particularly at universities. A close study of different forms of readership (translations, annotations, commentaries, and materialities) demonstrates how attitudes and perceptions of Arabic astrology shifted (or remained stable) among diverse groups of medieval and early modern readers in Europe. The readership of the Latin manuscript and print traditions, understood in conjunction with a contextualized study of the Arabic original, reveals how the astrological tradition in Europe emerged and evolved by assimilating and adapting Islamic ideas.

Introduction

The most popular text on astrology in medieval Europe was al-Qabīṣī's *Kitāb al-mudkhal ilā ṣināʿat aḥkām al-nujūm*, or Alcabitius's *Introductorius ad magisterium iudiciorum astrorum*, which was translated from Arabic into Latin by John of Seville in the 1130s. The extant manuscripts of the *Introduction to Astrology* number more than two hundred. Coupled with this fact, the commentaries written on the *Introduction* from Paris and Bologna in the 1320s and 1330s suggest that the text was taught at universities. In addition to the Latin manuscripts, there were additional translations made into Hebrew, Castilian, Italian, French, German, English, and Dutch, which indicate the broad and diverse medieval readership of the text. Twelve printed editions, ranging from 1473 to 1521, and two commentaries from the 1560s, show the longevity of the text's popularity. The *Introdution to Astrology* was also not entirely unique; several other Arabic astrological authors attained a broad readership in the medieval period, including Abū Maʿshar (Albumasar), Sahl ibn Bishr (Zael), Māshāʾallāh (Messehalla), and ʿAli ibn Rijāl (Haly Abenragel). Each of these authors composed texts of which there are now at least one hundred extant manuscripts.[1] Judging from the numbers of manuscripts alone, it is evident that Arabic texts were central to medieval European astrological knowledge and practice.

Despite this fact, the importance of the Arabic influence on the development of European science continues to be downplayed or underestimated. Alcabitius's *Introduction*, for example, did not garner much attention among historians until fairly

[1] David Juste, "The Impact of Arabic Sources on European Astrology: Some Facts and Numbers," *Micrologus XXIV* (2016): 177.

recently.[2] While the number of extant manuscripts alone should have been an indication that it was a very influential text which warranted scholarly attention, a critical edition was not prepared until 2004.[3] The fact that the text lingered in obscurity for so many years after its enormous popularity in the premodern period can be attributed to three main factors. First, due to the contemporary reputation of astrology among many scholars, the history of astrology was not taken seriously until recently.[4] Second, the text was of Arabic origin. Although Averroes and Avicenna have been the subject of many important scholarly projects, there has been much less attention given to other Arabic writers concerning their influence on the development of medieval European science and philosophy. Third, the *Introduction* was, for lack of a better word, a textbook. As an introductory text which contained unoriginal content, at first glance the *Introduction* may have been considered boring or repetitive. However, sometimes genres that may be considered off-shoots or show lack of innovation can be crucial to our understanding of the transmission of texts and ideas. In the case of the *Introduction*, perhaps one of these factors would not have been so damning. Taken

[2] Two articles give excellent overviews of the reception of the text. See Rüdiger Arnzen, "Vergessene Pflichtlektüre : al-Qabīṣīs astrologische Lehrschrift im europäischen Mittelalter," *Zeitschrift für Geschichte der Arabisch-Islamischen Wissenschaften* 13 (1999): 93–128; Charles Burnett, "Al-Qabīsī's Introduction to Astrology: From Courtly Entertainment to University Textbook," in *Studies in the History of Culture and Science: A Tribute to Gad Freudenthal*, ed. Resianne Fontaine (Leiden: Brill, 2011), 43-69.

[3] Al-Qabīṣī, Abū al-Ṣaqr ʿAbd al-ʿAzīz Ibn ʿUthmān, *The Introduction to Astrology: Editions of the Arabic and Latin texts and an English translation*, ed. Charles Burnett, Keiji Yamamoto, and Michio Yano, Warburg Institute Studies and Texts 2 (London: Warburg Institute, 2004).

[4] Jakob Burkhardt famously ridiculed astrology in *The Civilization of the Renaissance in Italy*, vol. 1, trans. Middlemore (New York: Macmillan, 1904), especially 507-520. The main exception to this claim is Lynn Thorndike, who did pioneering work in identifying important manuscripts and individuals relevant to the history of astrology. See Thorndike, "The True Place of Astrology in the History of Science," *Isis* 46 (1955): 273-278.

together, however, they resulted in a lack of appreciation for the importance of Alcabitius's *Introduction.*

The intersection of these three factors also underscores the main argument of this dissertation: that Arabic texts, and especially Alcabitius's *Introduction*, defined the principle areas of knowledge and practice within the European astrological tradition from the period of translations until well into the sixteenth century. Translated Arabic texts retained Arabic elements for several centuries because medieval Latin scholars regarded the Arabic tradition as an authoritative source of astrological knowledge, and European scholars viewed themselves as heirs to the Arabic tradition, which itself had its roots in ancient Greece. This is in stark contrast to the notion that Arabic scholars were merely passing on Greek wisdom. Medieval European scholars viewed the Arabs as active and authoritative contributors to a highly complex and sophisticated astrological tradition.

The primary evidence for this argument comes from a study of the different readership practices to which Alcabitius's *Introduction to Astrology* was subjected: translation, annotation, commenting, and its treatment as a material text (printing, binding, etc.) While Arabic astrology has not necessarily been ignored in historical literature on astrology in the premodern period, it has certainly been taken for granted given the large numbers of extant Latin manuscripts translated from the Arabic. In many works, Arabic authors may be named or cited, but always as sources in support of the author's claims about medieval astrology. There is no difference (for these historians) between the citations in medieval texts of Ptolemy versus Arabic authors. When questions of influence arise, however, there has been a fair amount of hesitation.

A recent debate over whether Nicolaus Copernicus utilized the mathematical device of Nasīr al-Dīn al-Tūsī without attribution is an interesting example of this phenomenon. This debate seems to miss the point that Copernicus *was* highly influenced by Arabic authors, whom he *does* cite in *De revolutionibus*, whether or not he independently came up with a version of the Tūsī couple. And Copernicus is one of many, many Latin scholars who were reading Arabic authors in the premodern period. If these scholars were astrologers, or students at university, they were primarily reading astrological texts which had been translated from the Arabic. This dissertation shows how Arabic texts came to dominate the Latin astrological landscape, and particularly how medieval Latin readers engaged with Alcabitius's *Introduction to Astrology*.

Chapter 1 of the dissertation provides background information about the Islamic context in which the *Introduction to Astrology* was composed, as well as an overview of the text itself. The chapter shows that al-Qabīṣī was an expert compiler. He both recognized the need for a coherent and sytematic introductory text on astrology, and sought to fill this gap with a text that exposed beginners to the fundamental principles of astrology. The chapter also includes a comparison of the *Introduction* with other astrological works, which demonstrates al-Qabīṣī's skills in providing explanations of difficult concepts and his structural innovations in organizing astrological knowledge. This analysis provides insight into why al-Qabīṣī's *Introduction*, and not other texts such as Ptolemy's *Tetrabiblos* or Abū Maʿshar's two introductions, became so popular in Europe. In understanding the setting at court where the *Introduction* was composed, we also gain insight into the level of sophistication and depth of astronomical and astrological inquiry in a tenth-century Islamic court.

In Chapter 2, I examine the translation of the *Introduction* from Arabic into Latin. After explaining the broader context of the translations of the twelfth century, I turn to the specific context of John of Seville, the translator of the *Introduction*. I then show how the translator dealt with different technical astrological terms, and especially whether he transliterated them or not. These choices indicate that John often retained Arabic terminology because there was no Latin equivalent. This had the effect of preserving the Arabic character of the text and conferring the legitimacy of the Arabic tradition. I also examine John's own additions to the text, i.e. his "interpretations," which illustrate his efforts to make the text more accessible to a Latin audience, which also demonstrates that the information contained within the *Introduction* was considered authoritative and highly valued. Lastly, I consider John's treatment of religious words and phrases, in order to show how Christian scholars were committed to recovering Arabic astrological knowledge despite its Islamic origins.

Chapter 3 considers the Latin manuscript tradition of the *Introduction*, and particularly the evidence of readership in the form of marginalia and annotations. Following an overview of the kinds of annotations inscribed in the margins of manuscripts of the *Introduction*, I show how these different kinds of annotations illustrate both *how* the text was read and *who* was reading it. This analysis shows that the *Introduction* was read by diverse groups of medieval readers, each of whom was influenced by the Arabic tradition through their encounters with Alcabitius and the Arabic terminology contained within the text. I then provide several examples of the citations of other Arabic authors compared to Ptolemy and contemporary Latin authors, and argue that these citation practices reflect the authority of the Arabic astrological

tradition. I then consider several glosses of transliterated terms, which indicate how Latin readers dealt with Arabic technical vocabulary. The persistence of the Arabic transliterated terms throughout the centuries indicates a commitment to the Arabic tradition despite the fact that the meanings of terms were not often immediately evident, prompting readers to add their own definitions.

Chapter 4 considers the three main commentaries on the text, two of which were written in the early fourteenth century, and the other in the sixteenth century. The first two, by Cecco d'Ascoli and John of Saxony, illustrate the broad range of astrological instruction experienced by university students in the fourteenth century. Both Cecco and John considered Alcabitius's *Introduction* to be an authoritative source of astrological knowledge. John, in particular, was very thorough in his analysis of the *Introduction* and in his efforts to compare doctrines with astrological authors, including other Arab, Greek, and contemporary Latin authors. As the principal commentary on the most popular astrological text of the medieval period, John's commentary demonstrates the central role played by Arabic astrology at medieval universities. These medieval commentaries are in turn compared with the humanist commentary of Valentin Naibod. Naibod's commentary reflects a shift away from the authority of Arabic authors in the medieval period and a desire for a return to original Greek. This is very clearly illustrated in his attempt to use original Greek terms for Arabic vocabularly, which are printed in Greek. However, his analysis of the *Introduction* illustrates that he was highly influenced by the Arabic tradition, and that Alcabitius's *Introduction* retained its position as central to astrogical instruction well into the sixteenth century.

The final chapter considers the codicological features of manuscripts and printed versions of the *Introduction*, and in particular how these features influenced and informed the *Introduction*'s readership. Through an examination of the material features of the text, including the title, bound volumes, ownership inscriptions, bindings, paper, and paratexts, I reinforce some of the previous claims made in the dissertation with physical evidence gleaned from the books and manuscripts. I give particular attention to collections of texts in bound volumes, which further illustrates how Arabic texts formed the core of astrological knowledge.

The backbone of the dissertation is the critical edition of both the Arabic and Latin texts prepared by Charles Burnett, Keiji Yamomoto, and Michio Yano. The *Introduction* to the edition includes a wealth of information about al-Qabīṣī and served as a starting point and reference for the entire project. The edition itself provides standardized versions of the text which enabled a close comparison of the Arabic and Latin texts, which forms the basis of chapter two. The editors also noted many, many textual differences between the Arabic and Latin texts, and recorded several glosses from the manuscripts, which contributed to the evidence base in chapters 2 and 3. The list of manuscripts, which numbers over two hundred, and often includes information about dating, ownership, and the other texts the *Introduction* was bound with, was also highly useful for this research.

Chapter 1: Composition

Introduction

Composed in the middle of the tenth century, al-Qabīṣī's *Kitāb al-mudkhal ilā ṣināʿat aḥkām al-nujūm*, or *Introduction to the Art of the Judgments of the Stars* (henceforth *Introduction*), provides a brief introduction to the principles of astrology.[5] Al-Qabīṣī came from a town called al-Qabīṣa near Mosul in Iraq. The well-known bibliographer al-Nadīm mentions in his *Fihrist* that al-Qabīṣī was a student of al-ʿImrānī (d. 955/6 CE) in Mosul, with whom he studied Ptolemy's *Almagest*, and that he was "of our time," (dating to around 980 CE).[6] Al-Qabīṣī wrote several geometrical, astronomical and astrological treatises, and dedicated four of them (including the *Introduction*) to the Ḥamdānid Emir of Aleppo, Sayf al-Dawla, who reigned from 945 to 967 CE.[7] Al-Qabīṣī's association with al-ʿImrānī in Mosul does not preclude his involvement with Sayf al-Dawla's court at Aleppo, as it is likely he moved to Aleppo after completing his mathematical, astronomical, and astrological training with al-ʿImrānī. Sayf al-Dawla's patronage of poetry, philosophy, and astronomy was unrivalled in the region, making Aleppo an ideal locale for learned scholars. However,

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[5] There are twenty-five extant Arabic manuscripts of the *Introduction*, dating from 1191 until 1745. The text has been edited and translated in Abū-'ṣ-Ṣaqr ʻAbd-al-ʻAzīz Ibn-ʻUṯmān al-Qabīṣī, *The introduction to astrology: editions of the Arabic and Latin texts and an English translation*, ed. Charles Burnett, Keiji Yamamoto, and Michio Yano, Warburg Institute Studies and Texts 2 (London: Warburg Institute, 2004). References to this edition in the notes are abbreviated BYY.

[6] Muḥammad ibn Isḥāq al-Nadīm, *The Fihrist of Al-Nadim; a Tenth-Century Survey of Muslim Culture*, trans. Bayard Dodge (New York: Columbia University Press, 1970), 635.

[7] Thierry Bianquis, "Sayf al-Dawla," *Encyclopaedia of Islam*, 2nd Edition, ed. P. Bearman et al. (Leiden: Brill, 1997).

Sayf al-Dawla was also very active in pursuing political and military gains, providing a tumultuous and uncertain backdrop to courtly life.

Earlier in the tenth century, Mosul was under control of Sayf al-Dawla's father, the son of the founder of the Ḥamdānid dynasty.[8] After his death, Sayf al-Dawla's older brother Nāsir al-Dawla was challenged by his uncles for the rule of Mosul, but in 935 Nāsir al-Dawla had gained enough power and influence in Mosul to consolidate his rule there. Nāsir al-Dawla then turned his gaze towards Baghdad. The ʿAbbāsid caliphate had weakened beginning in the middle of the ninth century, allowing provincial rulers to gain more power. By the 940s, Nāsir al-Dawla had assassinated the *de facto* ruler of Baghdad (as *amīr al-umarā*) and installed himself in his place, recruiting the young Sayf al-Dawla to defend his position against local rivals. The Ḥamdānids had capitalized on the weak ʿAbbāsid court, but they had not gained favor with its powerful allies. After a military uprising in 943, the brothers were forced to leave Baghdad. Sayf al-Dawla established an Emirate at Aleppo after several skirmishes with the Ikhshidids from Egypt. He had a successful millitary career until the last decade of his reign, when he was confronted and continually defeated by the Byzantines. The Byzantine army, under the command of Nikephoros Phokas, managed to gain territory from Sayf al-Dawla and even occupied Aleppo for a brief period in

[8] For an overview of this period, see Marius Canard, "Ḥamdānids," *Encyclopaedia of Islam*, 2nd edition, ed. P Bearman et al. (Leiden: Brill, 1986).

962. This humiliation was echoed in further defeats for Sayf al-Dawla at the hands of the Byzantines, though he continued to rule until his death in 967.[9]

During the golden years of Sayf al-Dawla's rule, his court was full of scholars of all disciplines: poets, writers, astrologers, legal counsel, theologians, mathematicians, and historians. Known for his erudition and philology, Sayf al-Dawla received innumerable dedications and praise in scholarly works written to impress him and appeal to his extensive philosophical, literary, and scientific interests. The famous historian and poet Abū Faraj al-Iṣfahānī dedicated his major compilation of historical poems to him, the *Kitāb al-Aghānī*, a twenty-volume work. The poet al-Mutanabbī wrote twenty-two epic poems about Sayf al-Dawla's military career. Among the most notable scholars was the famous philosopher al-Fārābī, known as the "second master," after Aristotle. Al-Fārābī rejected astrology after a careful consideration of the complex causal change linking planetary positions and terrestrial effects, and concluded that astrology was just "conjecture, supposition, smooth talk, and deception," despite its apparent popularity at Sayf al-Dawla's court.[10] In addition to al-Qabīṣī, there is at least one other astrologer known to be at Sayf al-Dawla's court, by the name of al-Baghdadī. While none of the biographers mention al-Qabīṣī's presence at court,[11] his four

[9] Sayf al-Dawla's political posturing is well-documented in Thierry Bianquis, "Pouvoirs arabes à Alep aux Xe et XIe siècles," *Revue du monde musulman et de la Méditerranée*, no. 62 (1991): 49-59.

[10] Alnoor Dhanani, "Fārābī: Abū Naṣr Muḥammad ibn Muḥammad ibn Tarkhān al-Fārābī," in *The Biographical Encyclopedia of Astronomers*, Thomas Hockey, et al., eds. (New York: Springer, 2007), 356-357.

[11] Anna Regourd, "L'Epître ayant pour objet la mise a l'épreuve de ceux qui n'ont d'astrologue que le nom d'al-Qabīṣī (IVe/Xe s.)," *Politica Hermetica*, 17 (2003): 24-53. BYY surmise that the sheer number of scholars active at court was the cause of al-Qabīṣī's name being left out, and that the lists compiled by the Arabic biographers are not exhaustive. BYY, *Introduction*, 2.

dedications and the texts themselves provide ample evidence of his presence there. One of these works, the *Risāla fī imtihān al-munajjimīn mimman huwa muttasim bi-hādhā l-ism*, or *Epistle on the Testing of the Astrologers and Those Who Call Themselves by That Name*, is of particular interest. In this text, al-Qabīṣī provides questions about astrological concepts that Sayf al-Dawla may use to distinguish legitimate astrologers from charlatans. A highly technical treatise which includes trick questions, this work speaks extensively about the depth of astronomical and astrological knowledge expected of what al-Qabīṣī terms the "complete astrologer."[12] Additionally, there are several sections of the *Introduction* that are relevant for rulers, including the effects of conjunctions on administration and management, religious issues, war, and leadership in war. The fifth chapter on lots also provides three ways for calculating the conditions related to rule, and four ways for calculating the length of rule.[13] These astrological topics were all well-established in Arabic astrology by the tenth century, having firm roots in the flourishing of astrology in the eighth and ninth centuries.

Al-Qabīṣī composed the *Kitāb al-mudkhal ilā ṣināʿat aḥkām al-nujūm* within a well-established framework of astrological knowledge, formulated in the decades following the scores of translations made at the ʿAbbāsid court in Baghdad. Early Arabic astrology had Greek, Persian, Sanskrit and Syriac roots.[14] From these different

[12] This treatise will be considered in more detail later in the chapter.

[13] See BYY, *Introduction*, 5:[17]-[18], 151-3. This is pointed out by Charles Burnett, "Al-Qabīṣī's Introduction to Astrology: From Courtly Entertainment to University Textbook," in *Studies in the History of Culture and Science: A Tribute to Gad Freudenthal*, ed. Resianne Fontaine (Leiden: Brill, 2011), 45.

[14] A recent overview of astrology in the Islamic world is Charles Burnett, "Astrology," in *Encycopedia of Islam III* (Leiden: Brill, 2008). See also David Pingree, "Astrology," in *Religion, Learning, and Science in the 'Abassid Period*, ed. M.J.L. Young, J.D. Latham, and

texts, the main branches of Arabic astrology were formulated: horoscopic astrology or nativities, astrological history, interrogational astrology, and elections. Many texts contained explicit references to Greek astrology. Ptolemy's *Tetrabiblos* and Dorotheus of Sidon were frequently referenced in Arabic astrological works of this period. Eighth- and ninth-century astrological texts also contained elements of Persian, Sanskrit, and Syriac influence. Perhaps as a result of these diverse strands of thought, in the tenth century al-Qabīṣī tasked himself with synthesizing them into a coherent, technical introduction, which was his *Introduction to Astrology*.

The beginning of the Arabic astrological tradition is often linked to the founding of the city of Baghdad by the second ʿAbbāsid caliph al-Manṣūr, who moved the Islamic capital there from Damascus after the ʿAbbāsids overthrew the Umayyad caliphate.[15] Al-Manṣūr charged three astrologers, all of Persian origin, with selecting the most propitious day for the founding of the new city. Māshā'allāh, Nawbakht, and ʻUmar ibn al-Farrukhān al-Ṭabarī constructed a foundation chart for July 30, 762. Dimitri Gutas has argued that astrology was fundamental to the early history of the city.[16] After the founding of Baghdad, al-Manṣūr continued to legitimate his rule by developing a political ideology based on the astrological history of Abū Sahl ibn

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R.B. Serjeant (Cambridge: Cambridge University Press, 1990), 290-300. For a list of authors and sources, see Fuat Sezgin, *Geschichte des arabischen Schrifttums*, Band 7 (Leiden: E. J. Brill, 1967).

[15] The oldest Arabic astrological text, however, predates this event. It is a treatise on horoscopic astrology (*Kitāb al-Mawālid wa-aḥkāmihā*) by Zarādusht, which was originally written in Avestan script, then translated to Pahlavi, then to Arabic c. 750 CE. See Pingree, "Astrology," 292.

[16] Dimitri Gutas, *Greek Thought, Arabic Culture: The Graeco-Arabic Translation Movement in Baghdad and Early 'Abbasid Society* (2nd-4th/8th-10th centuries) (New York: Routledge, 1998).

Nawbakht. This history, which illustrated the cyclical nature of rulers and dynasties according to the stars, tied the beginning of the cycle of the ʿAbbāsid regime to divine providence and a heavenly-determined sequence of ruling states, which began in ancient Mesopotamia and ended most recently with the Sasanians. The predominantly Persian population in Baghdad was inspired by al-Manṣūr's support of this astrological history, which was central to Sasanian ideology.[17]

By appealing to the Persian elite in Baghdad and the Sasanian emphasis on the acquisition of knowledge, al-Manṣūr found broad support for the translations of Greek philosophical and scientific texts which began in Baghdad under his reign. al-Manṣūr's interest in astrology led to a dramatic increase in the translation of astrological treatises, originally from Pahlavī texts and later from Greek manuscripts.[18] With the flowering of the translation movement in the eighth century, Baghdad became a site of confluence for several different strands of astrological thought. The principle Greek source of astrology, Ptolemy's *Tetrabiblos*, was translated into Arabic twice. The first translation was at the behest of al-Ṭabarī, who had translated Dorotheus of Sidon's *Pentateuch*[19] from a Pahlavi version and commissioned Abū Yahyā al-Batrīq to translate the *Tetrabiblos* at the end of the eighth century. The second translation was by Ibrahim ibn al-Ṣalt and revised by Hunayn ibn Isḥāq in the ninth century. The Greek

[17] Gutas, *Greek Thought*, 28-60.

[18] Gutas, *Greek Thought*, 107-110.

[19] *Dorothei Sidonii Carmen Astrologicum*, ed. David Pingree (Leipzig: Teubner, 1976).

astrological tradition also filtered in through an amalgam of astrological knowledge circulating in the seventh and eighth centuries in Syriac, Sanskrit, and Pahlavī texts.[20]

There were several important figures who contributed to the transmission of Persian, Indian, and Syriac texts in the eighth century. Among them, Theophilus of Edessa (695-785 CE), the court astrologer to al-Manṣūr's son and successor, al-Mahdī, was highly influential. Theophilus translated texts from both Greek and Syriac into Arabic, and supplied Māshā'allāh with an astrological compendium. This compendium was originally compiled by Rhetorius at Alexandria in 620 CE and contained several important Greek astrological works, including the *Pentateuch* of Dorotheus of Sidon and sections of Ptolemy's *Almagest*. Māshā'allāh followed Theophilus in incorporating several different sources into his works, including Pahlavī versions of Dorotheus and Vettius Valens.[21] Māshā'allāh's writings were also very influential on early Arabic astrology. In analyzing Māshā'allāh's texts on interrogations or *masā'il*, David Pingree has shown that Māshā'allāh used Pahlavī translations of Greek sources, and incorporated material on warfare and political power likely derived from Sasanian

[20] David Pingree has documented the difficulties associated with specifying which astrological ideas originated where, when, and within which language and culture. During the seventh, eighth, and ninth centuries, numerous texts were composed and translated into several different languages. The lack of Pahlavī texts which date to this period corroborates this problem. See David Pingree, "From Alexandria to Baghdad to Byzantium. The Transmission of Astrology," *International Journal of the Classical Tradition*, Vol. 8, No. 1 (Summer, 2001). For an example of how this problem applies to the Indian case, see David Pingree, "The Indian and Pseudo-Indian Passages in Greek and Latin Astronomical and Astrological Texts," *Viator* 7 (1976): 141-196.

[21] David Pingree, "Māshā'allāh: some Sasanian and Syriac sources," in *Essays on Islamic Philosophy and Science* (Albany, 1975), 5-14.

sources.[22] Māshā'allāh also composed an important work on astrological history.[23] The efforts of these astrologers to synthesize a diverse set of texts, as well as the importance and popularity of astrological histories in the broader culture, led to the development of a specifically Arabic tradition that was distinct from its Greek, Sanskrit, and Pahlavī predecessors.

The influence of astrological texts translated from the Syriac, on the other hand, and the influence of the Syriac tradition more broadly, is still under investigation. While there were certainly Greek texts translated into Arabic that had Syriac textual intermediaries, it has been more difficult to trace a uniquely Syriac influence, since the Greek astronomical and astrological tradition also contributed to the development of these fields in Syriac. The astronomer Severus Sebokht had access to Ptolemy's *Handy Tables*, composed a treatise on the astrolabe and another on constellations, and may have made a Syriac translation of the *Almagest*.[24] While Sebokht is known to have criticized astrology, other evidence points to a significant presence of astrological practice in Syria, specifically from the region of Ḥarran and the cult of the Sabians. The Sabians drew elements from Greek astronomy and astrology, Neoplatonic and Aristotelian philosophy, and Indian, Persian, and Syrian traditions which constituted

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[22] See David Pingree, "Māshā'allāh: Greek, Pahlavī, Arabic, and Latin Astrology," in *Perspective arabes et médiévales sur la tradition scientifique et philosophique grecque. Actes du colloque de la SIHSPAI (Société international d'histoire des sciences et de la philosophie arabes et islamiques)*, Paris, 31 mars-3 avril 1993, ed. Ahmad Hasnawi et al. (Louvain and Paris, 1997).

[23] See E.S. Kennedy and David Pingree, eds., *The Astrological History of Māshā'allāh* (Cambridge: Harvard University Press, 1971), 1-125.

[24] "Severus Sebokht," in *The Biographical Encyclopedia of Astronomers*, ed. Thomas Hockey et al. (New York: Springer, 2007): 1044-1045.

their unique set of spiritual beliefs and practices. These beliefs and practices had close ties to astral magic, and some of these texts were translated into Arabic.[25] The Sabians developed a relatively sophisticated understanding of celestial motion, and had also followed Ptolemy's *Planetary Hypotheses* in attributing the cause of heavenly motion to planetary souls. According to this view, planets have their own free will and may be persuaded by magicians to carry out worldly interests. One example is the calling down of planetary spirits to endow talismans with supernatural powers, a practice which was highly influential in the Latin West. One famous treatise, later translated into Latin as *De imaginibus*, was written by Thābit ibn Qurra.

These various strands of thought came together in the ninth-century work of Abū Maʿshar Jaʿfar ibn Muḥammad ibn ʿUmar al-Balkhī (787-886 CE).[26] He wrote several astrological works, the most popular of which was also the most comprehensive, the *Kitāb al-mudkhal al-kabīr ilā ʿilm aḥkām al-nujūm*, or *The Great Introduction to Astrology*. In this work, Abū Maʿshar sought to elaborate on the causal relationship between the planets and the sublunar realm and explain celestial influence. He also drew on Ptolemy's systematization of astrological knowledge in the *Tetrabiblos* and the philosophical work of his immediate Arabic predecessor and almost-contemporary, al-Kindī, to explain how the planets influenced the vast range of

[25] David Pingree, "The Sabians of Harran and the Classical Tradition," *International Journal of the Classical Tradition*, Vol. 9, No. 1 (Summer, 2002): 8-35. Pingree also traces the Sabian influence to al-Kindī's work on rays (extant only in Latin as *De radiis*) and also to Abū Maʿshar, whose story about the three Hermes and his "history of science" (in particular his attribution of the development of astronomy to the ancient Persians) is linked to his interest in the Sabians.

[26] See also Charles Burnett, "Abū Maʿshar," *Encyclopedia of Islam, 3rd edition* (Brill Online, 2012).

phenomena (including human action) on the Earth.[27] He also composed a shorter work, the *Mukhtaṣar al-mudkhal*, or *Abbreviation of the Introduction*, which was also popular in the mid-tenth century.[28]

Al-Qabīṣī's contribution to the Arabic astrological tradition is fairly unoriginal in terms of content. Like his predecessors, al-Qabīṣī drew on a diverse group of sources. He cites Ptolemy, Dorotheus of Sidon, Vettius Valens, Hermes Trismegistus, al-Andarzagar, Māshā'allah, and al-Kindī. He also includes several passages taken directly from Abū Maʿshar's works, but does not cite him. His work was included in some important scientific and philosophical compilations, evidence that his reputation outlived him and his work was well-received. The biographer al-Bayhaqī (ca. 1106-1174), for example, wrote that the *Introduction* "ranked among the works on the stars like Ḥamāsa among Arabic poetry." The *Kitāb al-Ḥamāsa* was a well-known collection of poems organized around chivalric and military themes, composed by Abū Tammām (d. 849 CE) in the ninth century.[29]

The originality of the *Introduction* is rather in how al-Qabīṣī chose to structure the content, and in his ability to provide a broad overview of basic astrological principles that prepared the reader for more advanced applications in the work of, for

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[27] Peter Adamson, "Abu Ma'shar, Al-Kindī and the Philosophical Defense of Astrology," *Recherches de Philosophie et Théologie Médiévales* 69 (n.d.): 245–70.

[28] Abū Maʿshar, *The Abbreviation of the Introduction to Astrology, together with the Medieval Latin Translation of Adelard of Bath*, ed. and trans. Charles Burnett, Keiji Yamamoto, and Michio Yano (Leiden: Brill, 1994).

[29] Ironically, Abū Tammām was also a critic of astrology. He reportedly wrote that "the sword is more powerful than the books [of the astrologers]" in a poem referencing the defeat of the Byzantines at Ammorium by the caliph al-Muʿtaṣim, which the astrologers had falsely predicted. See George Saliba, "The Role of the Astrologer in Medieval Islamic Society," *Bulletin d'études orientales*, T. 44 (1992): 46.

example, Māshā'allah or al-Ṭabarī. In this respect, we may attribute to al-Qabīṣī the distillation of astrological content into a new introductory genre. In the *Introduction*, al-Qabīṣī devotes the first three chapters to content related to horoscopic astrology. While he does not give specific instructions for casting a horoscope, these chapters contain the astrological information necessary for the interpretation of horoscopes. The fourth chapter provides an explanation of technical astrological terms related to all branches of astrology, including general or historical astrology, nativities, and elections. The last chapter is the shortest and gives details related to the casting of lots.

In what follows, I provide a general overview of the contents of the *Introduction*. Rather than a full summary, I have listed most of the topics covered, and have given more detail in some sections which offer a sense of the range of topics covered and the level of specificity in explanations that al-Qabīṣī judged appropriate for an *Introduction*. I then compare the structure and contents of the *Introduction* with two of its well-known predecessors, Ptolemy's *Tetrabiblos* and Abū Maʿshar's *Abbreviation to the Introduction to Astrology*. Lastly, I address the intellectual context of the composition of the *Introduction*, particularly with respect to the developing astronomical tradition and to philosophical defenses and critiques of astrology. While the *Introduction* does not provide original content, I show that it represents the firm establishment of astrology as a mainstay in Islamic intellectual culture, despite some of the theoretical critiques levied against it.

Overview of al-Qabīṣī's *Introduction*

Rather than providing a detailed summary, which would repeat much of what John North accomplished in his explanation of the *Introduction*,[30] I provide an overview of the text. The overview follows the arrangement of the chapters, and the goal is to give the reader a sense of the *Introduction*'s structure, contents, and level of detail afforded to particular topics. A few topics are treated in slightly more detail as they are more relevant to the remaining chapters of the dissertation. The main text of the *Introduction to Astrology* is preceded by a short preface written by the author. It includes the standard Islamic invocation of God and the prophet (the *bismillah*),[31] and then a dedication of the work to Sayf al-Dawla. Al-Qabīṣī names himself as the author, and then explains his reasons for writing an introduction by acknowledging the deficiencies in the introductory works of his predecessors. According to al-Qabīṣī, some of these introductions did not include enough material (perhaps he is referring to the *Abbreviation* of Abū Maʿshar), others included too much (this is most certainly the *Great Introduction* of Abū Maʿshar), and still others do not present the material in a coherent order suited to instruction (perhaps this is the *Tetrabiblos*). Al-Qabīṣī mentions that he will not present a defense of astrology, because a sufficient one appears in Ptolemy's *Tetrabiblos*, and al-Qabīṣī himself provides one in his refutation

[30] While North deals with the medieval English translation, there are no major changes in the astrological doctrines. See John North, *Chaucer's Universe* (New York: Oxford University Press, 1988), 192-220 and 527-8.

[31] The English translation of the edition reads: "In the name of God, the merciful and compassionate, and may God bless our Lord Muhammad, his family, his companions and grant them salvation," BYY, *Introduction*, 19.

of ʿAlī ibn ʿIsā's criticisms.[32] Al-Qabīṣī then lists the five chapters of the *Introduction* and provides a brief description of their contents:

> The first chapter, on the essential and accidental conditions of the zodiac.
>
> The second chapter, on the natures of the seven planets and what is proper to each and what conditions they indicate.
>
> The third chapter, on the accidents of the seven planets by themselves and in relation one to the other.
>
> The fourth chapter, on the explanation of the technical terms of the astrologers.
>
> The fifth chapter, on all the lots.[33]

The first chapter is the longest, and provides basic terms and descriptions of the divisions of the zodiacal circle, including all of the signs and their properties with relation to each other and to the planets. Al-Qabīṣī begins with the essential conditions (*al-aḥwāl al-dhātīyah*) of the zodiac, or its intrinsic properties. He describes the division of the zodiac circle into twelve equal parts, which are the signs, each of which can be further divided into 30 equal degrees, the degrees each into 60 minutes, the minutes each into 60 seconds, and so on. He then provides several terms which are used to describe the positions of the signs on the zodiac circle and their rising times.[34] The zodiac is divided into four quadrants, each of which has essential properties. The quadrant from the beginning of Libra to the beginning of Capricorn, for example, is cold and dry, related to autumn and melancholy, and indicates the beginning of decay

[32] This is the sole reference to al-Qabīṣī's defense of astrology, and it appears to have been lost.

[33] BYY, *Introduction*, 19.

[34] Half of the signs are "northern," the other half "southern." The six signs which have rising times more than 30 degrees are called "direct in rising," while those that have rising times less than 30 degrees are called "crooked in rising," BYY, *Introduction*, 1:[8], 21.

and middle age. Al-Qabīṣī describes the order of the planets, starting with Saturn, the highest and closest to the zodiac and the slowest in movement, and followed by Jupiter, Mars, the Sun, Venus, Mercury, and the Moon. al-Qabīṣī also mentions here the ascending and descending nodes of the moon, often referred to as the Head and Tail of the Dragon.

Al-Qabīṣī then discusses the dignities or shares (*ḥaẓūẓ*) that the planets have in the signs "by nature" (*bi-l-ṭabiʿa*) rather than by accident. These are the house, the exaltation, the term, the triplicity, and the decan. A share is a kind of relationship that a planet has to a particular sign, defined in each case by either the whole sign, set of signs (in the case of triplicities) or a portion of the sign. As the shares are relationships, the signification or meaning of each share is part of astrological interpretation. In the case of Jupiter, for example, Sagittarius and Pisces are its houses. Jupiter's exaltation is the fifteenth degree of Cancer. Jupiter is the lord of the fiery triplicity (Aries, Leo, and Sagittarius) and the airy triplicity (Gemini, Libra and Aquarius). For the terms, each sign has a different set of degrees devoted to each planet, which are clearly laid out in a table. For Jupiter in Aries, for example, its term is from the beginning to the sixth degree. As for the decans, each sign is divided into three equal divisions, each of ten degrees, and the planets are distributed in the decans following their order in the heavens. Jupiter, for example, falls in the decan of the first 10 degrees of Gemini, then the second 10 degrees of Leo, and then the third 10 degrees of Libra, and so on. In

addition to a table of the decans, al-Qabīṣī gives a description for how to calculate the decans of the planets when you know the degree of the sign.[35]

In the middle of his discussion of the shares of the planets, al-Qabīṣī has inserted his definitions of the aspects, which are the angular relationships that each sign has to the other signs. The aspects are also said to characterize angular relationships between planets. The aspects that al-Qabīṣī identifies are the sextile aspect of friendship, the quartile aspect of antagonism or half-enmity, the trine aspect of compatibility, and the aspect of opposition.[36] He says that when two planets are in one sign, they are said to be in conjunction. After describing the shares of the planets in the signs, al-Qabīṣī assigns powers to them. The lord of the house has five powers, the lord of exaltation has four, the lord of the triplicitiy has three, the lord of the term has two, and the lord of the decan has one.[37] He discusses calculations one makes with these powers later in the chapter.

The next part of the chapter includes a lengthy discussion of the essential properties of the signs. These properties are separated into subjects, and then listed by sign. The first properties are descriptive ("rational," "domestic," "sterile," "fine-

[35] The editors of the edition point out that the method provided by al-Qabīṣī differs from that in the Latin Vulgate text. See BYY, *Introduction*, 31, n. 15.

[36] Al-Qabīṣī lists these aspects in terms of planetary relationships rather than angles. The sextile aspect to a sign is thus the 3rd/11th sign away, the quartile the 4th/10th sign away, the trine the 5th/9th sign away, and the opposition the 7th (180 degrees). BYY, *Introduction*, 1:[18], 27.

[37] The lord in this case refers to the planet when it is in its proper share. So, the lord of the house refers to Jupiter when it is in Sagittarius or Pisces, in which case it has five powers. Jupiter is the lord of exaltation when it is in the fifteenth degree of Cancer, and it has four powers. Jupiter is lord of the triplicity when it is in Aries, Leo, or Sagittarius at night, and has three powers, and so on.

voiced," etc.) and drawn from the forms and figures of the signs on the zodiac, and whether they resemble people, animals, etc. This is followed by what is indicated according to "the constitution of a person, and of plants, regions, and other things,"[38] with a short description provided for each sign. For example: "Leo has tall trees, possesses cunning and deceit, has many cares and sadnesses; it has of the body of the person the mouth of the stomach, the heart, the side, the two sides of the back and the back; of the regions it has the <land of the> Turks to the end of the inhabited world."[39] The next property al-Qabīṣī includes is the parts of the body which will be effected by a planet's position in that sign. For Taurus, for example, al-Qabīṣī lists: "Taurus: Saturn, the belly; Jupiter, the chest; Mars, the neck; the Sun, the knees; Venus, the head; Mercury, the feet; the Moon, the shanks."[40] This description is followed by a list and table of the masculine and feminine degrees of each sign, and a list and table of the degrees in the signs which are called bright, dark, dusty, smoky, and empty. Lastly, there are descriptions and tables of the degrees in signs which are called "wells," "of chronic illness," "increasing fortune," and a description of degrees which are called "powerful" and "sharing in power."[41] The descriptions of different kinds of degrees concludes the discussion of the essential conditions of the zodiac.

[38] BYY, *Introduction*, 1:[25], 35. These short descriptions follow the text of the *Abbreviation* very closely. BYY has provided corresponding passages in the edition: BYY, *Introduction*, 1:[25]-[37].

[39] BYY, *Introduction*, 1:[29], 35.

[40] BYY, *Introduction*, 1:[38], 39.

[41] BYY, *Introduction*, 1:[49]-[54], 41-47.

Al-Qabīṣī then turns to the accidental conditions (*al-aḥwāl al-ʿarḍīyah*), which he writes are "those dependent on the position of the horizon, because the circle is shaped at every moment by a shape which is divided by four quadrants into which the circle of the horizon and the circle of the meridian divide it."[42] In other words, accidental conditions are not intrinsic, but rather established by where the zodiacal circle intersects the horizon. The four quadrants are each further divided into three equal sections, called "houses" (*bayūt*), with the divisions themselves known as "cusps" (*marākaz*)—the BYY edition gives "places"[43]—making twelve places total. The divisions are determined by the rising-times of the ascendant, and al-Qabīṣī forgoes an explanation of this procedure by referring the reader to astronomical tables. The first of the places is the ascendant, on the eastern horizon, and the places then follow as the second, third, fourth, etc. Al-Qabīṣī describes the different properties of the four quadrants. For example, he writes, "The quadrant which is from the ascendant to the midheaven, which consists of the twelfth, eleventh and tenth place<s>, is an eastern, masculine, advancing quadrant; it indicates the beginning of life and is called growing, sanguine, and vernal."[44] There are then several definitions related to groupings of places, including the cardines, which are the ascendant, fourth, seventh and tenth places, the succedents to the cardines, which are the second, fifth, eighth, and eleventh places, and the cadents from the cardines, which are the third, sixth, ninth, and twelfth places.

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[42] BYY, *Introduction*, 1:[55], 47.

[43] Note that the editors of the BYY edition have chosen to translate *bayut* as "place" instead of "house", to avoid confusion with the "house" which is the share of the planet in its sign. I have respected this usage.

[44] BYY, *Introduction*, 1:[56], 49.

There is a full description of each of the twelve places, including the role of the lord of the triplicity in each place as put forth in al-Andarzaghar's *Nativities*. The places signify several different topics. Taking just the first word al-Qabīṣī mentions for each place, one finds life, property, siblings, fathers, children, illness, women, fear, journey, authority, hope, and enemies. However, the significance of each place is much broader, as indicated by the list of topics associated with the ninth place:

> The ninth is the place of the journey, absence, roads (caravan routes), religion, religious observance, sciences, philosophy, books, messengers, messages and visions; of life it indicates the beginning of the middle of life. Al-Andarzaghar said: the first lord of the triplicity of the place of the journey indicates the journey and its suitability, the second religion and religious observance, the eminence <one obtains> in this, and the form <the eminence> takes, the third is the indicator of science, vision, stars (astrology), and omens, and truth and falsehood in this.[45]

After mentioning the colors indicated by the places, al-Qabīṣī discusses the shares that each of the planets has in the places. These shares are accidental, since they depend on the calculation of the places which changes with the rising-time of the ascendant. al-Qabīṣī also calls them "joys" (*al-afrāḥ*).

There is then a lengthy discussion of the indications (*al-dalā'il*) or significations of the places, and particularly what is indicated by the arrival of the lord of the cardines in the cardines,[46] which al-Qabīṣī provides as an example. He writes,

> The lord of the ascendant by arriving in the ascendant indicates good fortune for himself, his innermost being, and his gain. By arriving in the tenth it indicates good fortune in authority and important professions. By arriving in the seventh it indicates good fortune through business affairs, contenders and

[45] BYY, *Introduction*, 1:[65], 53.

[46] The "lords of the cardines" is a specific instance of the more general "ruling planet for a topic", the calculation of which al-Qabīṣī provides upon discussion of the indications.

> married couples. By arriving in the fourth it indicates good fortune through landed property and by reason of fathers, the discovery of waters, land-taxes, the cultivation of lands, the building of cities and old and deep-rooted matters.[47]

Al-Qabīṣī explains that in the same way one can understand the indications of the arrival of other lords of places in other places. He concludes the chapter by demonstrating how to calculate the ruling planet for a topic, that is the lord of that place, which is determined by calculating the planet which has the most shares in the place of that topic, or by looking at the planet which indicates the nature of the topic and the lot of the topic (according to the powers of their shares). The most powerful of these, or the one having the greatest number of powers in the place of that topic, is its ruler (i.e. its lord). Al-Qabīṣī provides an example of this calculation regarding property:

> For example, if your question is concerning property, and you want to know the ruler over property, and the second place, indicating property, is the fifth degree of Aries, then the place belongs to Mars (so it has five powers in that place), the exaltation is the Sun's (so it has four powers in it), the triplicity belongs to the Sun (so it has three powers in it—that give the Sun a total of seven powers in the place), the term belongs to Jupiter (so it has two powers) and the decan belongs to Mars (so it has one power). Six powers, therefore, come to Mars, and seven to the Sun; so the Sun is the ruler over the place of property.[48]

Al-Qabīṣī then compares this result with the lot of property and the place of the Lot of Fortune, which are ruled by Jupiter, the indicator of property by nature. In this case, the Sun is the ruling planet over the house of property, but Jupiter is the ruling planet over the lot of property and the place of the Lot of Fortune.

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[47] BYY, *Introduction*, 1:[73], 57.

[48] BYY, *Introduction*, 1:[77], 61.

Al-Qabīṣī concludes the chapter by mentioning two additional kinds of accidental shares, which are called *al-ḥalb* in some manuscripts and *al-ḥayyiz* (domain) in at least one other. The former share concerns whether a diurnal planet is above or below the earth during the day, and a nocturnal planet is above or below the earth at night. The latter is whether a masculine planet is in a masculine sign, and a feminine planet is in a feminine sign. Al-Qabīṣī transitions to the next chapter by mentioning that he will discuss the seven planets and their natures, conditions, and indications, and ends with a pious formula exalting God.

The second chapter deals with the natures of the planets, and what is indicated by each. Several qualities and indications are listed for each planet, including the age of life, color, taste, and professions, and then additional indications (usually related to activities or professions) are given for when the planet is "mixed" (*māzij*) with another planet.[49] The section on indications resulting from "mixing" is followed by the planet's indications related to general life events, illnesses, temperaments, religions, colors, powers, world regions, plants, and lots. Māshā'allāh is referenced for each planet for his views on planetary effects on the appearance of peoples, and Dorotheus for the native's facial features. For other bits of information, al-Qabīṣī drew from other astrological traditions. He frequently introduces information with the phrase "Some said…" (*qāla qawmu*) and occasionally is more specific, referring a few times to the Indian tradition (*al-hind*). In the case of Mars, for example, al-Qabīṣī writes, "Mars is a

[49] "Mixing" refers to instances where the planets have an astrological relationship. The relationship could be one of the aspects, or one of several other relationships defined in the third chapter. At the end of the chapter, al-Qabīṣī specifies: "As for what we mentioned in this chapter concerning what the planets indicate, when another <planet> mixes with it, then it is necessary to mix the<ir indications> together, and so on for the rest of what each planet indicates." BYY, *Introduction*, 2:[43], 87.

malefic, masculine, nocturnal. It favours heat and dryness. It indicates brothers and journeys. Of the ages of life it has youth up to the age of adolescence. Its nature is choler; its taste is bitter. Of professions it has every profession involving fire, or what is done with iron, such as beating with hammers and pressing out swords."[50] In terms of what is indicated when Mars mixes with other planets, al-Qabīṣī first mentions information relevant to the professions: "If Saturn mixes with it [Mars], it indicates the beating out of iron."[51] In the case of medical applications, al-Qabīṣī adds, "If Saturn mixes with it [Mars], it indicates, of the activities of medicine, the practice of surgery."[52] Medicine in this case is broadly construed, as other planets mixing with Mars indicate the practice of beauticians (Venus) and the pulling of teeth and cleaning of ears (the Moon).

Al-Qabīṣī treats each of the planets in turn, recording all of the indications assigned to the particular planet. The end of the chapter includes some general information about the indications of the planets for the months of gestation and the ages of life, and the hours of the day. There is also a brief account of the indications of the Head and Tail of the Dragon (the lunar nodes). As the second chapter deals with what BYY identify as the essential conditions of the planets, the third chapter treats their accidental conditions, what al-Qabīṣī calls "what happens to them [the planets] in themselves and in one when it is with another."[53]

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[50] BYY, *Introduction*, 2:[13], 69.

[51] BYY, *Introduction*, 2:[14], 69.

[52] BYY, *Introduction*, 2:[14], 69.

[53] BYY, *Introduction*, 2:[51], 89.

The third chapter[54] provides information about planetary conditions which results from their positions with respect to the sky and to the other planets. The first two sections are relatively brief and treat the planets when they are "in themselves." This means that they are considered independently of other planets, in terms of their motion, position, speed, light, etc. For example, al-Qabīṣī writes, "When one of the two inferior planets is moving faster than the velocity of the Sun, it is increasing in velocity."[55] Or, regarding its celestial position, "Among them (the conditions) is that if the planet is northern, namely, that when it passes its <ascending> node by less than ninety degrees, then it is northern and ascending."[56] These definitions are then followed by much more elaborate descriptions of planetary conditions.

Many of these planetary conditions are based on aspect relationships, but they are much more complex. As with the simple cases above, al-Qabīṣī generally describes an astrological circumstance and then provides its technical term. A simple case concerns planetary conditions with respect to the Sun: "Each planet, from when it is hidden by the Sun's rays until it appears from its rays, is called 'burnt,' and the moment when it begins to enter the Sun's rays is called 'beginning of burning.' When it vanishes in the rays and moves in them, it is called 'submerged.' When it coincides with the degree of the Sun and <the distance> between it and the Sun is sixteen minutes and less and its latitude is similarly, it is called 'in the heart.' When it passes

[54] BYY has noted that much of the chapter follows the *Abbreviation* of Abū Maʿshar, although he is not cited. BYY, *Introduction*, 91, n. 1.

[55] BYY, *Introduction*, 3:[2], 91.

[56] BYY, *Introduction*, 3:[3], 91.

'being in the heart' and it wants at this point to be seen, it is called 'liberated.'"[57] After this introductory passage, al-Qabīṣī gives several additional conditions for individual planetary relationships to the Sun, using opposition and conjunction as points of reference. For example, al-Qabīṣī writes, "The superior <planets>, after they appear from under the rays and begin <going> in front of the Sun in the mornings (this is when they are nearer to the eastern horizon) until they are in opposition, are called 'eastern' and 'right.' After they pass opposition until they are conjunct with it (the Sun) they are called 'western' and 'left.'"[58] Al-Qabīṣī names several different kinds of planetary conditions, with several factors involved for each case, all with different technical names. These conditions are: application, prohibition, reception, returning, refrenation, resistance, evasion, and 'cutting the light.' Several other conditions related to a planet's position determine its power, or whether it is in a fortunate or harmful position. These are: besieging, harm and corruption, weakness, friendship and hostility.

These conditions are generally dependent on aspect relationships between the planets and on the shares of the planets. For example, for harm and corruption, al-Qabīṣī writes, "Pertaining to the harm and corruption of the planets is that they are in conjunction with the malefics or in opposition to them or in quartile or trine or sextile aspect with them, or between them and the body of the malefic or its rays there is less than the term of <that malefic> planet, or they are in the terms of the malefics or in their houses…"[59] Additional specifications are given for other conditions.

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[57] BYY, *Introduction*, 3:[7], 93.

[58] BYY, *Introduction*, 3:[8], 94-95.

[59] BYY, *Introduction*, 3:[28], 103.

Taken together, the first three chapters provide a basic set of principles and terms for the interpretation of horoscopes. Although al-Qabīṣī does not specify this fact, these conditions would be used in determining the diverse combinations of influences to which the native may be subjected in the interpretation of a horoscope. There are several additional factors the astrologer may take into consideration for both the casting of a horoscope and for other domains of astrological inquiry, including interrogations, elections, and astrological history. These are discussed at length in the fourth chapter.

In the fourth chapter al-Qabīṣī provides explanations of several different astrological terms and topics. Some of the topics are more specific to particular branches of astrology, and the ordering of the topics is not entirely subject-related. The first section, for example, deals with conjunctions relevant to both general and historical astrology. Al-Qabīṣī lists six major conjunctions, ranging from the great conjunction of Jupiter and Saturn every 960 years, to the conjunction and opposition of the Sun and Moon every half lunar month. Later on in the chapter he deals with two other issues relevant to historical astrology: the *intihā'* or terminal point, which gives the sign for the Year of the world, and the topic of "transit" (*al-marra*). Explanations of terms related to nativities are also distributed throughout the chapter, although they are mostly concentrated at the beginning. He explains the *namūdār*, *haylāj*, *kadkhudhāh*, the planetary governor (*al-mubtazz*), and the *intihā'* for the year of the nativity. Later in the chapter, al-Qabīṣī addresses the prorogator (*tasyīr*) and the *jārbukhtār*. Towards the end of the chapter, he discusses the lord of the period of nativities and the governance of the *fardārīya*. The final subject dealt with, the *bust*, is relevant to elections. He

frequently draws on other sources, citing Ptolemy, Vettius Valens, and al-Kindī explicitly. As these topics frequently involve calculations, al-Qabīṣī employs the imperative throughout in order to give directions for making these calculations.

Rather than summarize the definitions of all of the terms, which in many cases would not do justice to their complexity, here I describe al-Qabīṣī's treatment of the *haylāj* and the *kadkhudhāh*. These terms are both involved in the calculation of the length of life, although for the latter, al-Qabīṣī specifies that "it is the indicator of the length of life."[60] The two terms refer to planets (or sometimes points), whose positions with respect to malefic planets or destructive segments of the zodiac determine the length of one's life. In the case of the *haylāj,* al-Qabīṣī provides several means for determining which planet (or point) "is suitable" (ṣalaḥa) for the *haylāj*. The process amounts to a process of elimination, beginning with the Sun for a daytime birth and the Moon for a nighttime birth. Following the Sun and Moon, the sequence moves to the degree of conjunction for a conjunctional birth, or opposition for an oppositional birth, and then the Lot of Fortune, and the degree of the ascendant. Sometimes one of these planets or points is deemed unsuitable due to some additional circumstance. For example, al-Qabīṣī states that, "Each of the positions which we have explained is suitable for the *haylāj* when one of the rulers of the five shares aspects it. When one of the rulers of the five shares, i.e. the lord of the place, the lord of the exaltation, the lord of the term, the lord of the triplicity, of the lord of the decan, does not aspect it, it is not suitable for the *haylāj*."[61] A similar set of instructions is given for the calculation of the

[60] BYY, *Introduction*, 4:[5], 115: "wa huwa dalīl kammīyah al-ʿumr."

[61] BYY, *Introduction*, 4:[4], 115.

kadkhudhāh. Having calculated the *haylāj*, one would look at the lord of the place, the exaltation, the triplicity, the term, and the decan of the *haylāj* and determine which of the lords has the most power.[62] Whichever lord has the most power, and also aspects the *haylāj*, is the first choice for the *kadkhudhāh.* In this case, al-Qabīṣī provides a few additional options attributed to other authors for calculating the *kadkhudhāh*, and cites Dorotheus.

The fifth chapter is on the calculation of lots (*al-sihām*). Lots provide an additional interpretative framework relevant to specific topics. They are mostly secondary to the primary means of interpretations of a horoscope, except for the Lot of Fortune. The calculation of the lot involves three different points, the first two of which are most often planets, and the third of which is usually the ascendant. The distance between the first two points is projected (*laqá*) from the third point, which gives the lot. The position of the lot, when considered with respect to the rest of the major elements of the chart, gives insight specific to that particular lot. There are many different kinds of lots listed in the *Introduction*. They are listed according to the twelve places,[63] with several other lots following which are not associated with a particular place: the lots of knowledge, war and fighting, and peace are in this list.[64] There is a separate section on lots cast for revolutions of the years of the world and the rulership of kings.[65] The chapter ends with a lengthy list of lots associated with foodstuffs and

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[62] The method for calculating the powers of the lords in each share is in BYY, *Introduction*, 1:[77], 61.

[63] BYY, *Introduction*, 5:[4]-[15], 140-149.

[64] BYY, *Introduction*, 5:[16], 148-151.

[65] BYY, *Introduction*, 5:[17]-[18], 150-153.

medicine (e.g. lentils, dates, chickpeas, and poison), which are cast in order to determine fluctuations in prices for these commodities.[66]

The chapter ends with a statement that concludes the work: "We have introduced these lots last, even though the statement about them is defective, so that we should not omit to introduce anything which can be <part of> an introduction to the craft of astrology. In God is our trust."[67] The claim that the statement about the lots is defective (*ḍʿaīf*) may mean that the list is incomplete, or it could be a reference to the fact that Ptolemy only discusses the Lot of Fortune in the *Tetrabiblos*. The structure of the *Introduction* is quite different from the *Tetrabiblos*, although there is of course quite a bit of overlap in terms of the content. A comparison of the structure of the *Introduction* with the *Tetrabiblos* and the *Abbreviation of the Introduction to Astrology* of Abū Maʿshar gives a sense of al-Qabīṣī's achievement.

Comparison of the *Introduction* with the *Abbreviation* and *Tetrabiblos*

The structure and presentation of content of al-Qabīṣī's *Introduction to Astrology* are somewhat distinct from the *Introduction*'s most notable predecessors, Ptolemy's *Tetrabiblos* and Abū Maʿshar's *Abbreviation*. Al-Qabīṣī incorporated content from other authors, but his citations exhibit two different styles. In one of these styles, al-Qabīṣī compiled accepted astrological doctrine that was unattributed to specific individuals with additional ideas found in other authors. This style of citation is usually confined to specific sections rather than scattered throughout the text. For

[66] BYY, *Introduction*, 5:[19], 152-155.

[67] BYY, *Introduction*, 5:[20], 155.

example, citations to al-Andarzagar appear exclusively in the descriptions of places in the first chapter, and citations to Dorotheus and Māshā'allāh are found almost entirely in the descriptions of the natures of the seven planets in the second chapter. It is therefore noteworthy that al-Qabīṣī does not once cite Abū Maʿshar, despite the fact that several sections are copied exactly from the *Abbreviation*. The instances of copying are noted by BYY.[68] The other style of citation occurs where al-Qabīṣī is comparing different astrological authorities or drawing on the authority of Ptolemy. He cites Ptolemy as an authority once in his discussion of the planetary condition called *al-muwājaha* (facing), and in the discussion of the *namūdār* he compares Ptolemy and Vettius Valens before settling on Ptolemy's account. Al-Qabīṣī was attentive to how astrological content was compiled and sought to present the material in a logical and coherent order. Despite his familiarity with the *Abbreviation* (or perhaps because of it),[69] al-Qabīṣī significantly rearranged the order of presentation of astrological doctrine in his *Introduction*, and it varies considerably from both the *Tetrabiblos* and the *Abbreviation*.

Initially, the most notable difference from the *Tetrabiblos* is Ptolemy's definition of the difference between astronomy and astrology, and his philosophical discussions of the legitimacy of astrology and its benefits, which serve as introductory

[68] BYY, *Introduction*, 7-8.

[69] In *The Testing of the Astrologers*, al-Qabīṣī refers explicitly to those who superficially read through the *Abbreviation* in characterizing a group of astrologers who were less-versed in astronomical knowledge. This suggets that he did not consider the *Abbreviation* to be an adequate account. Regourd, "L'Epître," 34.

material in the first book.[70] These topics are missing from al-Qabīṣī's *Introduction*. The first book of the *Tetrabiblos* continues with a list of the powers of the planets, explanations of maleficent and beneficent planets, masculine and feminine planets, and nocturnal and diurnal planets. This is followed by the powers of the fixed stars, a topic which is not treated in the introductions of al-Qabīṣī or Abū Maʿshar. Ptolemy then treats the signs and their natures, the houses and their lords, and then the shares. The first book concludes with a brief explanation of the planetary conditions of application and separation. The second book explains the natures of the inhabitants according to the climes in which they live, and then correspondences between regions, their inhabitants, and the planets and signs. Ptolemy then gives an explanation of how predictions are made in general for regions, and in this section he provides more details about the influences of particular planets. In the latter half of the book he discusses weather forecasting. The third book deals exclusively with horoscopes, and he explains how one makes predictions for individuals. Ptolemy treats several factors, including parents, siblings, and the length of life according to the prorogator (the Arabic *haylāj*). Planetary indications are given again for individuals, in a general sense, and then according to several topics, including bodily form and mental character. The fourth and last book deals with the Lot of Fortune and the indications for places, such as marriage, children, journeys, etc.

The *Abbreviation* is arranged quite differently. Abū Maʿshar lists seven chapters: "The first chapter, on the natures of the signs, their conditions and their

[70] Cladius Ptolemy, *Tetrabiblos*, ed. Frank Robbins (Cambridge: Harvard University Press, 2009).

indications. The second chapter, on the conditions of the planets in themselves, the size of their bodies, and their conditions from the Sun. The third chapter, on the twenty-five conditions of the planets. The fourth chapter, on the good fortune of the planets, their power, their weakness and their misfortune, the corruption of the Moon, and the knowledge of their dodecatemoria. The fifth chapter, on the natures of the seven planets, the characteristic of their indications over existent things, and the Lords of the days and the hours. The sixth chapter, on a summary of the description of the lots. The seventh chapter, on the knowledge of the years of the fardarat of the planets, the different arrangements of their years, and the terms of the Egyptians."[71] As is evident from this list, it is as though in ordering his *Introduction* al-Qabīṣī reshuffled the deck of astrological cards which Abū Maʿshar had arranged. The first chapters of both works contain the same type of information. In his description of the indications of the signs, for example, Abū Maʿshar has "Taurus is the house of Venus, and the exaltation of the Moon is in its third degree. It has three decans: the first belongs to Mercury, the second to the Moon, the third to Saturn. Its nature is cold and dry, earthy, black bile, its taste is acid, and it is feminine, nocturnal, fixed…"[72] Al-Qabīṣī separates his discussion of the properties of the signs by topics, and also separates his description of the shares from his discussion of the signs.

The second and third chapters of the *Abbreviation* deal with the conditions of the planets, and there is significant overlap with al-Qabīṣī's third chapter. Abū Maʿshar separates his discussion of the conditions of the planets in themselves and of their

[71] Abū Maʿshar, *Abbreviation*, 1:[1], 13.

[72] Abū Maʿshar, *Abbreviation*, 1:[15]-[17], 15.

relationship to the Sun (chapter 2) from his explanation of planetary relationships, of which he lists twenty five before defining them in more detail (chapter 3).[73] The natures and indications of the planets are addressed in the subsequent chapter, chapter 4. Al-Qabīṣī, on the other hand, first explains the natures and indications of the planets (in his chapter 2), and then goes on to discuss their conditions in themselves and with respect to the other planets (chapter 3). As we have seen from the overview, al-Qabīṣī gives quite a bit of detail in his descriptions of the natures of the planets, and cites Dorotheus, Māshā'allāh, and the Indian tradition. He also lists information about the "mixing" of the planets, related to indications resulting from planetary conditions, and specifies indications for when planets are fortunate or harmful. Abū Maʿshar gives a much shorter description. To give a sense of the level of detail from both authors, I quote both passages in full for Saturn:

Abbreviation:

> Saturn is a malefic and its nature is cold and dry, black bile, dark; it is ill-smelling, much eating of food and trustworthy of friendship. It indicates activities involving moisture, waters, rivers, agriculture, ploughing and manual labor; much wealth, misers, poor men, long journeys; hatred, cunning, artifice, perfidy, little companionship with men, every activity of evil, defeating, imprisonment, the stocks, shackles; trustworthiness in speech, old age, slowness, deliberateness, intelligence, experimenting, profundity of thought, obstinancy; fear, griefs, sadnesses, difficulty, misfortune, the dead, inheritances; grandfathers, fathers, older brothers, eunuchs, slaves and the rabble.[74]

Introduction:

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[73] Both authors provide lists in the exact same order. Abū Maʿshar, however, gives a few more conditions than al-Qabīṣī: advance, retreat, collection, and pushing management. Abū Maʿshar, *Abbreviation*, 3:[2], 41.

[74] Abū Maʿshar, *Abbreviation*, 5:[4]-[7], 61.

Saturn is a malefic, masculine, diurnal. It indicates fathers when the native is born at night. It indicates extreme old age when it is western; and the beginning of old age when it is eastern. It indicates an excess of coldness and dryness.

Of the complexion of bodies it indicates melancholy—i.e. An increase in it and its disturbances; sometimes it (the complexion) is cold and moist, heavy and evil-smelling. It (Saturn) is much eating, trustworthy in friendship. It indicates profundity of thought and much silence.

Of professions it has noble activities involving water, like cultivation and management of lands and rivers when it is fortunate; but vile activities when it is harmed, like massage in the baths, the occupations of fulling, navigation, and serving drinks. When it is fortunate, it indicates trustworthiness in friendship and taking time over things; when it is harmed, obstinacy, hatred, griefs, sadnesses, evil opinion, excess of anxiety, the spreading amongst men of malicious gossip and provocations. When it is fortunate, it indicates posessing durable and lasting things, like real estate and arable land; when it is harmed, <things> like vile property, and things which are old and always changing.

Of illnesses it signifies diseases <arising> from viscous phlegm and solid black bile, such as leprosy and gout. It indicates long journeys, imprisonment, the stocks, difficulty, misfortune, legacies, fathers, grandfathers, older brothers, eunuchs, slaves and the rabble.

Of jobs it indicates leather-working. If it is on its own in its indication, without being mixed with any of the planets, then it indicates leather-working for shoemaking.

If Jupiter mixes with it, then it indicates leather-working of the skins on which holy books and the matter of precepts and religious laws are written. If Mars mixes with it, it indicates the cutting out of sandals and their tanning. If the Sun mixes with it, it indicates the art of a cobbler. If Venus mixes with it, it indicates leather-working for drums and tambourines and all leather which is used for musical instruments. If Mercury mixes with it, it indicates working leather on which legal documents and accounts are written. If the Moon mixes with it, it indicates the tanning of leather of predators and what is similar to them.

Of religions it indicates monotheism, if it is fortunate; if it is harmed, it indicates monotheism with many doubts.

Māshā'allāh said that it indicates Judaism and black clothes.

Certain others said that Saturn indicates the inner ear, the spleen and the buttock.

Of colours it has black; of days, Saturday; of nights, Wednesday night. The size of its body is 9 degrees; the yeares of its fardariya are 11, its greatest years are 465 years; its great yeares are 57 years; its middle years are 43 1/2 yearse, and

> its smallest years are 30.[75] Its power in the regions of directions of the zodiacal circle is from the right of the north.
>
> Māshā'allāh said: of the appearance of people, it indicates a brown-skinned person; when he walks he lowers his eyes; he walks heavily, keeping his legs together; fragile, thin, with small eyes, dry skin, veined, having a sparse beard, thick lips, possessing cunning, and deceitful.
>
> Of regions it has Sind, Hind, and all the cities of Ethiopia and their mountains.
>
> Dorotheus said: a lot of hair on his body, eyebrows joined.
>
> Its lot is the lot of power and firmness. It indicates earthly causes, estates, supervision of activities, intelligence, boldness, toil, arrogance, and the causes of death.[76]

Al-Qabīṣī includes quite a bit more information, and also organizes the information according to regions, illnesses and parts of the body, professions, appearance of individuals, etc. In terms of painting a thorough picture of the indications of Saturn, al-Qabīṣī's text is preferable to the *Abbreviation*. The level of detail in the two passages quoted above serves as an indication of why readers (in both Arabic and Latin contexts) may have preferred al-Qabīṣī's *Introduction* to Abū Maʿshar's *Abbreviation*.

In the case of the *Tetrabiblos*, Ptolemy's descriptions of the indications of Saturn are distributed throughout the text, and he addresses them as he addresses each topic. For example, since he treats planetary indications of regions and individuals in two different sections, a separate list is given to Saturn for each. Saturn's indications for regions are described as follows: "Saturn, when he gains sole dominance, is in general the cause of destruction by cold, and in particular, when the event concerns

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[75] Abū Maʿshar gives information about the years in chapter 7 of the *Abbreviation*, grouped according to the types of years with the years for each planets following list format.

[76] BYY, *Introduction*, 2:[2]-[6], 63-64.

men, causes long illnesses, consumption, withering, disturbances caused by fluids, rheumatisms, and quartan fevers, exile, poverty, imprisonment, mourning, fears, and deaths, especially among those of advanced age. He is usually significant with regard to those dumb animals that are of use to man, and brings about scarcity of them, and the bodily destruction by disease of such as exist, so that the men who use them are similarly affected and perish…"[77] This passages lists several additional indications for the malefic effects of Saturn, and also mentions that Saturn's indications are tempered by its relationship to the signs and to other planets. Even within the discussion of individuals, Ptolemy provides descriptions of Saturn according to specific topics. For bodily form and temperament, "Saturn, if he is in the orient, makes his subjects in appearance dark-skinned, robust, black-haired, curly-haired, hairy-chested, with eyes of moderate size, of middling nature, and in temperament having an excess in moist and cold. If Saturn is setting, in appearance he makes them small, straight-haired, with little hair on the body, rather graceful, and black-eyed; in temperament, sharing most in cold and dry."[78] Taken together, all of the instances in which Ptolemy describes Saturn's qualities probably outnumbers the *Introduction* in sheer amount of text, but descriptions of these qualities are scattered throughout the text. The *Introduction*, then, compiles all of this information into a single succinct passage.

Another notable difference in the *Introduction* is al-Qabīṣī's fourth chapter on the explanation of technical terms. There is no equivalent in either the *Tetrabiblos* or the *Abbreviation*. A few technical topics are mentioned, but not always described in an

[77] Ptolemy, *Tetrabiblos,* III.9,

[78] Ptolemy, *Tetrabiblos,* III.9, 309.

introductory way as al-Qabīṣī has done. For the *haylāj*, for example, Abū Maʿshar only mentions it in a discussion of the calculation of it as a lot. He does not mention the *kadkhudhāh* at all. In the *Tetrabiblos*, Ptolemy does not devote a separate section to technical terms, but rather deals with them as they arise. He gives a much more detailed account of the *haylāj* than al-Qabīṣī, with examples.[79] From this perspective, al-Qabīṣī is quite obviously providing an introduction to a term which is treated much more extensively in the *Tetrabiblos*. There are several lots listed by both al-Qabīṣī and Abū Maʿshar, and there is some overlap between the two. The *Tetrabiblos*, however, only mentions the Lot of Fortune.

Shown in comparison, it is apparent that while the three texts share much of the same content, their structures differ remarkably. Al-Qabīṣī recognized a need for an introductory text that organized astrological content in a convenient format suited to both beginners and practicing astrologers. The order of the material moves from the simple to the complex in each of the first three chapters, where he treats the signs, planets, and planetary conditions, respectively. Information about individual signs and planets are confined to single sections rather than scattered throughout the text, as was the case in both the *Abbreviation* and the *Tetrabiblos*. This manner of organizing the text made finding information more straightforward, priming the text for use as a reference manual by later readers. The inclusion of a single chapter devoted to technical terms also suited this sort of reading practice. Al-Qabīṣī's innovation was to restructure the presentation of astrological knowledge into a coherent order that was accessible to individuals from a range of intellectual backgrounds, individuals whose

[79] Ptolemy, *Tetrabiblos,* III.10, 270-307.

diverse interests characterized the culturally rich milieu of Sayf al-Dawla's court. To fully appreciate this innovation, we now turn to the court culture in which the *Introduction* was composed.

Astrology in Tenth-Century Intellectual Court Culture

The presence of astrologers in medieval Islamic courts has been well-established.[80] Astrologers were consulted for questions about the length of life or length of rule for rulers, as we have seen in the text of the *Introduction*. Some courts had astrologers who served in an official capacity and received remuneration for their services. The famous astrologer Nawbakht who worked on the foundation horoscope of Baghdad, for example, was the caliph al-Manṣūr's court astrologer. Abū Maʿshar served officially under the auspices of the caliph al-Muʿtazz.[81] Court astrologers, on the basis of their calculations from interrogations and elections, determined the most auspicious times for entering into battle[82] or gave advice on other important political matters.[83] It is likely that al-Qabīṣī served in some official capacity, as is evidenced by his work *The Testing of the Astrologers. The Testing* belongs to a genre of texts known as *miḥna* literature, which was used to determine the competence of practitioners in

[80] George Saliba gives several examples of astrologers in court settings throughout the medieval period in Saliba, "The Role of the Astrologer."

[81] Saliba, "Role of the Astrologer," 63.

[82] There is some clear evidence associated with the engagement of armies and battles in later centuries, but as early as the ninth century the caliph al-Mam'ūn reportedly considered the opinion of his astrologer al-Faḍl ibn Sahl on whether or not he should surrender to his brother al-Amīn. See Saliba, "Role of the Astrologer," 58.

[83] For example, holding meetings, naming heirs, or gift giving. See Saliba, "Role of the Astrologer," 58-59.

different fields, especially medicine.[84] Al-Qabīṣī's contribution to this genre may be unique for astrology, as very few texts have been recovered.[85] However, the fact that the text exists at all indicates that he may have served in a formal or official position at Sayf al-Dawla's court.[86]

Al-Qabīṣī's dedications to Sayf al-Dawla indicate several important features about astrology at court. In his dedication to *The Testing of Astrologers*, al-Qabīṣī quotes a proverb attributed to Galen, and makes another reference to Khalīl ibn Aḥmed. The latter may have been somewhat playful or in jest—at the very least it indicates al-Qabīṣī's clever courtly rhetoric. Khalīl ibn Aḥmed is known to have criticized astrology in one of his poems, where he wrote, "Tell the astrologer on my behalf that I / am an unbeliever in the judgment of the stars / a believer in that all that was and will be / is the necessary decree of the all powerful."[87] In *The Testing*, al-Qabīṣī recounts that Khalīl ibn Aḥmed said that people are of four types: those who know and know that they know, those who know, but do not know that they know, those who do not know and know that they do not know, and those who do not know, and who do not know that they do not know.[88] As we will see later, al-Qabīṣī divides astrologers into four types as well, mirroring these divisions. Al-Qabīṣī also references

[84] Saliba, "Role of the Astrologer," 49.

[85] Saliba reports the mentioning of a similar text by al-Birūnī, authored by ʿUṭārid ibn Moḥammed, in A. Saʿidān, "Kitāb tasṭīḥ al-ṣuwar wa tabṭīḥ wa kuwar li-Abī al-Rayḥān al-Birūnī," *Dirāsāt* (1977) 4: 7-22, esp. 11.

[86] Regourd argues that al-Qabīṣī's use of the familiar "Sayyidunā al-Amīr" indicates a close relationship between the two men. See Regourd, "L'Epître," 31.

[87] The original source for this quote is a report from al-Khaṭīb al-Baghdādī (d. 1072) in MS Asir Effendi 190, fol. 16r. It is cited in Saliba, "The Role of the Astrologers," 46, n. 5.

[88] Regourd, "L'Epître," 35, [23]-[25].

the poet Dhū al-Rumma (d. 735 CE), who wrote many poems with astronomical references.[89] In another dedication to Sayf al-Dawla on a less controversial subject, arithmetic, al-Qabīṣī praised Sayf al-Dawla for his abilities in finger-reckoning. These dedications and poetic references illustrate that astrology was part of a sophisticated court culture that valued mathematics, ancient learning, literature and poetry.[90] Al-Qabīṣī used dedications as a means for demonstrating his erudition and poetic inclinations.

Al-Qabīṣī's other works raise several questions about the practice of astrology in tenth-century court contexts, especially *The Testing of Astrologers*. As mentioned above, in his preface to *The Testing* al-Qabīṣī delineates four different types of astrologers, in order of their mastery of the subject.[91] He begins with the complete astrologer (*munajjim al-tām*), who has read the *Almagest* and has given rational demonstrations (*burhān*) for the movements of the planets and their relations to the sky and to each other. The complete astrologer is capable of making his own observations and composing tables from them. The next level of competence is the astrologer who knows much about planetary theory, and can answer basic astronomical questions—the example given by al-Qabīṣī is of the definition of the inclination of the ecliptic. This astrologer has a good understanding of these definitions, but he cannot provide rational

[89] See W. Ben Adams, "The Hands of the Pleiades: the Celestial Clock in the Classical Arabic Poetry of Dhū al-Rumma," in *The Inspiration of Astronomical Phenomena VI, Proceedings of a conference held October 18-23, 2009 in Venezia, Italy*, Enrico Maria Corsini, ed., *ASP Conference Series*, Vol. 441 (2011): 311-316.

[90] Al-Qabīṣī himself was known to have written poetry. Yāqūt refers to him as a poet and Ibn Khallikān quotes a poem on the rainbow which has been attributed to both al-Qabīṣī and Sayf al-Dawla. BYY, *Introduction*, 3.

[91] Regourd, "L'Epître," 36-37, [7]-[22].

demonstrations as the complete astrologer does. The third level of competence is indicative of the majority of astrologers practicing the art, according to al-Qabīṣī. These astrologers are able to use a table and have learned everything from imitation or tradition (*taqlīd*) rather than understanding. The last category of astrologers are those who know absolutely nothing of the art, but make instruments such as astrolabes and quadrants, and determine the direction of Mecca. Al-Qabīṣī then states that the thirty questions which comprise his treatise will aid Sayf al-Dawla in determining to which of these groups the individual who is tested belongs. Al-Qabīṣī's delineation of these categories shows that there was likely competition for Sayf al-Dawla's patronage, and that competence in astrology and especially astronomical skills, were highly valued in court settings.

The complex astronomical questions in *The Testing* are additional proof that some astrologers were highly skilled astronomers. Al-Qabīṣī's list of works illustrates his interest in theoretical astronomy. In addition to the *Introduction to Astrology* and *The Testing*, al-Qabīṣī wrote a defense of astrology, a book on nativities, a treatise on arithmetic, a treatise on the distances and sizes of the planets, a commentary on al-Farghānī's *Thirty Chapters*, a treatise on terrestrial distances, a set of astronomical tables, and a *Doubts on the Almagest*.[92] Several of these texts represent well-known genres in early Islamic astronomy, each devoted to various strands of astronomical theory and practice: the treatise on the distances and sizes of the planets, the set of astronomical tables, the commentary on the *Thirty Chapters*, and the *Doubts on the*

[92] The last text, *Doubts on the Almagest* (*Shukūk fī Almagesti*) is referenced in *The Testing* but is no longer extant.

Almagest. These texts are rooted in the Greek tradition of the *Almagest*, but exhibit the criticism, corrections, and additions characteristic of the early Islamic period. For example, al-Qabīṣī's work on astronomical tables is the *Kitāb ʿilal al-zigāt*, or *Book on the Failings of Astronomical Tables*. The term *ʿilal*, which has been translated as both "failings" and "reasons" by contemporary authors, can also mean "deficiencies," "excuses," or "efficient causes."[93] Unfortunately al-Qabīṣī's text is no longer extant, but the *ʿilal* genre was likely devoted to producing updated versions of astronomical tables. However, as Sabra notes,

> ...it is remarkable that the *zīj* literature has yet to reveal a theory of testing setting forth explicit goals of observation beyond revising parameters for the purpose of obtaining more precise parameters on the basis of the commonly accepted Ptolemaic theory; and this has reinforced the impression suggested by a number of published *zīj*es, namely that they are practical handbooks for the practicing astronomer and astrologer, rather than being repositories of results obtained in the process of confronting new hypotheses or models with new observations for the purpose of confirming or refuting them. Such theoretical ventures, when they happened, tended to appear in other genres of astronomical writings.[94]

While al-Qabīṣī was certainly aware of the problems with the Ptolemaic system, his work on astronomical tables was probably, as Sabra suggested, something more akin to a practical handbook.

One of the "theoretical ventures" to which Sabra refers is the genre of "Doubts" (*shukūk*) literature, to which al-Qabīṣī also contributed. The most well-known text of

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[93] These terms are suggested by Kennedy and Haddad in their edition of a late ninth-century work in this genre: ʿAlī ibn Sulayman al-Hāshimī, *The Book for the Reasons Behind Astronomical Tables: Kitāb fī ʿīlal al-zījāt*, Haddad and Kennedy, trans., Pingree and Kennedy, comm. (Delmar, New York: Scholars' Facsimiles & Reprints, 1981).

[94] A.I. Sabra, "Configuring the Universe: Aporetic, Problem-Solving, and Kinematic Modeling as Themes of Arabic Astronomy," *Perspectives on Science,* vol. 6, no. 3 (1998): 291.

this genre was authored by the eleventh-century polymath Ibn al-Haytham, whose works are often hailed as signalling the rise of the astronomical discipline *ʿilm al-hay'a.*[95] The *hay'a* tradition was centered on a desire to construct models of planetary motion that were endowed with physical reality, rather than merely mathematical models (such as those found in the *Almagest*). George Saliba has argued that the *hay'a* tradition gained momentum in the ninth century as a response to critiques of the Greek astronomical tradition, in which astrology played a prominent role.[96] In making this argument, he relies on a lengthy section of Abū Maʿshar's *Kitab al-mudkhāl al-kabīr*, where Abū Maʿshar responded to ten different types of arguments posed by various groups against astrology. The fourth, fifth, and sixth groups appear to represent criticisms from practicing astronomers. Saliba argues that the fourth and fifth types of criticism come from the group which came to constitute practitioners of *ʿilm al-hay'a.*[97] They were people who had studied *ʿilm al-kull*, the term Abū Maʿshar uses for the study of celestial bodies regarding their motion and mathematical properties.[98] The fourth group denied that the planets influenced the sublunary world, and the fifth

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[95] The first text on *hay'a* was the ninth-century *Kitāb al-hay'a* of Qusṭā ibn Lūqā. For a thorough consideration of the origins and elements of *hay'a*, see A.I. Sabra, "Configuring the Universe: Aporetic, Problem-Solving, and Kinematic Modeling as Themes of Arabic Astronomy," *Perspectives on Science,* vol. 6, no. 3 (1998): 288-326. Saliba makes a firm distinction between a "Doubts" tradition (the aporetic) and the *hay'a* tradition, and argues that the relationship between the two was complex. George Saliba, "Arabic Versus Greek Astronomy: a Debate over the Foundations of Science," *Perspectives on Science*, vol. 8, no. 4 (2000): 328-341.

[96] George Saliba, "Islamic Astronomy in Context: Attacks on Astrology and the Rise of the Hay'a Tradition," *Bulletin of the Royal Institute of Inter-faith Studies*, Vol. 4 (2002).

[97] Saliba, "Islamic Astronomy in Context," 32-33.

[98] Following Ptolemy, Abū Maʿshar divides the science of the stars, ʿilm al-nujūm, into two categories. The first is ʿilm al-kull, the second is ʿilm al-aḥkām, or the science of judgments (astrology).

denied that one could infer astrological influences from inductive experience. The sixth group may have constituted those for whom texts within the *ʿilal* genre were written, as they criticized the lack of consistency in astronomical tables.

From Abū Maʿshar's descriptions it appears that there were astronomers who were critical of astrology from as early as the ninth century. That being said, in the tenth century al-Qabīṣī composed both an introductory text on astrology and one of the classic genres of works associated with the *hay'a* tradition, *Doubts on the Almagest*.[99] The fact that al-Qabīṣī composed works of significant astronomical competence, as well as his several astrological works, illustrates that astronomy and astrology remained intricately linked in the tenth century despite ongoing critiques and the splintering off of the *hay'a* tradition. Al-Qabīṣī's astronomical works indicate that he contented himself with solving astronomical problems squarely within Ptolemy's mathematical system rather than postulating about physical models (as would have been characteristic of *hay'a*). This is especially evident from his *Treatise on the Distances and Sizes of the Celestial Bodies*.[100] In this treatise, his calculations are purely mathematical and include references to the centers of epicycles being located in physically impossible places.[101] In terms of the relationship between astronomy and

[99] While Saliba makes a firm distinction between the "Doubts" genre and the *hay'a* tradition, Sabra argues that the "Doubts" genre was a "crucial factor" in the development of *hay'a*. See Sabra, "Configuring the Universe," 295.

[100] Jan Hogendijk, "Al-Qabīṣī's Treatise on the Distances and Sizes of the Celestial Bodies," *Zeitschrift für Geschichte der arabisch-islamischen Wissenschaften* 20-21 (2012-2014): 169-233.

[101] Hogendijk points this out when he recounts Maimonides' criticisms of this fact: "Referring to al-Qabīṣī, Maimonides observes that the centers of the eccenters of Mars and Jupiter are between the (outer) sphere of Mercury and the (outer) sphere of Venus, and for Saturn, between the (outer) sphere of Mars and the (outer) sphere of Jupiter. He considers the locations

astrology, then, it appears that despite al-Qabīṣī's awareness of the deficiencies of the Greek tradition, he was committed to criticizing and reformulating the tradition rather than rejecting it.

Al-Qabīṣī was also aware of the criticisms leveled against astrology, as is evident from the reference in the preface to the *Introduction* to one of his works providing a response to the criticisms of ʿAlī ibn ʿĪsā.[102] In the wake of the *Kitab al-mudkhāl al-kabīr*, tenth-century astrologers had access to a philosophically robust defense of astrology, and it is a shame that al-Qabīṣī's reply to ʿAlī ibn ʿĪsā is no longer extant. He was also very likely aware of the criticisms of the famed philosopher al-Fārābī, who was present at Sayf's court. Al-Fārābī's criticism of astrology, however, was quite nuanced and responsive to Abū Maʿshar's sophisticated defense.[103] Generally speaking, al-Fārābī accepted the idea of celestial influence insofar as it applied to the generation and corruption of the sublunar realm, but denied that astrological prognostication was possible.[104] Following Abū Maʿshar, al-Fārābī made the traditional Greek distinction between astronomy (which he terms *ʿilm al-nujūm al-taʿlīmī*) and astrology (*ʿilm aḥkām al-nujūm*). Although Damien Janos has argued that al-Fārābī made a significant conceptual and epistemological distinction between the

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of these centers as philosophically absurd and concludes that the heavens are beyond human understanding." See Hogendijk, "Al-Qabīṣī's Treatise," 173.

[102] This is certainly the ninth-century astrolabe-maker and astronomer ʿAlī ibn ʿĪsā al-Asṭurlābī, who is known to have criticized astrology. See Marvin Bolt, "ʿAlī ibn ʿĪsā al-Asṭurlābī," *Biographical Encyclopedia of Astronomers*, Thomas Hockey et al., eds. (New York: Springer, 2007): 34.

[103] Damien Janos attributes al-Fārābī's treatment of astrology to the contradiction of the continued patronage of astrology in courts. See Damien Janos, *Method, Structure, and Development in Al-Fārābī's Cosmology* (Leiden: Brill, 2012), 47.

[104] Janos, *Al-Fārābī's Cosmology*, 48-49.

two sciences,[105] he still considered them two parts of the broader science of the stars. Al-Fārābī argued that there are two types of events in the sublunar world: those that have known causes, and those whose causes are unknown, which he called accidental events. The influences or indications of the planets are accidental events, and thus unknowable. Therefore, it is not possible to make predictions based on experiences of these events.[106] As experience is one of the foundations of Abū Maʿshar's philosophical justification of astrology, al-Fārābī was quite at odds with him in denying that experiences of the influences of celestial events are reliable and knowable.

Despite these criticisms at the theoretical level, an examination of the courtly context of al-Qabīṣī's works reveals that astrology in practice was flourishing. Theoretical and philosophical debates about astrology were distinct from the actual practice of astrology, and this fact influenced the content of the *Introduction*. It is significant, for example, that al-Qabīṣī refrained from including a philosophical defense of astrology in the *Introduction*, rather than devoting a few pages to these critiques as Ptolemy does in the *Tetrabiblos*. While al-Qabīṣī composed a text on the philosophical justification for astrology (his reply to ʿAlī ibn ʿIsā), he referred the reader to that text instead of devoting any space to this subject in the *Introduction*. Furthermore, his comments in *The Testing* and the level of detail in the *Introduction* suggest that the *Abbreviation* was not a sufficient introduction to astrological study and practice. The composition of a synthetic work such as the *Introduction*, as well as a text

[105] Damien Janos, "Al-Fārābī on the Method of Astronomy," *Early Science and Medicine* 15, no. 3 (2010): 240.

[106] Janos, *Al-Fārābī's Cosmology*, 49.

which tested professional competence (*The Testing*), reveals an established need for legitimate astrological practice grounded in sophisticated astronomical theory.

Conclusion

There are several indications that the *Introduction* was well-received in the Islamic world, although its popularity may have been eclipsed by al-Birūnī's *Kitāb tafhīm li-awā'il ṣinaʿat al-tanjīm* (*Book of Instruction on the Elements of the Art of Astrology*),[107] written less than one hundred years later in both Persian and Arabic. In a comparison of extant manuscripts, there are twenty-five of al-Qabīṣī's *Introduction*, and approximately twenty-nine Arabic and at least twenty Persian manuscripts of the *Tafhīm*. Al-Birūnī cites al-Qabīṣī for a discrepancy in his calculations for Mercury in his treatise on the distances and sizes of the celestial bodies, indicating that al-Qabīṣī's works were influential even shortly after his death. The *Introduction* was also included in some prestigious mathematical and astronomical compendiums, one of which had bound the *Introduction* with the work of Thābit ibn Qurra.[108] The text appealed to a courtly audience, but its superior organization and selection of content, as compared to the *Tetrabiblos* and *Abbreviation*, secured its readership beyond Sayf al-Dawla's court. Astrology, too, continued to be practiced across the Islamic world despite criticisms leveled against it by philosophers, astronomers, poets, and legal and religious scholars. The popularity of the text in the Islamic world ensured its transmission from the

[107] Al-Birūnī, *Kitāb tafhīm li-awā'il ṣinaʿat al-tanjīm*, ed. and trans. Ramsay Wright (London: 1934).

[108] BYY, *Introduction*, 4.

eastern realm of the empire across the Maghrib to al-Andalus. Towards the end of the tenth century, Arabic astrological texts were making their way into Christian Europe.

Chapter 2: Translation

Introduction

From the Eastern Mediterranean, al-Qabīsī's *Introduction* made its way across the Maghrib into al-Andalus, where it was translated into Latin around 1135 by Johannes Hispalensis, also known as John of Seville. The translation of the *Introduction to Astrology* occurred as part of a much broader wave of translations which carried important Greek and Arabic scientific and philosophical knowledge into Europe. Indeed, in the twelfth and thirteenth centuries Europe witnessed an extraordinary intellectual flourishing. According to Charles Haskins, the most conspicuous element of this "intellectual revival" was in the domain of science, and he documents a similar resurgence of Latin language, literature, poetry, jurisprudence, historical writing, and philosophy.[109] While historians of medieval science have qualified the grandeur of Haskins' claim by pointing to considerable intellectual production during the Carolingian period,[110] there is no doubt that the translations into Latin of a great number of Greek (both directly and via Arabic) and Arabic scientific and philosophical texts played a crucial role in the transformation of medieval Latin scholarship. Almost the entire Aristotelian corpus, the extensive commentaries on his works by Averroes, and works by Euclid, Ptolemy, Hippocrates, Galen, Ibn Sīna, Ibn

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[109] C.H. Haskins, *The Renaissance of the Twelfth Century* (New York: Meridian, 1927).

[110] *Science in Western and Eastern Civilization in Carolingian Times*, ed. P. Butzer and D. Lohrmann (Boston: Birkhauser Verlag, 1993); Stephen McCluskey, *Astronomies and Cultures in Early Medieval Europe* (Cambridge: Cambridge University Press, 1998); Bruce Eastwood, *The Revival of Planetary Astronomy in Carolingian and post-Carolingian Europe* (Ashgate: Variorum, 2002); Menso Folkerts, *Essays on Early Medieval Mathematics, the Latin Tradition* (Aldershot: Ashgate, 2003).

al-Haytham, al-Farghānī, Thābit ibn Qurra, Abū Maʿshar, and al-Qabīsī circulated in Latin manuscripts by the end of the thirteenth century and they were critically read, studied, and assimilated into Latin intellectual culture.

By the beginning quarter of the twelfth century, Latin scholars were aware of the sophistication and depth of Arabic learning and sought out Arabic texts for translation. A frequently cited example is Adelard of Bath's conversation with his nephew, in which his nephew urges Adelard to discuss "some new item from the studies of the Arabs,"[111] and later asks him to justify his preference for the "opinions of the Saracens" over the Christian "schools of Gaul."[112] Enthusiasm for Arabic astrology is especially obvious from the extant manuscripts. David Juste's recent survey indicates that originally Arabic astrological manuscripts made up the majority of astrological manuscripts in circulation in Europe well into the fifteenth century.[113] Eagerness for new knowledge from the Arabic tradition, however, was tempered by military conflicts with Muslim rulers and theological objections to Islam. The same individuals translating Arabic astrological texts, for example, Robert of Ketton and Hermann of Carinthia, also translated the Qu'ran and circulated polemic pamphlets condemning the Islamic faith. Examining the translation of a single text such as al-

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[111] Adelard of Bath, *Conversations with His Nephew: On the Same and the Different, Questions on Natural Science, and On Birds*, edited and translated by Charles Burnett with the collaboration of Italo Ronca, Pedro Mantas España and Baudouin van den Abeele (Cambridge, 1998), 83.

[112] Adelard of Bath, *Conversations*, 91

[113] David Juste, "The Impact of Arabic Sources on European Astrology: Some Facts and Numbers," *Micrologus* XXIV (2016): 173-194. See especially Tables 2 and 2a on p. 179, which indicate the perceived origin (by medieval readers) versus the real origin (as established by modern authors) of astrological manuscripts.

Qabīsī's *Introduction to Astrology* provides much insight into how the reception of Arabic learning in Europe was shaped by these sentiments.

In this chapter, I demonstrate how the Arabic text of the *Introduction to Astrology* was transformed into its Latin counterpart through a comparison of the Latin translation with the Arabic original. To do so, I analyze the transliteration of Arabic terms, interpretative material added by the translator (or an anonymous scribe) early in the text's Latin history, and the inclusion or deletion of Islamic and Christian references within the text.[114] Before presenting this evidence, I provide an overview of the Arabic-Latin translations that occurred from the tenth to the thirteenth centuries. I then turn to the specific context of twelfth-century Spain, and particularly the major developments in astrological and astronomical knowledge that occurred as a result of the translations. After that, I discuss the specific context of Johannes Hispalensis, his possible motivations for the translations, and what his translation style reveals about his attitude towards Arabic learning. I then turn to an analysis of the translation itself, showing how transliteration, interpretations, and religious references formed and colored the Latin text with its obvious Arabic heritage. Lastly, I discuss how vernacular translations of this text retained rather than disguised this heritage.

[114] For the comparison of the Arabic and Latin texts, I have used the text established by the critical edition (BYY). I am aware that the modern critical versions of the text do not represent the textual realities that the translator himself experienced, and that my analysis thus carries with it certain assumptions about and restrictions related to these textual realities. Approaching these texts as a historian rather than a philologist, I accept the necessary approximations and uncertainties imposed by historical research on medieval texts.

Arabic-Latin Translations

Beginning with a handful of mathematical and astronomical Latin texts that showed Arabic influence in tenth-century Catalonia, modern scholars have traced the outlines of the translation movement from Spain to the Eastern shores of the Mediterranean, with translations occurring from the eleventh to the fourteenth centuries.[115] Several socio-political factors contributed to cultural confrontations, both directly and indirectly. The emigration of Mozarabs from Islamic Toledo to Northern Spain as a result of religious differences in the ninth century led to the shift of Arabic scientific expertise northward. The reconquest of Toledo (1085), the Norman conquest of Sicily (1072-91), and the fall of Antioch (1098), as well as trade routes across the Mediterranean, provided ample opportunities for Latins to interact with both Greek and Arabic-speaking populations. Once knowledge of the rich Arabic philosophical and scientific tradition and the availability of Greek texts in Arabic became more widespread, Latin scholars sought out Arabic texts. Transmission occurred through several channels: diplomatic exchanges, such as the arrival of a Greek manuscript of Ptolemy's *Almagest* in Palermo, brought from Constantinople and translated into Latin by Henricus Aristippus, ambassador of William I, King of Sicily, just before 1160;[116]

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[115] The classic account, which focuses especially on translators, is Charles Haskins, *Studies in the History of Mediaeval Science* (Cambridge: Harvard University Press, 1924); See also M.T. d'Alverny, "Translations and Translators," in *Renaissance and Renewal in the Twelfth Century*, ed. Robert Benson et al. (Cambridge: Harvard University Press, 1982), 421-462. A recent overview is provided by Charles Burnett, "Translation and Transmission of Greek and Islamic Science to Latin Christendom," in *The Cambridge History of Science*, vol. II, ed. M. Shank and D. Lindberg (Cambridge: Cambridge University Press, 2013), 341-364. I summarize Burnett's account here.

[116] Gerard of Cremona translated the *Almagest* into Latin from the Arabic around 1175. Gerard's version proved to be the more popular version among medieval readers.

attempts at the reunification of the Greek and Latin churches, which resulted in novel theological writings and scientific translations; and the establishment of "Latin quarters" by Pisans and Venetians, and religious orders such as the Dominicans and Franciscans, in several Mediterranean cities. Movement along well-trod pilgrimage routes provided additional pathways for transmission, as translations occurred in Toulouse, Leon, Astorga, and Ponte di Lima, all en route to Santiago de Campostella.[117] The reasons for the translations are complex and context-dependent, but one initial motivation was to augment the Latin school curriculum with elements that were missing, particularly mathematics and astronomy. Texts were also translated to fulfill the interests of individual translators or of patrons with their own translation schemes. There also may have been an interest in and demand for translations from members of the educated, lay professional class, including lawyers, notaries, and treasurers. Generally speaking, astronomical and astrological texts played a prominent role throughout the translation period.

Arabic knowledge was distinct from the ancient Greek texts because it could be learned directly from masters, rather than read in texts alone.[118] This point is underscored by the accounts of Adelard of Bath and Stephen the Philosopher, who refer to their Arabic *magistri* in the principality of Antioch.[119] In Spain, while there is no direct evidence of Muslim scholars instructing Christians,[120] the earliest textual

[117] Burnett, "Translation and Transformation," 349-351.

[118] Burnett, "Translation and Transformation," 348.

[119] Burnett, "Translation and Transformation," 348.

[120] Dag Nikolaus Hasse, "The Social Conditions of the Arabic-(Hebrew)-Latin Translation Movements in Medieval Spain and the Renaissance," in *Wissen über Grenzen: Arabisches*

sources denote the possibility of oral transmission.[121] Among these sources, the first evidence of Arabic influence in Europe appears in astronomical texts related to the construction and use of the astrolabe from the late tenth or early eleventh century,[122] and the oldest Latin astrolabe, dated to the tenth century, contains Arabic star names.[123] Gerbert of Aurillac (ca. 955-1003), the Abbot of Fleury who became Pope Sylvester II, and several of his associates, encountered Arabic mathematical techniques related to the use of the astrolabe and abacus, as well as Arabic astrological doctrines.[124] A handful of eleventh-century Latin authors composed astronomical texts of Arabic influence: Ascelin of Augsburg (f. 1011), Fulbert of Chartres (f. 1028), and Hermann of Reichenau and his circle (f. 1040-1050). The first clear evidence of actual Arabic-Latin translations dates to the late eleventh century in Southern Italy, when several medical texts were translated at Salerno, notably Constantine the African's rendition of

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Wissen und lateinisches Mittelalter, ed. A. Speer and L. Wegener (Berlin: de Gruyter, 2006), 68–86.

[121] Arianna Borrelli argues for transmission through non-textual means, including pictures, diagrams, and oral transmission. See A. Borrelli, *Aspects of the astrolabe: 'architectonica ratio' in tenth- and eleventh-century Europe*, Sudhoffs Archiv 57 (Stuttgart: Steiner Verlag, 2008).

[122] These have anomymous authors: *De mensura astrolapsus*, *Sententie astrolabii*, *De mensura astrolabii*, *De utilitatibus astrolabii*, the preface to *Ad intimas*. David Juste lists these as a "corpus primitif," and dates them between the year 980 and the early eleventh century. See D. Juste, *Les Alchandreana primitives: Études sur les plus anciens traités astrologique latine d'origine arabe* (Leiden: Brill, 1994), 8.

[123] W. Stevens, G. Beaujouan, A.J. Turner, eds., "The Oldest Latin Astrolabe," *Physis* 32 (1995): 199-450.

[124] Andre Van de Vyer, "Les plus anciennes traductions latines médiévales (IXè-XIè s.) de traités de l'astronomie et de l'astrologie," *Osiris* 1 (1936): 658-689; P. Kunitzsch, "Les relations scientifiques entre l'Occident et le monde arabe à l'époque de Gerbert," in *Gerbert l'européen*, ed. Nicole Charbonnele and Jean-Eric Iung (Aurillac: La Haute-Auvergne, 1997), 193-203.

the *Pantegni* by ʻAlī ibn al-ʻAbbās al-Majūsī.[125] Early in the twelfth century, the Christian convert (from Judaism) Petrus Alfonsi brought several astronomical and astrological texts to France and England from Aragon. Petrus Alfonsi advertised the 'Peripatetics of France' lectures on astronomy that would "rouse to life the knowledge of this art which has disappeared among the Latins.[126] Some of these texts were subsequently translated by Adelard of Bath (fl. 1106-1149) and assimilated by Walcher, abbot of Great Malvern (d. 1135), who composed his own astronomical treatises.[127] Adelard is best known for his translation of Euclid's *Elements*, and he also translated al-Khwārizmī's astronomical tables, which had been revised by Maslama at Cordoba, and Abū Maʿshar's *Abbreviation to the Introduction to Astrology*.

Several scholars produced translations of astronomical and astrological texts while working in the valley of the Ebro river in northern Spain and in southern France. Their early interest in astronomy and astrology is reflected in their letters to patrons justifying the study of the science of the stars, particularly Hermann of Carinthia (fl. 1138-1143) to the scholar and cleric Thierry of Chartres, and Robert of Ketton (fl. 1141-1156) to the abbot and monastic reformer Bernard of Clairvaux.[128] Hermann of Carinthia translated Albumasar's *Great Introduction to Astrology*, and may have collaborated with Hugh of Santalla (fl. 1145) in compiling additional Arabic

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[125] C. Burnett and D. Jacquart, eds., *Constantine the African and Ali ibn al-Abbas al-Majusi: the Pantegni and Related Texts* (Leiden: Brill, 1994).

[126] C. Burnett, "Translation and Transformation," 352. On Petrus Alfonsi, see John Tolan, *Petrus Alfonsi and his Medieval Readers* (Gainesville: University Press of Florida, 1993).

[127] C. Haskins, *History of Medieaval Science*, 113-129.

[128] C. Burnett, "Advertising the New Science of the Stars circa 1120-1150," in *Le XIIè siècle*, ed. Françoise Gasparri (Paris: Le Léopard d'Or, 1994), 147-157.

astrological texts into a pseudo-Aristotelian compendium. Plato of Tivoli (fl. 1132-1146) translated Ptolemy's astrological work the *Tetrabiblos* in 1138. Robert of Ketton translated al-Khwārizmī's book on algebra, and together with Hermann worked on the first Latin translation of the Qur'an for Peter the Venerable, illustrating the simultaneous awareness of Arabic learning with the principle Islamic religious text. Raymond of Marseilles (fl. 1141) and Abraham Ibn Ezra (1092-1167) were early assimilators of Arabic science into Latin and Hebrew scholarly culture. The translations of John of Seville took place within this context.

The next wave of translations occurred fifteen to twenty years later in Toledo, and centered on the work of Dominicus Gundissalinus (fl. 1161-1181) and Gerard of Cremona (1114-1187). Gerard also emphasized the need for new texts to augment the study of the liberal arts. His list of translated works was extensive, and included Ptolemy's *Almagest* and Euclid's *Elements*, Aristotle's *De caelo*, *Physics*, and *De generatione et corruptione*, as well as Alfarabi's work on the classification of the sciences and works by Rhazes. Dominicus translated several important philosophical works by Avicenna, Algazel, and Avicebron. Translation activities continued well into the thirteenth century at several locales in Spain and Italy. Michael Scot, who began his career at Toledo, joined the court of Frederick II of Sicily and was a prolific translator but is best known for his translations of Averroes. At the court of Alfonso X of Castile (r. 1256-84), Jewish scholars translated several works on astronomy, astrology, and magic into Castilian, and astronomers compiled the Alfonsine tables. The translation activity finally came to an end towards the turn of the fourteenth century, although there are a handful of notable exceptions: Averroes's *The Incoherence of the*

Incoherence of the Philosophers (1328), Haly Abenragel's *On the Judgements of the Stars* (1256), and Rhazes's *Liber continens* (1279).

As is evident from this overview, astrology and astronomy played a central role in the Arabic-Latin translations, particularly in the Iberian peninsula. The interest in astrological and astronomical texts and the efforts on the part of translators to acquire knowledge from Greek and Arabic sources represents an important cultural and intellectual shift in the late eleventh and early twelfth century.

The Transformation of Astronomy and Astrology

Modern scholars have documented the transformation of astrology from rudimentary lunar calculations and onomancy to elaborate interpretations of celestial influence using sophisticated calculations of planetary positions. For most of the early Middle Ages, the practice of astronomy was somewhat limited, while astrology was virtually non-existent. As with the stagnation of Latin intellectual culture after the fall of the Roman Empire, the absence of astrological knowledge and practice was due to several factors. Towards the end of the Hellenistic period, there was a steady decline in Greek mathematical astrology, coupled with individual Church writings against paganism, divination (including astrology), magic, and sorcery.[129] There were notable condemnations of astrology by the Church Fathers, especially Augustine,[130] due to its apparent contradiction with free will. There was no official condemnation of astrology

[129] M.L.W. Laistner, "The Western Church and Astrology," in *The Intellectual Heritage of the Middle Ages*, ed. Chester G. Starr (Ithaca: Cornell University Press, 1957), 57-82.

[130] According to Augustine, the planets and stars cannot cause human action. Augustine, *Confessions*, 7.6.8-10; *City of God*, 5.1, 5.6.

by the Church, and astronomical texts and practices were mostly concerned with meeting ecclesiastical needs.

Textual evidence suggests that astronomical practice was mostly devoted to *computus* (calculating the date of Easter), and time reckoning. These practices are more precisely characterized by mathematical calculations than by direct observation of the heavens. There is no evidence of quantitative measurements or calculations that tied a predictive celestial model to observations of the planets until the period of translations, with the astrolabe texts of the late tenth/early eleventh-century serving a transitional role. Quantitative calculations based on the Ptolemaic astronomical model, which included an observational component, were necessary steps for the most basic of astrological techniques, such as the construction of horoscopes.

In terms of astronomical and astrological knowledge, descriptions of the heavens and the ordering of the universe were based on a handful of classical texts that survived from antiquity and late antiquity: Calcidius's commentary on Plato's *Timaeus*, Martianus Capella's *De nuptiis philologiae et mercurii*, Macrobius's *Commentarii in somnium Scipionis*, Aratus's *Phenomena*, and Pliny's *Historia naturalis*. These texts situated the earth at the center of the universe, with the sun, moon, and five other planets circling it on concentric spheres. Some manuscripts of these texts contained illustrations with diagrams of lunar and solar eclipses, the terrestrial climes, and the ordering of the celestial spheres. The circulation of these texts was extremely limited until the ninth century, when marginal notes in several manuscripts indicate a surge in

popularity.[131] There were bits and pieces of astrological information in this set of texts, including a description of the zodiac and a list of planetary houses. These descriptions did not contain nearly enough information necessary for either the calculation or interpretation of horoscopes or other astrological techniques. In addition, none of the *computus* literature appears to have had any astrological references through the tenth century,[132] and the evidence of astrological texts circulating in Europe before the eleventh century is quite scant. These texts, known collectively as the *Alchandreana*, provide much insight into the state of astrological knowledge prior to the translations of technical Arabic and Greek astronomical and astrological works.[133]

Before the translations, astrological interpretations were not made on the basis of planetary positions. According to David Juste, the extant manuscripts indicate that the few astrological texts which were produced were of two types: those relevant to the casting of horoscopes and prognostic literature. Of the former there are only three extant examples, none of which utilized planetary positions for determining the characteristics of the native.[134] These manuscripts include descriptive details about

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[131] Bruce Eastwood, *The Revival of Planetary Astronomy in Carolingian and Post-Carolingian Europe* (Ashgate: Variorum, 2002).

[132] Laistner, "The Western Church and Astrology," 73.

[133] The most substantial treatment of the earliest appropriation of Arabic astrological texts is in D. Juste, *Les Alchandreana primitifs: étude sur les plus anciens traités astrologiques latins d'origine arabe, Xe siècle* (Leiden: Brill, 2007). The *Alchandreana* are distinct from, although related to, texts on the construction and use of the astrolabe stemming from Arabic texts in the tenth century.

[134] These texts are (1) an anonymous letter from the second half of the ninth century, perhaps written by a monk or priest responding to the request of an abbot or bishop, (2) a text titled *De stellis fixis et stantibus*, which circulated with the *De die natali* of Censorinus and later the *Aratus Latinus*, and (3) the *De mundi celestis terrestrisque constitutione*, a cosmological treatise which includes a fair amount of astrological information. Further details about these

planetary natures and their influences, the signs of the zodiac, houses and exaltations, planetary aspects, and the divisions of the signs. These details comprise greater depth and breadth of information than contained in the classical sources such as Pliny and Macrobius, leaving open the question of whether they are based on other sources which have since been lost.[135] These texts indicate that there was at least some very basic astrological knowledge relevant to the casting of horoscopes available, but its circulation was highly limited.

The so-called prognostic literature was in much greater abundance, with Juste documenting at least 400 examples from 150 manuscripts, ranging from the end of the eighth century to the beginning of the twelfth century. Juste groups these prognostic texts into six categories:[136]

1. *Lunaria*. These are prognostications given for each day of the 30-day lunar month. There are five different subjects addressed: (1) the outcome of an illness, (2) favorable or unfavorable days for bloodletting or other medical procedures, (3) character or future of natives, (4) dream interpretations following the manner of the Book of Daniel, and (5) predictions based on individual circumstances.

2. *Zodiologia*. These are very popular texts based on the lunar position in the signs of the zodiac, related to the following subjects: (1) engaging in or avoiding

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texts are in Juste, *Les Alchandreana*, 20. The *De mundi celestis* has been edited and translated by Charles Burnett. See C. Burnett, *A Treatise on the Universe and the Soul* (London, 1985).

[135] Juste, *Les Alchandreana*, 21.

[136] Juste's account is in *Les Alchandreana*, 21-23. See also Thorndike, *A History of Magic and Experimental Science*, Vol. 1, 672-695, for a survey of prognostic literature and other texts on divination during this period.

various activities, (2) the nature or outcome of an illness, (3) general predictions (related to weather, the deaths of kings, signficant events, etc.), (4) other predictions based on various individual circumstances.

3. The spheres of life and death. This is a description of a procedure which determines the outcome of an event, based upon a calculation involving numbers associated with an individual's name, and the day in the lunar cycle when the event occurred.

4. Critical days. These are not Galenic critical days, but are usually bad or evil days most often based on the calendar of Egyptian days (*dies Aegyptiaci*) which are two days per month.

5. Planetary days. These are prognostications based upon days of the week, of which there are 5 types: (1) general predictions based on the day which falls on the kalends of January (January 1), sometimes attributed to the prophet Esdras, (2) similar general predictions, but based upon days of thunderstorms, (3) character and future of the native, (4) outcome of an illness, (5) predictions for particular activities, taken for days of the week and also including planetary hours.

6. Comets. General predictions based on the appearance of comets, based upon Marius Severus Honoratus's fourth-century commentary on Vergil's *Aeneid*.

These were the kinds of astrological texts which were circulating prior to the translations of the twelfth century. In general, these texts exposed readers to some basic tenets of classical astrological doctrine, but were highly dependent on the position of the moon and/or the day of the month or week. To this group we may add the

Alchandreana in the tenth century, and in the eleventh century, the limited circulation of Manilius's *De astrologia* and Firmicus Maternus's *Mathesis*. At the end of the tenth century, more advanced astronomical texts began circulating, including astronomical tables and texts on the astrolabe, linked to Gerbert of Aurillac and Abbo of Fleury.[137] While no single astrological text individually provided enough information or details to construct a horoscope or make other technical astrological calculations, taken together these texts formed a rough outline of classical astrology. When combined with classical cosmological doctrines and the gradual introduction of new astronomical texts into Europe, the late eleventh century saw a sustained interest in more technical astrological and astronomical literature, so that the translations of the early twelfth century were sown into highly fertile ground.

John of Seville

Prior to analyzing the translation of the *Introduction to Astrology*, there are a few points to consider about the translator, Johannes Hispalensis, or John of Seville. The identity of John of Seville has previously been the subject of scholarly debate, but more recently Charles Burnett has made a strong case for the disambiguation of several distinct individuals.[138] He argues that John of Seville is likely the same person as

[137] Charles Burnett, "King Ptolemy and Alchandreus the Philosopher: The Earliest Texts on the Astrolabe and Arabic Astrology at Fleury, Micy, and Chartres", reprinted in Burnett, *Arabic into Latin in the Middle Ages: the Translators and Their Intellectual and Social Context* (Ashgate: Variorum, 2011).

[138] Charles Burnett, "John of Seville and John of Spain, a mise au point," *Bulletin de philosophie médiévale* 44 (Brepols: Turnhout, 2002), 59-78. See also Burnett, "'Magister Iohannes Hispalensis et Limiensis' and Qusta ibn Luqa's *De differentia spiritus et animae*: A Portuguese contribution to the arts curriculum?" *Mediaevalia, Textos e Estudos* 7-8 (Porto, 1995), 221-67. Both are reprinted in a collected volume of Burnett's works, *Arabic into Latin*

Johannes Hispalensis et Limiensis, but a distinct person from John of Spain (Iohannes Hispanensis), Avendauth, another Magister Iohannes, and Iohannes David. This allows Burnett to attribute authorship or likely authorship to a set of texts that are predominantly astrological. Burnett has also argued that John was a Mozarab, or a Christian native speaker of Arabic, since a collaborator is never mentioned. Two manuscripts mention that he was a bishop, but there is no additional independent confirmation of this. Very few times he is referred to as "magister", and there is no further evidence that he studied in the Latin schools.

In the majority of manuscripts of Alcabitius's *Introduction to Astrology*, John's name is listed as the translator, frequently under the phrase "translatus/interpretatus a Ioanne Hispalensi." While few of the earliest manuscripts have this attribution, Burnett, Yano, and Yamamoto comment that it was not unusual to withhold one's name from translations in this period, as Gerard of Cremona was also known to have done.[139] The precise circumstances of the translation of the *Introduction to Astrology* are unknown as there is neither a preface nor a dedication, and the earliest manuscript, dated to 1135, is no longer extant.[140] However, John's list of other known translations, as well as two other dedications, give some indication of the context in which he was working.

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in the Middle Ages: the Translators and Their Intellectual and Social Context (Ashgate: Variorum, 2011).

[139] BYY, *Introduction*, 201, n. 9.

[140] The earliest known manuscript of the *Introduction* was held in the cathedral at Chartres and gave the "present year" of 1135. Unfortunately this manuscript was destroyed during World War II. It is unlikely that fragments survive.

In addition to Alcabitius's *Introduction to Astrology*, his other known translations are:[141]

1) Pseudo-Aristotle, *Secret of Secrets*, addressed to Theresa, the queen of Portugal from 1112 to 1128.

2) Qusṭā ibn Lūqā (Costa ben Luce), *De differentia spiritus et animae*, addressed to Raymond de la Sauvetat, archbishop of Toledo 1125-52

3) Māshā'allāh (Messehalla), *De rebus eclipsium*

4) 'Umar ibn al-Farrukhān al-Ṭabarī (Aomar), *De nativitatibus*

5) Thābit ibn Qurra (Thebit), *De imaginibus*

6) Abū Maʿshar (Albumasar), *Liber introductorii maioris ad scientiam iudiciorum astrorum* (1133)

7) Al-Farghānī (Alfraganus), *Liber in scientia astrorum* (*Rudimenta*) (March 11, 1135)

8) Māshā'allāh (Messehalla), *De interrogationibus* (*De receptione planetarum*)

9) A text on the construction of the astrolabe, beginning 'Astrologicae speculationis exercitium'

10) A text on the use of the astrolabe, beginning 'Primum capitulum in inventione'

[141] This list follows that printed in the edition, BYY, *Introduction*, 200. I have not indicated (as the edition does) those works which are attributed to Ioannes Hispalensis et Limiensis.

In addition, there are three other works which do not list a translator but which Burnett, Yano and Yamamoto include in their list due to similarities in the colophon and textual style:

11) Abū Maʿshar, *Liber experimentorum*

12) Abū Maʿshar, *Flores*

13) Abū Maʿshar, *De magnis coniunctionibus*

Lastly, Burnett, Yano, and Yamamoto mention that it is possible that some translations of pseudo-Ptolemy's *Centiloquium*, the astrological works of Sahl ibn Bishr (Zael), and another *Liber introductorius*, should be attributed to John.

As indicated in the above list, John dedicated one of his works to Queen Teresa of Portugal, who reigned from 1112 to 1128, and another to the archbishop Raymond of Toledo, who held the office between 1125 and 1151. These dedications are not for his astrological works, but nevertheless provide some insight into John's occupation and motivations as a translator. As a scholar he sought the patronage of renowned individuals. His dedication to Queen Theresa references a conversation they had about health and especially diets, despite the fact that he was not a physician, implying that John may have addressed her at court[142] and sought to appease her interests. John's dedication of Qusṭā ibn Lūqā's important philosophical work to Raymond illustrates John's versatility as a translator as well as Raymond's own interests. The fact that the other texts are almost entirely astrological may indicate John's own interests in the subject.

[142] The preface is edited and translated in Burnett, "Magister Iohannes Hispalensis et Limiensis," 255-258.

In addition, there is a preface to the translation of Thebit's *De imaginibus* which may also have been authored by John of Seville.[143] In this preface, John recounts how he came to possess the book in Arabic, which was given to him by a Master who had many other books, and only after John had expended much effort and time devoted to studying the science of the stars. It is not clear whether the Master is Christian. In the preface John professes to be "placed amongst wild races…living without help far from the domestic <comforts of people having> complete faith towards God."[144] This could mean that he was living in Muslim-controlled lands. In giving him the book, the Master advises John that many men who consider themselves to be experts in the science of the stars are quite lacking in the knowledge of its essence, which is the study of talismans. And furthermore, talismans are tools which God has bestowed upon man "for the punishment of ill-doers or the praise of the just."[145] This preface links the study of astrology to the use of talismans, which are ultimately tied to God's will. The preface implies that the use of talismans may have been John's ultimate aim, and an understanding of astrological principles is necessary to achieve this aim. Whether or not this was true, at the very least John presents a perspective of the accommodation of astrology, and specifically the use of talismans, to Christian faith. Additional links between Alcabitius's *Introduction to Astrology* and the use of talismans will be addressed in later chapters.

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[143] This preface is also edited and translated in Burnett, "Magister Iohannes Hispalensis et Limiensis," 252-255. Burnett makes a strong case that John was the author of the preface, despite initial skepticism from Lynn Thorndike.

[144] Burnett, "Magister Iohannes Hispalensis et Limiensis," 254.

[145] Burnett, "Magister Iohannes Hispalensis et Limiensis," 254.

John's list of translations is almost entirely of Arabic authors.[146] This fact reflects not merely his preference for Arabic authors, but the reality of the abundance of Arabic astrological texts available in the twelfth-century Iberian peninsula. A similar point could be made about Plato of Tivoli, who translated Ptolemy's *Quadripartitum* in 1136, with the majority of his other translated works being composed by Arabic authors.[147] In the case of astrology, translators were working either to make Arabic astrology available to a Latin audience, or were seeking to recover ancient astrological ideas which had been preserved in Arabic sources. As will become evident from an analysis of the translation, while the latter case certainly remains possible, it is clear that Latin scholars were beholden to Arabic authors for the vast majority of their knowledge of astrology. The translation practices of scholars and their attitudes towards the Arabic astrological tradition were closely interlinked, which becomes clear from looking more closely at the translation itself.

Textual Transformations

When the text of the *Introduction to Astrology* was rendered into Latin, it underwent a variety of transformations.[148] These transformations occurred, on the one hand, from the individual motivations and choices of the translator and reflected

[146] Although attributed to Aristotle and Ptolemy, pseudo-Aristotle's *Secret of Secrets* and pseudo-Ptolemy's *Centiloquium* likely had Arabic origins.

[147] Plato of Tivoli translated al-Battani's *Zij*, the *De usu astrolabii* of Masalama, the *Iudicia Almansoris*, the *De electionibus horarum* of al-Imrani, the *De nativitatibus* of Albohali, and the *De revolutionbius nativitatum* by Albubather.

[148] There are several studies of translation practices in the medieval period, few of which deal with translations from Arabic. See Peter Anderson, ed., *Pratiques de traduction au Moyen Age: Actes du colloque de l'université de Copenhague 25 et 26 octobre 2002* and Jeannette Beer, ed., *Translation Theory and Practice in the Middle Ages* (Kalamazoo, MI: Medieval Insitute, 1997).

broader, cultural concerns related to the context in which John was working. Transformations in the text arose from various additions and omissions made by the text's earliest readers, now embedded in the Latin manuscript tradition. The textual changes are manifestations of both the attitudes of the translator and earliest readers towards Arabic sources and the broader Arabic astrological tradition. Latin scholars who encountered the new Arabic learning employed different Arabic-Latin translation styles in the early twelfth century.[149] Among these attitudes, Charles Burnett has identified two distinct trends.[150] The first trend shows Latin translators accommodating the Arabic text to Classical Latin by various means, and obscuring the Arabic origins of the text. In these cases, literal translation was avoided and some translators abbreviated whole passages of text.[151] Hermann of Carinthia utilized this approach in his translation of Abū Ma'shar's *Great Introduction to Astrology*. He justified his method in the preface to his translation, addressing his fellow translator Robert of Ketton, and discussing the difficulties of rendering the verbose Arabic language into suitable Latin.[152] Hermann's abbreviations were not an attempt to completely disguise the Arabic origins of the text, however, as he did cite Arabic authorities. But, as

[149] For a general account of medieval translations from Arabic to Latin, see Charles Burnett, "Translating from Arabic into Latin in the Middle Ages: Theory, Practice, and Criticism," in *Éditer, Traduire, Interpreter: essaies de méthodologie philosophique*, ed. by S. G. Lofts and P. W. Rosemann (Leuven: Peeters, 1997), 55-78.

[150] Charles Burnett, "Humanism and Orientalism in the Translations from Arabic into Latin in the Middle Ages," in *Wissen über Grenzen*, ed. Speer and Wegener, 22-31.

[151] Several examples of abbreviation are found in Dag N. Hasse, "Abbreviation in Medieval Latin Translations from Arabic," in *Vehicles of Transmission*, 160-172.

[152] "You have experienced how difficult it is to turn out anything suitable to Latin speech from an exuberance of expression (*fluxus loquendi*) as is characteristic of the Arabs, especially in these subjects [that is, the science of the stars] which demand such an exact replica of the matter." Quoted in Hasse, "Abbreviation," 163, and Burnett, "Translating from Arabic into Latin," p. 60, n. 76.

Burnett notes, Hermann did not hesitate to include classical Greek or Latin references.[153] The other style adopted by Arabic-Latin translators was strictly literal. In composing literal translations, oftentimes translators chose to transliterate terms for which no acceptable Latin equivalent was found. Burnett notes that these terms usually retained the Arabic definite article "al", were left undeclined according to Latin grammatical rules, and occasionally retained the Arabic "ta marbuta" at the ends of words, translated as "a", which almost always signifies feminine grammatical gender. Furthermore, literal translations often reflect Arabic syntax.[154] In other words, the literal approach to translation laid bare the Arabic origins of the text.

John of Seville exemplified this literal translation style. He defended this approach in a preface to his translation of pseudo-Aristotle's *Secret of Secrets*, dedicated to Queen Theresa of Portugal. He wrote, "I followed the sense in certain cases, the [sense and the] letter in others. Nor is it surprising if through my inexperience I have done this, since almost all wise men who have been interpreters are known to have acted in this way. For the differences in translations indicate that no one is able to follow the letter always. As for me, I have rather followed the letter in all cases lest I might depart from the path of truth by any extent."[155] John's commitment to preserving the true meaning of the text represents his acknowledgment of the authority of Arabic learning. John is explicit about his literal style in the preface, but the

[153] Burnett, "Humanism and Orientalism," 30.

[154] Charles Burnett, "Astrology," in *Medieval Latin: an Introduction and Bibliographical Guide*, 377.

[155] Quoted in Charles Burnett, "Magister Ioannes Hispalensis et Limiensis," 258.

literalness of his translations is also very apparent from studying his translations, particularly the *Introduction to Astrology*.

John's literal style is one of many different facets of the translation by which one may ascertain certain attitudes from a close analysis of the Arabic and Latin texts. There are several other features of the translation which yield insight into how John and other early readers came to appreciate the text. But comparing the Arabic and Latin texts does involve some complications. In their edition of the *Introduction to Astrology*, Burnett, Yamamoto, and Yano enumerate some of these complications that arise when making this comparison. Most simply put, there is no single "pure" version of the Latin text, free from what appear to be interpretative additions from the translator, the text's earliest readers, or from marginalia in the Arabic manuscripts. This may have been due to the fact that Arabic manuscripts of the *Introduction* were circulating at the same time and place as the Latin manuscripts, leading readers familiar with Arabic to make their own textual interventions. The fact that the earliest known Latin manuscript, from 1135, was destroyed compounds this problem. Burnett, Yamamoto, and Yano have provided four reasons that prevent us from establishing a linear progression of the text in Latin, which also frame how we must examine the Arabic-Latin translation. These reasons are the following:[156]

1) There are marginal annotations which may have been present in the Arabic tradition which appear inconsistently in different places in different Latin manuscripts. One example of this is the list of the "greatest years" of

[156] I summarize these reasons here from the BYY edition, where they are clearly laid out with a much more elaborate discussion of these examples and others, BYY, *Introduction*, 205-210.

the planets, which we find in chapter 2, sections [5], [10], [15], [22], [28], [33], and [38]. In Arabic manuscripts these are often in the wrong place or omitted, and in Latin manuscripts this information is omitted or sometimes placed after "great years."

2) There are corrections in both the Arabic and Latin texts with regards to other astrological authorities. It is not obvious whether these corrections were introduced into the Arabic tradition and then translated into Latin, or whether they were corrections introduced by John or early Latin readers. One example of this is in a table of values of masculine and feminine degrees in chapter 1, [49]. In the Arabic tradition, one set of manuscripts gives what are presumably al-Qabīṣī's values, whereas another set follows (for the most part) Abū Ma'shar's values. The Latin tradition reflects both traditions, and it is possible that Latin readers could have taken Abū Ma'shar's values from an Arabic manuscript of al-Qabīṣī, or from the Latin tradition of Abū Ma'shar.

3) There are annotations in the Latin manuscripts (both marginal and interlinear) of alternative translations of Arabic words, from which later scribes made different selections, and occasional attempts at retranslating entire phrases. Sometimes this occurred because Arabic words could be read in more than one way.

4) There are Latin explanations and discussions of Arabic terms (transliterations) and phrases in the margins or the text itself, which may have been added when the text was translated, and were later expanded,

> omitted, or put in different places. For example, in chapter 1 [10], the phrase *propter effectus suos in nobis et quia facit nobis estatem* has been added to the section explaining the Sun's lordship over the half of the zodiac from the beginning of Leo to the end of Capricorn.

Keeping these challenges in mind, the BYY edition provides several means for discovering and analyzing textual transformations. According to BYY, MS BAV Reg. lat. 1285 gives the closest agreement of the Latin with the Arabic text, and the editors selected Reg. lat. 1285 as the basis of their edition. BYY also recorded all of the glosses and editorial remarks contained in Reg. lat. 1285 from a thirteenth-century reviser. The reviser's comments, and the glosses (which are found in several other early manuscripts), appear in the edition as the first of three critical apparatus. There are two additional critical apparatus included with the Latin text which aid in deciphering changes to the text. The second apparatus identifies discrepancies arising from a comparison of the Latin and Arabic texts. This second apparatus lists words or phrases which have been added to or omitted from the Latin text. The third apparatus provides manuscript variants. In addition, BYY have identified several phrases which appear in the Latin text which are missing from the Arabic text and do not appear to have been translations from Arabic. These phrases are italicized. Taken together, these editorial tools provide sufficient evidence to analyze the textual transformations which came about due to the translation.

The following textual analysis is divided into three sections: transliteration, interpretation, and religious elements. The first section identifies and lists the terms

which were retained as transliterations from Arabic, and provides an analyis of the effects that these transliterated terms had on early readers. The second section focuses on the Latin phrases added to the text, i.e. Latin interpretations, which BYY have identified in italics. Many of these phrases are short definitions of transliterated Arabic terms, while others serve to elucidate astrological theory or the physical structure of the heavens. Lastly, there is an analysis of the inclusion or omission of religious terminology, and the import of these changes on early readers.

Transliteration and Interpretation

As we have seen, prior to the translations, Latin scholars were familiar with features of ancient cosmology, but lacked the technical details to make astrological calculations, including the casting of horoscopes. Early astronomical treatises translated from Arabic retained Arabic terminology, such as the names of stars and planets. None of these texts, however, contained technical astrological terms. Once the translation of astrological texts was underway, translators encountered a whole new range of astrological vocabulary related to technique. Some technical terms were originally Greek and had been translated into Arabic, and others were of Indian or Persian origin and the Arabs translated them or transliterated them into Arabic script. Similarly, Latin translators chose to either translate terms into a suitable Latin equivalent, or to retain the Arabic term by transliterating it into Roman script. A few other non-astrological terms were also transliterated rather than translated. The result was a hybrid text with a distinctly Arabic character. The literal style of translation employed by John of Seville, which reproduced Arabic syntax, and the retention of

several Arabic terms solidified the link between the science of astrology and Arabic culture.

To better understand the effects that transliterated terms had on medieval readers, I have provided a list of the terms in order of their appearance in the text, noting also subsequent instances. In addition, I have listed spelling variants that have been identified in the BYY edition,[157] to give a sense of the range of variations Latin readers would have encountered. The list does not include titles or proper nouns. In the following list, I first display the Arabic term, then the transliterated form as it appears in the BYY edition. In parentheses, I give a selection of the variants listed in the BYY edition, along with the occasional Latin translation exactly as it appears in the BYY edition (preserving the grammatical form). This is followed by the English meaning.

In some cases, the *Introduction* makes clear the meaning of a technical term by providing a definition, which immediately follows the word or concept in the original Arabic version of the text. John of Seville retains these definitions in his translation. However, there are several terms that John transliterated that were not defined in the Arabic text. In these cases, either John himself or other early readers provided a short definition or description of the term in Latin to clarify the meaning of the Arabic

[157] For each transliterated term, I provide the chapter and the section number in brackets as it appears in the BYY edition. The Latin variants are listed in the 3rd critical apparatus, which give the manuscript sigla, as provided in the BYY edition, for each variant. Occasionally, there were transliterations which appeared in only one manuscript, where the Latin *Venus* was transliterated with the Arabic *adzohare*. See BYY, *Introduction*, 1: [14], 230. I have not recorded these here but still acknowledge their role in contributing to the Arabic origins evident in the text.

transliterated term, which I refer to here as "interpretations."[158] The BYY edition has italicized these phrases to indicate that they do not appear to be translated from the Arabic, and are thus additions made by the translator or other early readers. The phrases are reproduced in the following list in italics,[159] followed by an English translation in most cases. In addition, the reviser of Reg. Lat. 1285 identified some of these phrases with "vacat" or "glosa," suggesting they were perhaps missing from an Arabic manuscript in his possession and/or added by either the translator or early readers. Terms that have been labeled "vacat" or "glosa" are identified by an asterisk. Several of the terms, with or without accompanying Latin definitions, were sometimes defined in the margins of later manuscripts. These additions are also indicated in the list, but will be treated more thoroughly in the following chapter on marginalia.

1: [6] al-niṭāq : Nithac (Nytach, Pithac, Nitach, Sytac, Nitac, Nichat; Zodiacus)

Literally means "belt." Refers to the zodiacal belt.

*Id est cingulus** ('that is belt')

1: [14] al-minṭaqah : almantica (no variants; zodiacus, circulus)

[158] Evidence from an early manuscript, Reg. lat. 1285, suggests that many of these "interpretations" appear to have been added by John or a contemporary early reader. A reviser of the text likely compared his Latin manuscript(s) with an Arabic original, underlining and/or commenting on Latin phrases missing from the Arabic. The reviser of Reg. lat. 1285 labeled many of these definitions with "vacat," providing further evidence that the phrases were missing from the original Arabic manuscripts. See BYY, *Introduction*, 201-202 and 216-220.

[159] These short descriptive phrases also contain variants. Unless otherwise noted, in the list I have reproduced the text selected by BYY for the edition.

A variation on the word niṭhāq, referring to the zodiac belt.

*Hoc est in cingulo qui latus est in medio et in ligatura strictus, et habet significare zodiacum circulum** (‘This is on a belt which is wide in the middle and drawn together where it is tied, and it indicates the zodiac circle’)

1 : [52] al-zamānah : azemena (adzemani, azamena)

The term means “chronic illness.”

Latin passage contains subsequent instances of the term, which are occasionally declined according to Latin syntax in other MSS (azamanas, azemeni.)

Id est gradus debilitationis corporis. Est enim azemena quedam debilitatio corporis temporalis, ut est cecitas, surditas, amissio membrorum et cetera talia, que quamdiu vixerit homo semper habebit secum. Cum ergo fuerit Luna cum his gradibus in nativitate alicuius pueri, accidit participes…[160]*

1 : [55] al-zīj : aziz (ezich, azis, azig, ezyhi, liber ezibi, azizi, eszig)

Refers to the astronomical tables of planetary positions.

Id est in libro cursus siderum (‘that is in the book of the paths of the stars’)

1 : [56] al-awtād : alauted (alamed, alasmet, alautez, eleuted, alauveth)

Refers to the astrological term “cardines,” which designate the cusps of the 1st, 4th, 7th, and 10th and thus refer to the ascendant, descendant, midheaven, and lower midheaven.

[160] The full text and translation are on pp. 99-100.

*Quas nos angulos vocamus ut pulcrius sonet** (‘which we call angles as it sounds nicer’)

1 : [57] al-ṭāliʿ : athalie (athale, atale, eltalah; ascendens)

Refers to the astrological term “ascendant,” or the zodiacal sign and degree ascending on the eastern horizon at the time of a specific event; this term is almost always translated as “ascendens.”

Id est ascendens (‘that is ascendant’)

1 : [64, 72] al-mawārīth : almauerith (almauerit, almaueriht, almientum, almauerich, almuerit)

Refers to “inheritance.”

Id est substantias vel hereditates mortuorum quas debent heredes post mortem eorum possidere.

Id est que hereditanda sunt ex mortuis, sicut superium dictus est.

Id est substantia que hereditatur a mortuis.[161]

1 : [77] al-mubtazz: almubtaz (almubzat, almutaz, almultath, abnubtaz, almutat, almubtez; dux vel dominator, victor, vincens)

N.B. This transliterated word does not appear in the Arabic MSS in this point in the text. It may have been in an Arabic MS that is no longer extant.

[161] These three phrases are translated and discussed on p. 94.

1 : [78] al-ḥayyiz : alhaiz (alhaiz, alaiz, aiz, alhait, heroz, alhaiz, allaiz, elyhz, alhais; similitudo) ; also in 3 : [6]

Refers to the astrological circumstances when a planet is in a position that reinforces its nature, and designates, for example, when a masculine planet is in the masculine part of the sky, or feminine planet is in the feminine part of the sky. BYY translates as “domain”(distinct from “house”or “place”).

Appears in two instances in the passage, the first with definite article in the Arabic with Latin variations noted above, the second without definite article in Arabic, with the following Latin variations, some of which have added an Arabic definite article: haiz, alhayz, adhaiz, haiz, elhyz, alhais, aiz.

The early gloss offers “similitudo” as a translation, which is incorporated into several manuscripts.

The term is defined in both the Arabic and Latin texts.

2 : [5] fardārīya: firdarie, 4 : [20] alfirdariet

Refers to an astrological term for the years of a native’s life over which a planet has “lordship”, BYY edition leaves untranslated.

Later glosses provide definitions/explanations

2 : [14] al-ḥamra : alhabra (alabra, allabra, allibra, halbabra, alhabara, alahbra, alabbra, alvabra, alabraha)

Refers to a disease; BYY edition renders it “anthrax.”

Que est rubedo corporis cum asperitate et feditate (‘which is the reddening of the body with severity and impurity’)

3 : [3] jawzahar : geuzahar (geuzaar, geuthayr, iheuzaar; abscisio), 3 : [28] jawzaharāt : geuzahar

Refers to the astrological term which describes the two nodes where a planet’s path crosses the ecliptic, BYY edition leaves untranslated.

*Id est, cum transierit per viam Solis iens a meridie in septemtrionem, ille transitus, id est ipsa abscisio circulorum, dicitur geuzahar** (‘that is when it will have passed by the way of the Sun going from the south to the north, that transit, that is its own cutting of the circle, is called geuzahar’)

Later glosses also provide further clarification.

3 : [5] al-muwājaha : almuwegeha (almuwagen, almullegua, almuegea, almigea, almugea, almuhegea, almuwergea, almuvega, almuguegea, almuegeia)

Refers to the astrological circumstance when a planet is in a certain position with respect to the Sun or Moon (specifically, when the distance between its position and the Sun or Moon is equal to the difference between the house of the planet and the house of the Sun or Moon); BYY edition translates as “facing.”

The Arabic and Latin text provide an explanation/definition, and several glosses provide supplemental definitions.

3 : [6] dustūrīya : duztoria (ductoria, duçtoria, duxtoria)

Refers to a rare astrological circumstance involving a quartile relationship between a planet and the Sun or Moon, when they are in the cardines; BYY edition leaves untranslated.

The Arabic and Latin text provide an explanation/definition, and glosses provide supplemental definitions.

3 : [11] al-ittiṣāl : alictisal (no variants; coniunctio, applicatio, iungo)

Refers to the astrological circumstance "application", which occurs when two planets are in two signs, aspecting each other, and the planets are in certain positions within the signs and with respect to each other; "Application" is also taken into consideration when determining additional planetary conditions. Latin supplies and confounds coniunctio, applicatio, and the transliterated alictisal.

3 : [19] al-qabūl : alcobol

Refers to an astrological circumstance when two planets are each in their shares in their houses and they apply to each other; BYY edition leaves untranslated.

Id est receptio ('that is receiving')

3 : [21] al-intikāth : alintiketh (alintichee, aluueth, alintiheth, almenez, alinthicie, almulreb, alintikeh, alintihech, ahntmet, almatreb, elentiked, almenen)

Refers to the astrological circumstance when one planet begins an application to another planet, but retrogrades before the application is complete; BYY edition leaves untranslated.

Id est refrenatio (‘that is restraining’)

Concept explained in Arabic/Latin text

3 : [22] al-iʿtirāḍ : alitirad (altiraz, alitirat, altuar, aluirad, alintirad, alatired, almitirad, alichorad)

Refers to a complex astrological circumstance involving an application relationship between three planets; BYY edition leaves untranslated.

Id est contrarietas accidens (‘that is opposition to happening’)

Concept explained in Arabic/Latin text

3 : [23] al-fawt : alfaut (alfauth, alfauṯ, alfazim)

Refers to an astrological circumstance involving three planets in application, where one of the planets shifts to another sign; BYY edition leaves untranslated.

Id est frustratio (‘that is delaying’)

Concept explained in Arabic/Latin text

4: [3] al-namūdār : animodar (annimodar, animordor, anni modar, elneuceredar)

Refers to nativities in astrology; BYY edition leaves untranslated.

*Quod est investigatio gradus ascendentis alicuius nativitatis** (‘which is the seeking of the degree of the ascendant for any birth’)

4 : [4] al-haylāj : hilesg (hilel, hiles, hyles, yles, hilegh, hiselesg, elhyleg, hyleg, hylech)

Refers to an astrological term related to calculating the length of life; BYY edition suggests “prorogator” but leaves transliterated.

Later glosses suggest meaning

4 : [5] al-kadkhudhāh (alquodchodeu, alquodchodeuh, alquodhodeu, aliq(uod)hodeu, aliq(uod) hodeu, alchocodeu, alchoden, alcocodeu, aliq(uo)dchodeu, alcogodeu, alcodcodeu, acozcodeu, alkudchudech, alcochodeu, alcochoden)

Refers to an astrological term which determines the length of life; BYY edition leaves transliterated.

Also in 4 : [19] : alcelchodeu, *hoc est per dominum anni* (‘this is through the lord of the year’)

4 : [8] al-sālkhudhāy (elsalacdey)

Refers to an astrological term. This transliteration appears in only one MS (V), and the translator has rendered it and subsequent instances with *alcelquoddeu*.

4 : [9] al-hijra : Alhegerah (Alhegerat, Alhegarah, Algeruth, Eligra, Algeherat)

Refers to the flight of Mohammed from Medina to Mecca in the year 622, and marks the beginning of the Muslim calendar.

Qui fuit primus annus annorum Arabum (‘Which was the first year of the years of the Arabs’)

4 : [9] Yazdajird : Iazdagird (Gezdageret, Gezdargird, Iardagirid, Gezdagird, Gezdagirt); 4: [10]

Refers to a Persian King, the years of whose reign is used for astrological calculation.

Regis Persarum (‘of the Persian Kings’)

4 : [9] al-zīj : Azige (Cicyge, Accige, Azig, Alsig)

Refers to astronomical tables of planetary positions; also in 1 [55].

Id est in libro cursuum planetarum (‘that is in the book on the paths of the planets’)

4 : [11] al-tasyīr : (athacir, atazir id est directio)

Refers to the astrological concept prorogation, a complex calculation which results in the degrees of an arc along the ecliptic; indicators (such as the degree of the ascendant or Sun and Moon) moving through these degrees supply information about the body, soul, family, etc.) BYY edition supplies “degrees of the motion.”

Directio (‘straightening’)

4 : [11] al-naḍīr : nadir

Refers to the nadir, the point on the celestial sphere directly below the observer.

Id est oppositi (‘that is of the opposite’)

4 : [14] al-jārbukhtār : algerbughtar (alger bugthar, algerbuthar, alge. burgar, algebutar, agerbuhgtar, algerbughzahar, algerbugthar, elyarbuhtar, algebughtar)

Refers to an astrological calculation used in nativities and related to the tasyīr; BYY edition leaves untranslated.

4 : [16] al-nawbahrāt : annaubaharat (annaubahanterh, almuhaharat, annauhaharat, anauba\ha/lart, annabaharath, aunaubahahaufart, amaubaharath, alnahbuharat, annaubarat)

Refers to an astrological calculation; BYY translates as "the ninths."

Que sunt novenarie (this phrase occurs in the original Arabic—wa hiya al-tesā'a—and is translated into the Latin as such)

Also appears in 4 : [17] in singular form, without the Arabic definite article : naubahar, *id est novenarium*.

4 : [18] al-darījān : addorungen (adorugen, adurugen, adorogen, addorugen, addorungem, eldarbigen)

Refers to an astrological calculation whereby the ascendant is divided into thirds; BYY edition leaves untranslated.

Id est decanus (appears after 2nd instance of term; in this section the term appears four times)

4 : [21] al-mamarr: almamar (elmumar, almanar)

Refers to the astrological circumstance when planets “pass over” other planets; BYY edition renders the English “transit.”

Id est supereminentia (’that is supereminence’)

4 : [23] al-bust : albuzt (albuizt, albutiz, albusit id est combustio, albouyz, albur., albusk, albiuzt, aburezh, albuhct, albuidz, albutez)

Refers to an astrological calculation related to the twelve hours after a conjunction and the lords of the triplicity of the Sun; BYY edition leaves untranslated.

5 : [19] al-ḥimmiṣ : hymz (himz, humz, hiez, hims, yrac, helmes, yrcorum hamerum, hyms)

Garbanzo beans

5 : [19] al-māsh : almecii (alsemi, aseni, almesii, milii, elmes, almusi)

5 : [19] al-aruzz : aloroz (alroz, alogoz, alozoz, alorez, alceos, elrus, alotoz)

Rice

Quod est quoddam genus farris (‘Which is some kind of grain’)

5 : [19] al-quṭn : bambasii (alcothu, alchoto id est bambabasii, alcatu id est bube, banbatii, bombicen id est cocherii, alceto, cotonis, bombaci, bombicis)

Cotton

5 : [19] al-simsim : alcicem (alcincem, alticem, alcemcem, alchonicen, altinicen, alcimen, alucen id est alomiden, alcemcem, alrices, elusce, aloctan, alonicem

Sesame seeds

*Quod est quoddam genus seminis albi in similitudine seminis lini et utuntur eo medici, fitque ex eo unguentum in medicinis utile** ('which is some kind of white seed similar to flax seed and used by physicians, and from which is made an ointment very useful for medicine')

5 : [19] al-biṭṭikh : abbathigh (alba.thaG, melonum, albathegh, abathegh, albahnna, albthige, albathigh, albathag, albadog, albuteg, bathigh, albagith)

Melon

Qui sunt buteflez magni atque maturi et crocei ('Which are large, ripe, and yellow melons')

The majority of the terms on this list are related to technical astrology, particularly those from chapter 4, which deals explicitly with astrological terminology.[162] Immediately evident is the range of variants to which transliterated terms were subjected across manuscripts. For some terms transliteration was straightforward, such as the rendering of the Arabic *al-mamarr* to the Latin *almamar*. The transliteration of other terms resulted in much more complex variations. Variants, of course, occurred across centuries of copying. Thus, the translator's choice to transliterate rather than translate had significant ramifications for readers in later

[162] This is stated in the chapter titles in both Arabic (*samāt al-munajjimīn*) and Latin (*nominum astrologorum*).

centuries. In transliterating a term, John may have attempted to mitigate difficulties in deciphering its meaning by providing short "interpretations," which appear italicized in the list above. There were thus three different modes in which transliterated technical terms appeared in early manuscripts: 1) terms were transliterated and left without an "interpretation" (*hilesg)*; 2) terms were transliterated and "interpreted", and retained the transliterated form (*nadir*); 3) terms were transliterated and "interpreted", and maintained their "interpreted" form (*athalie*/*ascendens*; *awtad*/*angulos*). In the final case, the "interpretation" morphed into a translation for later instances of the term. The "interpretations" played a crucial role in helping readers to understand the transliterated text, and they also allow some insight into how the translator understood certain Arabic terms.

In looking at the Latin "interpretations" of the transliterated terms, we see a concerted effort by the translator to clearly explain their meanings. The very first word of the first chapter, for example, is *Nithac*, and the translator has added "id est cingulus" to clarify its meaning. Several later variants in the manuscript tradition offer further efforts at pinning down the meaning of this very basic astrological term, the zodiacal circle.[163] When a variation on the term appears in a subsequent passage, the translator provides the following definition (for the transliterated term *almantica*): "hoc est in cingulo qui latus est in medio et in ligatura strictus, et habet significare zodiacum

[163] The manuscript variants listed in the edition for "id est cingulus" are: *id est circulus*, *id est essentia*, *circulus vel nitac id est circulus*, *id est nitac circulus*, *circulus*, *id est zodiacus circulus*, *id est zodiacus id est circulus*. See BYY, *Introduction*, 230.

circulum."[164] Since it is not clear from the Latin transliterations, *nithac* and *almantica*, that the words are related, the translator has made an additional effort to clarify the meaning of the latter by using the same Latin term, *cingulus*. In subsequent references to the zodiacal circle, one of the Latin variants, usually *cingulus* or *circulus*, is used rather than *nithac*. With other transliterated terms, the translator also chose to initially transliterate the term, and then in later instances employed the Latin translation. In the case of the Arabic term *al-awtād*, referring to the cardines in astrological theory, the translator first transliterates the term as *alauted*, and then notes, "quas nos angulos vocamus ut pulcrius sonet."[165] Where *al-awtād* appears again in the Arabic text, the translator uses the term *angulus* instead of the transliterated term. In the case of the term *al-ṭāliʿ*, which means "ascendent," the translator has unequivocally translated the term as *ascendens* in all cases except one, where he transliterates the term *athalie* but then adds, "id est ascendens." The ascendent and cardines are very basic technical terms which appear frequently in the *Introduction*. Having retained the transliteration in at least one instance for each term, the translator accomplished several goals: he preserved the meaning of the term, he made the text more palatable for Latin readers, and he illustrated a commitment to the authenticity of the Arabic text and the authority of the Arabic tradition. There are also several terms which retained their transliterated form.

[164] BYY, *Introduction,* 1: [14], 230: "this is on a belt which is wide in the middle and drawn together where it is tied, and it indicates the zodiacal circle." Other manuscripts include alternatives which shorten this to "id est in circulo zodiaco," "hoc est cingulus," "hoc est in circulo."

[165] BYY, *Introduction,* 1: [56], 255: "which we call angles as it sounds nicer."

Distributed throughout the text, transliterated Arabic terms preserve the sense in which the text appeared "foreign" to Latin readers. This is especially true for transliterated words that are repeated in multiple instances, rather than substituted with a Latin equivalent. The term *almauerith* is less important for astrological theory, but is nevertheless clearly defined. It appears in a discussion of the significations of the houses. The passage reads: "Octava domus mortis; significat timorem et mortem atque almauerith, id est substantias vel hereditates mortuorum quas debent heredes post mortem eorum possidere."[166] Mentioning the term again, the translator notes, "Id est que hereditanda sunt ex mortuis, sicut superium dictus est."[167] In another instance, the translator gives an abbreviated version of his first definition: "id est substantia que hereditatur a mortuis."[168] In English, as noted in the list above, *almauerith* is best translated as "inheritance." The translator chose to leave this word as a transliterated term rather than using the Latin *hereditas*. However, he had already used *hereditas* for the translation of another Arabic term, *al-ʿiqārāt*, which has a more specific sense of inherited property. Whatever his reasons, the transliterated term contributes to the Arabic feel of the text.

The term *al-haylāj* (*hilesg*) is another example of a retained transliteration. *Al-haylāj* appears frequently in chapter four, on the technical terms of the astrologers, although it is never clearly defined. The translator does not decline *al-haylāj* according

[166] BYY, *Introduction,* 1: [64], 258: "the eighth house is of death; it signifies fear and death and almauerith, that is the property or inheritances of the dead which the heirs should take possession of after their death."

[167] BYY, *Introduction,* 1: [64], 258: "that is what is to be inherited from the dead, as has been said above."

[168] BYY, *Introduction,* 1: [72], 262: "that is the property which is inherited from the dead."

to the Latin syntax, despite the fact that it is used in several different grammatical constructions within the Arabic text and thus takes on several different forms, which usually would result in differences in transliteration. In the Arabic text, the term is used as a noun as the subject in a sentence (*al-haylāj*), as a predicate (*haylājan)*, and as a direct object which takes the Arabic preposition "li" meaning "for" (*lil-haylājīyati*). The translator does not transliterate these different occurrences, choosing instead to consistently transliterate the term in its truncated noun form *hilesg*. The term appears almost always without the definite article, although it does appear in some variants. The translator has accommodated the Latin syntax to capture the sense of the Arabic sentence. Despite the grammatical variations in the term itself, the Arabic constructions consistently employ the same verb, *ṣalaḥa* (translated "to be suitable" in BYY), conjugated in the same manner for every instance of the term *al-haylāj*. The Latin, on the other hand, uses a variety of constructions to discuss the *hilesg,* most often with the adjective *aptus* (also meaning "suitable"), declined according to Latin syntax, and occasionally with the passive form of the verb *apto*. The cumulative effect of the different ways in which *aptus/apto* was accommodated to *hilesg* is difficult to imagine for medieval readers, but the concept of the *hilesg* was important enough to sustain the use of the transliterated term throughout the Latin textual history of the *Introduction*. At the very least, the incorporation of the term into Latin astrological vocabulary confirms the idea that advanced astrological concepts were strongly linked to the Arabic tradition.[169]

[169] Although, in fact, the concept originates in ancient texts and the term itself comes from Persian.

A similar case may be made for the term *alquodchodeuh*, although the translator has treated this term slightly differently. The meaning of the term is similar to the *hilesg*, but utilizes the *hilesg* in the calculation. The translator conjugated the term according to the genitive case on a few occasions, and thus we see this transliteration: "Quis horum fuerit fortior et plus autentior in loco hilesg et aspexerit hilesg, erit dignior *al[i]quodcodeie*."[170] The translator has also distinguished between instances in the Arabic text where the definite article is preserved or dropped, resulting in several appearances of *quodchodeuh* in the Latin text. The use of the definite article in transliterations is, however, inconsistent with its appearance in the Arabic text.[171] The term is defined in the Arabic text as "the indicator of the length of life," which the translator has rendered "quod est significator vite" or "the indicator of life." As there is no simple, single Latin word which could accommodate the meaning of this term, John chose to preserve the Arabic transliterated term rather than employ the noun phrase *significator vite* for every instance of its use.

Retaining the transliterated term has several effects on readers. It demonstrates a respect for and appreciation of Arabic astrology. When a word is transliterated rather than translated, there is a sense that the true meaning of the text resides in the term itself, creating a sense of reverence for the Arabic text. In the case of *nithac*, the translator reminds the reader of the Arabic origins of the text by beginning the first chapter with an Arabic term. The Latin astronomical vocabulary related to stars,

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[170] BYY, *Introduction,* 4: [5], 324: "Whichever of these would be stronger and more bold in the place of the hyleg and will be aspecting the hyleg, it will be more worthy of the alchocoden."

[171] There are two occasions where the definite article appears in the transliterated text but not in the Arabic original. See BYY, *Introduction,* 4: [6], 325.

planets, and heavens was well-established by the early twelfth century, and the translator's decisions about transliteration reveal the complex processes behind establishing a consistent astrological vocabulary. This process reinforces the sense in which astrology was novel to Latin scholars, and hence they did not have their own technical vocabulary for astrology. It also underscores the Arabic origins of the text. In several cases, transliterated Arabic terms remained the dominant form for a particular concept throughout the Middle Ages and the Renaissance. This was especially true for technical terms; all of the technical astrological terms discussed in chapter 4 of the *Introduction* retained their transliterated form in manuscripts. Transliteration represents a conscious choice on the part of the translator to preserve the original sense of Arabic astrological vocabulary. While in some cases a Latin equivalent is provided as an alternative, the persistence of Arabic vocabulary in the text represents an underlying adherence to Arabic astrological terminology and thus the authority of the Arabic astrological tradition.

Interpretative Explanations

In the previous section on transliterations, we examined how short, descriptive phrases clarified the meaning of Arabic terms while retaining their original sense. Several additional phrases in the Latin text but not in the Arabic original provide further clarification of points even in the absence of a transliterated Arabic term. Indeed, these phrases range from short clarifications to much lengthier explanations of concepts, and they appear on virtually every page of text. They are frequently demarcated by *id est*, which has no equivalent in the Arabic text and further underscores these phrases as Latin interventions. As indicated in the previous section,

the BYY edition has italicized all of these Latin phrases to clearly distinguish them from the Arabic original, and I reproduce the italics in the following analysis. Furthermore, the astute labeling of the reviser of the manuscript Reg. lat. 1285 gives a further hint about which of these phrases may have been added by the translator and which of them were glosses by early readers. For the additions, as we have seen in the previous section, the reviser used the word *va…cat* to surround words or phrases which are missing in the Arabic text. For the glosses, he has written the phrases in the margins using clear reference symbols, or used the term *glo…sa* to embrace interpretations of Arabic words or phrases found in the main text.

Some of the interpretative additions are quite obvious to the modern reader. Consider the following example. In a section of chapter two which concerns the nature of Saturn, the Arabic text reads: "Māshā'allāh said that it indicates Judaism and black clothes."[172] The Latin text of this section reads in full: "Et dixit Messehalla, *id est quod Deux voluit, qui fuit unus astrologus in scientia perspicuus Indus qui sic dictus est,* quod significat fidem iudaicam—*et est ex antiquioribus, et omnes confitentur eam et ipsa nullam aliam, sicut Saturnus, cui omnes iunguntur et ipse nulli*—et indumenta negra."[173] The italicized phrases in this passage are clearly missing from the Arabic text. The reviser of Reg. Lat. 1285 labeled "id est quod…dictus est" as *glosa*, whereas "et est ex antiquioribus…et ipse nulli" is labeled *vacat* and according to BYY

[172] BYY, *Introduction*, 2:[4], 64-5: "wa qala Māshā'allāh yadala 'ala al-yawhudayya wa labis al-sawad."

[173] BYY, *Introduction*, 2:[4], 269: The passage reads: "And Messehalla said, *that is 'what God wills,' who was an Indian astrologer perspicuous in knowledge, who is thus called*, that it signifies the Jewish faith—*and it is among the most ancient, and all acknowledge it and itself not any other, just as Saturn, to which all are joined and itself to none*—and black clothes."

reproduces text from Abu Ma'shar, *De magnis coniunctionibus*. The added text clarifies the identity of Messahala, "an Indian astrologer," the first time his name is mentioned in the text, whereas the text copied from *De magnis coniunctionibus* identifies Judaism as the oldest faith, and compares it to Saturn, which has priority over other planets. While there is no definitive evidence that these "interpretations" were added by a single individual to a single manuscript, they were incorporated into the main body of the text very early and were not always distinguishable from the translation (except by the astute reviser of Reg. lat. 1285). I thus treat the interpretations as resulting from the translation itself, particularly for those marked *vacat*, with the most likely agent of interpretations being the translator, John of Seville. By examining these interpretations, it is possible to discover what kinds of textual material resulted from the Arabic-Latin translation and early assimilation of the text into Latin culture.

Several of these interpretative additions are points that clarify astrological theory, including the physical framework of the heavens, astro-medical ideas, and astrological terms and concepts. In the case of the Arabic term *azemena*, or chronic illness, John provides a lengthy explanation of its meaning and its relevance to astrological calculations. The full passage is as follows:

> And there are some degrees in the signs which are called degrees of azemena, *that is degrees of the weakness of the body. The azemena is a certain debilitation of the body for a time, such as blindness, deafness, loss of limbs and things like that, which a man will always have for as long as he lives. When the moon is with these degrees in the birth of a boy, the aforesaid azemena afflicts him according to the indication of the position and the aspects or*

> *positions of the planets. The azemena is also indicated through the stars in different ways, as you will find in the books on nativities*.[174]

This passage illustrates John's grasp of astrological theory, since he has provided not only a clear explanation of the meaning of the Arabic term, "that is degrees of the weakness of the body," but also an indication of its use in making astrological calculations related to nativities. While the explanation is not specific enough in providing information for making an actual calculation, John mentions the importance of the moon in determining chronic illness, and refers the reader to other books on nativities for additional methods of calculation. John is known to have translated at least one book on nativities, al-Ṭabarī's (Aomar) *De nativitatibus*, and so he would have been familiar with astro-medical calculations related to nativities.

Occasionally, relevant information has been included that cannot be found elsewhere in the text. In a passage on the relationship between the planets and gestational months, for example, there is a comment about the relationship between birth and Saturn. After listing the other planets and their corresponding gestational months, the text links Saturn to the eighth month. The text continues, "he who is born in the eighth month will not live, because he was born under the power of Saturn."[175] The malefic effects of Saturn perhaps could have been surmised by readers, but this

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[174] BYY, *Introduction*, 1:[52], 251-252: "Et sunt in signis quidam gradus qui dicuntur gradus azemena, *id est gradus debilitationis corporis. Est enim azemena quedam debilitatio corporis temporalis, ut est cecitas, surditas, amissio membrorum et cetera talia, que quamdiu vixerit homo semper habebit secum. Cum ergo fuerit Luna cum his gradibus in nativitate alicuius pueri, accidit ei predicta azemena secundum significationem loci et aspectus seu loca planetarum. Significatur quoque azemena per astra diversis modis, sicut in libris nativitatem invenies*." The section in italics is the text missing from the Arabic manuscripts, incorporated into the Latin textual tradition.

[175] BYY, *Introduction*, 2:[44], 292: "…octavus Saturni, *et ideo non vivit qui nascitur in octavo mense, eo quod sub potestate Saturni nascatur*, nonus vero Iovis."

addition specifies the loss of life. Stemming from the work of Hippocrates and Aristotle, medieval medical doctrine stipulated that infants born during the seventh month of gestation would live, whereas those born in the eighth month would likely die. The reviser of Reg. Lat. 1285 has labeled this phrase: "this is a gloss until the end."[176] One might give less confidence that John added this phrase since it is labeled *glosa*, but John certainly could have added it to the text, and the net effect on early readers of its inclusion is the same.

Many interpretative phrases provide examples of a particular concept, introduced by the phrase *verbi gratia* ("for example"), and serve to elucidate astrological definitions. The original Arabic text is somewhat lacking in the consideration of specific examples, but when Alcabitius does give an example he uses the Arabic *mithāl* ("example"), which is translated as *verbi gratia*. John also used *verbi gratia* to introduce examples. There is a brief passage where Alcabitius groups the twelve zodiacal signs into three "kinds": mobile, fixed, and shared.[177] This grouping is explained by an interpretation which first provides definitions of the three kinds, and then examples. The passage reads: "They are called mobile because, when the Sun enters any of them, the season is moved forward, that is changed; or it [the sign] is fixed, that is preserved in the same place; or it [the sign] is shared, that is half of it will be in one season and half in another. For example: when the Sun enters the sign of

[176] BYY, *Introduction*, 2:[44], 292: "Hec una glosa et usque ad finem." It is not clear from the BYY edition what "finem" refers to; one assumes it is the end of the phrase, i.e. "Saturni nascatur," since most of the rest of the section is clearly translated from the Arabic.

[177] BYY, *Introduction*, 1:[17], 233: "Quatuor quoque ex his signis dicuntur esse mobilia, id est Aries, Cancer, Libra, et Capricorn et quatuor fixa, id est Taurus, Leo, Scorpio, et Aquarius; reliqua vero quatuor, id est Gemini, Virgo, Saittarius et Piscis, sunt communia."

Aries, the season is changed, that is winter is turned into spring; and when it enters Taurus, it is fixed in the same time of Spring; when however the Sun enters Gemini, it [the sign] is of shared time, that is, half will be in spring and half will be in summer, and so on with the others…"[178] Labeled *vacat* by the reviser of Reg. Lat. 1285, this lengthy explanatory passage makes the meaning of the three terms quite clear. The astronomical concept is very basic, but John has gone to the effort of spelling out in detail each term, with an example.

In the section immediately following this passage, John has provided additional clarification for the concept of astrological aspects, again with an example introduced with the phrase *verbi gratia*. The passage begins with an explanation of the sextile aspect: "The signs are said to aspect each other, that is every sign aspects the third before it and the third after it, which is the eleventh, and this is called the sextile aspect, and it is an aspect of love *and friendship*."[179] The interpretation clarifies this definition and provides a specific example: "*It [the aspect] is called sextile, because it has a sixth part of the zodiac, that is 60 degrees. For instance, a planet which is in the beginning of Aries aspects one which is in Gemini before it and one which is in Aquarius after*

[178] BYY, *Introduction*, 1:[17], 233-4: "*Dicuntur autem mobilia quia, quando ingreditur Sol aliquod istorum, movetur, id est mutatur, tempus; vel figitur, id est in eodem statu perseverat; aut fit commune, id est medietas illius erit unius temporis et medietas alterius. Verbi gratia: quando Sol signum Arietis ingreditur, mutatur tempus, id est vertitur hyems in ver; et quando intrat Taurum, figitur idem tempus vernale; quando vero Sol ingreditur Geminos, fit tempus commune, id est dimidium erit veris et dimidium estatis, et sic de ceteris...*"

[179] BYY, *Introduction*, 1:[18], 234: "Dicuntur etiam signa se aspicere, hoc est omne signum aspicit terium ante se et tertium post se, quod est undecimum, et hic aspectus dicitur sextilis, et est aspectus dilectionis *atque amicitie*." Note that modern counting customs would be the second and tenth sign rather than the third and eleventh.

it."[180] There are similar clarifications for the quartile aspect of 90 degrees and the trine aspect of 120 degrees[181]. The reviser of Reg. Lat. 1285 has labeled the first two instances (for sextile and quartile aspects) as *vacat* while the third case (for trine aspect) is labeled *glosa*, despite the syntactical similarities between the three interpretative phrases.[182]

An additional interpretative example, introduced by *verbi gratia*, concerns the relationship between aspects and astrological rays:

> When a planet is in any sign, its rays will be in those signs which aspect that sign in the same degree and minute. *For instance, if Mars is in the first degree of Aries and in the first minute of the same degree, its rays will be in the first degree of the sign Libra and in the first minute of the same degree. You thus understand the other aspects.*[183]

Although the text doesn't specify this, the aspect relationship in this case is one of opposition, or 180 degrees, as Aries and Libra are opposite each other in the zodiac. This example is also labeled *glosa* by the reviser. The examples of aspect relationships illustrate various planetary positions within signs, which enable the reader to imagine concrete celestial circumstances. The text is rife with explanatory phrases such as

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[180] BYY, *Introduction*, 1:[18], 234: "Dicitur etiam sextilis, eo quod teneat sextam partem circuli, id est .lx. gradus. Verbi gratia, planeta qui fuerit in initio Arietis aspicit eum qui fuerit in Geminis ante se et eum qui fuerit in Aquario post se."

[181] BYY, *Introduction*, 1:[18], 234-5: "…et hic aspectus vocatur tetragona radiatio, *eo quod teneat quartum partem celi, id est nonaginta gradus*…" and "et hic aspectus dicitur trigona radiatio, *eo quod teneat tertiam partem celi, id est centum .xx. gradus*…"

[182] One possible explanation for this is that the Latin manuscript or manuscripts in the reviser's possession could have contained the phrase about the trine aspect in the margin, whereas the first two phrases were part of the main text. This would reflect the case where John clarified the first two instances as part of the translation, and a later hand added the third in the margin.

[183] BYY, *Introduction*, 1:[18], 235: "Cum vero fuerit planeta in aliquo signo, erunt radiis eius in signis illis que aspiciunt ipsum signum in simili gradu atque minuto. *Verbi gratia, si fuerit Mars in primo gradu Arietis et in primo minuto eiusdem gradus, erunt radiis eius in primo gradu signi Libre et in primo minuto eiusdem gradus. Sic intellige de ceteris aspectibus*."

these, each instance illustrating either a concrete case, or sometimes clarifying a certain concept or phrase. While the text was already written as an *Introduction* by Alcabitius, these examples and others demonstrate the care that was taken by John in making the text clear for Latin readers, and contribute to the pedagogical tone of the *Introduction*.

Additional remarks added by John also give the *Introduction* a didactic feel. In the text quoted above, John used the imperative command *intellige* to complete the explanation, directing the reader to understand the example. This command appears a few additional times in the text. After listing the powers of the shares of the planets in the signs, John concludes: "Understand therefore from this number the powers of the planets; whichever is more abundant in number, is more abundant in power."[184] In a few cases, John has reflected the use of the second person in the Arabic text in one of his interpretations. For example, on calculating the ruler of a topic, Alcabitius begins, "And when you want to know the ruling planet of a topic, you look at whichever planet is more authoritative in the house of the topic and the planet which indicates the nature of that topic, just as we have said on the natures of the planets—*thus you see which planet is stronger in the house of the topic*."[185] In another case, John follows the second person of the main text, but concludes with a rather forceful imperative: "Because if they will have come together in this, you make that which is faster to be changed from

[184] BYY, *Introduction*, 1:[22], 239-240. The complete passage reads, "Nam dominus domus habet quinque fortitudines, et dominus exaltationis .iv., et dominus triplicitatis .iii., et dominus termini duas, et dominus faciei unam. *Intellige ergo ex hoc numero fortitudines planetarum; qui enim magis habundat in numero, magis habundat in fortitudine.*" The reviser marks this instance *vacat*.

[185] BYY, *Introduction*, 1:[77], 265: "Et cum volueris scire planetam dominatorem rei, aspicies quis planetarum sit plus auctoritatis in domo rei et planeta qui signficat naturam illius rei, sicuti dicemus in naturis planetarum—*vide ergo quis planeta sit fortior in domo rei*…"

its condition to that which is better, *that is that which desires to leave from any sign in which it is and enter another [sign] in which it will have more dignities, or if they are east of the sun, you select that which is nearer to the Sun and not under its rays. If they are in a cardine, that one is selected which would be closer to the same degree of the cardine. Understand!*"[186] The command to understand and the consistent use of the second person in explaining how to make calculations emphasize the didactic nature of the text. The text is not meant to passively transmit astrological knowledge, but rather to *instruct* readers so that they may practice astrology.

If this didactic tone was already present in the Arabic textual tradition, it was magnified by the translator's addition of interpretive comments and pedagogical directives, which may or may not have stemmed from an Arabic marginalia tradition.[187] And, regardless of whether the translator chose to incorporate marginalia from an Arabic manuscript or to add this language himself, the end result was the same. One textual transformation that occured as a result of the translation was thus the rendering of the text as more accessible to less informed or less adept readers. As modern readers, however, we find that these interpretations are an indication of the care with which new astrological works were being assimilated. They reveal both a

[186] BYY, *Introduction*, 4:[3], 319: "Quod si in hoc etiam convenerint, constitues eum qui velocius debet mutari ab esse suo ad illud quod fuerit melius, *id est eum qui voluerit exire de aliquo signo in quo fuerit et intrare aliud in quo habuerit plus dignitatis vel, si fuerint a Sole orientales, eliges eum qui Soli fuerit propior et non fuerit sub radiis. Si vero in angulo fuerint, ille est eligendus qui gradui eiusdem anguli fuerit propior. Intellige!*"

[187] The Arabic manuscripts in the BYY edition did not contain any marginalia. However, BYY surmise that some of the early interventions on the text may have stemmed from Arabic marginalia.

commitment to the accuracy of astrological theory and a desire to make astrological theory more accessible to Latin readers through explanations and examples.

Religious Elements in the *Introduction*

One final point to consider in comparing the Arabic and Latin texts concerns the extent to which the translator and subsequent scribes retained or omitted religious language in the text. The Arabic text contains several religious expressions or references, some of which were translated into Latin. For Islamic pious language, these phrases were occasionally translated into suitable Latin equivalents of Christian piety, but other times these phrases were omitted. The translation and omission of Muslim expressions and references had the effect of obfuscating the Islamic origins of the text. In translating these Muslim religious expressions into suitable Christian equivalents, the translator adapted the text so that it conformed to the norms of medieval Christian culture. In contrast with the retention of Arabic technical terms, this indicates the tensions between the respect afforded to the Arabic intellectual tradition and the disdain for the religion of Islam. While often subtle, the language employed for religious terminology and references underscores the complexities of accommodating Arabic astrological knowledge to Latin readers.

Throughout both the Arabic and Latin versions of the text, there are several invocations of the deity. At the beginning of the Arabic text, we find an invocation of God and the prophet, known as the *bismillah*: “In the name of God, the merciful and compassionate, and may God bless our Lord Mohammed, his family, and his

companions and grant them salvation."[188] The *bismillah* is common to virtually every book produced by Muslims,[189] and the translator aptly rendered the first portion of the phrase *In nomine dei*. This Latin expression appears in many, but not all, of the Latin manuscripts. However, the blessing of Mohammed is ommitted in all manuscripts, with only one manuscript retaining "the merciful and compassionate" (*miseratoris et misericordis*). Several other manuscripts have modified the phrase to read *In nomine dei Ihesu Christi*.[190] The addition of the name of Christ in this expression solidifies the Christian sense of the phrase. The Latin manuscripts are also missing another Islamic laudatory expression for God, which occurs at the beginning of the dedication to Sayf al-Dawla. The Arabic text reads: "After asking God, powerful and exalted, for length of life our Lord the Emir Sayf al-Dawla…"[191] The Latin manuscripts omit "powerful and exalted"[192] but translate the rest of the phrase. By modifying or leaving out these typical Islamic pious expressions, the Latin text obscures the Islamic elements in the text.

To further conceal Islamic interventions on the text, Christian pious expressions are included throughout. At the end of the first chapter, the Arabic text ends with a common pious expression, *insha'allah*, "if God wills," which serves as a transition to the second chapter: "…we will follow this [the first chapter] with a description of the

[188] BYY, *Introduction*, 1:[2], 19.

[189] It is also included in books by foreign authors, such as Aristotle, as scribes wrote out the *bismillah* to bless their work.

[190] These modifications, along with references to specific manuscripts, are discussed in BYY, *Introduction*, 203-204.

[191] BYY, *Introduction*, 1:[3], 19.

[192] BYY, *Introduction*, 1:[3], 225.

seven planets and their natures, their conditions, and what they signify, if God the exalted wills."[193] In the Latin text, the expression "if God the exalted wills" is missing at the end of this sentence, but the phrase *auxiliante Deo*, "with the help of God," has been added to the beginning of the same sentence.[194] There are several additional appearances of the phrase *auxiliante Deo* or *annuente Deo*, "with God's favor," which almost always indicate a transition between two sections. One such transitional sentence reads: "Since, with the help of God, we have already put forth the essential conditions of the zodiac, now we provide the accidental ones."[195] Another passage begins, "Since, with God's favor, we have now treated the powers of the planets in the signs…"[196] Another invocation of God ends the second chapter.[197] In one case, God's help is referenced for having constructed a table[198] of values of masculine and feminine degrees. None of the previous instances are accompanied by references to the deity in the known Arabic manuscripts, indicating that several pious Christian phrases were

[193] BYY, *Introduction*, 1:[79], 61.

[194] BYY, *Introduction*, 1:[79], 266: "Et quia, auxiliante Deo, iam peregimus quod proposuimus tractare de circulo signorum et eius accidentibus…"

[195] "Set quia, auxiliante Deo, iam protulimus esse circuli signorum essentiale, nunc proferamus etiam accidentale." BYY, *Introduction*, 1:[55], 253.

[196] "Et quia, annuente Deo, iam tractavimus de potestatibus planetarum in signis…" BYY, *Introduction*, 1:[22], 239.

[197] "Et quia, Deo annuente, iam peregimus esse planetarum in semetipsis et quid significant…" BYY, *Introduction*, 2:[51], 295.

[198] BYY, *Introduction*, 1:[49], 248: "et hoc modo depinximus in tabula ut levius redderentur opus, Deo auxiliante." Although this entire phrase is missing from the Arabic manuscripts, the editors did not identify it as an "interpretation," i.e. italicized, but rather merely missing from the Arabic text.

incorporated into the text at the moment of translation.[199] These phrases, in effect, christened the text with God's approbation, mitigating any misgivings early Christian readers may have had about an Islamic astrological text.

In addition, there is only one instance in which the phrase *insha'allah* appears in the main body of the Arabic text, noted above. However, the phrase appears in Latin translation in two other passages. The Latin, *si Deus volet*, is a literal translation of the Arabic *insh'allah*. The first appearance of this phrase occurs with reference to the construction of a table on the values of degrees, classified as bright, dark, smoky, or empty: "ex quibus faciemus tabulam si Deus volet."[200] BYY state in their critical apparatus that this phrase is missing from some other manuscripts, and occasionally appears as *si Deus voluerit*.[201] This passage immediately follows the passage invoking God to construct the table of masculine and feminine degrees, where the Christian pious expression *Deo auxiliante* was added. The phrase *si Deus voluerit* appears one additional time in a lengthy passage which is missing from the Arabic text.[202] The passage is on the unequal hours of the days, and provides an example which lists, for

[199] It is certainly possible that the Arabic manuscript used for the translation contained invocations which were translated into Latin, and these invocations were not preserved in any other extant manuscript. The text of Abū Maʿshar's *De magnis coniunctionibus*, for example, contains several similar invocations: *cum adiutorio Dei*, *cum auxilio Dei* and *Deo adiuvante*. These phrases are used to translate the Arabic *bi 'awn Allah*, which occurs seven times in the text. If it is the case that John of Seville also translated the *De magnis coniunctionibus* (which BYY surmise), then he was able to accommodate Islamic pious language using a variety of different Latin expressions.

[200] BYY, *Introduction*, 1:[50], 250: "…and from these we will make a table, if God wills."

[201] BYY, *Introduction*, 1:[50], 250, n. 67.

[202] BYY, *Introduction*, 2:[49], 294: "…*Et incipit dies sabati, cuius prima hora est Saturni, et ipsius est tota dies, sic per ordinem numerando invenies horas dierum et noctium et divisiones earum super planetis, si Deus voluerit*."

each hour, the planet associated with that hour. From the evidence presented, there are several possibilities. It appears that the phrase *insha'allah* may have appeared in the Arabic manuscript in the translator's possession, and that the translator was inconsistent in his literal translation of this phrase versus his substitution of the Christian expressions *Deo auxiliante* or *Deo annuente*. Alternatively, the translator may have added these Christian pious expressions where there was no Islamic equivalent in the Arabic text. Whatever the case, the end result was the same for the medieval Christian reader. Christian pious expressions were scattered throughout the text, and Islamic pious elements were obscured.

The Arabic text of the *Introduction* makes reference to Muslim tenets or practices seldomly, but Latin translations of these references provide further insight into how attitudes towards Islam transformed the text. One passage in particular exemplifies these subtile cues. This passage provides an explanation of the calculation of an astrological term, the terminal point (*al-intihā'*, *profectio*) for the years of the world, and uses an example about the rise of Islam. The BYY translation of the Arabic passage reads:[203]

> As for the *intihā'* (terminal point) from the years of the world, al-Kindi says that between the year of the Conjunction indicating the religion and the Hegira there were 52 solar years. The ascendant of the year of the Conjunction of the religion was Gemini and the year in which the Prophet (May the prayers and blessings of God be upon Him!) fled <to Medina> arrived at Virgo. Between the Hegira and Yazdigird were 3624 days. When you want to know this, take the years of Yazdigird and convert them into days as was explained for you in the Zig, and add to this the days which are between the Hegira and Yazdigird and divide this <result> by 365 1/4 days. What results are the solar years. The remainder is the months and days which belong to the incomplete (I.e. Current)

[203] BYY, *Introduction*, 4:[9], 119.

> year. The sum of the years are the solar years after the Hegira. Take one sign for each year and begin with Virgo. Then, wherever your counting of signs has arrived is the sign at which the Year of the world has arrived from the ascendant of the Conjunction of the religion.

For comparison, the Latin passage is:[204]

> Profectio autem ex annis mundi. Dixit Alchindi quia fuerunt inter annum coniunctionis que significavit sectam Saracenorum et inter annum Alhegerah, *qui fuit primus annus annorum Arabum*, .lii. Anni solares, et fuit ascendens anni coniunctionis *predicte* secte signum Geminorum, et pervenit profectio eiusdem anni ad Virginem, et inter ipsum annum primum annorum Arabum et primum annorum Iazdagird, *regis Persarum*, fuerunt tria milia et .dc. Et. .xxiiii. Dies. Cum ergo volueris habere notitiam huius rei, accipe annos Iazdagird et verte eos in dies sicut expositum est in Azige, *id est in libro cursuum planetarum*, et adde desuper dies qui sunt inter primum annorum Arabum et Iazdagird, et divide hoc per .ccclxv. Dies et quartam partem diei, et quot divisiones exierint, tot erunt anni solares; et quod remanserit ex mensibus et diebus erit ex anno imperfecto, quodque coniunctum fuerit ex annis, ipsi sunt anni solares ab initio annorum Arabum. Proice ergo omni anno signum unum, et incipe a Virgine, et ad quodcunque signum perduxerit te numerus, ipsum erit signum ad quod pervenit annus mundi ab ascensione coniunctionis predicte secte.

In the Arabic text, "the religion," is of course understood to be self-referential, meaning Islam. Drawing on the contextual reference to the *hijra*,[205] the Latin translator used the phrase *secta Saracenorum* to specify "the sect of the Saracens," which is Islam. The phrase *secta Saracenorum* is used only in the first instance, with two further instances having employed *predicta secta*, or "the aforementioned sect." In the first reference to the *hijra* in the Latin text, the term is transliterated *Alhegerah*. The translator then added the following definition: "which is the first year of the Arabic

[204] BYY, *Introduction*, 4:[9], 328-329.

[205] The *hijra* is a reference to the flight of Muhammed from Mecca to Medina in 622 CE, which marks the beginning of the Islamic calendar.

years." In addition, subsequent references in the Arabic text to the *hijra* are translated as some variation on the explanatory phrase "the first of the Arabic years," rather than transliterated.[206] As was the case for other transliterated terms, sometimes a short Latin phrase substituted for a transliteration. It is noteworthy, however, that terminology for the most important date of the Islamic calendar has been omitted and replaced by the more religiously neutral "first of the Arabic years." Furthermore, the Arabic text mentions the flight of the Prophet explicitly in order to distinguish between the ascendant of the conjunction indicating the religion (which occured in 571 CE) and the ascendant of the *hijra* (622 CE). The Latin text, however, does not mention the Prophet at all, nor the exaltations to him, but rather refers to the location of the terminal point: "…and the ascendant of the year of the conjunction of the aforementioned religion is the sign of Gemini, and the terminal point of that same year arrives at Virgo." Lastly, the treatment of the reference to the *hijra* and *secta Saracenorum* should be contrasted with the treatment of the term *Iazdagird.*[207] In the latter case, *Iazdagird*, the "King of the Persians," was unproblematically transliterated and retained in transliteration.

The omissions and translations in this passage illustrate how the Muslim faith elements were downplayed while a link to the Arabic tradition was retained. All Islamic religious references have been omitted, except for *secta Saracenorum*, which is mentioned only once. This is despite the fact that the calculation is based on the most important date of the Islamic calendar. The beginning of the Arabic years, or calendar,

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[206] BYY, *Introduction*, 4:[9], 329: "…annum primum annorum Arabum", "…primum annorum Arabum", "ab initio annorum Arabum."

[207] *Iazdagird* refers to Yazdegerd III, the last King of the Sasanian Empire, who ascended to the thrown in 632 CE.

was referenced frequently in Latin medieval astronomy and astrology since all Arabic texts, of course, utilized the Islamic calendar for making calculations. The tone of the passage is also neutral, without any disparaging remarks made towards Islamic faith or Mohamed. This is in contrast to references to Islam in two of the manuscripts of *De magnis coniunctionibus*, which may also have been translated by John of Seville. In these manuscripts, one of which dates to 1248, the discussion of the *hijra* includes the phrase "repulsus et odium fuit Prophete, super quem sit maledictio," or "the repulsion and hatred was of the Prophet, upon whom may there be a curse."[208] It is worth noting here that this passage of the *Introduction* does include a marginal note present in two manuscripts, and in the text of two other manuscripts, which gloss *Alhegerah* with the phrase *i.e. seditionis Machometi*, or the revolt of Mohamed.[209] As a marginal note, this comment will be discussed further in the chapter on marginalia.

Vernacular Translations

In addition to the translation of the text from Arabic into Latin by John of Seville, the *Introduction* was translated from Latin into several other languages over the course of the Middle Ages. In considering the importance of Arabic learning to medieval European intellectual culture beyond Latin readership, the retention of Arabic astrological terms and references to Islam within vernacular texts is certainly a

[208] C. Burnett, "The Strategy of Revision in Arabic-Latin Translations from Toledo: The Case of Abu Ma'shar's On the Great Conjunctions," in *Les Traducers au Travail: leurs manuscrits et leurs methodes*, ed. J. Hamesse (Brepols, 2001). The manuscript is Vienna, Osterreichische Nationalbibliothek, 5478.

[209] According to BYY, the comment appears in the marginalia of two other manuscripts and in the text of a third. Another manuscript has *seductionis Magmech* in the text. See BYY, *Introduction*, 4:[9], 329 (y).

valuable path of inquiry. Assuming that similar transformations occurred in the numerous vernacular translations of the text, most of which appear to have been made by astrologers, it is likely that Arabic learning received similar esteem among a broader literate population. The contexts of these additional translations, and some initial observations from the extant manuscripts (particularly regarding the persistence of Arabic vocabulary), yield further insight into the scope of Arabic influence on medieval Europe. While the level of detail afforded to the Arabic-Latin translation in this study cannot yet be achieved, it is nevertheless worthwhile to briefly consider what is known about the other translations of the *Introduction*.

Hebrew: The Hebrew translations of the text are unique in that Hebrew was the language of the Jewish scholarly tradition, which was quite rich in astrology and astronomy during this period. Charles Burnett has identified the Hebrew manuscripts and other references to Alcabitius within the Jewish tradition, and I repeat his findings here.[210] A complete Hebrew translation of the *Introduction*, the only one extant, is in a sixteenth-century manuscript in Jerusalem.[211] There are two additional copies in Hebrew, although they are written in Arabic script. Burnett reports that one of these appears to be from Syria,[212] and the other from seventeenth- or eighteenth-century Egypt.[213] Finally, there is a Castilian manuscript written in Hebrew script, dated to the

[210] C. Burnett, "Al-Qabisi's Introduction to Astrology" 46-47.

[211] MS Jeursalem, Jewish National Library, Heb 28 2033, fols. 143r-152v. Burnett notes that the script is from sixteenth-century Provence and that the manuscript includes John of Saxony's commentary (Provencal).

[212] Oxford, Bodleian Library, Huntington 582, fols. 19a-61a.

[213] Moscow, Russian State Library, Günzburg, 813.

fifteenth-century and accompanied by the *Libro de las cruzes*.[214] There is only one other surviving manuscript of the *Libro de las cruzes*, which was translated from Arabic at the court of Alfonso X, the king of Léon and Castile, on February 26, 1259. Presumably al-Qabīṣī's *Introduction* and the *Libro de las cruzes* were translated together, another example of al-Qabisi's vernacular popularity in courts.

French: There are two known French manuscripts of the *Introduction*, one of which is copied from the other.[215] In one version, Oxford, St. John's College MS 164, the *Introduction* appears with two other known translations by Pélerin de Prusse: his treatise on the astrolabe, which in part contains a French translation of John of Seville's Latin rendition of Messehalla's *Compositio et operatio astrolabii*, and a *Livret des elections*. This manuscript also contains Nicole Oresme's *Traité de l'espere*.[216] The *Livret* is dedicated to the future Charles V of France, on July 11, 1361.[217] In the other

[214] Burnett corrected the misattribution of this copy of the *Libro de las cruzes* to al-Qabīṣī, which had been erroneously identified as possibly being a unique manuscript of another of his works, by M. Steinschneider, *Die hebraeischen Uebersetzungen des Mittelalters* (Berlin, 1893), 562, and A. Schwarz, *Die Hebräischen Handschriften der Nationalbibliothek in Wien* (Vienna, 1924), 233. See Burnett, "From Courtly Entertainment," 46, n. 21.

[215] One manuscript dates to the fourteenth century and is at Oxford, St. John's College, MS 164. It is described in Edgar Laird, *Pélerin de Prusse on the Astrolabe* (New York, 1995), 3-5. The other manuscript is MS BAV Reg. lat. 1337, which I have examined. The latter manuscript lacks initial rubrications, which may indicate that it was a copy of the former.

[216] Nicole Oresme likely disapproved of having his works bound with astrological texts. For Nicole and the controversy of astrology at the court of Charles V, see Joan Cadden, "Charles V, Nicole Oresme, and Christine de Pizan," in *Text and Contexts in Ancient and Medieval Science*, ed. Edith Scylla and Michael McVaugh (Leiden: Brill, 1997), 208-244.

[217] There are two separate inscriptions which record a date of copying in 1361 in MS BAV Reg. lat. 1337. The first is on 88r: "Et cette regle generalle ay de mise au bout de cette partie de ce livret des elections universelles de 12 maisons affin quelle soit la clef de toute autres et fermetures (?) lesquelles j'ay accomply par l'ayde du Dieu a mon pouvoir l'an de grace 1361. Le 11 jour de juillet, ascendant la 15 degre de Libra. Le soleil a midy 4e etc. En la petit consergerie de l'hostel de monsieur de normandie de coste saint pol lez Paris."

version, BAV Reg. Lat. 1337, the *Introduction* appears with the *Livret*, along with a nativity for the prince as well as brilliantly colored planetary diagrams, tables, and two astrological volvelles. A later owner of the text, the royal physician Francois Rasse de Neux, inscribed his name on this copy in 1546.

Italian: There is only one known, non-extant Italian translation of the text. The Italian *Introduction* is listed in Leonardo da Vinci's library, as a gift from the Florentine astrologer Francesco Sirigatti.[218] Sirigatti also translated Guido Bonatti's *Liber astronomiae* and Lucio Bellanti's *Tractatus astronomiae*.

Dutch: There are two known Middle Dutch translations of the first *differentia* (chapter) of the *Introduction*. The earlier translation, from the first half of the fourteenth century, was commissioned by the noblewoman Aleid van Zandenburg, the illegitimate daughter of the count of Holland and Hainault, who married into the nobility.[219] This translation has a prologue invoking the Trinity and Saint Mary, and an introductory

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The second appears to be a partial copy of the first, with the added date of 1561 on 45v reads: "De l'astrologie judiciare deux livres faits par Pelerin de Pruce par le commandement de tres excellent et puissant Prince et tres redoute seigneure Monseigneure Charles fils aisne du Roy de France Duc de Normandie et Dauphin de viennoys. Et fut accomply par l'ayde du Dieu l'an de grace 1361. Le 11. jour de juillet, ascendant la 15 degre du Libra. Le soleil a mydi 4e etc. En la petit consergerie du l'hostel de monsieur de normandie de coste sami pant les Paris. 1561"

[218] The reference is in Carlo Pedretti, ed., *The Literary Works of Leonardo da Vinci*, vol. 1, (University of California Press, 1977), 358: "(32) alcabitio vulgare del serigatto"; this translation is also mentioned by Monica Azzolini, *The Duke and the Stars: Politics and Astrology in Renaissance Milan*, (Cambridge: Harvard University Press, 2013), 45, n. 88.

[219] L. Veltman, "Een astrologisch tractaat voor een adellijke dame. Aleid van Zandenburg en de Berlijnse codex mgq 1404', in: E. Huizenga, O.S.H. Lie and L.M. Veltman, *Een wereld van kennis. Bloemlezing uit de Middelnederlandse artesliteratuur,* (Hilversum 2002), 85-105. There is a dedication in verse to Aleid van Zandenburg.

chapter on the zodiac. The second translation dates to the late fifteenth century, and the text has been shortened and partially replaced by tables.[220]

English: There are three Middle English manuscripts. According to Charles Burnett, one was translated from the French[221] in 1460 and there are two English versions translated from the Latin.[222] It is possible that the Latin-English translations are the same.

German: A German translation was made by Arnold of Freiburg, an astrologer and Dominican friar, in 1312 and it survives in several manuscripts.[223]

Through these translations, Arabic learning was made available to a broader audience of the medieval literate public. The fact that Arabic learning penetrated literate vernacular culture is a reminder that Arabic astrology was acknowledged as authoritative outside of universities.

Conclusion

The medieval attribution of the translation of the *Introduction to Astrology* to John of Seville was most often noted in manuscripts with the phrase *interpretatus a*

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[220] Vienna, Österreichische Nationalbibliothek, 2818.

[221] New York, Kraus booksellers, Bute 13 (15th cent.), fols. 4r-46v. Burnett quotes the relevant passage in "From Courtly Entertainment," 47, n. 25: "translated out of Frenche into Englysch be Brokhole be the sayd seigneur the yer of our lord 1460…" (fol. 46v).

[222] Cambridge, Trinity College, O.5.26, fols. 3r-29v (14th cent.) John North used this copy for his overview of astrology in *Chaucer's Universe*, 192-220. The other manuscript is in Cambridge, Trinity College, O.7.2C, fols. 1r-8v, continued in O.7.2B, fols. 1r-27r.

[223] The earliest of these manuscripts, as noted by Burnett in "From Courtly Entertainment," 48, n. 27, are Berlin, Staatsbibliothek-Preussischer Kulturbesitz, germ. Fol. 479 (written in Vienna in 1385) and Wroclaw, Biblioteka Uniwersytecka, Akc. 1948/207, fols. 40v-63v (14th cent.).

Iohanne Hispalensi. The meaning of *interpretatus* in this context firstly connotes translation, although the word also refers to an "explanation" or "interpretation." This latter sense is implied in a discussion about the authority of texts translated from the Arabic in pseudo-Albert's *Speculum astronomiae* from approximately 1260, where the author specifically mentions Alcabitius's *Introduction*. There, after a discussion about the nativity of Christ and the possibility of illicit material contained in astrological texts, the author concludes: "Again, what merit has the book by Abdilaziz, whom he calls Alcabitius, which was similarly included amongst the iniquitous books deserved? If there are names in an unknown language in his text, their meanings are immediately added to the text itself; but if perhaps the meanings of some [of these words] should be missing, [there is a] man prepared to supply them."[224] The foreign terms mentioned here, which are "immediately added to the text itself," are likely references to the interpretations added by the translator. Pseudo-Albert also implies that foreign terms should not be an obstacle to understanding, and encourages readers to look elsewhere for their meaning, perhaps in annotations or commentaries.[225]

Pseudo-Albert's comment exemplifies an attitude of accommodation towards Arabic texts that many early Latin readers espoused. The preservation of Arabic technical astrological terms within the *Introduction*, and the efforts made to make the text more accessible to medieval Latin readers through interpretations, illustrates an

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[224] Paula Zambelli, *The Speculum astronomiae and its Enigma* (Dordrecht: Kluwer Academic, 1992), 257. The Latin text reads: "Quid iterum meruit liber Abdilaziz quem uocat Alkabitium, qui similiter cum iniquis deputatus est? Si sunt in textu eius nomina ignotae linguae, statim subduntur in lettera interpretationes eorum; quod si forte aliquorum interpretationes defuerint, paratus est vir earum copiam exhibere."

[225] The "double-layered interpretation" sense of this passage is suggested by BYY in the *Introduction*, 209, n. 33.

appreciation of and commitment to the authority of the Arabic astrological tradition. However, there were certainly some concerns with the Islamic origins of the text, as revealed by how the translator dealt with religious terminology. John's treatment of religious terminology exhibits a subtle distinction made between the Arabic tradition and the Muslim faith. Whereas Arabic knowledge and the astrological tradition were preserved and revered, Islamic pious language and religious references were hidden or transformed into Christian equivalents. As a result, the *Introduction* became a hybrid text: full of Arabic terms, yet conforming to Christian norms. The translation of the text preserved the text's Arabic heritage and solified the link between astrology and Arabic culture. As it became one of the most popular texts on astrology in the medieval period, subsequent readers of Alcabitius's *Introduction* continued to treat it as invaluable in learning the skills of an astrologer.

Chapter 3: Marginalia and Annotations

Introduction

Marginalia serve as written records of the interaction between an individual and the text. For medieval readers, marginal annotations could have been spontaneous interventions made to the text, or perhaps well-planned guides for subsequent readers, or copies of another reader's set of notes. There is no other type of evidence which provides as much insight into how medieval readers made use of their texts. As the lives of some manuscripts spanned centuries, annotations written in the margins formed the backdrop against which later readers encountered and understood what they read.[226] Annotations were often sources of additional information or interpretations not found in the text itself. Marginalia that were standardized and copied into multiple manuscripts, or scholia, became the basis of commentaries, or were essential components for spreading popular interpretations.[227] While these practices shifted somewhat as humanistic interests and printing technology reshaped both reading practices and the format of books, the role of marginalia as evidence of the interpretive framework of reader and text was present throughout the premodern period. Marginalia are found in almost every genre of the written tradition: literary, theological,

[226] A general survey of medieval reading can be found in M.B. Parkes, "Reading, copying and interpreting a text in the early Middle Ages," in *A History of Reading in the West*, eds. Guglielmo Cavallo, Roger Chartier, and Lydia Cochrane (Amherst: University of Massachusetts Press, 1999).

[227] The standard Biblical gloss, the *glossa ordinaria*, is the most famous example of this practice. See L. Smith, *The Glossa ordinaria: the Making of a Biblical Commentary* (Leiden: Brill, 2009).

philosophical, medical, and scientific texts all contain evidence of readers' relationships with the written word.[228]

In this chapter, I present and analyze the marginalia from several manuscripts and two printed versions of Alcabitius's *Introduction to Astrology*. The marginalia range from one of the earliest manuscripts of the text, dating to the thirteenth century, to some of the latest manuscripts of the text, which date to the late fifteenth century.[229] While there are certainly shifts in annotation practices across the centuries, there are several general features and common themes about the kinds of annotations being made in Alcabitius's *Introduction* that I wish to highlight. By drawing attention to these general features through several examples, I place the practice of annotation of these astrological manuscripts within the norms of broader medieval scribal culture. In addition, I establish different modes of readership of the text, which are tied to different kinds of readers, and point out how shifts in marginalia practices over the centuries reflect the needs and interests of these various groups of readers. After that, I analyze the frequency and manner of the citation of Arabic sources within manuscripts of the *Introduction*. This establishes the broad familiarity of Arabic astrological authorities among the *Introduction*'s readers. The presence of transliterated Arabic

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[228] Much of the literature on theoretical approaches to marginalia and the history of readership is from the perspective of literary scholarship and criticism. Some general themes are addressed in *The Medieval Professional Reader at Work: evidence from manuscripts of Chaucer, Langland, Kempe, and Gower*, eds. K. Kerby-Fulton and M. Hilmo (Victoria, BC: University of Victoria Press, 2001). See also *Reading and Literacy in the Middle Ages and Renaissance*, ed. I. Moulton (Turnhout: Brepols, 2004). For marginalia in printed books, see William Sherman, *Used Books: Marking Readers in Renaissance England* (Philadelphia: University of Pennsylvania Press, 2008).

[229] A near-complete list of both Latin and Arabic manuscripts is available in the BYY edition. See *Introduction*, 156-198.

terms in the manuscripts, as well as the scribal errors, corrections, and variants listed in the margins, enhance the sense in which astrology was foreign, and particularly Arabic, for early Latin readers. I conclude that citation practices, annotations, and the retention of transliterated terms are indicative of the attitudes of medieval Latin scholars towards Arabic astrology in particular, and Arabic learning more generally.

Examples of Marginalia from Manuscripts and Printed Texts

There are several general features about the marginalia in both the manuscripts and printed versions of the *Introduction* that remain static over centuries of readership. These features are consistent with marginalia in other scientific and mathematical manuscripts.[230] Rather than discuss each manuscript in detail, I've drawn several representative examples of marginalia from various manuscripts, ranging from the thirteenth to the sixteenth centuries. These examples serve to elucidate the various types, subjects, and formats of marginalia, as well as the terminology I use to distinguish between them. I have grouped the marginalia into the following categories: scribal corrections, translation variants and variant spellings of transliterated words, subject headings, interlinear remarks, explanations or definitions of technical doctrines and terms, examples of technical doctrines, and lengthier discussions of technical points. The evidence presented here is based upon my own transcriptions of

[230] A few other examples may be found in C. Burnett and D. Jacquart, eds., *Scientia in margine: études sur les marginalia dans les manuscrits scientifiques du moyen âge à la renaissance* (Genève: Droz, 2005); J. E. Murdoch, "Transmission into Use: the Evidence of Marginalia in the medieval Euclides Latinus," in *Revue d'histoire des Sciences* 56, 2 (2003): 369-382; A. M. I. Van Oppenraay, "The Reception of Aristotle's *History of Animals* in the Marginalia of Some Latin Manuscripts of Michael Scot's Arabic-Latin Translation," *Early Science & Medicine* 8, 4 (2003): 387-403.

manuscripts consulted *in situ*, as well as marginalia from early in the Latin textual tradition which have been recorded in the BYY edition.[231]

Textual corrections

Some of the most common types of marginalia are corrections made to the text by the scribe himself or subsequent readers. In the case of the *Introduction*, these may include incorrectly copied words or spellings, or mistakes related to astrological values. The marginalia in BAV Vat. lat. 4079 include several scribal corrections which appear in boxes in the margins on the same line as the miscopied text. These corrections range from simple substitutions of numerical values to corrections of corrupt text, or the addition of text that was left out during the copying process. For example, in a section listing numerical values for the degrees in which a planet is said to be in a well (*puteus*), the number 7 is left out for Capricorn and added in the margin, and the number 22 is corrected to 24 for Aquarius.[232] The scribe has also given some variant readings which appear in boxes. In total, there are at least thirty boxed scribal corrections in the twenty-four folio pages of Vat. lat. 4079. While none of the other manuscripts considered in this study has anything like the distinctive box used by the scribe of Vat. lat. 4079, there are certainly corrections of corrupt text or of mistaken values added by later readers in manuscripts until the late fifteenth century. In Reg. lat. 1285, for example, the annotator has made a point of clarifying a particular term,

[231] The glosses have been recorded in the first critical apparatus. In these notes, textual references to the glosses include the chapter, section number in brackets, followed by the page number and an italicized lowercase letter which identifies the phrase in the main text associated with the gloss. I have also at times retained the manuscript sigla from the BYY edition.

[232] BAV Vat. lat. 4079, f. 43r. The corresponding section in the edition is BYY, *Introduction*, 1: [51], 251.

writing: "ubicumque invenitur in isto hoc nomen 'cavilla' debet esse 'calcanei,'" or "wherever the word 'ankle' is found in this, it should be 'heels.'"[233] *Cavilla* and *calcaneum* refer to the ankle and heel, respectively, but *cavilla* is used more in the vernacular (compare with *cheville* in French). The Latin meaning of *cavilla* can also be "scoffing" or "jeering," hence the need for disambiguation.

Translation variants and variant spellings

Upon encountering an unfamiliar or difficult Arabic term, oftentimes with a specific astrological meaning, the translator could pursue several different options. One possibility was to transliterate the term, often resulting in a large number of variant spellings in later manuscripts, as we have seen in the previous chapter. The Arabic term *al-tāli*, "ascendant", for example, was initially transliterated *athalie*, and then later translated *ascendens* (which was then retained for the remainder of the text). An annotator in Vat. Lat. 4079 has labeled the first instance of the term *athalie* "id est horoscopus," and an interlinear annotation reads "id est ascendens."[234] Another possibility for the translator would be to select a translation, and then include two or three variants in the margins. Burnett, Yamamoto, and Yano suggest that one individual, who revised the text in the manuscript Reg. lat. 1285, was familiar with Arabic and was also likely responsible for introducing several translation variants into the text.[235] This is evident from his suggestion of variants which are closer to the meaning of the Arabic word. For example, in one instance the translator has rendered

[233] BYY, *Introduction*, 1: [35], 246 (*v*).

[234] BAV Vat. lat. 4079, f. 43va. BYY, *Introduction*, 1:[57], 255.

[235] This manuscript and the reviser are discussed in BYY, *Introduction*, 216-220.

al-iqbāl as *perfectionem*, and the reviser has noted "*in ał adventum*" in the margin.[236] The sense of *adventus*, "arrival," is closer to the meaning of *al-iqbāl* than *perfectio*, "completion." Two other early manuscripts have the variant *profectio*, the astrological meaning of which is "terminal point," which also signifies "arrival".[237] Translation variants also appear more frequently in the margins of early manuscripts than the later ones, permitting later scribes to have agency in their selection of terms and their appropriation of the text. We may consider the selection among translation variants, along with scribal corrections, as examples of a contextual reading rather than an arbitrary choice. Marginalia associated with transliterated Arabic terms remained quite common throughout the centuries, and we will return to this topic later in the chapter.

Subject/Section headings

Several manuscripts have marginalia which label different sections of text, delineating both astrological categories and different subject matter. Often these section headings demarcate the general subject of the text, especially in the first chapter of the *Introduction* where Alcabitius covers several areas of astrological terminology and basic concepts. An annotator of BAV Pal. Lat. 1340 has labeled various sections in the first chapter, including the four different kinds of triplicities, and

[236] BYY, *Introduction*, 1:[71], 261 (*h*). BYY argue that the use of "in ał," which is only once expanded as "in alio libro" (2:[42]), likely refers to another Arabic manuscript, as the translations which it introduces are not found in any other manuscript and they are similar to a family of manuscripts not used by John of Seville. See BYY, *Introduction*, 217-218, and 217, n. 57.

[237] The use of *profectio* could have been intentional, or it could have been a simple scribal mistake (per/pro).

the decans.[238] One very frequently finds, as well, either the names of the planets or the signs of the zodiac, or their affiliated symbols, noted in the margin when these appear together in the text.[239] BAV Pal. lat. 1408 contains marginalia which have been made entirely in red ink. Most marginalia in this manuscript are section headings related to planets, signs of the zodiac, houses, and lots, although there are also frequent notations of variant spellings, particularly for transliterated Arabic terms. Labeling the subject or sections of text continued even after a printed table of contents was added to the text, as evident from the 1512 edition held at the Newberry Library, which contains labeling very similar to its medieval counterparts.[240] The marginalia in the University of Oklahoma Library's copy of the 1512 edition of the *Introduction* also contains labels identifying the sections in John of Saxony's commentary which correspond to the main text.[241]

Interlinear remarks

Not many of the manuscripts examined in this study contained interlinear marginalia, although there are a few interesting examples which have some similarities with the practice of labeling subjects noted above. In Vat. lat. 4079 there is a single hand that has added interlinear notes throughout the text. Many of these are corrections, but several also serve as labels and reminders to the reader. For example,

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[238] BAV Pal. lat. 1340, "triplicitas prima," f. 166r, "triplicitas secunda, triplicitas tertia, triplicitas quarta," f. 166v; "facies prima, facies secunda, facies tertia," f. 167v.

[239] E.g. *de sole*, *de marte*, *de luna*, etc. or *de ariete*, *de cancro*, etc. The zodiac symbols appear as labels in Pal. lat. 1340, f. 168v and f. 169r.

[240] *Alchabitius cum commento* (Venice: Sessa, 1512), Newberry Library, Case B 8635.01.

[241] *Alchabitius cum commento* (Venice: Sessa, 1512), University of Oklahoma Libraries.

there are several notes about the relationship between Mars and the use of iron in medical practices. The second chapter of the *Introduction* lists the natures of the seven planets, including what features or activities are expected when the planet "mixes" (*complectitur*) with the other planets. In the passage about Mars, the annotator has added "this is done with iron," for several practices,[242] including blood-letting (for Mars alone), the cutting of hair and nails (when mixed with Venus), the removal of teeth and the cleaning of ears (when mixed with the Moon). Presumably, the idea as indicated by the annotator is that these practices are performed with iron tools, and the activities should be performed under an appropriate celestial configuration.

Definitions, Examples, and Explanations

The last several types of marginalia highlight the depth and attention readers devoted to the text, and range from efforts to elucidate the text through definitions, examples of specific points, and the explanation of terms and concepts. Short definitions appear frequently in several manuscripts, often for transliterated terms. Definitions could be very basic. One gloss defines the world year as follows: "The year which begins when the Sun enters the first minute of Aries is called the year of the world."[243] An annotation that appears in at least three early manuscripts defines the transliterated term *firdaria*: "Firdaria is a Persian word and it is translated 'rulership' and it is understood as the years of firdaria for any planet, that is the years of rulership

[242] Vat. lat. 4079, f. 45ra, "hoc fit cum ferro."

BYY, *Introduction*, 2: [14], 273-4.

[243] BYY, *Introduction*, 4:[8], p.326 (p): "Annus mundi dicitur annus qui incipit cum Sol intrat primum minutum Arietis."

for any planet, that means the years in which the planet has rulership over the life of the native, and how this is done is explained fully in the fifth chapter of this book."[244] Annotators may also provide clarifications or explanations that contain specific examples, rather than simple definitions. In the first chapter, Alcabitius lists the names of the houses in which the lords take pleasure in entering them, according to the Greek astrological author Dorotheus of Sidon. An annotator of Vat. lat. 4079 explained why this was the case, with a specific example: "Note that in these signs one or both of the qualities of the planets are counterbalanced, since Saturn is cold and dry, Aquarius is warm and wet. Thus it [Saturn] takes pleasure in Aquarius…"[245] Several early manuscripts illustrate marginalia of this type, as well as some printed books.

Discussions.

Some manuscripts contain fairly substantial passages of marginal comments which discuss an astrological technique with a specific example. These comments may suggest alternative methods for making the same calculation. They are distinguished from the previous set of marginalia (definitions/examples) because of their length and depth of commentary. Lengthier marginal comments are valuable in that they enable us to evaluate the level of competence of the reader. Often discussions revolve around some point of astrological theory, and long, critical comments help us to see the extent

[244] BYY, *Introduction*, 2: [5], 270 (*g*): "Firdaria est nomen Persicum et interpretatur 'dominatio' et videntur anni firdarie alicuius planete, id est anni dominationis alicuius planete, scilicet anni in quibus planeta ille habet dominium super vitam nati, et qualiter hoc fiat in .5. differentia huius libri habetur plenarie."

[245] BYY, *Introduction*, 1: [14], 230-1. Vat. lat. 4079, f. 41rb: "Nota quod in istis signis una uel ambe qualitates planetarum contemperantur, quia Saturnus est frigida et sicca, Aquarius est calidus et humidus. Ergo gaudet in Aquario…"

of the reader's astrological knowledge. They also reveal sections of the text that the reader found particularly valuable or interesting, indicating which astrological topics appealed to different readers at different times and places. Discussions which take up entire margins of one or both sides of the page, as well as the top or bottom of the page, appear to be limited mostly to the manuscript tradition rather than printed books. Examples of long marginal comments will be discussed in the next section.

Approximately one third of the thirty manuscripts I have studied contain fairly substantial marginalia.[246] All of the various forms of marginalia play a role in reconstructing the history of the text's readership, particularly in understanding how these forms of marginalia were used in different contexts at different times. In the following section, I examine how different kinds of marginalia provide a sense of how the readership of the text may have changed over the centuries, and more specifically what kinds of readers were using the text.

Readers and Contexts of Readership

The marginalia present clear evidence of readership, but the identities of the vast majority of individual readers remain anonymous. The scribe or copyist occasionally wrote down his identity, and sometimes there are other ownership inscriptions in manuscripts or printed books, but it is unusual to find an inscription that matches an annotating hand, particularly if there are multiple hands. Annotators very rarely claimed their marginalia. In addition, while dates are rare and place-names even

[246] There are three reasons that some manuscripts were left out of consideration: there were no marginalia at all; too much of the marginalia was illegible; the marginalia are limited to subject headings or minor notes on a few pages. Marginalia also may be missing from texts that had margins cut in the binding process.

more difficult to find in the extant manuscripts of the *Introduction*, ownership inscriptions can provide valuable clues. In establishing the readership of the *Introduction*, we must consider both the evidence known to us regarding specific individuals, times, or places, and reconstruct other possible contexts taking cues from the marginalia itself. In this section, I have identified four different classes of readers associated with contexts of readership. There is certainly overlap among the classes, and these groupings are meant to aid our understanding of the text's readership rather than refer to distinct historical categories, although further study will contribute to establishing the latter more thoroughly. I begin with the group's earliest readers, the skilled scholars, and then consider university students and professors, astrological practitioners, and astrological enthusiasts.

The skilled scholars were some of the text's earliest readers, and their comments reveal that they had a fair grasp of astrological principles, as well as the desire to make clear Alcabitius's *Introduction* to themselves and later readers. The skilled scholars took John of Seville's translation and offered revisions, corrections, and further layers of appropriation through their comments on the text. While they do not exactly demonstrate established expertise or innovation in astrological knowedge, they are certainly acquiring and assimilating new knowledge quickly and efficiently, and applying this knowledge to their own contexts. Thus, their mid-level competence in astrology allows them to serve as scholarly intermediaries between the context of classical Latin learning and the new Arabic astrological knowledge. One skilled scholar who exemplifies this model is Raymond of Marseilles, who mentioned

Alcabitius in 1141.[247] Raymond adapted a set of Latin astronomical tables for Toledo (which had been translated from Arabic) to the meridian of Marseilles in his *Liber cursuum planetarum*, and also composed his own summary of judicial astrology (the *Liber iudiciorum*) based on translations of the works of Albumasar, Alcabitius, and Zael.[248] Skilled scholars may also have worked as astrologers in court settings, as one of the lots from the fifth chapter of the *Introduction* was included in an astrological judgement composed for Henry, Duke of Normandy, in 1151.[249]

The efforts of skilled scholars to explain and clarify the text are represented by marginalia in several of the earliest extant manuscripts of the *Introduction*, the oldest of which contains the date of 1181, although BYY have noted that this may be an erroneous attribution of the date of translation.[250] This manuscript contains a significant amount of marginalia, most of which are alternative readings or spellings of Arabic terms which appear to have been added by a later hand.[251] Another manuscript, Reg. lat. 1285,[252] contains marginalia which BYY have recorded in the first apparatus

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[247] BYY make this claim based on evidence from MS Paris BNF lat. 16208, fols. 13r-26r. See BYY, *Introduction*, 201.

[248] C. Burnett, "Raymond of Marseile," in *Biographical Encyclopedia of Astronomers* (Springer, 2014), 1804-1805.

[249] The lot is the "pars tritici" and appears uniquely in BYY, *Introduction*, 5: [19]. See BYY, *Introduction*, 201, n. 12; see also North, "Some Norman Horoscopes," 151.

[250] BAV, Barberini 236. The date of the inscription reads: "Perfectus introductorius liber Alcabisii ad magisterium iudiciorum astrorum octavo die mensis Ianuarii tercie indicionis annis Domini perfectis .1181." BYY argue that the date doesn't make sense, since John of Seville was active in the 1120s and 1130s, and the third indiction does not correspond to either 1181 or 1181 of the Spanish era (1143). See BYY, *Introduction*, 201.

[251] For a full description of this manuscript, see BYY, *Introduction*, 211-213.

[252] An analysis of this manuscript appears in BYY, *Introduction*, 216-220.

of their critical edition of the *Introduction*. These marginalia also appear in several other manuscript families and thus are referred to as the Gloss by BYY. According to BYY, the text of Reg. Lat. 1285 was subjected to a critical revision process by an individual familiar with Arabic, and this reviser also carefully and diligently annotated the text with alternative translations and copied the Gloss into the margins. The date of the Gloss has not been definitively determined, although BYY suggest that it is also from early in the text's history, sometime in the twelfth century.[253]

Unlike the early glosses in the previous chapter which we treated as "interpretations" and the product of translation, the Gloss remained distinct from the main text of the *Introduction*. As we have seen, there are several phrases and passages of the Latin text that were added as interpretations very early in the text's Latin history. In some of these early manuscripts, the Gloss was written occasionally in the margins, and sometimes as part of the main body of text, thus making it indistinguishable for subsequent readers (along with the interpretations) from the text as it was initially received in Arabic. Initially, then, the Gloss formed a distinct set of remarks compiled by an individual different from the author of the interpretative additions, which I have argued were likely integrated into the text at the moment of the translation by John of Seville. For this reason, I treat the Gloss as part of the marginalia, even though sections of it appear in the main text. If anything, the further merging of interpretive elements, such as the Gloss, with the main text, serves to underscore the point that the hybridity of the text emerged at the moment of translation and continued to unfold for decades

[253] BYY give several reasons for this, but emphasize that the fact that the Gloss is found in at least eight manuscripts in several different families underscores this point. See BYY, *Introduction*, 219-220.

afterwards. Another early manuscript, Vat. lat. 4079, dates to the thirteenth century and also contains copious marginalia which appear to be the work of an individual reader. These marginalia illustrate several features in common with the Gloss as recorded by BYY, particularly the efforts to explain and clarify technical doctrine.

The coherence of the Gloss reflects the interests, skills, and character of a skilled scholar. There are several comments which indicate that the annotator was competent in astrology and astronomy, and that he sought to clarify the text for later readers. BYY point out that several of these remarks begin with explanatory phrasing: *nota quod* ('note that…'), *subaudi* ('understand…'), and *vult ut* ('[the author] means that…].[254] One type of comment clarifies definitions, occasionally with reference to alternative authors, which is the case with the definition of a conjunction provided in the first chapter of the *Introduction*. The gloss reads: "For a conjunction is when two planets are joined together in one sign and there are fifteen degrees or less between them, this is the boundary of a conjunction. Likewise, the sextile aspect of the first and the eleventh [house] is stronger than the [sextile] aspect of the first and the third [house], and the quartile aspect of the first to the tenth is stronger than the [quartile] aspect of the first to the fourth."[255] This alternative definition, which includes a tighter definition of a conjunction and adds information about the strength of aspects, indicates

[254] BYY, *Introduction*, 220.

[255] In another manuscript, BL Harley 13, which is identified by sigla G in BYY, this definition is attributed to Zael. BYY, *Introduction*, 1: [18], 235 (n): "Nam (Zael G) coniunctio est quando duo planete coniungitur in uno signo et (si G) fuerint inter eos .15. gradus vel infra, hic (quia .15. G) est terminus coniunctionis. Idem (propterea G) aspectus sextilis primi et .xi. fortior est aspectu primi et tertii, et aspectus quartus primi ad decimum fortior est aspectu primi ad quartum."

that the annotator was familiar with other astrological authorities. In one manuscript, this definition is attributed to Zael.

Another comment in the Gloss in the section on planetary relationships with malefics concerns the lunar relationship with the ascending or descending nodes of the moon: "The meaning is that the moon is especially hindered if the distance from its head or its tail [the ascending and descending nodes] is less than twelve degrees, that is, it is more hindered in the head and tail [of the moon] than in the nodes of others, and similarly the Sun is more hindered in the head and tail than in the nodes of others, since it undergoes an eclipse, and so each one of the planets is weak when it is in its own node because they fear being eclipsed by the Moon, and this could be when their node and the node of the Moon were in one boundary."[256] The annotator is explaining that malefic effects result when a planet approaches the lunar nodes, but that other planetary nodes are neutral.[257] The malefic effects are tied to eclipses, which occur only near the lunar nodes. Eclipses are not explicitly mentioned in the main text, and the annotator makes clear that the strongest effects of malefics occur in the ascending or descending nodes because these are the points where eclipses occur.

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[256] BYY, *Introduction*, 3:[28], 311 (*w*): "Sensus est quod Luna maxime impedietur si distabit a suo capite vel cauda minus .xii. gradibus, id est plus impeditur in capite et cauda quam in geuzahar aliorum, et similiter Sol plus impeditur in capite et cauda quam in geuzahar aliorum, quoniam in eis patitur eclipsim, et sic unusquisque planeta est debilis cum fuerit in suo geuzahar proprio quia timent ut eclipsentur a Luna, et hoc posset esse cum geuzahar eius et geuzehar Lune essent in uno termino."

[257] Although most astrological theory deals only with lunar nodes (*geuzahar*), or the Head and Tail of the Dragon, all of the planets have nodes. The nodes are the points where the plane of the planet's deferent crosses the ecliptic, which are ascending (when it crosses from south to north) and descending (when it crosses from north to south).

The annotator provides an explanation for the different lengths of time between the major conjunctions. Alcabitius explains that there are six of these conjunctions at the beginning of chapter 4, including the conjunctions between Saturn and Jupiter which occur every 20, 240, and 960 years. The annotator has written, "Note that Jupiter is in conjunction with Saturn every twenty years and twelve times in each triplicity. Multiplying twenty by twelve makes 240, and since in 240 years they are in conjunction twelve times in one triplicity, then if they are multiplied by 4 that makes 960 years, and similarly in 960 [years] their conjunction will return to the beginning of Aries or to the beginning of whichever other triplicity."[258] This is just an explanation of how the conjunctions are related to each other, but it is an important point for understanding the significance of conjunctions in the broader astrological scheme. A similar explanation appears in John of Saxony's commentary. Another example includes an explanation of the calculation for the equation (*equatio*) which is part of the calculation of the *tasyīr* (*gradus directionis*, 'degree of motion.') The annotator explains, "The sense of this is that from the remainder which is between the two indicators, you should take a part of such kind, the hours of the distance from the aforementioned cardine are from six, and this is what he says, and you multiply its six by the hours, that is if the hours were two, you take from that remainder two of its six, and this is what he says, or through multiplication, if you want, that is multiplying the

[258] BYY, *Introduction*, 4:[2], 315 (c): "Nota quod Iupiter coniungitur cum Saturno in .20. annis tantum et in unaquoque triplicitate duodecis. Multiplicenter .20. in .12. fient .240., et sic in .240. annis coniungitur duodecis in una triplicitate, quod si ducantur in .4. fiunt .960. anni, et sic in .960. redibit eorum coniunctio ad principium Arietis vel ad principium cuiuslibet alterius triplicitatis."

remainder by the hours and dividing by six, and this shows the same thing."[259] These comments demonstrate that the annotator of the Gloss was competent in recognizing alternative means of making calculations, and he sought to share those means with future readers.

There are several similar kinds of explanatory comments and phrases in Vat. Lat. 4079. The manuscript itself dates to the thirteenth century, and there are contemporary scribal corrections (in boxes), along with an additional hand which is similar to the scribe's. This annotator makes it clear relatively early in the manuscript that he is more highly skilled than a simple novice, writing, "Since this book is an introduction, he [the author] does not speak completely about this."[260] In response to the section where Alcabitius defines the planetary houses and planetary lords, the annotator of Vat. Lat. 4079 provides a simple reason for why planets may take pleasure in entering the houses over which they rule, which is because their qualities counterbalance each other.[261] The annotator goes on to explain other circumstances in which planets may take pleasure which are not listed in the main text:

> And thus the diurnal planets take pleasure when they are in the east, that is when they are rising at dawn. And the nocturnal planets take pleasure when they appear in the evening in the Western hemisphere. Saturn, Jupiter, and Mars also take pleasure when they are in a masculine part of the zodiac band, when it is from the midheaven to the ascendent, and from the fourth sign to the seventh;

[259] BYY, *Introduction*, 4:[12], 333 (t): "Sensus huius est quod de residuo quod est inter duos significatores debet accipere talem partem qualis pars sunt hore longitudinis ab angulo predicto de .6. et hoc est quod dicit, et multiplicabis sextam illius in horas, id est si hore fuerint .2., accipies de illo residuo .2. sextas eius, et hoc est quod dicit vel per multiplicationem, si volueris, id est multiplica residuum in horas et divide per .6. et exibit illud idem."

[260] Vat. lat. 4079, f. 41vb: "Quia iste liber est introductorius non dicit perfecte de hoc."

[261] This example is considered in the previous section under the subheading *Definitions and Examples*. Cf. p. 128, n. 245.

> the Moon and Venus take pleasure when they are in a feminine part, which is the seventh until the midheaven, and from the ascendent until the cardine of the earth, which is the fourth house, Mercury in both parts. And when a planet is masculine it takes pleasure in a masculine part and when a planet is feminine it takes pleasure in a feminine part.[262]

Whereas Alcabitius lists, according to Dorotheus, the signs of the zodiac in which each planet takes pleasure, the annotator has given additional information about other circumstances in which a planet may take pleasure. The annotator has provided reasoning here for the assignment of planetary lords, that is that planets and their houses temper each other, as well as further information about other astrological conditions whereby a planet may take pleasure in entering different segments of the sky.

Similar explanatory notes appear in a discussion in Alcabitius's third chapter on planetary conditions, and especially about the transfer of planetary natures between light and heavy planets due to their aspect relationships. Several paragraphs on the concept of astrological application have been heavily annotated and include interlinear remarks as well. In one paragraph, the main text describes a process by which a third planet transfers the nature of the first to the second through "application": "And when a light planet [1] is separated from a heavier planet [2] and it is applied to another [3], it [1] transfers the nature of the first [2] to the second [3]. A planet also transfers nature by another manner, this is when a light planet is applied to a heavier planet, and that

[262] BYY, *Introduction*, 1:[14], 230-1. Vat. lat. 4079, f. 41rb: "Igitur gaudent planete diurni cum fuerint in oriente, id est quando oriuntur in mane, et planete nocturni quando apparuerint in uespere in emisperio occidentali. Gaudent etiam saturnus iupiter et mars cum fuerint in parte circuli masculina; ut est a medio celi in ascendentem, et a signo 4 in 7 luna uero et uenus gaudent cum fuerint in parte feminina, que est ab 7 usque ad medium celum, et ab ascendente usque in angulum terre quod est signnum 4 mercurius in totam partem. Cum fuerit cum planeta masculina gaudet in parte masculina et cum planeta feminina gaudem in parte feminina."

heavier planet again applies to a still heavier planet; then the middle [heavier planet] transfers the nature of the light planet to the heavier [i.e. the heaviest one]."[263] There are several explanatory notes related to this passage, all of which are listed at the bottom of the left column of text rather than in the margin. The first one reads: "Note that if the light planet is separated from the heavy planet, according to the sextile aspect, and the light planet is applied to either, or according to the sextile aspect or according to any other aspect or according to conjunction of bodies, that [planet] transfers the nature of the first to the second. And what is said should be understood about all the others."[264] This statement clarifies that the transfer of planetary nature occurs under any aspect, including sextile aspects and conjunctions. Immediately underneath this note is another: "Note that always the light planet is applied to the heavier one, but never is the heavier planet applied to the light one."[265] Lastly, the annotator adds, "Note that the light planet is the one which moves swiftly."[266] The last two remarks are not at all implied in the main text. The annotator demonstrates that he is already familiar with astrological theory, and is adding further information to make the discussion about astrological application more clear to a novice reader.

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[263] BYY, *Introduction*, 3:[14], 303-4: "Et cum separatur planeta levis a planeta ponderosiori et iunctus fuerit alii, transfert naturam primi ad secundum. Transfert etiam planeta naturam alio modo, hoc est ut iungatur planeta levis planete ponderosiori se, et ipse ponderosior iterum alteri se ponderosiori; tunc medius transfert naturam levis ad ponderosiorem."

[264] Vat. lat. 4079, f. 47va: "Nota quod si planeta leuis separatur a ponderosiori, secundum sextilem aspectum, et ille leuis iunctus fuerit alii, uel secundum sextilem aspectum uel secundum quemquam alium aspectum, uel secundum coniunctionem corporis, ipse transfert naturam primi ad secundum, et sit intelligendum de aliis omnibus quod dicitur."

[265] Vat. lat. 4079, f. 47va: "Nota quod semper planeta leuis iungitur ponderosiori, sed numquam planeta ponderosior iungitur leuiori."

[266] Vat. lat. 4079, f. 47va: "Nota quod planeta leuis est ille que uelociter movet."

The marginalia in the Gloss and in Vat. lat. 4079 indicate that the skilled scholars who annotated the text were already familiar with the basics of astrological theory. At the time they made their marginal notes they were already familiar with several other astrological texts. The skilled scholars drew on additional knowledge gleaned from these texts, indicating their broad familiarity and competence with the new Arabic astrological doctrines. Their glosses made the text more intelligible to a Latin audience who was largely unfamiliar with many of the basic tenets of Arabic astrology. Later readers benefited from the marginalia applied to the text by skilled scholars, and the popularity of the *Introduction* rose over the course of the thirteenth century. There are many indications that the text was being taught at universities at the beginning of the fourteenth century, notably the commentaries on the *Introduction* written by Cecco d'Ascoli and John of Saxony in the 1320s and 1330s. The commentaries will be analyzed in the following chapter. In terms of marginal annotations, there are also several manuscripts which suggest a university setting.

Student manuscripts are usually easily identifiable by their codicological features, especially inexpensively made parchment which is well-worn. BAV Pal. Lat. 1372 illustrates some aspects of student readership in the variety of marginal annotations it contains. The manuscript dates to the fourteenth century and is quite well-worn. It is bound with a number of other astrological texts, including works by Zael, Albumasar, and Messahalla. There are several different marginal hands within the manuscript, indicating different readers, which one would expect of a shared university textbook that was passed on over the years. The marginalia are mostly devoted to labeling sections or providing additional terms or short phrases to clarify the

text. There are, for example, labels for Alcabitius's explanations of the houses (*de prima domo*) and the planets (*de iove, de venere*) in the first chapter.[267] There are some additional short notes for clarifying particular points, but these are somewhat limited. In the discussion of the *animodar,* or the calculation of the degree of the ascendant at birth in chapter four, Alcabitius discusses how to establish the cardines based on the planetary longitude for the ruling planet at birth. The main text reads, "Then you will see whether the degree of that planet is in the sign in which it is nearer to the degree of the tenth house or the degree of the ascendent, and for whichever of these it is nearer, you make this cardine the same as the degree of that planet and its minute, and you divide the twelve houses through it."[268] The annotator has written, "that is, you suppose the total degree of that sign in which the cardine is nearer is equal to the planet in that cardine, (…) the degree of the planet is equal in the sign in which the same planet is."[269] This statement rephrases the main text, basically restating that the degree of the planet should be equated to the cardine (the tenth or the ascendent) to which it is nearer. In this manuscript, the absence of more extensive annotations characteristic of the skilled scholars is quite obvious. Where the annotations reproduce the main text, they do so through paraphrasing rather than adding additional information from external sources. The simplicity of the glosses reflects the lack of expertise one would expect from beginning students. In addition, some sections of the text seem to be

[267] Pal. lat. 1372, f. 3r, f. 3v, f. 4r, f. 4v.

[268] BYY, *Introduction*, 4:[3], 318: "Deinde aspicies utrum sit gradus illius planete in signo in quo est proprior gradui decime domus an gradui ascendentis, et cui horum propior fuerit, facies hunc angulum ad instar gradus ipsius planete et eius minuti, et divides .xii. domos per eum."

[269] Pal. lat. 1372, f. 8v: "id est totum gradum illius signa in quo est angulus propior est planete equus pones in ipso angulo, (…) est gradus planete equus in signo in quo est idem planete."

labeled somewhat inconsistently. In terms of establishing the identities of individual students, there is still much work to be done. Many manuscripts were copied and owned by students, and occasionally they have recorded their names. Some of these individuals are considered in chapter five.

Keeping this context of the university in mind, we may evaluate the marginalia for additional university readers, including the use of the text by university professors. University professors may have learned astrology from Alcabitius as students, and then taught the same text at a later date. This was the case for Johannes Borotin at the University in Prague in the early fifteenth century, who used his copy of the *Introduction* both during his student years and later as the basis for his lectures on astrology,[270] for which he provides an introduction and commentary on the *Introduction*. Whereas Borotin clearly identifies himself as the author of various annotations in his own copy, it is likely that other copies of the *Introduction* were put to similar uses by professors at other universities but unfortunately the owners did not record their names. MS Plut. 29.3, for example, contains several glosses which seem much too sophisticated to have been authored by a student, and other glosses which are specific examples that clearly illustrate a specific point. At the beginning of the third chapter, Alcabitius discusses how the indications of the planets change with respect to their motion, specifically concerning their position with respect to the apogee. The annotator of Plut. 29.3 has taken this discussion and adapted it to account for eccentric and epicyclic motion. He writes: "Note that when the planet ascends along its eccentric

[270] Charles Burnett, "The Teaching of the Science of the Stars in Prague University in the Early Fifteenth Century: Master Johannes Borotin," *Aither* 2 (Prague, 2014): 9-50.

circle [the deferent] in this manner it may be in the superior part not far from the apogee, its motion then is slower as regards the motion of the center of the epicycle and it is then said to be stronger."[271] The marginal note then goes on to give an account of the astrological indications with details of theoretical astronomy which are much more descriptive than the main text of the *Introduction*.

The same marginal hand in Plut. 29.3 also provides several short, very specific examples of various concepts throughout the text, which are always noted "example" (*exemplum*). In the margin next to Alcabitius's section on the transfer of planetary natures between heavy and light planets we encountered in a previous example, this annotator has written: "Example: the Moon aspects Jupiter with any of the aspects and Jupiter aspects Saturn. Jupiter then will transfer the nature of the moon to Saturn."[272] There are several other example cases the annotator has added to illustrate specific points. In giving a lecture, it is possible these examples were added in the margins to provide the lecturer with a quick and simple means for discussing specific points. This possibility is suggested in an annotation where the annotator gives an explanation using the imperative, and then an example using the first person: "When you want to know the degree of the ascendent for any newborn, consider the conjunction or opposition which precedes the birth…Example: I suppose that in the hour of a certain birth the ascendent was Libra, but I do not know which degree, and I suppose that the birth was nocturnal and a conjunction was before it in the 6th degree of Aquarius, I see that

[271] Bib. Lauren. Plut. 29.3, f. 9v: "Nota quod quando planeta ascendit in circulo suo eccentrico itaque sit in superiori parte non distans ab auge eius cursus tunc est tardus quantum ad motum centri epicicli et dicitur tunc fortior."

[272] Bib. Lauren. Plut. 29.3, f. 11r: "Exemplum: Luna aspiciat iouem aliquo aspectuum et Iuppiter aspiciat Saturnum. Iupiter tunc transfert naturam Lune ad Saturnum."

Saturn is strong in that degree…"[273] The use of the first and second person and the imperative indicate these notes may have been used while lecturing.

Lastly, there are other manuscripts which contain primarily lengthy discussions of technical points. The detailed annotations found in these manuscripts may have originated from a university context, but it is also possible they were the result of close study by practicing astrologers. One annotation found in a fifteenth-century manuscript (MS Cicogna 3747) takes up the entire left and bottom margins of the folio in order to discuss and compare two different ways of calculating the ruling planet for a particular topic (such as property, marriage, wealth, etc.) or the lord of the year or the lord of the ascendent. The annotator notes that several astrologers have given methods but two are considered "authentic and true."[274] The first method is attributed to Hermes, and involves locating the planets in the cardines and their succedents.[275] The second method is that of Haly and also Alcabitius, who are both cited in the annotation, and is the preferred method. This method (as Alcabitius explains in the main text) involves the calculation and comparison of the number of dignities in the house of a particular

[273] Bib. Lauren. Plut. 29.3, f. 12r: "Cum volueris inuenire gradum ascendentis alicuius natalis: considera coniunctionem uel preuentionem que precessit natum…Exemplum. Pono quod in hora natalis alicuius ascendens fuit libra sed nescio quis gradus eius et pono quod natalis fuit nocturnalis et coniunctio precedens eam fuit in 6 gradum aquarii, video quod saturnus est fortior in illo gradu…"

[274] Museo Correr MS Cicogna 3747, f. 52v: "Nota quod ad sciendum quis planetarum fuerit dominator rei uel dominus anni uel ascendentis plures apud astrologos dantur modi sed aliis omissis de duobus tantum dicant que magis uidentur autentici et ueri."

[275] Museo Correr MS Cicogna 3747, f. 52v: "Primus modus est hermetis qui dicit quod cum volumus habere dominum anni uel ascendentis et cetera debemus considerare erecta figura et planetis in ipsa collocatis siquis eorum in aliquis angulorum reperitur et maxime in ascendente uel in medio celi et tunc talem dicemus esse dominatorem uel similus reperiretur in angulis et tamen reperiretur aliquis eorum in succendentibus et maxime in 2a uel in 4a iterum ille erit dominator secundum predictam opinionem."

topic, but counting the number of dignities may also be used for calculating the lord of the year or the lord of the ascendant.[276] The annotator then provides an example of this method drawn from the annual prediction (*iudicium*) of 1445 of Johannes de Fundis of Bologna.[277] The level of competence with astrological technique demonstrated by this annotator demonstrates a level of familiarity with the topic that could not have been written by a novice. In addition to these more sophisticated comments, the marginalia also reproduces portions of the Gloss.[278] I suggest that for more sophisticated discussions of this type, the annotator is using the text as a practicing astrologer, having gained experience with it as a university student.

Practicing astrologers may also have used the text as a reference manual. Many of the manuscripts contain at least some subject headings next to passages that discuss differences among the planets and the houses, as well as the lots. The frequency of this

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[276] Museo Correr MS Cicogna 3747, f. 52v: "Alius est modus haly quem etiam ut in litera patet in supra alchabicius qui dicit quod cum uolumus habere dominatorem rei uel anni et cetera et tunc debemus considerare corecta figura ac planetis in ipsa collocatis quis illorum fuerit plus auctoritatis. Id est plures habuerit dignitates in domo illius rei aut dominum queris uel si dominum anni queris considera quis illorum habuerit plures dignitates in ascendente tempore in introitus solis in arietem et talis erit dominus ascendentis uel dominus anni, et hic est melior modus secundum cum tamen ambo obseruari possunt faciendum est uel melius ac uerius res se abeu(n)t."

[277] Museo Correr MS Cicogna 3747, f. 52v: "Sicut fecit M. Ioannes de fundis bonnonie cum iudicium fecit anni domini 1445, qui commentat tunc temporis hora introitus solis in arietem ascendebat 4 gradus cancri in quo iupiter tunc reperibatur et quam ipse exaltatur in cancro ideo in ipso habent 4or fortitudines propterea quia luna in ipso cancro habent 5 fortitudines quam cancri est domus lune ideo secundum hunc modum debetur esse luna dominus anni cum plures habeat fortitudines propterea M. iohannes predictus adaptauit se ad utrumque modum quam cum iupiter in ascendente habeat quatuor fortidudines et cum hic reperitur in ascendente non fecit ipsum iouem dominum anni secundum predictum modum et quia luna habet in ascendente 5 fortidudines et est uincens ideo fecit ipsam dominum ascendentis secundum modum secundum et sit faciendum est in reliquis et cetera."

[278] MS Cicogna 3747 reproduces some of the references to Albumasar found in the Gloss. See especially f. 58v.

practice of labeling, which appears in early manuscripts and throughout the text's printed history, suggests that the text served as a reference tool for many individuals eager to quickly identify the relevant portion of text for their astrological calculations. There are several manuscripts which contain only this type of marginalia. While it is certainly the case that students also labeled texts, practicing astrologers would have been fairly systematic with their labeling. This group would also have included physicians.[279] Not all physicians practiced astrology, but those who did would likely have found Alcabitius useful, and adding subject headings would have guided them through the text much more swiftly. The correspondence of the planets to various illnesses and parts of the body is found in chapter two of the *Introduction*, and so heavy labeling in this section indicates the potential for use of the text as a reference tool by physicians.

The last set of readers who annotated the *Introduction* are individuals who may have encountered the text as students, and maintained an interest in astrology after university despite not having become practicing astrologers themselves. There is some evidence of this type of reader, whom I call the astrological enthusiast, in a manuscript in the Biblioteca Laurenziana in Florence.[280] At the end of the *Introduction*, the scribe has written his name, Laurentius Silvestris, and the date, 1460.[281] We find an additional

[279] Roger French, "Astrology in Medical Practice," in *Practical Medicine from Salerno to the Black Death* eds. Luis García-Ballester, Roger French, Jon Arrizabalaga and Andrew Cunningham (Cambridge: Cambridge University Press, 1994): 30-59.

[280] The library is part of the Basilica of San Lorenzo, which was owned by the Medici family.

[281] Bib. Lauren. Plut. 29.3, f. 18r: "Explicit alcabitius scriptus mei manibus laurentii filii silvestrii 1460." There are at least two hands in this manuscript. The first makes the annotations which appear to have been authored by a university professor. The others, which are more labels, resemble the hand of Laurentius Silvestris.

inscription from Laurentius at the end of a commentary on pseudo-Ptolemy's *Centiloquium* in the same volume, who transcribed the text in 1477 when he had become a canon of the Basilica of San Lorenzo.[282] The commentary, however, was not Haly's, which up to this point was the most popular commentary on the *Centiloquium* and frequently circulated with it in manuscripts. The author of the commentary was another Laurentius, Laurentius Bonincontrius. Laurentius Bonincontrius was a humanist poet and astrologer who lived in Florence from 1475-1478. It is possible that he personally gave his commentary to the astrologer-enthusiast, the Canon Laurentius, in 1477, to be copied.[283] The text of the commentary is highly annotated, but the script of the annotator does not match that of Laurentius Silvestris. However, there are some labels of subject headings throughout which resemble the hand of the Canon Laurentius. At the very least, we have here an example of Alcabitius being read by the young Laurentius, possibly at university but also possibly for self-study, and used later as a reference tool, as indicated by the subject headings in the text. Laurentius was certainly an enthusiast—adding a recent commentary on the *Centiloquium* to his repertoire of astrological knowledge indicates an interest in astrology that persisted throughout his life. The fact that Laurentius was interested in adding the new commentary on Ptolemy's *Centiloquium* to his astrological and astronomical compendium raises the question of how much fifteenth-century scholars turned

[282] Bib. Lauren. Plut. 29.3: "Laurentii Bonincontrii Miniatensis commentum super Centilogo ptholomei feliciter explicit; Transcriptum per Me Laurentium Silvestri Canonicum ecclisie sancti Laurentii florentium die x may 1477. hora 231/2."

[283] Bonincontrius also wrote a long commentary on the classical Latin author Manilius's astrological poem *Astronomica*. See Stefan Heilen, *De rebus naturalibus et divinis : zwei Lehrgedichte an Lorenzo de' Medici und Ferdinand von Aragonien / Laurentius Bonincontrius Miniatensis* (Stuttgart: Teubner, 1999).

towards contemporaries to supply works that supplemented or even replaced the Arabic tradition.

Having gained an understanding of the types of readers who annotated the *Introduction*, we may now examine evidence from the marginalia that offers some insight into the subtle cues and assumptions of these readers towards Arabic astrology and Arabic learning more generally. The annotation practices preserved in the text are evidence of readers' interpretations, evaluations, and implicit assumptions that were absorbed by later readers. As there is an abundance of Arabic source material in the text, including transliterated Arabic terms (both for technical astrology and words for which no Latin equivalent was immediately found by the translator), marginal definitions of these terms, citations of Arabic authors, and references to Islam or to the Islamic calendar, marginalia related to this material is indicative of how readers' attitudes may have shifted (or not) in different contexts.

Citations of Arabic Authors

By the end of the thirteenth century, most of the major texts from the Arabic astronomical-astrological tradition had been translated into Latin and were being assimilated into Latin learning by the skilled scholars we encountered in the previous section. Many Arabic astrological authors were included in pseudo-Albert's thirteenth-century *Speculum astronomiae,*[284] which dates to around 1260. The *Speculum* includes

[284] There is some uncertainty about the authorship of the *Speculum astronomiae*, although medieval readers would have accepted Albertus Magnus as the author. For a recent appraisal of the evidence, see J. Hackett, "Albert the Great and the Speculum astronomiae: The State of Research at the Beginning of the 21st Century," in Irven Michael Resnick, ed., *A Companion to Albert the Great: Theology, Philosophy, and the Sciences* (Leiden: Brill, 2013), 437-450.

a very short introduction to spherical astronomy and astrology, a justification for the study of astrology, and a list of licit and illicit astrological texts.[285] The list of licit texts includes Alcabitius's *Introduction*, which is listed after Ptolemy's *Tetrabiblos* and Albumasar's *Great Introduction to Astrology*. Albert's list provides access to the range of Arabic astrological texts which were known (at least) to the skilled astrological scholars, and underscores the point that Arabic astrological authors were legitimate sources of astrological knowledge. Examining citation practices in the *Introduction* by Latin scholars further demonstrates that Arabic authors were regarded as authorities and heirs to the astrological tradition that was initially rooted in Greek thought.[286] In reading the *Introduction*, Latin scholars often compared Alcabitius's views with other authors, occasionally noting errant values, or contrasting points of doctrine. The Arabic authors most often cited in the margins of Alcabitius's Latin manuscripts include Albumasar, Messahala, Alkindi, Haly, and Zael.[287]

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[285] Paola Zambelli, *The Speculum Astronomiae and Its Enigma: Astrology, Theology, and Science in Albertus Magnus and His Contemporaries*, Boston Studies in the Philosophy of Science, v. 135 (Boston: Kluwer Academic, 1992). Pseudo-Albert cites several astrological authors in compiling his list of licit and illicit astrological texts: Ptolemy, Messahala, Geber, Albategnius, Albumasar, Alcabitius, Johannes Hispalensis, Haly, Zael, Alkindi, and Jafar (and others).

[286] For medieval and early modern citation practices more generally, see the two-volume study, *Citation, Intertextuality and Memory in the Middle Ages and Renaissance*, eds. Yolanda Plumley, Giuliano Bacco, and Stefano Jossa (Oxford: Oxford University Press, 2011). See also Anthony Grafton, *The Footnote: A Curious History* (Cambridge: Harvard University Press, 1999).

[287] The two astrological authors cited most frequently in the marginalia of manuscrips of the Introduction are Ptolemy and Albumasar. Ptolemy's Tetrabiblos was translated in 1138 by Plato of Tivoli, with the most popular commentary on the text, that of Haly (ʿAlī ibn Riḍwān), translated in the thirteenth century. Albumasar's two introductory texts on astrology, *The Great Introduction* and the *Abbreviation to the Introduction*, were translated roughly contemporaneously with Alcabitius' Introduction in the 1130s, the former by the same translator Johannes Hispalensis and the latter by Adelard of Bath. It is important to recall that while Alcabitius draws heavily from Albumasar's work, he does not once cite him by name.

The citations of Arabic authors have different formats, the simplest of which is just a cross-reference to another author. The earliest readers of the *Introduction*, the skilled scholars, were well aware of Albumasar's influence on Alcabitius. Albumasar is frequently cross-referenced in the early manuscripts, occasionally with specific sections and chapters cited in either the *Great Introduction* or *Abbreviation*. One brief reference to Albumasar in the Gloss is a reminder that Alcabitius refrained from explicitly citing him. Where Alcabitius mentions "the others apart from Alkindi," the annotator has added, "for instance Albumasar."[288] In Vat. lat. 4079, one reference is made to Albumasar's *Great Introduction*, where one finds the discussion of signs that are crooked in rising (*tortuosa ascendentia*) or direct in rising (*directa ascendentia*).[289] Another reference in the same manuscript just reads, "Albumasar, greater," a reference to the *Great Introduction*.[290] We have already encountered one reference to Zael in a gloss on the definition of a conjunction.[291] A reference to Zael also occurs in a discussion about restoring (*reddo*) of the light, where the annotator mentions, "This explanation is in Zael."[292] Cross references indicate that Latin scholars acknowledged internal consistencies within the Arabic astrological tradition, which contributed to its authoritative standpoint. Latin scholars also frequently compared different readings of astrological texts.

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[288] BYY, *Introduction*, 4:[10], 330 (g).

[289] Vat. lat. 4079, f. 41ra: "…in libro Albumasar in 6 libro in 5 capitulo." Alcabitius defines these in 1:[8]. See BYY, *Introduction*, 228.

[290] Vat. lat. 4079, f. 44rb, bottom of page: "Albumasar maius."

[291] Cf. p. 133, n. 255.

[292] BYY, *Introduction*, 3:[15], 304 (s): "Hic expositum est in Zael."

In the Gloss, the annotator provided a different reading from Albumasar when Alcabitius mentioned the shares: "In Albumasar is found 'in the distinctions,' that is in the house and exaltations and those things in the sixth chapter of the seventh book."[293] In another instance, in Vat. lat. 4079, the annotator compares Alcabitius's definition of aspects with Albumasar's in this brief comment: "The aspect, he says, is from a sign to a sign, the most powerful [is] from degree to degree, as Albumasar says."[294] These comparisons indicate that Latin scholars acknowledged slight distinctions between astrological authors, and that they were very attentive to these distinctions. The comparison of astrological authors in marginalia could also be more robust. The annotator of Vat. lat. 4079 cites the opinion of Albumasar after listing three different readings about signs which are "agreeing in path," (*concordantia in itinere*): "I say the three lines should be brought together since Albumasar wishes thus in book six, chapter 1."[295] The annotator of the Gloss also seems to have preferred Albumasar's explanation in several points regarding the technical terms of the astrologers in chapter 4, stating explicitly, "This is better said in…" the appropriate book and chapter of Albumasar's texts.[296] In one case, the annotator of the Gloss draws on Albumasar to advise future readers with an alternative explanation on the calculation of the twelfths

[293] BYY, *Introduction*, 3:[26], 309 (o): "In Albumasar habetur 'in ornamentis' id est in domo et exaltatione et cetera in sexta differentia septimi tractatus."

[294] Vat. lat. 4079, f. 41vb, "aspectus dicit est de signo ad signum ualidissimus de gradu ad gradum ut dicit albumasar."

[295] Vat. lat. 4079, f. 41ra: "…3 uersus dico debent simul legi quia ita uult albumasar in 6 libro 1 capitulo." This reference is to the *Great Introduction*.

[296] See BYY, *Introduction*, 4:[16], 339 (i): "Hoc melius dictum est in 17 differentia quinti tractatus Albumasar." See also 4:[21], 345 (b): "Hoc melius dictum est in principio 6 tractatus libri Albumasar de coniunctionibus."

(*duodenariae*): "This is said more fully in chapter 18 of the fifth book of Albumasar…do as the book says, and it is not necessary that you add to them the degree which you have multiplied, since it is superfluous, neither did Albumasar add them."[297] Similarly, in the section on the terminal point, the annotator of the Gloss supplements the *Introduction* with information from Albumasar's book on conjunctions.[298] The critical comparison of Alcabitius and Albumasar by both the annotator of the Gloss and of Vat. Lat. 4079 illustrate a concerted effort to compile and assimilate Arabic astrological ideas. This demonstrates their commitment to and enthusiasm for the Arabic astrological tradition.

Furthermore, as evidenced by the early manuscripts, there are more citations to Albumasar than there are to Ptolemy. Vat. Lat. 4079 contains four citations of Albumasar whereas there are only two citations to Ptolemy, and the Gloss includes several citations to Albumasar, and Ptolemy is only mentioned twice.[299] In one instance in the Gloss, Ptolemy and Alcabitius are compared as equals: "Note that Ptolemy does

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[297] BYY, *Introduction*, 4:[15], 338 (g): "Hoc latius dictum est in 18 differentia 5 tractatus Abumasar et est ut dividas quodque signum in 12 divisiones quarum queque est 2 gradus et medietas, et in unaqueque earum est natura 12 signorum, id est in prima natura eiusdem signi et in secunda natura secundi ab eo et in tertia tertii signi, et sic de reliquis. Cum ergo habueris aliquot gradus alicuius signi in quibus sit aliquis planeta vel gradus domus et volueris scire in natura cuius signi est, fac ut dicit liber, et non oportet ut addas super illos gradus quot multiplicasti, quoniam superfluum est, nec Albumasar illos addidit."

[298] The annotator mentions this book twice in this section. See BYY, Introduction, 4:[10], 330 (i): "Hoc ita invenit Abumasar in prima figura ultime differencie libri sui de alchiren in regione sue." See also 4:[10], 330 (k): "Hic sciendum est quod Maumet non fuit dictus rex, immo propheta, et ideo regnum non incepit a tempore eius, set incepit longo tempore post, scilicet transactis 117 annis Persidis, et inceperunt Arabes regnare et redierat ascendens ad Virginem. Et puto errorem in his locis fore in littera. Hoc non est ita, immo tunc mutatum est regnum Arabum ad nigredinem Erachlie ut habetur in secunda figura trium figurarum ultime differentie libri alchiren."

[299] One citation is to the *Centiloquium*. BYY, *Introduction*, 4:[12], 336 (y): "Hoc habetur ex verbo 77 Ptolomei."

not mention the indicator (*directio gradus*/*tasyīr*) of the conjunction or opposition, neither still has Alcabitius explained it…."[300] While Ptolemy's *Tetrabiblos* is certainly included in these efforts towards creating a coherent astrological framework, the frequency and manner of citation suggest that the most interesting and important astrological texts for Latin readers are from the Arabic tradition. Comparing citations of Arabic authors with Greek authors, as well as to contemporary Latin authors, we find that at least within Arabic astrological texts, Arabic authors continue to be cited the most frequently throughout the duration of the *Introduction*'s popularity. It is very unlikely to find contemporary Latin scholars mentioned in marginalia in the manuscripts. One manuscript which dates to the fourteenth century contains a citation to Johannes Hispalensis.[301] Medieval authors did not refrain from citing their contemporaries, but Latin astrological authors such as Pietro d'Abano, Pierre d'Ailly, and Guido Bonatti are noticeably absent from the marginal citations in the *Introduction*. Their absence in many ways underscores the authority afforded to the Arabic tradition by early medieval readers.

Citation practices had shifted somewhat by the fifteenth century, when there are more contemporary Latin authors authoring texts, although mentioning them by name was still relatively infrequent. Returning to the example of the fifteenth-century manuscript MS Cicogna 3747, we remember the comparison of two methods for

[300] BYY, *Introduction*, 4:[12], 336 (b): "Nota quod Ptolomeus non fecit mentionem de directione gradus coniunctionis vel preventionis nec etiam Alkabitius exemplificavit de ea, quare dubitamus de ea et nescimus ad quid proprie debeat dirigi, verum dicimus quod quando dirigimus eam videbimus cum qua ex predictis convenerit, tunc dicemus quod illa erit fortior." This gloss also appears in BAV Pal. lat. 1382, f. 11r.

[301] BAV Pal. Lat. 1372, f. 8v: "Qui dicuntur potestas a Johannes Hyspalensis."

computing the planetary ruler for a topic, and the lord of the year and of the ascendent. The annotator mentions Hermes and Haly, and the annual prediction (*iudicium*) of Joannes de Fundis of Bologna for the year 1445. The annotator also cites Albumasar in the section in chapter four on the ninths (*novenaria*), including a book and chapter number, presumably of the *Great Introduction*.[302] This fifteenth-century manuscript follows the earlier tradition in continuing to cite Arabic authorities more than the Greek ones, or contemporary Latin authors, than the medieval manuscript tradition. In the fifteenth century one also finds manuscripts full of very detailed annotations and yet often lacking citation. The annotator of Plut. 29.3, for example, mentions both Ptolemy and Haly in discussing the technical terms of the astrologers. However, Alcabitius cites Ptolemy here, and the annotator merely repeats this.[303] In the case of the citation to Haly, the annotator mentions a divergence from Haly in discussing the least, middle, and greatest years.[304]

What is noteworthy here is that the frequent citations of Arabic authors, which provide alternative methods or support for astrological knowledge, indicate a continued respect and reverence for Arabic authorities from at least one hundred years after the translations, and this continues well into the fifteenth century. Also notably absent from the manuscripts are any marks of critique or negativity towards Arabic astrology or Arabic learning more generally. Thus in the early period of assimilation of Arabic

[302] Cicogna 3737, f. 60r.

[303] Bibl. Laur. Plut. 29.3, f. 12v: "Dicit auctor secundum intentionem Ptholomeus que debemus accipere gradius illius luminaris…"

[304] Bibl. Laur. Plut. 29.3, f. 12v: "Nota quod more in fortitudinem […] matrum non sunt equales sicut dicit Haly."

astrological texts the Latin readers would have considered them to be at least as authoritative, if not more so, than the ancient Greeks, and certainly more authoritative than contemporary Latin astrological writings. In looking at the citations alone, we may conclude that legitimate astrological knowledge was grounded in Arabic learning. Latin readers viewed Arabic astrology as authoritative, and this attitude does not appear to have decreased over time. We will now turn to other aspects of the marginalia that elucidate the strong ties between astrology and the Islamic world.

Astrology as Arabic in Medieval Europe

The influx of Arabic astrological knowledge into Europe in the twelfth and thirteenth centuries flooded the scholarly landscape, and Latin scholars were met with an abundance of technical astrological literature which far surpassed the Classical tradition preserved in the medieval Latin West. The Arabic-Latin translators were often unable or unwilling to find suitable Latin terminology for several of Arabic technical terms. In the previous chapter on the translation of the *Introduction*, we encountered many of these terms and analyzed the different ways in which they were handled by the translator. Many of the terms were transliterated, often with an accompanying "interpretation" that the translator introduced to the text. After the initial translation into Latin, scholars continued to introduce glosses on transliterated terms to clarify their meaning, and they often listed transliteration variants in the margins. As with the interpretations, the glosses from later readers contributed to the sense in which the text was foreign and particularly Arabic. In addition, the passages of the *Introduction* on the rise of Islam and the great conjunctions were frequently annotated, which served to create a community of Latin readers who postured themselves in a certain way with

respect to Arabic learning. Astrological texts very obviously retained their Arabic roots.

Marginalia played an important role in both the initial assimilation of Arabic astrological knowledge and the continued association of this knowledge with the Arabic astrological tradition. As discussed in the previous chapter, the process of translating Arabic astrological and astronomical texts into Latin led to several terminological issues, mostly centered on the fact that many Arabic astrological terms had no suitable Latin equivalent. Some of these terms were Greek in origin, some stemmed from Persian, and others were Arabic. Many of these short explanatory phrases, which mirror those supplied by John of Seville, are part of the Gloss. I have reproduced several of them here:

1:[78] alhaiz : similitudo (‘likeness’)

1:[78] in suo aiz: in sua similitudine (‘in its likeness’)

2:[14] alhabra : scilicet impetiginem (‘that is impetigo’)

3:[5] almuwegeha: hoc est de visione invicem facie ad faciem; in conspectu (‘this is about looking at each other face to face; in sight of’)

3:[6] duztoria: id est dexteratio vel securitas; ductoria dicitur cum fuerit inter planetam orientalem et Solem .60. gradus secundum quosdam (‘that is rightness or security; it is called ‘leadership’ when there are sixty degrees between an eastern planet and the sun, following those’)

3:[21] alintiketh: id est refrenatio (‘that is restraining’)

3:[22] alitirad: id est contrarietas accidens ('that is opposition to happening')

3:[23] alfaut: id est frustratio ('that is delaying')

Readers of the *Introduction* also continued to offer or reproduce transliteration variants in the margins well into the sixteenth century. MS Cicogna 3747, for example, lists several variants for *animodar* in a vertical list in the margin: *almudar*, *elmudaz*, and *elanudar*.[305] A similar list, for *alcochoden*, appears in the right margin of f. 23rb in MS BNM VIII 33, with a gloss on the term below the column: "alcocoden est planeta horaris pluries dignitatis in loca ylex [*hyleg*]."[306] Transliteration variants and glosses on transliterated terms illustrate how the *Introduction* retained its association with Arabic learning for as long as it was read. A detailed look at two terms in particular illustrates this point more thoroughly.

Consider the case of *hyleg* and *alcochoden*, technical words referring to the calculation of the length of life based on the natal horoscope. The terms were noted and defined much more frequently in the marginalia than any of the other transliterated terms over the course of the Latin textual history of the *Introduction*. As noted in the previous chapter on translation, *hyleg* and *alcochoden* have an enormous number of spelling variations in the manuscripts.[307] *Hyleg* refers to a particular celestial point that enables one to calculate the length of one's life. It is not clearly defined in the Arabic

[305] MS Cicogna 3747, f. 57v., left column.

[306] Bib. Mar. VIII 33, f. 23rb.

[307] In this text, for both terms I use the spelling of the 1512 printed edition. The manuscripts have several variants. The hyleg variants are: hilesg, hilel, hiles, hyles, yles, hilegh, yle, hiselesg, elhyleg, hyleg, hylech, hylez; the Alcochoden variants are: alquodchodeuh, alkudchudech, alquodhodeu, aliq(uod)hodeu, aliq(uod) hodeu, alchocodeu, alchoden, alcocodeu, aliq(uo)dchodeu, alcogodeu, alcodcodeu, acozcodeu, alcochodeu, alcochoden.

text; rather, a description is given of how to calculate it. Only four Latin manuscripts and the printed edition include the descriptive phrase, "that is, the place of life" following *hyleg* in the main text.[308] *Alcochoden* is defined as "the indicator of the length of life" in the Arabic text, a literal translation of which also appears in the Latin text, "*significator vite*."[309] This indicates that they were important terms for many readers and were likely frequently calculated. It is no surprise, as foreknowledge of the length of one's life (particularly for rulers) would be enticing in a period when death from war, plagues, other illnesses, and childbirth was common. *Hyleg* and *alcochoden* also demonstrate how scholars continued to draw on a range of sources in their explanations of the *Introduction*. Pal. Lat. 1372 contains marginalia that provide definitions of these terms, with some significant variation in meaning.[310] First, the annotator has introduced a gender distinction between the two terms, associating the *hyleg* with the "wife," and the *alcochoden* with the "man/husband."[311] Secondly, the annotator's definition of *hyleg* refers to the quality of life (good or bad) and to well-being (sickness or health), neither of which is present in the main text. Not a single annotator nor scribe attempted to come up with Latin terms for the *hyleg* and

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[308] BYY, *Introduction*, 4:[4], 319 (x): "id est locus vite." The English translation employed by BYY is "prorogator."

[309] BYY, *Introduction*, 4:[5], 323: "quod est signficator vite."

[310] Pal. lat. 1372, f. 8va: "hylak interpretatur uxor et est dispositor annorum nati ad bonum uel malum uel ad infirmitatem [uel] sanitatem et filiam." In the case of alcohoden, the annotator has written, "Alkocoden interpretatur uir et est dator annorum nati," Pal. lat. 1372, f. 8ra.

[311] The origin of this gender distinction appears to be from the work of Māshā'allah and/or al-Ṭabarī. It does appear in Masha'allah's *Book on Eclipses*. See Abraham Ibn Ezra, *The Book of the World: A Parallel Hebrew-English Critical Edition of the Two Versions of the Text*, ed. and trans. Shlomo Sela, (Leiden: Brill, 2010), 253. It is also reported in al-Ṭabarī's *Book on Nativities*, as recorded in S. Sela, *Abraham Ibn Ezra on Nativities and Continuous Horoscopy* (Brill, 2013), 450-7.

alcochoden, and there was no Latin equivalent. This reveals, at the very least, a respect for tradition, and it also indicates a commitment to the authority of the Arabs.

As the text was accommodated to the needs of Latin readers, it retained its Arabic character through transliterated terms and especially the attention drawn to these terms through marginal annotations. One particularly striking example of this is evident in the fourteenth-century manuscript Pal. lat. 1408. The reader and principle annotator of this manuscript, which contains marginalia only in red ink, paid special attention to the Arabic terminology. The annotator has carefully copied and standardized the spelling of Arabic terms in the margins, and corrected spelling in the main text. This indicates an attention to detail and accuracy for the Arabic astrological terminology, and an effort to preserve it. While some manuscripts have alternative Latin translations given for other Arabic words, there are no marginalia or annotations in any of the manuscripts that indicate efforts on the part of readers to find suitable Latin terminology that would fit the same Arabic astrological concept. Rather, the Arabic transliteration is taken as the dominant form for the astrological concept. The "highlighting" of Arabic words Pal. Lat. 1408 exemplifies in vivid, visual form how Latin readers would have encountered foreign cultural elements in the text.

The last set of annotations which indicate attention from annotators to the Arabic origins of the *Introduction* concern several references to the *secta Saracenorum*, or Muslims. In Alcabitius's fifth chapter, he discusses how to calculate the length of rule for kings as part of the section on the calculation of the Lot of Fortune. In order to make this calculation, one must base the calculation on the time of the most recent conjunction that indicates a shift in religion. This is the conjunction of

Saturn and Jupiter, and it occurs once approximately every 20 years. Albumasar was the first astrologer to associate the rise of Islam with the conjunction between Saturn and Jupiter in the sign of Scorpio in his book *Religions and Dynasties*.[312] In Vat. lat. 4079, the annotator explains this particular example, and mentions the rise of Islam and its association with this conjunction several times. The discussion of this conjunction in the context of the length of rule of kings allows us to gain insight into how this particular reader treated the claim that religions themselves are influenced by planetary configurations. There is obviously no problem in explaining how planets influenced the rise of Islam, but there is no mention of this conjunction and its influence on Christianity.[313]

In addition, there are very few disparaging remarks made in the marginalia towards the Islamic faith. One has been recorded in the Gloss, which refers to the revolt of Mohamed (*seditionis Machometi*). The absence of critical remarks of this nature is noteworthy, given that throughout the period of readership of the *Introduction*, there were some anti-Islamic sentiments circulated, usually associated with military conflicts.

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[312] Abū Ma'shar, *On historical astrology: the book of religions and dynasties (on the great conjunctions)*, ed. Keiji Yamamoto and Charles Burnett (Leiden: Brill, 2000).

[313] The theological issues surrounding conjunctions have been well-documented in G. Federici Vescovini, "The Theological Debate," in *A Companion to Astrology in the Renaissance*, ed. Brendan Dooley, (Leiden: Brill, 2004). See also John North, "Astrology and the Fortunes of Churches," in *Stars, Minds, and Fate: Essays in Ancient and Medieval Cosmology* (London, 1989), 59-89.

Conclusion

Marginal annotations are very clear evidence of the process by which Latin scholars assimilated Arabic astrological knowledge, but 'assimilation' seems to fall short of capturing the complexities of how Latin scholars read, questioned, understood, commented upon, and adapted astrological ideas to their own needs. From very early in the manuscript tradition, Latin scholars were critical and engaged recipients of Arabic astrological knowledge. The *Introduction*'s readers compared Arabic authors with the text of the *Introduction* and noted the differences in the margins. These differences could be simple and straightforward, such as the spelling of transliterated terms, subtle distinctions regarding a definition, or more complex differences of doctrine. The process of comparing Arabic astrological texts involved the recognition of Arabic astrology as a distinct tradition from which Latin scholars could draw in building their own astrological framework. While it is evident that Latin scholars adapted this framework as new knowledge became available, new tables were constructed, and astronomical and astrological understanding developed more fully, Arabic astrology maintained its position as an authoritative intellectual tradition throughout the period of the *Introduction*'s readership. The fact that Arabic transliterated terms were retained, despite transliteration variants, also contributed to both the sense in which astrology was an Arabic science and to its authoritative position. The retention of terms is particularly noteworthy given the large number of spelling inconsistencies. Lastly, the citations of Arabic authors illustrate that Arabic astrology was considered highly respected and revered well into the sixteenth century. For a more formalized

understanding of the text than marginal notes, we may look to the several commentaries written on the *Introduction*.

Chapter 4: Commentaries

Introduction

Commentaries indicate deliberate and reflective acts of readership, the result of which is a new text that expands on and explains the needs and interests of the author of the commentary. In many cases, medieval commentaries were the product of the use of the text in university lectures. The principle introductory text on astronomy, Sacrobosco's *Sphaera*, for example, received multiple commentaries from university professors.[314] The principle introductory text on astrology, Alcabitius's *Introduction*, also received several commentaries. The *Introduction* does not have near as many commentaries as the *Sphaera*, but it was the only astrological text translated from the original Arabic to Latin that was commented upon in the medieval period,[315] and this reflects the univerity context and contemporary importance of the text. In examining the commentaries, we may consider which parts of the *Introduction* were of most interest to the commentators, what kind of information was added by them, and the contexts in which the commentaries were written and what they reveal about attitudes towards Arabic astrology. Taken in comparison, the commentaries illustrate that among university scholars, the Arabic astrological tradition was highly respected in the fourteenth century. This attitude dissipated somewhat by the sixteenth century, when the effects of humanists writings encouraged a return to original Greek sources.

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[314] Lynn Thorndike, *The Sphere of Sacrobosco and its Commentators* (Chicago: University of Chicago Press, 1949).

[315] Very few commentaries were written on astrological texts. Girolamo Cardano wrote a commentary on the *Tetrabiblos* in 1554, just before the last commentary on the *Introduction* was written by Valentin Naibod in 1560.

However, the fact that the *Introduction* continued to receive commentaries in the sixteenth century indicates how well-entrenched the Arabic tradition had become in European astrological thought.

Several commentaries were written in the early fourteenth century. The first was written by Cecco d'Ascoli, the infamous professor of Bologna and Padua who was later burned at the stake for his necromantic views. Cecco's commentary covers only the first fifty-four paragraphs of the first chapter of the *Introduction*, and is somewhat detailed.[316] A little bit later, in 1331 John of Saxony wrote a commentary on the *Introduction* at the University of Paris. This commentary became very popular and appears in at least thirty-two manuscripts and nine of the twelve printed editions. In 1359, the Dominican John of Stendhal wrote a commentary on the *Introduction* when he was a censor at Erfurt for students at the University of Erfurt.[317] A three hundred-page commentary of the *Introduction* was written in 1393 and then preserved in a copy made by "Joannes" in 1400.[318] A 1440 ownership inscription associates this manuscript with Joannes Marchanova, a doctor of arts and medicine at Padua. Thorndike suggests a few possibilities for the authorship of this commentary. One is Blasius of Parma, who

[316] G. Boffito, *Il commento inedito di Cecco d'Ascoli all'Alcabizzo* (Florence, 1905).

[317] Bernkastel-Kues, Bibliothek des Bibliothek des St.-Nikolaus-Hospitals, 212, 15th cent., fol. 204r: Explicit scriptum super Alkabicium compilatum per fratrem Johannem de Stendal ordinis predicatorum domus magdeburgensis ad instanciam reverendorum magistrorum et studentium Ertfordum se existentem censorem Ertfordum anno domini 1359, in L. Thorndike, *History of Magic and Experimental Science*, III (New York, 1934): 223. This commentary does not appear in BAV Pal. lat. 1354 as listed in the BYY edition. This manuscript contains in fact John of Saxony's commentary, but is missing the first several paragraphs. It has the same incipit as John of Stendhal's commentary: "Ptolomeus in prima propositione Centiloquii dicit…"

[318] Biblioteca Marciana, Lat. VIII 30.

was teaching mathematics and philosophy at Pavia at that time, but there is no evidence in the manuscript itself to indicate this.[319] This commentary, which was classified as such perhaps owing to its length, appears to be an aggrandized paraphrase.[320] There was a commentary written in the fifteenth century by the astrologer Louis de Langle (d. 1463).[321] Louis de Langle is known for having successfully predicted the victory of Charles VII against the English in the battle of Formigny in 1450.[322]

There are two commentaries from the sixteenth century, both of which indicate a university setting. The first is that of Jeronimo Muñoz, a professor of Hebrew and mathematics at Valencia and Salamanca.[323] The other commentary was printed in 1560 by the astronomer and astrologer Valentin Naibod. Naibod was a professor of mathematics at the University of Cologne, but his commentary is markedly different from the commentaries of his fourteenth-century predecessors. Naibod sought to

[319] The attribution to Blasius is due to the similarity of the incipit to the commenary on the *Introduction* to the incipit to Blasius's commentary on Aristotle's *De caelo*. The other possibilities spring from a misattribution of authorship in the manuscript from a later period, to the fifteenth-century author Nicolas de Comitibus, who lived too late to have authored the commentary. Thorndike considers another set of Nicolas's as authors, but no name of Nicolas appears in the manuscript colophon or flyleaf pages. See Thorndike, *HMES* III (New York: 1934), 600-601.

[320] The script is quite large and does not appear to add any additional information to the rephrasing of the *Introduction*.

[321] The complete commentary is in Paris, BNF lat. 7321, f. 1r-78v. A fragment is preserved in Lyon, Bibliotheque municipale de Lyon, ms. 329, f. 287-291.

[322] Étienne Hustache, "Une œvre de vulgarisation géographique du XVe siècle: le *De figura seu imagine mundi* de Louis de Langle," *Positions des Thèses* (Paris: École de Chartes, 1980), 97-104.

[323] Jeronimo Muñoz, *Libro del Nuevo Cometa*, ed. V. Navarro-Brotons (Valencia, 1981): 28–31.

compare Alcabitius's text with Ptolemy's astrological doctrines, realigning the *Introduction* with the Greek tradition.

This chapter examines how commentaries were used to supplement the teaching of Alcabitius's *Introduction* at universities, and focuses on the commentaries of Cecco d'Ascoli and John of Saxony. First, I provide an overview of the teaching of astrology at universities. I then turn to Cecco's commentary and context of composition, and provide some examples of how the *Introduction* was explained by Cecco. I then turn to John's commentary, and provide several examples of how John's commentary supplemented the *Introduction* and became quite a useful teaching text itself. Lastly, I contrast these commentaries with a brief consideration of Naibod's commentary, which reflects the humanist interests of the sixteenth century.

Astrology at Universities

The evidence of the teaching of astrology at universities abounds. Several contemporary scholars have outlined the teaching of astrology at universities and its relationship to astronomy and medicine. There were certainly regional variations. As Hilary Carey notes, "Almost certainly, astrology never achieved the same level of acceptance in England that it was accorded in the universities of Italy, Germany, and France."[324] Nevertheless, she adds, "Yet the authorities cited in John Aschenden's mighty *Summa judicialis* confirm that the works of Arabic astrologers such as Albumasar, Alkindi or Alcabitius must have been freely available, at least in the library

[324] Hilary Carey, *Courting Disaster: Astrology at the English Court and University in the Later Middle Ages* (New York: St. Martin's Press, 1992), 53.

of Merton College, Oxford."[325] The case of astrology at Italian universities has received more attention, although there is still no general survey.[326] One oft-cited example is the 1405 curriculum at the University of Bologna, which instructs that the *Introduction* be read in the third year, along with pseudo-Ptolemy's *Centiloquium* and the commentary of Haly,[327] Book III of Euclid's *Elements*, and a treatise on the quadrant. The first and second years are devoted to mathematical and astronomical studies with several texts from the *corpus astronomicum*, and the fourth year lists the *Tetrabiblos*, William of England's *De urina non visa*, and the third book of the *Almagest*.[328] Claudia Kren, Michael Shank, and Darin Hayton have dealt with teaching of astrology in the fifteenth and sixteenth centuries at the University of Vienna,[329] where the *Introduction* appears in the ordinary lectures in the Acts of the Faculty of Arts at the University of Vienna in 1390.[330] Lastly, Richard Lemay's 1976 article

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[325] Carey, *Courting Disaster*, 53.

[326] Paul Grendler, *The Universities of the Italian Renaissance* (Baltimore: Johns Hopkins University Press, 2002). See also Monica Azzolini, *The Duke and the Stars*, chapter 1.

[327] Frequently equivocated in the medieval period with Haly, the author of the commentary on the *Tetrabiblos* (ʿAlī ibn Riḍwān), this was actually the ninth-century author Aḥmed ibn Yūsuf.

[328] C. Malagola, *Statuti delle Università e dei Collegi dello Studio Bolognese* (Bologna, 1881), 276. See also Graziella Federici Vescovini, "I programmi degli insegnamenti del Collegio di medicina, filosofia e astrologia dello statuto dell'università di Bologna del 1405," in *Roma, magistra mundi: Itineraria culturae medievalis, Mélanges offerts au Père L. E. Boyle*, 2 vols. (Louvain: La Neuve, 1998), 1: 193–223.

[329] See Claudia Kren, "Astronomical Teaching at the Late Medieval University of Vienna," *History of Universities* 3 (1983): 15-30; Michael Shank, "Academic Consulting in Fifteenth-Century Vienna: the Case of Astrology," in *Texts and Contexts in Ancient and Medieval Science*, ed. Edith Scylla and Michael McVaugh (Leiden: Brill, 1997), 245-270; Darin Hayton, *The Crown and the Cosmos: Astrology and the Politics of Maximilian I* (Pittsburgh: University of Pittsburgh Press, 2015).

[330] *Acta Facultatis Artium Universitatis Vindobonensis*, 1385-1416, ed. Paul Uiblein (Vienna: Böhlau Verlag, 1968), 54. The lecturer was a former student from the University of Prague, Benedikt de Makra.

remains the standard reference for the teaching of astrology at the University of Paris.[331] Given these regional variations, we may still make some general comments about several aspects of the study of astrology at universities, including which texts were taught, the nature of astrological instruction, and the career prospects for students of astrology.

Monica Azzolini has provided an outline[332] of a *corpus astrologicum* based off of a Pavian student notebook[333] and a bound collection of miscellaneous astrological texts belonging to the Paduan professor Bartolomeo Valdizocco. In the student notebook, Azzolini remarks that the manuscript contains much more Arabic astrology than the two texts listed in the 1405 Bologna curriculum. She also points out that there is an abundance of texts related to astrological medicine. Though missing Alcabitius's *Introduction*, the notebook contains a *De natura Scorpionis et de saturni et jovis in scorpio coniunctionis significatione* and three other works on conjunctions, Albumasar's *De magnis coniunctionibus*, Messahala's *Epistola*, and Abraham ibn Ezra's *Liber de coniunctionibus*. The other texts are Messahala's *De revolutionibus annorum mundi*, *Sententia almansoris*, Zael's *Quinquaginta praecepta*, pseudo-Ptolemy's *Centiloquium*, and the *Centiloquium* of Hermes. Azzolini concludes that Arabic astrological texts made up a large share of the *corpus astrologicum*, even though the university records of curricular studies do not always reflect this fact.

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[331] Richard Lemay, "The Teaching of Astronomy in Medieval Universities, Principally at Paris in the Fourteenth Century," *Manuscripta* XX, no. 3 (1976): 197-217. Lemay cites John of Saxony's commentary as evidence that Alcabitius was read at Paris.

[332] Azzoini, *The Duke and the Stars*, 22-64.

[333] The notebook is found in British Library MS Arundel 88.

Furthermore, Azzolini notes that these sets of texts were not limited to Alcabitius's *Introduction*, but included more advanced treatises on nativities, interrogations, and elections. The Arabic dominance of the *corpus astrologicum* is considered more in depth in the following chapter.

The medical applications of astrology are well-documented.[334] University medical texts combined prognosis, diagnosis, regimen, and treatment with astrological principles. These included Galen's *De diebus criticis*, pseudo-Hippocrates's *Astrologia Ypocratis*, and William of England's *De urina non visa*. Recent scholarship continues to assume that "university mathematical studies included astrology because of its links with medicine."[335] While the applications of astrology to medical prognosis may have been the primary goal of astrological instruction at many universities,[336] astrology was also taught in its own right in Faculties of Arts.[337] There were many physicians who practiced astrology, such as Pietro d'Abano, but there were also many astrologers who did not practice medicine, such as Guido Bonatti. Michael Shank has shown that the practice of astrology may have had different emphases at different times and in

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[334] Nancy Siraisi, *Arts and Sciences at Padua* (Toronto: Pontifical Institute of Mediaeval Studies, 1973), 84-89; Hilary Carey, "Medieval Latin Astrology and the Cycles of Life: William English and English Medicine in Cambridge, Trinity College MS O.5.26," in *Astro-medicine: Astrology and Medicine, East and West*, eds. Anna Akasoy, Charles Burnett, and Ronit Yoeli-Tlalim, Micrologus Library 25 (Florence: Sismel Edizioni del Galluzzo, 2008).

[335] Paul Grendler, *The Universities of the Italian Renaissance*, 409.

[336] See Lemay, "The Teaching of Astronomy," 200-209; Pearl Kibre, "The Intellectual Interests Reflected in Libraries of the Fourteenth and Fifteenth Centuries," *Journal of the History of Ideas*, 7 (1946), 257-297.

[337] Roger French provides the most balanced account, in which astrology is valued, studied, and practiced for its own sake and doctors make use of it as best they can. See Roger French, "Foretelling the Future: Arabic Astrology and English Medicine in the Late Twelfth Century," *Isis* 87 (1996): 453-480.

different places, in one case shifting from a more medically-based focus to mathematical astronomy to prophecy in the fifteenth century.[338] Shank also highlights the fact that the university was the locus for astrological practices which spread outwards into civic and courtly environments. Azzolini also emphasizes the links between the Sforza court and the astrologers at the University of Pavia, and Hayton describes a fair amount of control exercized by Maximilian I over the astrologers at the University of Vienna.

At the University of Bologna, professors of astrology had clearly stipulated duties which were specified in the statutes and represented ties between the university and the city. For example, they were required to issue an annual *iudicium*, i.e. a prognostication for the city and its inhabitants concerning weather, natural disasters, illnesses, the fate of crops, wars, and fluctuations in the pricing of commodities. University astrologers were also required to produce an annual almanac with the calendar, the seasons, the positions of the planets, and eclipses.[339] This stipulation was echoed very closely in Ferrara, and also in the Florence statutes of 1402, which stated "ad legendum astrologiam et faciendum taccuinum," or reading astrology and making an almanac.[340] In German contexts, the *iudicium* was known as a *practica*, and was

[338] Michael Shank, "Academic Consulting in Fifteenth-Century Vienna: the Case of Astrology," in *Texts and Contexts in Ancient and Medieval Science*, ed. Edith Scylla and Michael McVaugh (Leiden: Brill, 1997), 245-270.

[339] Malagola, *Statuti*, 264. See also Grendler, *The Universities of the Italian Renaissance*, 409-412.

[340] A. Gherardi, *Statuti dell'Università e Studio Fiorentino dell'anno MCCCLXXXVII* (Forni, 1973), 377.

also often issued by university professors.[341] There is also evidence of this practice from the 1476 statutes at the University at Krakow, where Alcabitius was also read.[342] Robert Westman gives a thorough discussion of the annual prognostication in the late fifteenth century and sixteenth century at several universities.[343]

As is evident from the range of astrological texts available, individual university professors exercised a certain amount of freedom in selecting which texts to teach. However, lists of texts do not inform us about the nature of astrological instruction, i.e. what precisely happened during lectures. Darin Hayton has suggested that astrological instruction at Vienna in the early sixteenth century was based on demonstrations which frequently employed paper instruments, and that lectures were more focused on astrological practice rather than theory.[344] Charles Burnett has shown how Alcabitius's *Introduction* was introduced to the students of Johannes Borotin, through an elaborate preface recounting the history of the science of the stars.[345] Different cases illustrate different levels of competence required of the students, which may not always be reflected in lists of texts. The commentaries also provide some

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[341] Hayton, "The Crown and the Cosmos," 119-144.

[342] I. Stelcel, *Codex diplomaticus universitatis studii generalis Cracoviensis: pars teria ab anno 1471 usque ad annum 1506* (Kraków, 1880), 47: "Magistri Martini autem dicti Rex Ptolomeum in Quadripartito, Alcabicium, Centiloquium verborum Ptolomei, Albumasar et alios libros spectantes ad astrologiam, iudicium quoque correctum et a senioribus in eadem facultate revisum et approbatum, universitati singulis annis praesentabit."

[343] Robert Westman, *The Copernican Question* (Chicago: University of Chicago Press, 2011), 62-66.

[344] Darin Hayton, "Instruments and demonstrations in the astrological curriculum: evidence from the University of Vienna, 1500-1530," Studies in History and Philosophy of Science, Part C 41 (2010): 124-34.

[345] Charles Burnett, "The Teaching of the Science of the Stars in Prague University in the Early Fifteenth Century: Master Johannes Borotin," *Aither* 2 (Prague, 2014): 9-50.

insight into what may have happened during lectures. The range of commentaries on the *Sphaera* illustrates a range of varying interests related to spherical astronomy. There are fewer commentaries on the *Introduction*, but these also reveal the varying interests in the teaching of astrology at universities.

Cecco d'Ascoli's Commentary

Cecco d'Ascoli is known primarily for his poem *l'Acerba*, which has long been associated with Dante's poetry, and for having been the first university professor to be burned at the stake by the Inquisition, in 1327.[346] As a professor at the University of Bologna, Cecco wrote commentaries on the two most popular texts for teaching the science of the stars at universities: Sacrobosco's *Sphaera* and Alcabitius's *Introduction*. Cecco's astrological ideas were cited as the reasons for heretical charges raised against him in 1324 in Bologna, but it was his failure to respect his punishment in these proceedings which led to his death in Florence in 1327. In addition, according to the contemporary chronicler Giovanni Villani, it was Cecco's astronomical commentary on the *Sphaera* which was deemed heretical, not the commentary on the *Introduction*. In considering the contents of the two texts it is fairly obvious why this is the case: the *Sphaera* commentary frequently speaks of the summoning of demons.[347] Although he frequently refers to his *Sphaera* commentary in his commentary in the *Introduction*, the latter is mostly devoted to the explication of astrological doctrine. In the commentary on the *Introduction*, however, Cecco does indeed once refer to

[346] Lynn Thorndike, "Cecco d'Ascoli," *HMES* II,948-968.

[347] For an example of this, see Thorndike, *The Sphaere of Sacrobosco*, 406-407. According to Thorndike, the Sphaera commentary is "less a commentary upon Sacrobosco's text than a manual of astrological necromancy." See Thorndike, "Cecco d'Ascoli," 966.

conjuring spirits by carving astrological images, despite his acknowledgment that necromancy is contrary to the Christian faith. He mostly restricts these controversial views to the *Sphaera* commentary rather than including them in the commentary on the *Introduction*, which is quite tame in comparison.

Cecco's commentary on the *Introduction* covers only the first fifty-four paragraphs of the first chapter.[348] It begins with a short preface praising the study of astrology, and then gives an overview of the *Introduction* before dealing with specific sections. In the preface, Cecco cites Ptolemy, Hipparchus, Zoroaster, Messahala, and "Astaphon." He praises examining celestial things and knowing their working as being "truly the noblest thing."[349] Cecco also quotes the well-known saying in pseudo-Ptolemy's *Centiloquium* that the foreknowledge of events helps one to better prepare for the future.[350] He gives several examples, the first of which is medical and refers to preparing for a sickness of heat by making oneself and surroundings cold.[351] Another example is quite relevant for Cecco's audience of university students. He writes, "and

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[348] The text is preserved in BAV Vat. lat. 2366: "Incipit scriptum super librum de principiis astrologie secundum Cicchum dum iuvenis erat electus per universitatem Bononie ad legendum." The text of this manuscript is fairly illegible, which is reflected in some of the nonsensical Latin of Boffito's edition. My translations follow Boffito's text quite literally and thus reflect this fact.

[349] Boffito, "Alcabizzo," 336: "Speculari celestia et ipsorum actionum noscere quod est uerum nobilissimum…"

[350] "Optimus, inquit, astrologus multum malum prohibere poterit quod secundum stellas euenturum est cum eius naturam presiuerit; sic enim premuniet cum malum futurum est ut id pati possit." Boffito, "Alcabizzo," 336.

[351] Boffito, "Alcabizzo," 336: "Ergo si sciuero per natiuitatem alicuius, per directionis gradum ascendentis quod tali anno die tali debeat egritudine callida ergotare ante illud tempus faciam uti infrigidatinis quod adueniente illo tempore infirmitas non erit." The same example is given in Aḥmad ibn Yūsuf's commentary on *verbum 5* of the *Centiloquium*, and also by John of Saxony in his commentary in the *Introduction*.

if the heavens denote good for someone, that he may become a physician or a jurist, he can through his own will augment this by uninterrupted studying and by listening to the most brilliant teachers in the city."[352] Cecco then warns the students: "because if he does the opposite, perhaps he will be a physician or a jurist, but he will be an ignorant man and worthless in the aforementioned ability."[353] Cecco's overview of the *Introduction* also indicates his description of the text to students who perhaps owned their own copies. In discussing the divisions of the text into chapters and parts,[354] he gives the incipits for each section.[355] If students were listening to his lecture and following along in their own copies, these references could have served as signposts.

The university setting is also obvious at several other points in the commentary, where he addresses students directly: "In order that you, Young people, understand, there are four triplicities, which are the cause of the four elements."[356] Later, he writes, "About this part, you young people, you should know that whichever of those signs has thirty degrees in longitude…" His explanations for the *iuuenes*, or students, are almost always given in the imperative: "you should understand" (*debetis intelligere*) or "you

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[352] Boffito, "Alcabizzo," 336: "Et si celum alicui bonum designat ut quod efficiatur etiam (?) medicus uel iurista istud potest per suum arbitrium augmentare studendo continue et audiendo doctores clarissimos ciuitatis."

[353] Boffito, "Alcabizzo," 336-7: "quod si contrarium faciet, erit forsan medicus uel iurista sed erit homo ignorans et uilis supradicte facultatis."

[354] This scholastic practice of introducing divisions was typical of commentaries.

[355] Boffito, "Alcabizzo," 337: "Secunda ibi *Saturnus masculus malus*, etc. Tertia ibi *Significatio planetarum*, etc.; Quarta ibi *Differentia 4a*, etc.; Quinta ibi *Differentia 5a*, etc."

[356] Boffito, "Alcabizzo," 339: "Ut vos, Juuenes, intelligatis, quattuor sunt triplicitates que sunt cause quattuor elementorum." Another example of addressing the students directly is on p. 340: "Iuxta quam partem vos iuuenes, debetis scire quod quodlibet istorum signorum habet 30 gradus in longitudine…"

should know" (*debetis scire*), or also "you read the whole [part]" (*legatis totum*). The use of the imperative and addressing the students directly gives the commentary a conversational tone which gives the impression that it was read as a lecture. Indeed, most of the commentary paraphrases the main text by explaining particular points in different language. For example, in the section of the *Introduction* describing the four quadrants of the sky, it reads: "And that quadrant part of the circle which is from the beginning of Aries to the end of Gemini is called the hot moist quadrant, vernal, youthful, and sanguine."[357] The *Introduction* continues describing the other quadrants. Cecco's commentary reads: "There he puts the division of the zodiac into four quandrants, and this part [of the text] is divided into four parts, for in the first he shows that which is the hot and humid quandrant and the second that which is the hot and dry quadrant, in the third that which is the cold and dry quandrant, and in the fourth that which is the cold and humid…He says that the first part which is the quandrant of the zodiac, that is from the beginning of Aries until the end of Gemini, is humid and hot, springlike, childlike, and sanguine, that is signifying the time of spring, childhood, and blood."[358] As is evident in this section, Cecco is not supplying any new information, merely rephrasing the text of the *Introduction*.

[357] BYY, *Introduction*, 1:[11], p.? : "Et vocatur illa quarta pars circuli que est ab initio Arietis usque in finem Geminorum quarta calida humida, vernalis, puerilis, sanginea."

[358] Boffito, "Alcabizzo," 344: "Hic ponit divisionem zodvaci in quatuor quartas et dividitur ista pars in partes quatuor, nam in prima ostendit quae sit quarta callida et humida et in secunda que sit calida et sicca, in tertia que sit frigida et sicca et in quarta que sit frigida et humida…Dicit de prima parte quod quarta pars zodyaci, scilicet illa que est a principio arietis usque in finem geminorum est humida vernalis puerilis et sanginea, id est significans tempus ueris pueritiam et sanguinem."

In other sections Cecco provides additional information, which displays a range of competence in his explanations of astrology, astronomy, and natural philosophy. Many of his explanations are quite basic and obviously for the beginning student, and some are more useful than others. In one passage, he explains why the signs have their names, with reference to the Sun.[359] In discussing the division of the four quadrants of the sky, which are then given qualities which are related to the elements, humors, ages of life, and times of the year, Cecco gives additional information relevant to medicine: "And so the humors of our bodies are elevated and lowered by the motion of the moon. Hence I suppose that for anyone who has a fever from blood and the signs of digestion will already appear, when the moon will be in its humid quadrant which indicates blood and that quadrant is impeded, then the blood will be elevated in the veins and arteries…"[360] Cecco also provides information for how information may be used in the interpretation of a horoscope. For example, Cecco substantially elaborates on Alcabitius's discussion of bicorporeal signs. After referencing this distinction, Cecco writes: "About this part you should understand that four are bicorporeal signs, that is: Gemini, Sagittarius, Virgo, and Pisces. From which if Gemini is in the ascendent, Virgo will be in the cardine of the earth which indicates treasure, Pisces in the midheaven which significes honor, Sagittarius in the western cardine which signifies

[359] For example, he writes: "Taurus is called thus because when the Sun is in Taurus it begins to raise the horns of its rays and it renders the land arable. Gemini is called thus because the Sun stays in that sign for two days more than in another sign." Boffito, "Alcabizzo," 339: "Taurus dicitur eo quod cum sol est in tauro incipit elevare cornua radiorum suorum et redit terram arabilem; Gemini dicitur eo quod sol stat in illo signo duobus diebus plus quam in alio signo."

[360] Boffito, "Alcabizzo," 345: "Et sic humores nostri corporis eleuantur et deprimuntur motu lune. Unde pono quod aliquis habeat febrem ex sanguine et iam apparuerint signa digestionis, cum luna erit in quarta sua humida que significat sanguinem et illa quarta fuerit impedita, tunc elevabitur sanguis in venis et artariis…"

the departure on account of women; from which if their lords are strong and it was of a reasonable nativity, the newborn will also be rich, because when the same planet is the lord of the ascendant and the lord of the fourth, the born is disposed to wealth, as Almasor says in his Aphorisms…"[361] From these examples it is evident that Cecco was explaining the main text through providing specific examples, which could then be in application for particular horoscopes.

In another practical passage, Cecco defines the meaning of the Head and Tail of the Dragon, which Alcabitius frequently discusses without ever properly defining them. He writes, "About this part you should understand, you young people, the head and tail are the intersections of the circle of the equator and the deferent and they are not stars placed in the sky in the manner of a dragon…and these intersections are called nodes and they are moved by every natural day 3 minutes and 2 seconds towards the west and the Head is composed from the nature of Jupiter and Venus and the Tail from the nature of Saturn and Mars."[362] A few lines later, he appears to address more experienced students, writing: "You greater ones, however, should understand that in those intersections of the circles are many hidden operations, which are unknown for a

[361] Boffito, "Alcabizzo," 346: "Iuxta quod debetis intelligere quod quatuor sunt signa bicorporea, scilicet: gemini, sagittarius, virgo, et piscis. Unde si gemini fuerint in ascendente, virgo erit in angulo terre qui significat thesaurum, piscis in angulo celi quod significat honorem, sagittarius in angulo occidentis qui significat profectum ex causis mulierum; unde si domini eorum sint fortes et sic fuerit nativitatis rationalis, erit natus et dives, quia quando dominus ascendentis et dominus quarte fuerit idem planeta natus ad diuitias disponetur, ut dicit Almasor in suis *Afforismis*..."

[362] Boffito, "Alcabizzo," 348: "…quod caput et cauda sunt intersecationes circulorum equatoris et deferentis et non sunt stelle posite in celo ad modum draconis…et iste intersecationes uocantur nodi et mouentur omni die naturali 3 minutis et 2 secundis versus occidentem et capud est compositum ex natura Iouis et Veneris et cauda ex natura Saturni et Martis."

particular nature."[363] Referencing the more experienced students here is interesting, as Cecco goes on to discuss astrological images. He cites "Astaphon" again, and his book *De mineralibus constellatis*. Astaphon says: "O how great is the intersection of the circles which holds power, which is unknown for a particular nature; [*dyacodius*], without the touch of a dead body in water, when it was in Sagittarius by nature, certain spirits came to a response."[364] Cecco continues, "About this you should understand that [*dyacodius*] is a certain stone for which the [effect] is: if it is put in water when the Head or Tail is in Sagittarius, spirits who are out of the order of grace came naturally to respond. And this stone has a miraculous property, for if it touches a dead human body it veils its vital forces, as the Arab Euayrex says in the book *De lapidibus*."[365] It is remarkable that Cecco mentions these necromantic practices in this commentary, since most of these references appear in the *Sphaera* commentary. Scholarship on Cecco has

[363] Boffito, "Alcabizzo," 348: "Vos autem, maiores, debetis intelligere quod in ista intersecatione circulorum multe sunt operationes occulte que ignote sunt particulari nature."

[364] Boffito, "Alcabizzo," 349: "O quanta est virtus quam habet intersectio circulorum, que ignota est particulari nature."

[365] Boffito, "Alcabizzo," 349: "dyacodius enim sine tactu corporis mortui in aqua, cum fuerit in sagitta natura, quidam spiritus veniunt ad responsa. Iuxta quod debetis intelligere quad dyacodius est quidam lapis cuius color est: si ponitur in aqua cum capud vel cauda fuerint in sagittario, naturaliter spiritus qui sunt extra ordinem gratie veniunt ad responsa. Et hic lapis habet mirabilem proprietatem, nam si tangat corpus humanum mortuum amictit uires suas, ut dicit Euayrex arabum in libro *de lapidibus*." It is not clear from Boffito's transcription what is meant by "dyacodius," although from the context it refers to the type of stone. The closest alternative in spelling is *diacodium* or *diacodion*, a syrup made from poppies. In addition, it is unlikely Cecco meant "color" in the phrase "quidam lapis cuius color est," which Boffito also must have incorrectly transcribed.

attributed his condemnation to his *Sphaera* commentary, but clearly his illicit views were also present in his commentary on the *Introduction*.[366]

Lastly, Cecco's commentary is remarkable in that there are several passages which give natural philosophical explanations for stellar influence, explicitly linking the sublunar realm to the heavens which is only implied in the *Introduction*. One explanation is followed by a citation of "Moyses Rabi" in explaining stellar influence.[367] There is a lengthy section following the discussion of the lunar nodes about the physical justification for their influence, since they are points and not planets.[368] At several points, Cecco discusses the receptivity of the sublunar world to stellar influences. As we have seen, this was the subject of Albumasar's *Great Introduction*. It does not appear that the *Great Introduction* was taught at universities, although it remained a popular text among learned astrologers. Richard Lemay has demonstrated the influence that the *Great Introduction* had on the reception of Aristotle's philosophy in this period. This further raises the question of the ties between natural philosophy and astrology in universities.

On its own, it is difficult to judge how typical Cecco's commentary (and more than that, his lectures) were in comparison with his contemporaries. The elementary nature of instruction indicates that he was teaching the text to students very early in their university careers, possibly in their first year. This is certainly different from what

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[366] Thorndike overlooked this instance in his analysis of the commentary, since he mentions two other places where Cecco discusses astrological images. See Thorndike, "Cecco d'Ascoli," 958-959.

[367] Boffito, "Alcabizzo," 339.

[368] Boffito, "Alcabizzo," 349.

the 1405 Bologna curriculum suggests, which lists the *Introduction* in the third year of studies. Furthermore, Cecco's infusion of natural philosophy into the text blurs the boundaries between the teaching of *astronomia*/*astrologia* and *physica*. Aristotle himself looms large over the text, with Cecco referencing the four causes in the preface of the commentary to illustrate his teaching process.[369]

John of Saxony's Commentary

John of Saxony was active at the University of Paris in the first half of the fourteenth century.[370] He was a student of John of Lignères, and is known for writing canons to the Alphonsine Tables in 1327 which became quite popular. Replacing the Toledan Tables, the Alphonsine Tables remained the principle astronomical tables used by astrologers and astronomers from the thirteenth century onwards until the Prutentic Tables in the sixteenth century and the Rudolphine Tables in the seventeenth century.[371] In terms of the university setting of John's work, Burnett writes, "It cannot be by chance that John of Saxony's canons to the Alfonsine Tables and his commentary on al-Qabīṣī were composed within four years of each other, both immediately established themselves as the 'set texts' in their respective subjects. This suggests that the two works were part of the same syllabus in teaching astronomy in

[369] Boffito, "Alcabizzo," 337: "In isto autem libro sicuti et in aliis 4 cause principaliter requiruntur, scilicet causa materialis, causa efficiens, causa formalis et causa finalis."

[370] Lynn Thorndike, "John of Saxony," *HMES* III, 253-267; For a more thorough account, see Emmanuelle Poulle, "Les astronomes parisiens au XIVe siècle et l'astronomie alphonsine," in *Histoire littéraire de la France publiée par l'Académie des Inscriptions et Belles-Lettres*, Tome 43, Fascicule 1 (Paris, 2005): 1-51.

[371] Jose Chabas and Bernard Goldstein, *The Alfonsine Tables of Toledo* (Dordrecht: 2003).

Paris."[372] Burnett has also noted the "scholastic nature of the syllabus," as John emphasizes Aristotelian natural science in the study of the science of the stars.[373] The Aristelian influence is particularly obvious in John's preface to his commentary, where he frequently cites Aristotle and Albumasar, as well as a host of other astrological authorities: Ptolemy, Haly and his commentary on the *Tetrabiblos* (ʿAlī ibn Riḍwān), "Haly" and his commentary on the *Centiloquium* (Aḥmed ibn Yūsuf), Haly Abenragel (ʿAlī ibn abī-l-Rijāl), and Abraham Avenezra (Abraham ibn Ezra). To round out the learned nature of the preface, John includes references to the theologian Alain de Lille's poetic works.[374]

John's commentary is a very thorough explanation of the astrological principles laid out in the *Introduction*. It is over twice as long as the *Introduction* itself, comprising 64 folio pages of a printed octavo volume, whereas the *Introduction* takes up approximately 30 pages. Consider, for example, the very first two sections of the first chapter of the *Introduction*. In these two paragraphs, Alcabitius defines the zodiac as being composed of twelve equal parts, each called signs. The signs refer to the images of the zodiac circle, and Alcabitius lists them by name. He then explains that each sign is divided into thirty equal parts, called degrees, and that each degree is divided into sixty minutes, and each minute is divided into sixty seconds, etc.[375] The

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[372] Burnett, "Al-Qabīṣī's Introduction," 53.

[373] Burnett notes that in his introduction to the canons for the Alfonsine Tables, John explicitly references Aristotle's *Physics* in explaining his approach to the science of the stars. See Burnett, "Al-Qabīṣī's Introduction," 53.

[374] Citations to John's commentary are to the 1521 Paris edition of the *Introduction*, which begins on f. 29v, with the title given in the notes as *Commentary*.

[375] BYY, *Introduction*, 1:[6]-[7].

concepts are very basic, but John then devotes several paragraphs to their elucidation. He first explains two doubts (*dubitationes*) about the signs, concerning (1) the number of the signs; and (2) their order and principles. In the first case, John distinguishes the twelve signs of the zodiac from the 48 constellations listed by Ptolemy. After then discussing the order and principles of the twelve zodiacal signs, John continues: "For the proof of the aforementioned is the understanding that in the eighth sphere there are 48 images, in which all the ancients agree just as it was said, and in these there are 1002 stars, which are called fixed stars. And they are all moved by one motion, that is the motion of the eighth sphere, in one year about one degree."[376] By framing the text of the *Introduction* within the classical heritage of the science of the stars in the first several paragraphs, John situates his reader within the context of contemporary fourteenth-century astrological knowledge, where the Arabic authorities are an integral part of an astrological tradition rooted in Greek thought.

He gives not only a thorough description of Alcabitius's text, but frequently refers to other authors' views on particular points to compare and constrast them. These authors include the ancient and Arabic authors mentioned above as well as contemporary Latin authors. In Alcabitius's descriptions of the twelve places, for each place he references "Alendezgoz" (al-Andarzagar) on nativities. John adds several additional sources to his commentaries on the places, including Haly Abenragel, Abraham Avenezra (Abraham Ibn Ezra), Hispalensis (John of Seville), Hippocrates,

[376] John of Saxony, *Commentary*, f. 35v: "Ad euidentiam praedictorum est ingelligendum que in octaua sphaera sunt quadraginta octo imagines: in quibus est concordia apud omnes antiquos sicut dicebatur & sunt in eis .1002. stellae quae dicuntur stellae fixae & mouentur omnes vno motu scilicet ad motum octauae sphaerae: in centum annis fere vno gradu." Ptolemy recognized 1028 stars in the *Almagest*. The discrepancy of the number of the stars in John's commentary may have originated with Albumasar's *Great Introduction*.

and Guido Bonatti. In his discussion of the first place, which signifies the bodies of men and life (*corpora hominum et vitam*), for example, he gives the opinions of several other authors. After discussing Ptolemy and Haly Abenragel's opinions on whether one would live a long or short life according to the first place, John continues by discussing various views on the bringing up (*nutritio*) of children. John writes, "Something to note is regarding child-rearing, that is whether a child will stay alive or not."[377] John then cites Haly Abenragel's opinion, which is that if the lord of the triplicity of the luminary of the time (i.e. the Sun if the birth is diurnal, or the Moon if the birth is nocturnal) are in the ascendant, tenth, eleventh, or fifth place, then the nourishment will be good and easy. But if the luminaries are in the seventh place, it signifies bad nourishment, distress, and hardship.[378] John then compares this with Abraham Avenezra: "Abraham Avenezra says that if the lord of the ascendent is combust [under the sun's rays], the native will not live for an extent, that is for days."[379] John then provides an example from his own experience: "The nativity for one boy was brought to me, for whom the ascendent was Virgo and Mercury was in Pisces in its detriment, retrograde, and combust, and I believed this saying. I said that the boy would not live eight days, and

[377] John of Saxony, *Commentary*, f. 52v: "Notandum est circa nutritionem scilicet vtrum puer sit vitalis vel non."

[378] John of Saxony, *Commentary*, f. 52v: "Dicit Haly Abenragel quando domini triplicitatis luminaris temporis vult dicere domini triplicitatis signi in quo est sol si fuerit natiuitas diurna vel signi lunae in natiuitate nocturna fuerint in ascendente: vel in 10 domo vel 11 vel 5 est significatio bonae ac leuis nutritionis. Et si fuerint in septima significant malam nutritionem et anxiam atque laboriosam."

[379] John of Saxony, *Commentary*, f. 52v: "Dicit Abraham Auenezra. Si dominus ascendenti fuerit combustus, natus non viuet spacium scilicet dierum."

his death was in six days."[380] John then moves on to another discussion regarding planetary conjunctions and the first place, again citing Haly Abenragel. He concludes his commentary on the first house by citing John of Seville on elections.

John frequently gives examples from experience in discussing how to apply astrological knowledge to specific circumstances. As in the example in the previous paragraph, John drew on the work of Abraham ibn Ezra in recounting his prediction of the death of a boy. In other passages of the commentary, John draws on his own knowledge and practice, citing the Alfonsine Tables[381] and adding information which (he claims) does not appear in other books.[382] He provides examples of hypothetical circumstances to better illustrate particular points, or to illustrate how specific calculations are made. In the same section on the first place, for example, John cites pseudo-Ptolemy's ninety-fourth proposition in the *Centiloquium*: "The place of the strongest indication in the ascendent is that which is in the mind of the person interrogating."[383] He goes on to explain what this means and provides a specific example: "And therefore when you want to know the intention of the querent, look at

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[380] John of Saxony, *Commentary*, f. 52v: Portata fuit mihi natiuitas unius pueri cuius ascendens erat virgo et Mercurius fuit in piscibus in detrimento suo retrogradus et combustus et eco credidi huic dicto. Et dixi que puer non viueret per octo dies et mortuus fuit in sexta die."

[381] "Dico quod Parisius secundum veritatem tabularum Alfoncii in hora coniunctionis solis et lune precedentis introitum solis in ariete erit ascendens primus gradus Cancri…" Quoted in Thorndike, *HMES* III, 263, n. 32 from BL Digby 97, fol. 239v.

[382] "Et ego dico tibi quod significator habens latitudinem potest dirigi ad locum etiam habentem latitudinem per tabulas ascensionum, et non vidi modum expositum in aliquo libro" (from BL Digby 97, fol. 230v) and "…hunc modum non vidi positum nec expositum in aliquo libro ut pateat planius quod dixi ponam in hoc exemplum." (Amplon.Q.354, fol. 15v) Quoted in Thorndike, *HMES* III, 263, n. 31.

[383] John of Saxony, *Commentary*, f. 52r: "Locus fortioris significatoris in ascendente est id quod est in animo interrogantis." See also Ptolemy, *Centiloquium*, *verba* 94, f. ?? Reference to printed edition.

which of the planets has more powers in the ascendent in that hour when he comes to you with the intention of asking a question, and then look in which of the twelve places is that planet, and you answer according to the indications of that place in which it is. For example, I suppose that the ascendent is Leo and the Sun has more powers in the degree of the ascendent, and I suppose that the Sun is in the second place. I say that his intention is to ask about property or profit, or another similar thing."[384] The second place is that of property and wealth, and so John's example is quite obvious. The fact that this example concerns the practice of interrogations, however, indicates that John was offering practical training rather than merely discussing astrological theory. Indeed, there are several practical examples involving interrogations. John discusses favorable and unfavorable astrological circumstances for marriage in his commentary on the seventh place.[385] And John quotes Haly Abenragel, for example, in explaining how to determine if a woman is pregnant or not.[386]

John completes his commentary on the first chapter with an interpretation of a chart for an interrogation, in which a man asked whether another person was alive or dead.[387] The chart appears in the printed editions and may also have been copied in the

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[384] John of Saxony, *Commentary*, f. 52r: "Ideoque cum volueris scire intentionem quaerentis, vide quis planetarum habeat plus fortitudinis in ascendente in illa hora quando venit ad te animo interrogandi, et vide in qua domo ex 12 domibus sit ille planeta, et dicas secundum significationes illius domus in qua fuerit. Verbi gratia. Pono quod ascendens sit leo et sol habeat plures fortitudines in gradu ascendente, et pono quod sol sit in 2 domo, dico que intentio sua est petere de substantia sua vel de lucro, vel de aliquo consimili…"

[385] John of Saxony, *Commentary*, f. 59r.

[386] John of Saxony, *Commentary*, f. 56v: "Dicit Haly Abenragel, si interrogatus fuerit pro muliere si est praegnans aut non…"

[387] John of Saxony, *Commentary*, f. 63v : "Quidam homo interrogauit de quodam absente utrum esset mortuus vel viuus et fuit ascendens questionis 20 gradus leonis et incidit talis figura."

mansucripts, although this remains to be determined. John continues to supply examples throughout the commentary. He explains how the great conjunctions of Jupiter and Saturn enter into different triplicities every 240 years, by beginning with the recent conjunction of 1325, which was in the sign of Gemini in the airy triplicity. The next one, he mentions, will take place 20 years later in 1345, in Aquarius. And twenty years after that, another conjunction will occur in Libra. The conjunctions will occur in these three signs every twenty years twelve times. So, twenty years multiplied by twelve times is 240 years. At that point, the conjunction will then occur in the signs of the watery triplicity.[388] At some points his comments draw from John's astronomical competence, particularly in his discussion on the conditions of the planets, for which he provides a specific example for each condition. This competence is also displayed in his comments on the use of instruments, where he specifies that to preserve the accuracy of calculations instruments should be built so that they are large enough to reflect minutes.[389]

[388] John of Saxony, *Commentary*, f. 75r.

[389] Thorndike points out this comment in his analysis of the chapter. See Thorndike, "John of Saxony," *HMES*, v. 3, 260. The quote is recorded from BL Digby 97, fol. 230v: "Nota tamen quod secundum modum dictum diriguntur significatores quando non habent latitudinem. Quando autem significatores habent latitudinem difficilior est modus. Et propter hoc factum fuit instrumentum ad dirigendum planetas habentes latitudines. Et illud instrumentum vocatur directorium. Videbatur enim compositori seu inventori illius instrumenti quod significator habens latitudinem non posset dirigi per tabulas ascensionum vel non sine magna difficultate. Ego autem dico quod instrumentum non est sufficiens nisi sit maxime quantitatis ita quod possit recipere minuta. Tale autem vix posset fieri. In directionibus enim ut plurimum accipitur pro quolibet gradu unus annus. Modo si instrumentum non sit divisum nisi per gradum vix invenitur in eo certitudo usque ad annum. Adhuc si instrumentum sit bene factum ita quod non sit error in dividendo hoc autem non sufficit." It is possible that here John is referring to paper instruments.

In the preface of the commentary he mentions the divisions of the science of judgments, and lists nativities, revolutions of the year, interrogations, and elections.[390] He then makes the following comment: "Besides these there are some other parts of [the science of] judgments, such as the great conjunctions, images, sigils, on which we have little or nothing."[391] Burnett interprets this as meaning that John did not care for these branches of astrology, as he does not include talismanic magic in his commentary.[392] Coincidentally, Alcabitius himself did not include these topics in the *Introduction*. Whereas several parts of the *Introduction* are relevant for nativities, revolutions of the years (both world years and nativities), interrogations, and elections, there is only one brief section on the great conjunctions,[393] and no mention at all of images or stones. John, however, does mention sigils at least once in his commentary, towards the end of his discussion of the Egyptian terms. He writes, "Those men from Egypt were wise magicians who were from antiquity, for they were of great study and practice in all the sciences and wise things which could help mankind. And we know this from the chronicles of the ancient wise men, following what was said about them, and through that which has remained from their works from many millions of years until this very day. Nevertheless I say what I have seen myself from an experience

[390] John of Saxony, *Commentary*, f. 34r: "Secunda species est ars iudiciorum astrologiae et habet quatuor partes principales, quarum prima est de interrogationibus, secunda de nativitatibus, tertia de revolutionibus annorum—et haec est duplex, scilicet de revolutionibus annorum mundi et de revolutionibus annorum nativitatum—quarta de electionibus."

[391] John of Saxony, *Commentary*, f. 34r: "Praeter istas sunt quaedam aliae partes iudiciorum, scilicet de coniunctionibus magnis, de imaginibus, de sigillis, de quibus parum vel nihil habemus."

[392] Burnett, "Al-Qabīṣī's Introduction," 57-58.

[393] BYY, *Introduction*, 4:[2], 315-316.

which I encountered in a place which is called the eye of the sun. Since in a short time I have seen great miracles, these are the words of Haly, he however says nothing about his experience. In his commentary on the *Centiloquium* on the proposition: 'the forms of this world,'[394] he speaks about one experience of a sigil of Scorpio made in stone, according to what he could see there, and what he wanted to see in that spot he would see."[395] In this passage, John appeals to the authority of the ancients and to Haly to justify his mentioning of a sigil of Scorpio, which is originally discussed by Aḥmed ibn Yūsuf in the commentary on the *Centiloquium*.

The commentary does touch on some other illicit material, but as with the previous example it concerns a topic which is discussed by astrological authorities other than Alcabitius. In his commentary on the sixth place, the place of sickness, John mentions the casting of nativities for possessed persons, within the broader context of "sicknesses of the spirit" (*infirmitates spiritus*), or what we may interpret as mental illness.[396] In discussing the views of Haly Abenragel, John writes, "After that he says, I say that possessed persons are those who do not have Mercury in any aspect with the

[394] This is the ninth proposition in the *Centiloquium*, which reads: "Vultus huius seculi sunt subiecti vultibus celestibus. Et ideo sapientes qui imagines faciebant stellarum introitum in celestes vultus inspiciebant et tunc operabantur quod debebat." See Ptolemy, *Centiloquium*, *verbum* 9, f. 107v.

[395] John of Saxony, *Commentary*, f. 45v: "Illi de Aegypto fuerunt sapientes magi qui fuerunt ab antiquo tempore, nam isti fuerunt studij & exercicij magni in scientiis & sapientiis omnibus de quibus homo se iuuare potest. Et scimus hoc per chronica sapientium antiquorum secundum quod loquebantur de ipsis: & per ea quae de suis operibus remanserunt a multis milibus annorum usque ad hodienam diem. Tamen ego dico illud quod ego vidi de una experientia quam inueni in loco qui dictus est oculus solis: quia in modico tempore miracula magna vidi, haec sunt verba Haly, de experientia autem tacet. In centiloquio in commento illius propositionis: vultus huius seculi, dicit unam experientiam de sigillo scorpionis facto in lapide secundum quod potest ibi videri. & que voluerit videre ibidem videat."

[396] This section follows a lengthy discussion of the interpretation of illness-related deaths and critical days.

Moon in their nativities, nor aspecting their ascendent, and the power in their nativity if it is diurnal would be Saturn, and if nocturnal, Mars, and whichever of them may be in the cardines, and this is the nativity of a possessed person."[397] It appears that John is reporting these illicit cases in order to provide a complete discussion of the sources, rather than endorsing these topics. Nevertheless, due to their controversial nature it is noteworthy that he has not avoided them altogether. As John mentions demons insofar as they are related to illness, and is not giving instructions for invoking them, as Cecco did, this passage must have been considered licit.

John's commentary is found in at least thirty-two of approximately 230 manuscripts of the *Introduction*, and it was printed in nine out of twelve editions. While the *Introduction* was popular in its own right, John's commentary further legitimized its study within universities. In the preface to his commentary, John mentions that there are other introductory books which lay out the principles of astrology and which explain the terms used by masters in astrology, however "among these other introductions, the Book of Alcabitius is the most accepted among the Moderns. Therefore by having abandoned the others, we direct attention to the present work."[398] As John was clearly familiar with several other Arabic authors, it is noteworthy for him to mention that Alcabitius's *Introduction* was, in the 1330s, already

[397] John of Saxony, *Commentary*, f. 58r: "Postea dicit: dico que daemoniaci sunt illi qui non habent in natiuitatibus suis Mercurium cum luna in aliquo aspetu, nullo eorum aspiciente ascendens, et fortio in natiuitate sua si diurna fuerit que sit Saturnus, et si nocturna Mars. Et quis eorum fuerit sit in angulis et haec est natiuitas daemonum."

[398] John of Saxony, *Commentary*, f. 5v: "Aduertentes autem plurimi antiquorum et etiam modernorum quod iste partes essent difficiles ad intelligendum debentibus primo adiscere illam sectam fecerunt libros introductorios in quibus posuerunt principia et exposuerunt terminos quibus utuntur magistri iudiciorum. Inter autem alios introductorios liber Alkabicii est magis approbatur apud modernos. Ideo Dimissis aliis de ipso ad presens intendimus."

the most accepted by contemporary astrologers. Along with the fact that Cecco was also teaching the *Introduction* at Bologna, we see that the *Introduction* was well-entrenched astrological learning by the fourteenth century. That being said, from John and Cecco's commentary we witness the very different levels of depth and commentary that university students could have encountered in studying the *Introduction* and astrology more generally. Situating both commentaries within a scholastic model of reading, it appears that Cecco's commentary takes on more of a paraphrase that gives a general meaning of the text with a few nuances (the *sensus*), whereas John's commentary is a much more in-depth interpretation of the text (the *sententia*).[399]

In considering his treatment in general of Arabic authorities, it is obvious that John regards them as astrological authorities equivalent to Ptolemy. His frequent citations and comparisons reveal his familiarity with all of the major Arabic astrological authors. He notes where different Arabic authors have divergences of opinion with each other and with Ptolemy, and frequently contributes his own ideas. The fourteenth century thus saw Arabic astrology as thoroughly integrated into astrological teaching at the University of Paris. While we may not draw such a strong conclusion about Arabic astrology at Italian universities from Cecco's commentary alone, the additional manuscript evidence of the *corpus astrologicum*, cited by Azzolini and discussed further in chapter five of this dissertation, points to similar conclusions in those contexts. From the commentaries by John of Stendhal, the German translation

[399] See Jacqueline Hamesse, "The Scholastic Model of Reading," in *A History of Reading in the West*, ed. Cavallo and Chartier, trans. Lydia Cochrane (Amherst: University of Massachusettes Press, 1999), 103-119, esp. 112.

by Arnold of Freiburg, and manuscript evidence in Germany we may draw similar conclusions, but this evidence has yet to be fully investigated. Similar questions may be raised about fifteenth-century commentaries and readership.

Valentin Naibod's Commentary

The final commentary to be considered is that of Valentin Naibod, in his *Enarratio elementorum astrologiae*, published in 1560.[400] Naibod (1523-1593) matriculated at Wittenburg, and then took his Masters at Erfurt before taking up a position as a professor of mathematics at the University of Cologne in 1550. Naibod is best known for his 1573 astronomical textbook which he wrote for gymnasium students, which contains diagrams of a geocentric system, Martianus Capella's geo-heliocentric system, and the novel heliocentric system of Copernicus. His most substantical work, however, is the commentary on Alcabitius. Naibod makes it clear in the title of this work that his aim is to compare Alcabitius's *Introduction* with the astrology of Ptolemy. The title of the commentary reads: "An exposition of the elements of astrology, in which besides the explanation of Alcabitius, who put forth the doctrine of the Arabs by abridgment, and a comparison with the principles of Ptolemy, rejecting the prophecies and common absurdities and received opinions, a discussion is made concerning the origin and use of the precepts of the true art, proposed in the most celebrated Cologne Academy to the students of philosophy."[401] Naibod's commentary

[400] Valentin Naibod, *Enarratio elementorum astrologiae* (Cologne: Arnold Birckman, 1560).

[401] Enarratio elementorum astrologiae, in qua praeter alcabicii, qui arabum doctrinam compendio prodidit, expositionem, atque cum Ptolemei principiis collationem, reiectis sortilegiis et absurdis vulgoque receptis opinionibus, de verae artis praeceptorum origine et usu satis disseritur in celeberrima Coloniensi Academia studiosis philosphiae proposita.

fits squarely within the humanist tradition, which had led many scholars to return to classical texts in search of truths that had been obscured by centuries of medieval scholasticism and textual corruptions. These humanist commentaries and translations of scientific works demonstrated a return to the actual words of the Greeks, especially Aristotle and Ptolemy.[402]

Humanism had its origin in letters, that is, poetry and literature. But the sciences were not immune to its grasp. As astronomy and astrology in Europe were heavily indebted to the Arabic intellectual tradition, humanist authors launched several critiques against Arabic philosophy, medicine, and astrology. These critiques began around the late fifteenth century and continued well into the sixteenth century. However, as Dag Nikolaus Hasse has documented in his recent book, the reception of Arabic texts in the Renaissance was characterized by both a valorization of certain Arabic authors and texts and a denigration of others.[403] Valentin Naibod's commentary on Alcabitius captures the complex atmosphere of the success and suppression of Arabic authors in the sixteenth century. Naibod's commentary is a humanist text *par excellence*, complete with a preface that includes a host of classical references: Aristotle, Ptolemy, Hippocrates, Pliny, Democritus, Virgil, Thales of Miletus, the Stoics, Horace, and even Hesiod are all named. Indeed, Naibod does not mention a single Arabic author by name until he has almost completed the preface, when he

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[402] Craig Martin highlights these trends in an excellent analysis of the humanist commentaries of Pietro Pompanazzi and Agostino Nifo on Aristotle's *Meteorologica.* See Craig Martin, *Interpretation and Utility: the Renaissance Commentary Tradition on Meteorologica IV* (Harvard: PhD Diss., 2002), especially chapters one and two.

[403] Dag Hasse, *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance* (Cambridge: Harvard University Press, 2016).

mentions Alcabitius and then discusses the Arabic contributions to the science of astrology. In referring to the text he writes, "the writer is Arab, and his translator Hispalensis, whose langauge, even if it was not so polished that it could please the erudite, still easily surpasses the others, who formerly translated Arabic into Latin."[404] This backhanded compliment to John of Seville situates Naibod within a humanist context, and also explains why he did not produce a new edition of the text of the *Introduction*. Naibod goes on to explain that instruction in astrology has included too much of the Arabic doctrines—he mentions ninths, twelfths, and firdaria explicitly—and not enough from Ptolemy.[405]

The commentary follows the same style as the preface. Naibod explains the text and frequently references Ptolemy (in Greek), draws examples from the *Tetrabiblos*, and provides Greek vocabulary for astrological terminology. He cites the Greek text of the *Centiloquium*, but does not attribute authorship to Ptolemy (referring instead to the *autor Centiloquii*).[406] Naibod also cites Pliny and Galen, and makes several references to his contemporaries. In his commentary on the first few sections of the first chapter, Naibod lists the constellations by name, and then quotes from a poem about the stars

[404] Naibod, *Enarratio*, f. d1v: "Arabs est hic scriptor, et interpres eius Hispalensis, cuius oratio, etiam si non sit tam nitida, ut delectare eruditos possit, cum tamen reliquos, qui Arabum scripta olim in latinum conuerterunt, facile superet, ferendum bonique consulendum studium ipsius putavi."

[405] Naibod, *Enarratio*, f. d1v: "Adhaec cum hac instructione non tantum ad Ptolemaei, verum etiam et praecipue ad omnium Arabum doctrinam intelligendam lectorem instituere voluerit, sortes inanes, decurias, nouenarias, duodenarias, ferdarias, et talia a physica doctrina dissentientia, et ne ab ipso quidem probata, simul cum veris introducere necessum habuit."

[406] Cardano also rejected Ptolemy's authorship of the *Centiloquium*.

written by Joachim Camerarius.[407] He also discusses the nativity of the Italian painter Titian.[408] There are several references to Girolamo Cardano.[409] Naibod's expertise in astrology is evident from his lengthy discussion of the calculation of the house cusps, where he cites a host of contemporary, ancient, and Arabic authors in considering methods of calculation of the cusps, ultimately preferring the method of Regiomontanus.[410] In this section, in addition to Regiomontanus and Ptolemy, he cites Campanus, "Gazalus," Firmicus, Albumasar, Albuhali, Albubatere, and Guido Bonatti. He also references Johannes Schöner, Johannes Stöffler's *Ephemerides*, the Prutenic Tables, and Copernicus.[411] Naibod's contemporary references illustrate the tension between humanism and scientific practice, where despite his allegiance to Ptolemy, there is a clear acknowledgement of the importance and validity of the most recent astronomical and astrological sources. Naibod demontrates, for example, the superiority of the Prutenic Tables to the Alphonsine Tables.[412] This standpoint is further illustrated by Naibod's instructions for the calculation of the house cusps prior to constructing a chart (*erigendi figuram coeli*). Naibod writes, "The parts of the ecliptic … are never changed, but in all the methods, that is Regiomontanus, Arabic

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[407] Naibod, *Enarratio*, 15: "Nomina vero omnium coelestium siderum Ioachimus Camerarius complexus est versibus, quos propter hic adscipsi."

[408] Naibod, *Enarratio*, 22: "Exemplum: Nascente Titio ascendat libra, quod est signum rectum."

[409] Naibod, *Enarratio*, 89: "Rationi autem consentaneum est, atque obseruatum esse dicit Cardanus…" See also p. 91, where Naibod provides a comparison of Ptolemy and Cardano's significations for planetary indications on the body.

[410] Naibod, *Enarratio*, 115-122.

[411] The reference to Copernicus appears on p. 152.

[412] Naibod, *Enarratio*, 142-150.

authors, and Campanus they are always found out and they remain the same. As for the method for constructing a chart from the writings of Campanus and Gazulus, I omit because it is erroneous. I could have omitted the method of the author because of similar causes, if not a text had to be added for the sake of explanation. For only the opinion of Regiomontanus we approve here, which is Ptolemaic, or certainly comes closest to his opinion."[413]

Naibod rarely distinguishes between Arabic authors, usually referring solely to "the Arabs" (*Arabes*) when discussing doctrine. This is a stark contrast to John's work, where the individual views of several Arabic authors were considered. There are also a few cases where he is condescending towards Arabic terminology, referring to, for example, "what the foreigners [*barbari*] call *Hayz*."[414] In other cases, Naibod defines an Arabic transliterated term in Greek, Latin, or both. For *azamena*, he writes, "The word azemena from the Arabic means the Greek 'to sinos,' that is, an imperfection or injuring and not an illness."[415] In the list of the conditions of the planets, Naibod uses the Latin terms for all of the conditions except one, for which he uses the Greek term.[416] He retains *almugea* and *hayz*.[417] In the case of *hyleg*, he replaces the term with

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[413] Naibod, *Enarratio*, 138: "Partes eclipticae culminantes et horoscopantes numquam mutantur, sed in omnibus modis, hoc est, Monteregii, Arabum, autoris, et Campani semper reperiuntur et manent eaedem. Modum constituendi figuras coeli ex sententia Campani et Gazuli propterea quod sit erroneus, hic omitto. Potuissem simili ex causa omittere modum autoris, nisi ob expositionem textus adijciendus fuisset. Solam enim opinionem Monteregii hic probamus, quae et Ptolemaei est, aut certe ad ipsius sententiam quam proxime accedit."

[414] Naibod, *Enarratio*, 44: "Nam dominium triangularitatis nihil aliud est, quam potestas quaedam ex dignitate domus, exaltationis et secte, quam barbari Hayz vocant, proueniens."

[415] Naibod, *Enarratio*, 96: "Vox azemena Arabibus idem significat quod graecis [to sinos], id est, vitium seu laesio et non morbus."

[416] Naibod, *Enarratio*, 278.

the Greek *apheticis*, and then uses the term in Latin transliteration.[418] While it was typical for humanist translators to purge transliterated terms from texts, it is noteworthy that Naibod pursues this strategy in his commentary as well. Naibod does not mention interrogations or elections in his commentary on the twelve places, which are frequently found in John's commentary. Instead, he points out disagreements between Ptolemy and the Arabs.[419] Naibod explicitly states that he will not comment on the fifth chapter of the *Introduction* since it deals with the lots. As Ptolemy only recognizes one lot, the Lot of Fortune, Naibod ignores the rest of that chapter. Even with these omissions, the text of Naibod's commentary is quite substantial. One wonders, however, why Naibod chose to write a commentary on Alcabitius rather than on the *Tetrabiblos*, as Cardano did in 1554. Perhaps he was required to lecture on the text at Cologne, although his commentary is much more substantial than John's commentary, which may also have been used in lectures.

Naibod's selection of Alcabitius's *Introduction* comes as something of a surprise given the criticism to which he subjects the Arabic astrological tradition in the commentary. It was certainly not Naibod's intention to flatter Alcabitius by writing the commentary. Rather, Naibod sought to destroy the edifice of Arabic astrology which had become the core of astrological teaching and thought. While his writings were not

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[417] Naibod, *Enarratio*, 305.

[418] Naibod, *Enarratio*, 381.

[419] Naibod, *Enarratio*, 177-184.

as vitriolic as Cardano's towards the Arabs,[420] his commentary undermines the Arabic tradition by showing how all astrological doctrine stems from Ptolemy, and thus Ptolemy should be restored to a central role in astrological teaching and practice. Furthermore, his selection of Alcabitius indicates that the *Introduction* had come to represent the medieval Arabic astrological tradition, and that this tradition was still very influential despite the fact that the popularity of the *Introduction* was waning over the course of the sixteenth century. The last printed edition, for example, was in 1521, almost forty years prior to the publication of Naibod's commentary. Nevertheless, Naibod persisted in his efforts to dethrone Arabic astrology.

Conclusion

The commentaries of Cecco d'Ascoli, John of Saxony, and Valentin Naibod reveal the differences that premodern students would have encountered in their instruction in astrology and particularly in their exposure to Alcabitius's *Introduction* and Arabic learning. It is obvious from the fourteenth century commentaries that Arabic learning was highly valued and treated as equivalent to the Greek tradition or even surpassing it by some Latin scholars. Cecco's and John's commentaries are indicative of the different emphases and levels of expertise that lecturers provided to university students. Whereas Cecco's commentary is more simplistic and gives a strong natural philosophical orientation, John's commentary is technically sophisticated and represents a thorough compilation and explanation of the sources available to John. In both cases, Arabic astrology was considered an authoritative

[420] Cardano wrote that "astrologers must free themselves from all the ballast of the various 'Albumasars, Abenragels, Alchabitiuses, Abubatres, Zaheles, Messahalas, and Bethenes.'" See Girolamo Cardano, *In Quadripartitum* (Basel, 1554), f. a2v.

source of knowledge. In John's commentary in particular, the extent to which Arabic sources were read at universities is highly evident. This underscores the idea that the *corpus astrologicum* was mostly populated with texts of Arabic origin, a point for which more evidence is provided in the following chapter.

By the sixteenth century, opinions had changed significantly. Alcabitius's *Introduction* was likely still being taught at universities in the first half of the sixteenth century as evidenced by its printing history. And John's commentary was printed in nine of the twelve editions, which illustrates its continued relevance to the teaching of the science of the stars. However, the lack of additional printings of the *Introduction* after 1521 suggests that its influence as a teaching text was waning. While astrology in general had been subjected to general criticisms for centuries, Arabic astrology in particularly became the subject of ridicule with Pico's critiques at the end of the fifteenth century, and Cardano's critiques in the sixteenth century. As some humanist authors also criticized Arabic medicine and philosophy, one wonders whether the decline in popularity of the *Introduction* came as a result of these criticisms. In this context, Naibod's commentary sets up Alcabitius as a foil for the return to Ptolemy. However, as Dag Hasse has argued, it is very difficult to characterize a general trends in attitudes towards Arabic learning, particularly when looking across the disciplines of medicine, philosophy, and astrology. Arabic texts that had been ignored in the medieval period gained new currency as printed books, whereas texts that had been extremely popular in manuscript form faded in popularity with the advent of

printing.[421] The printing of the *Introduction* and its ultimate fate are discussed in the final chapter, on the forms and materialities of the book.

[421] Hasse, *Success and Suppression*, especially the Introduction.

Chapter 5: Forms and Materialities

Introduction

With over two hundred and thirty manuscripts and thirteen printed editions, the *Introduction* was subjected to hundreds of changes throughout centuries of readership. In previous chapters, we have seen how translation, marginal annotations, and commentaries transformed the reading of the text and reveal attitudes towards the text from a text-based perspective. Focusing on textual features has enabled us to trace and identify particular aspects of the *Introduction*'s medieval readership, including the transliteration of terms, the treatment of religious names and references, citation and annotation practices, etc. Several of these themes may be further reinforced by looking beyond the text to the forms and materialities of physical copies of the *Introduction*, in manuscripts and printed books. The different forms of the *Introduction* are illustrated by the various ways in which the form of the text was changed or enhanced in different copies: the title, structure, page layout, script, etc. The term "materialities" is more specific to the physical features of the book: bindings, paper quality, ownership, compilations, paratexts, etc. This chapter examines the various forms and materialities of manuscripts of the *Introduction*, and then treats similar considerations in the printed versions of the text, with the aim of understanding how manuscripts and the printed text shaped reading practices and the place of Arabic astrology in learned cultures.

Manuscripts

Each individual manuscript containing the text of the *Introduction* supplies a wealth of information about how the text was read and used. As unique copies of the

Introduction, the experience of individual readers could have varied significantly according to the features of individual manuscripts, including the appearance of the text on the page, the binding, paper, and paratexts, and especially what other texts the *Introduction* was bound with. In examining these features, we may take an in-depth look at individual manuscripts, as well as identify trends across several manuscripts. In the following section, I pursue both strategies in order to provide a picture of the kinds of information about readership one may gain from such an approach. We may also keep in mind the information about readers of the *Introduction* considered in previous chapters, particularly the skilled scholars, university students, and astrological practitioners and enthusiasts we encountered in chapter three. Taken together, the manuscripts of the *Introduction* demonstrate the extent to which Arabic astrology was embedded in the Latin astrological tradition.

Title and Author

Certain features of the *Introduction* were shared across many manuscripts, including the form of the title and author of the text. The Latin title of the *Introduction to Astrology* remained somewhat stable over centuries of readership. The BYY edition reports that a literal translation of the Arabic title, *Introductorius ad magisterium iudiciorum astrorum*, appears in at least seventy manuscripts. Many others (at least 27) have *Liber introductorius*, which BYY explain is likely derivative.[422] Several manuscripts have the Greek *ysagoge* or *ysagogarum* in place of *Introductorius*, but these substitutions occur only in the opening title (on the first page) and not in the

[422] BYY, *Introduction*, 199. BYY note that the word *liber* is often inserted when the title is brought from the colophon at the end of the text to the first line at the beginning of the text.

colophon.[423] The substitution of the Greek term *ysagoge* is notable because it indicates that the *Introduction* was at least superficially associated with the structural genre of elementary treatises defined by the *Isagoge*, or Porphyry's introduction to Aristotle's *Categories*, which was translated by Boethius in the early sixth century and was the standard medieval introduction to Aristotle's logic. With the newly blossoming science of the stars of the twelfth century, introductory texts were certainly in demand. Knowledge of certain aspects of astrology was pieced together from various sources, and until the translations there were no treatises which presented astrological doctrines in a coherent and systematic manner. The title of Alcabitius's *Introduction* primed the text for success by fitting it within a structural genre already familiar to Latin readers through the *Isagoge*. Retaining *Introductorius* or *Liber introductorius* also distinguished it from Albumasar's *Abbreviation to the Introduction*, which was likely translated prior to Alcabitius's text and also given the title *Ysagoga minor.*[424] In addition, the comprehensive treatment of the principles of astrology, written "following the manner of an introduction," as Alcabitius himself puts it,[425] quickly established the *Introduction* as the principal source of astrological knowledge for early Latin readers.

The name of the author, ʿAbd al-ʿAzīz al-Qabīṣī, was frequently transliterated and sometimes translated. As with some transliterated technical terms, there were extensive variations of the *nisba*, or last name, found in both opening titles and

[423] BYY, *Introduction*, 199. BYY provide a list of manuscripts containing these Greek substitutions.

[424] This title was also used in the late eleventh century for Constantinus Africanus's translation of Ḥunayn ibn Isḥāq's introduction to Galen's *Ars medica*.

[425] BYY, *Introduction*, 1:[3], 225: "secundum modum introductorium."

colophons: Alcabizi, Alkabizi, Alchabizi, Alcabiçi, Alkabiçi, Alchabiçi, Alcabicii, Alcabizci, Alkabiczi, Alkabachizi, Alcabisi, Alchabiti, Alcabicii, Alkabyzii, Alcobizi, Alcobici, Alcobiçi, Alcabizin, Alcabisin, Alkabizis, Alchabizini, Alcabit, Alkabit, Alchabiz, Alcapiz, Alkabiz, Alkobiz, and Alcabz.[426] The *ism* or first part of the name, ʿAbd al-ʿAzīz, was also often transliterated, or rendered into a literal Latin translation, *servus gloriosi*, or "servant of God." There are also many variants: Abdilaziz, Abdilaçiz, Adbilaçiç, Abdilazis, Abdileziz, Abdilazizi, Abdilazir, Abdylariz.[427] Despite the large number of spelling variations, the author's name was retained throughout *Introduction*'s textual history. Indeed, the name of Alcabitius is often listed twice on the first page of text, once to attribute the title to him (*Incipit introductorius Alcabici*…) and then to introduce the prologue (*Incipit prologus Alcabici*). The presence of the author's name immediately enabled readers to identify the Arabic origins of the text. As Alcabitius was known exclusively for his authorship of the *Introduction*, his name eventually became synonymous with it.

Textual Companionship

The *Introduction* was frequently bound in volumes together with astrological, astronomical, and other kinds of texts; in other words, with its textual companions. Textual companions are individual texts, such as Alcabitius's *Introduction* and

[426] This list is not exhaustive. For the manuscripts which contain these variants, see BYY, *Introduction*, 198-199.

[427] BYY, *Introduction*, 199.

Ptolemy's *Tetrabiblos*, which were bound together.[428] Binding was the process through which individual texts were physically and intellectually brought together into a single volume, whose coherence was defined by an individual's perception of the relationship between the texts. For example, bindings sometimes united a thirteenth-century manuscript of the *Introduction* with a fourteenth-century set of planetary tables. Or, an early fourteenth-century copy of Alcabitius may have been bound with a mid-fifteenth century manuscript of Ptolemy's *Tetrabiblos*. Textual companionship thus illustrates the material circumstances in which readers encountered texts, whether as distinct individuals or bound with others. With over two hundred extant manuscripts, a thorough study of Alcabitius's *Introduction* offers both enormous potential and the daunting task of enumerating all of Alcabitius's textual companions. Rather than attempting to reconstruct a precise history of the *Introduction*'s companionship, it is easier to identify some general trends based on a subset of the manuscripts.[429] There are several sets of texts which are frequently bound together, which coalesce into stable groupings over time. The most obvious of set of textual companions is the *corpus astrologicum*, or set of astrological texts which formed the core of university study.

[428] For a study of the effects on readers of binding diverse printed texts into a single volume, see Jeffrey Knight, *Bound to Read: Compilations, Collections, and the Making of Renaissance Literature* (Philadelphia: University of Pennsylvania Press, 2013).

[429] I have relied on manuscripts consulted *in situ* at the Biblioteca Apostolica Vaticana, the Biblioteca Marciana, and the Biblioteca Laurenziana. The study is biased towards the kinds of manuscripts which were acquired by these libraries, which may not be representative of the whole. For example, a collection of manuscripts of the *Introduction* at the Bodleian Library would likely yield more information about a university-centered readership. While many of the manuscripts in this study reflect readership at universities, for a full study of textual companionship it is necessary to consult a broader range of manuscripts.

The *corpus astrologicum*, in contrast to its better-known sibling the *corpus astronomicum*,[430] has only been articulated as such in recent years by Monica Azzolini.[431] Relying primarily on a set of texts compiled in a fifteenth-century student notebook from the University of Pavia, Azzolini noted the influence of Arabic authors on the *corpus astrologicum*. Unusually, Alcabitius's *Introduction* was not included in the Pavian notebook, but it did contain some of the textual companions of the *Introduction*. The notebook belonged to the "physician-astrologer" Giovanni Battista Boerio and is contained in British Library MS Arundel 88. It contains Johannes de Linieris's Canons to the Alfonsine Tables, William of England's *De urina non visa*, Sacrobosco's *Compotus*, pseudo-Aristotle's *Chiromantia*, Messehallah's *De revolutionibus annorum mundi*, Zael's *Quinquaginta praecepta* and selections of pseudo-Ptolemy's *Centiloquium*.[432] Azzolini also emphasized the fluidity of the *corpus astrologicum*, with each individual manuscript containing a subset of a much broader range of astrological texts, a point which will become more clear in the following analysis.

In his study of the *corpus astronomicum*, Olaf Pedersen identified a consistent set of astronomical texts which date to the second half of the thirteenth century and do not include companion astrological texts. These texts include the *Algorismus*, *De sphaera*, and *Compotus* of Sacrobosco, a calendar with canons of Robert Grosseteste, Peter of Dacia's lunar tables, Robert Anglicus's *Quadrans vetus*, an anonymous

[430] Olaf Pedersen, "The *Corpus astronomicum* and the Traditions of Medieval Latin Astronomy", *Studia Copernicana*, xiii (Warsaw, 1975), 57–96.

[431] Monica Azzolini, *The Duke and the Stars*, 29-50.

[432] See Azzolini, *The Duke and the Stars*, 29-40.

Theorica planetarum, the Toledan tables with canons, Messehalla's treatise on the astrolabe, and Thābit ibn Qurra's *De motu octave sphaere*, among others. However, Pedersen also notes a late fourteenth-century manuscript which includes Alcabitius's *Introduction*.[433] This manuscript lead him to conclude that "astrology [was] now so important a discipline that it [began] to intrude into the *corpus* which so far had been devoted to pure astronomy."[434] This claim would be roughly consistent with the idea that the *Introduction* (and astrology) began being taught at universities at some point in the fourteenth century, if we look primarily at the dates of the *Introduction*'s commentaries. While the evidence Pedersen presents to support this claim is compelling, an examination of the companionship of the *Introduction* warrants a revision.

The evidence compiled in this study of manuscripts gives a *corpus astrologicum* composed of a selection of the following texts: Alcabitius's *Introduction*, Albumasar's *Flores* and *De revolutionibus annorum mundi*, Messehalla's *De rebus eclipsium*, selections from Zael's *Liber iudiciis* (usually on topics such as elections and interrogations), selections from Haly Abenragel's *De iudiciis astrorum*, and a *Centiloquium*, from Pseudo-Ptolemy, Hermes, or Bethen.[435] Four manuscripts from the

[433] Pedersen, "*Corpus astronomicum*," 80-81. The manuscript is Oxford, Bodleian Library MS Bodl. 491. The *Introduction* appears with Sacrobosco's *Algorismus* and *De sphaera*, a *Theorica planetarum*, the Alphonsine canons and tables, Thābit ibn Qurra's *De recta imaginatione spere* and *De motu octave spere* and commentaries by Peter of Dacia and Johannes Anglicus.

[434] Pederson, "*Corpus astronomicum*," 81.

[435] BAV Pal. lat. 1372, for example, dated to the fourteenth century, contains Alcabitius's *Introductorius*, Zael's *Liber iudiciorum*, Zael's *De electionibus*, Albumasar's *Flores*, Messehalla's *De receptionibus*, and Messehalla's *De revolutionibus annorum mundi*.

thirteenth century and very early fourteenth century indicate that a proto-*corpus astrologicum* was in the works.[436] Several other early manuscripts have a combined astronomical-astrological companionship. In addition to Alcabitius's *Introduction*, BAV Pal. lat. 1414 contains late thirteenth- and early fourteenth-century texts, including a treatise on the astrolabe, a *Theorica planetarum*, Thebit's *De motu octove sphaere*, and Azarchel's canons. The fourteenth-century MS BAV Borgh. 312 contains Alfraganus's *De scientia astrorum*, two texts on the astrolabe, Ptolemy's *Centiloquium* with Haly's commentary, Messehalla's *Epistola in coniunctionibus planetarum*, and Azarchel's canons. BAV Vat. lat. 5714 contains the *Tractatum de spera*, Alfraganus's *De scientia astrorum*, canons to astronomical tables, and a text with the incipit "Aspectus sextili trinus." This set of manuscripts, to which we could also add BAV Barb. 236, portrays a textual companionship devoted to the new science of the stars which resulted from the translations of the twelfth century. None of these manuscripts contain corroborating evidence that they were read at universities. A more probable conclusion is to link them to the skilled scholars we encountered in chapter three, which does not preclude an association with universities.

[436] Their contents (in addition to the *Introduction*) are listed here. The earliest of these is BAV Barb. 236: Hermann's *De astrolabio*, Alfraganus's *30 chapters*. BAV Vat. Lat. 4079: Aomar's *De nativitatibus*, Albumasar's *Flores*, Albumasar's *De judiciis*, Zael (selections from *Liber iudiciorum*). BAV Reg. lat. 1285: Several texts on the astrolabe, canons to the Toledan Tables, Albumasar's *De magnis coniunctionibus*, *Liber erarum*, Ptolemy's *Tetrabiblos*, a Hermetic text and Zael's *Liber iudiciorum* are now missing. BAV Reg. lat. 1452 contains tables from 1309-1312 and has several texts: Martianus Capella's *De nuptiis Mercurii et Philologiae*, Alfraganus's *De scientia astrorum*, Jafar's *Liber imbrium*, Pseudo-Ptolemy's *Centiloquium* with Haly's commentary, Haly's *De electionibus horarum*, Johannis Hispalensis's *Epitome totius astrologie*, Thebit's *De imaginibus*, Pseudo-Ptolemy's *De imaginibus*, *De mirabilibus effectibus*, selections from Haly Abenragel's *De iudiciis astrorum*, Raymond of Marseilles's *Liber iudiciorum*, attributed to Algafalax, Zael's *De electionibus*, Zael's *Liber temporum,* Messehalla's *Epistola de rebus eclipsium*, Albumasar's *Flores* and *De revolutionibus annorum mundi*, tables of Peter of Dacia.

Indeed, *contra* Pedersen, it seems likely that astrology was taught at universities as early as astronomy in the late thirteenth century if we are able to tie the set of manuscripts in the previous paragraph to universities. We can at least affirm that the earliest date where Alcabitius's *Introduction* appears alongside a *Sphaera* is 1319.[437] This astronomical-astrological companionship trend is certainly evident in later manuscripts of the fourteenth century. There are several other manuscripts which contain the *Introduction* along with standard texts from the *corpus astronomicum*, such as Sacrobosco's *Sphaera*, the *Theorica planetarum*, and texts on the astrolabe. Manuscripts from later than the fourteenth century also exhibit a combined corpus. BAV Pal. Lat. 1354, dated to 1464 CE, contains the *Introduction* with John of Saxony's commentary,[438] followed by a *Sphaera*, *Theorica planetarum*, *De revolutionibus annorum*, *De mutatione aere*, *De nativitatibus*, *De interrogationibus*, *De electionibus*, and others. Despite evidence of a combined *corpus*, there are other manuscripts which contain either a purely astronomical or astrological focus. Furthermore, it remains to be determined whether the astronomical and astrological emphases occurred in sequence, as Pedersen would have it, or are representative of particular universities, or whether they were distributed evenly throughout the medieval period in Europe. The several examples of astronomical texts as companions

[437] This appears in the colophon to the *Tractatum de spera*, which immediately follows the *Introduction* in the same hand. The inscription reads, "Expleta spera 1319 11 diebus april in hora mercurii." Bound to these are some of the *Alchandreana*, and then a set of texts from the fifteenth century (a Zodiac man, a calendar, tables with a date of 1402, and a *Liber metherorum walthei borley*). As the *Introduction* and *Sphaera* were written in the same hand it is highly likely that they were bound together by the same scribe. See BAV Vat. lat. 4084-I.

[438] The BYY edition proposes that this is John of Stendhal's commentary, which also appears in Bernkastel-Kues 212. This commentary is in fact John of Saxony's and is missing the first several paragraphs. The text begins, "Ptolomeus in prima propositione dicit" and continues "sciam stellarum ex te et ex illis est: et…" Cf. note in chapter 4.

to Alcabitius's *Introduction* blurs the boundaries between the two *corpora*, so that it is possible to distinguish several different emphases of university study: the purely astronomical, the purely astrological, and a combined *corpus de scientia astrorum*.

One potential indication of the *corpus de scientia astrorum* is that it represented the core texts on the path to becoming an astrological practitioner (rather than a physician who practices astrology). The textual companions of the *Introduction* often included lengthy sets of astronomical and astrological tables, ranging from the well-known Alfonsine tables to tables of conjunctions and tables of astrological houses. Compilations which were comprised largely of tables also brought together both astronomical and astrological texts and tables, and sometimes contain several worked-out horoscope examples. In addition to the set of astronomical-astrological companions listed above, BAV Pal. Lat. 1354 also has several astrological tables with text from the canons interspersed between them, a calendar, and a chart for the nativity of Christ. Another fifteenth-century manuscript, for example, BAV Pal. Lat. 1376, is a massive volume containing over four hundred pages of text, the majority of which are tables, the earliest date of which is 1447. This manuscript also contains canons to the tables, several horoscopes, Alcabitius's *Introduction*, Alfraganus's *De scientia stellarum*, two zodiac men, mathematical treatises, Messahala's *De compositione astrolabii*, and more tables. The presence of elaborate astrological tables in these books, especially, suggests that they were used as workbooks rather than merely textbooks or reference manuals, as some of the marginalia have indicated. It is possible that the introductory texts first came into the possession of students of astrology at universities, and as the students

progressed into practitioners they added more complicated treatises and tables to their compilations, and perhaps also had them bound.

In the set of manuscripts I have seen, there is a conspicuous absence of medical texts as textual companions to the *Introduction*. Given the emphasis by historians of medicine on the training of physicians in astrology, one would expect to find more evidence of astrological and medical texts bound together.[439] While several manuscripts contain images of the zodiac man, which link zodiacal signs with different parts of the body, the textual companions which contain medical information are usually astro-medical rather than strictly medical. These are, for example, William of England's *De urina non visa,* which was included with the *Introduction* in the 1405 curriculum at Bologna, and the *Astronomia Ypocratis* of Pseudo-Hippocrates. One very large (over 400 pages) fifteenth-century compilation appears to include a few astro-medical works alongside the *Introduction*, Sacrobosco's *Sphaera*, and Gerard's *Theorica*.[440] Another compilation of texts dated to the fifteenth- and sixteenth-centuries contains several pages which include medical prescriptions, and at least two texts which appear purely medical, the *Tractatus in medicinalibus* by Marsilius of Santa Sophia and another treatise with the incipit *Febris est calor extraneus*. Other texts in this volume are clearly astro-medical, such as the pseduo-Hippocratic *De prognosticatione mortis et vite secundum motu lune*. There are additional texts in the *corpus astrologicum* and others by contemporary authors, such as Prosdocimo de

[439] This point was considered in chapter four. Cf. pp. 167-168.

[440] Bibl. Laur. Ash. 208.

Beldomandis.[441] While it would be helpful to examine more manuscripts associated with university contexts to identify whether medical texts proper were companions to the *Introduction*, from the evidence we may tentatively claim that texts concerning the medical applications of astrology were occasionally bound with the *corpus astrologicum*.[442]

A final example of textual companions of the *Introduction* are lapidaries and texts on divination. Some texts on lapidaries and astrology, such as the thirteenth-century lapidary of Alfonso X, assigned relationships between precious gems and stones and degrees in the signs of the zodiac, planets, and other parts of the celestial realm. The late thirteenth-century manuscript BAV Pal. Lat. 1382 is composed almost entirely of lapidary texts, some of which contain elaborate lists of correspondences between gems and stones and astrological elements, and bound with Alcabitius's *Introduction*. Besides Alcabitius's *Introduction*, a few manuscripts also include Thebit's *De imaginibus*, which deals with the practice of carving zodiacal images.[443] As this text was bound with texts that appear to be part of the *corpus astrologicum*, it is possible that Thebit's *De imaginibus* was also read at universities. This question will be explored further in the section on paratexts. The linkage of astrology with the magical practice of inscribing images on stones was well-known, and the *De imaginibus* was included in the set of licit texts compiled in the *Speculum astronomiae*.

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[441] Bibl. Laur. Ash. 206.

[442] This evidence concurs with the view of Hilary Carey, who has written that "Latin medical astrology forms something of an independent genre and practice somewhat separate from that of learned scientific astrology, and from academic medicine." See Hilary Carey, "Medieval Latin Astrology and the Cycles of Life," 37.

[443] BAV Pal. lat. 1414 and Reg. lat. 1452.

As astrology was often linked with other forms of divination, it is not surprising to find the *Introduction* in consort with divinatory texts. BNM Lat. VIII 44, for example, contains texts from the fourteenth and fifteenth centuries, including one on chiromancy, and two texts on geomancy, one attributed to Gerard of Cremona and the other to Johannes de Muris.

Binding, Paper, Script, Rubrication

Taken in conjunction with a study of textual companionship, other codicological features highlight the contexts of readership and the readers encountered in previous chapters. For example, bindings and parchment quality indicate that the *Introduction* maintained its status as an important and valuable text throughout the fifteenth century, despite the fact that it was read at universities and many copies were in circulation. There are a few examples of manuscripts of the *Introduction* on expensively-prepared parchment, with elaborate red and blue rubrication and beautiful humanistic script. BAV Vat. Lat. 3104 dates to the late fourteenth or early fifteenth centuries, and contains Alcabitius's *Introduction* and a *Compotus* of Campanus of Novara, both written beautifully in two narrow columns in humanistic bookhand.[444] A fifteenth-century volume at the Biblioteca Laurenziana (MS Plut. 29.3) has metal triangles with designs on them at each of the four corners of the front and back covers, with a title, *Alcabitii Opera*, set off by four metal strips nailed into the leather binding in the center of the front cover. The owner of BL MS Plut. 29.3 was the canon Laurentius Silvestris at the Church of San Lorenzo in Florence, an astrological

[444] Another manuscript described by BYY is similar, although despite its beauty it is full of errors. The manuscript is British Library, MS Egerton 822. See BYY, *Introduction*, 178.

enthusiast.[445] As indicated by an analysis of Valentin Naibod's commentary on the *Introduction* in the previous chapter, Arabic science played an interesting role in the advancement of humanist ideals during the sixteenth century. That the *Introduction* was still valued in humanistic circles, as indicated by these beautifully prepared humanist manuscripts, demonstrates that despite criticisms of scholastic texts and the barbarous Latin of literal translations from the Arabic, core texts of the Arabic astrological tradition maintained their high status in learned communities. And this was true for both sophisticated practitioners of astrology and its enthusiasts.[446]

Some manuscripts exhibit codicological evidence of university study, such as inexpensively prepared parchment, which often contained holes or was darkened by the traces of hair follicles. These texts often lacked rubrication and sometimes contain blank pages full of mathematical calculations or other doodles. One messy manuscript includes several practice horoscopes for a Magister Petrus Nigri in 1515.[447] Another well-used manuscript with many of the hallmarks of university study, including cheap parchment pages and several different hands, contains a fairly typical *corpus astrologicum*.[448] Towards the end of Messehalla's *De receptionibus*, the text (which is in gothic cursive) ends abruptly in the middle of the page, which is the last page of the quire. The first page of the next quire picks up where the text left off, but on paper and

[445] Cf. p. 145.

[446] These categories are explained in chapter 3.

[447] BAV Vat. lat. 1451 contains some fourteenth century tables and a zodiac man with parts labeled in German. This appears to be a well-used university text, which also contains a calendar, a *Sphaera*, and hand-drawn copies of the woodcuts in Ratdolt's 1485 printed edition.

[448] BAV Pal. lat. 1372. The contents of this manuscript are: Alcabitius's *Introductorius*, Zael's *Liber judiciorum*, Zael's *De electionibus*, Albumasar's *Flores*, Messehalla's *De receptionibus*, Messehalla's *De revolutionibus annorum mundi*.

in a different, more immature cursive script. This suggests a student may have taken it upon himself to supply the missing text for his course of study, by copying from another manuscript of Messehalla. In one manuscript, the reader has cut strips of parchment to serve as bookmarks on the title pages of three texts: Alcabitius's *Introduction*, Albumasar's *Flores*, and Haly Embrani's *De electionibus*.[449] Other manuscripts exhibit features we would expect from the skilled scholars encountered on the chapter on marginalia. The reviser of the *Introduction* in BAV Reg. Lat. 1285, for example, took great care in copying his texts in a very neat protogothic script, written on beautifully prepared parchment in a large quarto volume. BAV Vat. Lat. 4084 contains a section of texts from the *Alchandreana*, followed by a transliteration or pronunciation guide of both the Hebrew and Arabic alphabet. The Arabic alphabet itself appears in transliteration on the next page,[450] along with the Hebrew names of the planets which were also transliterated into Latin. The owner of this manuscript was interested in recovering astrology and potentially learning Hebrew and Arabic in order to do so. Astrological practitioners were the likely owners of the "astrologer's workbooks" described above, full of examples and notes.

Individual manuscripts also reveal a wealth of information when subjected to a comprehensive analysis of textual companionship, binding, parchment analysis, and ownership inscriptions. For example, BAV Ottob.lat. 1552 has a binding of beautiful leather-covered wooden boards, with the leather bearing a decorative imprint. Upon first inspection, the expensive binding would not lead one to believe the book was

[449] The bookmarks are in BAV Pal. lat. 1408.

[450] BAV Vat. lat. 4084: "alif, be, te, the, gim, aha, hka, da, …"

owned by a student. However, the textual companionship shows the set of texts normally associated with an astrological-astronomical program of university study: a treatise on the sphere and a *Theorica*, Alcabitius's *Introduction*, and several other astrological texts, including Pseudo-Ptolemy's treatise on the projection of stellar rays, a *flores* of Hermes, and Bethem's *Centiloquium*.[451] A final text, Thebit's *On images*, which describes the illicit practice of inscribing astrological images, has the first page entirely crossed out, and the rest of its pages cut out of the quire. The parchment of these texts is typical of the cheaply prepared pages found in other sets of university texts. The expensive binding, however, suggests that this book was bound by an individual of means, seeking to preserve the texts. There is only one ownership inscription: Ex codicibus Joannis Angeli[452] Ducis ab Altaemps, or from the books of Jean Ange, Duc d'Altemps. Not much is known of this figure, who died in 1620, except that he had a large collection of philosophical, scientific, and religious works, which were dispersed after he died. The wooden boards of the binding, however, are likely from earlier in the sixteenth century, since later on in the century pasteboards began to replace wooden boards.

Ownership Inscriptions

[451] The complete list is: *Tractatum de spera*, *Theorica planetarum*, *Introductorius*, *Incipit cum proiectio radiorum stellarum*, *Incipit flores Hermetis extratur de libro de speculis et de luce*, *Incipit centiloquium bethem*, *Incipit aphorismi almansoris*, *Incipit summum hermetis de accidentibus rescriptus ab haly*, *Incipit cum ego Johannes Plinus essem in alexandria civitate egiptiorum*, *Incipit liber de ymaginibus thebit* (crossed out and cut out.)

[452] This individual should not be confused with another Johannes Angelus, who edited the *De magnis coniunctionibus* of Albumasar for the printer Erhard Ratdolt in 1489.

Ownership inscriptions also yield insight into the identities of the readers of the *Introduction*, as well as booklists. I have mentioned a few of these individuals in previous chapters, such as Laurentius Silvestris, the canon of San Lorenzo in Florence, and Johannes Marchanova, the professor from Padua. Cases where individuals used their texts as students and retained them as practicing astrologers are particularly interesting, such as that of Johannes Borotin. A similar example involves Prosdocimo de Beldomandis. While a student at Bologna, he signed his name to his copy of the canons of John of Saxony (bound with the *Introduction* along with several of his own works) in Bibl. Laur. Ash. 206.[453] Another ownership inscription dates to the early sixteenth century. On the back of the last page in the volume, the inscription reads: "This is my book, Federico Delfino, which was given to me by master Bartholomeus Cherubinus, a doctor [and] my friend."[454] Federico Delfino held the chair of mathematics at Padua beginning in 1520. It is difficult to determine when, precisely, master Bartholomeus gave the book to Delfino, but it's possible that this was a gift while Delfino himself was studying at university. Presumably this book was for university study, since it contains Sacrobosco's *Sphaera*, the *Theorica planetarum* of Gerard of Cremona, Albumasar's *Flores*, several works by Prosdocimo de Beldomandi, and several other astronomical and astrological texts. In total the bound manuscript contains over 400 folio pages of astronomical and astrological works. Unfortunately Delfino did not make many annotations in Alcabitius's text, but he did

[453] Bibl. Laur. Ash. 206, f. 19r: "Expliciunt canones magistri Johanis de saxsonia super tabulas regis alphonsi scripti per me prosdocimum de beldemandis de padua in artibus Bononie studentem."

[454] Bib. Lauren. Ash. 208: "Hic liber est mei federici delfini quem donavit mihi dominus bartolameus cherubinus phisicus socius meus."

label *hyleg* and *alchocoden*, as well as *animodar* in the margin.[455] Pico della Mirandola owned a copy of the *Introduction*.[456] The French astrologer Simon de Phares owned the copy with Louis de Langle's commentary.[457] The physician of the Sforza court Alessandro Pellanti owned several manuscripts and printed editions of the *Introduction*.[458]

While it is not unusual to find astrologers and physicians as owners of the *Introduction*, it is perhaps more interesting to find evidence of owners who pursued other interests. Maximilianus Transylvanus, who served as the personal secretary to Emperor Charles V and published the reports of the survivors from Magellan's first navigation of the globe, inscribed his name in a copy of the *Introduction*.[459] A brother of the order of Saint John and Peter in Venice, Nicolai Augusta, took his doctorate from the University of Bologna in 1425, and then returned to the monastery of Saint John and Peter in Venice.[460] Petrus Albinianus Trecius, a jurist who edited the *Decreta* of Gregory IX, inscribed his name in one copy of the *Introduction* in 1509. Booklists

[455] Bib. Laur. Ash. 208.

[456] Pearl Kibre, *The Library of Pico della Mirandola* (New York: Columbia University Press, 1936).

[457] Jean-Patrice Boudet, *Lire dans le ciel: la bibliothèque de Simon de Phares, astrologue de XVe siècle* (Bruxelles : Centre d'étude des manuscrits, 1994), 57-61.

[458] Azzolini, *The Duke and the Stars*, 45.

[459] Bib. Laur. Ash. 206. The report of the circumnavigation was published in *Maximiliani Transyluani Caesaris a secretis epistola, de admirabili & novissima hispanorum in orientem navigatione, que auriae, & nulli prius accessae regiones sunt, cum ipsis etia moluccis insulis* (Cologne, 1523). The ownership inscription is from October 8, 1522, which would have been shortly after the return of the ship Victoria in September 1522.

[460] BNM Lat. VIII 44, "Folio extremo occurrit narratio vitae fratris Nicolai Augusta, quae ab Echardo prolatae emendandae egregie confert. Ille die iunii 1391 Venetiis natus, ordinem Praedicatorum ingressus est in domo ss. Ioannis et Pauli, die 2 febr. a 1405; insignia doctoratus die 8 ianuarii 1425 suscepit…"

also give clues towards ownership and potential readership. The *Introduction* was known to be in the library of a monk of St. Augustine's in England, Michael of Northgate,[461] for example, as well as the library of Edmund Lacy, a fourteenth-century bishop of Exeter.[462] This diverse group of owners provides a sense of how widespread knowledge of Alcabitius's *Introduction* actually was, a step well beyond the anonymity associated with gauging influence or popularity by the number of manuscripts alone. This shows that Arabic astrology was by no means an obscure specialty of scholars, but rather that most students who had studied at least some of the quadrivium would have been familiar with the authority of Arabic learning.

Paratexts

Descriptions of the codicological features of manuscripts, coupled with a study of their textual companionship, underscores several points already made about the contexts in which texts were read, and how they were read. There was also textual material added to the *Introduction*, such as prefaces or introductions, which served to frame the *Introduction of Astrology* within particular contexts. These paratexts, more formal than marginalia yet less robust than commentaries, also illustrate different contexts of the text's readership. One preface has been added to a manuscript held in Lucca, Italy, and has been edited and translated by Charles Burnett.[463] An introduction to the *Introduction*, also edited and translated by Burnett, was added to a manuscript by

[461] The manuscript is Oxford, Bod. Lib. Bodley 464 (2458).

[462] The manuscript is Oxford, Bod. Lib. Bodley 463 (2456).

[463] Burnett, "Al-Qabīṣī's Introduction," 61-69. The manuscript is Lucca, Biblioteca Statale, 2114. Another manuscript also contains the preface: Oxford, Bodleian Library, Bodley 472.

an individual who appears to have used the text both as a student and as a professor giving lectures on astrology at the University of Prague in the fifteenth century.[464] These introductory texts have a few features in common, but the most obvious aspect is that they both provide justifications for the study of astrology, which is not uncommon for prefaces of this sort. However, in their justifications they situate Alcabitius's *Introduction* within a history of astrology that encompasses the learned tradition of Ptolemy, and the wisdom of the Ancients. That they serve as introductory material to Alcabitius's *Introduction* demonstrates that the *Introduction* came to represent the study of astrology, as broadly conceived in the Middle Ages.

The Prague manuscript[465] is attributed to a single author, Johannes Borotin, who appears to have compiled a set of astronomical and astrological texts together when he was a student, and then later added other texts and his own writings to the compilation as a lecturer. The texts in this compilation are representative of a combined astonomical-astrological program of study,[466] but Borotin has added an untitled introduction and commentary on Alcabitius's *Introduction*. Borotin's introduction to the *Introduction* framed the reading of the *Introduction* at the University of Prague in the middle of the fifteenth century. In his introduction, Borotin provides a historical account of astrology, a lengthy discussion of its definition and relationship to astronomy, and justification for its study (typical for introductions), ultimately referring to the power of talismans. Alcabitius and Arabic astrology are cast

[464] Charles Burnett, "The Teaching of the Science of the Stars in Prague University in the Early Fifteenth Century: Master Johannes Borotin" *Aither* 2 (Prague, 2014): 9-50.

[465] University of Prague, MS Metropolitan Chapter Library, MS O 1

[466] Burnett describes the contents of the manuscript in detail in *The Teaching*, 13-15.

in a very positive light. Referring to him first as "the wise Alcabitius," Borotin later praises Alcabitius for being the "guide and greatest helper" to astrologers. He makes several references to other authors, and holds Albumasar, Haly, and Alcabitius as equals to Ptolemy and Aristotle. Finally, Borotin argues for the importance of astrology for the construction of talismans, which he justifies with reference to a text attributed to Thomas Aquinas which described the construction of talismans.[467] Borotin's justification indicates that talismans continued to be discussed at universities despite the fact that some considered them to be illicit.

The Luccan preface frames the *Introduction* in a similar manner. The author of the preface explicitly situates Alcabitius as writing within the tradition (*via*) of Ptolemy.[468] He cites several authorities on the value of astrology, including Ptolemy, Jābir ibn Aflah, Thābit ibn Qurra, Haly, Abū Ma'shar, and Hippocrates, and like Borotin makes no difference between Greek and Arabic authors in assigning authority. The author does question "what makes many people denigrate the science of the stars," which indicates that the preface is a response to criticisms of astrology.[469] About Alcabitius, the author writes, "Therefore, with the aim of completely understanding the science of the books of the judgments of astrology, let us descend to explaining the difficult *Eisagoges* of al-Qabīṣī, which are a compendious introduction to the judgments of astrology, in which you will without fail find a great effect."[470]

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[467] Burnett analyzes Borotin's discussion of talismans in *The Teaching*, 17-18. For Borotin's comments, see p. 45-6.

[468] Burnett, "Al-Qabīṣī's Introduction," 65.

[469] Burnett, "Al-Qabīṣī's Introduction," 67.

[470] Burnett, "Al-Qabīṣī's Introduction," 68.

According to the author, although the *Introduction* is difficult, it is very worthwhile. The author also acknowledges that the *Introduction* is not original, but rather a compendium of ideas (*compendiosum*). This statement also supports the idea that Alcabitius represented astrology more generally. Also noteworthy about the preface is the mentioning of the science of talismans, which the author claims is part of the astrological practice of elections. The author also cites Thebit's *De imaginibus*.

It is noteworthy that both the Luccan preface and Borotin's introduction discuss the use of talismans, with Borotin providing a justification for their use. This recalls John of Seville's preface to *De imaginibus*, in which talismans were considered to be the ultimate aim of astrology. As Alcabitius does not mention talismans, it appears that the *Introduction* had come to represent the study of astrology more generally, and thus became linked to talismans by scholars who sought to unleash the powers of astrological images. Furthermore, the Luccan preface and Borotin's introduction conferred further legitimation on the *Introduction* by framing Arabic astrology within the tradition of the ancients. Alcabitius was thus seen as the heir to the ancient astrological tradition.

Printed Books

Printed books may be subjected to the same sort of codicological investigations as manuscripts. Ownership inscriptions,[471] binding, paper quality, and textual

[471] There are also several examples of ownership inscriptions in printed copies. The title page of a 1521 edition of Simon de Colines is inscribed with the name of Leonardus Saracenus, who according to a seventeenth century historical work became a theologian in Paris. The edition is CFMAGL 1.6.194 at the Biblioteca Nazionale Centrale di Firenze. For Saracenus see *Joannis Launoii Constantiensis, Pariensis Theologi, Regii Navarrae Gymnasii Pariensis Historia Pars Prima* (Paris: Edmund Martin, 1677), 148.

companionship[472] are all aspects of individual books which provide clues about the book's readership.[473] However, the printed book is much more than another copy of the same text. Through printing, the text undergoes editorial processes which serve to augment, stabilize, or distort the textual manuscript tradition. The presentation of the text in printed formats varies across editions: in the preservation (or not) of abbreviations, page layout, structure, typeface, and paratexts (prefaces, introductions, indices, etc.) which accompany a full print run of hundreds of books rather than individual manuscripts. This gives the text a sense of permanence in contrast to the variability of the text across individual manuscripts. The physical make-up of a book is the end-result of a complicated selection process involving scores of possibilities, and the choices made by editors and printers impact the ways in which the book is read.[474] We have seen how interventions made by readers on manuscripts of the *Introduction* served as a means for conferring further legitimacy on the text and its contents, and that this legitimacy carried over onto Arabic learning more generally. In the same way, printing itself was a means for legimating the knowledge contained within texts. A comparison of the printed editions of Alcabitius's *Introduction* shows how printing

[472] There are at least a few instances of Alcabitius's *Introduction* bound with Sacrobosco's *Sphaera*, especially the Ratdolot 1485 editions of both, but this should be investigated further. One copy is Bodleian Library, Auct. N 5.7(2), which includes the Ratdolt 1485 editions of the *Sphaera* and the *Introduction*, along with Ratdolt's 1485 edition of Hyginus's *Poetica astronomica*.

[473] All of these features are important in understanding the readership of the printed word. However, these questions demand further investigation of a greater number of copies of the printed *Introduction*. I intend to focus primarily on the variations in the printed editions.

[474] An excellent overview of these processes is in Brian Richardson, *Printing, Writers and Readers in Renaissance Italy* (Cambridge: Cambridge University Press, 1999).

transformed the text of the *Introduction* and permanently impressed the Arabic astrological tradition into hundreds of readers in the Latin West.

Printing History

The *Introduction to Astrology* was printed a total of 12 times from 1473 to 1521, indicating a sustained interest in the text into the sixteenth century. The first printing was in 1473-4, when the enterprising printer Johann Wurster in Modena produced an edition in Roman typeface in single columns per page. It is likely that the printer aimed to capitalize on the popularity of the text in manuscript and its widespread use at universitites. For example, the most popular astronomical text at universities, Sacrobosco's *Sphaera*, was first printed in 1472. The other editions of the *Introduction* appeared over the next several years: 1482 (Ratdolt, Augsburg), 1485 (Ratdolt, Venice) which included John of Saxony's commentary, 1491 (de Gregoriis, Venice), 1502 (de Gregoriis, Venice), 1503 (de Gregoriis, Venice), 1508 (Baumgarten, Frankfurt), 1512 (Sessa, Venice), 1520 (Huyon, Lyon), 1521 (de Colines, Paris), 1521 (Liechtenstein, Venice), 1521 (Sessa and de Ravanis, Venice).[475] The last two editions in this list are almost exact copies, although with different printers. After 1485, all subsequent editions of the *Introduction* were printed with John of Saxony's commentary. The complete text of the *Introduction* was also printed with Valentin Naibod's commentary in 1560. As with the many manuscript copies of the *Introduction*, the printed editions and their copies were subjected to changes based on

[475] There is a record of a 1510 edition printed at Lugdunum (Lyon) at the Bayerische Staatsbibiothek, Shelfmark 4 P.o.lat. 392, with the title *Astronomiae iudiciariae principia tractans*. Unfortunately, the online catalog marks it as lost. It is possible that the date was mistakenly recorded, and it is the 1520 edition, since the titles are the same.

the interventions of editors and printers. Regarding each intervention as significant, the printing of the *Introduction* was another transformative step on its path to assimilation in Europe.

Titles, Structures, Woodcuts

The printed titles of the text, for example, indicate how printers targeted the *Introduction* to potential readers, and how readers initially encountered the printed text. The title of the first edition is set off in all capital letters: "INTRODVCTORIVM ALCHABITII ARABICI AD SCIENTIAM IVDICIALEM ASTRONOMIAE."[476] This title contains the much less frequent neuter form of *Introduction*, which in most manuscripts appeared as *Introductorius*. The title explicitly mentions that the text is from an Arabic source, that is "Alcabitius, the Arab." As "Arab" does not appear in any of the manuscript titles, the printer clearly wanted to advertise this fact to his readers, which indicates the desirability of Arabic science. Lastly, this title uses *scientiam* rather than the much more common literal translation from the Arabic *magisterium*. The titles of Ratdolt's editions of 1482 and 1485 diverge from this model, selecting instead the term *ysagogicus*, with the lengthy title: "Libellus ysagogicus abdilazi .i. servi gloriosi Dei qui dicitur alchabitius ad magisterium iudiciorum astrorum: interpretatus a johanne hispalensi incipit." This title, which appears in all capital letters in the 1485 version, closely models a version of the title found in a few manuscripts. As with manuscripts, the use of *ysagogicus* is signficant in identifying the text with the genre of elementary treatises associated with university

[476] "The Introduction to the Judicial Science of Astrology of the Arabic Alcabitius."

study. However, although Alcabitius was known primarily by his last name, the title first mentions his first name, Abdilazi (ʿAbd al-ʿAzīz).

This title was preserved in many subsequent editions on the first full page of text. The de Gregoriis brothers introduced a title page in their 1502 edition with the much simplified *Alcabitius cum comento, cum gratia et privilegio*, with a woodcut of the celestial sphere encircled by the zodiac. This simplified version was preserved in an additional print run of the same text in 1503, and then Melchior Sessa adopted it in his new printing of 1512: *Alcabitius cum commento, Noviter impresso*. The back-to-back printings of 1502-3 indicate that *Alcabitius cum comento* was quite a popular text. With the famous astrologer's name prominently displayed on the title page, printers capitalized on the demand for Arabic astrology. Other editions followed suit, including the 1508 Frankfurt edition (*Introductorium in astrologiam Alchabicii*), the 1520 Lyon edition,[477] and the 1521 edition of Simon de Colines (ALCABITII AD MAGISTERVM *iudiciorum astrorum Isagoge: Commentario Ioannis Saxonij declarata*). The 1521 Liechtenstein edition diverged from this tradition by adding a separate title page with a lengthy title where the name of Alcabitius is slightly less prominent.[478]

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[477] There is a separate title page with the title: "*Alkabitius Astronomie iudiciarie principia tractans"* (in red ink) followed by "*cum Ioannis Saxonii commentario ordine textus nupperrime distincto. Additis annotationibus et in margine et in textu atque glossa per magistrum Petrum Turrellum Astrophilum divionensis gymnasii rectorem: cum tractatulo de cognoscendis infirmitatibus apprime Medicis necssario e multis authoribus per eundem extracto, sine quo revera sepius quam nauta sine remo medicus hebet omnis: quo habito urinam videre non opus est".*

[478] The title is: *Preclarum summi in astrorum scientia principis Alchabitii Opus ad scrutanda stellarum Magisteria isagogicum pristino candori nuperrime restitutum ab Excellentissimo Doctore Antonio de Fantis Tarvisino, qui notabilem eiusdem Auctoris libellum de Planetarum*

The printed text transformed the layout of the text on the page, reflecting several contemporary conventions that were common to other printed books. Whereas manuscripts often included an indication of a new section of text through a single capital letter, printing provided a variety of options for organizing the text into different sections. The very first edition (1473) separated sections with headings in majuscule set out from the text above and below. Initials at the beginnings of sections were left blank for rubrication by hand. New paragraphs began on the following line with an indentation. The text is laid out on the page in a single column, a practice preserved in all subsequent editions. The printers of the other editions also appear to have put some effort into the text's organization, introducing divisions of chapters into sections labeled with headings and subheadings, the latter of which are delineated in some editions by a majuscule half-uncial initial. As a result of these changes, printed pages had less space on the page for writing annotations. While printed books still received marginal annotations from readers, as noted in chapter 3, for the most part these annotations were limited to labeling and short explanations and definitions, rather than the longer discussions of doctrine which appeared more frequently in the fifteenth century.

The printed version of the *Introduction* solidified the information contained in astrological tables through the use of woodcuts. There are several tables of values in the *Introduction*, including a table on the houses, exaltations, joys, triplicities, and tables of the Egyptian terms, the decans, masculine and feminine signs, the

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Coniunctionibus nusquam antea impressum addidit et pleraque scitu dignissima cum castigatissimo Ioannis de Saxonia Commentario.

shady/empty/light signs, and the wells, the degrees of azemena, and the degrees of increasing fortune. Ratdolt introduced printed astrological signs and planetary symbols in his 1482 edition, and had woodcuts created of these tables containing the signs and symbols. The signs and symbols also appear occasionally in the text itself. It is not initially apparent whether the signs and symbols within the text were set with the type, or if they were individually added after printing the page. Ratdolt had the tables constructed for the 1482 edition, and they appear in all subsequent editions. In addition to his famous woodcut decorated initials, Ratdolt also added two other woodcuts to the first and last pages of the edition. The first page had a horoscope chart with the houses labeled in gothic script, and the last page had a visual representation of planetary aspects. In the 1485 edition, Ratdolt moved these woodcuts to more appropriate places in the text: the first, which he called *Figura celi generalis* to the section on houses, and the second, the *Figura aspectuum,* to the section on planetary aspects. He also added a sphere encircled by the zodiac to the page opposite the first page of text. These three visual diagrams became standard images and copies of them appeared in almost all subsequent editions of the text. The 1521 Liechtenstein edition, however, includes a new woodcut on the final page of the book, which is missing from the 1521 Sessa and de Ravanis edition.

Textual Emendations & Stability

The first edition of the text, printed in 1473 by Johannes Wurster, was edited by Matheus Moretus, a doctor of the arts and medicine at Bologna.[479] Ratdolt apparently edited his own text in 1482, and in 1485 enlisted the help of Bartholomeus de Alten de Nursia, a doctor of arts and medicine. In 1508, a professor of mathematics at the newly founded university at Frankfurt, Ambrosius Lacher, left his mark on the title page of the *Introduction*, which was printed by Konrad Baumgarten. Antonio de Fantis was a professor at the University of Padua, where he taught philosophy in the Faculty of Arts.[480] The continued oversight of the printing of these texts by university-trained scholars illustrates the relationship between the *Introduction* and its teaching at universities.

Although it appears that the same text was used for several different editions, editors and printers continued to evaluate and reevaluate the spelling of transliterated terms. As with the incorporations of tables and woodcuts, it took several editions before the spelling of terms stabilized. For example, consider the following list of variants of transliterated terms in the printed editions:

1473: almugea, alcobol, almenez, alcorad, alfaziz, hyleg, alcocoden, —

1482: almugea, alcobol, almureb, altuar, alfaut, hyles, alcochoden, alazari

1485: almugea, alcobol, almenez, alichorad, alfaziz, hylech, alcochoden, atazir

[479] The colophon of this edition reads: "EMENDATVM. PER. EXIMIVM. ARTIVM. ET. MEDICINAE. DOCTOR. MATHEVM. MORETVM. DE. BRIXIA. BONONIAE. LEGENTEM. ANNO. DOMINI. MCCCCLXXIII. FINIS."

[480] According to the dedication in his edition, he was a "doctor artium et doctor medicine." See Scarabel, "Édition Critique," 10.

1491: almugea, alcobol, almenem, alichorad, alfazim, hylech, alcochoden, atazir

1520: almugea, alcobol, almenem, alchorad, alfazim, hylech, alcochoden, atazir

1521:[481] almugea, alcobol, almenem, alichorad, alfazim, hylech, alcochoden, atazir

A few of the terms were immediately standardized (*almugea* and *alcobol*), whereas it took a few more printings for the important terms from the fourth chapter *hylech*, *alcochoden*, and *atazir* to achieve stability. The editor of the 1473 edition chose to use "directio" for *atazir*, whereas the other printed books included "id est directio" following the term. The transliterated terms for the conditions of the planets (*almenem*, *alichorad*, and *alfazim*) which are less important and appear less frequently in the text, illustrated the most variation. It should also be noted that the spellings were employed consistently throughout each single edition, illustrating that editors paid attention to the consistent spelling of technical transliterated terms. The retention of the transliterated terms in print indicates the resistance of Arabic terminology to humanist interventions. It was not until Naibod's 1560 edition that attempts were made to replace Arabic transliterations with either Greek terms or Latin transliterations of Greek terms.[482]

The text of the printed editions, apart from variations in transliterated terms, abbreviations, and a few differences in spelling, remained mostly stable until 1521. That year, Antonio de Fantis apparently used another Latin manuscript from a different line than the one used by previous editors to revise the text, and the text was printed twice in Venice: once by Peter Liechtenstein, and then by Sessa and De Ravanis.

[481] This is the 1521 Paris edition.

[482] This point was discussed in chapter 4.

Angelo Scarabel remarks that the De Fantis editions reveal differences in spelling, word choice and phrasing, along with occasional omissions of text and different typographical errors.[483] Scarabel has attributed this revision to the context of scholarly interest in hermeticism.[484] The emendations to this edition are much more subtle than the restructuring of the text and addition of printed marginalia in the 1520 Lyon edition.

Paratexts

Aspects of the manuscript tradition were incorporated into the paratexts of printed books, but in different formats. Ratdolt, for example, printed John of Saxony's commentary immediately following his 1485 edition, and all subsequent editions included this important companion to the *Introduction*. Rather than tacking John of Saxony's commentary onto the end of the text of the *Introduction*, the 1520 Lyon edition has added each section of John's commentary to the appropriate points in the text.[485] Each section of text is labeled *Textus* following the heading, and each section of commentary has a heading which begins *Glossa super textu* and the first part of the section heading or phrase in the main text.[486] This change may reflect contemporary reading or lecturing practices. One reader of the 1512 edition of the *Introduction*, for

[483] Angelo Scarabel, "Une 'Édition Critique' Latine du mudẖal D'Al-Qabīṣī à Venise à la Veille de la Renaissance," in *Quaderni di Studi Arabi*, Vol. 14 (1996): 15-16.

[484] Scarabel, "Édition Critique," 9.

[485] Burnett has noted that the text of John's commentary comes from a different family of manuscripts from the text in the other printed editions. See Burnett, "Al-Qabīṣī's Introduction," 58, n. 76.

[486] For example, a section heading reads: "*De signis mobilibus fixis et communibus*. *Textus*." The commentary section heading then reads: "*Glossa super textu De signis mobilibus*." See Lyon 1520 edition, fol. 11v.

example, has created a labeling system, marking sections of the commentary with numbers and letters associated with those particular sections of text.[487] Furthermore, the 1520 edition contains an additional commentary by Pierre Turrel, a principle of the College of Dijon and practicing astrologer.[488] Turrel's commentary is incorporated into the text and labeled with the phrase *additio*. The 1520 edition also includes printed marginalia and manicules which highlight various passages.

The printed marginalia, manicules, and commentary by Turrel all distinguish the 1520 edition from the others, as well as the addition of a short medical treatise on illnesses following the *Introduction*.[489] The printed marginalia and the printed manicules are primarily signposts. The printed marginal notes label signs and houses, and occasionally repeat manuscript glosses. In the margin next to John's commentary, for example, the printed marginal note says: "Hylech is the indicator of life."[490] There are occasional examples, such as the marginal note accompanying a discussion in John's commentary about conjunctions in the years of the world: "This year, 1520, is in the triplicity of water."[491] Interestingly, the effect of the printed manicules and marginalia give the newly printed book the impression of a well-read manuscript. In this case, the editor served as a surrogate former-readers who would have left his hand-written annotations in the text.

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[487] Alcabitius, *Introduction to Astrology* (Venice: 1512), University of Oklahoma Libraries.

[488] On Turrel, see Thorndike, *HMES* V: 307-312.

[489] *Tractatulus infirmitatum a multis authoribus per magistrum petrum turrellum astrophilum gymnasij diuionensis rectorem decerptus* begins on fol. 77r.

[490] Alcabitius, 1520 edition, fol. 61r: "Hylech significator vite."

[491] Alcabitius, 1520 edition, fol. 61v: "Hunc anno. 1520. est in triplicitate aquea."

Turrel's commentary appears somewhat infrequently in both the *Introduction* and John of Saxony's commentary. Labeled *additio* and appearing either in the margins or the main text, the comments are only a sentence or two in length and usually appear at the ends of the relevant sections. The comments are informative, providing additional information or citing relevant passages from other astrological authors. Turrel also situates astrology within the context of natural philosophy with a reference to Aristotle.[492] In *differentia secunda*, where Alcabitius discusses the natures of the planets, Turrel has added for each planet a few sentences describing specific medical conditions related to each one. For example, he wrote: "Saturn also indicates black bile in the bladder with the sharing of severe phlegm."[493] For Mercury, he added: "Mercury has mental disturbances, melancholy, epilepsy, hurrying, coughing, and abundance of spit."[494] On the last page, Turrel cites Messahala on the indications of the planets for the revolution of the year: "Messahala says that if the superior planets, that is Saturn and Jupiter, are in the fertile signs in the revolution of the year, that is the terrestrial and aqueous, they indicate fertility. In signs that are sterile, that is the airy and igneous, they indicate sterility. And if one is like this, the other not, they indicate mediocrity. And this we have learned by experience."[495] Sometimes his comments are prescriptive.

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[492] Alcabitius, *Introduction* (Lyons, 1520), f. 6r: "confectus est numerus duodecimus. Nam ter quattuor aut quater tria duodecim faciunt: qui numerus est duodecim signorum zodiaci que omnium viventium esse et vitam in hec inferiora influunt, ut scribit Philosophus in libro primo de generatione et corruptione."

[493] 1520 edition, fol. 37v: "Item Saturnus significat vesicam melancoliam cum partcipatione flegmatis acris."

[494] 1520 edition, fol. 42v: "Mercurius habet mentis perturbationem, melancholiam, epilentiam, precipitationem, tussim, et sputi habundantiam."

[495] 1520 edition, fol. 76v: "Dicit Messahala que superiores planete scilicet Saturnus et Iupiter in revolutione anni, si fuerint in signis fertilibus scilicet terreis vel aqueis significant fertilitatem.

Turrel provided advice on astrological practice in a comment on a description of the seventh place, directly addressing the reader: "you should delay your judgment on the lord of the seventh were it a detriment or a misfortune."[496] Turrel adds a table for the degrees of the *algerbughtar* after the section discussing its calculation in *differentia quarta*.

The 1521 Liechtenstein edition is the first copy of the *Introduction* to contain a table of contents. The table appears on the first two folios and is labeled: *Index eorum que in hoc volumine continentur*. The subjects are listed in order of appearance in the text, with a column for the chapter and a column for the folio number. The section headings and divisions follow those of the previous editions, which are for the most part reflections of the manuscript tradition. The inclusion of this feature in 1521 to the *Introduction* may imply that its use (or potential for use) as a reference manual was exploited by printers.

There is one dedication which serves also as a brief introduction to the *Introduction*, and reflects some of the themes from the Luccan preface and Borotin's introduction. Antonio de Fantis dedicated his edition of the *Introduction* to Giovanni Maria da Varano, the Duke of Camerino from 1515 to 1524. In his dedication, he refers to common Ptolemaic justification for the importance of studying astrology, which is to avoid ill effects. Furthermore, he praises Alcabitius as "most skilled of the

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In signis vero sterilibus scilicet aereis vel igneis significant sterilitatem. Et si alter sit sic et alter non significant mediocritatem. Et hec experientia cognovimus."

[496] 1520 edition, fol. 31r: "Tu debes differre iudicium tuum in dominus septime fuerit impeditus sive infortunatus."

astronomers."[497] De Fantis acknowledges that there are errors in previous editions of the text and states his desire to correct them. It is somewhat ironic that one of the final times the text was printed was also when an editor acknowledged that the text needed correcting. On the other hand, de Fantis's desire is to correct a corrupt and erroneous text, rather than to correct Arabic astrology more generally as Naibod sought to do. The two editions certainly reflect how humanist authors responded to the Arabic translations. On the one hand, there was the mere desire to render the Latin more pleasing to humanist style. On the other, some humanist authors sought to rid themselves of Arabic texts altogether. However, as Dag Nikolaus Hasse has shown, this tension persisted throughout the sixteenth century, and different Arabic authors achieved more or less popularity at different times and in different contexts.

Printing Arabic Astrology

The printing of the *Introduction* occurred within a much larger phenomenon of the printing of astrological literature in the late fifteenth and sixteenth centuries.[498] This literature included annual astrological prognostications, almanacs, ephemerides and lunar tables. Despite the popularity of printed astrological predictions and almanacs, many of them are no longer extant due to the ephemeral nature of single-sheet prints or flimsy pamphlets and booklets printed on cheap paper and unbound. Prognostications often dealt with political, religious, and especially meteorological phenomena, but

[497] 1521 Liechtenstein edition, fol. 2v: "peritissimus Alchabitius astronomorum."

[498] See William Eamon, "Astrology and Society," in *A Companion to Astrology in the Renaissance*, ed. Brendan Dooley (Leiden: Brill 2014); Robert Westman, *The Copernican Question: Prognostication, Skepticism, and the Celestial Order* (Chicago: University of Chicago Press, 2011).

often did so in an intentionally alarming manner. Almanacs included a variety of information: a calendar with feast days, chronologies of world history, yearly astronomical events (such as eclipses), astrological predictions for the weather, health and diseases, agriculture, and political and religious events. Annual prognostications, almanacs, and tables were the material by-products of astrological practice, whereas printed texts such as the *Introduction* provided the theoretical background for these practices. While the former were widely distributed at all levels of society, the latter had a narrower and more select readership. That being said, astrological prediction had staked out a large share of print culture. Against the backdrop of this practical prognostic literature, it is possible there was more awareness of and demand for textbooks like the *Introduction* outside of universities.

This demand was met by the enterprising printers and editors who reshaped the manuscript trappings of the *Introduction* into a printed book for a broad readership. The transformations of the text of the *Introduction* are indicative of some of the trends in the printing of Arabic astrological texts. Dag Nikolaus Hasse has documented the impact of the printing of Latin translations of Arabic philosophical, medical, and astrological texts on Renaissance intellectual culture, and has found that Arabic astrological texts constitute a significant portion of these editions.[499] Of the forty-four Arabic authors printed before 1700, eleven wrote astrological treatises: Albohali, Albubater, Albumasar, Alcabitius, Alkindi, Haly filius Abenragel, Haly Rodoan, pseudo-Almansor, Messahalah, Omar Tiberiadis, and Zahel. Hasse has tabulated 660

[499] Dag Nikolaus Hasse, *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance* (Cambridge: Harvard University Press, 2016).

editions of Latin translations of Arabic texts printed, with philosophical and medical texts gaining the highest numbers.[500] There are eighty editions of Latin translations of Arabic astrological texts, thirteen of which contain the *Introduction*.

There are several conclusions we may draw, not only about the fact that the *Introduction* was printed at all, which in itself reveals much about the authority of the Arabic astrological tradition, but also about how the text was printed.[501] There were several aspects of the manuscript tradition that carried over into the printed version: transliterated terms (which eventually stabilized), textual structure, thematic elements in paratexts (such as introductions and prefaces), and textual companionship. The comments of Pierre Turrel in the 1520 Lyon edition, as well as Valentin Naibod's 1560 commentary, represent both new formats of interpretation (via printing) and new interpretations. The 1520 Lyon edition also reveals the textual interventions and emendations of Antonio de Fantis. Ratdolt, as well, augmented the text by his addition of woodcuts and the formatting of the text into smaller subheadings. The title of the *Introduction* changed to emphasize the text's authenticity of Arabic authorship. Taken together, the printing of the *Introduction* resulted in novel patterns of the dissemination of Arabic astrology to Latin readers.

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[500] For reference, Averroes and Avicenna were printed most, at 114 and 78 editions, respectively, followed by the medical writings of Mesue (72 editions) and Rhazes (67 editions). In *Success and Suppression*, Hasse includes a convenient table which lists authors and the numbers of editions printed under their names (8). There is also an Appendix with lists of all the editions of Latin translations of Arabic texts printed before 1700 (317-407).

[501] This discussion overlaps somewhat with the points elaborated in Hasse, *Success and Suppression*, 13: "the medieval manuscript transmission is continued in print; the medieval commentary tradition does not stop but assumes new formats in the Renaissance; well-known editors care for the publication of the texts; scholars associated with Italian, French, and German schools and universities contribute to the printing history; several attempts are made to improve the text, also with methods typical of the humanist movement."

Conclusion

Often taken for granted in intellectual history, the physical identities of manuscripts and books greatly enhance our understanding of reading practices and the role of texts within learned culture. In looking at variations across manuscripts and the clues that each individual manuscript contains, we begin to understand how deeply Arabic astrology penetrated into Latin intellectual culture. While we did not consider the actual practice of astrology, the manuscripts illustrate both a rich tradition of the study of astrology at universities, and the continued practice of astrology as astrologers or physicians. Furthermore, Arabic texts such as the *Introduction* dominated this tradition into the early sixteenth century, and were considered essential parts of an astrological tradition with classical roots. The printing of the *Introduction* reflects these values, although it also signaled the beginning of the end of Alcabitius's popularity.

While scholars of the history of the book have devoted much effort to understanding the impact of printing in general, there are few studies which examine the transformations in forms and materialities of individual texts, and the impact of these changes on readership. In the case of the *Introduction*, we have seen that printing introduced several signficant changes to the text, including the stabilization of technical terms and structure and the inclusion of visual aids. The printing of the text also had another significant effect on the text. Although there a few examples of the printed version of the *Introduction* bound to Sacrobosco's *Sphaera*, Peurbach's *Theorica*, or other astronomical or astrological texts, the rich textual companionship that it received as a manuscript virtually disappeared in printed format. Did the *corpus astrologicum* cease to exist? Although several other Arabic astrological texts were

printed, none of them were printed as often as Alcabitius's *Introduction*. Also, although printed texts were frequently bound together, the companionship that reflects the *corpus astrologicum* of the manuscript tradition is difficult to establish. There is at least some evidence that *Sphaera* and *Theorica* were frequently bound together, and while there are a few examples of the *Introduction* joining them as a companion, there is not enough evidence to claim that this grouping of the printed versions of these texts was widespread. This immediately raises the question of how the teaching of Arabic astrology at univerities shifted in the sixteenth century. At first one might point to the decline in the teaching of astrology in general at universities, which some scholars place in the sixteenth century. And yet, astrology was still widely practiced and very much flourishing throughout the sixteenth century. Indeed, there are hundreds of examples of printed prognostications.[502] The ultimate fate of Alcabitius and Arabic astrology more generally warrants further study.

[502] An overview of printing and prognostication can be found in Jonathan Green, *Printing and Prophecy: Prognostication and Media Change 1450-1550* (Ann Arbor: University of Michigan Press, 2012). There is also a valuable appendix which lists printed "practica." Green does not discuss astrological textbooks.

Conclusion

In Dag Hasse's recent work *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance*, he argues that Renaissance scholars continued to treat Arabic authors as authorities on various subjects, and that their printing histories and interest in Arabic authors can be well-documented.[503] This is true despite the fact that there were many vitriolic critiques of the Arabic tradition, from such learned humanist scholars as Leonard Fuchs and Girolamo Cardano. His title reflects this tension—Arabic learning continued its medieval successes, but also suffered from bitter critiques. In the preceding centuries—that is the twelfth through the mid-fifteenth—these critiques simply did not exist. Or if they did, they were directed at the religion of Islam or Muslims in general, but not to Arabic learning. While there were some critiques of astrology in the medieval period prior to the fifteenth century, notably from Nicole Oresme, these were directed at its fundamental tenets, and not at its Arabic origins. Astrology retained its Arabic character from the translations until well into the sixteenth century.

While I do not wish to suggest in an essentialist way that astrology in the Latin West was Arabic, implying that the text was merely appropriated by Latin readers fails to capture the extent to which Alcabitius's *Introduction* continued, over centuries of use, to maintain its Arabic elements. This attitude in turn obfuscates the ways in which Latin readers themselves engaged in a process of "aspecting." In his important article on the dangers of following an essentialist narrative of Arabic science, A.I. Sabra

[503] Dag Nikolaus Hasse, *Success and Suppression: Arabic Sciences and Philosophy in the Renaissance* (Cambridge: Harvard University Press, 2016).

introduces the concept of aspecting to describe "the way in which individuals in a given culture *aspect* another culture as they direct their gaze to the other from their own location."[504] He goes on to explain:

> Aspecting in this sense is conditioned both by the interests, aspirations, and aptitudes of the aspecting individuals and by the accessible aspects of the viewed culture, that is to say, the aspects that happen to be disclosed to them by the accidents of history or by their further, determined effort.[505]

In this way, the Latin readers (as individuals) were certainly influenced by their own values, interests, and needs, but they were also subject to the Arabic cultural elements accessible to them in the texts they encountered.

Medieval Latin scholars thus found a way to reconcile their appropriation of Arabic learning with the fact that the texts came from the Islamic world. Arabic texts retained their authority despite polemical writings and attitudes against Islam. As demonstrated in the second chapter, this was often done through the subtle use of language: *secta saracenorum* referred to the Muslim faith, *arabus* to Arabic authors or ideas. Contemporary scholarship reflects this medieval divide: historical works that consider Western perceptions of Islam often do not consider the authoritative position of Arabic learning or its influence on the development of medieval science and philosophy. Rather, scholarship in the past century was preoccupied with medieval ideas about the Muslim faith and religious practices.[506] These works generally treat

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[504] A.I. Sabra, "Situating Arabic Science: Locality versus Essence," *Isis* 8/4 (1996): 658.

[505] Sabra, "Situating Arabic Science," 658.

[506] The classic work is Norman Daniel, *Islam and the West: the Making of an Image* (Oxford: Oneworld, 1960). See also Richard Southern, *Western Views of Islam in the Middle Ages* (Cambridge: Harvard University Press, 1962). More recent examples are Suzanne Conklin-Akbari, *Idols in the East: European Representations of Islam and the Orient*, 1100-1450

Islam as a monolithic culture, which was subjected to the imagination of European Christianity (equally as monolithic). In considering the image of Islam constructed by Europeans, almost none of these scholars fully engaged with the enormous and lasting influence that Arabic science, philosophy, and medicine had on the minds of medieval Latin scholars.[507] Seen in this light, the Arabic character of medieval astrological texts should be part of a broader conversation about medieval Western perceptions of Islam.

To conclude, this dissertation has examined the text of Alcabitius's *Introduction*, but one could engage in a similar study for any of the other popular Arabic authors—Abū Maʿshar (Albumasar), Sahl ibn Bishr (Zael), Māshāʾallāh (Messehalla), and ʿAli ibn Rijāl (Haly Abenragel)—each of whom, we are reminded, composed texts of which over one hundred manuscripts are still extant. We have barely scratched the surface of the deep and lasting influence of Arabic science in Europe.

(Ithaca: Cornell University Press, 2009) and John Tolan, *Saracens: Islam in the Medieval European Imagination* (New York: Columbia University Press, 2002).

[507] A cogent and nuanced account of the complex social, cultural, and intellectual relationships between Jews, Christians, and Muslims in twelfth-century Spain is John Tolan, *Petrus Alfonsi and his Medieval Readers* (Gainesville: University Press of Florida, 1993).

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