

Chapter 1

The Fresco Scheme Itself via the People who Brought It into Manifestation and its Layout and Design

This chapter introduces the three people whose input shaped the Salone scheme — Fra Giovanni degli Eremitani—the architect; Pietro d’Abano—the astrological advisor; and Giotto di Bondone—the painter. Various scholars, unable to make sense of the pattern of the images, have suggested that the scheme has been altered during restoration after damage. This thesis suggests that what is seen on the walls has meaning and intention in its own right without alteration and that meaning and intention can be traced back to its originators c.1309 via the design of the scheme, its layout in terms of the astrological year, the pattern of Labour of the Month–zodiac sign–planet–saint within each section of the scheme, and finally ascertaining where physically in the Salone the scheme begins.

The three people whose input shaped the Salone scheme

Fra Giovanni degli Eremitani — the Architect

Fra Giovanni, cited in the Introduction, served as an engineer/architect/ town planner, builder of fortifications and roads, bridges, and hydraulic reclamation for the order of the Eremitani (St Augustine). Although he was acknowledged as one of the major innovators of architectural culture and urban planning in Padua at the turn of the thirteenth century, and highly praised by his contemporaries in the mendicant orders as a monk with an exceptional wealth of technical knowledge, little is known of his background.

The first identified document related to Fra Giovanni cited him as a witness to the reading of a will in Padua in 1289, in which he was described as a distinguished engineer.¹ In 1295, the town statutes of Padua, the *Codice statuario dei Notai*, stated that Fra Giovanni and fellow engineer Leonardo Bocaleca were entrusted with building fortifications at Pizzone, in the southeast of the province of Padua, and a defense tower

¹ Michela Becchis, ‘Giovanni degli Eremitani (Giovanni da Padova)’, in *Dizionario Biografico degli Italiani (Biographical Dictionary of Italian People)*, ed. Giovanni Treccani, 77 vols. Vol. 56 (Istituto dell’Enciclopedia italiana [The Institute of the Italian Encyclopedia], 2001).

and a bridge at Castelbaldo, in the southwest of the province of Padua, bordered by the province of Verona, to prevent incursions by the Este and Scala families, both of whom feared the growing supremacy of Padua.² In 1301, according to eyewitness Giovanni da Nono, Fra Giovanni constructed a covered grain market, the Fondaco delle Biade, close to the Piazza dell'Erbe and the Palazzo della Ragione in Padua.³ The Fondaco delle Biade was demolished in 1901.⁴ In 1307, working with the engineer Benvenuto della Cella of the Order of Friars Minor (Franciscans) as superintendent of works,⁵ Fra Giovanni began work on the roof and the two-storied exterior galleries of the Palazzo della Ragione of Padua. The uniqueness of the shape of the whaleback wooden barrel vault ceiling in Italian civil architecture has provoked historiographical controversy as to where the idea originated; a clear answer remains elusive. All that can be stated with certainty is that this roof shape appears to be the oldest example of a roof of its kind in Italy and that it was created through the genius of a well-travelled man inspired by what he had seen in faraway lands.⁶ When the 1420 fire destroyed the roof, Guglielmo Ongarello's 1441 chronicle noted that the keel arch ceiling was rebuilt in its original form.⁷ Therefore, not only were the images being reproduced, as discussed in the Introduction, but also the architecture of the roof.⁸

In 1310 the *podestà* of Padua gave Fra Giovanni the ambitious project of renovating the Prato della Valle, a waterlogged area southwest of the city of Padua. Between 1310 and 1314 he worked on many hydraulic works in Padua and in Treviso where, with the

² Giovanna Valenzano, 'Giovanni degli Eremitani, un 'enzegnere' tra mito e realtà', in *Medioevo: immagine e racconto, Atti del Convegno internazionale di studi Parma, 27-30 Settembre 2000*, ed. Arturo Carlo Quintavalle (Parma: Electa, 2000), 413-423, p.419.

³ Giovanni da Nono, 'Visio Egidij Regis Patavie', *Bollettino del Museo Civico di Padova* N.S. X-XI [XXVII - XXVIII] and XIII-XVII(1934-39), 1-20, p.13.

⁴ Tim Benton, 'The Three Cities Compared: urbanism', in *Siena, Florence and Padua: Art, Society and Religion 1280-1400, Volume 2: Case Studies*, ed. Diana Norman. Vol. II - Case Studies (New Haven and London: Yale University Press in association with the Open University, 1995), 7-28, p.20. See also Giovanni Fabris, *Cronache e Cronisti Padovani* (Cittadella: Rebellato Editore, 1977), pp.86,93,94.

⁵ Louise Bourdua, 'Aspects of Franciscan Patronage of the Arts in the Veneto during the Later Middle Ages.' Unpublished PhD dissertation, University of Warwick, 1991. pp.16 and 47 footnote 28.

⁶ Herbert Dellwing, 'Zur Wölbung des Paduaner "Salone"', *Mitteilungen des Kunsthistorischen Institutes in Florenz* 14, no. 2 (1969), 145-160, p.152. My thanks to Amy Kilby for translating this article from German to English.

⁷ Guglielmo Ongarello, *Chronica di Padova*, 1441, Bibiloteca Civica di Padova, segnato BP, 396. Cited in Dellwing, 'Zur Wölbung des Paduaner "Salone"', footnote 7, p.146.

⁸ Ettore Vio, ed. *Il Palazzo della Ragione di Padova, La storia, l'architettura, il restauro*. Padova: Signum Padova Editrice, 2008, p.75. No archival information survived after the fire of 2 February 1420 regarding the rebuilding of the Palazzo della Ragione of the city of Padua and the shops of the town, except the vague criterion of 'how it was before' established by the Venetian Senate in their consideration of 6 February, 1420.

excavations at Brentelle, he created a line of defense for the town in its fight against the Vicentini. For over thirty years Fra Giovanni degli Eremitani made his mark on engineering projects in the Paduan area. The fact that his name no longer appeared in any documentation after 1318 suggests he may have died about this time.⁹

Pietro d'Abano — the Astrological Advisor

Pietro d'Abano, cited in the Introduction, or Peter of Padua as he was also known, was one of the most influential men of learning during the last years of the thirteenth and the early years of the fourteenth century, writing on medicine, philosophy, and astrology. His career incorporated teaching positions at the *studium generale* of Paris and later at Padua University. Nancy Siraisi regarded this as 'a link between the dialectical and philosophical achievement of Paris in the thirteenth century and the burgeoning scientific interests of fourteenth-century Padua'.¹⁰ Antonio Favaro named d'Abano as the first professor definitely known to have taught astrology at Padua.¹¹ In his will d'Abano described himself as 'artis medicine philosophie et astrologie professor'.¹² D'Abano's reputation as a respected authority on medicine and natural science extended well beyond Padua and continued in Europe for some three hundred years.¹³ Michele Savonarola declared he was regarded as a second Aristotle and called 'the great Lombard'.¹⁴ Three of d'Abano's books, all dated to 1310, *The Conciliator* (*Conciliator differentiarum quae inter philosophos et medicos versantur*), *The Lucidator* (*Lucidator dubitabilium astronomie*), and *Tractatus de motu octave sphere*, contained his astrological writings. Many of these works are extant, yet only a few parts of them have been translated into English. Federici Vescovini, drawing on the work of Bruno Nardi, concluded that d'Abano should be recognized as an advocate of 'the independence of secular medical,

⁹ Becchis, 'Giovanni degli Eremitani (Giovanni da Padova)'.

¹⁰ Nancy Siraisi, 'The Expositio Problematum Aristotelis of Peter of Abano', *Isis* 61, no. 3 (1970), 321-339, p.322.

¹¹ Antonio Favaro, *Le matematiche nella Studio di Padova dal principio del secolo 14 alla fine del 16* (Padova: Tipografia, G.B. Randi, 1880), p.8.

¹² 'Master professor of medicine, philosophy and astrology'. The will is printed in *Atti della R. Accademia dei Lincei*, Series 3, *Memorie delle Classi di Scienze Morali, Storiche, Filologiche*, Vol. 11 (1877-1878): 548-550 and cited in Favaro, *I lettori di matematiche*, p.7.

¹³ Siraisi, 'The Expositio Problematum Aristotelis of Peter of Abano', p.322.

¹⁴ Lynn Thorndike, *A History of Magic and Experimental Sciences. Vols 1-8* (New York and London: Columbia University Press, 1923-1958), p.877.

philosophical, and astronomical thinking from theological interference'¹⁵ and argued that d'Abano combined 'Aristotelian philosophy and other doctrinal, medical and astronomical traditions' derived from Byzantine and Islamic scholars, 'separated it [astrology] from demonic magic, and reinstated it between astronomy and mathematics whence certain philosophers and theologians had removed it'.¹⁶ It was in 1293, whilst d'Abano was teaching at the University of Paris, that he collected and translated into Latin a number of works by the Jewish-Spanish astrologer and polymath Abraham Ibn Ezra, cited in the Introduction.

Giotto di Bondone — the Painter

Documents and sources described Giotto di Bondone as enthusiastic and diligent in his desire to build a career, a widely-travelled young man whose sound business skills allowed him to participate in artistic projects all over Italy.¹⁷ By c.1313 he was noticed by chronicler Riccobaldo Ferrarese (c.1246-died after 1314):

Çottus pictor eximius florentin(us) agnoscitur. q̄l' in arte fūit, testāt(ur) opa. fā
peuz (per eum) in eccl'iis mīorum assisij. arimini padue, ac pea q̄ (per ea que)
pinxit palatio coīs padue et in ecclia arene padue.¹⁸

Francesco da Barberino (1264–1348), in his *Documenti d'amore* c.1308-1312, praised Giotto's *Envy* in the Arena Chapel:

Inimica: inimicatur enim patientibus eam unde Invidiosus invidia comburitur
intus et extra hanc padue in arena optime pinsit Giottus.¹⁹

¹⁵ Graziella Federici Vescovini, 'Peter of Abano and Astrology', in *Astrology, Science and Society: Historical Essays*, ed. Patrick Curry (Suffolk: The Boydell Press, 1987), 19-39, p.38.

¹⁶ Federici Vescovini, 'Peter of Abano and Astrology', p.38.

¹⁷ Anne Derbes and Mark Sandona, eds. *The Cambridge Companion to Giotto*. Cambridge: Cambridge University Press, 2004, p.6.

¹⁸ 'Giotto is an excellent Florentine painter. The quality of his art is attested in his works in the Franciscan churches at Assisi, Rimini, Padua, and in those works that he painted in the Palace of the Commune of Padua and in the Arena church at Padua.' Latin from the Laurenziana MS. Plut. LXXXIII, 2, fol.71r of Riccobaldo Ferrarese's *Compilatio Cronologica*, cited in Peter Murray, 'Notes on Some Early Giotto Sources', *Journal of the Warburg and Courtauld Institutes* 16, no. 1 and 2 (1953), 58-80, p.59 and p.60.n.51. For dating of the manuscript, see also A. T. Hankey, 'Riccobaldo of Ferrara and Giotto: An Update', *Journal of the Warburg and Courtauld Institutes* 54(1991), 244.

In 1315, Dante (c.1265-1321) in his *Purgatorio* XI, 94-6, cited Giotto's having eclipsed the fame of Cimabue as an example of the transience of temporal fame:

Credette Cimabue ne la pittura
tener lo campo, e ora ha Giotto il grido,
sì che la fama di colui è scura²⁰

When he painted the frescoes in the Arena Chapel, Giotto was not yet 40, yet his status stood on secure foundations. As Anne Derbes and Mark Sandona noted, 'The startling freshness of his observations, the economy and empathy of his narratives, the profound dignity and humanity of his figures all set Giotto apart from his contemporaries'.²¹ Although da Nono did not mention Pietro d'Abano, Jean-Michel Massing suggested that 'it is not to be ruled out that' he was the man who advised Giotto, or his commissioner, Enrico Scrovegni, on the representation of the comet in *The Adoration of the Magi* scene in the Arena Chapel.²² Yet Olson and Pasachoff argued that d'Abano did not return to Padua from Paris until 1306 and thus could not have advised Giotto on the comet.²³ Furthermore, they suggested, given Giotto's *modus operandi* of being inspired by objects in the natural world, that he had observed Halley's comet of 1301, noted it in his sketchbook, and incorporated it when he frescoed the Arena Chapel between 1303-05, and thus became the first painter to represent the Star of Bethlehem as a comet in painting. In this way, they continued, Giotto incorporated in paint a tradition that dated back to patristic literature, associating the birth of kings with the sighting of comets and

¹⁹ 'Animosity: it suffers this, indeed, with endurance, as where the envious man is consumed with envy inside and out, this Giotto painted excellently in the Arena at Padua.' Cited in James H. Stubblebine, *Giotto: The Arena Chapel Frescoes* (London: Thames and Hudson, 1969), p.109. With thanks to Charles Burnett for finessing the translation.

²⁰ 'Cimabue believed that in painting he led the field, and now it is Giotto's turn, So the fame of the former is darkened.' <http://www.danteonline.it/english/opere.asp?idope=1&idlang=OR> - accessed 2 July 2011.

²¹ Derbes and Sandona, eds., *The Cambridge Companion to Giotto*, p.2.

²² J.M. Massing, 'Der Stern des Giotto', in *Die Kunst und das Studium der Natur vom 14. zum 16. Jahrhundert*, ed. W. Prinz and A. Beyer (Weinheim: Acta Humaniora VCH, 1987), 159-179, p.171. I am indebted to Dorian Greenbaum for her translation of Massing's paper from German into English.

²³ R.J.M. Olson and J.M. Pasachoff, 'Comets, meteors and eclipses: Art and science in early Renaissance Italy', *Meteorites & Planetary Science* 37(2002), 1563-1578, p.1564.

linking comets with the Star of Bethlehem.²⁴ Finally Olson and Pasachoff maintained that,

despite a literary tradition and contemporary trends, Giotto could not have painted his unprecedentedly vivid comet without experiencing first-hand a spectacular apparition. No written word or visual prototype can explain its revolutionary nature or approach its vivacity, not even the words of contemporary Florentine historian Giovanni Villani, who witnessed the same apparition . . . ‘*con grandi raggi di fumo dietro*’.²⁵

It is plausible, however, that when Giotto went on to be employed by the Commune to work on the cycle of paintings in the Salone, given the number of sky phenomena included in the frescoes, he would have been advised on the nature of this material and that advice would, in all likelihood, have come from Pietro d’Abano; he would also have brought his own innovative techniques and thinking to the scheme, as he did with the comet and The Star of Bethlehem.

There is another possible connection between the two men. D’Abano completed his *Expositio problematum Aristotelis* in Padua in 1310. Nancy Siraisi has identified the *Expositio* as conceivably being the principal work in this genre and of this period that sought to integrate Greek *problemata* literature with the natural scientific knowledge that was understood by medieval scholars in the West at this time.²⁶ The question d’Abano was answering in Book xxxvi, 1. §3 was ‘Why do (men) make images of the face?’ Johannes Thomann pointed out that d’Abano offered a theory of visual art as his commentary on the problem and cited Giotto, and Giotto alone, as his example, whereas an anonymous scholar of the same period approached the same problem in an entirely different way and with no reference to visual theory.²⁷ Thomann thus proposed that d’Abano’s choice of subject matter — painting — and painter — Giotto — may have implied a personal connection.

²⁴ Olson and Pasachoff, ‘Comets, meteors and eclipses’, pp.1564, 1567.

²⁵ Olson and Pasachoff, ‘Comets, meteors and eclipses’, p.1567.

²⁶ Siraisi, ‘The Expositio Problematum Aristotelis of Peter of Abano’, p.321.

²⁷ J. Thomann, ‘Pietro d’Abano on Giotto’, *Journal of the Warburg and Courtauld Institutes* 54(1991), 238-244, pp.240-241.

It was with the coming together of these three innovative minds of Giotto, d'Abano, and Fra Giovanni degli Eremitani, under the auspices of the Commune in this Golden Age of Padua, that the Salone came to fruition.

Medieval cosmology

Medieval natural philosophy of the thirteenth and fourteenth centuries was greatly shaped by Aristotle (384–322 BCE) whose influence extended from the fourth century BCE to the end of the seventeenth century CE. His emphasis on logic and reason formed the basis of the curricula of educational systems in the cathedral schools, followed by the emergence of the universities around 1200.²⁸ As Edward Grant observed, from the thirteenth to the fifteenth centuries, Aristotelian physics and cosmology ‘not only provided the mechanisms of explanation for natural phenomena but also served as a gigantic filter through which the world was viewed.’²⁹

Aristotle’s model of the solar system, outlined in his *Metaphysics*, was of an earth located in the middle a series of interconnected planetary spheres including the sphere of the fixed stars.³⁰ The primary source of motion came from the ‘Unmoved Mover’ which ‘produces motion by being loved and it moves the other moving things.’³¹ In *De Caelo*, Aristotle argued that each of the planets moving in its own sphere was animate: ‘We think of the stars as mere bodies, and as units with a serial order indeed but entirely animate; but we should rather conceive them as enjoying life and action’³² and he connected the movement of the heavens and the animated stars with life on earth: ‘This world necessarily has a certain continuity with the upper motions; consequently all power is derived from them.’³³ This movement led to changes and these changes were sympathetically reflected in the qualities of hot, cold, wet, and dry in all things. In *Categories*, Aristotle wrote of these changes as, ‘An individual man, for example, being

²⁸ Edward Grant, ‘Aristotle and Aristotelianism’, in *Science and Religion: A Historical Introduction*, ed. Gary B. Ferngren (Baltimore and London: Johns Hopkins University Press, 2002), 33-56, pp.33, 38, 42.

²⁹ Grant, ‘Aristotle and Aristotelianism’, p.42.

³⁰ Aristotle, *Metaphysics*, ed. Jonathan Barnes, trans. W.D.Ross, vol. 2, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2 (Princeton: Princeton University Press, 1984), 1074a. 6-14, p.1697.

³¹ Aristotle, *Metaphysics*, 1072b. 4-5.

³² Aristotle, *De Caelo*, ed. Jonathan Barnes, trans. J.L. Stocks, vol. 1, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2 (Princeton: Princeton University Press, 1984), 292a. 17-21.

³³ Aristotle, *Meteorology*, 339a. 20-24.

one and the same, becomes now pale and now dark, now hot and now cold, now bad and now good.’³⁴

The astrology developed by Ptolemy in his *Tetrabiblos* in the second century CE emanated from astrology that originated from fifth- and fourth-century BCE Mesopotamia. Yet in developing his rules for horoscopic interpretation, Ptolemy also saw how the Aristotelian cosmos could provide the context for the astrological process.³⁵ Ptolemy observed how ‘a certain power, derived from the aetheral nature, is diffused over and pervades the whole atmosphere.’³⁶ The energy moved down through the planetary spheres and ‘by commingling the influence with which each is separately invested, produce a multiplicity of changes.’³⁷ The regularity of the celestial world contrasted with the unpredictability of the sublunary world. The quality of the influences, however, was what was considered to be important.³⁸

D’Abano’s astrology

Along with the Arabic and Greek astrological documents being translated into Latin and flooding into the Latin West in and around the twelfth century came the basic corpus of Aristotle’s works, of which only logic and rhetoric had survived since the fall of the Roman Empire.³⁹ According to Charles Burnett, the two scholars instrumental in this formative period of Latin and Hebrew astrology were John of Seville, whose astrological translations formed the basis of the curriculum in astrology for Western Christendom,

³⁴ Aristotle, *Categories*, 4a. 17-20.

³⁵ Nicholas Campion, *The Dawn of Astrology: A Cultural History of Western Astrology*, vol. 1 - The Ancient and Classical Worlds (London: Continuum Books, 2008), pp.210-211.

³⁶ Ptolemy, *Tetrabiblos*, ed. J.M. Ashmand (Mokelumne Hill, California: Health Research, 1969), Book 1, Ch.2.

³⁷ Ptolemy, *Tetrabiblos*, Book 1, Ch.2.

³⁸ Ptolemy, *Tetrabiblos*, Book 1, Ch.2. As Ptolemy noted: ‘When, therefore, a thorough knowledge of the motions of the stars, and of the Sun and Moon, shall have been acquired, and when the situations of the place, the time, and all the configurations actually existing at that place and time, shall also be duly known; and such knowledge be yet further improved by an acquaintance with the natures of the heavenly bodies — not of what they are composed, but of the effective influences they possess; as, for instance that heat is the property of the Sun, and moisture of the Moon, [...] — when all these qualifications for prescience may be possessed by any individual, there seems no obstacle to deprive him of the insight, offered at once by nature and his own judgement, into [...] prognostication concerning the destiny and disposition of every human being.’

³⁹ Theodore Otto Wedel, *The Mediaeval Attitude toward Astrology, particularly in England* (New Haven: Yale University Press; London: Humphrey Milford, 1920), p.61.

and Abraham ibn Ezra.⁴⁰ Astrology by the thirteenth century in Europe, as Nicholas Campion observed, was an amalgamation of the philosophy of Greek astrology through translations of Ptolemy, who had already embraced Aristotle and placed his principles into astrology, along with astrological treatises by Islamic astrologers.⁴¹ With the establishment of the medieval universities astrology found its way into the curriculum via the teaching of medical astrology, that branch of astrology that dealt with the health of the body using underlying astrological principles as laid down in the major technical treatises on astrology, and remained so until the seventeenth century.⁴² These treatises included Abū Ma‘shar’s (787–886) *Liber introductorii maioris ad scientiam iudiciorum astrorum*; Al-Qabīṣī’s (Alcabitius) (d. 967) textbook on astrology, *The Introduction to Astrology*; and collections of aphorisms, such as the *Liber novum iudicum*, the Centiloquium attributed to Ptolemy, and Pseudo-Aristotle’s *Secretum secretorum*.⁴³

In the late thirteenth century the ideas of Aristotle, taught to Latin-literate university scholars of Western Europe, had a transformative effect on astrology through Thomas Aquinas (1225–1274), for Aquinas adopted Aristotle’s natural philosophy and reconciled it with Christianity. Recognising that a healthy body was essential to serving God and that medical astrology could maintain that health, he wrote that whilst astrology maintained dominion over men’s bodies, God retained dominion over the soul.⁴⁴

In returning to the Salone fresco scheme and the fire of 1420, detailed in the Introduction, then, three conditions were relevant to the repainting of the images: first, as noted previously, it was recognised that Giotto was a painter with a unique skill set; second, also noted previously, d’Abano’s theory of images was philosophically underpinned; and third, Padua was still steeped in medieval astrological cosmology. Rather than copying

⁴⁰ C. S. F. Burnett, ‘Hebrew and Latin Astrology in the Twelfth Century: the Example of the Location of Pain’, in *Stars, Spirits, Signs: Astrology 1100-1800. Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, ed. L. Kassell and R. Ralley. Vol. 41 (2010), 70–75, p.70.

⁴¹ Nicholas Campion, *A History of Western Astrology*, vol. 2 - The Medieval and Modern Worlds (London: Continuum Books, 2009), pp.43-45.

⁴² Richard Lemay, ‘The Teaching of Astronomy in Medieval Universities, Principally at Paris in the Fourteenth Century’, *Manuscripta - Science, Medicine and the University: 1200-1550 - Essays in Honor of Pearl Kibre Part II* 20, no. 3 (1976), 197-217, p.197; Wedel, *The Mediæval Attitude toward Astrology, particularly in England*, p.77.

⁴³ Hilary M. Carey, ‘Astrological Medicine and the Medieval English Folded Almanac’, *Social History of Medicine* 17, no. 3 (2004), 345-363, p.346.

⁴⁴ Thomas Aquinas, *Summa Contra Gentiles, Book Three: Providence Part II*, trans. Vernon J. Bourke (London: University of Notre Dame Press, 1975), 84.85.89.91.92. in particular 91.2.

images from an *Astrolabium Planum* written only with textual descriptions, or from a book that had yet to be printed (Engel's *Astrolabium Planum* in 1488), the Commune would still have been conversant enough with medieval astrological cosmology to be able to reconstruct the medieval world view being articulated on the Salone walls. One can suggest that this was due to the importance of the images and their meanings, which the Commune wanted to faithfully maintain, and encouraged by the directive by the Venetian Senate to restore it 'as it was before'. Therefore, although the scheme can really only be approached through what Guido Giglioni terms 'a series of interpretative refractions',⁴⁵ with the images apparently being reproduced through the different levels of restoration, although we can no longer see Giotto's brushstrokes, all the evidence suggests we are still looking at his thinking and his designs.

An approach to the pattern of the top three registers of the Salone

Design

The scheme under consideration consists of the top three registers of frescoes of the Salone (Fig.1). These are the earlier registers of frescoes, as distinct from the register visible beneath this which was painted at a later stage by Giusto de' Menabuoi (c.1320–1391) and with which I will not be dealing.

The Salone is a trapezium in shape and specifically a parallelogram where opposite sides of the figure are parallel (Fig.3 and Table 2). The scheme is located on the upper part of the walls of the room right beneath its wooden ceiling and the 319 compartments of the Salone form a painted scheme on three horizontal registers and along all four walls (Figs. 1 and 2). Each scene is created either within a square, within a Romanesque arch, within a trefoil-cusped arch or, as with some saints, within doorways with square lintels, and the background of each depiction is blue (Fig.2).

⁴⁵ Guido Giglioni, 'Nature and Demons, Girolamo Cardano Interpreter of Pietro d'Abano', in *Continuities and Disruptions between the Middle Ages and the Renaissance*, ed. Charles Burnett, José Meirinhos, and Jacqueline Hamesse, *F.I.D.E.M., Textes et études du moyen âge* (Turnhout: Brepols, 2008), 89-112, p.94.



Figure 1. The interior of the first floor Salone of the Palazzo della Ragione, Padua, Italy. The North Wall is to the viewer's left, the East Wall directly ahead and the South Wall to the viewer's right. The top three registers of the fresco scheme are indicated by the white lines showing its juncture beneath the wooden ceiling. *Photo: D. Gunzburg.*

Each column is visually articulated by fictive pilasters with Corinthian capitals, giving a three-dimensional appearance. These pilasters, painted to look like terracotta, white and green marble, mediate between the represented scenes vertically. The terracotta frieze of acanthus leaves carries horizontally across the registers but does not run underneath the signs of the zodiac, nor under the scenes that appear to represent the months (Fig.2). This trompe l'oeil effect serves both to separate one scene from another and to integrate the scheme into a decorative whole. The horizontal registers are also divided into columns so that scenes assemble one upon another. The south wall contains forty-three columns and the north wall forty-four. However, this may simply be an adjustment by the painter to fit in the required number of images. There are twenty circular windows set at irregular distances between the top and middle registers. The top register of horizontal scenes running around all four walls closest to the ceiling appears to show stars and constellations, amongst other images; the middle and lower registers show a combination of the Labours of the Months, signs of the zodiac, the seven major pagan deities, *Luna*, Mercury, Venus, *Sol*, Mars, Jupiter and Saturn, along with various disciples whose painted panels cover both the middle and lower registers.

Table 2: Dimensions of the Salone	metres
Height from the plane of the piazza to the peak of the roof	35.38
Internal Height from the floor to the impost, (the point at which the arch rests upon its support, and from which it seems to spring).	12.15
Internal Height from springer to the summit of the arch	14.93
Total internal height	27.08
Length	81.52
Breadth	27.16

The Astrological Year

Moving closer towards a detailed meaning of the images of the top three registers and still considering the broad scale, the images can now be approached in terms of the placement of the signs of the zodiac. The signs of the zodiac move clockwise (or sunwise) around the Salone according to the order of the months with which they connect (Fig.4). Common understanding is that the zodiac begins with the sign of Aries, as the sun is travelling through the tropical or seasonal sign of Aries when spring begins in the northern hemisphere, also known as the equinox point (see glossary) when day and night are of equal length.

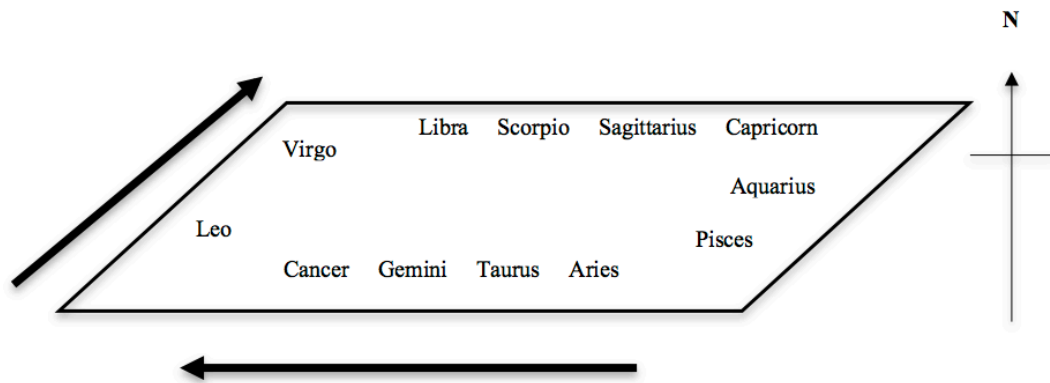


Figure 4. Clockwise placement of the zodiac signs in the Salone, Padua, Italy.

Given this understanding, if the scheme were to start with Aries, then we might expect it to start with the first column of vertical images in the southeast corner where Aries is located, as Barzon chose to do. However, there is a case to be made for considering the southwest corner as the starting point on this broader level. Where the south wall meets

the west wall contains the zodiac signs of Cancer (south wall) and Leo (east wall). My argument for this southwest point taking precedence as the starting point for the scheme is based on the orientation of the building.

The Archeoastronomy of the Monument

As noted above, the Palazzo della Ragione was built with a trapezium shape and offset to the urban architecture surrounding it. This rhomboid shape was laid down when the building was first constructed (begun 1172 and completed 1218-19). Recognising that religious architecture was often aligned with seasonal phenomena, I undertook fieldwork, in July 2010, and which is written up in Appendix 4, to investigate whether the same methodology could be applied to the Palazzo della Ragione. The research considered whether the long axis was aligned with the spring equinox, which one would expect for an exact east-west orientation. Instead I found that it was oriented to the first full moon after the spring equinox, when visually the sun and the moon were equal, both in size as well as the amount of time they were visible, as day and night were then equal. This has theological implications, which are expanded in Appendix 4; in brief, this represents a time of cosmic harmony. To have this embedded in the orientation of the building is highly suggestive of a commune that was aligning itself with a theological and cosmological system where celestial order was in unity with earthly justice, and thus comfortable with the discord of the urban plan.

If this understanding is correct, then a century later when the commune commissioned astrological imagery to be painted as a fresco scheme along the newly-heightened and hence bare walls of the Salone, another question then became apparent. Faced with four blank walls to fresco, where does Giotto start his scheme and, more importantly, why? If Giotto was aware that the building already had a theological and cosmological agenda, then one would suppose that he or his advisors would be sympathetic to this in the fresco scheme, and indeed this is exactly what is found. The summer solstice sunrise when the sun enters the zodiac sign of Cancer, points to the place on the south wall where Giotto began his images for the Cancer 'chapter' (Fig.5). At each subsequent sunrise the position of the sun would move along the horizon and therefore point to the images of the scheme moving clockwise around the southwest corner of the Salone through the hot months of Leo and Virgo.



Figure 5. Clockwise placement of the zodiac signs in the Salone, Padua, Italy. Arrow indicates where light of the sun marked by the external summer solstice sunrise might fall along the south wall if the light had been able to penetrate through the north wall. Not to scale.



Figure 6. Clockwise placement of the zodiac signs in the Salone, Padua, Italy. Arrow indicates where light of the sun marked by the external winter solstice sunset might fall along the north wall if the light had been able to penetrate through the south wall. Not to scale.

Conversely at the winter solstice when the sun enters the zodiac sign of Capricorn, the sun on the horizon at sunset points to the place on the north wall where Giotto began his images for the Capricorn 'chapter' (Fig.7). At each subsequent sunset the position of the sun would move along the horizon and therefore point to the images of the scheme moving clockwise around the northeast corner of the Salone through the cold months of Aquarius and Pisces. This alignment of the internal fresco scheme to the external solar events implies intent in the actions of Giotto and his advisors.

There is a point to be stressed here. This part of my research is not considering precise sunbeaming, such as occurs in the Arena Chapel in Padua, Italy where, on the Feast of the Annunciation (25 March), just before ten o'clock in the morning, a single ray of sun, finding its way through the tracery of the window, casts its light directly onto the fresco of the west wall and illuminates the owner and commissioning patron Enrico Scrovegni making an offering of a small painted version of the Arena Chapel to the Virgin Mary. The Palazzo della Ragione is not funnelling the sun's light through an aperture at a precise angle and at a precise time of year so that an engraving, image or icon can receive it. It is instead looking for some connection between external phenomena and internal imagery, for the internal Salone frescos to be in sympathy with the external building orientation. That this appears to be so offers a reason for why the fresco scheme has been laid out in this way.⁴⁶

It is logical to assume that those who first laid down the foundations of this great civic building were making a conscious statement. I argue this statement was the desire to align the Palazzo della Ragione with the Christian and annual calendar, thus placing the 'Palace of Reason' and earthy judgement in harmony with that moment when all things were in balance, when new life was taking place at the equinox, and when the two lights of the sun and the moon were serving equal time.

Furthermore, the internal fresco emphasising the axis oriented towards the rising sun at the summer solstice and the setting sun at the winter solstice suggests intentional orchestration by Giotto and/or his advisors, and sheds insight on the pattern and layout of

⁴⁶ The orientation appears to emphasise the seasonal markers of the equinoctial paschal full moon of the vernal equinox, as well as the summer solstice sunrise–winter solstice sunset axis accentuating the Cancer and Capricorn ingresses (the times when the sun is at these summer and winter solstice points).

the scheme itself. If this is the case, then one can surmise that the civic Palazzo della Ragione was conceived as a cosmic building embracing a religious and civic calendar. It therefore represents the idea of a union of calendar and orientation captured in the internal fresco scheme.

Rulership

Having proposed that the southwest corner is where the scheme begins, then I also contend that the scheme is resolved according to the concept of planetary rulership. Rulership is a precise relationship between a luminary (either of the two lights: the Sun and the Moon) or a planet (those known in the ancient world: Mercury, Venus, Mars, Jupiter and Saturn) and a zodiac sign. When the luminary or planet is located in that zodiac sign its influence is at its most powerful. The planet or luminary is also said to rule those signs which means that the planet or luminary has the ability, potency and unquestionable right to perform its function, as al-Qabīṣī stated, ‘like a man in his home and estate’,⁴⁷ in control and unchallenged in that position.

Table 3: Table of planetary rulerships

Planet or luminary	rules	Zodiac sign
The Sun		Leo
The Moon		Cancer
Mercury		Gemini and Virgo
Venus		Taurus and Libra
Mars		Aries and Scorpio
Jupiter		Sagittarius and Pisces
Saturn		Capricorn and Aquarius

In the Salone fresco scheme, images of each of the luminaries and planets are placed within the part of the wall where they are said to be in rulership: Mars is placed within the group of images connected with Aries on the south wall and also into the group of images connected with Scorpio on the north wall; Venus is placed within the group of images connected with Taurus on the south wall and also with the group of images

⁴⁷ Charles Burnett, Keiji Yamamoto, and Michio Yano, eds. *al-Qabīṣī (Alcabitius). The Introduction to Astrology*, Warburg Institute Studies and Texts. London and Turin: The Warburg Institute and Nino Aragno Editore, 2004, p.33.

connected with Libra on the north wall; and so on. As can be seen from Table 3, each planet rules two signs — a diurnal/day sign and a nocturnal/night sign — whilst the Sun and the Moon only rule one sign each.

Day and night signs

Ptolemy noted six zodiac signs as being diurnal or masculine, and six as being nocturnal or feminine. This is connected with the Aristotelian four elements of fire (hot and dry), earth (cold and dry), air (hot and wet), and water (cold and wet) where hot and cold implied the ‘power to act’ and hence were active qualities and wet and dry implied ‘susceptibility’, hence were passive qualities.⁴⁸ Thus the element fire (hot and dry) was diurnal and masculine; the element earth (cold and dry) was nocturnal and feminine; the element air (hot and wet) was diurnal and masculine; and the element water (cold and wet) was nocturnal and feminine. The diurnal tropical (seasonal) zodiac signs were divided into those containing the elements of fire or air — Aries (fire), Gemini (air), Leo (fire), Libra (air), Sagittarius (fire), and Aquarius (air) — and the nocturnal tropical (seasonal) zodiac signs were divided into those containing the elements of earth or water — Taurus (earth), Cancer (water), Virgo (earth), Scorpio (water), Capricorn (earth), and Pisces (water). It is apparent from Figure 7 and Table 4 that the zodiac signs are, as Ptolemy wrote, ‘arranged in alternate order, one after another, as the day is followed by the night, and as the male is coupled with the female.’⁴⁹

All of this is Aristotelian cosmology where the world, and thus humanity, was moved by the shifting balance between the qualities. Daryn Lehoux described this as

not just a cause of any old change, but a cause of harmonic changes (in the sense that the harmonics in a piano are caused by sympathetic vibration). The system has an important unity beyond bald cause-and-effect statements. Rivers, plants, and animals co-wax and co-wane with the moon. And in general the hot and cold, wet and dry mixtures embodied in the planets and stars co-move the hot and cold, wet and dry mixtures embodied in all things down here on earth. It is the importance of the co- part of the co-movement that the invocation of

⁴⁸ Aristotle, *On Generation and Corruption*, Book 2, 2:16-30, p.539.

⁴⁹ Ptolemy, *Tetrabiblos*, Book 1, Ch.15, p.35.

sympathy is meant to underscore. For sympathy is just the co-moving of related bodies across apparent distances.⁵⁰

Table 4: Tropical (seasonal) zodiac signs correlated with their elements	
Tropical (seasonal) zodiac sign	Element
Aries	Fire – hot and dry, diurnal, masculine
Taurus	Earth – cold and dry, nocturnal, feminine
Gemini	Air – hot and wet, diurnal, masculine
Cancer	Water – cold and wet, nocturnal, feminine
Leo	Fire – hot and dry, diurnal, masculine
Virgo	Earth – cold and dry, nocturnal, feminine
Libra	Air – hot and wet, diurnal, masculine
Scorpio	Water – cold and wet, nocturnal, feminine
Sagittarius	Fire – hot and dry, diurnal, masculine
Capricorn	Earth – cold and dry, nocturnal, feminine
Aquarius	Air – hot and wet, diurnal, masculine
Pisces	Water – cold and wet, nocturnal, feminine,

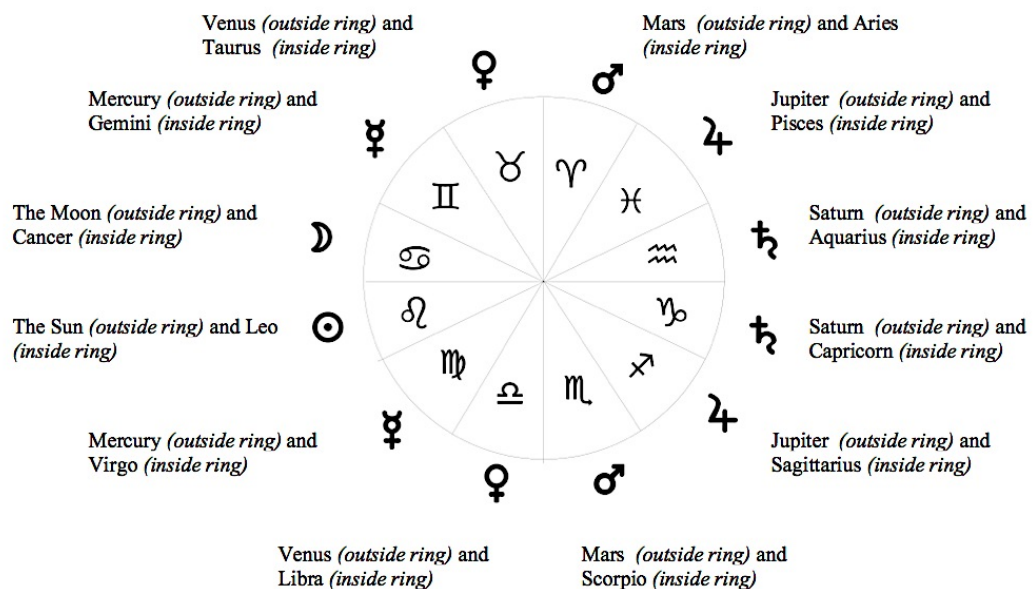


Figure 7. Medieval rulerships showing the two luminaries and five planets around the outside ring and the corresponding zodiac signs they rule and the dual rulerships of the planets in the inside circle.

⁵⁰ Daryn Lehoux, 'Tomorrow's News Today: Astrology, Fate, and the Way Out', *Representations* 95, no. 1 (2006), 105-122, p.108.

The Pattern of the South Wall

Building on these clockwise-moving zodiac images are three other genres of images that repeat throughout the scheme: the middle and lower registers show a combination of the Labours of the Months, the seven representations of the planets, and various saints or apostles whose painted panels cover both the middle and lower registers (Figs.8 and 9). However, there is a question mark regarding which of these takes focus as the shaper of the scheme.

Barzon commenced his numbering sequence in the southeast corner and since 1BC was an apostle, he began sequencing each month with an apostle. 3B was denoted as the month of March, 5B was the sign of Aries, and 8B was the planet Mars. For him, then, the sequencing was saint–month–zodiac sign–planet. Although his sense of the scheme began with an apostle, suggesting the scheme was following a liturgical year, Barzon named each of the chapters in his 1924 *Guida Illustrativa* to the Salone by zodiac sign — The Sign of Aries, The Sign of Taurus, and so on —implying that the liturgical year was subservient to the seasonal year.



Figure 8. South wall showing Barzon sequencing beginning with the saint ringed in white on the far left at 1BC, the personification of the Month of March ringed in white at 3B, the image of Aries the Ram ringed in white at 5B and the image of the planet Mars in its rulership of the zodiac sign of Aries ringed in white at 8B. Photo: D.Gunzburg.

The inclusion of the saints at the beginning of the sequence is a line of thinking that is followed by other authors such as Rigobello and Autizi, and Fantelli and Pellegrini. However, there is a case to be made for the saints completing each month, rather than opening them. Following this latter line of thinking, the scheme takes a different focus. Rather than the narrative starting with the saint at the edge of the south wall, I am suggesting that each month begins with the Labour of the Month and thus completes with the saint, and which is how I define a ‘chapter’ of the Salone fresco scheme.

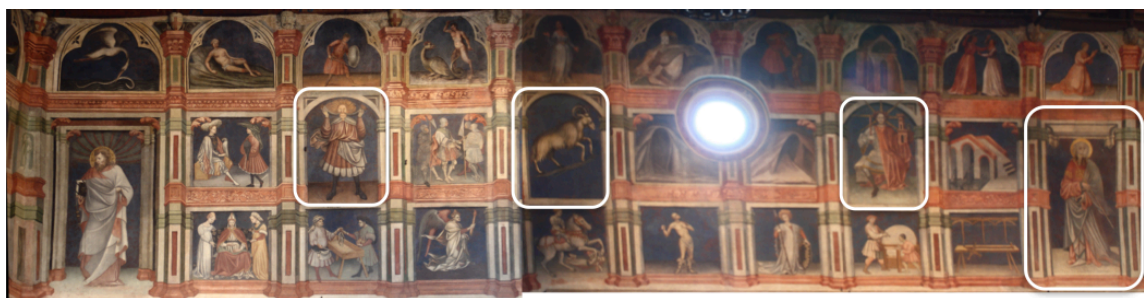


Figure 9. South wall showing sequencing beginning with the personification of the Month of March ringed in white at 3B, the image of Aries the Ram ringed in white at 5B, the image of the planet Mars in its rulership of the zodiac sign of Aries ringed in white at 8B, and the saint completing the month ringed in white at 10BC. *Photo: D.Gunzburg.*

This does not appear to have the order and neatness of the scheme of these previous scholars. However, it is predicated on the following:

First, if the top register is the area that reflects the constellations that were visible as the sun ingressed into each zodiac sign and hence described the month of the year, then that month will in some way mark the beginning of each section.

Second, using the Arena Chapel as a comparator, as Charles Harrison pointed out, Giotto painted the Arena Chapel images following the western convention of reading from left to right and in descending order and used various devices to reinforce this understanding. The repeated hand gesture of Christ in the sequence of scenes that starts with *The Marriage at Cana* (Fig.10) is an example of a linking motif that carries the movement of the eye from one frame to the next.⁵¹



Figure 10. Giotto di Bondone (c.1267–1337) *The Marriage at Cana, The Raising of Lazarus, Entry Into Jerusalem* c.1303-1305, using the upraised hand as a linking motif, fresco, north wall, Arena Chapel, Padua. *Images: ARTstor.*

⁵¹ Hartley Newnham and John Stinson. (1994). *Giotto: The Arena Chapel*. Presented by Charles Harrison. Series producer Charles Cooper. 50 minutes, UK: BBC for The Open University.

Furthermore the image next to this that completes the middle register of the north wall, *The Expulsion of the Traders from The Temple* (Fig.11) contains a leaping ram, a device suggesting ‘a continuation of the narrative movement beyond the framing edge, encouraging the viewer as it were to turn the page, to read on to the next wall.’⁵²



Figure 11. Giotto di Bondone (c.1267–1337) *The Expulsion of the Traders from The Temple*. c.1303-1305, fresco, north wall, Arena Chapel, Padua. Image: ARTstor.

If Giotto was using figures and gestures in this way in the Arena Chapel, then it is likely they were being used in the same way in the Salone. So the Saint at the beginning of the Salone’s south wall (Fig.2), I contend, is looking ‘back’ towards the east wall as a way of defining the end of the narrative of the east wall.

Finally, James Carson Webster’s study of the Labours of the Months, identified in sculptured doorways of churches and cathedrals from antiquity to the medieval period, revealed a recurring pattern involving two elements: the first stemmed from astronomy and the ‘desire to make more memorable the movement of time, to introduce some sense of order, of commemorate recurrence’; the second was humanistic, reflecting man’s life on earth.⁵³ From the earliest antique extant example located in a Hellenistic frieze in the façade of the church of Hagios Eleutherios at Athens (c.2nd or 1st century BCE), to churches of the medieval period, such as the porch of the church of San Zeno at Verona,

⁵² Newnham and Stinson. *Giotto: The Arena Chapel*.

⁵³ James Carson Webster, *The Labors of the Months*, Northwestern University Studies in the Humanities, Number Four (New York: AMS Press, 1938), p.93.

Webster discovered that these illustrations of the months included the following: a division into twelve sections, one for each month, indicated by the signs of the zodiac; figures which illustrated the months themselves; figures which indicated the activities of the people who produced the friezes; and references to the religious observances that occurred within that month.⁵⁴ Webster observed that each month regularly opened with the personification of the month, supporting the suggestion that the Salone ‘chapters’ each begins with the image of the month — the Labour of the Month— and completes with the saint.

If the suggested pattern is correct, then at the end of the south wall there will be a saint completing the month of May looking towards the viewer’s left and closing the reading of that month, as it were, and at the edge of the south wall there will be figure looking towards the west wall, suggesting the reader ‘turn the page’, as in the Arena Chapel. This is indeed the case, as can be seen in Figure 12, where the man planting a tree on the bottom register of the column on the right is painted facing the west wall and the viewer’s right.



Figure 12. South Wall — Sun ‘chapter’. The saint in the third column from the left is painted with his body and head directed towards the east wall and the viewer’s left. The man planting a tree on the bottom register of the column on the right is painted facing the west wall and the viewer’s right. Photo: D. Gunzburg.

⁵⁴ Webster, *The Labors of the Months*, pp.5-22, in particular pp.11-12.

Planetary rays

Since the painter of this fresco scheme depicted each planet with rays, it is appropriate here to clarify how the classical and then later medieval astrologers defined the nature of planets via their rays. Planetary rays can best be explained as spheres of influence, the ability of one planet to influence and modify another planet through what Ptolemy called ‘certain familiarities or connections between different parts of the zodiac’ which formed ‘mutual configurations’ which were ‘diametrically distant from each other’.⁵⁵ This idea of one planet ‘seeing’ and influencing another was part of the astrological tradition that had its origins in Mesopotamian astrology,⁵⁶ continued into Hellenistic astrology⁵⁷ and was transmitted via translations into the work of thirteenth century medieval astrologers such as Guido Bonatti (c.1207–died between 1281–1296).⁵⁸ This perspective saw the sky as ensouled, planets actively engaged with other planets in ways that helped or impeded them, in the same way as people engaged with each other in the court of a king or in a village.

The way that one planet connected with and modified another planet was known as aspecting, defined by the number of degrees separating one planet from another measured along the ecliptic. Ptolemy wrote of how signs ‘behold’ or ‘see’ (*blepō*) each other.⁵⁹ By the time this astrological knowledge reached the tenth century in the work of al-Qabīṣī (d.967), who cited his sources (which included Ptolemy) verbatim,⁶⁰ aspecting was now synonymous with ‘rays’:

The aspects. It is said that one sign looks at another among the signs. This means that each sign looks at the third sign from it in front of it or the third behind it, which is the eleventh from it. This is called sextile aspect and is of

⁵⁵ Ptolemy, *Tetrabiblos*, pp.36,37.

⁵⁶ Hermann Hunger, ed. *Astrological reports to the Assyrian kings*. Vol. VIII, Neo-Assyrian Text Corpus Project in Helsinki. Helsinki: Helsinki University Press, 1992.

⁵⁷ Roger Beck, ‘Imagery and Narrative in an Ancient Horoscope: P.Lond. 130 (Greek Horoscopes No. 81)’, *Journal for the Study of Religion, Nature and Culture* 7, no. 4 (2013), 397-406.

⁵⁸ Guido Bonatti, *The book of astronomy*, trans. Benjamin N. Dykes, vol. 2 (Golden Valley, MN: Cazimi Press, 2007); Guido Bonatti, *The book of astronomy*, trans. Benjamin N. Dykes, vol. 1 (Golden Valley, MN: Cazimi Press, 2007).

⁵⁹ Ptolemy, *Tetrabiblos*, Book I, Ch. XVIII. p.39. He also described how, when ascertaining the length of life, either of the two planetary malefics (Mars or Saturn) had the potential to ‘cast’ or ‘hurl’ rays (*aktinobolia*) at either of the luminaries that preceded it in zodiacal order. My thanks to Dorian Greenbaum for clarifying this distinction.

⁶⁰ Burnett, Yamamoto, and Yano, eds., *al-Qabīṣī (Alcabitius). The Introduction*, p.10.

friendship. It looks at the fourth sign from it in front of it or the fourth behind it, which is the tenth from it; this is called quartile aspect and is of antagonism, and it is half-enmity... When planets are in the sign which aspect, they are also called ‘aspecting’ with the same aspect; and when two planets are in one sign, they are called ‘in conjunction’. When a planet is in a sign, its rays are in the sign it aspects, in the same degree and minute of that sign.⁶¹

It is understandable how the knowledge of a planet seeing and influencing another by rays could be depicted visually as the image of a planet with rays. Indeed the other Paduan cycle of planets depicted with rays in the same way as the Salone is the fresco cycle on the dado in the chancel of the Eremitani church⁶² painted by Guariento d’Arpo (documented 1338–1370), dated after 1334 and before 1368⁶³ (Figs.13 and 14).



(Left) Figure 13. Guariento’s fresco of the chancel of the Eremitani Church, Padua, with the dado (circled in white) painted with (left to right) the Moon, Mercury, Venus, and the Sun. Photo: D.Gunzburg.

(Right) Figure 14. Close up of two of Guariento’s images from the white-boxed area of Figure 14, Church of the Eremitani, Padua: Venus (above) and the Sun (below), both painted with rays.

⁶¹ Burnett, Yamamoto, and Yano, eds., *al-Qabīṣī (Alcabitius). The Introduction*, p.27.

⁶² Due to World War II bombing in 1944, the images on the south side of the chapel (Mars, Jupiter, and Saturn) were completely destroyed and survive only in archive photographs.

⁶³ Louise Bourdua, ‘De origine et progressu ordinis fratrum heremitarum: Guariento and the Eremitani in Padua’, *Papers of the British School at Rome* 66(1998), 177-192, p.192.

This representation of the power of planets to influence its environment also exists in manuscripts, such as the eleventh century image of the Sun and Moon in Cotton Ms Tiberius B.V. British Library (Fig.15) and the eleventh-century images of the Moon, Mercury, Venus, Mars, and Jupiter from document Rom.Bibl.Vat.MS.Reg.123 (Fig.16). Rays present the planet as a powerful person who is alive, dynamic, and influential, giving us an understanding of how the medieval viewer saw the sky as ensouled.



Figure 15. Cotton MS.Tiberius B.V. f.47r. 1025–1050. The Sun and the Moon in chariots depicting the Sun with rays of light coming from the head of the Sun. *Image*: British Museum.

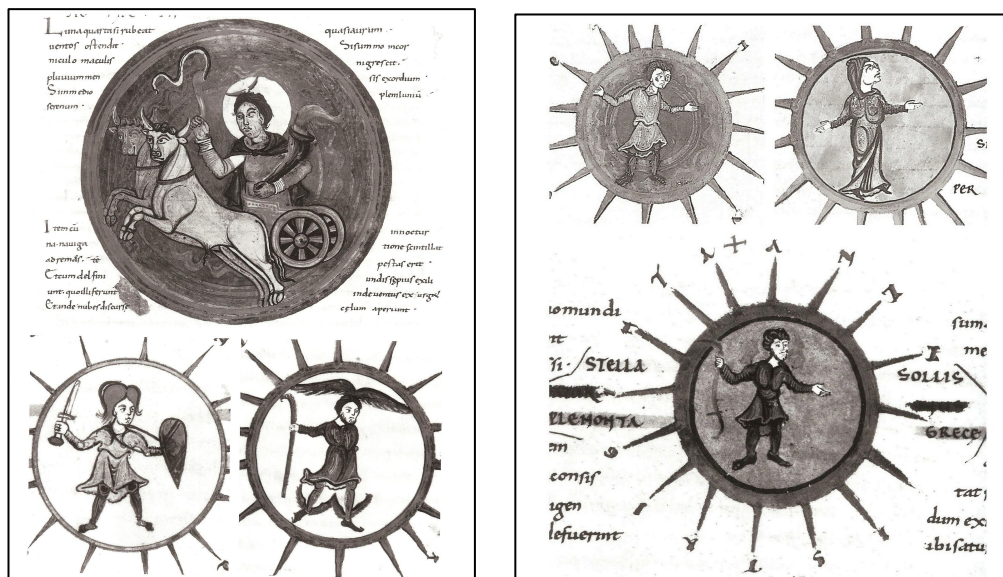


Figure 16. Rom.Bibl.Vat.MS.Reg.123, 1056 depicting the planets with rays around them as follows: (*top left*) fol.167r, Luna; (*bottom left*) fol.170r, Mars; (*centre left*) fol.171r, Mercury; (*centre right*) fol.171v, Jupiter; (*far right*) fol.173r, Venus, and (*bottom right*) fol.174r, Saturn.

Precedence for astrological schemes in communal buildings

There are at least three instances of monumental pictorial schemes that predate the Salone fresco images and depict months with zodiac signs, and religious imagery.

Chartres cathedral (rebuilt 1194-1223) contains a monumental cycle of images in stone and stained glass. The forty-two windows donated by the merchant brotherhoods depict the occupations of everyday life of the early thirteenth century, and they mix with religious imagery, saints and saints' lives, placed above them.⁶⁴ Images of the zodiac signs and labours of the months are shown in quatrefoils in the Zodiac signs window.

A cycle of frescoes dating from around 1250 was painted in the *Stanza del Calendario* in the San Silvestro chapel, part of the medieval monastery of Santi Quattro Coronati, Rome. In the thirteenth century Santi Quattro Coronati was a monastery, a castle, a palace, and a centre for the administration of justice, as well as a place of pilgrimage. It was built for Stefano Conti, one of the highest-ranking cardinals in the Papal Curia and a member of the Conti family.⁶⁵ The images are quite different in expression to the Salone fresco scheme whilst including some of the same threads of Labours of the Months, virtues and vices, and images of the trivium and quadrivium.

The Fontana Maggiore, although not monumental in the same sense as the two previous schemes, nevertheless still expressed encyclopedic astrological-theological knowledge in stone. The fountain, located in the centre of Perugia in Umbria in central Italy, was built in 1278 and sculpted by Nicola Pisano (c.1220 /1225–c.1284) and his son Giovanni (c.1250–c.1315). The sculptural narrative of this urban monument contains religious imagery as well as civic and allegorical themes and symbols, including the Labours of the Months, and the zodiac. John White declared that these sculptors comprised two of the three men working as sculptors in late-thirteenth-century Italy whose work gave rise to a pictorial revolution (the third being Arnolfo di Cambio).⁶⁶ By creating an innovative sculptural language that employed antique prototypes, as well as seeking new

⁶⁴ Jane Welch Williams, *Bread, wine & money : the windows of the trades at Chartres Cathedral* (Chicago and London: University of Chicago Press, 1993), p.1.

⁶⁵ Andreina Draghi, *Gli affreschi dell'Aula gotica del Monastero dei Santi Quattro Coronati: una storia ritrovata* (Milano: Skira, 2006), p.17.

⁶⁶ John White, *Art and Architecture in Italy 1250-1400*, Pelican History of Art (New Haven and London: Yale University Press, 1993), p.73.

representational means through naturalistic forms, Nicola Pisano and his son, Giovanni, brought a previously unseen vividness and immediacy to sculptural expression.⁶⁷

It is likely that Giotto, as a working and travelling painter, could have seen the Fontana Maggiore in Perugia and carried these images with him when creating the images for the Salone. Nevertheless the uniqueness of the Salone fresco scheme in a civic monument appears to have no precedence. Monumental pictorial schemes that contained celestial themes combined with seasonal activities and theological imagery continued to be carved on buildings such as the Campanile in Florence, originated by Giotto (bas reliefs on lower floor completed 1337), and painted in fresco 1338-1340 in civic buildings such as Ambrogio Lorenzetti's (1290-1348) cycle of painting in the Palazzo Pubblico in Siena,⁶⁸ the cycle of the months in the Torre dell'Aquila in the Castello di Buonconsiglio in Trent, painted in the late 1390s for its patron Prince-Bishop George of Liechtenstein,⁶⁹ The Room of the Arts and Planets, dated to 1410-1415, in the Palazzo Trinci, Foligno,⁷⁰ and the Labours of the Months in the Salone dei Mesi in the Palazzo Schifanoia in Ferrara, painted c.1469-1470 by or after Francesco del Cossa (1430-1477) and Cosmè Tura (1430-1495). None achieved the complexity, diversity, and volume of imagery contained within the Paduan Salone fresco scheme.

The Salone fresco scheme of the Palazzo della Ragione within Giotto studies

Whilst the fresco scheme of the Salone is not a canonical work of Giotto, it is accepted by scholars that when the scheme was first painted Giotto was its original *dipintore*. My intention was always to consider the status of the monument, and to investigate the role and place medieval cosmology held in its pictorial narrative. The possible role in Giotto studies was not seen as central to the exploration. This research, however, can potentially give an insight into Giotto's world view, a world view which is part of the Aristotelian

⁶⁷ White, *Art and Architecture in Italy 1250-1400*, p.73.

⁶⁸ According to Randolph Starn, the name commonly attributed to this cycle of *The Allegories of Good and Bad Government* is a modern invention. He suggested names that more accurately described what was occurring within the fresco as follows: *The City-State Under Tyranny* (west wall), *The Virtues of Good Government* (north wall), and *The Good City-Republic* (east wall). Randolph Starn, *Ambrogio Lorenzetti, The Palazzo Pubblico, Siena* (New York: George Braziller, 1994), pp.24,27,29.

⁶⁹ Anne Dunlop, *Painted Palaces: The Rise of Secular Art in Early Renaissance Italy* (University Park, Pennsylvania: The Pennsylvania State University Press, 2009), p.176.

⁷⁰ Dunlop, *Painted Palaces: The Rise of Secular Art in Early Renaissance Italy*, p.74.

medieval cosmology. For, as I have said previously, whilst we do not see Giotto's brushstrokes, we may well be looking at his thinking.

Chapter summary

This chapter presented background information regarding the three people whose innovative input into the building of the roof of the Palazzo della Ragione and the subsequent painting of the raised walls in the era of Padua's Golden Age shaped the Salone scheme. These three people — the architect Fra Giovanni degli Eremitani, the astrological advisor, Pietro d'Abano, and the painter, Giotto di Bondone — were all men who displayed innovation within their fields. Taking that into consideration, the chapter then ascertained the history of the building and the actions taken by the Venetian Senate in the fifteenth century and the Commune in the eighteenth century to restore the paintings.

This chapter then considered the underlying cosmology that formed and shaped the medieval world and which was still current in 1420. I argued that it was this cosmology that was being repainted on the walls 1425–1440 by Nicolò Miretto and Stefano da Ferrara.

The chapter then looked at the physical layout and design of the scheme in order to bring the message on the walls into focus. I argued that the southwest corner made greater sense as the starting point of the scheme, given the building's orientation, also considered in this chapter, as well as the fact that the Salone zodiac images of the luminaries and planets are placed within the part of the wall where they are said to be in rulership. Thus rather than the scheme beginning with the zodiac sign of Aries on the south wall, suggesting that the arrangement is zodiac sign driven, it is apparent that the scheme begins in the southeast corner with the meeting of the two lights. The implication is that the scheme is determined by planets in rulerships and not by zodiac signs. The chapter then argued that the fresco scheme could be divided into 'chapters' of images anchored by a Labour of the Month–zodiac sign–planet–saint. The chapter considered the precedence for such astrological schemes in communal buildings and how the fresco scheme might contribute to Giotto studies. Taking all of the above into account, the next five chapters consider the scheme in detail in order to understand the thinking that is contained within the individual images.

- Aquinas, Thomas. *Summa Contra Gentiles, Book Three: Providence Part II*. Translated by Vernon J. Bourke. London: University of Notre Dame Press, 1975.
- Aristotle. *Categories*. Translated by J.L. Ackrill. Edited by Jonathan Barnes. Vol. 1, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2. Princeton: Princeton University Press, 1984.
- . *De Caelo*. Translated by J.L. Stocks. Edited by Jonathan Barnes. Vol. 1, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2. Princeton: Princeton University Press, 1984.
- . *Metaphysics*. Translated by W.D. Ross. Edited by Jonathan Barnes. Vol. 2, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2. Princeton: Princeton University Press, 1984.
- . *Meteorology*. Edited by Jonathan Barnes. Vol. 1, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2. Princeton: Princeton University Press, 1984.
- . *On Generation and Corruption*. Edited by Jonathan Barnes. Vol. 1, The Complete Works of Aristotle, The Revised Oxford Translation, Bollingen Series L X X I.2. Princeton: Princeton University Press, 1984.
- Becchis, Michela. 'Giovanni degli Eremitani (Giovanni da Padova).' In *Dizionario Biografico degli Italiani (Biographical Dictionary of Italian People)*, edited by Giovanni Treccani, 77 vols. Vol. 56: Istituto dell'Enciclopedia italiana [The Institute of the Italian Encyclopedia], 2001.
- Beck, Roger. 'Imagery and Narrative in an Ancient Horoscope: P.Lond. 130 (Greek Horoscopes No. 81).' *Journal for the Study of Religion, Nature and Culture* 7, no. 4 (2013): 397-406.
- Benton, Tim. 'The Three Cities Compared: urbanism.' In *Siena, Florence and Padua: Art, Society and Religion 1280-1400, Volume 2: Case Studies*, edited by Diana Norman. Vol. II - Case Studies. 7-28. New Haven and London: Yale University Press in association with the Open University, 1995.
- Bonatti, Guido. *The book of astronomy*. Translated by Benjamin N. Dykes. Vol. 1. Golden Valley, MN: Cazimi Press, 2007.
- . *The book of astronomy*. Translated by Benjamin N. Dykes. Vol. 2. Golden Valley, MN: Cazimi Press, 2007.
- Bourdua, Louise. 'Aspects of Franciscan Patronage of the Arts in the Veneto during the Later Middle Ages.' Unpublished PhD dissertation, University of Warwick, 1991.
- . 'De origine et progressu ordinis fratrum heremitarum: Guariento and the Eremitani in Padua.' *Papers of the British School at Rome* 66 (1998): 177-192.
- Burnett, C. S. F. 'Hebrew and Latin Astrology in the Twelfth Century: the Example of the Location of Pain.' In *Stars, Spirits, Signs: Astrology 1100-1800. Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences*, edited by L. Kassell and R. Ralley. Vol. 41. 70-75, 2010.
- Burnett, Charles, Keiji Yamamoto, and Michio Yano, eds. *al-Qabīṣī (Alcabitius). The Introduction to Astrology*, Warburg Institute Studies and Texts. London and Turin: The Warburg Institute and Nino Aragno Editore, 2004.
- Campion, Nicholas. *The Dawn of Astrology: A Cultural History of Western Astrology*. Vol. 1 - The Ancient and Classical Worlds. London: Continuum Books, 2008.
- . *A History of Western Astrology*. Vol. 2 - The Medieval and Modern Worlds. London: Continuum Books, 2009.

- Carey, Hilary M. 'Astrological Medicine and the Medieval English Folded Almanac.' *Social History of Medicine* 17, no. 3 (2004): 345-363.
- da Nono, Giovanni. 'Visio Egidij Regis Patavie.' *Bollettino del Museo Civico di Padova* N.S. X-XI [XXVII - XXVIII] and XIII-XVII (1934-39): 1-20.
- Dellwing, Herbert. 'Zur Wölbung des Paduaner "Salone".' *Mitteilungen des Kunsthistorischen Institutes in Florenz* 14, no. 2 (1969): 145-160.
- Derbes, Anne, and Mark Sandona, eds. *The Cambridge Companion to Giotto*. Cambridge: Cambridge University Press, 2004.
- Draghi, Andreina. *Gli affreschi dell'Aula gotica del Monastero dei Santi Quattro Coronati: una storia ritrovata*. Milano: Skira, 2006.
- Dunlop, Anne. *Painted Palaces: The Rise of Secular Art in Early Renaissance Italy*. University Park, Pennsylvania: The Pennsylvania State University Press, 2009.
- Fabris, Giovanni. *Cronache e Cronisti Padovani*. Cittadella: Rebellato Editore, 1977.
- Favaro, Antonio. *Le matematiche nella Studio di Padova dal principio del secolo 14 alla fine del 16*. Padova: Tipografia, G.B. Randi, 1880.
- Federici Vescovini, Graziella. 'Peter of Abano and Astrology.' In *Astrology, Science and Society: Historical Essays*, edited by Patrick Curry. 19-39. Suffolk: The Boydell Press, 1987.
- French, Roger. 'Foretelling the Future: Arabic Astrology and English Medicine in the Late Twelfth Century.' *Isis* 87, no. 3 (1996): 453-480.
- Giglion, Guido. 'Nature and Demons, Girolamo Cardano Interpreter of Pietro d'Abano.' In *Continuities and Disruptions between the Middle Ages and the Renaissance*, edited by Charles Burnett, José Meirinhos and Jacqueline Hamesse, F.I.D.E.M., *Textes et études du moyen age*. 89-112. Turnhout: Brepols, 2008.
- Grant, Edward. 'Aristotle and Aristotelianism.' In *Science and Religion: A Historical Introduction*, edited by Gary B. Ferngren. 33-56. Baltimore and London: Johns Hopkins University Press, 2002.
- Hankey, A. T. 'Riccobaldo of Ferrara and Giotto: An Update.' *Journal of the Warburg and Courtauld Institutes* 54 (1991): 244.
- Hunger, Hermann, ed. *Astrological reports to the Assyrian kings*. Vol. VIII, Neo-Assyrian Text Corpus Project in Helsinki. Helsinki: Helsinki University Press, 1992.
- Lehoux, Daryn. 'Tomorrow's News Today: Astrology, Fate, and the Way Out.' *Representations* 95, no. 1 (2006): 105-122.
- Lemay, Richard. 'The Teaching of Astronomy in Medieval Universities, Principally at Paris in the Fourteenth Century.' *Manuscripta - Science, Medicine and the University: 1200-1550 - Essays in Honor of Pearl Kibre Part II* 20, no. 3 (1976): 197-217.
- Massing, J.M. 'Der Stern des Giotto.' In *Die Kunst und das Studium der Natur vom 14. zum 16. Jahrhundert*, edited by W. Prinz and A. Beyer. 159-179. Weinheim: Acta Humaniora VCH, 1987.
- Murray, Peter. 'Notes on Some Early Giotto Sources.' *Journal of the Warburg and Courtauld Institutes* 16, no. 1 and 2 (1953): 58-80.
- Newnham, Hartley, and John Stinson. (1994). *Giotto: The Arena Chapel*. Presented by Charles Harrison. Series producer Charles Cooper. 50 minutes, UK: BBC for The Open University.
- Olson, R.J.M., and J.M. Pasachoff. 'Comets, meteors and eclipses: Art and science in early Renaissance Italy.' *Meteorites & Planetary Science* 37 (2002): 1563-1578.
- Ptolemy. *Tetrabiblos*. Edited by J.M. Ashmand. Mokolunne Hill, California: Health Research, 1969.

- Siraisi, Nancy. 'The Expositio Problematum Aristotelis of Peter of Abano.' *Isis* 61, no. 3 (1970): 321-339.
- Starn, Randolph. *Ambrogio Lorenzetti, The Palazzo Pubblico, Siena*. New York: George Braziller, 1994.
- Stubblebine, James H. *Giotto: The Arena Chapel Frescoes*. London: Thames and Hudson, 1969.
- Thomann, J. 'Pietro d'Abano on Giotto.' *Journal of the Warburg and Courtauld Institutes* 54 (1991): 238-244.
- Thorndike, Lynn. *A History of Magic and Experimental Sciences. Vols 1-8*. New York and London: Columbia University Press, 1923-1958.
- Valenzano, Giovanna. 'Giovanni degli Eremitani, un 'enzegnere' tra mito e realtà.' In *Medioevo: immagine e racconto, Atti del Convegno internazionale di studi Parma, 27-30 Settembre 2000*, edited by Arturo Carlo Quintavalle. 413-423. Parma: Electa, 2000.
- Vio, Ettore, ed. *Il Palazzo della Ragione di Padova, La storia, l'architettura, il restauro*. Padova: Signum Padova Editrice, 2008.
- Webster, James Carson. *The Labors of the Months*, Northwestern University Studies in the Humanities, Number Four. New York: AMS Press, 1938.
- Wedel, Theodore Otto. *The Mediæval Attitude toward Astrology, particularly in England*. New Haven: Yale University Press; London: Humphrey Milford, 1920.
- White, John. *Art and Architecture in Italy 1250-1400*, Pelican History of Art. New Haven and London: Yale University Press, 1993.
- Williams, Jane Welch. *Bread, wine & money : the windows of the trades at Chartres Cathedral*. Chicago and London: University of Chicago Press, 1993.