Astronomy and Astrology in Renaissance Florence

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Introduction

In Renaissance Florence, astrology was a crucial part of the canon of humanistic learning, which was the center of Renaissance culture and thought and so intertwined with the every day that it was a way of life. Astrology and Astronomy were considered a major science at the intersection of mathematics and philosophy, and influenced cultural thought from all angles. From the literature of Dante to the visual arts, astrology was used to confirm history, predict destiny, and solidify political and divine power. Horoscopes predicted the course of major events and explained epochs of the past. Astrologers were even used for the most practical of matters, for instance, they were often consulted to confirm the ideal times for laying the foundations of new buildings and structures. From the practical to the spiritual, astrology played a leading role in the lives of Florentines, and evidence of the power which it held in so many aspects can still be found throughout the city's output from the art, architecture, and mechanisms that have been left behind.

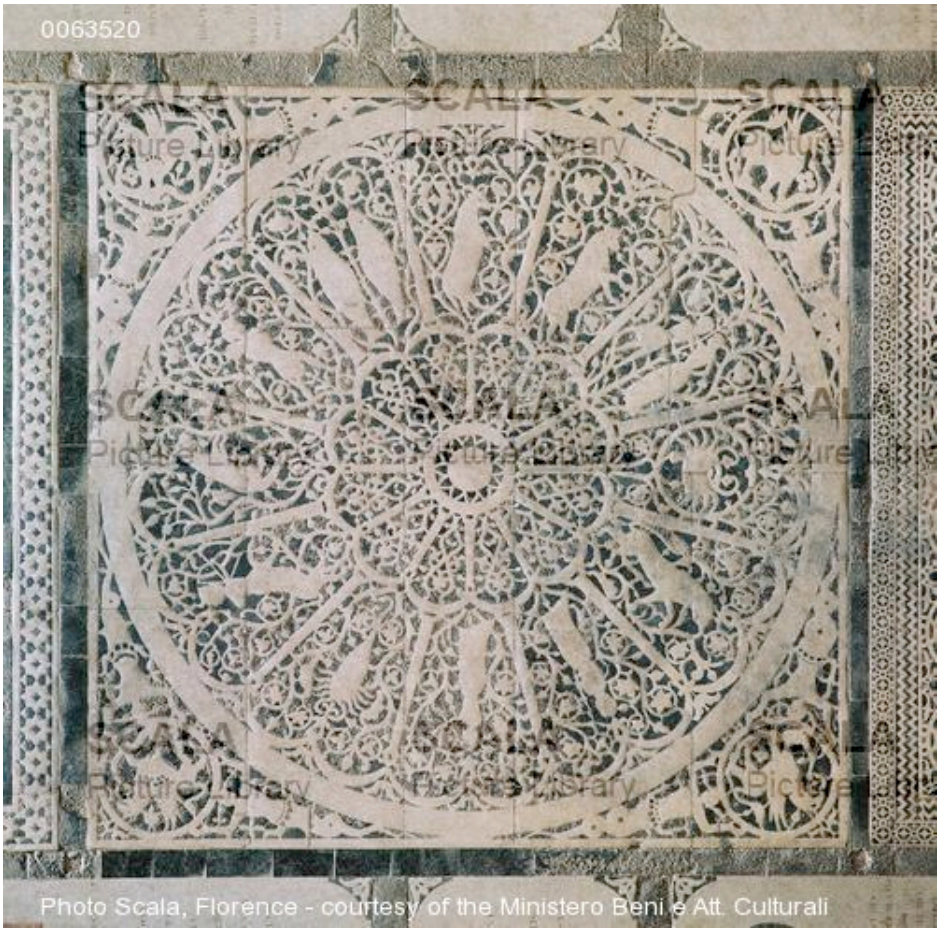
Passed on from the medieval ages and the Quatterocento, the importance of religion, God, mythology, celestial bodies and the zodiac were closely tied together. God was at the center of the celestial wheel surrounded by planets and stars, and the ties between that which was religious and divine and astrological knowledge were inexorable. The celestial universe and heavenly bodies were seen as an exercise of God's divine powers and signs of the zodiac and the cosmos often appeared within religious iconography and in places of worship, asserting the notion of God's divine powers and the mystical connections of humans with the heavens and the universe. Symbols representing the cosmos, the zodiac, stars and planets came in the form of personified gods, or the ancient pictoral signs in correspondence with the twelve months of the year. As seen in holy places such as San Miniato al Monte, San Lorenzo, Santa Croce and the Baptistry, the connection between god, the heavens and the zodiac were of high importance to religion and worship. Even in the most discrete, esoteric example of Massacio's Holy Trinity, elements of the presence and use of astrological methods tied in the divine connection of mathematics and the sacred.

In Florence in particular, astrology and astrological symbolism held even greater meaning, going beyond the religious and practical to the political. The Medici dynasty had publicly drawn connections with their rulership and mythology since it was established under Cosimo I in the sixteenth century, who associated himself with Jupiter through his astrological sign, Capricorn. Cosimo's initiative was to present the Medici rule as manifest destiny, linking the dynasty to the historical past and destiny of the city. Histories were rewritten to be Medici-oriented, and artwork was commissioned to depict the Medici in direct connection with mythology, connecting them with gods and asserting their rulership as the work of divine forces. The Apartments of the Elements and Leo X in what is now known as the Palazzo Vecchio is a prime example of the mythology the Medici had created around themselves. The rooms were devised so that the frescoes in the downstairs rooms each depicting one of the elements,corresponded directly with a room upstairs in the Apartment of Leo X, where each Medici who had a hand in establishing the dynasty had a room that was dedicated to them. The room of Cosimo I corresponded with the room of Jupiter, confirming his alignment with the virtues of the god.

When Galileo Galilei dedicated his *Siderius nuncius* to Cosimo II and denominated the four stars he discovered circling around Jupiter as “Medicean Stars,” he was given the honor of being taken on as the mathematician and philosopher of the grand duke and paid an exceptional salary. It was no coincidence that the scientific confirmation of the Medici power was rewarded so greatly. As the Medici continued to build up Florence during the time of their empire, symbolism of the mythology they created was scattered throughout.

Starting with an example of the astrological heritage passed on from the medieval Florentines to the Renaissance in San Miniato al Monte, one of Florence’s oldest churches, this exhibit takes the observer through several representations of the influences of astrology, astronomy and the zodiac as manifested through the Florentine Renaissance. From practical tools to covert references, the works shown are meant to encompass the many intersections of life through which the signs and the science appeared, and how its importance in the place of the humanities and Florentine politics was constantly affirmed.

Zodiac Wheel of San Miniato al Monte



Title and Date: San Miniato al Monte, Interior Floor, 1062-1150
Museum Name and Location: San Minato al Monte, Florence, Italy
Image Source and ID Number: http://www.scalarchives.com/

The inlay mosaic at the interior floor of San Miniato al Monte, one of Florence's oldest churches, presents a zodiac wheel. Though the practice of astrology was originally pagan, the church appropriated it to Christianity, as some believe it is divided into twelve signs to represent the twelve apostles. A similar zodiac carving can be found in Florence's Baptistery of San Giovani, which was used as a solar clock by means of sun rays shining through a strategically placed hole in the cupola. Both Zodiac wheels have shown to have significant occult symbolism, San Miniato in its orientation to the sign of Taurus and the Baptistry toward Cancer.

Sources:

Cox-Rearick, J. (1984). *Dynasty and destiny in Medici art: Pontormo, Leo X, and the two Cosimos*. Princeton, N.J: Princeton University Press.

Magrini, Graziano. Translation by Victor Beard. Retrieved from: http://brunelleschi.imss.fi.it/itineraries/place/BaptisteryOfSanGiovanni.html

Capricorna alla Tartuga/Capricorn from the Tortoise

Artist's Name : Saints Michael Buglioni
Title and Date: Capricorna alla Tartuga, 1556-1559
Museum Name and Location: Palazzo Vecchio, The Apartment of Leo X, Sala di Cosimo I
Image Source: http://www.palazzovecchio-museoragazzi.it/?p=175

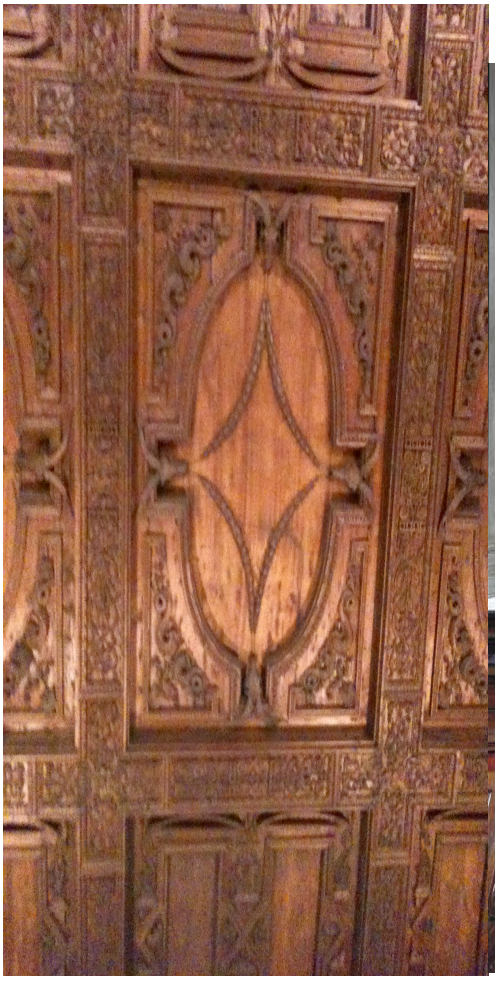
Each room in the Apartment of Leo X in Florence's Palazzo Vecchio, the first Medici Court Palace, is dedicated to a member of the Medici family. On the floor of the room of Cosimo I, the astrological sign of Capricorn is depicted surrounded by four turtles with sails. The Capricorn is almost always surrounded by seven stars, representing seven virtues; three theological and four moral. The Capricorn was Cosimo's astrological sign, and connected him with Jupiter through mythology that Jupiter had added Capricorn, endowed with the virtue of divine knowledge to the Zodiac. The message sent was that Cosimo obtained the same virtues and knowledge from Jupiter, whom he was linked to through destiny.

Sources:

Biagioli, M. (June 01, 1990). Galileo the Emblem Maker. *Isis, 81,* 2, 230-258.

Tour the Complex.Biblioteca Medicia Laurenziana official website. Retrieved from: http://www.bml.firenze.sbn.it/ing/tour_of_the_complex.htm

Biblioteca Medicia Laurenziana



Artist's Name: Michaelangelo Buonarotti, Giovan Battista del Tasso, Antonio di Marco di Giano
Title and Date: Biblioteca Medicia Laurenziana, 1549-1550
Museum Name and Location: Biblioteca Medicia Laurenziana, Florence, Italy
Image Source:
Image 1. Personal Photo
Image 2. Retrieved from Web Gallery of Art http://www.wga.hu/index1.html

The Biblioteca Medicia Laurenziana was famously designed by Michelangelo and first opened in 1571 as part of the San Lorenzo complex. The unique layout of the reading room provided lecterns and benches, each with shelves replete with reading material for each discipline; Patristics, Astronomy, Rhetoric, Philosophy, History, Grammar, Poetry and Geography. The ceilings, carved in 1549-1550 by Giovan Battista del Tasso and Antonio di Marco di Giano, reflect the design which is mirrored on the floor, which was designed by Tribolo and produced by Santi Buglioni. The capricorn again alludes to the astrological sign of Great Duke Cosimo I, who commissioned the structure and design.

Sources:
Tour the Complex.Biblioteca Medicia Laurenziana official website. Retrieved from:http://www.bml.firenze.sbn.it/ing/tour_of_the_complex.htm\

Adoration of the Magi

Artist's Name: Fillipino Lippi
Title and Date: Adoration of the Magi, 1496
Museum Name and Location: Galleria degli Uffizi, Florence, Italy
Image Source: http://www.wga.hu/index1.html

The work by Fillipino Lippi, commissioned in 1496 by the Augustinian convent of San Donato in Scopeto was painted to replace the unfinished version by Leonardo Da Vinci. In Lippi's depiction, the colorful adorers are recognized as members of the Medici family. Specifically, those known as the "Poplani." The man in the orange cloak, shown closely on the image to the right, is Pierfrancesco Di Lorenzo, grandson of Cosimo the Elder. The man clutches an astrolabe, which alludes to the "astronomer" Wise Kings.

Sources:

Fossi, G. (1999). *The Uffizi: The official guide, all of the works*. Florence, Italy: Giunti.

Fossi, G. (2009). *Uffizi: Art, history, collections*. Firenze, Italy: Giunti.

Astrolabe

Artist's Name: Egnazio Danti or Giovanni Battista Giusti
Title and Date: Astrolabe, 16th century
Museum Name and Location: Museo Galileo, Florence, Italy
Image Source and ID Number: http://catalogue.museogalileo.it/object/Astrolabe_n14.html, ID 3361

Currently held in the Museo Galileo in Florence, this particular astrolabe is known as “Galileo’s astrolabe,” as it was formerly preserved in the Uffizi Gallery and used by Galileo for astronomical calculations. The word astrolabe is derived from the the Greek words meaning “to follow the stars” and has been applied to three distinct forms of tools, this particular type is a planisphere. All variations of the tool are used for astronomical computation and navigation, enabling an astronomer to predict the altitude of the stars and the rising of heavenly bodies, as it corresponds to the zodiac circle, the monthly calendar, the eccentric shadow square, the Tychonic scale, the windrose and degree scale.

Sources:

In-Depth, Astrolabe. Museo Galileo. Retrieved from: http://catalogue.museogalileo.it/indepth/Astrolabe.html

Virtual Museum; Astrolabe. Museo Galileo. Retrieved from: http://catalogue.museogalileo.it/object/Astrolabe_n14.html

Virtual Museum, Multimedia. Astronomical Use of the Plane Astrolabe. Retrieved from: http://catalogue.museogalileo.it/multimedia/AstronomicalUsePlaneAstrolabe.html

Astronomy

Artist's Name- Andrea Pisano
Title and Date- Astronomy, 1336-1343
Museum Name and Location: Opera di. S. Maria del Fiore, Museo, Florence, Italy
Image Source: http://brunelleschi.imss.fi.it/itineraries/image/img3196.html

The reliefs on Giotto's campanile in Florence are said to be designed by Giotto and executed by Andrea Pisano, at least partially if not fully. The themes represented in the reliefs are sets of seven; the planets, the liberal arts, virtues and sacraments, and ending with a set of seven carefully selected scenes from the story of Adam and Eve. The seven mechanical and canonical arts lay in the first hexagonal zone of the campanile, which are represented and personified by their mythical inventors; Daedalus as the master of all arts, Phoroneus representing law, and Gionitus, the mythical inventor of astronomy, as pictured above. Gionitus holds a quadrant, in order to observe the height of celestial bodies. The celestial bodies of medieval astronomy themselves are also represented on the panels of the western side of the bell tower.

Sources:
Bucher, François. (1973) *The Campanile of Florence Cathedral, "Giotto's Tower" by Marvin Trachtenberg.* The Art Bulletin , Vol. 55, No. 2, pp. 290-292 Retrieved from http://www.jstor.org/stable/3049105.

Magrini, Graziano. Translation by Victor Beard. Retrieved from: http://brunelleschi.imss.fi.it/itineraries/place/GiottosBellTower.html

Weaver, Web Gallery of Art Retrieved from: http://www.wga.hu/frames-e.html?/html/p/pisano1/andrea/0mechani.html

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Portrait of Six Tuscan Poets

Artist's Name: Giorgio Vasari
Title and Date: Six Tuscan Poets, 1544
Museum Name and Location: The Minneapolis Institute of Arts, Minneapolis, Minnesota
Image Source and ID Number: http://www.themontrealreview.com/2009/Horror-Beauty-and-Truth-in-Poetry.php.
MIA_.71.24

Vasari's 16th century painting depicts various poets and philosophers engaged in conversation, surrounded by objects that represent a range of scholarly disciplines. The figures include Dante Aligheri, Guido Cavalcanti, Francesco Petrarch, Giovanni Boccaccio, and the two standing in the far left are figured to be Guittone d'Arezzo and Cino da Pistoia. On the table, objects of significance to the various disciplines lie before them, including a solar quadrant and both celestial and terrestrial globe to represent astronomy and astrology.

Sources:
Findlen, Paula. (1998) *Possessing the Past: The Material World of the Italian Renaissance*
The American Historical Review , Vol. 103, No. 1, pp. 83-11, Retrived from http://www.jstor.org/stable/2650776

Six Tuscan Poets, Image description. Artstor. Retrieved from: http://library.artstor.org.ezproxy.pratt.edu:2048/library/iv2.html?parent=true#

Celestial Globe

Artist's Name: Vincenzo Coronelli
Title and Date: Celestial Globe, 1696
Museum Name and Location: Museo Galileo, Florence, Italy
Image Source and ID Number: http://catalogue.museogalileo.it/object/CelestialGlobe_n09.html.

Just as a terrestrial globe represents the earth, the celestial globe represents the celestial vault in spherical form. The globe depicts constellations of the supposed eighth sphere which carries the fixed stars, and in conjunction with the circles that make it up, the equator, meridian, Tropic of Capricorn, Tropic of Cancer, polar circles and ecliptic, the globe helped to evaluate astrological and astronomical calculations. The celestial globe was an early tool which led to more advanced versions including the armillary sphere and the astrolabe. This particular globe, made by Vincenzo Coronelli, includes more stars than the average celestial globe, orbits of a number of comets, and names of celestial bodies in Greek, Latin and Italian.

Sources:

In-Depth Globe, Museo Galileo. Retrieved from: http://catalogue.museogalileo.it/indepth/Globe.html

Virtual Museum; Celestial Globe. Retrieved from: http://catalogue.museogalileo.it/object/CelestialGlobe_n09.html

Dome of Old Sacristy of San Lorenzo

Artist's Name: Giuliano Pesello, painter; Filippo Brunelleschi, architect
Title and Date: San Lorenzo, Old Sacristy view of the small dome of the apse of the Old Sacristy with the celestial hemisphere, c. 1443 - 1443
Museum Name and Location: San Lorenzo, Florence, Italy
Image Source:
http://www.artres.com/C.aspx?VP3=ViewBox_VPage&VBID=2UN3655JYBUT&IT=ZoomImageTemplate01_VForm&IID=2UNTWAWIBBWW&PN=39&CT=Search&SF=0

Astrological symbols were not only used to convey mythological, archetypal messages, but also served specific purpose when illustrated in a precise locational order. The symbols, replete with constellations and planets, are shown in relation to time and space. The cupola that stands over the altar in the Old Sacristy of San Lorenzo shows the stars as they appeared in Florence in the early fifteenth century (medici, 166). There are two interpretations of the exact date portrayed in the painting. One states that the date depicted is July 9th, 1422, which is the supposed date of the consecration of the of the high altar of San Lorenzo. The other is July 6th, 1439, the day the union of the Greek and Western churches was proclaimed at the closing session of the Council of Florence.

Sources:
Cox-Rearick, J. (1984). *Dynasty and destiny in Medici art: Pontormo, Leo X, and the two Cosimos*. Princeton, N.J: Princeton University Press.

Fortini Brown, Patricia. (1981) *Laetentur Caeli: The Council of Florence and the Astronomical Fresco in the Old Sacristy*, Journal of the Warburg and Courtauld Institutes , Vol. 44, pp. 176-180. Retrieved from http://www.jstor.org/stable/751062

Pazzi Chapel Dome Fresco

Artist's Name: Unknown
Title and Date: Pazzi Chapel Dome Fresco
Museum Name and Location: Pazzi Chapel, Santa Croce, Florence, Italy
Image Source and ID Number:http://www.art-history-images.com/photo?id=7551

The dome fresco in Santa Croce's Pazzi Chapel depicts the same sequence of zodiac symbols as the Old Sacristy, which has caused some scholars to dismiss the theory that the dates shown are to commemorate San Lorenzo's high altar. Both frescoes align the astronomical north with the geographical north, allows for an astronomical reading to be done for the intact imagery of Old Sacristy, but unfortunately the deteriorating state of the Pazzi dome fresco makes it impossible for a full analysis to interpret the exact date. The coordinate lines are visible but the Sun, Moon and stars cannot be seen at all, but because the existing half mirrors Old Sacristy exactly, we can assume the dates represented in the two frescoes are the same.

Sources:
Cox-Rearick, J. (1984). *Dynasty and destiny in Medici art: Pontormo, Leo X, and the two Cosimos*. Princeton, N.J: Princeton University Press.

Fortini Brown, Patricia. (1981) *Laetentur Caeli: The Council of Florence and the Astronomical Fresco in the Old Sacristy*, Journal of the Warburg and Courtauld Institutes , Vol. 44, pp. 176-180. Retrieved from http://www.jstor.org/stable/751062

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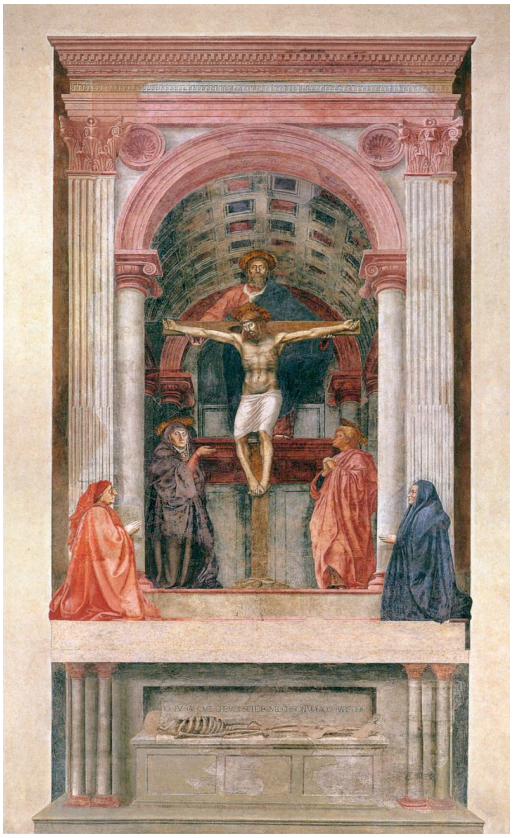
The Holy Trinity



Artist's Name: Masaccio
Title and Date: The Holy Trinity, 1427
Museum Name and Location: S. Maria Novella, Florence, Italy
Image Source: http://www.wga.hu/index1.html

Masaccio's famous fresco, the Holy Trinity, is known to be one of the most complex and mysterious pieces of art to come from the Italian Renaissance. Mapped in a deliberate mathematical graphing method, Masaccio inventively divided the surface by three squares and used vison point perspective to project the image of Jesus in the distance beyond the columns. The strategic placement is seen by many as a geometrical expression of God's perfection. The religious iconography in conjunction with mathematical planning serves as a prime example of mathematics as the connection of the natural order of reality and sense to the divine. Masaccio's use of creating rays through projected lines are similar to the methods of medieval astronomical projections made by use of an astrolabe. The same trace lines used by Masaccio to create the projection were used by astronomers to indicate celestial relationships. Through the diagramming techniques of mathematical astronomy, Masaccio was able to understand vision point perspective and use it to connect God, the heavens, mathematics and astronomy, life and death.

Sources:

Aiken, Jane Andrews. (1995) *The Perspective Construction of Masaccio's "Trinity" Fresco and Medieval Astronomical Graphics*. Artibus et Historiae , Vol. 16, No. 31, pp. 171-187. Retrived from http://www.jstor.org/stable/1483503

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Virtual Museum, Multimedia. Astronomical Use of the Plane Astrolabe. Retrieved from: http://catalogue.museogalileo.it/multimedia/AstronomicalUsePlaneAstrolabe.html