

Chapter 2

Possible Classical Models for *Aratea* Illustrations

Abstract Many volumes have been written on the transmission of astronomical knowledge from ancient Greece through the Middle Ages to the time of Copernicus, Kepler, and Newton but much less has been written about the celestial images that often accompanied that astronomical literature. This chapter examines the type of astronomical and astrological images that decorated Roman public buildings, temples, and images that appeared on celestial globes and in the painted pages of Late Antique manuscripts. Foremost examples of these early models will be discussed in this chapter. From the early Middle Ages through the Renaissance, the 12 signs of the zodiac became a significant iconographic symbol appearing in unusual places, carved on church facades, and painted in religious and calendric manuscripts, eventually drawn in the stunning Books of Hours cherished by wealthy patrons, and even decorating Jewish synagogues. The Early Christian era witnessed the transition of recording literature and illustrations on ancient papyrus scrolls that were rolled and stacked on library shelves to the new parchment codex that was trimmed and tightly bound between heavy covers to protect the treated animal skins and preserve the precious text and carefully painted illuminations. The pictorial transition from scroll to codex is discussed as well and the earliest surviving illustrated manuscripts are described.

The transmission of the text of Aratus' *Phaenomena* and of the *Aratea* by its Latin translators can be easily traced since the poems have been thoroughly studied by text specialists in classical literature for centuries, almost since they were first written, but this has not been true for the transmission of the astronomical images found in *Aratea* manuscripts. In antiquity only a very limited number of texts contained illustrations or any type of décor, particularly when the papyrus roll was the main material for preserving written information (Pächt 1984: 22). Illustrated 'books' did exist in that era but they were a slender exception; this lack of illustrative history creates immense difficulties in learning how much, if anything, the classical and Late Antique codices inherited from earlier papyrus rolls.

Since the surviving copies of the *Phaenomena* in Greek are not illustrated, and there is no evidence that the original poem ever contained pictures, we must

question where and when the images, so prominent in the surviving medieval *Aratea* manuscripts, were added to the text. Potential sources for the medieval illuminations of the Sun, Moon, planets, and constellations can be found in numerous artistic media: sculptures, wall frescoes, public monuments, celestial globes, floor mosaics, decorative arts, metal work, coins, or even Greek vase painting. Among the most obvious sources were scientific, astronomical, and astrological illustrations that do survive in early literary works on both papyrus scroll fragments and parchment manuscripts and particularly in calendars.

In ancient Rome, the calendar, filled with the dates of recurrent Roman holidays and religious festivals, served as a vital element of their culture, a part of what it meant to be a Roman citizen, for both pagans and early Christians alike (Blackburn, 1992: 669). In order for the calendar to be effective in proclaiming the events of the periodic seasons, the dates must be accurate and aligned to the harmonious motions of the stars and planets. By the first century BCE, the Roman calendar was no longer synchronized with celestial motions, a problem that occurs quickly over time if not continually revised. Because the existing calendar was no longer compatible with the heavens, Julius Caesar ordered a complete modification in 46 BCE. The mathematical and astronomical calculations of astronomer Sosigenes, who was assigned the difficult project, provided a more accurate, updated calendar. The Julian calendar, one of Rome's great successes, was utilized throughout the Middle Ages (McClusky 1998: 24). Calendars were often posted in public places to keep citizens informed, sometimes even carved in stone, called *fasti*; they also appeared in written form, such as Ovid's *Fasti*, (discussed in Chap. 1) and were sometimes decorated with pertinent pictures.¹ The choice of illustrations and the iconography of prominent artworks embody the ideals and beliefs of the society that produced it; the astronomical images utilized during the Roman Era tell their own story.

Codex-Calendar of 354

When searching for possible prototypes for the illustrations found in the earliest surviving copies of the *Aratea*, a most likely candidate would be the *Codex-Calendar of 354* the only calendar that survives from the time of the Roman Empire; it has been definitely dated to the fourth century (Weitzmann 1977: 79). Although the original *Codex-Calendar* is no longer extant, the work is known in its entirety and available for study through later copies²(Salzman 1990: xxi). This lavishly illustrated Roman compendium for the year CE 354 is a likely model for images of the zodiac, planets, and constellations in medieval astronomical codices,

¹To view images drawn in a late fifteenth-century printed and highly annotated copy of Ovid's *Fasti* in three volumes: see University of Leeds Library, Special Collections, The Brotherton Ovid Digital Resource.

²Another important source for information concerning the *Calendar of 354* is a study published in 1953 by Henri Stern, *Le Calendrier de 354: etude sur son texte et ses illustrations*.

and in particular, the Leiden *Aratea* of Germanicus, one of the most, if not the most, important surviving *Aratea* manuscript. The original *Calendar of 354* did not survive beyond the ninth century but a complete and accurate Carolingian copy was discovered during the Renaissance in the scholars' search for ancient documents (Salzman 1990: 70).³ This ninth-century codex along with its decorative program was copied copiously in the sixteenth and seventeenth centuries, though none of these are entirely intact, six illustrated copies survive in part (Salzman 1990: 4).⁴ Unfortunately the intermediary Carolingian copy has been lost, but the Roman prototype has been duplicated so reliably that the intervention of the ninth-century copyist can hardly be noticed. No elements suggestive of the art of the early Middle Ages can be found in the *Calendar of 354*, not even in the decorative features; the Carolingian artists showed a thorough understanding of the Classical style and reproduced those elements faithfully (Nordenfalk 1988: 8). Fortunately that same faithfulness to Classical exemplars can be detected in the ninth-century copies of the *Aratea* manuscripts.

The *Calendar of 354* was only a small section of a larger manuscript of more than a dozen varied texts that had been assembled into a single volume, appropriately called the *Codex-Calendar of 354*. Much more than a basic calendar, this was a collection of chronological material such as histories, lists of festivals, and important dates throughout the year. This deluxe version of the official Roman calendar had been prepared as a gift for a Christian aristocrat named Valentinus and composed by the "most famous calligrapher of the century" Furius Dionysius Filocalus, also a Christian. (Salzman 1990: 3). This elaborate gift included colorful illustrations of the planetary gods and the constellations which employ Classical iconography; the illustrations are possibly the work of Filocalus as well. In the calendar of Filocalus, both pagan and Christian elements are included side by side without a problem; for example, it contains chronicles of the world since the time of Adam from the Christian Bible, along with chronicles of Roman history from the time of Romulus, with traditional blessings of their pagan gods and goddesses. "Its

³This manuscript tradition was first clarified by the modern scholar, T. Mommsen, who established that all later copies were derived from the lost ninth-century copy, the *Luxemburgensis*, a copy of the fourth-century original. The text and illustrations were described by the seventeenth-century scholar and collector of antiquities Nicholas-Claude Fabri de Peiresc in a letter which has been published by Mommsen. *Luxemburgensis* disappeared at Peiresc's death in 1637.

⁴Salzman names the surviving copies, fragments, and descriptions. The Vatican Library holds Romanus 1 (Barb. Lat. 2154) and Romanus 2 (Vat. Lat. 9135). A description by Nicholas-Claude Fabri de Peiresc can also be found in the Vatican Library. Along with these partial manuscripts, small portions of the *Calendar* are held in various other libraries. Salzman's lengthy study presents an iconographic analysis and comparison of each picture. Salzman has reconstructed the *Codex-Calendar of 354* from the various surviving portions and has published a thorough study of its Roman context, explaining the layout of the *Calendar* in precise detail. After the *Calendar's* opening dedication page decorated with a calligraphic design held by angels, the *Codex* begins with full-page images of female personifications of the four major cities of the Roman Empire—Rome, Alexandria, Constantinople and Trier—along with their identifying iconography. These impressive illuminations were followed by a list of the apotheosized Roman emperors from Augustus to Constantine including the current emperor, Constantius.

Fig. 2.1 December folio,
Calendar of 354, Seventeenth
Century Reproduction



invocations illustrations, historical and festal notices—secular, Christian and imperial—attest to the blending of these elements at a high social and intellectual level” (Weitzmann 1977: 79).

The initial sections are followed by illustrations of the ‘seven planets’ including their legends (Jupiter and Venus are now missing) and an illustrated calendar page for each of the 12 months decorated with the appropriate sign of the zodiac in a small medallion. A full-page miniature faces each calendar page depicting a single figure shown in an activity applicable to that month and accompanied by descriptive verses; next follows the series of lists, feast days, and civic dates. Bringing the book to a close are the historical chronicles of Rome complete with a king list from the time of Romulus and a description of the city itself (Fig. 2.1).

The layout of each calendar folio is exactly the same format seen in later devotional Books of Hours and in many medieval manuscripts containing calendars. The page lists the columns of letters applying the typical Roman system of time reckoning divided into Kalends, Nones, and Ides. Each day of the month is noted by the important event or anniversary celebrated on that date, even indicating

the inauspicious Egyptian days (*dies aegyptiaci*).⁵ Red ink was always employed to specify the most significant dates, known as the ‘red letter days’.

The appropriate zodiacal sign was pictured for each month, enclosed in a small circle, a motif that persists in calendars of medieval psalters and sacramentaries. Since this manuscript comprised much more than a typical calendar, *Codex-Calendar of 354* could be described more accurately as an almanac. Similar to the numerous almanacs produced in the seventeenth and eighteenth centuries, the Roman calendar included lists of important dates as well as astrological lore concerning the planetary week, the zodiac and helpful tidbits of information or predictions. The ‘seven planets’ with their negative and positive qualities were described along with the attributes of the days and the hours over which they presided according to astrological theory. As in most astrological interpretations, Saturn and Mars represented mostly negative forces; Mercury, Moon, and Sun signify neutral influences; the more auspicious planets Jupiter and Venus were considered bearers of beneficial aspects (Blackburn, 1991: 570).⁶ In ancient Rome, producing a calendar for a private individual and including astrological data was not unusual, as classical sources confirm similar examples of private calendars; their appearance affirms the mounting popular interest in the prophetic characteristics of natal astrology (Salzman 1990: 9).⁷

The *Calendar of 354* encompasses an immeasurable source of information from that crucial period of transition after the imperial administration had relocated to Byzantium in the East and the long-established pagan religion of the Western Roman Empire was converting and adapting to the new Christian doctrines. In addition these significant writings offer insight into the treatment of both text and illustrations during the conversion from the papyrus scroll to the parchment codex. The *Calendar* is recognized as the earliest dated manuscript with full-page illuminations in Western art, comprising not just one picture cycle, but several sets of pictures drawing from different religious and secular traditions (Salzman 1990: 33).

The superior artistic quality of the miniatures in the calendar attests to the complexity of their sources. The *Calendar* manifests both the ‘new’ format displaying full-page illuminations created for the codex as well as retaining pictorial elements that were commonly found in papyrus scrolls. Its miniatures exhibit

⁵In most medieval calendars, each month contained at least two Egypt Days which were considered bad luck days, a time when certain activities were to be avoided, beginning a journey, planting crops, especially medical treatments, and bloodletting.

⁶The *Oxford Companion to the Year* gives a full account of the astrological interpretations of the planets and their influence on the days of the week especially for medical conditions and treatments.

⁷Salzman cites writings of Petronius, Juvenal and other literary references that support the conjunction of calendars with the practice of astrology.

ornamental complexity, as the full-sized figures are embellished with architectural devices, columns and curtains (Nordenfalk 1988: 8).⁸ The format of the zodiacal images, placed in small medallions that illustrate the text, is still in what Weitzman calls the ‘papyrus tradition’ (Weitzman, 1971: 106).⁹ The signs of the zodiac have not advance to full-page miniatures, as we will see in the Leiden *Aratea*, but were treated in the established manner and inserted into the text pages.¹⁰

The illustrations of the *Calendar of 354* are especially important when studying *Aratea* manuscripts because these astronomical images can be accurately dated. Also they are the earliest calendric examples on parchment that survive and they hold traces of images that may have appeared in papyrus scrolls, although it is impossible to determine if papyrus calendars were illustrated, as none survive. The codex format of the *Calendar of 354* coincides with the development of parchment manuscripts, most likely a fourth-century innovation, and so could not have been produced before the end of the third century.

Thiele, Nordenfalk, and others have compared some of the drawings of the Leiden *Aratea* to those in the *Calendar of 354*, and Salzman continues this *comparanda*, which will be discussed in greater detail in Chapter Seven. Some of the illuminations in the Leiden *Aratea* may have been modeled after those in the *Calendar of 354*, but there are other possible sources for the artwork as well. A small number of illustrated manuscripts survive from antiquity that can also be examined as potential models for the picture cycles in the ninth-century *Aratea* manuscripts. The calendar tradition passed on popular and basic astronomical data, keeping alive essential classical iconography, but offering no real scientific information. Celestial globes are another potential source for astronomical iconography; these do retain more technical details, depicting the sphere of the heavens and the relative positions of the constellations.

Aratus and the Art of Celestial Globes

The concept of constructing an actual model of the sky, picturing the location of the constellations including the Milky Way and the celestial coordinates, and demonstrating how the stars move as a fixed unit around a central axis, appears to have originated in Greek antiquity. As mentioned previously, Cicero recorded the belief that the Greek astronomer Eudoxus had created a star globe that accurately depicted

⁸Nordenfalk states that we know from Egyptian papyri that it was already customary to frame tabular texts with ornamental colonnettes in scrolls of the Hellenistic epoch and this format continued in calendar illustrations remaining popular until the Renaissance.

⁹Weitzmann discusses many possible models for the illustrations of the *Codex-Calendar of 354*.

¹⁰In addition to their value as evidence of the transition in artistic styles underway during the Early Christian period, these calendar miniatures are historically important, since four pictures show pagan religious festivals which Romans continued to celebrate into the fourth-century Christian era.

Fig. 2.2 Farnese Atlas,
Second Century CE, Naples,
National Archaeological
Museum, Public Domain



the formations of the constellations (Mair 1969: 196).¹¹ Careful analysis has shown that Aratus used the globe of Eudoxus along with his treatise on astronomy as guides for describing the positions and appearances of the constellations (Thiele 1898).¹² The Farnese Atlas, now at the National Archaeological Museum in Naples, bears the weight of an extant celestial globe, carved in stone, a direct descendent of the globe of Eudoxus. In the early 16th century the famous globe was acquired by Alessandro Cardinal Farnese, reflecting the fact that the orb had been long exhibited in the Villa Farnese (Figs. 2.2 and 2.3).

The Farnese Globe is a second-century CE Roman copy of a Hellenistic sculpture depicting Atlas bent on one knee, weary from upholding the immense

¹¹Mair 196, Cicero *De re publ.* 14 and *De orat.* i.15.

¹²A nineteenth-century study by Georg Thiele, *Antike Himmelsbild*, 1898 concluded that the constellations as described by Aratus were not based on an earlier version of the Farnese Globe. A connection between the two would be impossibility since they differ greatly in their placement of the constellations; in addition Aratus was not aware of the colures which are included on the Farnese Globe. But the placement of the constellations on the Farnese orb do demonstrate an “absolutely certain basis for the relationship of the sphere to Hipparchus.” Thiele logically asks would not an artist who wanted to display Atlas supporting a celestial sphere choose the most famous and widely known version as a model.

Fig. 2.3 Farnese Atlas detail, Second Century CE, Naples, National Archaeological Museum, Public Domain



weight of the universe on his shoulders (Tester 1987: 106).¹³ This sculpture (although partially restored) is the oldest surviving representation of both Atlas and the celestial sphere; little is known about exactly where or when it was carved. The slightly damaged globe and figure, missing its face, arms, and legs, were rediscovered at Rome in the sixteenth century. The impressive Titan statue now stands 7-feet tall, supporting the heavenly orb that measures 65 cm in diameter. Carved on Atlas' marble sphere are remarkably accurate depictions of 41 constellations, precisely positioned against a grid of reference circles including the celestial equator, the tropics, the colures, the ecliptic, the Arctic and Antarctic Circles. The bas relief images stand out sharply from the background sky but depict no individual stars. Various experts have presented different conclusions on which astronomer's calculations the Hellenistic or Roman sculptor consulted when mapping the constellations. A comprehensive study was undertaken by Bradley Schaefer in 2005 which conducted a detailed comparison of the positions of these constellations with the known works of Aratus (based on Eudoxus), Hipparchus, Ptolemy and Ps.-Eratosthenes.¹⁴ Celestial globes could help one in learning the relative positions of the constellations but no writings on their actual usage are extant from Antiquity. But since there were many *Aratean* texts and their scholia available for Greek–Roman education, it was possible to learn basic astronomy from a descriptive tradition instead. The oldest examples of books on the use of the celestial globe are found in the Middle East. A work entitled, *Book on the Sphere and its Use* by Habash al-Hasib, which is dated to the ninth century, is the earliest yet found (Dekker 2013: 282). Much was written about the celestial globe as a useful devise

¹³Tester states that Thiele determined the date, based on the Farnese's artistic styles related to the Hadrian epoch, surely before 150 CE.

¹⁴The study was published in the *Journal for the History of Astronomy*; B. E. Schaefer's work aligns to that, the Epoch of the Constellations on the Farnese Atlas and their Origin in Hipparchus's Lost Catalogue, of Thiele.

for learning basic astronomy, but useless for making any type of observations or accurate readings.

As we have seen, Aratus' poem made a huge impact both on the literary world and on the advancement of astronomical knowledge. During the Classical Age, the popularity of the *Phaenomena* tended to "freeze the development of the constellations as well as to define the basic properties of the group". The stellar positions imbedded in the *Phaenomena* carry a wealth of information and allow astronomers even today to draw informed conclusions. The same holds true for the constellation positions on the Farnese Sphere. In addition to other telling evidence, the placement of the summer solstice at the start of Cancer next to the head of Pollux rather than next to the start of Leo indicates that the source for the sphere's astronomy was dated after the era of Aratus. Also the constellation descriptions by Aratus are verbal, and would have been more difficult to transfer to a globe than actually copying from a celestial sphere or a star chart. Comparing the extant ancient sources with the Farnese Atlas produced an almost perfect agreement with the constellation descriptions of Hipparchus; other early sources show serious differences. Schaefer's comprehensive study establishes a strong case for identifying the original observer and demonstrates that the Farnese Globe must be a depiction of the lost star catalog of Hipparchus not Aratus or Eudoxus.

Depending on the model consulted, the constellation figures on a celestial sphere could be drawn from two opposite perspectives. In the first mode, viewers were expected to imagine themselves in a geocentric position within the heavenly globe or on the earth, looking upward at a frontal view of the mythical characters. The other perspective reverses the position of each image, as if the viewer is outside the celestial sphere looking down in a god-like manner onto the backs of the figures. Already at this early date, the mythological human figures on the Farnese sphere were given the god-like perspective, drawn facing inward, displaying the backside of the constellation figures.¹⁵ The Farnese Globe shows most human constellation figures from the rear, some clothed, some naked. Another indication of the outside view is the depiction of Taurus; when seen from earth the half-bull faces to the left; on the Farnese the half-bull faces right as would appear from outside the universe. This practice of depicting some of the constellation figures from outside the stars became an established convention, found in manuscript illustrations, in the fabulous ceiling frescoes of Renaissance palaces, and still appears on modern celestial globes.¹⁶

Few celestial globes survive from before the sixteenth century, but images of the constellations can be viewed engraved on astronomical instruments, invented in ancient Greece but improved and advanced by Arab astronomers, particularly the astrolabe. The archetypal mythology of the constellations applied not only to its

¹⁵For a more thorough discussion of this earth view versus god view concept, see Thiele and Stevens, "The Figure of the Earth in Isidore's *De natura rerum*", *Isis*, 71 (1980): 268–277.

¹⁶See Dekker, *Illustrating the Phaenomena*, 2012 for a full description of the placement and exacting details of the constellations on the Farnese Atlas Globe, pp. 84–102.

primary function as a technical device for organizing the sky, for it also provided easily remembered stories as mnemonic devices. As we have seen, the iconography of the constellations was appropriated from the depictions in the sky for political propaganda by the Caesars, but astronomical or astrological symbolism was also taken over by religious cults and even by Christianity.

Astronomical Art in the Cult of Mithra

Mithraism, one of the most successful mystery cults that pervaded the Roman Empire, must not be overlooked when investigating the strong interest in astronomy and astrology during the Classical Age, its importance in daily life of Roman men, and as a source for inspiring the production astronomical artworks. An extremely rich iconographic program, concentrated on cosmological imagery, has been preserved in Mithraic temple sites, but as a consequence of the utmost secrecy required of its members, the interpretation and deciphering of that imagery has been questionable. A plethora of cosmically inspired statuary: the Dioscuri, Aion, Phanes, and the unnamed lion-headed God whose body is inscribed with the signs of the zodiac, have been excavated in many Mithraic temples. The dominant artwork embraced by Mithraism, an enigmatic cult image called the Tauroctony, seems to have been an essential element of their devotional activities. An image of the God Mithras slaying a large bull called the Tauroctony, as a wall fresco or a carved statue, has been discovered in almost every Mithraeum to date (Ulansey 1989: 6).

The Mithraic-centered religion began to spread throughout the Roman Empire during the first-century BCE and attained its peak in the third-century CE, but was effectively wiped out by Christianity by the beginning of the fifth century (Ulansey 1989: 4). Fortunately hundreds, perhaps thousands, of Mithraic temples, decorated with cryptic astronomical frescoes and sculptures, survive as witnesses to the mystery cult's success. Temples devoted to Mithras have been uncovered throughout all areas of the vast Roman Empire even the frontiers, especially where Roman soldiers were stationed. Mithraic ruins have been discovered from as distant locales as Hadrian's Wall, western Germany, Dura Europus, and scattered across North Africa. In the port city of Ostia as many as 14 Mithraea temples have been excavated. One of the largest Mithraic temples, built around 200 CE was discovered in the nineteenth century beneath the Church of San Clemente in Rome (Figs. 2.4 and 2.5).

In addition to military devotees, wealthy merchants and educated laymen were initiated into this all-male secretive and exclusive cult as well. Undoubtedly their utilization of caves and underground locations for their preferred places of worship improved their chances for survival. The interior of the Mithraea were mostly dark, lighted only by candles, as opposed to Sun temples open to the heavens, the stars, and the constantly changing sky. Most Mithraic temples were relatively small; many had adequate space for only a dozen or two devotees to assemble. Ceilings of the caves or subterranean temples were designed to simulate the night sky. Research



Fig. 2.4 Mithraic temple ruins under San Clemente Church, Rome, Second Century CE

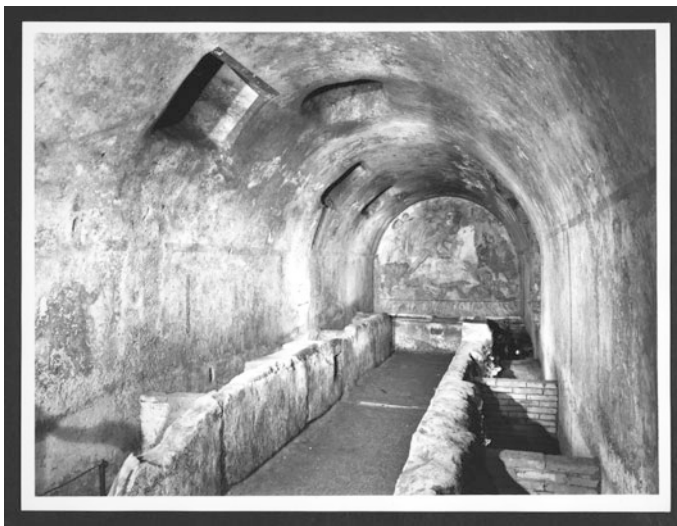


Fig. 2.5 Mithraic temple ruins Campania, Santa Maria Capua, Vitere, Second Century CE

has suggested that some of these sanctuaries were actually used as observatories and that holes were drilled in the walls and ceiling for specific astronomical purposes (Ulansey 1989: 17). The majority of the Mithraea are designed on an east–west axis with a single entrance from the west leading the cult devotees and participants to the focal point of the sanctuary, the carved or painted relief of the



Fig. 2.6 Tauroctony Fresco, Mithraeum, Dura Europus, Syria, 168–171 CE

god Mithras ‘Slaying the Bull’. The cult icon consists of an image of Mithras astride a massive bull; also depicted are a snake, a dog, a raven, a cup, a scorpion, and occasionally a lion. The dog and snake are pictured striving for the sacred blood flowing from the knife wound of the sacrificial bull, the scorpion appears near the bull’s genitals and the signs of the zodiac usually surround the whole symbolic scene. The revered figure Mithras always appears clad in Eastern pajama-like garb adorned with a wind-blown cape decorated with stars; his exotic costume was completed with a floppy Phrygian cap.¹⁷ The youthful god turns his head away from the distressed bull and gazing skyward, he plunges his knife deep into the bull’s neck (Fig. 2.6).

The abundance of cosmological references in the artworks and artifacts excavated from the ruins of Mithraic temples provides proof that the cult of Mithras sustained a strong astronomical focus. Religions with an astral base, such as Mithraism, and the spiritualizing philosophies of Hermetism and Gnosticism were in effect attempts to assist the devotee to avoid or become liberated after death from a fate directed by the stars. Fortunately, the large quantity of iconographic evidence provides clues into the cult’s beliefs that are missing in early literary works. The dearth of contemporary written documentation leaves a vacuum in evidential material and has hampered progress in divulging Mithraic mysteries since adepts of the cult were compelled by sacred vows of secrecy not to reveal their beliefs, activities or religious rituals. Contemporary references are generally filtered through early Christian sources which tend to present biased or derogatory accounts of the mysterious pagan religion. Astral religions such as Mithraism, spiritualizing

¹⁷See also, F. Saxl, *Mithras I and Mithras II, Saxl Lectures*, (1957) 13–44 for more information on Mithraic iconography.

Fig. 2.7 Tauroctony scene, unknown provenance



philosophies such as Gnosticism and Hermetism, and the development of a body of astral magic were all attempts to help the individual to escape or become liberated after death from his fate decreed by the stars.

The enigmatic iconography of this ritual Tauroctony artwork has been subjected to astronomical and astrological interpretations. Mithraic scholar Ulansey has constructed a very convincing argument that every figure poised on the Mithraic icon represents a heavenly constellation and Mithras himself personifies the constellation of Perseus. Moreover, all of these pictured constellations are aligned between the zodiacal signs of Taurus and Scorpio. Taurus the bull, Canis Minor the dog, Hydra the snake, Crater the cup, Corvus the raven, and Scorpio the scorpion all fall along the celestial equator; and in the identical order usually seen on the icon.¹⁸ The bull slaying scene depicted in every Mithraic temple is actually a celestial map (Fig. 2.7).

Also included within this Mithraic pantheon are two attendants, male torchbearers Cautes and Cautopates, attired as smaller versions of Mithras with chiasmic-crossed legs. Both carry long torches, the torch of Cautes points up; the torch of Cautopates points down. The iconography of these two companion figures suggests an association with the spring (Cautes) and fall (Cautopates) equinoxes when the duration of day and night becomes approximately equal, and the sun crosses the celestial equator indicating the change of season. Other possible associations of the torchbearers that have been suggested by Mithraic specialists are: the brightest stars of Taurus (Aldebaran and Antares), a symbol of light (the rising and

¹⁸Ulansey credits a 19th century German scholar K.B. Stark for first proposing an astronomical explanation of Mithras which was dismissed by the scholar of ancient religions Franz Cumont, who assumed the cult had Iranian roots, and therefore that explanation was ignored until the late 1970s. See Ulansey for a detailed discussion of his astronomical theories.

setting sun), or the formation of a trio (the thrice-great Mithras), or the Neoplatonic theories of life, death and the reentering of the soul into a new existence.

The cosmic tableau of the Mithraeum has been gradually divulging its mysteries and the debated reinterpretation of the cult iconography, if accurate, gives even more credence to the influence of the heavens in the daily life of those living in Roman Empire. Artistic remnants preserved from Mithraic rituals provide an excellent example of how astronomical and astrological information could be encoded into the iconography of artworks. Astronomical artworks, statuary, and relevant images utilized in the cult of Mithras, have been excavated throughout the widespread territory of Roman occupation and are currently being studied in consideration of their celestial implications. The artistic adornments of Mithraic temples provided abundant representations of contemporary astronomical iconography, especially zodiacal depictions, available for adaptation by early manuscript illustrators. The signs of zodiac originated in Mesopotamia early in the first-millennium BCE, but they were not used in Greece before the fifth-century BCE. (North 2008: 70) Dating from the Classical Era, the signs of the zodiac became a convenient and significant artistic symbol easily recognized by varied cultures through many time periods, even in most unsuspected places.

Zodiacal Mosaics in the Roman World

In addition to the previously mentioned exemplars, another possible model for astronomical imagery can be found in mosaic artworks. Mosaic floors were ubiquitous in the ancient world and have been uncovered in most archeological sites throughout the Roman Empire. Since mosaic images formed from stone, marble and glass tesserae are long-lived compared to the more fragile materials, such as papyrus scrolls and wall frescoes, they provide an important record of iconographic forms surviving from Late Antiquity. Mosaicists of that time relied upon the familiar and valued designs depicting historical, religious, and mythological images and stories. Popular themes for wall and floor mosaics included the calendar, the signs of the zodiac, the planetary gods and goddesses, mythical heroes, female personifications of the four seasons and the nine muses; these appeared in a wide variety of artistic creations in both public and private artworks (Parrish 1984: 15).

The themes bearing the most significance for this examination of astronomical art are the mosaic reproductions of Helios in his quadriga, Luna in her ox cart, the signs of the zodiac, and the heavenly constellations. A frequent companion to the four seasons in North African floor mosaics is the well-known image of Aion, whose attribute is the elliptical band of the zodiacal signs (Parrish 1984: 46).¹⁹ In some areas iconic images of

¹⁹The god of eternity appeared in both imperial and private Roman monuments, sometimes as youthful but often as an elderly man. Aion with his zodiacal circle is found in connection with Mithraic cult sites as well.

Fig. 2.8 Helios in Quadriga surrounded by Zodiac, unknown provenance



Helios/Apollo and Luna appear with the zodiac and the four seasons. Many remarkable examples of zodiacal floor mosaics are extant from the Roman World, but the most extraordinary images are those discovered in early Jewish synagogues, preserved in various conditions. In the words of Hershel Shanks, editor of *Biblical Archaeology Review*, “What’s a Greek god doing in an ancient synagogue?” (Fig. 2.8).

Zodiacal Art in Ancient Jewish Synagogues

During the Roman-Byzantine period, the villages or towns which had a sizeable Jewish community also had at least one synagogue and possibly even more, fulfilling the need for places for worship after the destruction of the Second Temple by the Roman army under Emperor Titus in 70 CE. In ancient Palestine alone, over 100 synagogues have been uncovered in archeological investigations dating from CE 100 to 600 (Levine 1998: 139). These religious assembly buildings were designed in a variety of styles and the type of décor found within them reflected the current popular tastes of the larger Roman-dominated society, but were deliberately and consistently adapted to meet the beliefs and ideals of the Galilean Jewish communities. From the age of Constantine onward, the cult of Holy Places established by Helena, mother of Constantine, in Palestine led to the construction of huge numbers of Christian churches as well (Dunbabin 1999: 192). They too were decorated with elaborate floor mosaics.

Similar to most Roman and Byzantine public and private buildings of that era, the floors of the synagogues that have been excavated were customarily decked

with artistically designed mosaic pavement; it seems that the Jewish prohibition of figural representations had been relaxed, at least in some areas (Dunbabin 1999: 188). But surprisingly, the Jewish religious images and symbols in the mosaics often appear alongside traditional Roman pagan symbols. In addition to the expected Jewish icons, the menorah, ram's horn and tabernacle, Roman images are found in conjunction with religious emblems: the eagle, symbol of imperial Rome, naked cupids holding Greco-Roman wreaths, and winemakers pressing grapes in a Bacchic scene.

Most unexpectedly, in some of these ancient synagogue floor mosaics, a central and dominant position has been devoted to astronomical or astrological imagery. Examples of these zodiacal mosaic floors have been discovered at six archeological sites in ancient Palestine dating from the fourth to the sixth century: Beth Alpha, Hammath-Tiberius, Husifa, Khirbet Susiya, Na'aran, and the highly sophisticated floor mosaic of Sepphoris discovered in 1993. The seventh synagogue was found at Yafia, but the site is too damaged to be sure of its mosaics. The basically similar oblong compositions display a zodiacal wheel in the center where images of the twelve signs of the zodiac are encased in pie-shaped wedges; the zodiac is framed by emblematic as well as historical symbols of the Temple and the Tabernacle in the desert. Bianca Kühnel has investigated these anomalies and characterizes the remarkable floor mosaics as "one of the most authentic creations of Jewish art" (Kühnel 2000: 43).

Jewish religious principles and in particular the Second Commandment forbid polytheism and the depiction of images of God or Yahweh as well as other living beings or animals; followers of Islam of course adhere to these same restrictions. Christianity in the East also struggled with the display and worship of sacred images attested by iconoclasm in the eighth and ninth centuries. These iconoclastic views were not so tightly adhered to in Jewish society during the Late Antique and Early Byzantine Eras, as demonstrated by the extensive synagogue frescoes discovered at the Roman military town of Dura Europus. This synagogue is one of the earliest to survive; the construction was dated by an inscription to 244 CE (Fig. 2.9). (See Weitzmann, K. and Kessler, H. (1990)

But the discovery of mosaic images of the Greek and Roman Sun God, Apollo/Helios/Sol Invictus, and representations of the pagan mythological world, combined with scenes from Jewish sacred scriptures was initially quite shocking. These surviving zodiacal mosaics are relatively consistent in the images and symbolic pattern included, as well as in the symbols that they exclude. Although the image of Apollo standing in his *quadriga* dominates the central position of these zodiacal floors, Apollo's female counterpart Luna or Selene was either omitted entirely or reduced to an insignificant crescent moon in these heavenly scenes. Surprisingly the Moon Goddess, whose traditional iconography portrays her steering a small cart pulled by two oxen or cattle and holding a flaming torch, does not appear in any of the synagogue zodiacal mosaics. The customary symbols of the Sun and Moon as seen in later astronomical manuscripts are usually pictured side by side, or one above the other in the center of the circle displaying the twelve signs of the zodiac.



Fig. 2.9 Synagogue frescoes, Dura Europos, Syria, Third Century CE, Public Domain

The artistic diagram of the zodiacal sphere was certainly not an original creation by Jewish synagogue artists, but was envisioned much earlier in Roman artworks. (Kühnel 2000: 42) The appearance of astronomical symbols and the signs of the zodiac in decorative arts, mosaics, and on gold and silver coins was well established in Roman times especially among aristocrats; even Emperor Constantine, governing in the growing Christian world, was still using astrological symbolism on his coins (Fine 2005: 90). But zodiacal mosaics were adopted for symbolic synagogue décor from non-Jewish sources and were maintained for centuries, even after the Christian world had mostly terminated their use of this symbolism in architectural contexts until it was re-worked during the Carolingian and then Romanesque Periods. Religious historians are still offering explanations and justifications for this ostensibly sacrilegious iconography that decorated many ancient Near Eastern synagogues.

The Zodiacal Mosaic at Beth Alpha Synagogue

Discovered in 1928, the Beth Alpha floor mosaic remains the best preserved and most highly publicized of the surviving synagogue zodiacs and is pictured in many art publications.²⁰ The Beth Alpha synagogue had been destroyed in an earthquake,

²⁰For example, the Beth Alpha zodiacal mosaic is featured and discussed in Snyder's *Medieval Art*, p. 6 and in Stokstad, *Art History*, Fourth Edition Volume 1, p. 221.

Fig. 2.10 Zodiacal Mosaic,
Beth Alpha Synagogue,
Israel, Early Sixth Century,
Public Domain



but fortunately for historians, the important zodiacal mosaic survived, carefully protected by a layer of fallen plaster. As a result, the central floor mosaic carpet is still in an excellent state of preservation, while the mosaics in the eastern aisle, narthex and courtyard were mostly destroyed. Information about the local artisans who laid the floor, Marianos and his son Haninah, was preserved in two mosaic inscriptions, written in both Greek and Aramaic, along with the names of various donors and the date of the Beth Alpha synagogue's dedication, during the reign of Byzantine Emperor Justin I, in the early sixth century (Negev 1990: 55) (Fig. 2.10).

The Beth Alpha floor mosaic is divided into three separate panels; each surrounded by an ornate border, and all are designed to be viewed from the north. The first section shows Abraham preparing to sacrifice Isaac; the panel closest to the pulpit and apse holds a depiction of a tabernacle flanked on each side by a menorah, a ram's horn and other symbolic Jewish articles. The religious objects in these two divisions are scattered about to fill the neutral ground, a technique common in the design of late Roman mosaic pavements. The mosaicists used 21 different colors of stone and glass tesserae.

Our main interest focuses on the square central panel containing the zodiacal diagram divided into 12 equal sections that hold its appropriate constellation figure identified by an inscription in Hebrew. Each constellation is pictured in its recognizable form, but presented in an unclassical manner, more awkward and amateurish in its rendering. The center of the circle holds an image of Apollo/Helios standing in his *quadriga* and driving his four horses; each of the four horses had been individualized in a slightly different way. The bright rays of light encircling Apollo's head form a golden crown, only his head and neck are pictured; on the sun

god's left is a tiny crescent moon, stars fill the background, most of which have fallen to the bottom of the circle, indicating that the starry night is being eclipsed by the rising sun. The signs of the zodiac are read in the usual counterclockwise direction, but begin with Libra in the ascendant position, which is unusual. More often its counterpart or opposite sign, Aries, the sign of spring and the vernal equinox holds that primary position.

In the four corners of the square that encloses the zodiac are personifications of the Four Seasons, female half-figures with wings, shown with appropriate attributes, each is inscribed with its Hebrew name (Ness 1990: 5).²¹ The artistic workmanship of this multicolored pavement falls far below that of the other mosaic synagogue floors, such as the one at Hammath. The Beth Alpha artisans were more accomplished in their creation of abstract patterning than in their human and animal likenesses, as the braided bands that make up the circles and dividers of the zodiac are very carefully executed. The depictions of the astrological signs, although astrology was condemned by the prophets, became a widely used decorative program appearing in early synagogues. The astronomical mosaic designs at Beth Alpha are not unique but represent a colorful folk art rich in motifs; although the pagan character of the central scene remains striking.

Synagogue at En Gedi

En Gedi, a popular oasis in the Judean desert, had a large Jewish community during the early Byzantine Empire (Ness 1990: 5/12). The ancient En Gedi synagogue was discovered by local farmers in 1966, excavation followed in 1970–1972. The archeologists concluded that the synagogue had been constructed in three phases with the zodiacal inscriptions belonging to the latest phase, which was destroyed by fire around 530 CE (Ness 1990: 5/13). An important inscription was uncovered in the western aisle, one of the longest ones yet found; it contains a list of both the 12 signs of the zodiac and the months in Hebrew, among the other inscriptions (Fine 2005: 198). The circular diagram of the zodiac, with at least six known examples, was not found here; but the zodiacal signs were inscribed, the only known instance of this format. The zodiacal signs are followed by the listing of the 12 Jewish months, another rare appearance among synagogue inscriptions.

²¹Ness describes the Four Seasons, “Spring, or Nisan, holds a shepherd’s crook, for example, while Summer, or Tammuz, sits among fruit and grain crops. Fall has a star overhead, as at Na’aran. Winter is marked by red cheeks.”

Synagogue at Hammat Tiberias

On the shore of the Sea of Galilee, the Hellenistic city of Tiberias, named for Emperor Tiberius, was renowned in antiquity for its therapeutic hot springs; a famous Roman temple dedicated to Hygiea, goddess of health, was constructed there, as well as several synagogues. A fourth-century synagogue mosaic, discovered in 1947 at Hammat Tiberias, is among the earliest zodiacal floors, dated to the mid-fourth century; its artistic conception and workmanship can be rated far superior than many of the later synagogues and is outstanding even when compared with its contemporary public and private mosaic work. The entire floor of the building was decorated with mosaic patterns of the finest quality of richly colored browns, oranges, and beiges (Negev 1990: 166).²² Its classical style is its most impressive feature, quite different from the more ‘primitive’ style of other Jewish mosaics.

Unfortunately a later stone wall was constructed through the circular diagram, obliterating part of the central design along with four constellation figures. The zodiac found at Hammath is similar to the other synagogue floor designs with its inclusion of both pagan and Jewish symbolism, although the entities are kept separate and do not intermingle. This mosaic floor is also divided into three sections each with a distinctive border; the portion closest to the entrance consists of nine sections, each inscribed in Greek. The middle section is decorated with the familiar zodiacal pattern, and the third part depicts an Ark or Tabernacle, flanked by a menorah and ram’s horn on either side (Negev 1990: 167) (Fig. 2.11).

The center of the diagram has a splendid, but partially damaged Apollo, attired in Imperial Roman style with a cloak decorated with a large circular pin. The sun god’s youthful face is beardless and encircling his light-tinted hair, a shining halo emits seven rays of light. His right hand is raised as if giving a blessing and his left hand holds a whip and an orb with two circles intersecting.²³ The chariot in which Apollo rides has been destroyed, but seems to emerge from the sea, visible in the lower part of the inner circle; the sky behind him includes only one large star on his left and a pale crescent moon to his right. The 12 signs of the zodiac are symbolized in their usual Hellenistic portrayals, even including nude, uncircumcised male figures for Libra and Aquarius and every month has its name inscribed in Hebrew (Ness 1990: 5/10).²⁴

²²Negev states that they were probably created by foreign artists, while local artisans, a father and son team, executed the designs on the floors at Beth Alpha and Beth Shean which are of much lesser quality.

²³One author calls the globe a shield, but this could not be correct, as a shield is never displayed in the palm of the hand.

²⁴Ness suggests that perhaps the mosaic was made by gentile workmen.



Fig. 2.11 Zodiacal Floor Mosaic at Hammath-Tiberias Synagogue, Fourth Century

Synagogue at Husifa or Ishya

The Husifa zodiacal floor mosaic was discovered in 1930 in the ancient synagogue located on Mt. Carmel not far from Haifa. The synagogue was oriented toward the holy city of Jerusalem, but the building had been destroyed by fire, perhaps during the reign of Justinian (Ness 1990: 5/6). Since it lies beneath modern buildings, only half of this ancient sacred site has been excavated but a similar astronomical mosaic carpet was revealed there. Originally the entire synagogue floor was covered with outstanding mosaics that are now badly damaged, but due to the ravages of time, not iconoclasts. In the nave, traces of a dedicatory inscription still survive, in addition to the geometric carpet and the traditional zodiacal diagram. The zodiacal panel consists of two circles inscribed on a square; the smallest of the zodiacs found so far (Ness 1990: 5/7). The inner circle is almost entirely destroyed and none of the central figure survives.

Fragments of the five zodiacal signs from Sagittarius to Aries can be identified; they were designed in a parallel manner to those at Beth Alpha. Sagittarius at both of these sites is depicted as a nude human figure, not a centaur, holding a bow, and covered with a cloak, similar to the iconic lion skin held by Hercules. Only the horns remain of the sign of Capricorn, but Aquarius survives mostly intact, not the expected male figure pouring water, instead a lone jar from which a stream of water flows forth. The double fish representing Pisces have been damaged considerably, only the fin and tail can be recognized; merely the tip of its tail and hind hooves

remain of Aries the ram. The Husifa zodiacal mosaic has not been positively dated, but its similarity to the Beth Alpha and Na'aran mosaics allow it to be securely placed in the fifth or sixth century as well (Ness 1990: 5/7).

Synagogue at Khirbet Susyia

Traces of a zodiacal diagram, along with a scene depicting Daniel in the Lions' Den, were discovered at Khirbet Susyia, an ancient synagogue near Hebron in southern Palestine. The site was surveyed in the nineteenth century and excavated in 1971–1972, revealing a complex history (Ness 1990: 5/10). Actively used from the fifth to the eighth or ninth centuries, only traces survive from the various levels of the floor mosaics in this synagogue, but there is enough evidence available to suggest a zodiacal circle design. The Biblical scenes and the zodiacal wheel from the fifth century were removed in the sixth century and replaced by a more neutral and less controversial floral and geometric carpet of cruder quality (Fine 2005: 95).²⁵ Part of a zodiacal wheel can be distinguished, thus it is 'probably reasonable' to add this site to the list of astrological mosaics (Ness 1990: 5/11). It is quite possible that this mosaic design may have been destroyed by iconoclasts, as was the mosaic at Na'aran.

Synagogue at Na'aran Yafiha

In 1918 a German bomb exploded in Na'aran, 2½ miles north of Jericho, accidentally exposing the mosaic pavement inside an ancient synagogue that had survived from antiquity in excellent condition, the first zodiacal floor design discovered. The date of the mosaic's production is still debated by archeologists, most likely within the fifth and sixth centuries (Negev 1990: 273). The mosaic floor had been decorated with many types of birds and animals that had been deliberately and carefully removed in the eighth or ninth centuries; the destruction had not been carried out by anti-Jewish fervor, as expected, but by Jewish iconoclasts during a time of strict religious orthodoxy (Fine 2005: 84).²⁶

Even though seriously vandalized, enough of the floor remains to permit an accurate reconstruction. The zodiacal diagram appears in a large square panel containing two concentric circles with the usual depiction of Apollo in the center, driving his *quadriga*. Here, as was the case with the other living creatures in the

²⁵Fine reports evidence of other iconoclastic activity at Susyia, as images of animals and human figure were removed from the screens surrounding the main bema as well.

²⁶Fine says that after the removal of the sacrilegious images, the religious life of the Jewish community seemed to continue as it had in the past.

Na'aran mosaic, the figure of Helios and the faces of his four horses have been gouged out leaving only the wheels of the chariot, the rays of light emitted from his halo, his whip, and his cloak decorated with stars. But utmost care had been taken not to damage the names of the months as they were written in Hebrew, the sacred language.²⁷ The 12 zodiacal signs were badly damaged; but from what remains, their iconography seems comparable to other synagogue mosaics. The symbolism depicted in the Na'aran mosaics matches that found in other synagogue floors; the workmanship appears distinctive, but not outstanding.

In addition to the zodiacal pattern, the floor was decorated with the image of a Torah Shrine flanked by two menorots; nearby another mosaic scene depicting the prophet Daniel between two lions had also been ruined. The most astonishing feature of this archeological site lies in the scale of the vandalism that the zodiacal mosaic suffered and the careful selectiveness of that destruction. The zealots attacked only animal and human forms, especially their faces. Plant life, Jewish symbols, and Hebrew inscriptions were left unharmed, implying that the vandals were Jews, prompted by religious motivation (Ness 1990: 5/4). Although each synagogue's zodiacal mosaic has its own distinctive features, the most intriguing ancient floor must be the one excavated at the celebrated ancient city of Sepphoris.

Synagogue at Sepphoris

The Sepphoris Synagogue's zodiacal mosaic floor was excavated in 1993; the structure was built in the first half of the fifth century and destroyed at the end of the Byzantine Period, mid-fifteenth century.²⁸ Recent excavations at Sepphoris have detected more than 40 mosaic floors found in both public and private structures, rating the city as one of the most important sites in the ancient world for its wealth and for its variety of mosaic decorations surviving from the third to the sixth centuries (Weiss and Netzer 1998: 10). The Sepphoris floor mosaics are noted not only for their exceptional artistry and richness, but for their sensitive iconography and classical style. This synagogue mosaic ranks as the most sophisticated of the seven discovered in its size, layout, and extensive pictorial design, and comprises the most complex decorative program preserved in a Palestinian synagogue. Its arrangement of 14 separate panels has been compared to the extensive mural designs uncovered within the ancient synagogue of Dura Europa (Weiss and Netzer

²⁷Sacred writings in Hebrew could not be destroyed, but if no longer usable, were kept in the *genizah* found in every synagogue.

²⁸Located in Lower Galilee, Sepphoris has a rich history going back more than 2000 years, rebuilt by Herod Antipas in the early first century and ruled alternately by Romans, Jews and Christians. The city of around 30,000 people was quite cosmopolitan and became a renowned center for learning.

1998: 15).²⁹ Because of its key location, design, and dating, this mosaic is crucial for the interpretation of the whole group of ancient Jewish Zodiacs (Kühnel 2000: 31).³⁰

This mosaic was divided into seven horizontal sections of unequal dimensions; the other synagogue floor mosaics are all divided into three panels, with the signs of the zodiac central in the design. Like the other synagogues, a scene is devoted to Abraham's Sacrifice of Isaac, and another area depicts the Tabernacle and Temple at Jerusalem, as anticipated, the familiar zodiacal diagram was centrally placed. The *quadriga* of Helios with its four horses lacks the prominent figure of Apollo holding the reins, not destroyed by fervent iconoclasts, but purposely replaced by a brilliant sun disc, emitting ten light rays reaching out in every direction (Kühnel 2000: 39).³¹ The rider-less chariot faces the viewers, wavy blue lines representing water fill the lower part of the circle; the mosaic portrays the dawn sun rising from the sea.³² Next to the fiery orb, created with white tesserae, sits a slightly smaller crescent moon, as if glowing, tucked inside its full face, shaded a deep brown; a single large star burns beside the Moon.

The signs of the zodiac are represented by their customary symbols and in some months as youthful figures performing the labors of the month as well. Each sign and the name of each month are labeled in Hebrew; those sections not damaged include a large singular star. Only 4 months are totally intact, Libra, Scorpio, Sagittarius, and Pisces; the others have varied amounts of damage; but at least one detail of each sign can be positively identified. Aries is placed in the expected ascendant position and the remaining signs are read counterclockwise, as in astrological charts.

The iconography of Gemini, or the Dioscuri, at Sepphoris is especially significant; the two youthful brothers, Castor and Pollux, are depicted frontally, naked and embracing; but do not carry their battle-ready spear and shield. The young man on the left grasps a club, and the one on the right holds a stringed instrument; these symbols indicate the iconography belonging to different sets of mythical twins, Amphion and his brother Zethus, who were frequently interchanged with Castor

²⁹This is not to suggest that the makers of the Sepphoris mosaic were directly influenced by the wall paintings at Dura Europus, but instead, that both groups of craftsmen drew from a tradition that was common in the Roman East. If this is correct, it is possible that more examples arranged in this manner may still be found in Israel. This mosaic forms a link between the third-century frescos of Dura Europus and late Byzantine and medieval illuminated manuscripts. In addition, the scenes of this mosaic may provide indirect evidence for the existence of illustrated manuscripts of Biblical material in the Jewish community, which may have been models for the mosaic at Sepphoris.

³⁰Kühnel calls this mosaic 'the until-now missing link', as it is intermediate between Hammat-Tiberias and Beth Alpha.

³¹Kühnel remarks that "according to an ancient Roman tradition, the four horses of Sol's quadriga were linked to the four seasons and also the times of day: *Huic quoque quadrigam scribunt, illam ab caussam, quod aut quadripartitis temporum varietatibus anni circulum paeragat; aut quod quadridido limite diei metiatur spatium* (Fulgentius, *Myth.* 1.11).

³²Neptune is often shown in a similar manner riding in a chariot that rises from the sea; perhaps their iconography has been conflated.

and Pollux.³³ Overall, the most amazing feature of the Sepphoris floor mosaic is the absence of Apollo since every other depiction of this zodiacal diagram included his image; but at Sepphoris his *quadriga* is empty except for the solar rays. The deletion of the anthropomorphic sun god in this single instance raises many challenging questions.

Interpretations of Zodiacal Artwork in Jewish Synagogues

The mystifying inquiry as to what these zodiacal diagrams pictured on synagogue floor mosaics actually meant to Jewish worshippers has spurred scholars to seek plausible explanations. These images of the 4 seasons, the 12 months, the pagan Sun God, and the signs of the zodiac remind the viewer of both the rhythmic pattern of nature and earth's interaction with the eternal cycle of the heavens. In ancient cosmological theories, the microcosm of the earthly sphere was considered a reflection of the macrocosm of the celestial sphere. Religious scholars suggest that the powerful figure of the Sun God Apollo was intended to stimulate the audience to imagine god, not in human terms but in celestial terms, as a reminder of god's omnipotence, that the symbolic sun god represents the invisible force that drives the universe, its stars, seasons, and human labors. But that still does not answer the unrelenting question, why was the celebrated pagan image of the Greek god Apollo, encircled with the 12 constellations of the zodiac, adopted for the central position in at least six major Jewish synagogues?

Depictions of the four seasons and the signs of the zodiac with Helios and Luna in the center were familiar images taken over from artworks popular in the Hellenistic era and Late Antiquity. But the combination of these particular themes, minus Luna, with scenes of Abraham and Isaac and symbols of the Tabernacle and Ark has been discovered only in ancient synagogues. The earliest example of the three-part mosaic occurs in Hammat Tiberias, fourth-century CE; Sepphoris in the fifth century; Beth Alpha, Khirbet Susya, Na'arn and probably Husifa date to the sixth century. Appearing in synagogues repeatedly for over 300 years implies a consistency of purpose and a traditional significance for this pictorial pattern. Consider how many more of these floor mosaics may yet be uncovered, or may have been destroyed over the centuries.

Some historians consider the appearance of the zodiacal signs in synagogues in the same manner as they interpret the sculpted zodiacs that appear on the west facade of many Romanesque and Gothic cathedrals. Those Church officials who commissioned the use of these multipurpose astrological symbols on religious structures relate this theme to the calendrical cycle of time, the yearly cycle of the

³³This switch in the iconography of the twin figures of Gemini will be discussed in more detail in Appendix C.

four seasons and the formation of the heavens by the divine creator, with no suggestion of astrological implications.

In the same way, the idea that the image of the zodiac in a Jewish religious setting had astrological undertones has been thoroughly rejected by religious historians. But a study by Lawrence Ness states an opposing view; he investigated the manner in which the Jews of the Hellenized world “adopted and adapted astrology” (Ness 1990: 4–16).³⁴ Ness provides a summary of modern research on the topic of astrology and Jewish art, and submits that astrology was part of Hellenistic science and philosophy that Jewish theologians could not ignore. He states that astrology was seen as an emblem of the power of YHWH in managing the world and caring for his chosen people and also that artistic illustrations of the zodiac in the ancient synagogues were symbolic of his power and concern for his creation (Ness 1990: 4–16).

The zodiacal floor mosaics have been a topic of considerable research and scholarly essays among religious historians and archeologists; their symbolism and function within Palestinian synagogues and Jewish culture is still being debated. Herbert Kessler stresses that in this early period, there is no doubt that “Christians and Jews were in conversation with one another.”³⁵ He doubts that there was one simple pictorial tradition, but suggests that there was cross-fertilization between the two cultures. Other scholars interpreted the mosaics as ‘expressions of Hellenistic mysticism’, as ‘meaningless decorative elements’, or having ‘a cosmological interpretation’ or ‘an imperial one’, ‘part of a Jewish eschatological program’, ‘a Jewish calendar with a practical purpose’, or even an interest in astrological theory (Kühnel 1990: 36).³⁶

In *From Synagogue to Church*, John Wilkinson has written a critical analysis of the sizes, proportions, and layouts of the early synagogues, using the zodiacal mosaics as crucial components for his study. Often the zodiac sits in the center of the mosaic floor and Wilkinson compares the center of the synagogue with Jerusalem as the center of religion and the world, and relates this theory to the synagogue zodiacs. Suggestions that the zodiacal scene represents the calendar have been rejected since the facts dispute this possibility. At Na’aran the zodiac signs circle the image clockwise, but the seasons are arranged counterclockwise; and at Beth Alpha the zodiac signs do not match the seasons. To a viewer who wanted to

³⁴Ness has published his dissertation, *Astrology and Judaism in Late Antiquity*, in a book format, *Written in the Stars*. The Jewish floor mosaics are examined as an important piece of evidence in the development of his thesis.

³⁵Quoted from a symposium paper delivered by Kessler on September 14, 1997, at an international conference held in conjunction with the Sepphoris Mosaic Exhibition, *Revealing an Ancient Message: A Synagogue Mosaic from Sepphoris*, in New York; the report on the symposium was published in the Jewish Heritage Report, Vol. I, Nos. 3–4/Winter 1997–98.

³⁶Kühnel writes that “texts characterize the Jewish attitude to astrology as clearly differentiated: a line was drawn between cosmic phenomena and the pagan gods associated with them in Hellenistic thought and art. As long as astrology did not lead Jews to worship the gods of the planets, it was not seen as an active danger”.

use these designs as guides to the calendar, such visual errors could not be tolerated (Wilkinson 2002: 91). The three themes: Abraham and his son Isaac, the zodiacal circle and symbols of the Tabernacle and Temple at Jerusalem are represented as a thematic unit in these distinctive mosaic floors. An explanation of their symbolism as a group has not been definitively accepted by religious historians. Because of their impressive numbers and key locations, the mosaics need to be considered as part of official dogma (Kühnel 2000: 36).

The artwork created for the ancient Near East synagogues has set in stone the ideas and beliefs of those who worshipped there. The fact that the zodiacal symbolism was at one time accepted as suitable decor, and then later no longer permitted invites great interest. Some pertinent questions are: would these carefully executed, expensive mosaic floors, bearing traditional sacred images, have been walked upon? If the floor designs had been covered with a carpet, the images would not be visible and its symbolism lost. How would the images on the floor interact within the religious services or ritual activities taking place in the synagogue? Why would the Jewish community display a Hellenistic zodiac in their synagogue, especially since they used a lunar rather than a solar calendar, and why would they adopt a prominent Greek god as a metaphor for the omnipotence of Yahweh, who was never visualized? Did the celestial design hold some type of astronomical knowledge? Was the objective directed to a messianic or eschatological meaning? Could the religious or cosmological design have been a teaching device?

The significance of the zodiac and its function in these ancient Jewish rituals raises intriguing questions beyond the scope of this study. But the format, style, and design of these zodiacal scenes is an integral piece of the puzzle when tracing the transmittal of astronomical iconography. Although the Jewish synagogue mosaics were in all likelihood not a direct source of images for the illustrators of *Aratea* manuscripts, the designers of the imagery for both types of artworks must have been influenced by preexisting exemplars and drew from the same accepted astronomical and mythological traditions prevalent in the Greco-Roman world. The similarities could be based on direct influence or on comparable interpretations. “However there can be no doubt that the Jewish reworking of an ancient scheme eased the way for mediaeval Christian representations” (Kühnel 2000: 43). The illustrations of the constellations in *Aratea* manuscripts are not comparable to the Jewish mosaics since the Aratean images treat each constellation in a singular manner. They do not separate the zodiacal signs in a specific arrangement or pay any particular attention to their appearance among the nearby star patterns.

Zodiacal Mosaics in Early Christianity

Although mosaics were commonly used to decorate floors and walls in domestic and religious buildings, zodiacal imagery seems to have had only an incidental role in Early Christian art. Historian Steven Fine concludes that this subject matter was ‘deliberately excluded’ (Fine 2005: 199). Since the zodiac was so closely associated

with Jewish synagogues through the seventh century, perhaps the Christians in the East consciously chose not to include this motif as part of their iconographic programs. With few exceptions, the earliest surviving zodiacal representations in Christian art date to the ninth century, and were modeled on the early astronomical and astrological manuscripts that were being copied in the Carolingian court schools. One Christian mosaic from the sixth century appears somewhat similar to the synagogue zodiacal diagrams and this lone example emphasizes the Christian reluctance in respect to this subject (Kühnel 2000: 43).

This floor mosaic from the Monastery of the Lady Mary in Bet She'an shows a 12-part zodiacal circle filled with large human images representing the months. The 12 standing males are each attired in Roman casual garb with attributes that refer more to the Labors of the Month with no direct indication of any familiar constellations of the zodiac, although the male worker of September holds a shaft of wheat, always ascribed to Virgo and the star Spica, and the figure representing April holds a ram. Interestingly May, the month of Gemini, has one young man holding a lyre, the iconography of Amphion, who is sometimes substituted for either Castor or Pollux. In the central circle of this mosaic are busts of a feminine-like Helios, eyes looking heavenward and honored with rays and holding a huge torch, and a serene Selene crowned with a crescent moon, holding a scepter.³⁷ No trace of their chariots can be detected. The lack of zodiacal imagery in the Early Christian art and architecture is in direct contrast to the Middle Ages when the zodiac readily appeared in tympanum sculptures, stained glass windows, tapestries and of course, illuminated manuscripts. Some of the earliest depictions of the zodiac in Carolingian manuscripts appear surprisingly similar to the early Jewish designs. A significant exception to this general statement is the mosaic image of Christ discovered in Rome.

Christ as Apollo

The iconographic image of Apollo/Helios directing his *quadriga* as it was transported across the heavens by four powerful horses was borrowed by Early Christian artists for one of the earliest depictions of Christ. Excavations at the Necropolis beneath Saint Peter's Basilica in Rome revealed an evidential mosaic in the vault of Mausoleum M of the Julii in the Vatican Grottoes which dates to the mid-third century, now called *Christ as Helios* (Fig. 2.12).³⁸

Apollo, the pagan sun god, has become conflated with Jesus Christ, the Christian Son of God. The partially damaged figure was placed within a golden background and surrounded by a common motif of curling vines with lacy leaves, instead of the

³⁷ Possibly the Sun God had taken on the appearance of Mary, in a monastery dedicated to her.

³⁸ In Snyder's *Medieval Art*, this mosaic is pictured and briefly discussed on page 25, first edition, and page 6 in the second edition.

Fig. 2.12 Christ as Helios Mosaic, Tomb M, Vatican Grottoes, St Peter's Basilica, Rome, Third Century, Public Domain



expected signs of the zodiac. Just one wheel of the chariot survives, and two white horses face toward the center of the image, the damaged area most probably held the other two horses. The image of Christ-Helios was rendered as blond, youthful, and beardless, dressed in a striped garment with a cape blown by the wind. A glowing aura emits rays of light around his head that form a cross that extends from the halo rather than within the halo, which later becomes the iconographic crossed nimbus.

Similar to the images of Mithras, Christ's eyes are directed skyward, not toward the viewer; his left hand holds a globe, symbol of his power and protection that continues through illustrations of the Middle Ages and Renaissance.³⁹ The dazzling Sun-God icon has had a pervasive life history; developed as the ideal male form in the Hellenistic world, taken over by the Romans, adopted and adapted to conform to the Jewish religious culture, and then embraced by Early Christian artists as one of the accepted models for the portrayal of Christ. Astronomical images in artwork of the Latin West do not survive in abundance until the Carolingian renaissance of the ninth century, but there are examples to explore in both scroll and codex illustrations.

³⁹This portrayal of Christ has a strong resemblance to some images of Mithras, especially the eyes.

Late Antique and Early Christian Scroll Illustrations

Papyrus scrolls enhanced with illustrations have been discovered in tombs and in sarcophagi dating as far back as Old Kingdom Egypt, 3000 BCE; many of these ancient hieroglyphic writings include verses, spells, and incantations from the *Book of the Dead*. As in all early cultures, astronomy played a crucial role in Egypt in determining the yearly cycles, the time of the annual flood of the Nile, creating a calendar and predicting the time for religious festivals. Though the Egyptians practiced astronomy and astrology, the iconography of the familiar constellations seems to date to classical Greece and was not derived directly from Egyptian sources. Ancient Babylonian relief sculpture and cuneiform tablets often include astronomical imagery and the signs of the zodiac, but as far as presently known, the picture cycle containing the entire 44 to 48 constellations on which this study focuses, does not appear until Hellenistic times.

Survival of manuscripts from the late antique period is rare, only a small number are extant: some Biblical, some scientific and some literary. Therefore, the history and transmission of the *Aratea* manuscripts from the time they were originally written until the ninth century cannot be written; the question of exactly when the poems were first decorated with appropriate pictures cannot be answered. The earliest dated papyrus fragments of the *Phaenomena* were written in Greek and were not illustrated; no scrolls of the *Aratea* survive from the time of the Roman Empire. But other papyrus fragments from this early time period demonstrate that the text of scrolls was often decorated with pictures. According to Weitzmann, there was a vast tradition of book illumination in classical times, it was said that the Library of Alexandria held 700,000 scrolls; many of these would have included pictures (Weitzmann 1971: 9).

We can assume that many natural science texts were clarified with descriptive pictures, instructive charts, and diagrams; the precise, realistically painted Vienna Dioscurides which discusses the medicinal qualities and healing power of various plants is an extant example. Pliny the Elder writes (N.H. XXV.IV.8) that the herbals of Crateuas, Dionysius, and Metrodorus were ‘most attractively’ illustrated with the plants and herbs that they discussed (Weitzmann 1971: 9). In fact, one of the earliest extant papyrus rolls in Greek is adorned with astronomical images. That papyrus scroll, 2 meters in length and containing an astronomical treatise, is now held by the Louvre. The text columns of this roll are explained with diagrams and drawings of the heavenly bodies. (Fig. 1-3 pictured in Chap. 1).

These simplified sketches with no background embellishment or defining frame are positioned between the columns of text; Weitzmann coins the term ‘papyrus-style’ illustrations for these ‘scaled-down’ images.⁴⁰ He demonstrates that these papyrus-style pictures continued as models for centuries, even after more

⁴⁰The Utrecht Psalter survives as a perfect example of this earlier ‘papyrus style’.

advanced modes of illustrating had appeared.⁴¹ In his study of the development of illustrations from the papyrus scroll to the parchment codex, Weitzmann uses representations found in astronomical texts, especially the *Aratea* manuscripts, to exemplify his discussion (Weitzmann 1971:96). He selected astronomical treatises since that is the earliest topic in Greek papyrus scrolls to be illustrated, and in addition, astronomical imagery was available for his study in a great number of medieval manuscripts.

Illustrations in Epic Poetry Codices

In order to create an ancient “book” in classical times, numerous sections of papyrus were glued together and then tightly rolled; some extensive scrolls stretched as long as 22 feet, tags were added listing the various contents (Thomas 1992: 8). Literacy of course was the primary requirement, but reading through an entire papyrus scroll entailed a specific set of skills. While holding the scroll steady, the reader proceeded to unwind with one hand and rewind with the other, which required a special posture and coordination. The script, written on brittle and flaking papyrus, had no punctuation, paragraphs, or word divisions making the entire process less than easy.

By the end of the fourth century, the transference of classical and Early Christian literature from the unwieldy papyrus scroll to the parchment codex format was basically accomplished (Pächt 1984: 15). This transition from papyrus to parchment changed illustrative art even more dramatically than it modified the art of writing. Radical changes in the artwork took place when the pictures began to be separated from the text and then eventually enlarged to fill the entire folio. This advancement was possible since vellum was a much smoother, receptive medium for paint than fragile papyrus scrolls. Once the sketchy images were no longer crammed into tiny spaces between columns of text, miniature painting could become more expansive, varied, and colorful by borrowing from the art of frescoes, panels, or mosaics, in addition to copying the drawings that decorated obsolete scrolls. Only a relatively small number of manuscript texts were illustrated or decorated in any way during Late Antiquity and the Early Christian Eras (Pächt 1984: 33).⁴² But among the

⁴¹Weitzmann writes that “A manuscript in Munich (Staats, cod. 210) written in the year 818 in Salzburg shows exactly the same principle of illustration, except that the simple diagrams with partly Egyptian symbols were replaced by images essentially based on Greek mythology, images which surely were not invented for the *Phaenomena* of Aratus-although this whole group of texts is known as *Aratea*-but most likely are from the *Katasterismoi* ascribed to Eratosthenes of Cyrene.” He does not say exactly, but he implies that this manuscript is an *Aratea*; it actually contains the writings of Hyginus. He also writes that the accompanying verses in the Leiden manuscript are taken from Avienus, when in fact the verses are mainly those of Germanicus with small sections of Avienus added.

⁴²Pächt finds it quite extraordinary that Ovid’s *Metamorphoses* inspired no pictorial representations until the time of the Renaissance.

earliest extant illustrated manuscripts we find examples of epic poetry, one of the most revered and studied topics of those times.

Although there is no indication whether or not they were illustrated, written texts of the epic poems of Homer, the *Iliad* and the *Odyssey*, were known from references to have circulated throughout the Greek world by the fifth-century BCE. In the fourth-century BCE, the Homeric texts were attacked by Plato and studied by Aristotle and other contemporary Greeks (Young 2003: 29–63). Dramatic narratives derived from Homeric verses were among the artistic scenes appearing on Grecian black-figure and red-figure vases, kraters, amphorae, plates, and even sarcophagi as early as the fifth-century BCE. The earliest fragments of the Homeric text, written on papyrus in the third-century BCE, were found in Egypt, preserved fortunately by the parched desert climate. Huge numbers of Homeric manuscripts survive from the medieval period, but not surprisingly, manuscripts of Virgil's *Aeneid* are close to Homer in survival numbers (Weitzmann 1977: 13).

The earliest illustrated manuscripts of classical poetry still surviving are not copies of Aratus or the *Aratea*; only three examples of manuscripts with painted miniatures are extant from Late Antiquity, one by Homer and two by Virgil. The single extant antique Homeric manuscript, which originally contained the whole *Iliad*, survives now in myriad pieces, cut into 58 fragmentary miniatures, probably removed from the codex before the thirteenth century. Textual excerpts from the *Iliad* appear on the reverse of the paintings in Greek uncial script. This incomplete parchment manuscript, known as the *Ambrosian Iliad* or *Ilias Picta*, (Milan Biblioteca Ambrosiana, Cod. F.205 Inf.) has been dated to the late fifth or early sixth century.

Along with the *Ambrosian Iliad*, two manuscripts containing the *Aeneid* of Virgil (90–19 BCE),⁴³ the *Vergilius Vaticanus* and the *Vergilius Romanus*, are the only copies of illustrated classical literature that survive from antiquity. Begun in 29 BCE, the *Aeneid* is considered one of the supreme literary achievements of the Latin West, even referred to as the most important single work in Western literature. Virgil worked on his heroic poem made up of twelve books that ‘sings’ the adventures of Aeneas, the legendary founder of Rome, until his untimely death ten years later, when the poem was essentially finished except for minor editing. Especially encouraged by Augustus to produce his poem, Virgil dedicated his epic poetry to the celebrated Roman emperor, just as Germanicus did when creating his translation of the *Phaenomena* in the second decade CE.⁴⁴

⁴³The early spelling of Virgil used an “e”, while the modern spelling prefers an “i”; thus the two different versions of his name.

⁴⁴The basis of the accepted *Aeneid* text used currently is derived from three manuscripts of Virgil's works from the fourth and fifth centuries CE; remarkably, these early manuscripts are relatively free from errors and mostly agree, which demonstrates that the scribes who were copying the text had high-quality exemplars.

The two earliest illustrated manuscripts of the *Aeneid* are both housed in the Vatican Library; *Vergilius Vaticanus*, Vatican City, Biblioteca Apostolica, Cod. Vat. lat. 3225, which dates to the early fifth century, and *Vergilius Romanus*, Vatican City, Biblioteca Apostolica, Cod. Vat. lat. 3867, dating to the later fifth century, commonly called the Vatican Vergil and the Roman Vergil. Like the ninth-century *Aratea* manuscripts, the two Late Antique Virgil manuscripts are totally different in size, style, and iconography, and in spite of this huge divergence, (The foremost authority on illustrated Virgil manuscripts is D. Wright) experts now agree that they were both created in Rome, as it was the only possible production center for manuscripts of such high quality in art, parchment, and calligraphy. (The Vatican Virgil is now digitalized and available online.)

The text of both codices is incomplete containing fragments of the *Aeneid* and the *Georgics*, which are also decorated with miniatures of seasonal occupations and animal folklore. The illusionistic miniatures in the Vatican Vergil and the Roman Vergil are frequently set apart from the text by bright red frames, which have been dated without exception to the early fourth century. The poetic text is positioned either above or below the distinctive framing. This particular decorative framing feature also reappears in the Leiden *Aratea*, modeled on similar Late Antique exemplars. Reaffirming this decisive era, Nordenfalk states, “The first efflorescence of the art of illumination took place about the time when the culture of classical antiquity was beginning to decline,” (Nordenfalk 1988: 7).

Both the Vatican Vergil and the Roman Vergil are written in rustic capitol script, the style used on most monument engravings, which has no separation between words and rarely any punctuation throughout the manuscript, adding to the burden of paleographers. But reading the text aloud eliminates the problem of running the words together; which illustrates an important fact about ancient Greek and Latin literature, it was always experience aurally. Even wealthy Romans fortunate enough to possess a copy of a literary work would enjoy the long-established custom of reciting or singing it aloud. The written literary culture of Greece and Rome inherited a wealth of oral traditions passed down through endless thousands of years, “since most of human history has existed with orality” (Lundwall 2015: 50). Before literary texts were abundantly illustrated, oral recitations of the poems to enlighten families and entertain friends were readily appreciated. But the addition of numerous miniatures to the poetic verses changes the focus of the interaction between reader and manuscript; in order to examine the paintings carefully and compare the scenes to the text requires that the reader have a more private, solitary relationship with the book (Fig. 2.13).

The Vatican Vergil was created during a transitional period in Roman history when the long-admired classical culture was being revived in an outmoded pagan society while at the same time the Christian Church was imposing organized efforts to suppress pagan religions. This innovative period introduced a new type of book with greatly expanded emphasis on descriptive illustrations designed to accompany



Fig. 2.13 Aeneas Abed, Vatican Vergil, Biblioteca Apostolica, Cod. Vat. lat. 3225, Fifth Century, Public Domain



Fig. 2.14 Shepherds, Roman Vergil, Biblioteca Apostolica, Cod. Vat. lat. 3867, Rome, Fifth Century, Public Domain

the poetic text. The Vatican Vergil contains 50 original miniatures on 76 folios, including 10 of the 12 books of the *Aeneid* and 2 of the 4 books of the *Georgics*. If the manuscript had held the complete collection of Virgil's poetry, the number of folios would increase to 440 and the number of illustrations to 280. The entire text

was copied by the same scribe and the illustrations are placed within the text column, except for a few larger miniatures that cover the entire folio. The pictorial program includes dramatic scenes depicting Aeneas' adventures, detailed landscapes, and architectural details (Fig. 2.14). (A facsimile of the Vatican Vergil was produced in 1984, see D. Wright)

In comparison to the Vatican Vergil, the Roman Vergil is a huge codex with 410 folios that have been abundantly illustrated with large-scale miniatures.⁴⁵ The text of the Roman Vergil text is written in rustic capitals with no division between words and containing 18 lines on each folio; the manuscript has only 19 surviving illustrations; some but not all miniatures are framed. Analysis of the miniatures in the Roman Vergil depicts distinctive changes from the traditional classical paintings and the start of a new less-realistic depiction of narrative scenes. The human form becomes abstracted and flattened and the naturalistic representation of space is eluded. This unrealistic style develops to a greater degree a few centuries later in the medieval period especially in Hiberno-Saxon artworks where human figures take on the appearance of cardboard cut-outs.

As the Christian tenets take hold, emphasis was directed away from the physical world and the temptations of the body and instead centered on the inner world of prayer and thoughts of the heavenly rewards waiting in the afterlife. These societal conditions began after Emperor Constantine moved the Roman administration center to Byzantium beginning in 324 CE. Interactions with Eastern book production influenced artists in the West; the Virgil manuscripts are witnesses to the general climate and reflect current developments in the shifting governmental and religious ideals.

An additional extant fragmentary manuscript of Virgil's writings from the Late Classical Period, modest but important, is the *Vergilius Augusteus*, also dated to the crucial fourth century. This partial manuscript retains only seven leaves, four of which are in the Vatican Library, MS 3256, and the other three in the Staatsbibliothek zu Berlin, Lat. Fol. 416. These disconnected folios hold textual sections of Virgil's *Georgics*; the eighth leaf contained fragments of the *Aeneid* but is mostly lost. Unlike the rustic capital text of the other two Virgil manuscripts, this text is written in Roman square capitals. The insignificant number of poetic verses, 284 out of almost 13,000 in the original, reduces its influence in the textual transmission of the poem. The importance of the *Vergilius Augusteus* lies not in its text but in its decoration. These seven folios of Virgil's poetry are not illustrated with full scale miniatures, but instead are decorated with enlarged initial letters at the top of each folio. The decorated initials are not aligned to divisions of the text but appear at the start of the poetry verse that appears at the top of the folio. These 15 decorated initials are the earliest examples to survive and denote the start of letter development which eventually lead to the vast variety of innumerable decorated initials that appeared in illuminated manuscripts through the Middle Ages.

⁴⁵Walker calls the Vatican Vergil the "most impressive example we have of Roman book illumination at the moment of transition from classical to medieval practices".

Produced during the transition from antique to Byzantine art, these early Virgil manuscripts reflect influences from Hellenistic and Roman artistic styles. Their influence on the artistic production of medieval manuscripts is impressive in many ways; in addition to the introduction of decorated initials and large framed illustrations, the first folio of the Aeneid text is the earliest known decorated ‘*incipit*’ page.⁴⁶ The artistic approaches and iconography that appear in the Virgil manuscripts are a consideration in the study of *Aratea* manuscripts as they both provide evidence on the transmission of artistic motifs. Like the *Aratea* manuscript tradition, the Homeric and Virgilian poetic texts were studied and copied in enormous numbers during the Carolingian Era and strong interest revived again during the Italian Renaissance. Attesting the reception and continuing fascination held by these codices, all three Late Antique Virgil manuscripts have been reproduced in print and digital facsimiles.

Looking back to examples of Late Classical artwork provides evidence that illustrations in ninth-century codices were not created in a vacuum, but drew on the vast variety of traditional art communicated through scrolls, wall paintings, model books, and other artistic media. The astronomical picture cycles that appear in *Aratea* manuscripts were adapted for the codex format from archetypal images of the constellations already well-established in the Classical world. Mythological figures, such as Herakles, Perseus, Andromeda, and Castor and Pollux, had already become commonly recognizable through their specific iconography transmitted from ancient art, especially Greek vase paintings, and Roman relief carvings, statuary, frescos, mosaics, globes, metalwork, and coinage treasured by noble families.

Manuscripts of the *Aratea* which survive from the ninth century differ greatly from each other in their arrangement and style; therefore artists must have had a variety of choices from which to procure their mythological imagery. In addition to the fore-mentioned artistic sources, textual models carrying early astronomical imagery could most certainly be found in the works of other astronomical writers as well, in particular, Pliny the Elder, Hyginus, Martianus Cappella, and Macrobius. Their treatises survive in later copies that were definitely illustrated; and as in the case of the *Aratea*, it is not known for certain if they were illustrated originally, or at what point pictures first adorned these astronomical writings. That Christian patrons and scribes took advantage of the new book form is a fact, but one of the manuscripts chosen to be copied and illuminated by Christian patrons and clergy was an astronomical poem honoring the pagan gods and pagan philosophical concepts that conflicted greatly with accepted Christian dogma is rather curious. Recognizing this exceptional status gives further credence to the esteem with which the ancient writing of Aratus was held, as the poem from the classical culture was readily accepted into the Christian literary world. For more than 2000 years, the *Phaenomena* and its Latin translations have been continuously analyzed by experts

⁴⁶The incipit is the first words of the script used as an identifying label; incipits were often written in different colors or in a different script from the general text.

and enjoyed by interested readers. The illustrations of the *Aratea* have been admired since at least the ninth century when created by the Carolingian artists.

This section of the inquiry has examined some of the many possible sources for the astronomical imagery found in *Aratea* manuscripts. In summary, common exemplars for astronomical imagery may have been: calendars (*Codex-Calendar of 354*), celestial globes (the Farnese Atlas), the cult of Mithras (the Tauroctony), zodiacal mosaics (Jewish synagogues), and Late Antique illustrated codices. In order to better understand the role of the text and images of the *Aratea* in medieval society, Chap. 3 will investigate the manuscript traditions of other principal authors whose ‘scientific’ texts were instrumental in transmitting ‘popular’ astronomical knowledge through the Middle Ages.

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