Michelangelo, Copernicus and the Sistine Chapel: Michelangelo’s Last Judgement Decoded

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The fresco and its meaning

It has long been recognized that in Michelangelo’s fresco of the Last Judgment (painted 1536-1541) Christ is depicted as a classical, beardless ‘Apollonian’ sun-god in the centre of a ‘cosmic’ circular design. The possible influence of Copernicus’s theory of heliocentrism on Michelangelo’s fresco has been considered by art historians, but consistently rejected on the grounds that Michelangelo’s fresco was finished in 1541, two years before the publication of Copernicus’s book, Revolutions, in 1543. The idea has thus always been dismissed without full exploration and consideration. Art historians have seemed hesitant to delve into astronomical texts, and astronomers are perhaps less familiar with Renaissance frescoes. It can, however, indeed be argued that Copernican heliocentrism is reflected in Michelangelo’s fresco – with the knowledge, consent and approval of the two Popes concerned.

The Sistine Chapel

The Sistine Chapel was built in 1475 on the site of an earlier thirteenth century chapel. Cosmological associations of the chapel are very evident since it measures 40.93 metres by 13.41 metres wide (threescore cubits by twenty cubits) - that is, the precise dimensions given in the Bible for the temple of Solomon (1 Kings 6), which in turn was widely held to have been made in imitation of the shape of the universe. The Chapel ceiling (painted by Michelangelo 1508-12) is well known for the depiction, according to Genesis, of the creation; of light and dark; of the universe; and the planets and mankind. On the altar wall, Michelangelo’s monumental fresco of the Last Judgment (painted much later, 1536-1541) depicts, by contrast, the end of the universe. The overriding theme of the Chapel is thus ‘the Beginning and the End’ – of the universe, the planet and humanity. Interpreted in terms of ‘Creation and Last Judgment’, rather than the modern Big Bang and gravitational collapse. The problems remain the same to be grappled with, even if the solutions or interpretations vary. But the overriding cosmic theme of ‘the beginning and end of the world’ is clear.

Interpretation and ‘decoding’ of art works

Art historical interpretation is concerned with the meaning of a work considered in the context of its time and place of creation. It is always difficult to determine the precise intention of the artist, but underlying meaning may be discovered by means of examination of the various sources and influences which had contemporary significance and which might have contributed to the artist’s thinking. It can be dangerous to read too much into a work or to force it into a pre-determined scheme, but it is also unwise to accept unquestioningly the traditional interpretations of works and simply repeat the usual platitudes. Michelangelo’s fresco does relate broadly to the way in which the scene was normally depicted, but there are certainly very unusual and interesting features in Michelangelo’s version. A real attempt is made here to ‘decode’ the fresco, arguing that Copernican astronomy is a key theme and was intentionally incorporated by Michelangelo.

The meaning of the Last Judgment

The theological concept of the Last Judgment is central to Christian doctrine and in art the subject is a prime example of the depiction of very complex dogma in a single image. Of course individual and collective concern about the possibility of life after death, and the end of the universe, predates the Christian religion but the idea of the judgment of all souls at the end of time is a key tenet of Christianity. Put simply, the ‘Good’ will go up to heaven and the ‘Bad’ will descend to hell. As well as representing victory over death for the ‘Saved’, the threat of the Last Judgment can also be seen as disciplinary propaganda for the laity in the absence of effective judicial systems. The Last Judgment was thus an appropriate subject for the altar wall of the most important chapel in Christendom.

Michelangelo’s depiction of the Last Judgment

The commission for the Last Judgment was first discussed between the Pope, Clement VII and Michelangelo in 1533 but Clement died in 1534 and the project was taken over by his successor Paul III. Actual painting started in 1535/6 and the fresco was unveiled on the Eve of All Saints, 31 October 1541. The fresco is based on a dramatic circular design, focussed on the central figure of Christ depicted as a beardless ‘Apollonian’ sun god. This varies enormously from traditional versions of the Last Judgment which were normally arranged in static horizontal layers, with Christ right at the top - as the ‘Good’ go up to heaven while the ‘Bad’ go down to Hell.

Lines which could be construed as descriptive of Michelangelo’s fresco: In the midst of all assuredly dwells the Sun. For in this most beautiful temple who would place this illuminary in any better position ... some call him the
Light of the World .... So he remains, governing the family of Heavenly bodies which circles around him actually come from Copernicus’s *Revolution*. Book 1, chapter 10. Yet Copernicus’ book was published in 1543, two years after the great fresco was completed and clearly many years after it was commissioned and designed. Because of the discrepancies in the dating of *De Revolutionibus* and the dating of Michelangelo’s fresco, the possibility of a link was never seriously explored. The leading Michelangelo expert Charles de Tolnay wrote (in 1960): *By means of the central place which Michelangelo reserved in his composition for the Sun (Christ-Apollo) ... The artist came of himself to a vision of the universe which surprisingly corresponds to that of his contemporary Copernicus. Yet he could not have known Copernicus’ book was published in 1543 – at least seven years after Michelangelo conceived his fresco*. The possible influence of Copernicus’ theory was thus seen as impossible. However, if we look carefully at the sort of sources used by Michelangelo – Christian theology, classical and Christian iconography, Dante, neoplatonism and contemporary scientific theories, a case can be made for the undoubted influence of Copernicus’ heliocentric theory on the fresco. To do this, we need to look at sources that have influenced the freco. Reasons can indeed be suggested for Michelangelo’s unusual depiction of Christ as a beardless ‘Apollo’ type figure, surrounded by a Sun-like aura in the middle of an essentially circular arrangement - as well as the reason why the fresco should so very often have been described as ‘cosmic.’ It is important to consider the following:

1. The traditional links between the view of the universe (cosmology) and the Bible and the way such themes were represented in art and architecture (their ‘iconography’)

2. Earlier versions of the iconography of the Last Judgment from the earliest examples to the Italian Renaissance

3. Previous interpretations of Michelangelo’s Last Judgment

4. Theological and religious sources and the idea of Christ as the sun or the light of the world (and bearing in mind the artist’s own religious beliefs in the context of the Reformation age)

5. The classical tradition in art of the Italian Renaissance, and the prevalence of images of Apollo (such as the Apollo Belvedere found in Italy in 1489) during the Italian Renaissance

6. Literary sources such as Dante’s works, especially the Divine Comedy (on which Michelangelo was an expert)

7. Philosophical sources, including the revival of Plato’s thought or so-called ‘neoplatonism’ as expounded by writers like Marsilio Ficino (1433-99) whose writings were so crucial to the Florence of Michelangelo

8. Actual scientific sources and some revolutionary ideas of the time, such as Copernicus’ heliocentric theory (that the sun, not the earth, was the centre of the universe).

**Astronomy and Christian Iconography**

The links between cosmology and theology are immediately evident from the accounts of the universe and its creation in the first book of Genesis. In turn, Christian art and architecture were also traditionally linked with the prevailing official view of the universe which was, of course, derived from scriptural sources. The links between astronomy and Christian iconography can be securely established, for example in the tradition of domed architecture, based on the Biblical description of God stretching out the Heavens as a canopy over the earth (Isaiah 40:22). This also related to the natural eye observational view of the universe as a flat earth surmounted by the Dome of Heaven, exemplified by the starred, domed ceiling mosaic of the mausoleum of Galla Placidia at Ravenna (c. 425) which echoes the view, based on the scriptures, of the view of the flat earth, covered by the dome of heaven. At S Vitale in Ravenna, (6th century) the depiction of Christ is also ‘cosmic’ - seated as he is on the sphere of the universe. The creation of the universe was also frequently depicted in art such as the mosaic of *God Creating the Universe* at Monreale, (1175) where the cosmic meaning is clear. The creation cycle in St Mark’s Venice (11th century) also demonstrates the view of the cosmos in relation to the Christian tradition. These few examples serve to demonstrate the important links between Christian iconography and astronomy.

Another important astronomical aspect is that of orientation in Christian architecture. The east-west orientation of Christian Churches, with the altar in the east, is well known. The basilica of St Peter’s in Rome is exceptional since, situated to the west of Rome, the entrance faces Rome itself to the east, probably because the original basilica was built over a pagan sun temple arranged so that the rising sun entered the doorway. *The Last Judgment* in turn was normally placed on the west of a church – to face the setting sun – and located by the main western doors as a stern reminder to the congregation on exit. The Sistine chapel has the same orientation at St Peter’s so Michelangelo’s *Last Judgment* is unusually placed on the west wall (which is significantly the altar wall) of the Chapel. Before the Sistine chapel was redecorated in late fifteenth and early sixteenth century by Michelangelo and others, it was decorated with a simple blue ceiling, covered in stars, thus again establishing an astronomical connection.

**Cosmology and the Last Judgment - earlier examples**

Cosmological themes were thus evident in both individual religious scenes as well as architectural designs, and
the Last Judgment in particular was suited to this type of interpretation as the one scene in Christian theology where Heaven, Earth and Hell, together with their relative physical positions in the cosmos, would naturally be depicted at the same time. Complex ideas concerning heaven and hell, and the fate of humanity, were traditionally illustrated together in a single image, in a distinctly layered design. The immediate and obvious relationship between the traditional hierarchical depiction of the scene in art and the scriptural view of the flat earth surmounted by the dome of heaven can easily be understood by many early examples, which are based on this formula. As an example, the analogy is quite clearly demonstrated in a manuscript by the sixth-century monk, Cosmas Indicopleustes, whose drawing of the Universe clearly shows a strong resemblance to Christian church architecture, namely the basilica. We can also see that Cosmas had clearly heard rumours about the idea that the earth was spherical rather than flat, as shown by his drawing of the Antipodes – demonstrating very clearly that he found the concept ludicrous- since rain must surely fall upwards in the southern hemisphere.

Later on in the same manuscript Cosmas interestingly includes a view of a cross-section of the universe alongside the depiction of the Last Judgment with Christ situated at the top and various ranks of humans, saints and angels ascending to heaven and descending to hell in a strict hierarchy. The scheme of hierarchical layers, surmounted by the dome or arch of heaven (a drawing of the flat earth universe seen as if in cross section) with Christ positioned at the top is clearly based on the official contemporary view of the flat earth with Heaven above and Hell beneath the earth’s surface. The correspondence is obvious. The ordering and organisation of the complex scheme of the Last Judgment was thus achieved by relating it to the cosmological perception of the universe.

Following on from such early manuscript versions, this basic format for the Last Judgment can be seen in innumerable examples, in the tympana of the great French cathedrals (for example Vezelay, 1125 and Autun, 1130-40, Notre Dame Paris 1163-1250 and Bourges 1230-65 to name but a few). The approach is also clear in pre-Renaissance Italian mosaics and frescoes - much influenced by mosaics such as the Last Judgment at Torcello near Venice (12th century), the Florence Baptistery (attributed to Coppo di Marcovaldo, late 13th century), and Giotto’s fresco at Padua (c 1305-7). The hierarchical framework is very clear in Giotto’s work - in spite of the intrusive window – as the angels ‘roll out the heavens’. Later Renaissance versions, such as those by Nardo di Cione in Sta Maria Novella (mid 14th century), Fra Angelico (c 1425), Fra Bartolommeo in Sta Maria Nuovo (1499) still relate, overall, to the view of the universe in terms of the ascent of the ‘good’ to heaven and the descent to hell beneath the earth. In general terms, this system formed the basis of the scene’s iconography for many centuries. But Michelangelo changed all this by introducing a revolutionary new design. There are features of the old traditions still remaining in Michelangelo’s work but, by filling in the former window to make one vast space, a huge circular movement overcomes and warps into the traditional features of the design.

The idea of a spherical earth in a geocentric system had been known by the ancient Greeks and was attracting interest for some time in Western Europe. Even before Dante in the thirteenth century wrote of a clearly spherical system, the idea of a spherical earth in a spherical universe became increasingly accepted by the educated classes. The final conviction that the earth was spherical stemmed from such phenomena as the shadow cast of the earth on the moon during an eclipse, the alteration in the position of the stars as travellers moved south, and the fact that land not visible from a ship at sea is visible from the mast (conversely, from the land, a ship goes out of sight before its mast). The voyages of discovery and circumnavigation in the Renaissance confirmed this. Men like Christopher Columbus set out because they were already convinced the world was round. The system was problematic, however. When the idea of a spherical earth is combined with the Biblical concept of ascent to Heaven and descent to Hell, then Hell actually becomes the centre of the universe. Dante overcame this problem in his Divine Comedy by dividing his universe into two systems, with a separate centre for the terrestrial universe, (Satan in Hell, Inferno XXXIV) and for the Celestial universe (a point of light in the Empyrean, Paradiso XXXIII). The growing realisation of the scientific inadequacies of the flat earth theory caused significant changes in the view of the universe in Renaissance Italy.

**Tradition and innovation in Michelangelo’s Last Judgment**

Michelangelo’s fresco of the Last Judgment shares many features in common with earlier versions of the subject, but the startling deviations from the well established traditional formula are also evident. The hierarchical layers are overruled as Christ appears in the centre of the main design with a somewhat disordered mêlée of saints, angels, saved and damned twisting and turning all around him in a huge circular motion from the top to the bottom of the immense fresco. The fresco does bear some relation to the traditional format - but there are also certainly some very unusual and innovative features. The basic overall design is not static and layered, with Christ at the top, but based on a huge circular emphasis around Christ in the centre of the design. Christ is depicted beardless, as an ‘Apollo’ type figure, surrounded by a Sun-like aura in the middle of an essentially circular arrangement, and resembling an antique statue of Apollo. The central position of the ‘Apollonian Sun-Christ’ is accentuated by the golden light which surrounds Him and which has been heightened by the cleaning and restoration of the fresco (in the 1990’s), making it much closer to its original appearance, as recorded in several early copies, like the engraved copies by Marcello Venusti (1549) and Martinus Rota (1569). These clearly emphasise the sun-like effect before the smoke and dirt of centuries had caused the dark and dismal overall effect.
In Michelangelo’s preliminary drawings for the fresco two studies for the overall format (the ‘Buonarroti’ drawing and the ‘Bayonne’ drawing) show that, from the earliest stages of the project, Michelangelo was already thinking of a more unusual ‘cosmic’ design. In the drawing from the Casa Buonarroti, the inclusion of the Virgin Mary in accordance with Revelation 12 ‘a woman clothed with the sun and the moon under her feet, and upon her head a crown of 12 stars’ indicates astronomical sources while in the ‘Bayonne’ drawing, 1533, a clearly circular design is evident - in complete contrast with the familiar static, layered composition of earlier traditional examples of the subject.

There are many other innovative or extra-ordinary features in the Last Judgment fresco. Christ’s pose is ambiguous. Is He sitting, standing or rising? Is His gesture one of a blessing or a curse? Why is there a ‘Cave of Hell’ right over the altar, when there are condemned figures being propelled in a totally different direction towards fire and Hell which seems to exist somewhere ‘off stage’ in the lower right hand corner? Why are characters from Dante (Charon and Minos of pagan legend) included in this area? And why did Michelangelo include his own self portrait, hanging down on the flayed skin of the martyr St Bartholomew? Why are the saints haloless? and the angels wingless? Above all there is the unusual circular emphasis in which the figures are arranged around the central ‘Sun-Christ, as a beardless, athletic ‘Apollo’ figure. In the finished fresco, Christ’s revolving arms set everything in motion around Him with the ‘saved’ rising at the viewer’s left while the ‘damned’ fall at the viewer’s right in a continuous circular motion twisting and turning in space, rather like the medieval Wheel of Fortune.

It is possible to look at this composition more closely, by means of what art historians term a ‘formal analysis,’ in order to pinpoint what has already been perceived in very general terms. The diagrams show the main circles of figures arranged in inner and outer circles around Christ as well as the use of clear diagonals which also focus on Christ. Early writers recognized this (Vasari noted that ‘in a circle around the figure of Christ are innumerable prophets and apostles’), demonstrating that contemporary observers perceived Michelangelo’s Christ in terms of a sun-symbol in the centre of a circular arrangement. So - what is the fresco really about? what, if any, is the hidden meaning or secret? and why did Michelangelo choose to do it like this. It cannot simply be explained away by ‘artistic genius’ - as Michelangelo himself said, ‘I paint with my brains not with my hands.’

Michelangelo and the Catholic Reformation

The concept of the Deity as a sun-symbol is expressed in both the Old and New Testaments. In the Old Testament, the Psalms are noted for their light and sun-symbolism in general and the coming of the Messiah on Judgment Day is described in terms of a sun-symbol (Malachi 4:2). In the New Testament, the allegorical theme of Christ as light or the sun is particularly emphasised in the Gospel of St John, the so-called ‘Gospel of light’ but also in innumerable other places. Significantly, specific references to Christ as the Sun are particularly found to be associated in his role as judge on the Day of Judgment (Revelation 1:16, 10:1, 21:23). The tendency to identify Christ with the Sun is also expressed in Early Christian iconography and Christ’s depiction as a beardless Apollonian type of sun god is well known in examples of Early Christian art. The identification of Christ with the sun or with the pagan god Apollo was linked to the aim to gain converts in the early days and such symbolic ideas and a return to the Early Christian tradition also characterised the Catholic Reformation, with which Michelangelo was involved, through his association with Vittoria Colonna. Examples of the early Christian beardless type were known in the Renaissance such as the mosaic of Christ in St Mark’s Venice (13th century); the 3rd century example discovered in the Vatican grottoes in the early 16th century, or in Renaissance works such as Castagno’s Resurrection 1447, Botticelli’s Lamentation, 1492 and drawings of Christ by Michelangelo himself. A sun-symbol with the inscription ‘King of Kings and Lord of Lords’ graces the entrance to the Palazzo della Signoria in Florence (1528).

Michelangelo and Dante

The view of Christ analogised to the sun was also reinforced by the Italian literary tradition. Dante has been widely recognised as an important influence on Michelangelo and the artist’s knowledge of Dante’s writings was legendary. Usually, it is Dante’s depiction of Hell (Inferno) which is cited as inspiration for Michelangelo’s painting, but Dante’s Hell puts more emphasis on boiling oil and tortures, while Michelangelo’s figures seem to be more subject to mental or psychological torture. Dante’s Minos and Charon are included, but what about other aspects of the Divine Comedy? Apart from the general foundation of Dante’s universe on circular cosmology which seems highly relevant, Sun and light symbolism are basic to Dante’s text and there is a continuous analogy between God as a metaphysical concept, represented by the specific symbol of the Sun or a point of light. Dante’s writings are also concerned with wider concepts of world view and cosmology. He was aware of the ancient idea that the Sun held the central position in the universe (in Convivio) and acknowledged that ‘No object of sense in all the universe is more worthy to be made the symbol of God than the sun which enlightens with the light of sense itself’ (see Convivio 3, 12). Dante’s universe is clearly spherical and, as already mentioned, the problem with the system was the haidocentric (‘hell-centred’) nature it attained when combined with the traditional concept of ascent to heaven and descent to hell. The problem was partly overcome, in early maps of the world for example (as in the so-called T-and-O maps) by placing Jerusalem at the centre of the world, according to Ezekiel 5:5, but Hell itself would still be in the centre of the earth’s sphere. However, Dante overcame this problem by making Lucifer the centre of the terrestrial part, with a specific point in the Empyrean around which the heavens (celestial universe) revolved. Dante talks about the central point of light which is the
centre of the heavens and writes: I saw a Point that sent forth so acute a light, that anyone who faced the force with which it blazed would have to shut his eyes... (Paradiso, 28: 16-18). Beatrice, Dante's companion, explains: 'On yonder point depend the heavens and the whole of nature...' (Paradiso, 28: 41-42). Many manuscripts of the Divine Comedy were supplemented with illustrations. Giovanni di Paolo (1445-50) and Botticelli (1490s) certainly read Dante's 'Point' as equivalent to the sun at the centre of the celestial system, and Botticelli's drawing of Christ in the centre of the system bears a remarkable resemblance to Michelangelo's in the dramatic gesture. Drawings of the terrestrial system place Lucifer in the centre. Lucifer's body (in fact his thigh) is taken as the middle of the earth (Inferno 34: 76). In other poetry of the time, including the poems of Vittoria Colonna and Michelangelo, references to Christ as the Sun are very common: 'He is the Sun whose brilliance blinds our eyes.' Colonna wrote of Christ, while Michelangelo as poet often expresses a wish 'to return to the light of the sun' or 'yearning for the sun - to get to heaven.'

Michelangelo and Neoplatonism
Apart from the influences of Dante on the artist, it has also been widely recognised that Michelangelo was greatly influenced by the revival of Plato's works in Renaissance Florence. Michelangelo grew up as the protégé of Lorenzo de' Medici in Florence, where the philosopher Marsilio Ficino, 1433-99 and others (Cristoforo Landino 1424-92; Angelo Poliziano 1454-94; and Pico della Mirandola 1463-94) popularised Plato's works, demonstrating the shared ground between Christianity and Classical Greek thought. The symbolic identification of Sun and Deity, as well as the idea of circular cosmology, were major themes in Ficino's work. In his famous Commentary on Plato's Symposium Ficino describes God as the Sun and as the centre of the circles of the universe. He also makes copious reference to Plato's Timaeus, his great work on cosmology, and high regard for this book in the sixteenth century is attested by the fact that Raphael's portrait of Plato in his School of Athens in the Vatican Stanza bears the volume under his arm (1510-11). More specifically in connection with the sun symbol, Ficino acknowledges Plato's Republic (Book 6) as the source for the idea of the sun as a symbol of 'the Good': But in the sixth book on the Republic, that divine man [Plato] explains the whole thing and he says that the light of the intellect for understanding all things is the same God Himself by whom all things are made and he compares the Sun and God to each other. Ficino speaks of the deity as 'The greatest wonder in Nature...the middle point of all that is, the chain of the world, the face of all and the knot and bond of the universe' (De Amore; book 3, section 2). Even more important is Ficino's Book of the Sun (De Sole) where, Ficino says: 'The Sun will give you clear signs. Who will dare to say that the Sun is false?' and even alludes to the role of Christ as Sun at the time of judgment when he will awaken the dead 'like the new sun awakens the world each spring'. He describes the role of the sun in creation, 'the sun was the first to be created and was placed at the centre of the sky... It sits, as if occupying a rock in the manner of a king.' [reminiscent of the quotation from Copernicus above.]

These neoplatonic writings were thus very probable source material for Michelangelo's Last Judgment. Especially when we remember that Pope Clement VII (orphanned nephew of Lorenzo de Medici) and his papal successor, Paul III Farnese also grew up, alongside Michelangelo in Lorenzo's court so they would all have been exposed to these ideas. In addition, Ficino's translations and commentaries on Plato were so popular that they circulated widely throughout Europe. His tract On the Sun was required reading at Kracow in Poland when Nicholas Copernicus was beginning his astronomical studies there.

Cosmology and Copernicus
Cosmology, the study of the universe, is now mainly considered as a very specialised branch of theoretical physics and applied mathematics but, in the sixteenth century, it was dealt with as part of theology, philosophy and in literature, not as a separate scientific study. Copernicus' outline of his heliocentric theory (De Revolutionibus) was published in 1543, so, strictly speaking, it is correct to say that Michelangelo could not have read the book before he completed his fresco. However, it was not necessary then, as now, for anyone to read Copernicus' book in order to grasp the idea of the sun-centred universe. In addition, the date of publication of Revolutions (1543) actually coincided with Copernicus' death at the age of seventy, so the date of publication obviously had little to do with the date of origin of the author's ideas. The concept of the sun-centred universe was, like most other things, first thought of by the ancient Greeks and Copernicus acknowledged his debt to the ancient proponents of the heliocentric theory (especially Aristarchus of Samos – mentioned by Vitruvius in his Ten Books on Architecture, which Michelangelo would also have known) in the preface to his book. He also acknowledged that his writings drew on the work of his more recent predecessors such as Jean Buridan (1297-1358), Nicholas Oresme (1323-82) and Cardinal Nicholas Cusanus (1401-64) who had already considered similar theories of the motion of the earth and a stationary central sun – as had Leonardo da Vinci. The Preface to Revolutions was addressed to Pope Paul III, to whom the book was dedicated - the very same Pope who acted as patron for Michelangelo's Last Judgment after Clement died.

The idea that objects only move relative to one another, and that the overall effect would be the same whether it is the earth or the sun which moves, was touched on by Cusanus, and is fundamental to Copernicus' theory. In Revolutions, he uses the analogy of the movement of boats, where it is the shore which appears to recede. (A modern example might be the perception of motion in two adjacent trains, where the observer on one derives a sense of motion from the movement of the other). Copernicus was also influenced by the writings of Ficino and neoplatonic sun-symbolism in the formation of his theory, as well as by more generalised neoplatonic concepts of perfection and harmony in the universe. Also, far from being a heretic or atheist, Copernicus was a canon of
the Catholic Church, possibly an ordained priest, and remained a sincere Christian. In his writings he continuously credits God with the creation of the universe, albeit a sun-centred one and the heliocentric view of the universe thus originated well before the time of publication of his book, and his death, in 1543. In fact, Copernicus himself started discussing his ideas in public and circulating manuscripts about heliocentricity from the early years of the sixteenth century. In the preface to *Revolutions*, Copernicus himself indicated that he had written the book at least thirty-six years before it was published (that is, by 1504). In addition, Copernicus had been widely recognised as a leading astronomer for decades. He had been invited by the Fifth Lateran Council to assist in the reform of the calendar in 1514 and reports of his research had circulated in unpublished form (the *Commentarius* 1514 and the *Letter against Werner* 1524). He was also depicted in Giorgione’s painting of the *Three Philosophers* in 1509. The actual publication of Copernicus’s work had been eagerly awaited for some time but he did not publish his ideas at this stage, because he feared ridicule, not persecution. The concealing of sophisticated intellectual ideas from the masses was not unusual at this time. Ficino’s comment that ‘it was the practice of the ancient theologians to clothe the divine mysteries in mathematical symbols and poetic images lest they be exhibited defenselessly to the gaze of the vulgar’ is strongly reminiscent of Aretino’s comment on Michelangelo’s *Last Judgment*, already quoted above (that the artist ‘hid the mysteries of human and divine philosophy under a veil, that they might not be understood by the vulgar’).

Copernicus was born in 1473; Michelangelo in 1475. Far from being isolated in Poland, Copernicus spent seven years studying in Italy and moved in very similar circles as the artist in the late fifteenth and early sixteenth century. Both Michelangelo and Copernicus visited Bologna in 1496, and they also were both in Rome in 1500, when Copernicus gave some public lectures based on ideas of mathematical harmony as well as the sun itself, which he almost ‘defies’. Actual quotations from Plato are quite common in Copernicus’ writings and it is important to remember that Copernicus’ views were not declared heretical until long after he died. In fact the Protestants such as Martin Luther, who spoke out against the idea of the sun-centred universe in 1539, were at first far more opposed to his theory than the Catholics – so any suggestion that the acceptance of Copernican ideas could be linked with Protestant heresy at this time is incorrect. In the early 1530s, the years leading up to the commission of the *Last Judgment*, more and more evidence can be found that Copernicus’ ideas were popularly known. His book was eagerly awaited, well before it was actually published and was accepted ‘without demur’ by Pope Paul to whom it was dedicated. Neither the Pope nor anyone else in Rome seemed to be shocked by the proposed system which made swift progress amongst learned circles. The very difficult feature of the Copernican system, namely, that the earth lost its central place and became no more than another one of the planets, had immense theological implications but these were not generally realised until much later. Copernicus’ conclusion that the earth was not at the centre of the universe, but travelled around a stationary sun, eventually challenged traditional and scriptural concepts about God’s creation, the place of humanity in the universe and the location of Heaven and Hell. It caused great anxiety because it appeared to contradict common sense observation, but the real storm did not break until the experimental work of Galileo and Kepler in the next century. *Revolutions* was not banned until 1616, seventy-three years after its publication and the death of its author.

What is more, and what shows that it was neither impossible nor heretical for Copernicus’ ideas to have influenced Michelangelo’s design for the *Last Judgment*, is the fact that Clement VII, who inaugurated the commission, had also shown a high degree of personal interest in the heliocentric theory, long before its publication. In 1533 Clement VII actually requested that Copernicus’ theory (of which he had evidently heard) should be explained to him and a number of other high dignitaries of the Catholic Church in the Vatican itself. This fact, evidently better known in scientific circles than in artistic ones, was documented by Albert Widmanstadt who delivered the lecture. He noted the event on the cover of a precious manuscript which was presented to him by the Pope to mark the occasion. This manuscript ended up in the Staatsbibliothek, Munich. The inscription clearly states that Widmanstadt had explained Copernicus’ teaching to Pope Clement VII and others in the garden of the Vatican:

1. *Clement VII Supreme Pontiff presented this codex to me as a gift AD 1533, in Rome, after I had, in the presence of Fra Ursino, Cardinal Joh. Salviati, Joh. Petrus Bishop of Viterbo, and Matthias Curtius, medical physician, explained to him in the garden of the Vatican, Copernicus’ teaching concerning the motion of the earth.*

Looking at those present, Cardinal Salviati was the son of Michelangelo’s friend Jacopo Salviati (Lorenzo de’ Medici’s son-in-law). Widmanstadt was a close associate of Theodoric of Radzyn, the representative of Copernicus’ chapter of Varmia at Rome and was the protégé of Giles of Viterbo, theological adviser to Michelangelo on the Sistine Ceiling. Michelangelo’s knowledge of the idea of the sun-centred universe may thus be attributed to his knowledge of ideas currently under discussion within the papal court. Far from it being ‘impossible’ therefore for Michelangelo to have heard of the Copernican Sun-centred universe at the time of the commission of the *Last Judgment* fresco, it seems highly unlikely that he would have been ignorant of the theory. The precise timing of the meeting can be set between June 1533 (when Johannes Petrus succeeded Giles as Bishop of Viterbo) and September 1533 (when Clement VII left Rome to travel to attend negotiations in
Michelangelo was in Rome in June 1533 and subsequently met Pope Clement at S Miniato al Tedesco near Pisa on 22 September 1533 where the project was considered. Discussion between Pope and artist about the commission thus took place a matter of weeks after Clement had had Copernicus' theory explained to him by a professional lecturer and it is possible to compile a concrete list of persons in Rome, within the higher reaches of the Catholic Church, who quite definitely knew of the theory and with whom Michelangelo came into close contact. A chain of just 4-5 persons is traceable between Michelangelo and Copernicus in mid-1533, at exactly the time of the commission of the *Last Judgment* (Copernicus - Radzyn - Widmanstadt - Clement - Michelangelo).

After Clement VII died in September 1534, the Vatican continued to show an interest in Copernican ideas. In 1536, another Cardinal, Nicholas Schönberg, wrote a direct letter to Copernicus, urging him to publish his theory. This letter makes it absolutely clear that Copernicus' ideas had been regarded as common knowledge for several years, that his talent was recognised by the Catholic Church, and that the Vatican itself was anxious for him to publish and communicate his ideas as soon as possible. Dated November 1536, Schönberg's letter to Copernicus begins: 'Some years ago word reached me concerning your proficiency of which everybody constantly spoke .... For I had learned that you had formulated a new cosmology. In it you maintain that the earth moves; that the sun occupies the most central place in the universe...'. He goes on 'I entreat you to communicate this discovery of yours to scholars ....' and so on. Since the actual painting of Michelangelo's *Last Judgment* fresco commenced in summer of 1536, Schönberg's letter (1st November 1536) could be viewed as an urgent request for further information as the fresco got underway. Again, in 1540, and before Michelangelo's fresco was completed, the *Narrato Prima*, the 'first narration' of Copernicus' theory was published by Rheticus, a follower of Copernicus. Neither Clement VII nor Paul III would have permitted the expression in the Papal Chapel of ideas of which they did not approve. So the idea that Michelangelo's revolutionary design for the traditional scheme of the *Last Judgment* in the Sistine Chapel could be an expression of the heliocentric theory of Nicholas Copernicus is entirely plausible. The Copernican system which placed the sun instead of the earth at the centre of the known system, was understood by astronomers, scholars, clergy and educated people at this time and during 1533-41 which saw the inception and completion of Michelangelo's *Last Judgment*, Copernicus' theory of the Sun-centred universe was not only well known in the Vatican, but quite simply not regarded as being in conflict with Catholic Church doctrine. In the flat earth theory and medieval thought, the idea that the sun was central and immobile while the earth hurtled round the sun (actually at 67,000 mph/107,000kmph, plus 1070 mph rotating on axis, at equator) was regarded as absurd. But was is not even more absurd to think that, while the earth remained at rest, the stars, sun and the rest of the universe rotated instead? The realisation that the earth was merely a planet like many others that rotated around the sun did eventually shatter theological understanding because Heaven and Hell could no longer be simply placed as 'up' or 'down'. This caused the church to prohibit the teaching which placed the sun as the centre of the universe (1616) - but not at the time when Michelangelo painted the *Last Judgment*.

Seen against the tremendous interest in the sun - demonstrated in the theology, literature and philosophy of the age which served as background to Copernicus in the same way as to Michelangelo, the identification of God with the sun made the heliocentric theory the logical solution to the difficulties with a 'hell-centred' spherical system. Copernicus' scientific theory seems to have acted as a precipitating factor to cause all these concepts to fall into their rightful place. The idea of placing God personified as the Sun in the centre of the universe solved the inconsistency in the Christian tradition of equating the Deity with the sun - which in the flat-earth or geocentric view was merely a minor and fluctuating cosmological feature. It also fitted in well with neoplatonic and Christian concepts. Humanity, it is true, had been taken away from the central point of the universe; but God was far more logically placed there instead. The traditional analogy between Sun and Deity was vindicated at last.

Michelangelo was nurtured on Ficino and Dante, exposed to Catholic reform thought and commissioned to paint what was a traditionally cosmological subject at a time when Copernican heliocentrism was receiving a great deal of attention in Vatican circles. From the scientific point of view, Michelangelo’s fresco may be taken as evidence of the early acceptance of the heliocentric theory within the upper reaches of the Catholic Church. It seems highly probable that his unique interpretation of the *Last Judgment* developed out of his different areas of interest in theology, literature, philosophy and scientific thought and it begins to seem impossible that he could have conceived the subject in any other way. The depiction of Christ as the Sun in the centre of the circular format is clear. Just as before, the ordering of the complex scene was achieved by relating it to the contemporary view of the cosmological structure of the universe. It was simply the cosmological framework which had changed. The idea is, of course, that the relationship between the drawing of the universe and the drawing of the *Last Judgment* in the Byzantine manuscript is the same as that Copernicus’ diagram and Michelangelo’s *Last Judgment*.

**Additional Note**

The circular movement around the Sun-Christ has been widely observed over the centuries - but how did Michelangelo achieve this? - Where is the precise centre of the circle and why? The concept of the circular universe centered on a single point was stressed in the writings of Dante, Ficino and Copernicus but is it perhaps possible to find the precise location of the 'single, indivisible and stationary point' (Ficino) on which 'depend the
heavens and the whole of nature’ (Dante). The huge circular effect could hardly have been produced ‘free-hand’ on a wall 44 feet/13.7m high, and knowledge of sixteenth-century fresco technique which might have been used in a work of this magnitude suggests the use a rotating plumb-line affixed to a point on the surface of the painting to achieve the circular overall design on the massive wall. By the manipulation of transparencies, marked with concentric circles and a central point, on a large scale reproduction, it is possible to trace the precise centre of the circular design. The yellow sun-aura around the central figure of Christ does not form the centre of the composition. Nor can the centre of the circular design and converging diagonals be found at Christ’s head (suggesting mind or intellect), heart (suggesting emotion) or right hand (suggesting judgment) as might perhaps be expected. The focal point is lower down. In fact the circular design is focused on the drapery (which is original) in the centre of Christ’s right thigh, which is the pivotal point of the whole design. This location seems confirmed by the fact that there is also a great deal of diagonal movement of figures towards this direction as well. A mark in the centre of the thigh where a constructional device such as a rotating or hinged plumb-line could have been affixed is clearly visible at this point. The most probable source for this choice of a central point on Christ’s thigh, as the pivotal centre of the entire cosmological fresco, seems to be the Book of Revelation 19:16. In a description of the Christ of the Judgment, it reads: ’And he hath on his vesture and on his thigh a name written, KING OF KINGS AND LORD OF LORDS.’ This text is immediately followed by a reference to the Sun-symbol: ‘And I saw an angel standing in the sun...’ (v. 17). In the Sistine Last Judgment, Christ is thus depicted (theologically, neoplatonically and scientifically) as Michelangelo viewed Him: as King of Kings and Lords of Lords, the Sun, the centre of the Universe.

References

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