Circles, Spheres and Globes: Models of the Universe as Depicted in Art

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Abstract. The concept of circles and spheres in cosmology was established in ancient times, in both the Graeco-Roman and Judaeo-Christian traditions. Such views appear to have laid the foundation for terrestrial and celestial images based on the circle or sphere. Interpretations and explanations of the shape of the universe and of our own planet have long been reflected in art, but as well as two-dimensional artworks being used to depict planet earth or the universe, actual globes have also been used to demonstrate the shape of the earth and heavens from ancient times. The modern globe as we know it has been popular from the late fifteenth century, the oldest surviving terrestrial globe being the *Erdapfel* ('Earth Apple') of Martin Behaim 1492. Their popularity is witnessed not only by surviving celestial and terrestrial globes, but also by the subsequent depiction of globes in paintings. This demonstrates the significance of globes in the promotion of the 'new learning' and world view during the Renaissance, whether cosmological or earthbound. By looking at globes and spheres in art works, it will be seen that geographical, political and educational aspects are crucial, as well as scientific ones. Like the globes themselves, their inclusion in artworks reflects their importance in the context of the age and culture in which each was produced.

The idea of the earth and/or universe as a sphere appears to have first emerged in Greece in the sixth century BC. The idea is often attributed to Pythagoras and it became more widely accepted as other Greek philosophers, including Plato and Aristotle, came to support the idea.[1] Depictions of the earth and/or the universe were eventually to become widespread, as either two-dimensional images of the heavens or the earth

[1]A succinct summary is available in James Hannam, *The Globe: How the Earth Became Round* (London: Reaktion, 2023). See also Plato, *Phaedo*, trans H.N. Fowler (Cambridge, MA, and London: Harvard University Press, 1914), 108e-109a; Aristotle, *On the Heavens*, trans. W.K.C. Guthrie (Cambridge, MA, and London: Harvard University Press, 1921), II.viii, 290a.

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– or actually shown in three dimensions, whether celestial or terrestrial. Almost all heavenly bodies are spherical (excepting the universe itself, perhaps), but three-dimensional representations of other bodies, such as the moon, Mars or even stars are rare. It is the depiction of the celestial and terrestrial spheres as globes that have become more familiar.

The perception of the known world/universe has varied considerably in ancient as well as more recent times and in accordance with many different cultures. The universe appears to have been regarded as circular by many civilizations, as indicated by the oldest depiction of the cosmos, the Bronze Age Nebra disc, c. 1600 BCE.[2] The earth was sometimes depicted as flat, as a square or rectangle, or even as a three-dimensional cube. Yet, even when considered to be flat – ranging from the Hindu mythology of 'turtles, all the way down' to medieval world maps (known as 'T-and-O' maps) – the known world was often seen as circular, but like a flat disc.

Using the definition of a globe as a spherical three-dimensional model of the earth or other celestial body, reproductions of globes in art and sculpture demonstrate the perceptions of the cosmos in which we live. From the earliest portrayals of the world/universe to present-day interpretations, art works depicting the earth and universe, as well as actual globes, reflect the erudition, extravagance, economic and educational values of their makers and patrons. The focus here is on the depiction of spheres and globes in Western art, rather than on an examination of the globes themselves.

The ancient Greek concept of the earth/universe as sphere became well-known and the earliest known instance of the construction of an actual globe showing the earth/universe as sphere was recorded by the poet Aratus of Soli, who referred to a celestial sphere of the stars made by the Greek astronomer Eudoxus of Cnidus (c. 408– 355 BCE), a pupil of Plato.[3] The existence of such a model was also demonstrated in the mosaic of *The*

[2] Portal to the Heritage of Astronomy, 'Nebra Sky Disc — Bronze Age representation of the sky, Germany', https://web.astronomicalheritage.net/index.php/show-entity?identity=96&idsubentity=1 [accessed 26 Aug. 2025];
Emilia Pásztor and Curt Roslund, 'An Interpretation of the Nebra disc', *Antiquity* 81, no. 312 (2007): pp.267–318. [My thanks are due to Professor Nick Campion for editorial changes and suggestions, and for additional references, as here]

[3] Hannam, *The Globe,* pp. 83–86. Sylvia Sumira, *Globes: 400 years of Exploration, Navigation and Power* (Chicago. IL: University of Chicago Press, 2014).

Philosophers, from Pompeii (100 BCE–100 CE) that shows Plato's Academy with the central figure of Plato (428–348 BCE) pointing to a globe. Plato asserted in the *Timaeus* that '… seeing that the whole is spherical, the assertion that it has one region 'above' and one region 'below' does not become a man of sense'.[4] And also that 'the earth, from above, looks like those spherical balls composed of twelve pieces of leather'.[5]

Knowledge of these ancient views was particularly revived in the Renaissance period. For example, Raphael, in the Vatican *School of Athens,* 1509–11, not only depicts Plato and Aristotle as the central figures, but also shows the figure of Ptolemy holding an earthly sphere, with the geographer Strabo supporting a celestial version, as symbols of the terrestrial and celestial spheres of the universe. Raphael's *Urania the Muse of Astronomy*, on the ceiling of the same room, is also shown with a celestial sphere (depicted as seen from outside the sphere of stars).

Descriptions of Phidias's *Statue of Zeus* at Olympia, holding a type of globe, c. 435 BCE have also survived, although the statue itself was destroyed in the fourth century. In the second century CE, Pausanias wrote of the legendary giant seated figure of Zeus at Olympia, and its appearance has been reconstructed through artists' impressions, such as the engraving by Phillipe Galle, made in 1572.[6] The use of the orb (together with a sceptre) became established as a symbol of monarchy (eventually Christianised when surmounted by a cross).

Turning from Greece to Rome, we find the oldest surviving example of a globe, namely a celestial sphere held up by Atlas (Fig.1). As a model of the spherical universe showing the clustering of stars, it accurately depicts the Roman constellations, although no individual stars are shown. It should be noted that the constellations appear in reversed positions, as if seen from outside the outermost celestial sphere; Leo, for example, faces left towards Cancer the Crab, instead of to the right as if seen from earth.

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[4] Plato, *Timaeus*, trans. R.G. Bury (Cambridge, MA, and: Harvard University Press, 1931), 63A.
[5] Plato, *Phaedo*, trans H.N. Fowler (Cambridge, MA, and London: Harvard University Press, 1914), 110 B, 7.
[6] Pausanius, *Description of Greece*, 5.11.1ff, https://www.theoi.com/Text/Pausanias5A.html. For Galle's engraving after Heemskerk, see https://artsandculture.google.com/asset/standbeeld-van-zeus-in-olympia-galle-philips/cAHw2MzG2qmrtQ .

Fig. 1. *The Farnese Atlas,* Naples, 150 CE. Wikimedia Commons, licensed under the Creative Commons Attribution.

The Egyptians saw the earth as having 'corners' and powerful ancient rulers were sometimes described as 'King of the Four Corners' to indicate the extent of their power, such as the Babylonian King Hammurabi (c. 1810–1750 BC) and the Assyrian King Ashurbanipal (seventh century BCE).[7] The concept is also mentioned in the Bible, such as Revelation 7:1 where angels are described as 'standing on the four corners of the earth' (τέσσαρας γωνίας τῆς γῆς).[8] Although educated people clearly considered the earth to be round and set in a spherical universe, the idea of earth as flat likely persisted amongst some sections of the population until the Renaissance, even if it was considered as circular rather than square. Columbus set off as he did because he recognised that the earth was round, rather than to demonstrate it was so. In fact he went out by sailing west and returned by sailing east which did not really prove the hypothesis (except for the assumption that he had reached the Far East). It is hard to know what ordinary people in the street thought about it, if they thought about it at all. Troubadours mentioned the round earth, like an apple, in songs.

[7] Hannam, *The Globe,* pp.17–18.

[8] See also Isaiah 11:12 referring to the gathering of the dispersed of Judah 'from the four corners of the earth' and compare Revelation 20:8. The expression appears to be used to emphasise God's universality, rather than as a specific cosmology of a flat earth with four corners.

Images of a disc-like flat earth are shown in examples ranging from the *Bible Moralisée* (Bodleian 1v, c. 1230–1240) to the current logo of the Flat Earth Society.[9]

An alternative approach was the Byzantine view of the three-dimensional universe as presented by the sixth-century monk Cosmas Indicopleustes in his *Christian Topography*. Cosmas based his cosmology on the reference in I Kings 6:2 that the Temple at Jerusalem was built in the same proportions as the universe. His drawing thus shows the universe as rectangular in shape, covered by the 'barrel vault' of the heavens, and shaped rather like an old-fashioned travelling trunk.[10] So convinced was Cosmas of his three-dimensional model of the universe that, in the same manuscript, he conclusively (as he thought) disproved the sphericity of the earth: '...it is impossible,' he wrote, 'to explain how rain should fall, how the earth could have become covered by 'the flood', or how there could be 'ascent to heaven'. Yet his drawing of the antipodes shows that he was aware of the concept.[11]

Although this view may well have been supported by others, Italo-Byzantine examples such as *Christ Enthroned on the Sphere of the Universe* at S. Vitale in Ravenna, Italy, dating to 547, and the mosaic in Cathedral of Monreale, Sicily, *God Creating the Universe*, 1175, clearly demonstrate the idea of the universe, and possibly the earth, as a sphere. It is important to bear in mind that medieval 'T-and-O' maps (showing a circular 'O-shaped', known landmass bisected by a T-shaped representation of the Mediterranean Sea and the Nile) maintained a 2D circular rather than 3D spherical approach. However, these were largely

[9] See Hannam, *The Globe*, especially pp.12, 219, 220 and 284; also drawings by George Gamow featured on p.2 of the essay by Donald E. Simanek, *The Flat Earth* (2016) and https://dsimanek.vialattea.net/flat/flateart.htm and https://theflatearthsociety.org/tiki/tiki-index.php [both accessed 2 July 2024].

[10] The Temple was sixty cubits long, twenty cubits wide, and thirty cubits high. Interestingly, the Sistine chapel was constructed to exactly the same measurements, 40.93m long x 13.41m wide. It is 20.70m high. See Lutz Heusinger and Fabrizio Mancinelli, *The Sistine Chapel* (London: Constable, 1973, p.3, as cited in Valerie Shrimplin, *Sun Symbolism and Cosmology in Michelangelo's Last Judgment* (Kirksville, MO: Truman State University Press, p,14 and n.16 on p.33.

[11] Cosmas Indicopleustes, *Christian Topography* (Vat. Gr. 699), Vatican Library, Rome. See https://commons.wikimedia.org/wiki/File:Cosmas_Indicopleustes_-_Topographia_Christiana_1.jpg and https://commons.wikimedia.org/wiki/File:Cosmas_-_antipodes.jpg [accessed 4 July 2024].

devotional objects, rather than an attempt at early cartography and map-making. The determination of the centre was also significant, normally at this time taken to be Jerusalem, in accordance with Ezekiel 5:5.[12]

Moving on to the medieval period, the most influential astronomy textbook of the thirteenth century**,** the *De Sphaera Mundi* (*On the Sphere of the World*) by Johannes Sacrobosco, (c. 1195–1256) was founded on Ptolemy's *Almagest* and referred to the spheres of the Heavens (the primum mobile, fixed stars and planets) that surrounded the earth, but the earth is also described as spherical, within a geocentric system.[13] Based on Sacrobosco's writings, Peter Apian (1495–1552) also depicted the earth as a globe in his *Cosmographia* (1524) which combined work on both astronomy and navigation.[14] This approach shows the depiction of the spherical earth in art leading to the development of globes (celestial or terrestrial) that increasingly became **s**cientific and astronomical, rather than devotional.

Turning to actual depictions of globes in art at this time, the painting by Piero del Pollaiuolo of *Justice* (1470) has a secular theme. Justice holds a representation of the world to indicate the desire for the rule of law to be ubiquitous.[15] This seems to be an image of the world, rather than the depiction of an actual globe, but it was not long until globes themselves were developed even though they had not been made in the Western world since ancient times. The year 1492 marks not only Christopher Columbus's expedition to the 'New World' but also the date of the oldest surviving terrestrial globe, the *Erdapfel* ('Earth Apple') of Martin Behaim. A globe is included in the statue of Behaim, at the Theresienplatz, Nuremburg.[16]

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[12] Examples of so-called 'T-and-O' maps include several at the British Library and the *Mappa Mundi* at Hereford, c 1300. As the idea of the spherical earth (known to the ancients) became accepted, then Jerusalem was replaced as centre in successive geocentric, heliocentric, galacto-centric and a-centric systems.

[13]Johannes Sacrobosco, *De Sphaera Mundi,* p.1230, https://en.wikipedia.org/wiki/De_sphaera_mundihttps://archive.org/details/sphaeramundi00sacr_0 [accessed 3 July 2024].

[14]See Peter Apian, *Cosmographia Petri Apiani*, especially p.12ff, Available on the Internet Archive at: https://archive.org/details/cosmographiaapia00apia/page/n5/mode/2up [accessed 26 August 2025].

[15] See https://commons.wikimedia.org/wiki/File:Pollaiolo,_giustizia.jpg [accessed 26 August 2025].

[16] Sylvia Sumira, *The Art and History of Globes* (London: British Library, 2014).

Behaim had studied cosmography as a pupil of Johannes Muller, also known as Regiomontanus, and an important forerunner of Copernicus.[17] His globe confirmed the acceptance of the concept and, made by a linen/parchment wrap around, marked the beginning of the development of globes that not only had scientific, astronomical, political and geographical meaning, but also led to the huge, decorative examples made for the courts of Renaissance Europe. They were no longer devotional objects related to the Christianised Aristotelian view of the cosmos as in early Christian, Byzantine and medieval depictions of the universe.

The depiction of the celestial and terrestrial globes showing the earth and its place in the cosmos varied considerably. The curious painting on the outer panels of Hieronymus Bosch's *Garden of Earthly Delights* (1490–1510) appears to signify a flat earth in spherical universe. Sandro Botticelli's fresco of *St Augustine in his Study*, of similar date (1480) includes an armillary sphere and other items. Augustine (354–430) accepted the earth as a sphere, due to his respect for science and Greek astronomy, and Carpaccio's similar version of St Augustine with an astrolabe (1502), demonstrates how the Saint in his study naturally provided an opportunity to show scientific instruments in religious paintings.[18]

After the establishment of spherical terrestrial and astronomical structures from the sixteenth century, the depiction of globes in famous paintings demonstrates their importance as navigational tools and scientific instruments as well as powerful status symbols with social, economic and political overtones. The promotion and acceptance of the new Renaissance learning and world view is indicated, whether scientific, geographical or

[17] See https://commons.wikimedia.org/wiki/File:Martin_Behaim_.jpg [accessed 13 August 2024]. A portrait of Behaim contemplating his globe/invention is also shown as imagined by Friedrich Wilhelm Wanderer (1840–1910), https://commons.wikimedia.org/wiki/File:Martin_Behaim.jpg .

[18] Images can be found, respectively at: https://commons.wikimedia.org/wiki/File:Hieronymus_Bosch_-_The_Garden_of_Earthly_Delights_-_The_exterior_(shutters).jpg (Bosch); https://commons.wikimedia.org/wiki/File:Sandro_botticelli,_sant%27agostino_nello_studio,_1480_circa,_dall%27ex-coro_dei_frati_umiliati,_01.jpg (Botticelli); https://commons.wikimedia.org/wiki/File:Vittore_carpaccio,_visione_di_sant%27agostino_01.jpg (Carpaccio).

political. The recently restored *Salvator Mundi*, attributed to Leonardo da Vinci (c. 1500) includes a version of the sphere of the world ('Mundi'), and several of Leonardo's drawings also include what appear to be representations of an actual globe (for example, in his study of perspective in the *Codex Atlanticus* (1478–1519) or the curious *Allegory with a Wolf and an Eagle* (c. 1508–10) where the Imperial Eagle bestrides the globe). Michelangelo's *Dream of Human Life*, c. 1532–33, also suggests a globe, around which the universe circulates, symbolised by characters representing the so-called Seven Deadly Sins, 1533.[19]

These artworks demonstrate the interest shown by the great artists of the time, as actual globes started to figure prominently in paintings. As the Renaissance progressed, the purpose, function and influence of globes was heightened; supported by cartographers, printers and manufacturers, as well as by the artists who included them in paintings. Although still relatively new, globes were included in artworks to reflect the 'New Learning' and world view. Globes now come into their own and their depiction in art reflects their importance as extravagant special treasures conferring status on their owner; as aids to exploration and geographical discoveries; economic and political symbols; or indicative of the erudition of the cognoscenti, scholars and scientists who owned them (before becoming a tool for education more widely).

Much has been written about Holbein's mysterious painting 'The *Ambassadors* (1533) and the large number of scientific instruments and artefacts that are included (Fig. 2).[20] The celestial and terrestrial globes displayed here indicate the status and extravagance of the owners of such treasures. The celestial globe has an exterior or 'God's eye' view as if seen from outer space (Pegasus faces to the left). The elaborate globes in the courts of Europe also show the erudition of their owners who were learned as well as rich. Holbein's inclusion of an *anamorphosis* of a skull here is significant as a *memento mori* for those who seem to have so much – 'to own the world'. The inclusion of a skull often recurs in paintings of globes

[19] For Leonardo, https://commons.wikimedia.org/wiki/File:Codice_Atlantico_-_Perspectograph.jpg and https://commons.wikimedia.org/wiki/File:Leonardo_da_vinci,_Allegory_with_wolf_and_eagle.jpg . For Michelangelo's drawing see https://commons.wikimedia.org/wiki/File:Dreamofhumanlife.jpg .

[20] Susan Foister, *Holbein's Ambassadors: Making and Meaning* (London: National Gallery Publications, 1997). John North, *The Ambassador's Secret: Holbein and the World of the Renaissance* (London: Hambledon, 2004).

as a reminder that, although the aristocratic patrons appear to possess the earth and the skies, treasures and education - all will die anyway.

Fig. 2. Holbein, *The Ambassadors*, details of the Globes, 1533. Photos taken and combined by Valerie Shrimplin.

The analogy was taken further in Parmigianino's portrait of the *Emperor Charles V* (1530, of which a later version was made by Rubens, 1604). In both versions, the globe is evidently shown to indicate Charles V's status as ruler of the whole world, including by now the New World of the Americas in a striking political and geographical allegory. Charles V's dominion included not only Austria, Spain, Burgundy and the Netherlands in Europe but also stretched from the Philippines in the Orient to Mexico and Peru.

There is a similar approach in several portraits of England's Queen Elizabeth I. In an early version, the inclusion of a globe showing the monarch's ships sailing west to the New World is aspirational (*Sieve Portrait*, 1583). Elizabeth's power and domain is more forcefully expressed in the later 'Armada' Portraits c. 1588 (at Greenwich and Woburn). The concept of secular, monarchical and political power is conveyed by the globe with the Queen's hand resting upon it – as a sign of her status, erudition and riches. The globe also signifies a political or economic statement (the intention of world domination) as well as functioning as a navigational tool and scientific instrument. Slightly later still, the 'Ditchley' portrait by Marcus Gheeraerts (c. 1592) shows Elizabeth I actually standing on top of the globe of the world, with a very cosmological background.

During the 'Age of Enlightenment' from the early seventeenth century, interest in globes increased, with not only a rise in manufacture and widespread usage, but also more extensive portrayals in art. The large Flemish work, *Cognoscenti in a Room hung with Pictures* (1620, unknown artist) demonstrates the prestigious nature of the possession and display of a globe, as does Thomas de Keyser's portrait of the astronomer*, Constantin Huygens and his Clerk* (1627), demonstrating the erudition and scholarship of its owner. Significantly, celestial and terrestrial globes are depicted side by side as a pair of surprisingly the same size.

A symbol of essential learning and understanding of the cosmos is Pietro da Cortona's, *Apollo Room*, in the antechamber of the Pitti Palace, 1647–61. The celestial globe (supported by Hercules/Atlas) demonstrates the spiritual as well as educational needs of the nobility in understanding the cosmos. Constellations are shown as a band across the sky, this time as seen from earth, with Centaurus/Sagittarius facing to the right. The majority of depictions of celestial globes considered in this paper show the constellations as if seen from the heavens ('God's eye view' or as if from outer space) rather than as seen from planet Earth. Two-dimensional drawings of the constellations also seem to vary between an earth-view or an external one. In such drawings, the variations may of course be caused by an artist or printer using an engraving or print that had been produced by means of a 'reversed' process.

Cortona's patron, Ferdinand II de' Medici, Grand Duke of Tuscany, was a known patron of the sciences. He was associated with Galileo (his teacher and protégé) and helped found the Accademia del Cimento in Florence (1657) which offered support for scientists.[21]

Celestial and terrestrial globes also featured in more simple works, not only in the schemes of grand palaces. Inclusion in still-life compositions can be seen, such as Jan Davidz de Heem, *A Table of Desserts,* 1640, where a globe is displayed alongside various luxury items including musical instruments and exotic and expensive silver, gilt and glassware. The possession of rare and expensive items could be problematic, however, as shown in the series of paintings by Antonio de Pereda on *Vanitas* (c. 1670). Valuable items, such as money, jewellery, weapons, clocks and a globe, represent the 'whole world' of the Spanish Empire, and a miniature of Charles V is included above the globe, indicating his ownership. Yet the

[21] Galileo who dedicated his *Dialogue Concerning the two Chief World Systems* to Ferdinand II. https://en.wikipedia.org/wiki/Dialogue_Concerning_the_Two_Chief_World_Systems#/media/File:Dialogo_Galileo_SWRI.jpg [accessed 4 July 2024].

inclusion, as well, of fading flowers, skulls and a miniature of the *Last Judgment* as *memento mori,* show that such riches are to no avail, for all will die and be judged.

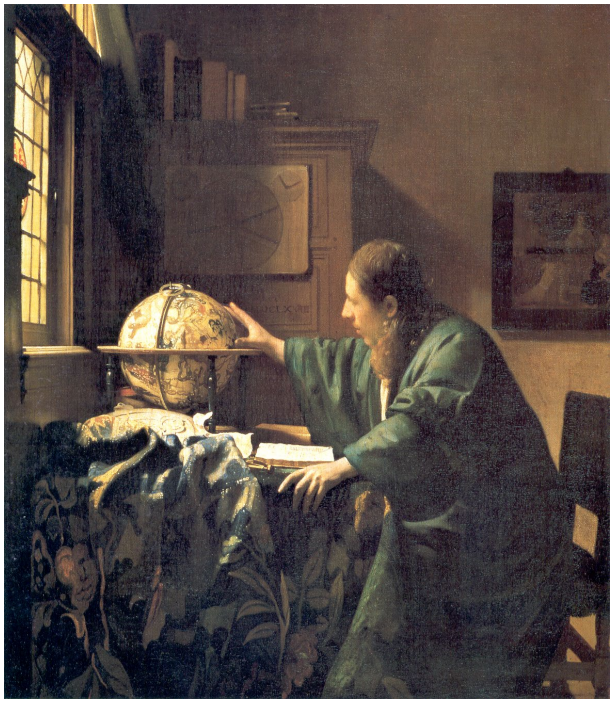

Fig. 3. Johannes Vermeer, *The Astronomer*, 1668. Public Domain. Wikimedia Commons/Louvre.

In northern Europe, by contrast, secular aspects are prominent as the inclusion of celestial and/or terrestrial globes is used to emphasise knowledge and scholarship, such as Rembrandt's etchings, *A Scholar in his Study*, 1642, and *Philosopher in his Study Meditating a Globe,* 1640. At about the same time, the *Old Man with a Globe* (c. 1650) by Ferdinand Bol exudes a very pensive mood, whilst Bol's slightly later *An Astronomer,* (1652) includes both celestial and terrestrial globes as a pair – again remarkably similar in size. Deep thought is also conveyed in portraits by Johannes Vermeer; *The Astronomer*, (c 1668) holds a celestial globe, showing the constellations, which he sets in motion with the touch of his hand (Fig. 3). The book by astronomer Adriaan Metius on the table confirms his profession and the view is an 'external' one, with the Great

Bear facing left. Slightly later, Vermeer's *The Geographer* (after 1668) shows the same celestial globe now put aside on a top shelf as the geographer looks at maps, crucial for trade and commerce.[22]

The focus on globes in portraits as a demonstration of erudition was also prevalent in England and France, such as the portrait by Godfrey Kneller of, *A Scholar in His Study* (c 1668), who seems poised to write about the globe on his desk. Of a similar date, Kneller's *Old Scholar* again shows two globes, celestial and terrestrial side by side, as well as a skull included again here as a *memento mori* linking with the theme of 'Vanitas' (Fig. 4). Since the constellation Leo faces left (looking towards Cancer and then Gemini) the celestial globe is again portrayed as if from an external viewpoint, outside the sphere of stars, not as would be viewed by an observer on Earth.

Fig. 4. Godfrey Kneller, *An Old Scholar,* c 1668. Public Domain. Wikimedia Commons.

[22] The sitter for both portraits was probably Antonie van Leeuwenhoek, well-known for his skill in navigation, astronomy, mathematics, philosophy and natural science. The portrait of Leeuwenhoek by Jan Verkolje (1680) includes what seems to be the same globe.

Moving away from the use of globes by specialist astronomers, philosophers and geographers, in the late seventeenth century, globes were also to be found in paintings indicating a broader approach to globes as instruments of education more generally, including for women (Gabriel Metsu, *A Young Woman Seated, Drawing*, 1655) and for apprentices (Olivier van Duren, *A Young Astronomer*, 1685). Here, the globe again gives a celestial 'exterior view'. The portrait by Maurice-Quentin de la Tour of *The Marquise de Pompadour* (mistress of Louis XV), c. 1749, still reflects the idea of globe as a sign of status but she is also shown as a protector of the arts, surrounded by attributes symbolizing literature, music, astronomy and art – part of the great intellectual, moral and philosophical developments of mid eighteenth-century Paris.

Henri-Horace Roland De La Porte's *Still Life With A Vase Of Lapis, A Globe and Bagpipes,* 1763, also depicts items that are not only precious and valuable, but linked to learning. Globes became more frequently included in 'still life' studies as 'tools' of education rather than as luxurious trophies (David Teniers, *Still-life with Books and Globe,* 1650s). Pietro Longhi's *The Geography Lesson*, (1752) shows a globe being used in the education of women, whilst the family portrait by David Allen, *Children of Henry Dundas,* 1785, shows one in the education of children, no longer exclusive to scholars and cognoscenti, although it is clearly in a wealthy, aristocratic household.

By contrast, in the Catholic regions of Italy and Spain, religious and spiritual themes seem to prevail in the depiction of globes, since they are used to indicate wisdom of a theological type. Luca Giordano's *Allegory of Divine Wisdom* 1682–85 and Giovanni Battista Pittoni's *The Nativity with God the Father and the Holy Ghost*, 1740, both present enormous spheres watched over by God the Father. This continued into the eighteenth century and beyond. A later nineteenth-century example by José Gallegas y Arnosa, *Monks Studying a Globe,* 1900, indicates a religious theme combined with a geographical or scientific approach.

Turning to some more sculptural and architectural uses, in late eighteenth-century England globes were used as a sign of science and learning. The Octagonal *Tower of the Winds*, at the Radcliffe Observatory, Oxford (1773–1794) was based on the archaeological remains of the *Tower of the Winds* built in Athens, c. 100-50 BCE. It is embellished with signs of the zodiac on the lower windows. Most dramatic, however, is the globe at the very top, supported by statues of Atlas and Hercules. The design, by

the sculptor John Bacon (1740-99), makes it clear that the Observatory is a focus for learning about the celestial and terrestrial worlds.[23]

The popularity and availability of globes increased enormously in the nineteenth century with mass production made possible by new materials and methods. The American commercial globe-maker James Wilson helped bring globes within reach of the masses, as shown in contemporary images. The photograph of a late nineteenth-century classroom (Fig. 5) shows the increasing presence of globes in schools where desktop models became standard classroom accessories.[24]

Fig. 5. Nineteenth-century classroom (Putnam School, Boston, 1892). Nineteenth-century classroom (Putnam School, Boston, 1892). Public Domain. Wikimedia Commons. https://commons.wikimedia.org/wiki/File:1892_PutnamSchool_Boston.jpg

[23] Now part of Green Templeton College, 43 Woodstock Road, Oxford.

[24] This practice was recorded even earlier in the nineteenth century. In the novel *Jane Eyre*, by Charlotte Bronte (first published in 1847), Jane describes how at Lowood School (not the most advanced of institutions) globes were used in the teaching of geography: 'Monitor of the first class, fetch the globes' and 'The superintendent of Lowood having taken her seat before a pair of globes on one of the tables, summoned the first class round her, and commenced giving a lesson in geography'. Charlotte Bronte, *Jane Eyre (*London: Penguin Classics, 2006), pp.56–57.

This soon extended, in the twentieth century, to pocket-sized and toy (even inflatable) globes. However, art works continued to include globes or spheres of the universe as a motif: in George Frederick Watts, *Hope* (1886) a solitary blindfolded female figure is seated on a globe, playing a lyre that symbolically has only a single string remaining. A single star is visible in the background.

In our own age, globes still figure in artworks. In 1964, at the New York World's Fair in Flushing Meadows Park, the *Unisphere*, a giant sculpture of a terrestrial globe made of stainless steel (140 ft/43m high) became a lasting symbol of the Fair's theme of 'Peace through Understanding' and the concept of global interdependence. It was the quintessential symbol of the event and remains the world's largest global structure. Another large-scale scheme is the *Monumento al Divino Salvador del Mundo*, in San Salvador by the sculptor José María Barahona Villaseñor (1942) which shows Christ standing on top of the globe of planet Earth.[25]

The image of the globe of the earth being squeezed like a lemon, by Alberto Ruggieri (2000) succinctly symbolises current concern for the state of our planet.[26] (Figure 6) A similar theme is echoed by the more recent sculpture by Mark Wallinger, *The World Turned Upside Down* (2019, London School of Economics). Apart from the highlighting of environmental issues and threats to life and the planet, the work also reverts to the 'political' role of globes, being controversial in its depiction of some political states and borders.[27]

[25] Known in English as: *Jesus Christ on the Globe Sphere of Planet Earth*. Including the pedestal, the work is 18 metres (59 feet high). It is particularly dramatic when pictured on a night of the full moon. https://en.wikipedia.org/wiki/Monumento_al_Divino_Salvador_del_Mundo#/media/File:SalvadorDelMundo.jpg

[26] Image by Alberto Ruggieri (b. 1963), reproduced here by permission of the artist (not available on the internet). www.albertoruggieri.blogspot.it ; www.albertoruggieri.net

[27] The planet itself is scarcely at risk. It will likely continue until the sun becomes a red giant and burns it up (in approximately 5 billion years). It is the natural world, as affected by the lifestyle and resources used by some (but not all) sectors of the human race, that is currently at risk, not the planet itself.

Fig. 6. Alberto Ruggieri, *Squeezed Earth*, 2000 (by permission of the artist)

The wider educational approach to globes is also changing. An experiment with the use of 'virtual globes' in the classroom would no doubt have amazed forerunners in the Victorian classroom, where the supply of an individual globe for each child was a spectacular innovation at the time.[28] And it hardly seems coincidence that *Wikipedia*, the world-wide free knowledge encyclopaedia has a globe motif as its logo, designed by Paul Stansifer in 2003. Even the movie industry has utilised the 'globe' idea, in the motifs for RKO and Universal, and, again, featuring women, as in the *Wonderwoman* Issue 750 which shows the heroine supporting the world in a feminist take on the Farnese Atlas.[29]

[28] For example, https://www.viar360.com/education-schools-using-virtual-reality/

[29] The logo of Universal Studios is clearly inspired by astronomical phenomena: https://www.youtube.com/watch?v=bNJW113tbKk [accessed 2 July 2024, 24 seconds, with sound]. For Wonderwoman, see *Wonder Woman* #750, issue of the series Wonder Woman (Volume 1), 22 January, 2020. https://dc.fandom.com/wiki/Wonder_Woman_Vol_1_750 [accessed 6 July 2024].

The depiction of the shape of the universe in art spans from ancient times to Byzantine three-dimensional drawings, to the heyday of globes in the sixteenth to eighteenth centuries and to modern times. Globes and spheres can be found depicted in paintings from the Renaissance to modern times, including film. Interest continues in spite of actual photographs of the globe of planet Earth. The iconic images of the *Blue Marble*[30] and *The Pale Blue Dot* [31]seem to be simultaneously celestial as well as terrestrial.

Like the globes themselves, their presentation in artworks demonstrates the importance and symbolism of circles, spheres and globes as models of the cosmos, reflecting the context of the age and culture in which each was produced. Science, scholarship and astronomy are foremost; but the inclusion of globes and spheres in art also signify extravagant symbols of aristocratic status; economic and political power; exploration and geographical instruments; erudition and education more generally – as well as current concerns for the environment/planet that they represent.

[30] The *Blue Marble* photograph was taken from Apollo 17 on 7 Dec 1972, at a distance of 29,400Km/18,300miles. It shows the view of the earth as seen by the Apollo 17 crew: Eugene Cernan, Ronald Evans and Harrison Schmitt https://www.nasa.gov/image-article/blue-marble-image-of-earth-from-apollo-17/ [accessed 3 July 2024].

[31] The *Pale Blue Dot* is part of a series of photographs of the Earth taken by NASA's Voyager 1 on 14 February, 1990, at 3.7 billion miles (6 billion kilometres) from the Sun https://science.nasa.gov/mission/voyager/voyager-1s-pale-blue-dot/ [accessed 3 July 2024].