The Symbol of the City

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The Symbol of the City

Utopian Symmetry

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Abstract: The idealisation of the city as a symmetrical motif, both in art and literature, has endured through the millennia. In Plato's Critas the city is depicted as five concentric rings of land and water surrounding the citadel. Roman mosaics portray the labyrinth as a city and these labyrinths have a relatively perfect, four-fold symmetry. Town planning and religious traditions of Rome were expressed symbolically in this geometric layout of the Roman labyrinth. Both the earthly and heavenly city were reflected in this motif since the microcosm reflected the macrocosm. In Revelations, the Heavenly Jerusalem has four-fold symmetry, the design of its gates, foundations, and measurements reflect the use of Pythagorean numerology. Utopian visions of the city from the Renaissance through to those of James Silk Buckingham in the nineteenth century involved planned cities with strict symmetrical designs. With this symmetrical geometry order would prevail, improving not only the aesthetics of the city but also improving the way of life of the population who lived in the city. Jung used the image of the symmetrical city as a Mandela, a symbol of contemplation. The motif of the symmetrical city crosses time, cultures and religions. This paper traces this conception of the city through its development and presentation in art and literature.

Keywords: Symmetry, City Plan, Symbols

Introduction

THE IDEALISATION OF the city as a symmetrical motif, both in art and literature, has endured through the millennia. However, although this image of a geometric, highly planned and organised city endured through time the image was rarely realised. These geometric images of the idealised city are deeply embedded in the iconography of human history.

To the modern mind it is often difficult to comprehend the power that numbers and geometry had on development of the ancient and medieval thinking. In fact, the importance of numbers and geometry to the ancient and medieval mind cannot be overestimated. Numbers were a model for theology, and were an analogy of the creation.[1] Numbers were not manmade they had their own existence they were incorporeal.[2] That made them very powerful symbols, which were greatly revered for their aesthetics, ethereal and spiritual properties.

The earliest known extensive number symbolism was in Ancient Babylon.[3] Their number symbolism was associated with astrological observations: the seven visible planets; the lunar month could be divided into four weeks of seven days; the four prevailing winds; the twelve signs of the zodiac; forty days was the length of the rainy season. The Old Testament used the Babylonian number symbolism extensively: on the seventh day of Creation God rested;[4] Noah took seven days to load the animals onto the ark[5] then it rained for forty days and nights and the Earth was flooded for forty days;[6] Moses goes into the wilderness for forty day. There is continual reference to the number twelve particularly to the twelve tribes of Israel, which in reality were never known to be twelve.[7] St Augustine listed thirteen tribes of Israel but referred to them as twelve.[8] However, twelve became symbolic for the tribes of Israel. The number symbolism in the Old Testament appears to have deep symbolic meaning, an excellent example of this being the siege of Jericho. God instructed

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[1] Lawrence P Schrenk, "God as Monad: The Philosophical Basis of Medieval Theological Numerology," in *Medieval Numerology*, ed. Robert L Surles (New York: Garland Publishing Inc, 1993).: and Russell A. Peck, "Number as Cosmic Language," in *By Things Seen: Reference and Recognition in Medieval Thought*, ed. David L Jeffrey (Ottawa: The University of Ottawa Press, 1979). Vincent Foster Hopper, *Medieval Number Symbolism* (New York: Cooper Square Publishers Inc, 1969). pp. 3-32.

[2] William Harris Stahl, *Martianus Capella and the Seven Liberal Arts: The Quadrivium of Martianus Capella*, vol. Vol. I (New York: Columbia University Press, 1971). 731

[3] Hopper, 1969, pp.13-32.

[4] Genesis, II:2

[5] Genesis, VII:4

[6] Genesis VII:12-17

[7] Ibid. p.28.

[8] Augustine, *Concerning the City of God against the Pagans* (Harmondsworth: Penguin Books, 1972)., XV, 20.

Joshua how to besiege the city. "You are to march round the city with all your fighting men, making the circuit of it once a day for six days. Seven priests carrying seven trumpets made from rams' horns are to go ahead of the Ark. On the seventh day you are to march round the city seven times with the priests blowing their trumpets."[9] More of a ritual, stooped in number symbolism, than a military conquest. There are many examples of the repeated use of Babylonian number symbolism and their multiples or combinations in the Old Testament.

Pythagoras (sixth century BC) was a mystic, the founder of a new religious philosophy and the founder of science as the word is understood today.[10] He studied in Egypt and travel to Babylonia from Egypt and his philosophy appears to have stemmed from the ancient Babylonia beliefs.[11] To the Pythagoreans numbers, geometry, astronomy and harmony were closely linked since numbers and astronomy could be expressed as geometric constructions and harmonies were expresses as the ratios of the distance between the plants, the harmonies of the spheres.[12] Pythagoras' geometrical constructions of numbers revealed not only their structural but also their ethereal and mystical qualities. A single point, was one or the *monad*. It was the ultimate unit of being, such as a soul, an atom. The *monad* was a principle of magnitude.[13] Two points represented two or the *dyad*, the two points have no dimension. However, they defined a line.[14] The Pythagoreans regarded the *dyad* as the cosmic opposite to the *monad*.[15] Although the *monad* and the *dyad* are the archetypes of odd and even numbers they, to the Pythagoreans, are not arithmetical numbers. The *monad* has the potential of all number while the *dyad* represents the concept of extension and as such represented the divisibility of the physical world.[16] The first arithmetical number was three or the *triad*. Three points defined a surface. It was the addition of the *monad* and the *dyad,* which were the creators of numbers yet not themselves numbers.[17] Four points have volume and represented the number four or the *tetrad* (see Figure 1a).[18]
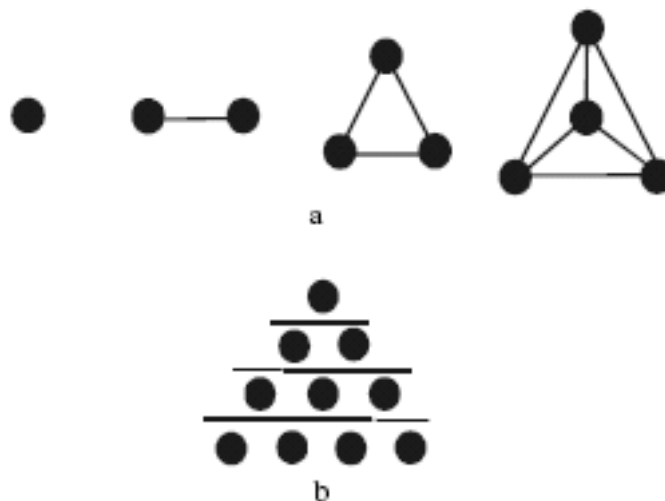

Figure 1: The Pythagorean constructions of (a) monad, dyad, triad and the tetrad (b) the decad.

The *decad* or ten (Figure 1b) encompasses all number i.e. 1+2+3+4=10, therefore, it contained everything and was sacred to the Pythagoreans.[19] All of the numbers of the *decad* had symbolic meaning. Odd numbers were masculine and even numbers feminine. The addition of the feminine two and the masculine three was the first marriage number – five.[20] Six is the produced of two and three and is the first fertile

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[9] Josh. 6: 3-5

[10] Koestler, Arthur. The Sleepwalkers (London: Hutchinson, 1959), p.26.

[11] Iamblichus, *On the Pythagorean Way of Life* (Atlanta: Scholars Press, 1991). p.45

[12] Plato. *Timaeus*. Translated by R. G. Bury. London: William Heinemanns, 1952.

[13] Heninger, S. K. *Touches of Sweet Harmony; Pythagorean Cosmology and Renaissance Poetics*. San Marino: The Huntington Library, 1974. p.78

[14] Ibid p.79.

[15] Gorman, Peter. *Pythagoras a Life*. London: Routledge & Kegan Paul, 1979. p.140

[16] Heninger, 1974, p.87.

[17] Gorman, 1979, p.136

[18] Heninger, 1974, p.79

[19] Stahl, 1971, 728

[20] Ibid, 735

marriage number.[21] The product of three and four, twelve is the first marriage number of real numbers, since three is the first number. Additionally, it is the fertile marriage of the soul, three, and the body, four. However, the *tetrad* and the *decad* had special significance for the Pythagoreans. The *tetrad* represented the extended universe, and *decad* represented the limits of the universe.[22] Embodied in the concept of the *tetrad* are the four elements, earth, fire, water and air.[23]

There are five regular solids (see Figure 2), the first four, the pyramid, cube, octahedron and icosa-

hedron can be constructed out of the equilateral triangle. Plato (c428-347BC) related the four elements to these solids: fire – pyramid; earth – cube; air – octahedron and water – icosahedron.[24] The fifth regular solid was a dodecahedon and cannot be constructed with equilateral triangle, but is constructed of twelve pentagons. Plato claimed that this solid was the one which "god used for the embroidering the constellations on the whole heaven."[25] To Plato the dodecahedon represented the cosmos. These five regular solids are the only solids that can be constructed from the same regular sided shapes.
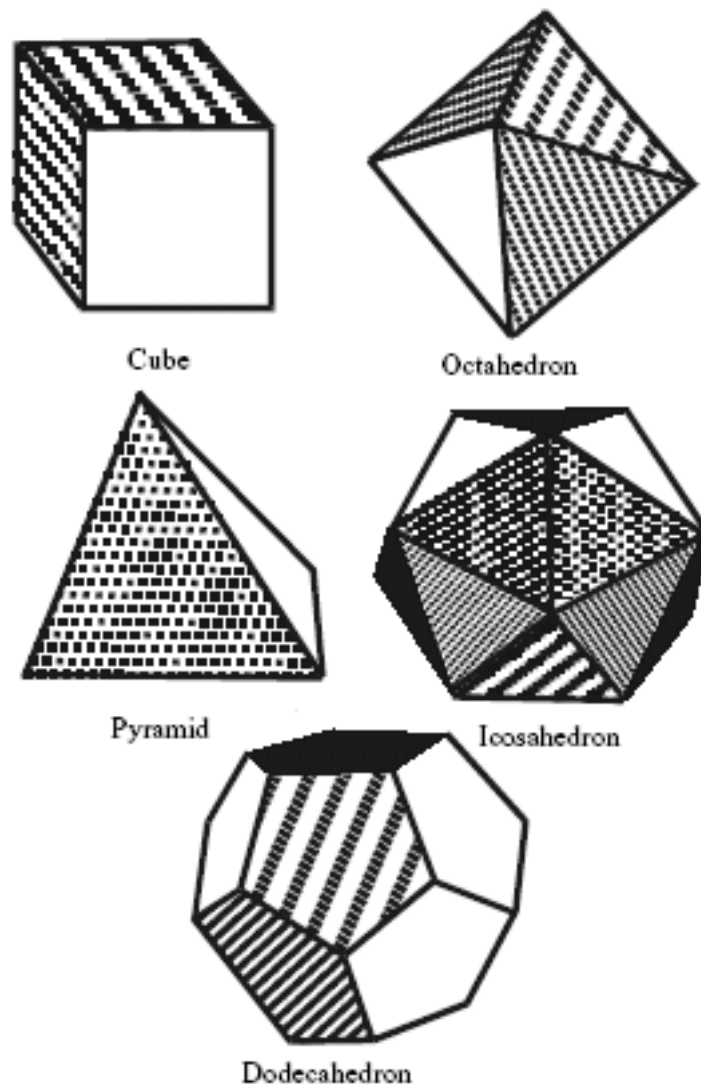

Figure 2: The Platonic Solids

Shapes had earthly or heavenly characteristics. In Pythagorean terms, a circle and sphere was like a

point and a point was the *monad* – one*,* which represented unified perfection and the incorporeal. The

[21] Ibid, 736

[22] S. K. Heninger, *Touches of Sweet Harmony; Pythagorean Cosmology and Renaissance Poetics* (San Marino: The Huntington Library, 1974).

[23] Plato, *Timaeus*, 32,C

[24] Ibid, 55

[25] Ibid

four sides of a square represented the four elements and the square itself represented the Earth.

Plato's and Pythagoras' philosophy of number symbolism was widely accepted and was carried on and developed by the Neo-Platonist and Neo-Pythagorean philosophies. Their number symbolism can be seen in the New Testament, particularly in Revelation. The Early Church Fathers inherited the science of numbers, which was based on Platonism, Pythagorean lore and Babylonian Astronomy. St Augustine claimed that "To ascend the path towards Wisdom, we discover that numbers transcend our mind and remain unchangeable in their own."[26] Although the early Christian were often reluctant to accepted pagan wisdom Augustine claimed that the pagans came close to the truth, because of their observations of the pattern of Creation through nature and also that Plato must have come into contact with the writings on Jeremiah and Moses.[27] The numbers of the *decad* retained their significance in Christianity. God is praised: "You have ordered all things in measure, number and weight (Wisdom: 11:21)." In the 'The School of Athens' by Raphael (1483-1520) in the Vatican, commissioned by Pope Leo X, Plato and Aristotle are the central figures. Plato is holding a copy of the Timaeus. The pagan tradition of numbers continued well into the renaissance and was revered in the highest places. This wisdom of the microcosm and macrocosm, the corporeal and the incorporeal, is exemplified, down through the ages, in the symmetrical motifs of cities. This paper will examine some examples of these symmetrical cities through time: Plato's Atlantis in *Critias* in the 4th century BC; the New Jerusalem in Revelations; Campanella's *City of the Sun,* and Buckingham's Victoria. These model cities reveal a union of utopia, number symbolism and symmetry.

Atlantis

Timaeus and *Critias* are the only two surviving dialogues of a large work that consisted of at least three dialogues. However, only a fraction of *Critias* has survived. The dialogue of *Timaeus* tells the story of the origins of the cosmic system and ends the dialogue with man's place in the cosmos. *Critias* tells the story of Atlantis, which would study the ideal man through the idea commonwealth. Hermocrates,[28] whose dialogue is lost and the subject matter unspecified, would follow Critias. *Critias* is the first surviving story of the city of Atlantis.

The gods divided the Earth between them and Posseidon's share was Atlantis. It was a very large island in the Atlantic opposite the Straits of Gibraltar. There was already inhabitants on the island and one of these original earth-born inhabitants was called Cleito. "Posseidon was attracted by her and had intercourse with her, and fortified the hill where she lived by enclosing it with concentric rings of sea and land. There were two rings of land and three of sea, like cartwheels, with the island at their centre and equidistant from each other, making the place inaccessible to man."[29] On the island Cleito bore five pairs of male twins to Posseidon. The island of Atlantis was divided into ten kingdoms and distributed between the sons. Each kingdom would be ruled by the oldest son of the King and there would only be ten kingdom in Atlantis. The central island of the city was five stades in diameter it was surrounded a ring of water one stade wide then a ring of water and land both two stades wide and larger ring of water and land both three stades wide (see Figure 3). In the centre of the fortified citadel was a shrine to Poseidon and Cleito, here the family of the ten kings was conceived and begotten.[30]The city was surrounded by a uniformly flat plain. This plan was rectangular in shape, measuring three thousand stades by two thousand stades. The ten kings had absolute power in their own kingdom. However, at the temple of Poseidon the kings "assembled alternately every fifth and sixth year (thereby showing equal respect to both odd and even numbers),[31]" here they would be governed jointly by Poseidon's law.

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[26] Augustine, *De Libero Arbitrio*, trans. Anna Benjamin and L. H. Hackstaff (Indianapolis: 1964). II. XI. 126
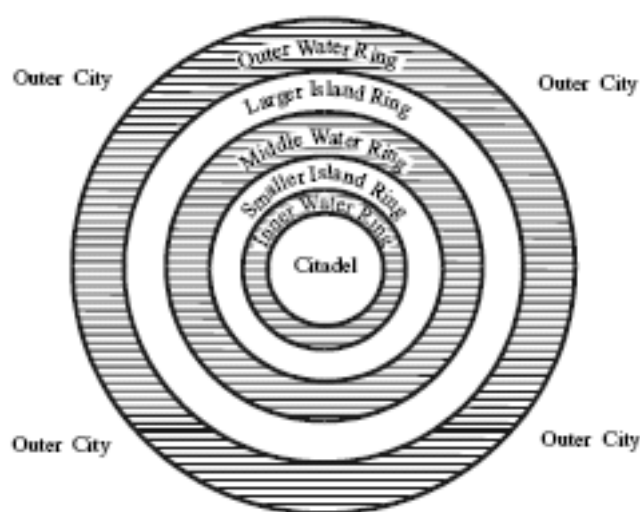
[27] Augustine, *Concerning the City of God against the Pagans,* VIII. 11-12

[28] Plato, "Critias," in *Timaeus and Critias*, ed. Betty Radice (London: Penguin Books, 1995). I08

[29] Ibid, 113

[30] Ibid, 116

[31] Ibid, 119

The city of Atlantis is symmetric, orderly and numbers play an important role not only in the design of the city but also in the political structure and myth of Atlantis. The important numbers in Atlantis were five, six, and ten. In the number symbolism of Plato and Pythagoras five was the addition of the feminine two and the masculine three this made five the first marriage number. Six is the product of two and three and is the fertile marriage number and ten or *decad* encompasses all creation. The citadel was originally built by Poseidon fifty stades from the sea and was surrounded by five rings of land and water. The purpose of this citadel was to seduce Cleito, and here she produced five sets of males twins. The citadel continued to be a sanctuary for fertility since the family of the ten kings were conceived and begotten there. The plan surrounding the city of Atlantis was six million square stades and are described as the most 'fertile of all plains'.[32] There are many other sixes and fives mention in the surviving extract of *Critias*, all in some way, relating to the citadel of Atlantis, whose original and prime function was for the procreation of the Atlantian Royalty, descendants of the god Poseidon. The ideal commonwealth of Atlantis had perfect symmetry.

This symmetry and number is in contrast to the description of the prehistoric Athens in *Critias*, which although lush in vegetation it was unsymmetrical and had no numbers mentioned in relation to its appearance and construction. Prehistoric Athens had no measured distances or areas, no time span of meeting of the rulers, and no number of kings. This is in stark contrast to Atlantis where everything is counted and measured.

Only a fraction of the dialog survives and this is mostly the description of the two cities. However, the description of Atlantis is that of a mystical city that because of its symmetry, order and embedded numbers it appears that the Atlantians retained the wisdom of the gods. Nevertheless, Atlantis was "swallowed up by the sea and vanished."[33] Why Posseidon, king of the sea, allowed this to happen is lost along with the most of the dialog of *Critias*. However, Atlantis was a mystical city of divine symmetry.

New Jerusalem

The image of the holy city from the Revelation of John the Divine is one of the most popular passages and most powerful images in the New Testament. The image of the city is not only was often used to illustrate Bibles but it was also the basis of theological discussion and reflection[34], and has been an integral part of popular literature throughout the ages[35].

After Jesus, the lamb, broke the seventh seal of the Book of Ages that prophesised the end of the world, God sent seven angels with seven plagues to the Earth. Babylon, the Earthly city of vice and corruption fell and only the blessed were saved. God created a new Heaven and Earth since the old Heaven and Earth had been swept away (Revelation, XXI:1). A great city, the Holy Jerusalem descended out of

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[32] Ibid, 113

[33] Plato, "Timaeus" in *Timaeus and Critias*, ed Betty Radice (London: Penguin Books, 1995). 25

[34] Augustine, *Concerning the City of God against the Pagans*.

[35] In the fourteenth century poem *The Pearl* the city is described in the same geometric terms as Revelation. However, the numbers symbolism associated with the gems that the New Jerusalem is built of is more detail in *The Pearl*. Israel Gollancz, ed., *The Pearl* (London: David Nutt, 1891). 84-91. *The Pilgrim's Progess* by John Bunyan has similarities to *The Pearl* in the way the New Jerusalem is the promised land but by the seventeenth century the number symbolism has disappeared. Bunyan, John, *The Pilgrim's Progress,* ed. N.H.Keeble (Oxford: Oxford University Press, 1998).

Heaven from God. The city was like a gem and was clear as crystal. The city was a perfect cube in shape it had high walls and twelve gates, three on the north, three on the east, three on the south and three on the west. At the gates are twelve angels and inscribed are the names of the twelve tribes of Israel. The twelve foundations of the city have the names of the twelve apostles of the lamb and were garnished with precious stones. John was given a golden rod by an angel to measure the city, the gates and the walls. He measured the city with the rod of gold the height, length and breath of the city was twelve thousand furlongs (Revelation, XXI:11-21).

There was no temple in the city, for God and the lamb were within the city. The glory of God shone so brightly in the city than there was no need for the Sun or the Moon. The twelve gates never closed since there was no night because God's glory was ever-present (Revelation, XXI:22-25).

Numerology plays a significant role in Revelation, three, four, seven, twelve and their multiples, such as twenty-four and hundred and forty-four play a dominant role. Revelations is weighted with the mixture of numerologies of Platonism, Pythagorean lore and Babylonian Astronomy that would be expected around the first century AD. Although, there is the occasional number that is quite baffling, such as the number of the beast 666, as six in Platonic and Pythagorean numerology is a perfect number. However, the mysteries of the numbers and the symmetry of the city were revved in the Early and Medieval Christian era.

Twice John was given a rod to measure with, the first time he was told to measure the temple of God, the altar and these who worship within the temple (Revelation, XI:1). No measurements are given, however, the passage implies that John would gain a deeper understanding of the things that he was seeing through the measurements. The second time he measured the new Holy city's length, height and breath, which all measured the symbolic number twelve thousand cubits.[36] Perhaps this measuring is to emphasis the concept from the Book of Wisdom that God 'ordered all things in measure, number and weight.'
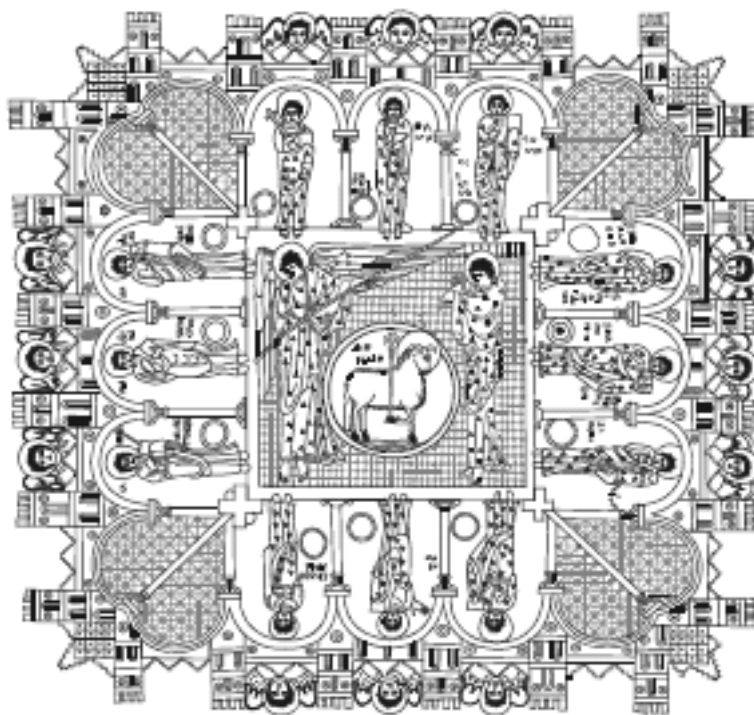

Figure 5: New Jerusalem from an eleventh century manuscript, Saint-sever Beatus

The cube was a Platonic solid that represented the earth. This perfect cubed city was designed with four identical walls, and the earliest surviving illustrations of Holy city are depicted as a square and the identical walls form a motif of four-fold symmetry, see Figure 5. This four-fold motif endured for many centuries. This begs the questions; why draw the city in this motif style? Why did this four-fold motif of the Holy Jerusalem continue to endure? Although many of these illustrations were executed centuries

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[36] Twelve thousand cubits is equivalent to fifteen hundred miles – so the walls of the city were fifteen hundred miles high. Minear, Paul S. *New Testament Apocalyptic*. Nashville: Abingdon Press, 1981. p.137

before the invention of perspective this does not explain why in the motif style most cities were depicted showing only one side, such as Figure 6 that depicts Babylon.

New Jerusalem is beyond time, since there are no time reckoners, the Sun and the Moon, and no time pasts since there is no night. However, it is the new Earth to replace the old Earth that God had swept away (Revelation XXI:1). God dwelt within the city. The two incompatible worlds of the corporeal and incorporeal are unities in the New Jerusalem. The geometric representation of the problem of squaring the circle expresses this union.
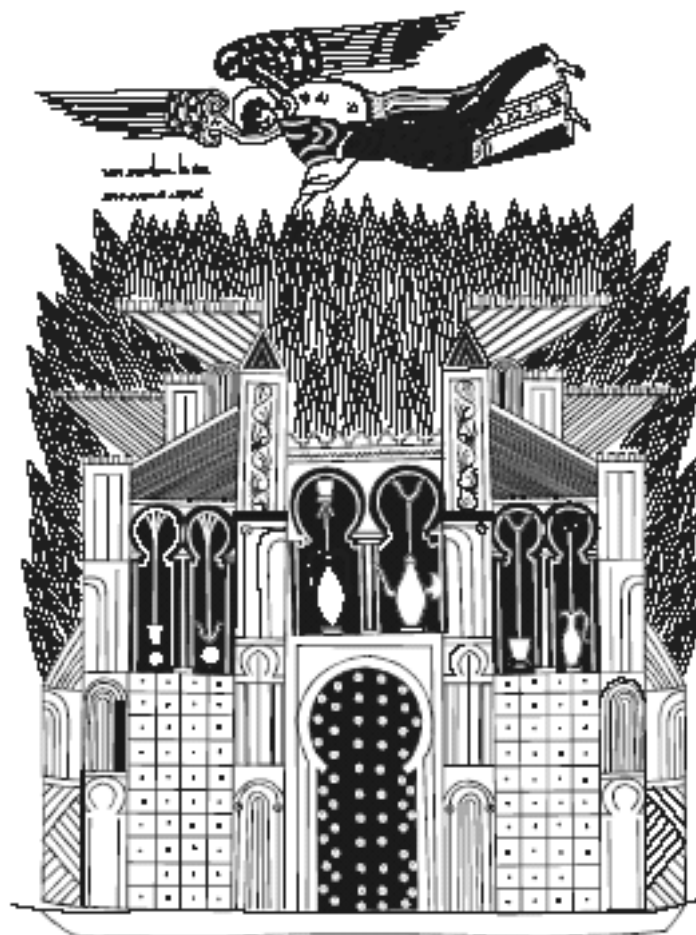

Figure 6: Burning of Babylon from an Eleventh century manuscript, the Facundus Beatus

The squaring of the circle is the problem of constructing a square with a straightedge and compass with the same area as a circle, was a famous Pythagorean problem. This problem was the geometrical formulation of the incompatibility between the corporeal and incorporeal worlds. Aristotle claimed that a line was either infinite or finite. If the line was infinite, it had no end and no beginning, but it was not complete. If the line was finite, it is complete because it had an end and a beginning. Whereas, of simple lines only a circle was perfect, since it has no end and no beginning, yet, it was complete.[37] All motion was either straight or circular. The motion of the straight line was natural. Hence, according to the Greeks, the motions of the four elements: water, air, earth and fire were a straight-line. However, the perfect preceded nature. Therefore, circular motion was unnatural to the four elements and moved away from the earth.[38] In Pythagorean terms, a circle was like a point and a point was the *monad* – one*, which represented unified perfection. The *monad* was a principle of magnitude. Hence, a circle or *monad* was divine and complete and therefore, the circle was eternal. Hence, it was infinite. This was in contrast to a square that had four finite sides. These four sides represented the physical world because four points were the minimum required for the three-dimensional extension.[39] The problem of squaring the circle was

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[37] Aristotle, *On the Heavens*, trans. W. K. Guthrie (London: William Heinemann Ltd, 1953). I, 269a, 19-25.
[38] Ibid. p.269 b 31-34.
[39] Heninger, 1974, p.111.

an attempt to explain the divine realm, that was, the infinite circle, in terms of the material realm, the finite square.

In medieval times god was represented as one or the *monad*. God as the *monad* was philosophical basis of medieval theological numerology, which had ancient roots[40]. Nicomachus, first century,[41] Macrobius, fourth century[42] and Theirry of Chartres,[43] twelfth century referred to God as the *monad*. In Dante's *Divine Comedy* God is represented as a point of light.[44] A point and the *monad* were one. Dante at the end of his journey used the analogy of squaring the circle to contemplate the divine.[45] In Revelation, John sees the throne of God in Heaven; "behold a throne was set in Heaven and *one* sat on the throne (Revelation IV:2)." Numbers and geometry defined the incorporeal as well as the corporeal.

The enduring medieval image of the New Jerusalem is the Earthly square that housed the divine *monad,* the union of the corporeal and the incorporeal. The format of the image of this square systemic city remained constant for over hundreds of years, with only minor changes to the architectural detail. The ancient and medieval belief in the ethereal quality of number symbolism is made manifest in the symmetrical motifs in medieval manuscripts. These images of the symmetrical city of the New Jerusalem express the union of the incorporeal and the corporeal – a utopian vision.

The City of the Sun

Apocalypses and the search for the utopian society played an important role in the development of religion and philosophy throughout the ages. The image of the New Jerusalem articulated the basic theme of Christian hope. By the fourth century Rome was declining and Revelations was widely held to be prophesying the fall of the Roman Empire.[46] The fate of Rome would be that of Babylon, the Earthly city of vice and corruption, total destruction. According to Augustine, the church was exiled in the city of man awaiting the return of Christ and the eventual glory of the city of God – the utopian vision prophesied in Revelation.[47] Augustine's utopia was the ethereal city of God.

In the fifth century Pseudo-Dionysus, created a celestial and ecclesiastical hierarchy each containing nine levels, the light of Divine wisdom filtered through the levels of the celestial to the ecclesiastical hierarchy. The Divine wisdom was beyond human understanding and could only be contemplated by way of the perceptible symbols attached to it.[48] The mysticism of Pseudo-Dionysus was highly influential in the Middle Ages and his concepts are embedded in Dante's *Divine Comedy.* Dante created a closed universe that consisted of the divisions of Hell, Purgatory, Paradise and the Empyrean and all have nine levels, which open into each other. Although no city is described in the *Divine Comedy* the highly structured material and immaterial universe was symmetrical, used abundant number symbolism and the concept of the microcosm reflecting the macrocosm was well established by the fourteenth century. The understanding of the divine could only be achieved through reflection of the perceptible symbol attached to it.[49]

Thomas More's *Utopia,* published 1516 and Francis Bacon's *New Atlantis,* published in 1629 three years after Bacon's death, were accounts of Earthly social utopias. These reflect a desire for a just and equitable society. However, in Tommaso Campanella's *City of the Sun,*[50] written in 1602 but not published until 1623, was an Earthly social utopia that was laid out with celestial symbolism.

The City of the Sun is a dialog between the narrator, a Genoese captain and a knight of the order of Hospitalers. The society is communistic, authoritarian, has a system of Platonic eugenics and has a mixture of mystical astrology. To the modern mind it is not a desirable city. However, it reflects the hardship of the early seventeenth century. The city's religion has been derived through reason from the laws of nature, "they worship God in the trinity, saying that God is supreme Power, whence proceeds Wisdom, and that from these two comes supreme Love."[51] Although it is not a Christian society, it is

[40] Schrenk, 1993.

[41] Ibid, p.4

[42] William Harris Stahl, *Commentary on the Dream of Scipio* (New York: Columbia University Press, 1952)1.8

[43] Peck, 1979, p.61

[44] Dante, *The Divine Comedy Vol.III: Paradise*, trans. Mark Musa (New York: Penguin Books, 1986). XXVIII, 41-42.

[45] Tessa Morrison, *Into the fourth dimension and impossibility with Dante and Beatrice* (unpublished), The School of Architecture and Built Environment, The University of Newcastle, 2005.

[46] Alister E. McGrath, *A Brief History of Heaven* (Oxford: Blackwell Publishing, 2003). p.13-4

[47] Augustine, 1972.

[48] Pseudo-Dionysius, *Pseudo-Dionysius: The Complete Works*, trans. Colm Luibheid (Mahwah: Paulist Press, 1987). p.280. and Tessa Morrison, "The Dance of the Angels, the Mysteries of Pseudo-Dionysius and the Architecture of Gothic Cathedrals," *Analecta Husserliana* LXXXI (2004).

[49] Tessa Morrison, "A Comparative Exploration of the Topology and Iconography of Labyrinthine Symbols in Western Culture: Towards an Integration of Philosophy, Mathematics and History" (The University of Newcastle, 2003).

[50] Tommaso Campanella, *The City of the Sun* (Berkeley: University of California, 1981).

[51] Ibid, p.115

so near to Christianity that the Hospitalers concluded that Christianity is the true law and will became the mistress of the world.[52]

The city is on top of an enormous hill surrounded by seven gigantic circular walls named after the seven planets. The seven circular walls are intersected by four avenues, which pass through four gates oriented in the direction of the cardinal points of the compass (see Figure 7). At the summit of the hill in the central of the seven circular walls arises a massive perfectly circular and symmetrical temple. The temple is domed and in the centre of the dome is a cupola with an aperture directly above the single altar to let in the celestial light. On the vault of the dome were presentations of the stars. On the altar are two globes, celestial globe and a terrestrial globe and seven lamps were always kept burning.[53]

The seven walls were decorated with the essential knowledge of humanity. The interior of the first wall represented all the figures from mathematics along with their significant propositions. The exterior of the second wall depicted seas, rivers and all the different forms of liquid while the interior illustrated all the minerals. The exterior wall of the third wall portrayed all manner of fish and the interior showed all the herbs and trees. On the exterior of the fourth wall were representation of numerous insects and reptiles while on the interior wall all kinds of birds were portrayed. Both the exterior and interior of the fifth wall depicted the animal kingdom. The exterior of the sixth wall were representations of all the inventions of science, religion, law and the interior wall the inventions of the mechanical arts were portrayed. Finally the exterior of the wall that surrounded the temple "all the stars are drawn in order, with three descriptive verses assigned to each one."[54]

This symmetrical city was laid out to the celestial plan. On the walls of the celestial plan was inscribed the totality of human knowledge. With the exception of the first and sixth wall the knowledge is depicted in the order of God's Creation (Genesis I:9-31). On the first day of creation God created Heaven (Genesis I:8). Campanella does not represent Heaven with theologians or even philosophers. On the wall of the first wall of the city mathematician, such as Euclid and Archimedes, are depicted along with their significant propositions. Plato claimed understanding of the heaven could only came from studying the problems of geometry.[55] Campanella, a supporter of Platonic philosophy, appeared to concur with this point, and represented heaven through the pure reason of mathematicians. On the sixth wall the totality of man's invention is depicted rather that the totality of God's creation.
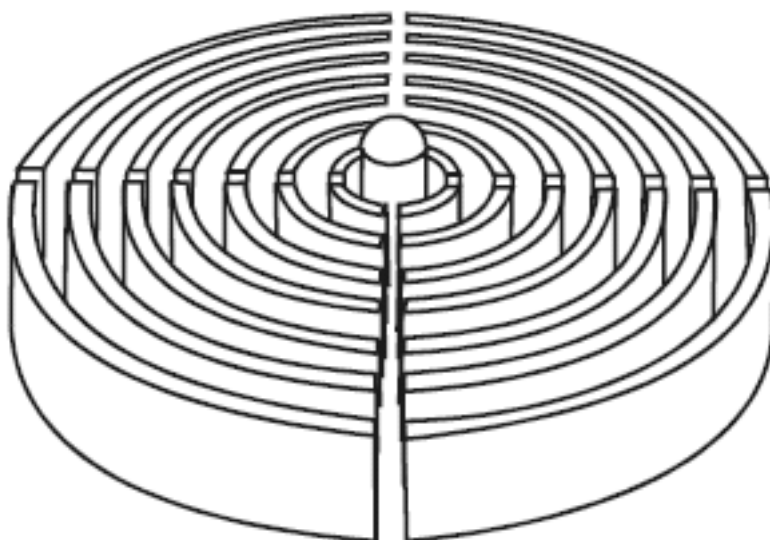

Figure 7: The City of the Sun

Campanella's City of the Sun is a mixture of mysticism and pure reason. The utopian society that lives in the city is structured and orderly. The image of this city is of the corporeal city expressed in the symbolic terms of the incorporeal – utopian symmetry.

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[52] Ibid, p.121.

[53] Ibid, pp. 27-31

[54] Ibid, p.33

[55] Plato, *Plato's Republic*, trans. G. M. A. Grube (Indianapolis: Hackett Publishing Company, 1994). 529

Victoria

The Industrial Revolution changed the social, economical and political face of the Western World. To the poorer classes of the nineteenth century it was detrimental. With the destruction of the cottage industries in the countryside, workers migrated to the cities. Manchester was the first industrial city in the world and the centre of the largest industrial region in Europe. Working conditions in the factors were appalling and the living conditions of the workers were even worse. In 1844 Frederick Engels described the living condition of people living on the banks of the Irk River. "Passing along a rough bank, among stakes and washing-lines, one penetrates into this chaos of small one-storied, one-roomed huts, in most of which there is no artificial floor; kitchen, living and sleeping-room all in one. In such a hole, scarcely five feet long by six broad, I found two beds, and such bedsteads and beds which, with a staircase and chimney-place, exactly filled the room. In several others I found absolutely nothing, while the door stood open, and the inhabitants leaned against it. Everywhere before the doors refuse and offal; that any sort of pavement lay underneath could not be seen but only felt, here and there, with the feet. This whole collection of cattle-sheds for human beings was surrounded on two sides by houses and a factory, and on the third by the river, and besides the narrow stair up the bank, a narrow doorway alone led out into another almost equally ill built, ill kept labyrinth of dwellings."[56] Engels claimed that the living conditions of the working classers in Manchester was 'hell of Earth.' In London the conditions were no better. Great number of the poor in London lived wherever they could, in arched alley-ways, in up-turned carts, and doorways. In short many had no housing at all.[57] In the mid-nineteenth century for the working class overcrowding, filth, disease, pestilence and a short life expedience was the order of the day.

In 1849 James Silk Buckingham published *National Evils and Practical Remedies*. Buckingham praised 'system' and 'organisation', this extended not only to the government but also to town planning. Overwhelmed by the immorality, misery and suffering in society he planned a model city called Victoria. The main aim of the Victoria was "to unit the greatest degree of order, symmetry, space, and healthfulness"[58] the housing would be well light and airy, well drained, comfort and convenience and each worker would have a room of their own. The city would be self-sufficient, authoritarian, God fearing and temperate, with a highly structured class system.
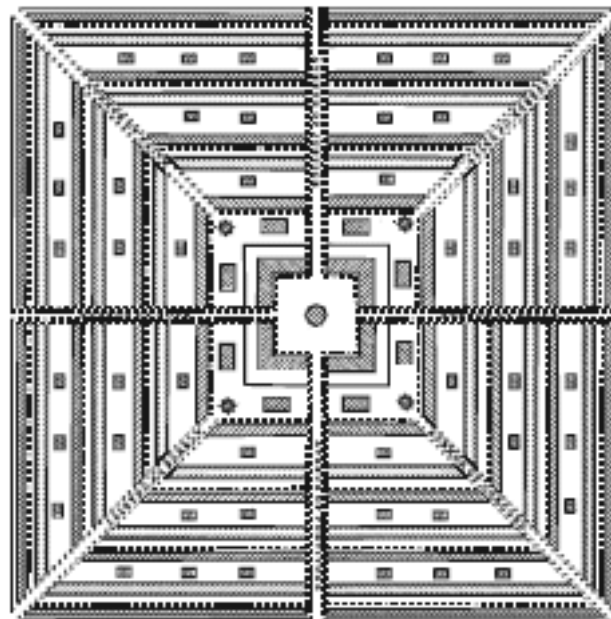

Figure 8: Plan of Victoria

The plan of Victoria was eight concentric squares had four main avenues cutting the city diagonally and which lead to an Octagonal Tower in the middle of the central square (see Figure 8). The outer square was for the housing of the working class. The second square was for the workshops and housing of the tradesman. The third square was for the artisans and superintendents. The fourth square contained the

[56] Frederick. Engels, *The Condition of the Working-Class in England in 1844.* (Edinburgh: The Riverside Press., 1952). p.51

[57] Henry Mayhew, "London Labour and the London Poor. Vol. 3," (London: Dover., 1968). pp.313-318

[58] James Silk. Buckingham, *National Evils and Practical Remedies*. (Clifton: Auustus M. Kelley Publishers., 1973). p.183.

shops and housing of the merchants. The firth square was for the housing of the professional classes or for those of independent modest means. In the sixth square were the residences of the richer inhabitants. The seventh square was "for the occupation of the superior ranks of professional persons and wealthy capitalists and their families."[59] The grand inner square was for the residences of the members of Government and the more opulent capitalists. The central Octagonal Tower had a spire 300 feet high and contained an electric light for lighting the whole city, a large illuminated clock and the bells for public worship.

Unlike Campanella's City of the Sun, Buckingham's image of a city is of a corporeal city ordered in the terms of the corporeal (class or wealth). Although the City of the Sun is circular which represented the heavenly and the eternal, Victoria was planned was an Earthy and finite square. However, the city has eight levels and in the centre an eight-sided tower that illuminated the city and the bells of the tower call the citizens to pray. Eight is an extremely important Christian number. It is the number of baptism and the Resurrection. In the fourth century St Ambrose, Bishop of Milan wrote of an octagonal baptistery that was near the church of St Thecla at Milan:

> Eight-sided is the lofty shine to match its sacred use;
> Eight-angled is the font to show its benefits profuse;
> With such a number grace and life supplanted human guilt
> And with such number must the hall of baptism be built.[60]

God created the universe in six days and on the seventh day he rested (Genesis, 2: 2-3). The seventh day was without an evening, which signified rest without end. St Augustine claimed; "That first life was not eternal for the sinner, but the last rest is eternal, and for this reason the eighth day will have eternal blessedness, because that rest which is eternal is taken up from the eighth day and it has no setting; otherwise, it would not be eternal. Thus, the eighth shall be as the first, so that the first life may be restored to immortality."[61] He continued to say, that it was the eighth day that symbolised the Resurrection and the eighth day was also the first day "because it does not destroy that rest but glorifies it."[62] The eight-levelled city illuminated from the eight-sided tower was to be the Earthy salvation for the inhabitants of Victoria.

Buckingham designed his model city to overcome the 'hell on Earth' of the industrial city. Gin-palaces, brothels, weapons and gaming houses were banned form Victoria. The city was for spiritual salvation as well as physical preservation. For Buckingham the symmetry, numbers and order of Victoria represented this liberty and salvation from the Earthy evils and the spiritually immoralities of the nineteenth century industrial city – a social utopian symmetry.

Conclusion

These four examples of cities are a cross-section of utopian cities through time. In these examples numbers and symmetry are an important part of the structure of the society. Not all writers on utopian society described the structure of there cities but many did and the majority of these cities are symmetrical.

The comparison of the two cities of Atlantis and Athens in *Critias* is very striking. Atlantis was a mystical city of incorporeal symmetry while the corporeal city of Athens had no particular plan. The union of the corporeal and incorporeal in the city of the New Jerusalem is achieved through symmetry to create a utopian vision. The incorporeal City of the Sun expresses its desires in the motifs of the heavens to create a world of utopian symmetry. Victoria represents the escape and salvation through a social utopian symmetry. The emphasis of what the utopian city is for evolves; however, the concept of the symmetry utopia is constant.

In modern times the power and mysticism of numbers and numerology has faded and is perceived as no more than a superstition. However, 'a circle of friends' is a highly desirable and essential element of a fulfilled life. Although faded utopian symmetry lingers.

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[59] Ibid, p.189.
[60] Milburn, 1988, p.206.
[61] Augustine, Letters. p.274.
[62] Ibid p.278.

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