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# Cosmic Semiophysics in Ancient Architectural Vision: The Mountain Temples at Deir el Bahari, the Dead Sea Temple Scroll, and the Hagia Sophia

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*Abstract: Semiophysics addresses the quest for significant forms, supporting a general intelligible theory transcending human life (Thom 1990). Universal meaning and value, then, are related to physics based on quantitative laws. The form of the ancient mountain temple has guided architectural design for millennia and may be a topological model of a cosmic form ordered by physical law. Within the ancient temple, ritual functioned as a behavioral transfer of information, modeling different futures for human consciousness, while promoting adaptive behavior for survival of mind controlled by ideal information, or the universal mind of the architect or agency that inspired human creativity to construct ancient monuments. Thus, the ancient mountain temple may have operated as the medium to relay active survival information and build a lawful bridge between mind and the cosmos via ritual signifying a transformative biophysics. In a preliminary attempt to approximately verify natural law via induction, as well as the meaning of form and the value of function in geometric intuition, this paper explores Nebhepetra Mentuhotep's Mortuary Temple and Queen Hatshepsut's Funerary Temple at Deir el Bahari, the Dead Sea Temple Scroll design, and the early architecture of Hagia Sophia.*

Keywords: Cosmic Semiophysics, Ancient Architecture, Hagia Sophia, Nebhepetra Mentuhotep's Temple, Queen Hatshepsut's Temple, Dead Sea Temple Scroll

**S**EMIOPHYSICS, ACCORDING TO mathematician René Thom, seeks out significant forms to build an intelligible theory allowing linguistic description. 'The simplest individuated forms are *balls*. In dimension one it is the tinkle of a bell, in dimension two the disk circumscribed by a simple closed curve, in dimension three the ball inside its boundary sphere.' (1990, 3)

In our three-dimensional psychic universe, the small and the big resonate in spherical form. Biologists believe particles or 'spheres of DNA, RNA, enzymes and proteins a millionth of a meter in diameter' exist (Margulis and Sagan 1986, 74), and the planets, moons, and sun appear as spheres, while stars can transform from spheres into black holes. Many scientists define our universe as a large black hole with a holographic mode of operation, a world where the quantum hologram ruled by quantum mechanical laws governs the classical hologram ruled by Einstein's general relativity. Thus, the physics of the classical world is mere semiotics or the action of signs. As Nietzsche said, 'Man is not the eternal witness of all things' (1968, 341). Still, humanity is inspired by the action of signs.

In two dimensions, the disk is the significant form (Thom 3). According to Juan Maldacena, all the information about a black hole is stored on the circular

horizon. Particles living on the boundary describe objects in the interior, which could be very complex, for spacetime (the interior) and everything in it emerges dynamically out of the interaction of particles living on the boundary (2004). Conversely, Nobel laureate Gerard 't Hooft and Leonard Susskind support that our three dimensions of daily life may be holographic projections of physical processes on a distant, two-dimensional surface (Greene 2004, 482). Thom speculates: if living beings were 'particles or structurally stable singularities' then symbiosis, predation, parasitism, and sexuality would be the particles' interactions and couplings (1975, 152).

Relative to this idea of stable singularities, a preliminary study (King 2007) exploring the semiotics of the Jesuit paleontologist Teilhard de Chardin (1881-1955), the Aztecs, and the Book of Revelation, found the mountain is a marginal sign of a biophysical idea-system defining an energy landscape related to the molecular dynamics of proteins folding in funneled energy landscapes to native states that mirror micro Kerr black hole physics, the same semiotics of evolvability present in Egyptian pharaonic texts (2004). Teilhard's use of language defines the microbiology of horizontal gene transfer and transformation mediated by a virus<sup>1</sup> while his sign-system

<sup>1</sup> In ancient Egyptian texts, the core myth from the least-corrupted Pyramid and Coffin Texts includes seven themes: 1) merging with the sun-god or Light, 2) brother rivalry of Seth and Horus, 3) Osiris dead, 4) virgin birth by Milk-Goddess Isis, 6) Osiris risen, 7) transformation to millions to become the child Horus. In the texts, the brothers Horus and Seth compete for the throne of their father Osiris, which is the



(mountain, whirlwind, vortex, pyramid, cone, spindle) describes micro Kerr (spinning) black hole dynamics<sup>2</sup> related to a cosmo-psychogenesis for survival (2007). Teilhard explains that he climbed up to the point where the universe appeared as a 'great rising surge' that creatively 'converged ahead into a single dazzling spear-head.' Teilhard then describes his biophysics as an activation of energy and 'glorious vision' still retained 'when I come down from the mountain' (1976, 100). Further research supports the Teilhardian system clearly describes protein folding dynamics that mirror micro Kerr black hole/white hole formation/evaporation processes relative to the growth or evolution of mind (2007a).

If form represents information (Thom 1975, 127), which is active as transformative spheres, vortices with horizons and singularities, gravitational waves, and hierarchical uphill protein processes to a native structure, then the related form of the mountain temple that embraces eschatological ritual may be redolent with a biological survival message about a change of form and size, a morphogenesis. With an information-based physics in mind, this preliminary paper presents a lawful topological model of architectonic form related to Nebhepetra Mentuhotep's Mortuary Temple, Hatshepsut's Funerary Temple, the Dead Sea Temple Scroll, and the early architecture of Hagia Sophia at Constantinople. As the following shows, each temple exhibits the topology of a Kerr (rotating) black hole with three concentric circles: the destructive ring singularity, inner horizon, and outer horizon. Ritual satisfies the balance of the equation by addressing the classical sign's hidden and operational meaning, viz., its potential for biological meaning within the temple cultus. This paper's objective is not only to circumscribe the metaphysical nature of the universal architect or agency that in-

spired human creativity to construct ancient monuments, but also to identify the meaning of form and the value of function in geometric intuition conveyed through language.

### Remote on Heaven's Hill

The cosmic mountain has guided architectural design for 8000 years (Ackerman 1953, 7). The ancient Egyptian Primeval Hill of Ptah models the pyramidal architectural form, for they believed the all-creative Power invested the cosmic hill (6). Accordingly, when Nebhepetra Mentuhotep (c. 2065-2114) united the Two Kingdoms during the Eleventh Dynasty of the Middle Kingdom, he selected Deir el Bahari, a natural amphitheatre of impressive cliffs on the Nile's west bank, for his mortuary temple and burial place. Facing southeast (Winlock 1992, 201), the temple is the first known monumental building in Upper Egypt and in Thebes (Seton and Müller 1980, 104), as well as royal cult complex of the Middle Kingdom (Arnold 1997, 74). The multi-level temple complex exhibits two terrace levels with a core funerary chapel. Müller's description follows:

The temple itself stood on a raised terrace carved from the living rock. The base of the terrace access from the court was by a massive central ramp. . . . On the terrace was a broad freestanding building, square in plan, and upon it an elongated structure that extended west into the Cliffside. (104)

In short, the primary topological feature of Mentuhotep's temple is its concentric three-tiered ascending architectonic form that faces southeast and merges into the northwestern rock-cut sanctuary of Deir el Bahari's mountain majesty, a staircase form also mirrored by Hatshepsut's Funerary Temple.

Eye of Horus. Textual evidence supports that Egyptian deities are signs for viral and bacterial DNA and proteins with mythic themes modeling the lifestyles of bacteriophage Lambda, a tailed virus with a spherical head. Lambda, an ancient virus that attacks bacteria, is a genetic control system involved in the action of repressor proteins regulating two lifestyles: lysogeny (inactivity) versus lysis (cloning). Ultraviolet light induces lysis. (King 2004)

<sup>2</sup> Quantum mechanically, Kerr black holes radiate and evaporate. This radiation of gravitational waves distorts the local curvature of space. With white hole nucleation (a black hole running backwards in time) Hawking radiation falls into the white hole producing a microscopic wormhole or Einstein-Rosen bridge allowed by the mathematics of general relativity (Strominger 1993). The white hole can be described as a conical mountain shape. Ancient Egyptian texts mention "white hole" in Pyramid Text 291, while iconography depicts it as the cone-shaped White Crown or passage through a double-headed serpent. Also, Visser et al. (2003) demonstrated the existence of spacetime geometries containing traversable wormholes that are supported by arbitrarily small quantities of exotic matter, so this quantum possibility is not science fiction.



Figure 1: Hatshepsut's Funerary Temple Reproduced with Permission from © James G. Howes, January, 1987

Hatshepsut (c 1479-1458) was an Eighteenth Dynasty pharaoh during the New Kingdom. Her architect Sen-Mūt modeled her temple on Mentuhotep's temple, except that he doubled the floor plan, altering many features, while maintaining the terraced scheme with colonnaded porches (Winlock 1992, 135). Built on three terraced levels, the staircase architecture of the temple had a sphinx-lined causeway leading to a valley temple. Approaching the first ground-level court, colonnades exist on the north and south side of a straight ramp along the temple's central axis to a second colonnaded court with a ramp to a third colonnaded terrace. Two chapels flank the second portico, the southern chapel of Hathor and the northern chapel of Anubis.

During the New Kingdom (Dynasties 18-20 c. 1550-1075), Shafer identifies three zones of increasing sacredness. First the tertiary sacredness of the large open court for priests' quarters, small shrines, gardens, slaughter yards, areas for processing the offerings, and a pond for ritual lustrations, where king, priest or commoner could enter. The zone of secondary sacredness was the open-air court within the temple walls for the king and priests. The zone of primary sacredness was the dark, roofed rooms at the rear of the temple proper (hypostyle hall, chamber with offering and sacrificial tables, room for divine barque) through which the king and select priests passed. The divine cult complex symbolized the island of creation, the 'radiant place,' the cosmos, and the body of god. (1997, 5-8).

### Water without Sound

Yigael Yadin acquired the Temple Scroll from the Dead Sea Qumran caves through an Arab dealer in Jerusalem in 1967. The scroll discusses Jewish religious thought relative to Christianity's early development (Milgrom 1978, 105), and God reveals the structure of the temple with Israel represented as a series of 'concentric circles' converging on the Temple and its three courts in Jerusalem (Wise et al. 2005, 595). God states: 'I shall sanctify My [te]mple with My glory, for I will cause My glory to dwell upon it until the Day of Creation, when I Myself will

create My temple' (606). Related to God's command, Wise points out that the Temple Scroll functions as the first stage of an eschaton, with the second stage suggesting 'the creation of a new heaven and new earth.' Wise adds, 'In such teleological views of the course of events, everything is planned aforetime; history is merely a matter of following the script.' (1990, 161-162)

The three-court architectural plan consists of an inner court with a gold staircase tower northwest of the sanctuary (the Holy of Holies) with a roof gate and walkway to the sanctuary roof. To the southeast of the sanctuary is the laver, where the priests washed before and after sacrificing, then the House of Vessels, and the House of Slaughter, an unwalled roof supported by 12 columns with chains suspended from the roofs containing rings for the animal's heads, as well as a slaughtering table. The area around the altar, sanctuary, laver, and stoa is sacred and nonpriests are forbidden access. The middle court with 12 gates allows entrance only to paying males over 20 and is off limits to women, children, and priests wearing sacred garments. The square outer court has 12 gates. Along the court's walls are three stories of stoa (roofed colonnades) and chambers for tribes, priests and Levitic families. A platform of 12 stairs is outside each gate of the outer court with a moat 100 cubits wide surrounding the Temple. (Wise et al. 2005, Cols. 30-46)

A wall surrounds the sanctuary, the geometric center, and its inner court (Milgrom 1978, 114). According to Wise, the temple's symmetrical architectural plan of squares with its extravagant use of gold is generally inspired by Ezek. 40-48, while Enochic astronomical traditions envision the cosmos as a square, and apocalyptic literature supports the temple mirrors the heavens (1990, 160). In summary, rather than having a concentric three-tiered ascending architectonic form oriented to the southeast like the Egyptian temples, the Dead Sea Temple has a concentric, three-tiered descending or amphitheatrical form due to three stories of stoa on the outer court with a sacred inner sanctuary for sacrificial offerings. This concave form is similar to the Roman Coliseum with its centralized gladiatorial butchery, a possible

topological representation of the destructive Kerr black hole ring singularity.

### The Thought of Heaven

According to Downey, the name Hagia Sophia refers to a partial inscription in its south tympanum dedicated to “deathless Wisdom” (1959, 39), while other research indicates the name was dedicated to the Sophia of God as the second person of the Trinity (41) with Christ as the Wisdom or Word of God made flesh (Mainstone 1988, 133; Fiene 1989, 450). Christian authors used the term wisdom as ‘the natural wisdom of the universe’ and the Greek Trinitarian understanding of the ‘true’ Wisdom of Christ, that is, “Wisdom not only as a divine Person but also as a divine manifestation, or attribute, or ‘energy’” (Meyendorff 1987, 391-392).<sup>3</sup>

Hagia Sophia’s ‘orientation is not strictly eastwards but closer to the southeast’ (Mainstone 1988, 6) with a northwestern entrance. In 360 ce Constantius dedicated the first Church of Hagia Sophia at Constantinople, which was most likely a simple rectangular basilica with a timber roof and galleries. Due to fires in 404 and 532, Justinian redesigned the structure between 532 and 537, constructing a two-storied domed structure. The architects were Anthemius of Tralles, a mathematics teacher, and the elder Isidorus of Miletus, professor of geometry (157). Their architectural plan of combining arched and part-spherical forms flows into the great spherical domed interior ‘with its natural symbolism of the vault of heaven’ (237).<sup>4</sup>

According to Silentarius’ description, countless oil lamps blazed like stars in three rings of light suspended from the dome by brass chains with ‘attached silver discs’, fixtures similar to the Dead Sea Temple’s suspended chains for slaughtered animal heads. Silentarius adds: ‘Yet not from the discs alone does the light shine at night, for in the circle you will see, close to the discs, the symbol of a mighty cross with many eyes, and in its pierced back it holds other lamps. . .’ (quoted in Mainstone 1988, from *ecclesia*).

Looking up vertically at the main eastern arch, the lofty hemispherical dome of three concentric circles merges with the semidome and smaller exedrae semidomes creating the appearance of Ezekielean

wheels within wheels (1:15-21), suggesting spinning cones. A Syriac hymn composed for the Justinianic reconstruction of Hagia Sophia is the earliest document associating the central dome with cosmology and the name “dome of heaven” (McVey 1983, 91), while Jacob of Sarug uses ‘sphere’ rather than the traditional Antiochene language (tent, ceiling, shelter, vault): ‘All of the creation of bodies and shades like a sphere is placed, all of it, in the midst of nothing’ (116).

Visions of the dome of heaven are manifest in both pagan and Christian worlds, reflecting ‘the basic experience of man in visualizing the physical as well as the transcendental celestial realm’ (Lehmann 1945, 27). In one seemingly fantastic Islamic account, the domed throne hall of Chosroes revolves, ‘causing a terrifying noise like thunder’ (24-25); but, the forerunner of the rotating dome was the circular dining hall of Nero’s Golden House, a wooden dome revolving due to circling horses harnessed to ropes in the basement (22). Also, a description by Mesarites of the Church of Holy Apostles’ dome in Constantinople depicts Christ at the summit of the sphere: ‘The sphere of the hall is truly celestial, inasmuch as within it the sun of justice is erected, the light beyond light, the Lord of Light, Christ’ (27).

To conclude, architectonic form in these four temples exhibit three relational similarities: the structures are positioned with an emphasis on the northwest, their three-tiered concentric structure revolves around a central sacrificial sanctuary, and their ascendant structure represents the cosmic mountain, with the exception that the Dead Sea Temple reflects an amphitheatrical form descending to its sacrificial inner court. Also, Hagia Sophia’s hemispherical dome of heaven reflects the same three-tiered concentric design. All of these cosmic architectonic forms are topological models of the rotating Kerr black hole,<sup>5</sup> redolent with a physics of cosmic order related to gravity, motion, and the quantum wave nature of matter, which often moves outward in expanding spheres like light.

### The Holy Hush of Ancient Sacrifice

Within the core funerary structure of Mentuhotep’s mortuary temple dedicated to the god Montu-Re is

<sup>3</sup> Marvin Meyer notes that Gnostic literature is concerned with wisdom and knowledge as personified by Sophia: “In these texts wisdom creates and reveals, falls and is restored, saves and is saved. And with divine wisdom, these texts proclaim, fallen human beings too are saved and restored.” (2003, 107). Similarly, ancient Egyptian texts promise knowledge of the “Hidden Palace” of Osiris, whose name *Wsir* was originally written with the signs of a throne and eye. As Griffiths notes, many meanings have been suggested for *Wsir*: “the place of creation”, “seat of the Eye”, “the seat that creates” (2002, 304). Osiris is also credited with the creation of wheat and barley (306).

<sup>4</sup> The original number of the ring of windows in the central dome is forty, which equals the total number of windows in the semidomes (Mainstone 1988, 127). After an earthquake, part of the dome fell on May 7, 558, as well as the eastern semidome and main eastern arch, but Agathius reports that the “crowning middle part—orb, hemisphere, or what you will” was rebuilt by Isidorus the younger and other architects based on the previous design. (Quoted from Mainstone 89-90). Conant reports that the dome was raised 20 Byzantine feet and reconstructed between 558 and 563 (1939, 589-590).

<sup>5</sup> The rotating Kerr black hole has a ring singularity, an inner horizon, and an outer horizon. Hawking Radiation escapes through the axial inner horizon, whereas other particles can reflect off the axial inner horizon. See Kuchiev, M. Yu. 2004; 2004a.

the entrance to the tomb passage and a large hypostyle hall of 82 octagonal pillars, with wall decorations indicating the continuing tradition of an offering hall, for the king is depicted at the rear of the temple at an offering table with an offering list and bearers (Arnold 1997, 74). Naville, who excavated the temple in 1906-7, considers the subterranean funerary shrine as the sanctuary of Mentuhotep's *ka*, for he found wooden festal boats carrying ceremonial statues of divinities, 'as the statue was the image of the divine king'. Above the funerary shrine, the hall extended west to the mountain, where a forehall preceded a small speos or cave in the rock's vertical face. This *cella* sheltered an altar or square block of limestone cut with a circular depression in its top. (1907, 179) Arnold mentions that this sanctuary for the king's *Sed*-festival housed a royal cult statue and a smaller image of Amun-Re, 'a site of a joint cultus where the king and the god are united in the same statue' (1997, 74-75).

In his excavation of Hatshepsut's funerary temple, Winlock explains that the northwestern rock-cut sanctuary had a central stand for Amun's barque during the Feast of the Valley (1992, 217). The procession of Amun, according to Haeny, passed along the regal row of great sphinxes up the ramp to the axial rock-cut sanctuary (1997, 95). Focusing on regeneration and the union of king and god, Bell explains that the king's procession during the *Opet*-festival traveled from the cult complexes of the Temple of Amun-Re at Karnak to the Luxor Temple and back, while the architectural record suggests that the king and royal barque made offerings to the barques of Amun-Re, Mut, and Khonsu, the Theban triad, at Karnak. *Wb*-priests then shouldered the king's barque and gods' barques, presenting incense and fresh water to the veiled images inside. (1997, 158-160) Hatshepsut used the land route from Karnak to Luxor, taking the Nile River route back from Luxor to Karnak. From Ramesses II on, when the procession reached Luxor Temple, the barques entered the peristyle courtyard, proceeding to the triple shrine for the offerings and sacrifices before continuing to the inner barque sanctuary and disappearing into the dark colonnade for secret rites. (162-163)

According to Bell, the architecture, decorations and inscriptions in these rooms indicate the barques of Mut and Khonsu arrived in their respective chapels, while the king's barque<sup>6</sup> landed in the chapel off the southeast corner of the Chamber of the Divine King for purification and coronation rites for the re-

birth of divine kingship. In this process, the king traveled with the barque of Amun-Re, his own *ka*-statue, and high-ranking priests to the inner sanctuary of Amun-Re, where the king made offerings to Amun-Re for a reciprocal re-creation, involving the king opening the doors of the barque's naos, so that Amun-Re's glory reflected back onto the king for a mutual rejuvenation. (173-174) Bell suggests that the king then went to the Coronation Room and finally into the *Opet*-sanctuary of Amun, performing the Opening of the Mouth ceremony to recharge Amun and return to the barque sanctuary with the life force to regenerate Amun-Re for a ritual merging of the gods. The regenerated divine king then returned to the sun court for celebration before the common people. (176)

Egyptian offerings to the gods included a variety of bread, meat, fruit, vegetables, and beer, while the god's reciprocal gifts included light, air, freedom, life, and order, as well as sovereignty, divinity, and millions of years or eternity for the king (Shafer 1997, 23). The offerings were called the Eye of Horus, a multivalent symbol from the royal mythology of Horus, Seth, and Osiris, representing reciprocal creation of the king acting with god to restore the life force, the order of the cosmos, and the return of the eye to wholeness (24). Thoht, 'Master of Divine Words' is usually present.<sup>7</sup>

Relative to the Dead Sea Temple Scroll, Milgrom dates the Qumran festivals: the priestly consecrations (1/1), New Barley (1/26), New Wheat (3/15), New Wine (5/3), New Oil (6/22), and Wood Offering (6/23) (1978, 113). On the Day of Atonement (7/10), a burnt animal offering is sacrificed on the altar accompanied by a grain offering and drink offering (Wise et al. 604). Although the majority of the text on the Feast of Tabernacles (7/15) is lost, inner court sacrifices involved a grain offering, drink offering, bulls, 14 lambs and he-goat (605-606)

Next, the liturgy of Hagia Sophia begins with the principal celebrant entering from the northwestern narthex, preceded by a deacon carrying the Gospel representing Christ. They proceed to the southeastern ambo, then the solea (walkway) to the sanctuary. Placing the Gospel on the altar, the principal celebrant ascends his throne on the synthronon. Then the Epistle is read, followed by the Gospel, which is carried ceremonially down the solea from the altar by the deacon and back. The principal celebrant then prepares for the Eucharist proper, as the catechumens are dismissed and the doors closed, while the deacons

<sup>6</sup> The idea of Christ in a boat is present in Manichaean mythology (Bonner 1941, 91), while at Hagia Sophia, the Antioch priest John Chrysostom (consecrated in 398, and exiled in 404) gave homilies on the Word related to launching a boat at sea and "employing for pilot the Cross instead of rudder and oar" to sail from land to "the harbor of heaven" (Hill 1968, 30-31).

<sup>7</sup> For example, in Hatshepsut's Speos Artemidos 2 km south of Middle Kingdom tombs at Beni Hasan, another rock-cut sanctuary, Thoht announces Hatshepsut's accession to the Great Ennead of deities, stating "Hearken to this great decree which Amen-Re, Lord of the Thrones of the Two Lands has issued (Lit. this great word which . . . has commanded to) to all the gods" (Fairman and Grdseloff 1947, 16).

go to the skeuophylakion,<sup>8</sup> a separate building or sacristy at the northeast corner of the Church, for preparation of the altar gifts. The Cherubic Hymn to the 'life-giving Trinity' is chanted for the procession of gifts back to the altar from the skeuophylakion, followed by the congregational Kiss of Peace and Communion. (Mainstone 1988, 226-228)

The ceremonial carrying of the Gospel to and from the ambo came to be known as the Little Entrance, and the offertory procession of bread and wine symbolizing Christ and his Crucifixion was the Great Entrance (Mainstone 231). When the emperor participated in the liturgy, he received a lamp as the clerical procession returned from the skeuophylakion with the bread and wine for the altar. At the altar's chancel door, the emperor greeted the patriarch, placing the lamp beside the door and returning to his seat as the gifts were deposited on the altar. (232)

Expressing the liturgical chant's meaning, Taft cites the second prayer of the faithful of the Byzantine Liturgy of the Presanctified, similar to the Cherubicon, one of the oldest Byzantine Great-Entrance chants:

Holy Master . . . make us worthy of the reception of your only-begotten Son and our God, the King of Glory. For behold His immaculate body and life-giving blood entering at the present moment to be placed on this mystical altar, invisibly escorted by a multitude of the heavenly host. Grant us communion in them without condemnation, so that with the eyes of our understanding enlightened by them, we may become sons of the light and the day. (1975, 68)

The last words echo the Dead Sea War Scroll, where the Sons of Light battle the Sons of Darkness, as well as the Egyptian idea of going forth by day. To conclude, the preliminary research on ritual exhibits a pattern of a processional entrance into the temple to an inner sanctuary, as well as a bread and drink offering in ancient Egypt, the Temple Scroll, and Hagia Sophia. In ancient Egyptian texts and Hagia Sophia, the concept of the 'Great Word' emerging from darkness, union of god with man, and the Great entrances are similar. Still, what is the biological survival message?

Examining the concept of the Word in the least-corrupted Pyramid Texts (PT) and Coffin Texts (CT), the king 'bears the god's book' (PT 250), speaks 'the word' (PT 460), and is 'the Great Word' (PT 506). Also, Osiris 'is the word which was in darkness' (CT 1087), and the king is 'in charge of the record of the word of God' (CT 351). The king is also 'the messenger' (CT 422). (Faulkner 1969; 1973-78). Thoth is often in ibis form, carrying a pen and palette of the scribe, representing the activity of copying words or transcription.

This focus on the Word by pharaonic Egypt and its Christian counterpart found in the Gospel of John (1:1-5) reifies in the Byzantine ritual of the Epistle (*L. epistula*, "letter") and Gospel<sup>9</sup> (O.E. *godspel* "good news"; *spell* "name the letters of"; O.E. *spel-lian* "to tell, speak"), while harmonizing with the language biologists use to explain the conversion of nucleotide 'words' into amino acids 'words.' For example, biology's Central Dogma is that a gene's DNA is transcribed into messenger RNA (message or letter: Epistle), which is translated into a protein sequence of amino acids (letters specifying a specific protein or word: Gospel). The protein then folds into a 3D structure to regulate genes, and biologists generally agree that protein folding occurs along convergent pathways or folding funnels (energy vortices) that guide folding to the protein's native state.

Likewise, the excavation of the subterranean Edifice of Pharaoh Taharqa (c. 690-664 bce) in 1907-08 at Karnak revealed ritual scenes and hieroglyphs depicting the king's netherworld descent into the 'caverns of Nun' at the northwest stairway, his purification, and approach to the sanctuary, as well as his consecration of 'white bread' (Parker et al. 1979, 11-18). Similar to the Christian Great Entrance, the scenes show the king's procession with text describing the '*great entrance of the cavern of the Nun at the west of Thebes.*' (49) A mound is present above two outstretched arms<sup>10</sup> with hands open to the sky, depicting the sun-falcon symbolic of transformation. (50-51) The king welcomes Amun-Re for his 'divine reentrance.' A lintel on the next room's east wall shows Taharqa throwing four balls, which the texts define as '*the protections of Re, born of him*' or '*as the balls come into existence for Re*' (62-63), for the sun-god Re '*created himself in the form of millions*' (74).

<sup>8</sup> Patriarch Germanus in his *Historia Ecclesiastica* writes "the preparation of the gifts, which takes place in the [interpolation: sanctuary or in the] skeuophylakion, stands for the place of Calvary where Christ was crucified." (Taft 1975, 186)

<sup>9</sup> Logeman conjectures that the word "god spell" was originally used by clerics acquainted with Greek or Latin scriptures. He looks at *god spell* as a translation of *evangelium* and an expression of the message of Jesus Christ. (1893, 46)

<sup>10</sup> A biosemiotic interpretation of the two arms demonstrative of the Christ stance on the cross is related to the two arms of the Lambda genome. In the texts, the brothers Horus and Seth (representative of cro protein controlling lysis versus cI protein controlling lysogeny) compete for the throne of their father Osiris, which is the full Eye of Horus or the Lambda genome. Seth injures the Eye by stealing the left half. This results in two Eyes or two arms. When Seth wins the left Eye or arm, Osiris dies or becomes inert. When the firstborn Horus wins back the left Eye or arm as well as the right arm, the Eye of Horus is whole, the two gods are at peace, and Osiris rises from the dead with the help of the Milk-goddess Isis (sign for lactose nutrient for production of clones). With the injury to Osiris removed, Osiris (as the gene "seat that creates") establishes millions (clones) that ascend into the starry heavens as the offspring or child Horus. (King 2004)

In both Egyptian<sup>11</sup> and Christian rituals, transubstantiation, an act that changes the form or character or substance of something, results in the king consecrating ‘white bread’ as the dying/rising god Osiris that becomes the sun-god Re ‘*in the form of millions*’, while the bread or host is changed to the dying/rising body of Christ and multiplied for the Communion of the Faithful. Further, the *host* is the “body of Christ, consecrated bread”, with an etymological meaning of “sacrifice” from L. *hostia* and “multitude” from O.Fr. *host* “army”. Biologically, this ritual of multiplying bread into hosts or millions mirrors the process of producing identical copies of

a DNA segment asexually, viz., cloning, which involves inserting a recombinant DNA molecule into a fast-replicating virus vector. Possibly, the afterlife concept of the god-man signifies viral-human recombinant DNA, with the crucifixion/resurrection patterning the microbiology of bacteriophage Lambda that rises (excises) from the inert lysogenic state via the DNA-cross or Holliday junction (Figure 2) to activate lytic growth or the production of clones.<sup>12</sup> Christian and Egyptian sources suggest this is the eschatological survival message, which recent research supports (King 2004; 2006).

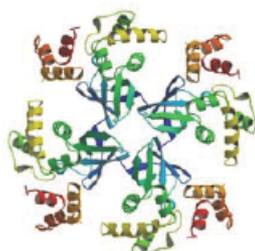


Figure 2: Holliday Junction. Public Domain Protein Data Bank ID: 1HJP; Nishino et al. 1998

### The Isolation of the Sky

As Erik Hornung (1994) observed, the Egyptian netherworld is a black hole and ‘the location of time past’ while ‘Time reversal permits us to leave the Black Hole.’ The temple procession from or to the northwest has astronomical significance related to genetic survival via a specific pathway.<sup>13</sup>

Actually, the early Christian movement was known as the Way (McCasland 1958, 222), while an obscure Judeo-Christian literary work called the *Two Ways* served as instruction for converts during

the first century, later becoming part of the *Didache*. The concept of the Two Ways can be found in the Old Testament, New Testament, apocrypha, pseudepigrapha, Qumranic literature, and apostolic fathers (Aldridge 1999, 233) as well as ancient Egypt<sup>14</sup> and can be generally summarized as the straight narrow<sup>15</sup> path of light (and light does travel in straight lines) versus the crooked wide path of darkness. Philo’s *Special Laws* (IV 108 and 112) elaborate:

For the way of life is twofold, one branch leading to vice, the other to virtue and we must turn away from the one and never forsake the other

<sup>11</sup> Shafer comments on the divine barque and its sacred image of the principal god: “The mystical rituals performed when the statue was installed in the sanctuary had transubstantiated it; it *was* the god, although the god was neither confined to it nor limited by it.” (1997, 6)

<sup>12</sup> The extensively-studied integration of phage Lambda for stable lysogeny on the host chromosome occurs through the cruciform Holliday junction, a site-specific recombination process responsible for integration and excision of bacteriophage genomes into and out of the host cell chromosome. Recently, a study detailed the formation of a Holliday junction mediated by eukaryotic (human cell type) recombinases (Murayama et al. 2008).

<sup>13</sup> Egyptian texts clearly address the importance of the northwest astronomical directions to the pole star relative to avoiding the black-hole netherworld or the “Swallower of Millions” who “devours corpses (or shadows), snatches hearts and inflicts injury without being seen”. For more on this topic see King 2004; 2006. Also, the technical name for Hornung’s black hole is a spinning Kerr Black hole, discovered in 1963 as the Kerr solution to the vacuum Einstein field equations. Having outer and inner horizons and a ring singularity, Kerr black holes drag spacetime. Egyptian references to dragging the bark (CT 60, 818) indicate this rotating geometry, as does the likely translation of Rosetjau as “place of the dragging” (Goelet 1994, 143). References to the inner horizon (PT 669, CT 682) are present, which is also referred to as the middle gate, the Inner Circle, the Middle Sky, and the middle of the eye (CT 159, 161, 164, 467, 641) In a quantum mechanical Kerr black hole, ‘Two Ways’ exist: the inner horizon is the pathway of ascending radiation falling into a white hole (micro Einstein-Rosen bridge), while the outer horizon is the pathway descending to the destructive ring singularity.

<sup>14</sup> In 1903, Hans Schack-Schackenburg published photos of texts on the bottom of a Middle Kingdom coffin in Berlin, naming them *The Book of Two Ways*. The discovery of 18 published and four (4) unpublished coffins form the basis of this Book from el Barsha in Middle Egypt. The ways of Rosetau and the dying/rising god Osiris are on water and land at the edge of the sky (CT 1035), and the Two Ways are in the “opposite direction, each one thereof opposing its companion in the opposite direction” (CT 1072, 1182). The two strands of DNA in a double-stranded DNA molecule also point in opposite directions.

<sup>15</sup> Matthew 7:13-14 states: “Enter by the narrow gate; for the gate is wide and the way is easy, that leads to destruction, and those who enter by it are many. For the gate is narrow and the way is hard, that leads to life, and those who find it are few.” Similarly, the word *Introit* in the Catholic Mass is from the O.Fr *introit*, literally “a going in,” from L. *introitus*, pp. of *introire* “to enter,” from *intro-* + *ire* “to go.” The word *strait* is a “narrow, confined space or place,” specifically of bodies of water; the adjective *strait* “narrow, strict” is from O.Fr. *estreit* (Fr. *étroit*) meaning “tight, close, narrow.”

... For the road that leads to pleasure is downhill and very easy, with the result that one does not walk but is dragged along; the other which leads to self-control is uphill, toilsome no doubt but profitable exceedingly. The one carries us away, forced lower and lower as it drives us down its steep incline, till it flings us on the level ground at its foot; the other leads heavenwards the immortal [ones] who have not fainted on the way and have had the strength to endure the roughness of the hard ascent” (1999, 250).

### Upward or Downward to Darkness on Extended Wings?

Symmetry is inherent in the fundamental laws of biology and physics. Simple configurations of geometric intuition (sphere, sun, Eye of Horus, dome, orb, disc, host, ball, mountain, pyramid, cone) connote the presence of the intelligible, delimiting the source form, arousing emotive excitement, and allowing semiotic description via the function of ritual within the architectonic form of the mountain temple. However, today this ancient expression of architecture embracing ritual with its universal symbols is devoid of the biological meaning of the processional path, the cross, the offerings. These eschatological rituals support that humans require light for survival, possibly the biological boost necessary for a higher-ordered energy state at the molecular level.

Some evolutionary biologists argue that since bacteriophage possess the powers of adaptation and assimilation and related faculties of multiplication and variation, they are living beings. Ritual’s biological sign activity suggests humans have the afterlife capacity for genetic recombination and cloning, while the geometrical description of the architectural field is a topological model of a Kerr black hole. Arguably, the mountain temple may be a sign for a quantum energy landscape of entangled, *in phase* gravitational waveforms escaping a micro Kerr black hole to access an infinite maximal state.

As Thom states, ‘Only some realist metaphysics can give back meaning to this world of ours’ (1990, 220). In Time’s causal framework, the numerous correlations in this paper point to Egypt as the source of knowledge. But this too is an illusion. The classical laws of Newton, Maxwell, and Einstein, as well as the quantum laws of Schrödinger treat the past and future equally (Greene 2004, 200). Time reversal is possible (145). Experiments with entangled pairs

of particles have confirmed quantum predictions, showing that certain intuitive assumptions of realism (Aristotelian logic, counterfactual definiteness, and absence of actions into the past) should be abandoned to be consistent with quantum experiment (Gröblacher et al. 2007).

So, if Egypt is not the source, then the script continually recurs. Past information is active in the present to determine the future. Why?

In light of scientific research on the cosmos, our brains also have a holographic mode of operation, replete with eyes that are retinal receiving organs for active information from the quantum holograph. As physicist John Wheeler explains, ‘There is not a sight we see, a pressure we feel, a sensation we detect which does not go back to elementary quantum phenomena for its explanation’ (1988, 7). The function of the waking consciousness, or our sensory perceptual process involving imagination and language, may be to read the physical signs or map significant evolutionary forms in the classical cosmos that mirror the biological action of signs (molecules) in the quantum domain which convey gene-regulated cell processes such as DNA transcription to RNA, translation to protein, and replication of quantum information. Creativity, then, would be preprogrammed, and rudimentary language would be derived from cell language<sup>16</sup> to build a lawful bridge between spacetime consciousness and mind or energy in the cosmos related to the realization of a quantum maximal state of order now and at human death.

Everything recurs because this active biological information is continually welling up to direct our activities to a maximal state. Man entangled in history, although separated over spacetime, is part of one physical system ordered by active quantum information that directs Man to evolve by horizontal gene transfer and viral transformation. As Nietzsche states, ‘Our most sacred convictions are judgments of our muscles’ (1968, 173).

Yet, Thom asks, ‘every animal is topologically a three-dimensional ball, the only possible exceptions arising with primitive animals living in colonies; is there an a priori reason for this topological simplicity in living beings?’ (1975, 152-153). In statistical theory, *a priori* denotes knowledge present before a particular observation is made. One observation is that elementary quantum phenomena exhibit this topology, while the information-theoretic character of our world of semiosis is controlled by the rule-governed lifestyles of a self-creating virus, a ‘ceaseless

<sup>16</sup> Ji (1997) supports that molecule-based cell language is isomorphic with the sound/visual signal-based human language with respect to 10 out of the 13 human language design features characterized by Hockett; Ji suggests that human language is founded on cell language. Others have aspired to a universal language, such as the architect Joseph Gandy (1771-1843), who postulated that architectural forms possessed meaning related to the formation of language, as well as Leibniz, Erasmus Darwin in *The Temple of Nature, or The Origin of Society* (1803), and the art theorist Quatremère de Quincy, who in *De l’architecture égyptienne* (1803) described the hieroglyphs in ancient Egyptian monuments as “chains of symbolic writing” and “public libraries” (quoted in Lukacher 1994, 291). Walter Burkert in *Violent Origins* argues that ritual preceded language in the evolution of *Homo neanderthalensis* and *Homo sapiens* (Shafer 1997, 250; footnote 152).

creation' celebrated every day in our genetic engineering labs and every Sunday morning in our temples.<sup>17</sup>

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<sup>17</sup> First, subheadings in this paper are from Wallace Stevens' poem "Sunday Morning." Second, Thom points out the cosmos is a "ceaseless creation" and the task of science is "to foresee this change of form and, if possible, explain it" (1975, 1). Relative to spherical topology and creation, Luminet et al. (2003) analyzed light data remaining from the Big Bang, observed by NASA's Wilkinson Microwave Anisotropy Probe (WMAP). Based on this cosmic radiation background data, they determined that the shape of the universe is a dodecahedron enclosed in a hypersphere. Although this claim was contested by Cornish et al. (2004), the dodecahedral topology reinforces the main conclusion of the Isis Thesis (2004) that the microstructure that left this signature at the origin of Time before the Big Bang was bacteriophage Lambda, which has an icosahedral phage conformation of 20 equilateral triangles, arranged around the face of a sphere. The icosahedron is a triangular model of five-fold symmetry in three dimensions, having 20 faces, 12 vertices, and 30 edges, while its reciprocal, the dodecahedron, has a pentagonal shape with 12 faces, 20 vertices, and 30 edges.

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My work centers on biosemiotics in cultural activities (mythology, literature, religion, science, art and so on) to determine human meaning, expand intentionality, and share knowledge about our potential for evolutionary survival and adaptation within the universe. My background includes an education grounded in semiotics, a ten-year career in college instruction related to writing, literature, mythology and business communication courses, academic positions in project management and staff development, self-employment as a competitive grant writer for educational goals, and experience as an author and publisher. I am interested in the enlightenment and preservation of humanity.



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