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# Unraveling Mountainway Ceremonials: Is Navajo Eschatological Ritual Another Semiotic Pattern of Ancient Invisible Magic Veiling a Complex Information System?

Judy Kay King, North Central Michigan College, Michigan, USA

*Abstract: Because Nature creates mathematical patterns within which humans function and evolve, the action of evolutionary signs should delineate universal mechanisms of adaptation, that is, complex systems of mental and physical processes that generate evolutionary survival information. Supporting this idea, this study draws together threads of Navajo eschatology similar to that of ancient Egypt and early China, illuminating a coherent system of human thought defining evolution to cosmic mind-energy in three diverse cultures. This realist process metaphysics centers on human afterlife transformation via ritual, suggesting that observer-participancy builds a bridge between humans and the quantum, giving rise to information about the elementary quantum phenomenon with its pure yes-no character. Grounded in the observer-participancy principle of physicist John Wheeler and the semiotics of Charles S. Peirce, this paper is part of a continuing inductive argument, testing predictions based on the thesis that the semiotic phenomenology of the Egyptian pharaonic priesthood harbors an eschatological survival message for humans, viz., horizontal gene transfer mediated by the complex bacteriophage Lambda. To distinguish a complex Navajo information system for possible transformation or evolution to cosmic mind-energy, transdisciplinary research is reviewed, as well as the publications of Leland C. Wyman on Navajo eschatological ritual and sandpaintings, which are based on carefully recorded and translated documents by Father Berard Haile, a Franciscan missionary and anthropological field researcher for the University of Chicago. Wyman's synthesis and analysis of Navajo literature provides a firm semiotic foundation for a comparison with ancient Egyptian and Chinese eschatological literature.*

Keywords: Anthropological Semiotics, Ancient Egypt, Early China, Navajo Eschatology, New Science, Charles Sanders Peirce, John A. Wheeler

## Who can tell the Story of the Beginning of Utmost Antiquity? - *Chuci Tian Wen*

**T**HE FOLLOWING PRELIMINARY research draws together the major threads of Navajo eschatology similar to that of ancient Egypt and China, illuminating the same lawful system of emergent evolution to cosmic mind-energy for humans via Time Reverse. This semiotic approach supports that, should we understand the classical action of signs as a holographic veil of the molecular world, a lawful biophysical system for the evolution to universal mind would be accessible to human reason. At this tiny scale, self-organizing principles are at work such as crystallization (Laughlin 2005, 137), as Egyptian, Chinese, and Navajo eschatologies support relative to a complex process including micro-

scopic black hole physics, quantum biology, and ritualized behavior supporting time-reversed evolution of mind to the cosmos.

In Egyptian texts and art, the transformative biology embedded in quantum physics is connoted by a dialectics of conical forms and related topologies (mountains, peaks, pyramids, triangles; valleys, pits, caves, holes; mouths, jaws; cones, horns, funnels, whirlwinds; spheres, circles, spirals, coils), including bridging mechanisms (ladder, wormhole, double mountains, double-headed serpents, bull horns). (King 2004; 2005; 2006, 2008) Metaphorical language such as the Dead King *pouring out a star* is actually a concise description of lawful Time Reverse (see Box 1). Similar biophysical signs and language are found in the ideas of early China (2009, 2009a), the paleontologist Teilhard de Chardin (2007), the Aztecs (2007a), and the Navajo, who contribute the additional bridging mechanism of the rainbow.

Leland Wyman divides Navajo ceremonials into Blessingway rites and the Chantways, which are separated into groups of Holyway (with its seven subgroups), Ghostway (Evilway), and Lifeway (1957, 11). This paper's main focus is on Holyway's Mountain Chant subgroup, primarily Mountainway, Beautyway, and Blessingway. To aid the reader, Appendix Boxes 1-3 and Tables 1-3 provide supplementary research, as well as supporting evidence that three diverse cultures communicate a process philosophy spinning on Chance, Law and Continuity.

## Everything Being More Real

Semiosis is the triadic action of signs in living and nonliving nature, encompassing human-animal behavior, the microcosmic niche, and the physical cosmos itself. This idea of Charles S. Peirce centers on the triadic action of a sign, its object, and its 'interpretant', which references the whole of living and nonliving nature versus 'interpreter' that contextualizes only the human or animal. Peirce sketched out his new philosophy in the spring of 1890, identifying Chance, Law, and Continuity as the great explanatory elements of the cosmos and envisioning 'a theory of evolution applicable to the inorganic world also.' What is necessary, he writes, is a natural history of laws and a study of our own historical position. The best thinking, he asserts, is often 'performed by means of visual images and muscular imaginations.' (W8.21-22) Accordingly, a Navajo sandpainting is a medium for the finest thinking. Peirce's pragmatic maxim is that conceptual elements enter logical thought through the 'gate of perception' and exit through the 'gate of purposive action' (EP 2.241), implying observer-participancy.

Similarly, in his Foreward to Wyman's book (1962), George Mills mentions the Navajo dream reality through art and ritual, and Wyman explains that their prayers do not glorify or thank supernaturals, but instead command supernaturals (28). Re-entering the primordial drama of the gods after emergence is the Navajo religion's main goal (Raitt 1987, 524). Thus, their cosmos expands from the original formless Emergence Place to human emergence, and then the cosmos collapses back to the Emergence Place via observers that loop back into the past (see Table 1).

The following cosmological patterns suggest that ancient Egypt, early China, and the Navajo shared a similar understanding of the cosmos, as well as the same time-reversed path to immortality. In these three cultures, the texts explain that the person's position relative to the earth's gravitational field selects a backward-in-time pathway involving semiosis in the whole of nature. Accessing this pathway to a new energy niche depends on knowledge of the polestar's position, the earth's gravitational rotation, the upward clockwise movement

from the West to true North or earth's element-enriched polar cusp, and quantum signs, that is, a guiding language of geometric forms for the underworld journey such as the sphere, stairway, rainbow, ladder, mountain, eye, spiral, circle with its axis as a gate, and the hybrid, signs charged with information on quantum dynamics and biophysical energy landscape fields for ascension, transformation to mind-energy, and cosmic unification. Put simply, in these cosmologies the cosmos expands from formlessness to form, and then it collapses via observers that loop back into the past. This same expansion/collapse cosmos is also evident in the mathematical logic of Peirce (King 2009a), the intuitive nonfiction of Edgar Allan Poe's 'Eureka', the unfinished masterpiece of William Blake's 'Four Zoas' (2005, 196-200), Teilhard de Chardin's biophysics (2007), and modern cosmology (Davies 2006: 251-253).

**Table 1: Cosmology**

Cosmology and Related Concepts	Ancient Egypt (PT = Pyramid Text; CT = Coffin Text; BD = Book of Dead; TR = Theban Recension; translations by R. O. Faulkner)	Early China	Navajo
Restricted knowledge	Pharaonic priesthood	Emperor/Sage	Singer, Roadman, Medicine Man
Quest for Immortality	Belief in transfiguration (Goelt 1994)	Cult of hsien immortality focused on material immortality with lightened body (Needham 1975, 97)	Happiness in a long life where people 'live again' (Haile 1947, 26)
Expanding/Collapsing Cosmos (predicted by Einstein's general relativity)	Dead King focuses on return to original, mass-generating creator-god Atum in the early cosmos	Huai-nan Tzu by Liu An provides a cosmogony of the self-generating cosmos from formlessness to form. Chinese sages desire to reverse process of generation to world before time (Major 1993, 47; Puett 2002, 221)	Navajo return to Supernaturals at Emergence Place or cosmic beginning
Model of Cosmos for Ritual	The pyramid is a model of the cosmos, for the Dead King endured forever within it (PT 600); Temple ritual modeled cosmic intention. Pyramid and temple represented cosmic mountain or axis mundi.	In divination practices, Shang kings envisioned turtle or water ox as model of cosmos, applying a red-hot poker to crack the turtle shell or water ox bone, attempting to replicate forces of nature. (Allan 1991, 112-121)	Crescent Moon Earth Altar in hogan with Moon as cosmos (Aberle 1966:130); Navajo dream reality through art and ritual; their prayers 'command supernaturals' (Wyman 1962, 28)

<p>Emphasis on Stars or Star People</p>	<p>Deceased's offspring as Morning Star PT 473, 481, 507, 553; PT 510: 'I will pour out a star.' PT 660: Conceived in the sky, the Dead King is the first-born son of Atum. Nut the Sky Goddess is decorated in stars.</p>	<p>Ancestral spirits depicted as 'actually being stars' (Cook 2006, 147). The Chinese Emperor's objective to become a star is described in Huainanzi 4 Sec. XIX as the 'growth of ores in the earth' related to gold, lead, copper, silver, iron (Major 1993, 214-215), a sound explanation of core-collapse nucleosynthesis (King 2009a)</p>	<p>Hard flint boys (Pleiades); s q 'dine' é are star people (Haile 1947, 33-35); Orion and Pleiades are beings made of translucent stone or flint (Haile 1947, 16; 28); Arizona Star Ceilings (Britt 1975); Navajo belief that star ceilings are an earthly reminder of 'the laws carried by the stars' (Williamson 1987, 175)</p>
<p>Two Ways: Immortality or Dissolution/Return to earth</p>	<p>Up: Return to Atum or origin of cosmos; From Pyramid of Un â s: 'The sky poureth down rain, the stars tremble, the bowbearers run about with hasty steps, the bones of Aker t remble, and those who are ministrants unto them betake themselves to flight when they see Un â s rising [in the heavens] like a god who liveth upon his fathers and feedeth upon his mothers.' (Budge 1904, v1, 33); Down: 'Second Death'</p>	<p>Up: Return to ancestors Down: "Central Drain-spout" of Yellow Springs underworld</p>	<p>Upward, clockwise soul transforms to long life; Downward, counterclockwise soul or wind soul goes into another human body (Haile 1943, 87). In the Songs of the Bridge, Haile tells of the heroine arriving at a place called Frogs-playing-stick-dice. At this knoll, lightning darted out. While gambling the frogs were yelling 'up' or 'down' with the fortunes of the game (Wyman 1975, 41).</p>
<p>Sun</p>	<p>Merging with Sun CT 105: Dead King greets Sun-god Re in his sun. CT 848: Dead King boards Sun-god's ferryboat.</p>	<p>Aiming for the sun: Archer Yi aimed true, shooting down one of ten suns that scattered golden feathers, transforming to a golden, three-legged crow. (Field 1984, v.56, note p109).</p>	<p>Sandpainting of Navajo hero and 'how he brought the sun down' with Milky Way and constellations (Haile 1947, 15); Sandpainting of Taking Down the Sun with Holy People each receiving 'his sun' (Reichard 1977, 47)</p>
<p>Sun and Moon1</p>	<p>The Eye of Horus is composed of the right eye or Sun and the left eye or Moon.</p>	<p>Han tomb murals frequently include one sun and one moon (Allan 1991, 30)</p>	<p>In Mountain Chant, Holy Woman's home had sun and moon (Matthews 1887, 25); During the Dark Circle of Branches fifth dance, dancers carry sun and moon disks (Matthews 1887, 55) Haile explains Sun and Moon shine out of baskets and are never separated (Wyman, 1975, 54).</p>

<p>Clockwise Direction</p>	<p>Constant advice for Dead King to move from left to right side PT 412, 482, 487; CT 1, 219, 327; Dead King travels West, Northwest, North, East, a clockwise direction</p>	<p>Ritual movements relate to the Four Directions, and the spirit of the Deceased was believed to fly north, yet the path to Heaven was in the West while the focus was on the northwest (Cook 2006, 33)</p>	<p>Sunwise or clockwise: šá bi k ehgo ('in the course of the sun' or guided by the sun'); Sunward or anticlockwise: šá dáh □i' ('meeting the sun' or 'against the sun') (Haile 1939, 68)</p>
<p>Emphasis on Polestar</p>	<p>Pyramid Texts guide Dead King to the pole of the sky. King takes seat in solar bark at Great Polar Region, the zenith. Great Bear constellation guides.</p>	<p>During later Han period, Chhi Mêng in the Chin Shu understood, 'Among the heavenly bodies the Pole Star alone always keeps its place' (Needham 1975, 90-91); Some Western Han cosmic boards indicate 'a path radiating from the center' with the Big Dipper as the divinatory dial (Cook 2006, 33)</p>	<p>'The pole star was to remain stationary as a guide' (Newcomb et al. 1956)</p>
<p>Importance of Northwest</p>	<p>Texts guide Dead King to Beautiful West, then Gap or 'polar region of the sky' CT 1030. At the Edifice of Taharqa at Kamak, a monumental scarab is located at the northwest corner of the Sacred Lake (Parker et al. 1979)</p>	<p>Open up the Northwest Gate (Field 1984, v. 43 note p. 108); Northwest was Heavenly Gate; Deceased was believed to fly northwards, yet the path to Heaven was in the West with focus on the northwest (Cook 2006, 33)</p>	<p>In Mountainway radial sand-painting 'People with Long Hair', the SW and NW mountains are connected by a rainbow trail while they are connected with the SE and NE mountains by rainbow ladders (Wyman 1975)</p>
<p>Underworld location</p>	<p>Under earth with western entrance (Goelet 1994, 143) but in northern sky; Netherworld is Duat with hieroglyphic ideograms meaning 'star' and 'house' (Gardiner 1957, 33, 487)</p>	<p>Under earth with western entrance (Allan 1991; Yu 1987, 382)</p>	<p>Haile suspects Navaho ghostland is in the north which reminds him of the emergence opening in the north (1943: 88-89); Afterworld in north (Wyman et al. 1942, 15); Journey of hero by lightning trail to house inside black mountain (Matthews 1887, 25)</p>

Holographic Quantum Underworld <sup>2</sup>	Dead King states he belongs to the 'regions of the dwarfs' CT 132; Netherworld is a black hole and time reversal permits departure (Hornung 1994, 154)	Yellow Springs underworld is under earth (Yu 1987, 382); In Lî Ki heaven is a spot and earth is a handful of soil (Section II, 35).	Emergence Place commemorates the emergence of the Ant People from their underworld (Wyman 1965, 226)
Importance of East	The Sun-bark is sailing to the east. (Parker et al. 1979, 42)	August Thearch unifies the minds in the eastern lands in Stele Inscriptions of Ch 'in Shih-Huang (Kern 2000, 26-27)	Hogan opening in east; dark circle of branches open in east (Matthews 1887, 50)
Unifying the Universe	After ascension, Yesterday belongs to Ani BD Ch. 17; Benu-Bird on primeval mound represents Atum, Re, the Dead King, who receives everything, for 'the whole of it has been given to me.' He has 'come out as a Benu-bird' TR, Ch. 122	August Thearch ascends mountain and 'unified All under Heaven' or 4 heavenly quarters (Kern 2000, 12 n.4; 14.)	Returning home to Supernaturals for Power/Knowledge: Wyman tabulates this theme as major Mythic Motif in Navajo Mythology in Shootingway, Mountainway, and Beautyway; In Blessingway, Changing Woman's ascension and embrace of cosmos (Wyman 1970)
Becoming 4 Gods	Dead King in CT 422 claims, 'I am he of the Pyramidion'; Dead King resides within pyramid to endure forever PT 600; Birth of 4 children of Horus; In Pyramid Texts Dead King is 4th of 4 gods bringing water; King is 4th Imperishable Star.	Yellow Emperor with 4 faces and single mind transforms to 'ancestor of all under Heaven' (Csikszentmihalyi 2005, 38)	In Red Antway sandpainting, Pollen Boy's head is centered in 4 faces of pyramid (Wyman 1965, 257 Fig. 43); In Mountain Chant, Navajo hero becomes 4 gods (Matthews 1887, 27); In Windways, Grandson returns home by ladder and is called One-who-has-his-feet-in-pollen, then 'four strange persons, very small in size' appear. (Wyman 1962)
Crystal <sup>3</sup>	Crystal mountains of Bakhu upon which the sky rests CT 160. Star deities in Amduat, Hour Seven, Tomb of Seti I.	Shang created jade turtles for divination with circles, possibly representing stars showing turtle may represent cosmos (Allan 1991, 107).	In Mountain Chant, Navajo hero visits House of Rock Crystal with a door made of many plants, the home of Supernatural Young Woman (Matthews 1887, 27); Navajo hero Scavenger ascends with crystal (Reichard 1977, 35)

Ascension	Egyptian word ka is expressed with hieroglyph of two upraised arms. Ka plays role in thinking, and a tradition exists for abstractly ‘interpreting the ka as a kind of universal vital force’ (Bolshakov 2002, 179)	Chinese art depicts upraised arms like Egyptian Ka (Barnard 1972, 39)	In Mountain Chant, the correct swallowing and withdrawal of the great plumed arrow will result in the sun rising on the pole (Matthews 1887, 84); Drawings of Big Fly, Cornbeetle Girl, and other deities often have upraised arms like Egyptian Ka.
Ascension Effect <sup>4</sup>	Dead King ‘ascends in a great storm from the inner horizon’ PT 669; and ‘foretellers of the great storm go forth from within the inner horizon of the sky’ CT 682; Dead King ascends in whirlwind PT 258, 259.	In the fifth Stele Inscription of Ch ‘in Shih-Huang on eastern vista of Mt. Chif-fu, the Thearch ascends the mount, shakes and moves the four extremities, unifying ‘all under heaven’ (Kern 2000, 39)	Wyman observes that the curved thunder motif is symbol for the reverberations of thunder (1965, 219); Thunders are ‘sky people’ concerned with rainfall and water (Reichard 1977, 74)

Notes to Table 1:

1. Egypt, China, and the Navajo emphasize the importance of the sun and moon that usually appear together. According to scientific speculations, inside a spinning Kerr black hole, the act of looking backward would allow one to see a white hole or the past singularity, what would look like a full moon. Therefore, the deceased person who desires transformation merges with the sun to enter the dark underworld at the earth’s axis and then transforms by moving backward in time as signified by the white moon. In astrophysics, a white hole is a body that spews out matter or a black hole running backward in time. In the Navajo system, the rainbow signifies this bridge, which is a reflection hologram of the holograph of white light. This phenomenon, a sign of reflection geometry at the ring singularity, is present in the Kerr black hole due to angular momentum associated with axial tunneling. In addition, at the inner horizon, infalling radiation is blueshifted as it accumulates (Visser 1996). This high frequency light is associated with approaching radiation. In contrast, radiation moving away from the observer appears redshifted. This may be the basis for the importance of red and blue rainbows in radial Navajo sandpaintings. See Lee and Fraser’s *The Rainbow Bridge: Rainbows in Art, Myth and Literature* (2001).
2. The geography of Navajo Windway includes four sacred mountains, real and mythical. On the south is Mt. Taylor in New Mexico, on the west Mt. Humphrey in Arizona, on the north is the Place of Emergence or possibly Big Sheep or Hesperus Peak in Colorado, and on the east, Black Belted Mountain (Horizontal Black Belt), possibly Redondo Peak in New Mexico. In the northwest is Mountain Gap, the home of the Bear People, between the Carrizo and Lukachukai Mountains. (Wyman 1962)

3. In The Isis Thesis (2004) the sun as a star or crystal and the sphere or circular disk is holographically interpreted as a classical sign of the spherical, triangulated head of bacteriophage Lambda. In Navajo Blessingway sandpaintings, the crystal theme is represented by the application of pollen to long-life Rock Crystal Boy (Wyman 1970, 233) or Pollen Boy who is often pictured alone on the sun (24), while a Red Antway sandpainting shows Pollen Boy's head centered in the four faces of a pyramid (Wyman 1965, 257 Fig. 43), suggesting closed polyhedral viral symmetry. Also, in the Mountain Chant the Navajo hero transforms into four gods (Matthews 1887, 27). The Navajo sign of jewels may also be a sign of Lambda polyhedral morphology. Also, the sandpainting The Final Ascension of Scavenger Attended by Lightnings (Snakes) depicts the boy Scavenger with wings from white eagles, a lightning and rain steamer connecting him to the eagles and hawks, Black and Blue Snakes with lightning on their bodies, and a white crystal at his neck (Reichard 1977, 35 Plate IX), suggesting crystal transformation and high speed wormholes (lightning snakes).

4. At travel close to light speed, an observer would see the aberration effect of shapes twisted into a tunnel shape and color distortion due to the Doppler effect, a distortion similar to driving through a rainstorm (Universe DVD History Channel Documentary: Light Speed). Rain as well as lightning may be a Navajo sign for light speed perception.

With their 'penchant for systematization' (Wyman and Bailey 1943, 8), the original Navajo Emergence story describes underworld events before emergence of beings to the earth surface, the exploits of the Hero Twins, and the Navajo nation's history (Wyman 1957, 13). In Navajo mythology, 'ant people' inhabited the first dark underworld, and they named an entire chant complex Red Antway (Wyman and Bailey 1964, 45), for insects were fundamental to their mythology (129). For example, Big Fly serves as a mentor, mediating between man and deity, while the anthropomorphic form of cornbeetle is Cornbeetle Girl, who is often paired with Pollen Boy, symbols of female and male generative power, with pollen representing travel, control, 'light life' (Reichard 1950, 422, 457, 582). However, Rilke's poetic reference 'pollen of the flowering godhead' in *Duino Elegies* seems to capture the Navajo concept of deified pollen, which may be a sign of cosmic energy. When Pollen Boy is paired with Cornbeetle Girl, it becomes a sign of cosmic transformation as in Egyptian texts, where the creator-gods are symbolized by the Coprophagi beetle and the new infant transforms into a winged scarab to fly to the sky. Sandpaintings of Big Fly and Cornbeetle Girl often have upraised arms in the position of the Egyptian Ka, which is also signified in Chinese art (Barnard 1972, 39), suggesting ascension or evolution of mind backward in time (King 2009a). Systematic, participatory Navajo ritual connects the human macrocosm through the living mesocosm to the deified microcosm or first dark underworld, what can be interpreted as the primordial quantum inception of our expanding cosmos.

### Old Descriptions of the World

Fray Alonso de Benavides in his Madrid Memorial of 1630, explains that Navajo means '*sementeras grandes*' or 'great seed-sowings' or 'great fields' (Hodge 1912, 41). According to missionary Berard Haile (1874-1961), esoteric knowledge about the soul's functions and destiny is known by the Navajo singers, and two opposing worlds exist for the Navajo: the supernaturals who possess superhuman power and the earth surface people (1943, 64-65). Haile explains that having knowledge is similar to owning property, and the Navajo is unwilling to divulge the knowledge unless he is sufficiently compensated (1943, 66), so cosmic knowledge is generally secreted as in ancient Egypt and China.

Also, the Navajo cosmos is holographic for the mountains of earth below mirror what is above in the sky, and natural phenomena (sun, moon, star people, wind people, and so on), plants and animals are anthropomorphic as in Egypt and China. Haile explains that on earth the animal or plant form covers up the real supernatural (1943, 67), an inner form or independent being (68). Similarly, natural phenomena such as the sky, earth, certain constellations, mountains, the cardinal points are controlled by inner forms, what the tribal specialists postulate as a soul (69). Put simply, mind exists everywhere in the Navajo cosmos, which is similar to the ideas of pharaonic Egypt, early China, and Peirce.

Further, although many scholars indicate that Navajo ritual is for healing, to be specific, the evidence suggests it is a healing rite that makes the person whole by unifying the cosmos to its original state through an attempt to replicate and control the forces of nature, a mindset also similar to the pharaonic priesthood and Chinese sages. The Navajo acquire knowledge about nature's laws with the help of the supernaturals in their quest for oneness with the universe (Reichard 1950, 14), conceiving natural phenomena as conscious entities and stressing the Navajo self over the physical, even though both are interconnected spiritually (Calabrese 1994, 498, 500). This Navajo perspective is similar to Egypt and China's view, as well as Peirce's idea that mind and matter are interconnected to achieve evolutionary continuity of mind.

### **The Doctrine of this Landscape**

To understand the natural laws that guided Egyptian, Chinese, and Navajo thinking, an explanation of recent scientific research is necessary to appreciate their ancient invisible magic. Modern double-slit and beam splitter experiments show that every electron or photon has a complementary wavelike interference pattern and also a unique particle path. These experiments show that quantum laws govern our classical world and that an observation or measurement can determine particle location due to the quantum's pure yes-no character. This observer-participancy principle, confirmed by John Wheeler's delayed choice experiment, proves the past can depend on a present or future observation because of quantum entanglement (see Box 2; Table 2). As an example, the Navajo principle of multiple selves [entanglement] eliminates spacetime (Reichard 1977, 15), while the past is 'a control by means of which man may convert all danger to supreme aid which will function for the future as well as the present' (18).

In addition, the reversible laws of Newton, Maxwell, Einstein and Schrodinger allow Time Reverse. So, a writing can be written then erased; a protein can be grown in a folding funnel landscape then frozen to its native crystal state; and a universe can be expanded then collapsed. For instance, Einstein's general relativity predicts a simple expanding/collapsing universe, which is supported by Egyptian, Chinese, and Navajo eschatologies. Also, numerous solutions exist for the Einstein-Rosen bridge, and Navajo ritual manipulates relations with the structured universe (Lamphere 1969, 302), with the intent of overcoming space by traveling on rainbows or hoops (Wyman 1962, 36), possible signs for the Einstein-Rosen bridge. It is obvious that Wyman's informants, the various singers (1957, 38-39), use descriptive language describing mythical places or signs (Bear's Mouth, Coiled Mountain, Mountain-that-turns-around, Whirling Mountain, White Mountain, Black Mountain, Black Rock Circle, Dwarf Spruce Mountain, Dwarf Large Mountain, Blue-water-scattered-across, Rippled-mud-formation, Rainbow Bridge, Rain Mountain, Red Rock Circle) that suggest microscopic black hole/white

hole dynamics such as mouths, ring singularities, rotation, blueshift, and gravitational effects. Relative to their quest for long life and happiness, the Navajo may be describing a particle's entry into the interior region of a microscopic Einstein-Rosen bridge, what Poplawski (2010) describes as a region equivalent to a white hole's exterior that would extend the particle's time to infinity.

So, a particle of this nature in the quantum afterlife may be a fragment of DNA that is often degraded by oxygen, microbes, and water, yet many scientists consider it immortal because genetic material released from dead and living cells persists in all environments. DNA can also be transferred from dead to living cells by horizontal gene transfer (Avery et al. 1944), the exchange of DNA between two species. Experimental documentation of horizontal gene transfer (HGT) in many studies supports significant gene shuffling in the domains of Bacteria, Archaea and Eukarya, including plants, fungi and human cells (Sorensen et al. 2005, 700).

Freelancing DNA fragments in the bacterial world hover between life and nonlife, constituting a powerful tool box for evolution, and microbes are our ancestors or planetary elders (Margulis and Sagan 1986, 93, 95). For example, microbial gene-swappers such as bacteriophage Lambda are ferryboats for transferring insert DNA fragments, and this process overcomes species barriers and sustains evolution. Theories exist that a virus invented DNA (Whitfield 2006, 131) and that our eukaryotic nucleus evolved from a complex DNA virus (Bell 2001: 251), perhaps a complex lambdoid bacteriophage as proposed by a study of ancient Egyptian signs (King 2004).

Emergent evolution is the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems. 'Emergence means we can not describe the phenomena completely, although we have a model and description of local rules and actions' (Fromm 2005, 2). Perhaps at human death, HGT mediated by a bacteriophage is possible for our DNA, creating some type of immortal hybrid with quantum mechanical properties, as semiotic studies of ancient Egyptian and Chinese texts support (King 2004; 2009; 2009a). Although this evolutionary claim of afterlife HGT for humans is difficult to prove experimentally, it is possible to prove that this potential emergence is reasonable and lawful. To illustrate, mathematical physicist Diego Rapoport reviews experimental evidence explaining that our so-called 'junk DNA' (bacterial and viral genes) has both a linguistic and 'cognition-like structure which is based on the photon's fusion of object-with-subject', and he concludes that interpretation, meaning, and intention are 'biologically grounded in the bio-photonic structure-process of DNA' (2010: 10-11).

In light of the viral ancestry of our genome, it may be that semiosis (the action of signs) is everywhere in the cosmos, as proposed by the logician Charles S. Peirce, who emphasizes that 'pure chance survives and will remain until the world becomes an absolutely perfect, rational, and symmetrical system, in which mind is at last crystallized' (EP 1.297). Peirce said that man 'should become welded into the universal continuum' to prepare for 'a transmutation into a new form of life,' (CP 1.673) what suggests a higher-ordered morphogenesis for cosmic evolution of mind.

To Peirce, thought appears in bees, crystals, and the inorganic (CP 4.551). Caspar, Crick, and Watson thought of viruses as crystals (1956) as do modern virologists. Crick and Watson (1956) predicted that the coats of viruses were composed of repeating subunits, exhibiting the symmetry of closed polyhedra. The Peircean theme of crystallized mind, the Egyptian King's hybrid transformation into a pyramidal form of millions or four gods, the Chinese

Yellow Emperor's transformation into a four-faced polyhedral hybrid, and the Navajo hero's transformation into pyramidal Pollen Boy or four gods may point to the polyhedral form of an ancient lambdaoid virus.

### The Ant of the Self Changed to an Ox

A wormhole is simply a microscopic rotating Kerr black hole with its white hole time reverse that casts out matter. In their sandpaintings of their underworld Antway, the Navajo grasp of microscopic wormhole physics reverberates in the curling thunder sound that may describe the Planckian thunderpop that nucleates a white hole. A singularity may be only a loud noise (Raju 2003, 104). The Mountain Chant 'Song of the Exploding Stick' accompanied by a drum emphasizes the mountain-peak meeting with the gods with a 'peculiar sharp strike like a sudden outburst or explosion' (Matthews 1887, 81), suggesting exploding white hole nucleation. Also, Wyman's informant depicts Horned Toad People with a bow and arrow in their right hand and five zigzag lightnings with a variegated curling thunder sound in the left (1965, 219). According to Reichard (1950, 203), *variegated* (alta'sái) literally means 'projecting-in-every-direction.' Wyman observes that the curved thunder motif resembles the feathery curves at the bottom of Thunder's tail in Shootingway sandpaintings, explaining that the symbol represents thunder (1965, 219).

Thunders are sky people concerned with rainfall and lightning. Similarly, the water ox, having features and powers similar to thunder, represents the relationship between the sky and earth's deep waters and subterranean currents, according to Reichard (1977, 74). In myth, she considers the buffalo supernatural (1950, 404). In the sandpainting *Home of the Buffalo People* (Plate XXIII), the black center shows Holy Man's encounter with the Buffalo at Rushing Waters, the home of Water Ox who lived in the great water of sharp points that was believed to divide this world from the world beyond (1977, 69). This description may indicate a black hole ring singularity, for Raju explains that divergence arises because viscosity has a sharpening effect (2003, 522 n77). In the myth, Holy Man and his entourage overcome buffalo obstacles, ascending to the sky (Reichard 1977, 73). The major elements of this myth-related radial sandpainting are the bordering Mirage Goddess opening to the east that encloses sixteen triangles, sixteen horned buffalos, sixteen clockwise travel hoops, and a black center circle with four rainbow bars positioned between four circles, each with a rainbow bar. Within the encompassing Mirage Goddess, four herbs are at the northeast, southeast, southwest, and northwest with connecting vines framing a large X-shape through the black center circle. When viewing this large X-shape, one perceives a four-faced pyramid emerging within the sixteen triangles due to figure-ground reversal, suggesting the importance of triangular and polyhedral shape, a possible reference to viral morphology.

Relative to microscopic Kerr black hole physics, the sandpainting's clockwise motion and its black axial center circle with four so-called rainbow bars (equal bands of red and blue separated by white) suggest redshift and blueshift effects at a ring singularity. Theoretically, when closest to the axis of a Kerr black hole, the central ring singularity, an engine of infinitely strong spacetime curvature and tidal gravity, is a round window showing an infinite number of mirrored locations. Because a Kerr black hole behaves as a mirror (Kuchiev 2004; 2004a), the Mirage Goddess may be a sign for black hole reflection (also described as Holy Man's ascension) or black hole mirror imaging due to ingoing and outgoing states (Burinskii 2006). The interpretation of the Einstein-Rosen bridge with its four horizons is

supported by signs such as four-fold emphasis, hoops and rainbow bars. In support of the rainbow as a bridging sign, an on-axis computer-synthesized hologram-based technique actually creates long-distance stable white-light 'rainbow' optical vortices (Soskin et al. 2004; Arkhelyuk et al. 2004). Also, the horned water ox representing the Navajo relationship between sky and earth (Reichard 1977, 74), the sandpainting's horned buffalo, and the horizontal ram-horns of the Egyptian Sun-god may be signs for the Einstein-Rosen bridge. More support for this idea is Allan's observation of early Chinese divination: in an attempt to replicate natural forces, Shang kings used a red-hot poker to crack the bone of a turtle shell or water ox, the shell or bone representing the cosmos (1991, 121), suggesting an explosive separation of earth and sky relative to wormhole dynamics and cosmic collapse.

### **The Strength of the Sun**

The Navajo consider the Sun, Moon and Changing Woman as 'high gods' (Reichard 1977, 15). Relative to the sun, in one Mountainway myth, the Navajo singer Yucca Patch Man states that daylight appeared and the sun set, but 'in reality the sun stood high up in the skies' (Wyman 1975, 183), suggesting his knowledge of earth's rotation around the sun. According to a Navajo informant of Wyman, when a man dies at daybreak, the good part goes to the dawn, during daytime to the sun, at sundown to the yellow west, and at night to darkness (Wyman et al. 1942, 14). Another informant reported that Winds leave the body at death, emerging through spirals. A 'big Wind' goes through the body, comes out the hair whorl on the back of the head, often coming out of the mouth, which governs speech. This 'good part' is part of the sun and looks like light, going back to the sun at death. (1942, 15) After reaching the dark northern underworld which is entered through the Emergence Place, a sunwise soul (clockwise) transforms and ascends out of the underworld to embrace the cosmos.

Relative to this Cosmic Embrace, mathematical solutions support a recent theory of neurophysics and quantum neuroscience that assumes specific temporal patterns of complex electromagnetic fields in our brain can be represented in human consciousness. The wavelength of hydrogen is the transition frequency with calculations indicating the volume of a proton has a Planck length radius and the longitudinal length of the universe's width, suggesting that brain space has the information potential for containing extraordinarily large increments of space and time. (Persinger and Koren 2007)

Although speculative, what is interesting in this theory is the transitional role of hydrogen's wavelength, the sun's major element, as well as the spacetime information potential that could allow consciousness to embrace the 'great fields' of the cosmos. Cosmic Embrace—or the act of observer-participancy that activates a quantum-mechanical probability amplitude (wave height) determining definiteness—is described as cosmic unification in Egyptian, Chinese, and Navajo eschatologies by a movement to the sun.

For example, Changing Woman is symbolic of the transformed person signified as a crystal. Reichard translates rock crystal (ntó'li:) as 'the-particular-one-which-is-clear, -translucent' (1950, 212). According to singer Slim Curly in Blessingway, Changing Woman is the daughter of Long-life Boy (Pollen Boy) and Happiness Girl (Cornbeetle Girl). In one song of the mountains' inner forms, Changing Woman is dressed with 'pollen of various soft fabrics and of various jewels.' (Wyman 1970, 144) She ascends from the inner mountain with a 'crystal with pollen' in her mouth and a 'perfect disc shell' as a headplume. As in the

Egyptian Book of Gates, the Sun-god in the form of the living beetle arises from the underworld Duat in the Sun-bark with a disk like Changing Woman's, a transformation sign. The song then references the mountain, rainbow, the sun's surroundings, and the 'Sun's pollen with pollen of various jewels'. Finally, the transformed entity states, 'By this I was transformed into jewels as I ascended. Now I am long life, now I am happiness as I ascended.' (148-149) Then sound waves resonate and the Cosmic Embrace results, as Slim Curly explains that within the Hogan a sound was heard from within the earth of those who had become the earth's inner forms.

Now when in the past he placed Earth, I fully know!  
 Now when in the past he placed long life, now happiness, I fully know!  
 When it will originate, I fully know, holaghai,  
 Now when in the past he placed Sky, I fully know! (151)

Again, the chant reinforces the time-reversed Cosmic Embrace: 'From the beginning I fully know of it' (1970, 152) and 'In your rear I shall exist' (159). So, the ritualistic observer-participants, the time-reversed invisible ones or minds who ascend and embrace the cosmos, now understand what happened in the beginning. Thus, the signs they observed in the present shaped the nature of the cosmos in the remote past, for they have collapsed the cosmos to the beginning.

But two ways exist—ascension and dissolution. This ascent/fall ontological structure of Being has metaphysical implications related to quantum physics and neuroscience (King 2009a), and it is not only described by the pharaohs, Chinese sages, and Navajo singers, but also by the writer Gerard Nerval in *Aur é lia*, the poet Rilke in *Duino Elegies*, Dante in *Divine Comedy*, and Mozart in his Egyptian opera 'The Magic Flute' where the flute conquers Death by casting the protagonists from earth heavenward. Egyptian texts describe dissolution of mind as 'second death', Chinese texts mention a 'Central Drainspout', and Navajo myths consider it an earthly ghost existence; however, each culture explains that dissolution can be avoided by an upward clockwise direction to earth's hydrogen-enriched northern polar cusp, where one's essence (DNA?) merges with the sun for the time-reversed Cosmic Embrace.

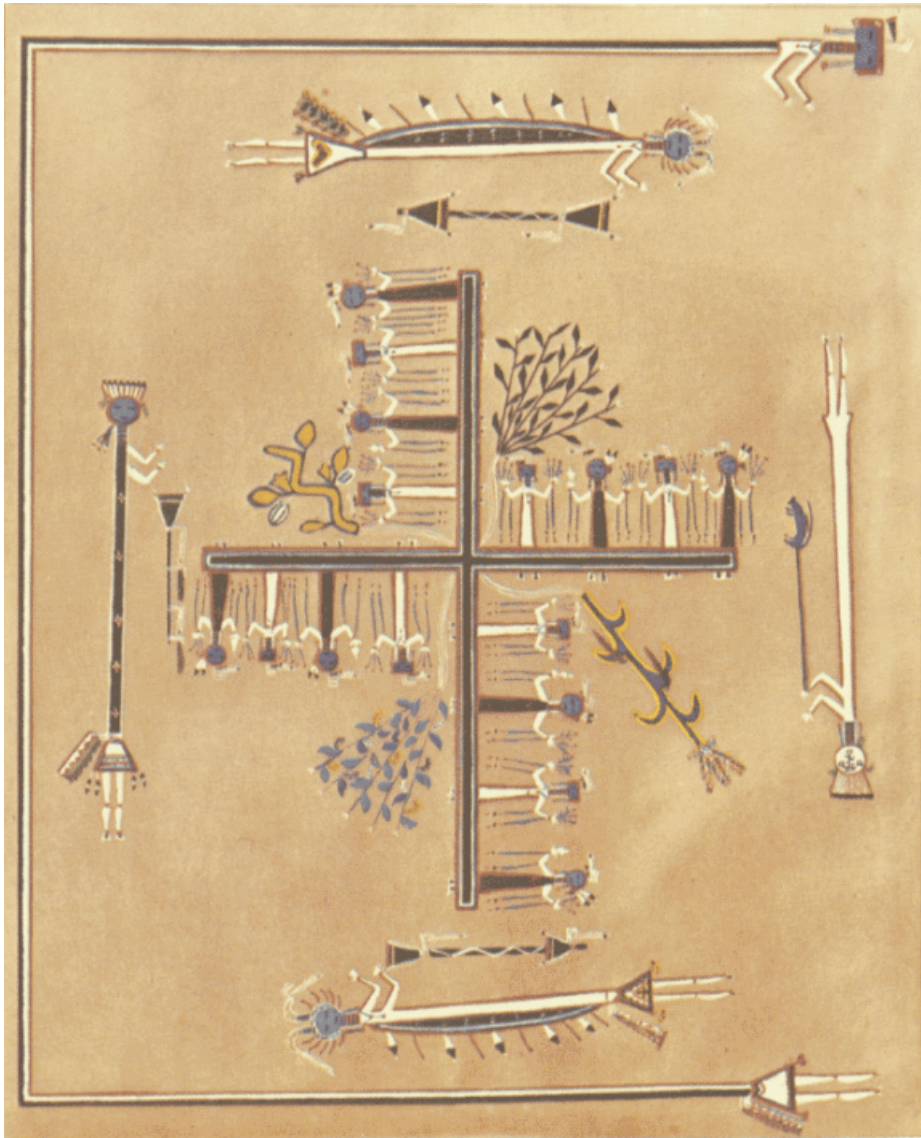


Figure 1: Shilhné'ohlī – Navajo. E. S.Curtis. Photograph 1907 in *the North American Indian* (1907, 120) Public Domain

### **The Centre of Reality**

Viewing Curtis' Navajo sandpainting photograph in Figure 1, one senses that the visual images created by the Navajo mind may represent a balancing feedback loop reinforcing a clockwise or rightward direction of biophysical change. In his Foreward to Edward Curtis' *The North American Indian* (1907), Theodore Roosevelt states that Curtis is a trained observer

and truthful about the Indian record, while adding that he ‘has caught glimpses, such as few white men ever catch, into that strange spiritual and mental life of theirs; from whose innermost recesses all white men are forever barred.’ Roosevelt’s statement casts an eerie shadow over scholarly attempts to understand the Navajo mindset. Generally, as Lamphere observes, the approaches are descriptive or narrative texts of myths that include few theoretical insights (1969, 282), while most sources fail to provide data showing Navajo ritual is a system of interrelated symbols in a particular pattern (283). Relative to this quest, Lamphere determines that ritual reflects cosmology, while a fourfold pattern using sex, color, and direction structures ritual and the cosmos (301). The purpose of cosmic ritual is transformation: in *Mountainway* or Female Mountain-Top-Way as told by Yucca Patch Man, they invoke the supernatural beings asking to walk or ‘live on by means of the transformation’ the supernaturals can give (Wyman 1975, 161 n76), which results in a time-reversed Cosmic Embrace or collapse to the cosmic beginning.

In his book, Curtis informs us that the sandpainting (Figure 1) is created on the Night Chant’s sixth day and represents crossed logs whirling in a mythic lake. Upon them are alternately seated goddesses (haschěbaád) and dark gods (haschěbakǔ<sup>n</sup>), singing of life-giving plants (corn, beans, squashes, tobacco) growing from the lake’s central point where the logs cross. Within an anthropomorphic rainbow, the marginal figures represent Haschěltǎ, Talking God on the east, with his pine-squirrel pouch of sacred meal. Opposite him stands Haschógan, House God. The other two are Gá<sup>n</sup>askǎdǎl, Hunchbacks, Gods of Harvest, with seeds of the field in packs on their backs. (1907, 121) During the Night Chant, the Navajo wear masks impersonating these deities (See Figure 2), suggesting a hybridization process related to human transformation into a pansemiotic cosmos.



Figure 2: Navajo ritual mask impersonations from left to right: Haschěbaád (‘female deity’ or ‘goddess’ impersonated by men wearing masks), Talking God, House God, and the mysterious Black God. Public Domain photographs by E.S. Curtis (1904) from Project Gutenberg ebook *North American Indian* (1907)

Perhaps one can understand the Navajo sandpainting in Figure 1 as a sign representing a directional physics emphasizing clockwise whirling motion in space. The whirling logs may represent the microscopic Kerr black hole’s inner-horizon time and space axes near the ring singularity, which physicists consider as a logjam of trapped light and energy. According to Reichard, a whirling log is a Hail Chant cross with down feathers like a swastika, referred to by Wheelwright as Thunder’s whirling seat (1950, 603-604). This radial sandpainting and

others are ground for an exploration of Navajo mythology related to a dark underworld functioning as a microscopic time-reversing Kerr black hole, an Einstein-Rosen gateway for a particle or wave. This idea is not science fiction, for Visser et al. (2003) demonstrated the existence of spacetime geometries containing traversable wormholes that are supported by arbitrarily small quantities of exotic matter. The Navajo may be describing wormholes when they refer to snakes aiding the hero's ascension, an idea very similar to the Egyptian Sun-god rising to the stars through a serpent. Also, the usual presence of the sun and moon together, as well as the colors blue and red support wormhole dynamics (see Table 1).

### **How he was free**

Like Egypt and China, Navajo science is complex: quantum laws control classical laws; a present or future observer can govern the past as proven by Wheeler's observer-participancy principle; quantum entanglement and reversible natural laws interact in the cosmos with its holographic mode of operation; semiosis is everywhere. The evidence from three diverse cultures suggests that Nature's mathematical patterns, within which humans function and evolve, are showcasing the action of signs, delineating a biophysical system for emergent cosmic evolution of human mind via lawful Time Reverse. This semiotic pattern of ancient invisible magic veils a complex information system, shimmering just beyond the grasp of New Science today. As a theory of holographic evolution applicable to the organic and inorganic worlds, it reveals a common understanding of natural laws by ancient, early, 17<sup>th</sup> century, and modern human beings. Yet, despite our recent 21<sup>st</sup> century knowledge aided by technology, the anthropological semiotics suggests that historical humanity possessed a deeper understanding of both our potential for evolution of mind and who we are. The evidence supports a bacteriophage quantum model for time-reversed evolution of mind in a holographic expansion/collapse cosmos exhibiting wormhole dynamics. This understanding became the power-knowledge base for their religions because their viral cosmic knowledge was natural, lawful, magical, divine—something that infected their minds with immortality.

The comparative model of ancient Egyptian, early Chinese, and Navajo eschatologies also offers evidence for the theory that self-referential human behavior (ritual, art, literature) supports emergent evolution compatible with our prevailing principles of physics and biology. Theoretical biologist Howard Pattee (1995) defines self-reference with emergent evolutionary potential as autonomous closure between the material aspects (physical laws) and the symbolic aspects of the organism. Perhaps, as Pattee suggests, understanding the origin of symbols, that is, the original meaning or function of the signs, is 'a selective survival property of the populations' that use symbols for environmental control (4), such as the Egyptian pharaonic priesthood, the early Chinese sages, and the Navajo singers in their eschatological practices.

The speculative-but-reasonable evidence also supports that our viral-bacterial-human genome is influencing our behavior to remind us of our potential for HGT at death. Yet, our understanding of the quantum centre of reality is seriously ruptured from the meaning of our classical signs. However, the ritualistic observer-participancy of the pharaonic priesthood, Chinese sages, and Navajo singers supports that mind acts as a time-reversing, cosmic unifying force to a primordial frozen energy state or physiosemiotic existence. And, the theory of relativity allows time to be warped by motion and gravity, while its mathematics permits wormholes, replete with their faster-than-light, backward-in-time causal loops.

Still, in *Thus Spake Zarathustra* Nietzsche states that the time will come when man will no longer give birth to any star. If this preliminary study is a reasonable biophysical interpretation of the meaning of Egyptian, Chinese and Navajo cultural signs, then many new directions exist for transdisciplinary scholars in a world of systems: exploring great literature for its evolutionary survival message; bridging the gap between the Humanities and science; healing the wound between science and religion; restoring the universal evolutionary information network between historical and modern humanity; interpreting the original meaning or function of signs with their quantum mechanical survival properties; and finally, as Donella Meadows (2008) suggests, remembering to listen to the wisdom of the system.

And so, as Wallace Stevens<sup>1</sup> poeticized—may the latest freed man rise up and shine with the strength of the Sun. holaghai

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<sup>1</sup> The subheadings in this paper are from Wallace Stevens' poem entitled 'The Latest Freed Man.' Also, according to Haile, the Navajo word 'holaghai' has an unknown meaning, but he finds the translation 'and then' sufficient (Frisbie 1980, 379).

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## Appendix

### Box 1: Overview of Time Reverse and *The Isis Thesis* (King 2004)

Evidence exists that the fiery Egyptian underworld Duat functioned as a time-reversing black hole (Hornung 1994, 154; King 2004; 2006), as well as a star-house (Gardner 1927, 33, 487), so the Deceased could rise up and 'pour out a star' (Faulkner 1966, 155 §1148 older text). Our cosmic laws allow the backward-in-time aspect of causal loops, and a wormhole is simply a rotating Kerr black hole with its white hole Time Reverse that casts out matter. Visser et al. (2003) demonstrated the existence of spacetime geometries containing microscopic traversable wormholes. In ancient Egyptian texts, Time Reverse is often described as pouring out a star, while the pharaonic White Crown is shaped like a white hole. Even the second law of thermodynamics, which is the tendency of physical systems to evolve from lower to higher entropy states, still allows the probability for something to evolve from a higher to lower entropy state, a backward-in-time aspect. Mind is central to the complete cosmic system because the act of observation permeates quantum mechanics, according to Wheeler's observer-participancy principle. Egyptian, Chinese, and Navajo texts support that mind acts as the cosmic unifying force that collapses the cosmos to the beginning, where the blueshifting of the background radiation would make the sky very bright in support of the Egyptian concept of going forth by day.

To understand the concept of Time Reverse, imagine humans evolving backward in time from the human to animal to our microbial ancestors. Anthropomorphic figures displaying human characteristics for animals and inanimate phenomena suggest this backward-in-time aspect. In like manner, imagine reversing the counterclockwise-spinning Earth backward in time by rotating it clockwise to 4.6 billion years ago when the solar system formed from a vast cloud of interstellar gas and dust due to the gravitational force. As we imagine Earth spinning clockwise backward in time to its origin, events such as the moon's creation would appear time-reversed. For example, the collision-ejection theory proposes that the newly formed Earth was struck by a Mars-sized object, ejecting Earth's surface layers into orbit to create the moon. From our Time Reverse perspective, the moon would merge back into the Earth, displaying eclipse-oriented special effects to the observer and ratifying the ancient cultural emphasis on the dead travelling to the moon.

As time flows further backward, one might witness the dissolution of our solar system from planets to larger revolving debris and dust, and then to a flattened disk of gas surrounding the central protosun, and finally to a contracting-rotating cloud of interstellar gas and dust. To an observer, this Time Reverse process would appear as the moon merging or pouring into the Earth, followed by the Sun pouring into the Earth, and then the Sun pouring back into the Milky Way Galactic Center or Sagittarius A\*, the black hole engine.

This process could easily be envisioned as pouring out a star or perceived as a white hole Time Reverse casting out matter. In the late stages of this collapsing cosmos, the galaxies would merge into blue-shifted light or radiation, corroborating the Egyptian vision and goal of going forth by day. Ancient cultures and religions describe this Time Reverse process as an upward heavenly ascension that apparently denotes the preferred focus of the ascent/fall ontological structure of Being (King 2009a). However, two ways exist according to ancient Egypt: one can become the Morning Star or suffer the feared second death, a fall downward due to lack of knowledge and Earth's counterclockwise gravitational rotation. Time Reversal, then, has a functional role for the evolution of mind related to removing the vortical fields of our cosmos through a wilful act of Cosmic Embrace or unification.

Now, let's reconsider the backward-in-time evolution of humans. The Human Genome Project (2001) revealed that 223 permanent bacterial genes had probably been transferred into the human genome during our vertebrate evolution by horizontal gene transfer (HGT), the exchange of DNA between species, and that only 3 percent of our genome houses human genes, with the remaining 97 percent considered 'junk DNA', that is, bacterial and viral genes with no known function. Researchers estimate that the number of microbial cells in the human body is 100 trillion cells, tenfold the number of human cells (Qin et al. 2010, 59), suggesting our microbial heritage and potential for HGT.

Thus, an hypothesis that ancient Egyptian texts explain microbiological events is worth exploring in light of the pharaonic focus on lawful Time Reverse related to the evolution of mind.

The Isis Thesis, a biophysical interpretation of ancient Egyptian texts, art and architecture, proposes that the semiotic phenomenology of the pharaonic priesthood harbors an eschatological survival message for humans, viz., horizontal gene transfer (HGT) mediated by the complex bacteriophage Lambda. The study of 870 signs in eight primary ancient Egyptian funerary texts, spanning from 2520 to 664 BCE, decodes an advanced knowledge of microbiology, space physics, and quantum physics. First, numerous textual analyses resulted in the abduction that Egyptian deities represent viral and bacterial proteins. Second, the activities of the deities or proteins (the union of the deceased king and the Sun-god, the dying/rising god Osiris, the brother rivalry between Seth and Horus, Isis' virgin birth of the Horus child, and so on) model HGT and phage Lambda's complex lifestyles. Third, Lambda's lifestyles mirror most religious and mythic themes.

Fourth, human genome research proves that viruses and bacteria have made us what we are today, and HGT is possible with our cell-type, suggesting that HGT may be possible at human death because DNA degrades into tiny fragments that can survive and be transported by a gene vector such as the very abundant phage Lambda. Fifth, the holographic pharaonic perspective is that what is above is what is below; our classical cosmos emerges from the quantum formalism. Accordingly, the competition between lysis (controlled by Lambda cro protein) and lysogeny (controlled by Lambda cI protein) in the cell is holographically equivalent to two DNA-texts, grounding the competition between cosmic release of energy as radiation (chemiluminescence) or heat on earth (photosynthesis). Thus, approximately four billion years ago the process of Lambda lysogeny, resulting from cI protein production, activated the transition to eukaryotic (our cell type) development and photosynthesis. At a human death, the option of HGT mediated by phage Lambda may be possible, resulting in a balancing feedback loop or the second DNA-text of cro protein production and lysis, the conversion of matter back to cosmic energy. From a time-reversed perspective relative to phage Lambda's lifestyles, lysis is the reversed integration pathway of lysogeny.

Further, in mathematical physicist Diego Rapoport's theory on surmounting the Cartesian Cut, which resonates with The Isis Thesis, he mentions how a complex molecule such as a virus tends to self assemble by countering increasing entropy through timing and 'willful action (i.e. self-control)' (2010, 50).

One such virus is bacteriophage (or phage) Lambda, a ferryboat for HGT, a tailed virus with an icosahedral head exhibiting a phage conformation of equilateral triangles arranged around the face of a sphere. This complex virus that attacks bacteria is a genetic control system involved in the the action of repressor proteins regulating two lifestyles: lysogeny versus lysis. In lysogeny, the phage genome integrates into the host chromosome, where it remains dormant and replicated silently with the host cell. Lysis is when the phage genome, irradiated by light, reverses its integration pathway and begins producing progeny through the DNA arc of rolling circle replication (cloning). Phage infect and often kill bacteria and are widely recognized as outnumbering bacteria by an estimated tenfold (Labrie et al. 2010, 317). Viruses are the most abundant organisms in the world's oceans, covering 65 percent of earth's surface, and lytic virus kill about 80 percent of the single-celled organisms in sub-surface ocean layers, releasing carbon into the deep seas (Danovaro et al. 2008).

Perhaps a quantum model for a holographic expansion/collapse cosmos exhibiting wormhole dynamics is the lysis/lysogeny genetic switch of bacteriophage Lambda, a competition for vegetative replication between cro protein and cI (c-one) protein over the same gene seats. A simulation survey of 11 proteins including cro and cI is a 'strong indication' that binding processes have funneled landscapes (Levy et al. 2004, 516). On the quantum level, the two entangled, competing proteins seem to express the dynamics of a micro Kerr black hole with its inner sphere (gateway to an Einstein-Rosen bridge) representing cro protein and the outer sphere representing the repressor protein. Also, the repressor protein controlling lysogeny folds in a diffusion-collision manner (Levy et al. 2004, 516; Karplus and Weaver 1994) similar to our cosmos' diffusion-collision expansion. In contrast, cro protein controlling lysis folds and binds via the fly-casting speed-up mechanism (Levy et al. 2004; Jia et al. 2005), a process similar to a microscopic white hole casting out matter. For example, the fly-casting mechanism of cro is described as 'a randomly gesticulating unfolding molecule casting out pieces of polymer chain, waiting for these to bind to the target', and then the whole molecule folds and reels the target in like fly fishing (Shoemaker et al. 2000, 8870).

Cro protein's fly-casting pattern of casting out pieces operates similar to quantum mechanical Kerr black hole dynamics, classical supernova nucleosynthesis, and the earth's geodynamics. Together, the genetic switch or decision circuit of these two competing, entangled viral proteins (cI and cro) exhibit folding/unfolding dynamics and native state crystallization similar to the backward-in-time aspect of a microscopic wormhole, which is similar to the holographic expansion/collapse cosmos' of Egypt, China, Peirce, and modern physicists. Actually, Bioinformatics and Genomics Programme researchers in Barcelona, Spain recently reported that the 'divergence of homologous proteins from a common ancestor bears a strong similarity to the recession of galaxies in the physical universe' (Povolotskaya and Kondrashov 2010, 922). In addition, Peebles and Nusser (2010) advocate that the Big Bang theory is a good description of our expanding cosmos, but a better theory is necessary to describe the more rapid growth in nearby galaxies. If classical nucleosynthesis and more rapid evolution in nearby galaxies is holographically grounded by cro protein's speed-up mechanism, then perhaps the more rapid growth in nearby galaxies reflects initial cro speed-up unfolding dynamics, with the Big Bang expansion reflecting cI protein dynamics. If semiosis is everywhere, all that may be necessary to collapse the holographic cosmos is observer-participancy or a wilful human vote of YES or NO in the quantum afterlife. Laughlin et al. (2000) propose that undiscovered organizing principles exist at the mesoscopic scale (intermediate between atomic and macroscopic dimensions) that would influence evolutionary biology and the physical sciences. One of these laws may be Time Reverse, a counterintuitive concept.

Another barrier to understanding is that our lawful physical system exhibits complex complementary models, such as particle and wave, microscopic and macroscopic. In the macrocosm, objects obey the laws of classical physics, while mesoscopic objects obey quantum mechanical laws. Today this complexity obscures the original meaning of the signs, as well as their survival message related to our potential for time-reversed evolution of mind.

Finally, scientists generally agree that the quantum world ruled by quantum mechanics (with its equations resembling the kinetic molecular theory) orders our classical cosmos ruled by general relativity (Wolynes 1996; Musser 2004; Jacobson and Parentani 2005); that is, the classical action of signs seems to be a holographic veil of the molecular world. Also, the comparison of a DNA wormhole to a microscopic Einstein-Rosen bridge is a reasonable possibility because today physicists and biologists know that quantum mechanical equations resemble those of kinetic molecular theory (Musser 2004, 89), while spacetime has a molecular structure (Jacobson and Parentani 2005, 4; Wolynes 1996). Protein folding along the DNA is a process by which a protein structure assumes its functional shape or conformation by freezing to a unique stable structure in a funneled energy landscape biased toward the native structure (Onuchic et al. 1997). A protein folding to its native crystal structure exhibits entropy reduction (Socci et al. 1996) or a backward-in-time aspect also evident in current microscopic black hole research (Dubovsky and Sibiryakov 2006; Jacobson and Wall 2008).

**Box 2. Entanglement: A Thought Experiment**

Imagine a thought experiment where you are a photon fired at a beam splitter. Now, as you approach the beam splitter, you must decide whether to be a particle traveling one path or a wave traveling both beam-split paths at once. You notice that no Human Spy is at the beam splitter to detect whether you travel one path as a particle or both paths as a wave. So, you make your choice and do it, remembering what Peter O'Toole said in the film *Lawrence of Arabia*: 'Nothing is written.' Then a good distance ahead, you suddenly approach a Human Spy who can observe you as a particle. But you are not sure if the Spy is sleeping or awake. However, you are clever. If the Human Spy is sleeping, you knew it, so you were a wave at the beam splitter. If the Human Spy is awake, you also knew it, so you were a particle on one path. Suddenly, you now understand that the Human Spy in the future seems to control your past decisions, depending on whether the Spy is sleeping or awake. You and the Spy seem to be synchronized. Counterintuitively, quantum mechanics allows a measurement, an observation, a choice due to entanglement (Scully 2007, 144; Greene 2004, 199). According to John Wheeler, the act of observer-participancy activates a quantum-mechanical probability amplitude (wave height) and 'develops definiteness out of indeterminism,' (1988, 4-5). Because of quantum entanglement, objects can become linked and instantaneously influence one another regardless of distance, and recent evidence suggests that this quantum phenomenon might work 'beyond the grave, with its effects felt after the link between objects is broken' (Choi 2009; Tan et al. 2008).

**Box 3. The Dark Circle of Branches Ceremony Matthews witnessed on October 21, 1884**

Navajo ritualistic behavior suggests that the ninth night Chant ceremony of the Dark Corral of Branches with its central fire models not only a Kerr black hole ring singularity, but also the viral DNA-arc of rolling circle replication.

Is the Navajo Dark Circle of Branches Ceremony a sign for viral rolling circle replication?

The ceremony of *dsilyidje qa ę ál* or mountain chant—literally, chant towards (a place) within the mountains, is practiced by Navajo shamans and re-enacted in their Nine Night Ceremony and sandpaintings. According to the myth as told by Washington Matthews (1887), the Navajo hero ascends a hill to observe beautiful mountain peaks, and seeing this beauty, he feels lonely and homesick, singing 'That old age water! That flowing water! My mind wanders across it.' (11) After being captured by the Ute tribe, he shows them how to deceive deer with a mask and capture them. In time, he escapes the Ute, descends a cliff by means of a spruce tree with the magical help of a supernatural who advises the hero to retreat to the 'yonder small holes' of his divine dwelling. The Supernatural then blows a strong breath, creating a high-speed rainbow to cross the canyon to enter the hole of his dwelling. However, the entrance of the hole is too small, so the Supernatural blows on the little hole as 'it spread instantly into a large orifice, through which they both entered with ease.' (17)

This myth is reflected in the Nine Night Ceremony Matthews witnessed on October 21, 1884, where the Navajo created four sandpaintings that mirror the mythical events. Matthews first observed the construction of a sod-covered conical lodge with an eastern door, where upright eagle-feathered plumed wands, the collars of beaver skins, and symbols of wings to be worn by the couriers were placed. Then the Navajo ground pigments for the sandpaintings, writings that are erased in the patient healing process. In Matthews' account, the chanter informs him that the plumed wand of eagle feathers is 'a means of rising', the wing symbols on the arm 'will bear you onward', a beaver skin collar is 'a means of recognition' and the wand is a sign of 'coming from a holy place' (Matthews 1887, 43).

On the last night of the Nine Night Navajo Ceremony, Matthews witnessed the creation of a large Dark Circle of Branches about forty paces in diameter with the exterior corral of branches eight feet high, opening to the east which 'inclosed sacred ground' (50). A central fire was ignited, and dancers always circled clockwise around the fire as they performed their dances. During the ninth night, of interest is the sixth dance of the 'standing arcs' performed by eight dancers who 'each bore in front of him, held by both hands, a wooden arc, ornamented with eagle plumes.' (55) As in the third dance, the dancers proceeded four times around the central fire in a line. 'The one who led the procession bore in his hand a whizzer such as schoolboys use, a stick tied to the end of a string; this he constantly whirled, producing a sound like that of a rainstorm' (Matthews 1887, 53).

Then, kneeling in two rows facing each other, the first of the eight dancers advanced to the man who knelt opposite him, placing his arc upon the man's head. Matthews describes the sixth dance as follows:

When they stopped in the west, the eight character dancers first went through various quadrille like figures, such as were witnessed in the third dance, and then knelt in two rows that faced one another. At a word from the rattler the man who was nearest to him (whom I will call No. 1) arose, advanced to the man who knelt opposite to him (no. 2) with rapid, shuffling steps, and amid a chorus of "Th ò day!" placed his arc with caution upon the head of the latter. Although it was held in position by the friction of the pi ñ on tufts at each ear and by the pressure of the ends of the arc, now drawn closer by the subtending string, it had the appearance of standing on the head without material support, and it is probable that many of the uninitiated believed that only the magic influence of the oft-repeated word "Th ò hay" [Englished "Stand" or "Stay"] kept it in position. When the arc was secured in its place, No. 1 retreated with shuffling steps to his former position and fell on his knees again. Immediately No. 2 advanced and placed the arc which he held in his hand on the head of No. 1. Thus each in turn placed his arc on the head of the one who knelt opposite to him until all wore their beautiful halo-like headdresses. Then, holding their heads rigidly erect, lest their arcs should fall, the eight kneeling figures began a splendid, well timed chant, which was accentuated by the clapping of hands and joined in by the chorus. (55-56)

Could this intriguing Navajo behavior have a possible modern science parallel? If one guesses that The Dark Circle of Branches is a sign for viral rolling circle (sigma) replication, a type of DNA replication where a replication fork moves around a circular DNA molecule, unrolling a single-stranded concatamer (substrate) for bacteriophage head assembly, then the circling dancers may represent the single-stranded concatamer, while the Dark Circle is a sign of the circular DNA molecule. This ceremonial dance seems to be a fairly good re-enactment of lytic rolling circle replication, for Dressler (1970, 1934) explains that the replication of viral DNA involves a double-stranded (ds) circle synthesis followed by a period of single-stranded (ss) circle synthesis.

If the dance is a re-enactment of rolling circle replication, what is the significance of the clamping of arcs on the heads of eight dancers in two rows? According to Tanner et al. (2009), who observed rolling circle replication based on flow-stretching of bacteriophage  $\lambda$  (Lambda) DNA, as the replication reaction proceeds, the DNA attaching the circle to the surface is extended and stretched fully by hydrodynamic flow of buffer. A dramatic increase in rate and processivity is seen due to increasing the temperature as the circle 'rolls'. Tanner et al. (2009) continue, "DNA replication is a fundamental biological process that requires the coordinated activities of a large number of enzymes organized in a multiprotein assembly termed the replisome."

Possibly, Matthews' description of the two rows of dancers (sign of double-stranded DNA) having arcs clamped on their heads (phage head assembly in rolling circle replication) seems to mirror the processive DNA synthesis performed by a replisome. Johnson and O'Donnell (2005) explain this clamping process in their abstract:

DNA replicases are multicomponent machines that have evolved clever strategies to perform their function. Although the structure of DNA is elegant in its simplicity, the job of duplicating it is far from simple. At the heart of the replicase machinery is a heteropentameric AAA+ clamp-loading machine that couples ATP hydrolysis to load circular clamp proteins onto DNA. The clamps encircle DNA and hold polymerases to the template for processive action. Clamp-loader and sliding clamp structures have been solved in both prokaryotic and eukaryotic systems. The heteropentameric clamp loaders are circular oligomers, reflecting the circular shape of their respective clamp substrates. Clamps and clamp loaders also function in other DNA metabolic processes, including repair, checkpoint mechanisms, and cell cycle progression. Twin polymerases and clamps coordinate their actions with a clamp loader and yet other proteins to form a replisome machine that advances the replication fork.

So perhaps the Sixth Dance on the ninth night represents viral rolling circle replication, circular phage head assembly, and the replisome activity. Yet, the symbolism of this dance becomes more interesting relative to Matthews' observation of a homosexual group simulation of canine coitus during the Dark Circle of Branches ceremony, which was originally suppressed from Matthews' text. In the Foreword to Matthews' text, Paul Zolbrod explains that the source of this censorship is unknown, but Victorian repression was the norm at that time (xix). In the censored material relative to the Dark Circle of Branches ceremony, Matthews mentions that prior to the group simulation of canine coitus, the Navajo circled sunwise around the central fire, thrusting their wands tipped with downy eagle feathers into the central fire in an attempt to burn off the down, representing the destruction of human sexual desire (Matthew 1887, 87-88), an idea similar to the transformed scribe Ani's claim (BD, Chap. 175) of no human love making in the Egyptian afterlife. In an Addendum, Matthews describes the suppressed section as follows: While the dancers are circling around the fire in the dance of Nahikai, if one is found in a stooping or kneeling attitude before the fire, trying to burn the down on his wand, another may come up from behind him, mount him and imitate, without actual pederasty, the pederastic motions of an erotic dog. While thus engaged a third dancer may mount the second and a fourth may mount the third and enact a like play—just as a number of dogs are often seen engaged. Sometimes one or more of the actors wear large imitation penes, made of rags or inflated sheep-gut; such may enact the part of dogs, feign to masturbate or manipulate the part to produce erection. (87-88). Perhaps the simulation of homosexual group coitus in the Dark Circle of Branches with its central fire is a sign of the bacteriophage DNA-arc of rolling circle replication with its self-creation of clones, repetitive priming and dramatic rate increase due to temperature increase.

Other anthropological signs of this biological process may be the Osirian opisthotonos, the behavior of fasting nuns in a French Loudon convent mimicking sexual intercourse with nonconscious contortion into an opisthotonos, and the observations of neurologist Jean-Martin Charcot (1825-1893), who witnessed opisthotonos or the arc de cercle posture in male and female 'hysterics' at the Salpêtrière asylum (see King 2006a). Nonconscious behavior related to contorting into an opisthotonos may be linked to the viral component of the human genome. Similarly, Navajo ritualistic behavior suggests that the ninth night Chant ceremony of the Dark Circle of Branches with its central fire models not only the thermodynamic Kerr black hole ring singularity, but also the viral DNA-arc of rolling circle replication, circular phage head assembly, and replisome activity.

The following patterns suggest that ancient Egypt, early China, and the Navajo shared a comparative grasp of quantum physics similar to New Science.

**Table 2: Quantum Physics and Microscopic Black Hole Physics**

Quantum Physics and Microscopic Black Hole Physics	Ancient Egypt (PT = Pyramid Text; CT = Coffin Text; BD = Book of Dead; TR = Theban Recension; trans. by R. O. Faulkner)	Early China	Navajo
Entanglement	Deceased in afterlife is everywhere, essentially whole, that is, 'assuming all forms in the realm of the dead' CT 275	Kan-ying: everything is linked and interacting with everything else, and an action in one part of the universe will spontaneously stimulate a response in another part (Puett 2005, 83)	Principle of multiple selves (entanglement) eliminates spacetime (Reichard 1977, 15). Also, collective god-groupings such as 'Holy People'; concept of Pollen Boy.
Observer-Participancy Principle (Wheeler)	Verbal and image magic in the New Kingdom Book of the Dead entails an action in one sphere bringing about a result elsewhere (Goelet 1994, 146)	Shang (1766-1123 BCE) divination was an attempt to control future through ritual sacrifice and replicate the forces of nature (Allan 1991, 112-121)	Navajo ritual is the 'means for manipulating relations with this structured universe' (Lamphere 1969, 302)
Wormhole or Einstein-Rosen Bridge1 (Kerr black hole/white hole)	Emphasis on 4 times in Opening of Mouth Ceremony, suggesting movement through 4 horizons; PT 749: "a 'Great-of-Magic' serpent"; PT 511 Dead King is a snake with many coils. In Book Amduat Hour 12, Sunbark travels through serpent called 'Life of Gods' who lives by the roar of the ones coming through it. PT 291: 'Your honor is removed, O white hole, by him who came forth from the fnt-snake'.	Heaven's Longbow, crosswise in the sky, When the sun retreated, died. (Field 1984, v.79, note p.111 a rainbow). During Longshan stage (3000-2000 BCE), carved jade tubes (cong) suggest 'a microcosmi axis mundi' (Chang 1989, 158). In certain passages, the Hollow Mulberry acts as axis mundi, allowing access to the heavens (Allan 1991, 68). Double-headed dragon boxes (Cook 2006, 57).	Overcoming space by rainbows or hoops (Wyman 1962, 36); In myth of Big Starway, 4 winds use big hoops to restore to human form a child transformed into a snake, while in another episode the hoops symbolize passing through different worlds. (Wyman and Bailey 1943, 31, n65); In Mountainway, Songs of the Bridge mention Dark Mountain's center, shaking, mountains in a row, ascension (Wyman 1975, 33-40)

Thunderpop2	Dead King goes to sky in earthquake, bursting the hailstorm apart PT 570; In Book Amduat, Sun-bark travels through serpent called 'Life of Gods' who lives by the roar of the travelling ones coming through it. PT 291: 'Your honor is removed, O white hole, by him who came forth from the fnt-snake'	In the Lüshi chunqiu (5/9a) Di Zhuan Xu was born and lived in Hollow Mulberry operating as an axis mundi.. He rose up and harmonized heaven, and liking the wind sound, he ordered ascending Flying Dragons to make sounds imitating the winds (Allan 1991, 68)	In Mountain Chant, 'Song of the Exploding Stick' emphasizes the meeting with the gods on the mountain peaks through a song accompanied by a drum with a 'peculiar sharp strike like a sudden outburst or explosion.' (Matthews 1887, 81)
4 Winds of Heaven Mouth	In PT and CT, the Dead King desires power over the winds of heaven. In CT 75-81 the Dead King becomes Shu, the god of life manifest in wind, air, light and water: TR 55: 'I am Shu who draws the air into the presence of the sunshine to the limits of the sky, to the limits of the earth'	'The four fang or quadrates were the homes of the four winds. This is evident from divinations about a rite to pacify the wind . . .' (Allan 1991, 79)	Myth: Unrolling E, S, W clouds, Black God discovers grandson in center of N white cloud. Black God and the grandson go to ladder, the four Winds following, and the boy is returned to his home, becoming One-who-has-his-feet-in-pollen.
	Early 4th Dynasty textual references to the Opening of the Mouth Ceremony are the Palermo stone and the tomb of royal official Metjen, which mentions the ritual is performed 4 times (Roth 2002, 294-95) In ancient Egyptian texts, this sign has been decoded as the mouth of a black hole (King 2004)	The 'open mouth of the gluttonous taotie' associated with eating (Allan 1991, 148). The man-in-tiger-mouth motif on art vessel shows double-bodied tiger with human figure in mouth; another vessel shows double-bodied tiger as two animals holding single human face in their open mouths. K. C. Chang observed that open animal mouth is a symbol of passage to the other world. (Allan 1991, 149-154)	Ceremonial stew and 'a unit was put into his mouth', and Navajo is fed pollen 4 times (Haile 1947a, 29). Also, at dawn of closing night ritual, patient must inhale the breath of dawn four times. 'Common practice is to face the east, extend the arms toward the dawn, draw the hands toward one's mouth and inhale.' Sun's breath is also inhaled 4 times. (Haile 1947a, 33-34)

<p>Black Hole/White Hole as coiled serpent</p>	<p>PT 332: 'I am the one who escaped from the coiled serpent, I have ascended in a blast of fire, having turned my self about'.</p>	<p>Snakes, a transformation and rebirth symbol, are supernatural because of two heads or two bodies. In Warring States folklore, a double-headed snake causes death and in Shang bronze art, double-bodied serpent with or without bottle horns is frequent (Allan 1991, 163). Double-bodied Taotie motif associated with eating exhibits counterclockwise and clockwise swirls.</p>	<p>In Beautyway, 'Big Snake with No End' sandpainting is a coiled Endless Snake with a diamond on its head facing east (Plate VI, by Wilito Wilson; recorded by Maud Oakes, 1942, Wyman 1957, 190). In Mountainway, older sister observes endless line with head to south and endless line with tail to north, striking her down. This is the Endless Snake, slave of Big Bear (Wyman 1957, 185-6)</p>
<p>Black Hole Swirling or Dragging (frame-dragging around any spinning body)</p>	<p>Main underworld corridor is Rosetjau meaning 'place of the dragging' (Goelet 1994, 143) Sun-god is dragged into underworld TR 64. Sun-god's bark is dragged CT 60, 818; 'Swallower of Myriads'.</p>	<p>Swirling Taotie motif meaning 'glutton' is referred to in passage in L ü shi chungqu: 'It devoured a man, but before it could swallow him, its own body was damaged.' (Allan 1991, 145)</p>	<p>Radial sandpainting of curved Whirling Rainbow People of Mountainway, whose elongated bodies encircle the center and their own lower extremities (Newcomb Collection by Tall Navajo's Son in Wyman 1975, Fig. 24). In 'ghostway' ritual to dispel ghosts, Water Monster 'had power to draw people into the water with its mouth.' (Haile 1938, 12, 72)</p>
<p>Axis, Inner Horizon of Kerr Black Hole</p>	<p>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). References to doors keeping out the plebs, the secret gate and secret portals also refer to the inner horizon (PT 373, 611, 667, 716, 724; CT 68, 217, 237, 516).</p>	<p>Sun, moon, and stars move about Heaven's lowest level which is supported at the polestar by the Heavenly Ridgepole or Axis, with the Cord attached to the Dipper and describing a circle about the polestar. (Field 1984, v9, note p 105); Mountain or giant tree is axis mundi (Allan 1991, 98). 'Harmony can only be achieved at the center of a circle or a cross, at which point there is no projected opposition, but perfect access to the spiritual worlds above and below.' (Allan 1991, 173)</p>	<p>In Mountain Chant, the black mountain has a central spruce tree door (Matthews 1887, 65) Numerous radial sandpaintings emphasizing the center where the patient sits; repetition of sandpainting figures around central axis.</p>

<p>Ring singularity</p>	<p>‘This is the door of the circle, the opening of the Holes’; ‘No man is able to penetrate the fire—he will be repulsed there’ (Piankoff translation in Book of Two Ways of Coffin Text 1054, 1064)</p>	<p>Shang Earth Altar for animal sacrifices aka ‘inner Central Earth’ or the ‘Central Drainspout’ (Cook 2006, 43, 45)</p>	<p>In Mountain Chant, large dark circle or corral of branches is built with central fire for ninth night ceremonial dances (Matthews 1887, 50). Originally, Fire Dance was held at Black or Lava Rock made of lava (Reichard 1977, 67).</p>
<p>Ring singularity effects such as gravitational repulsion (entry at axis or inner horizon) or crushing tidal gravity (entry at outer horizon)</p>	<p>In Book of Two Ways Text 1054: ‘No man is able to penetrate the fire—he will be repulsed there’; CT 1066 advises Dead King to pass by ‘Repulsive-Face’. Also, references to annihilating ‘second death’.</p>	<p>Symbolism of crushing, greedy, jawless, double-bodied Taotie. Snake cudgelling a human to death in art (Allan 1991, 163).</p>	<p>Symbolic sandpainting of Grinding Snake Place (Reichard 1977, 55 Plate XV); Never-ending snake destroys the mind and consciousness by coiling about victim (Reichard 1950, 454)</p>
<p>Backward Time Travel</p>	<p>Return to ‘Oldest One’ or creator-god Atum by means of coming forth from serpent or snake in Amduat, Hour 12. ‘Burning One who came forth backwards’; ‘He-whose-Face-is-behind-him who came forth from his hole’ from Negative Confession in BD. Images show feet turned to the right, indicating a backward direction according to Gardiner’s Egyptian Grammar.</p>	<p>Time-reversed journey from ‘world’s western end’ to a bridge to the ancestor Peng Xian: poem ‘Li Sao’ by scholar Qu Yuan (Hawkes 1985)</p>	<p>Overcoming space by traveling on rainbows or hoops (Wyman 1962, 36); The next contest was the ‘so-called putting-the-hand-in-the-rock’ with the hole in it, and blindfolded elders accomplished the task by walking ‘side by side with their heads turned backwards,’ placing their hands in the rock hole. (Wyman 1957, 55-56) At Whirling Mountain, runners are ‘Youth-who-runs-like-a-white-streak’ and ‘One-who-looks-backward’ (Reichard 1977, 72 )</p>

Notes to Table 2:

1. An Einstein-Rosen bridge is a black hole connected to its white hole time reverse. A spinning Kerr black hole with its two horizons is a gateway to an Einstein-Rosen bridge through its inner horizon. It has a ring singularity, a place of destruction where tidal gravity and spacetime curvature are infinitely strong. When an entity falls in from the outer horizon, it rotates around the hole, inevitably crushed at the ring singularity. However, if approached from the inner horizon or the black hole's axis, the gravitational repulsion of the central singularity slows the entity down, turning it around, and accelerating it back out through a white hole. Put simply, the space axis and time axis exchange places when an entity crosses the outer event horizon, and the future becomes an unavoidable place in time or the crushing singularity. Crossing the inner event horizon, time and space resume their normal axes, making the singularity an avoidable place in space, while allowing access to the past singularity of the white hole. Ultimately, the entity travels through four horizons—the outer and inner of the black hole, and then the inner and outer of a white hole, the opening of mouths four times. In Egyptian texts, the Opening of the Mouth ceremony parallels the movement of the Deceased through four horizons, while textual advice to access the guiding polestar aligns the Deceased to the axis of the holographic earth, which becomes the dark underworld or microscopic rotating Kerr black hole with two horizons. The Navajos also emphasize mouths, the polestar, and the importance of four times. The clockwise direction in Navajo texts and sandpaintings is the same direction advised in ancient Egyptian and Chinese texts, for the earth rotates counterclockwise, and any aerial entity might surf the fluid atmosphere by means of the Coriolis force, which moves a west-moving entity in the northern hemisphere northward to the element-enriched polar cusp. The Isis Thesis (2004) shows that in the Lambda lifestyle of lysis, the protein activity along the bacterial cell DNA wormhole operates like a microscopic Einstein-Rosen bridge or wormhole.

2. The CPT theorem, with its three parameters of Charge, Parity and Time reversal, is a basic precept of particle physics. According to the theorem's logic, if there is a violation of C, there most likely will be a violation of P and T. After discussions with Hawking, Andrew Strominger (1993) investigated CPT, finding that in two dimensions, weak CPT invariance can be restored in a sector of Hilbert space by including the possibility of white hole formation/evaporation, viz., the time reverse of black hole formation/evaporation. The Planckian thunderpop is necessary to nucleate the white hole into which CPT-reversed Hawking radiation falls.

The following patterns in ancient Egypt, early China, and the Navajo suggest hybridization and transformation that may relate to horizontal gene transfer mediated by bacteriophage Lambda. Chinese and Navajo research is very preliminary, so to balance the input, minimal Egyptian evidence is presented here.

**Table 3: Evolutionary Microbiology**

Evolutionary Microbiology	Ancient Egypt	Early China	Navajo
Soul Concepts <sup>1</sup> (DNA?)	Ka – vital life force born with a person	Humanity's 'inborn nature' (Pound 1947, 99)	'in-standing one' or Inner form (Haile 1943, 76)
UV Light activates lytic replication in lysogenic bacterial cell with phage Lambda prophage	Dead King merges with Sun-god	Archer Yi shoots down the sun	Navajo brings down the sun in sandpaintings
Lambda Lifestyles of lysogeny (inert prophage) v. lysis (rises from prophage state)	Dying/Rising Osiris, god of underworld who Dead Sun-god travels to in the Duat.	'Journey to Heaven across time is governed by Taiyi (Grand Unity) in his Yang and Yin forms up above and the Lord of the Earth below' (Cook 2006, 145)	Dying/Rising Black God at Earth Charcoal Place (Wyman 1962); Black God is God of Fire (Curtis 1907, 103); Black God is manifestation of Sun as Darkness (Reichard 1950, 79).
Bacteriophage functions as a ferryboat for genes (HGT) for transformation in a bacterial cell	Dead King merges with Sun to join the Sun-god's ferryboat:	'Why did Yi shoot down the suns?' Archer Yi aimed true, shooting down one of ten suns that scattered golden feathers, transforming to a golden, three-legged crow. (Field 1984, v56, note p109).	Gods stand on 'rafts of sun-beam, the favorite vessels on which the divine ones navigate the upper deep.' (Matthews 1887, 64); Sandpainting of 'how he brought the sun down' with Milky Way and constellations (Haile 1947, 15), suggesting transformation.
Bacteriophage Morphology (head, tail, triangle, sphere, polyhedral shape)	Architecture of pyramids with four faces and triangular shape; ceremonial tails on deities; humans with spheres for heads; becoming 4 gods; numerous textual references to heads, tails, necks, and so on.	Wooden sculptures of birds bearing disks in Ch' u tombs (Barnard 1972, 39); Yellow Emperor with 4 faces and single mind transforms to 'ancestor of all under Heaven' (Csikszentmihalyi 2005, 38 )	In Mountain Chant, sandpainting depicts gods with spheres for heads, long necks and triangular bodies (Matthews 1887, 67). Sandpainting of Pollen Boy with spherical head centered at apex of 4-faced pyramid. ('Pollen painting for fertility' Fig. 43 in Wyman 1965, 257). In Mountain Chant, Navajo hero becomes 4 gods (Matthews 1887, 27).

<p>Lambda's lytic lifestyle (progeny are produced by rolling circle replication, an actual DNA arc cloning heads and tails)</p>	<p>The risen underworld god Osiris is depicted bent back into circle, producing a flood. Within the context of all the signs and related details of Lambda lifestyles, the opisthotonos of the risen Osiris in "The Creation" suggests rolling circle replication (King 2004).</p>	<p>In Chuci Tian wen, hero Gun tries to allay a flood by following a circular pattern made by owls and turtles linked together, tail in mouth (Allan 1991, 69).</p>	<p>The Dark Circle of Branches with a central fire is common in Navajo ritual.</p>
<p>Hybridization suggesting HGT mediated by a virus</p>	<p>Humans with spheres for heads in Amduat, tomb of Seti I. In tomb of Ramesses VI, carving of a human with a sphere for a head and serpentine legs curling upward. The unequivocal Sphinx.</p>	<p>'Yin and Yang, blend and mix, What was the root, what transformed?' (Field 1984, v. 6, note p. 105). 'Consummate yin is freezing cold; consummate yang is burning hot. The freezing cold falls from heaven; the burning hot rises from earth. The two come together, coalesce, and all things are born therefrom' (Zhuangzi, "Tian Zifang"). Chinese hybrid art.</p>	<p>The sixth dance of the 'standing arcs' is performed by eight dancers who 'each bore in front of him, held by both hands, a wooden arc, ornamented with eagle plumes.' The arc is then clamped on each Navajo head. (Matthews 1887, 55-56) The Navajo now have arcs or circles on their heads.</p>

Note to Table 3:

1. So the supernaturals, natural phenomena, plants, and animals have either an 'in-standing one' (bi'sizi ni) or an inner form (bi 'gisti n) or 'a human form' (t'á dinégo) in the case of plants and animals (Haile 1943, 76), a complicated concept of soul often identified with 'their breathing means' (ńdí ʒ ihi) (73) related to a wind soul in humans. Now, a wind being is present in every human being; a person with a sunwise (clockwise or left to right) soul is kind and liberal, while a person with a sunward (counterclockwise right to left) soul exhibits meanness. The 'whirlwind' and 'big (jumping) wind' or cyclone are destructive and are never placed within human beings (77). Haile explains that sá 'a Y á means 'death of old age' and cannot be equated with č'i di 'ghost', something to be avoided and feared; yet, a definite place is assigned to sá 'old age', suggesting these persons live on (90). Although informants gave Wyman several different reports, he summarizes: 'The afterworld, therefore, is peopled with spirits which may be of one or two kinds, either all capable of return to earth as ghosts or ghosts and good spirits not capable of return' (1942, 15). Informants agreed that the afterworld was in the north (35), with the majority saying that it is entered through the place of emergence from which the progenitors of humans arrived, while other informants claimed the northern place called ni hodixil (dark or black earth) is below earth level, open like a valley, and approached by a trail down a cliff or hill unrelated to the place of emergence (36). Those referring to the northern afterworld as 'dark earth' said, 'no shade, no light, nothing but darkness' (37), which is similar to the Egyptian and Chinese underworlds (King 2009; 2009a). According to Reichard, the dark Place-of-emergence is also called 'Center-of-the-earth' (1950, 15), suggesting the northern underworld designated by the polestar marking the earth's axis.

## **About the Author**

*Judy Kay King*

My work centers on semiotics 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 cosmos. Currently, I am a writing and humanities instructor at North Central Michigan College in northern Michigan, and a member of the Semiotic Society of America. My background includes an education grounded in semiotics, a thirteen-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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