

The World Axis as an Atmospheric Phenomenon

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Cultural anthropologists often use the term *axis mundi* in a looser sense than the strict astronomical one. This poses a problem, because the objects they identify as “*axis mundi*” in mythological and early cosmological sources do not correspond to the present state of the axis of the earth. The association of these objects with the axis of the earth does not appear to have been made explicitly and unambiguously before the 1st millennium BCE, probably because the rotation of the earth around its axis was not commonly known in earlier times. By contrast, the *mythological* phenomenon loosely identified as the *axis mundi* dates back to the earliest stages of civilisation and is described by the most diverse cultures in remarkably similar terms. It can be explained by reference to a once visible entity in the sky, with a complex, evolving morphology and a possible link to the zenith or the pole. The prototype may have been the zodiacal light or, as recent insights in plasma physics indicate, an enhanced aurora formed in prehistoric times.

WHAT IS THE WORLD AXIS?

The world axis is an astronomical concept used to define the apparent daily movement of the stars from the perspective of a stargazer on earth. For an observer on earth, the stars appear to describe circles round a central point. This central point is the pole of heaven. People on the northern hemisphere of the earth look at the north pole of the sky and their antipodes face the south pole. An imaginary line connects the two poles with the two rotational poles of the earth. The technical term for this line is the “world axis”, the “cosmic axis”, or, in Latin, the *axis mundi*. The world axis is important in early cosmologies because, like the Milky Way, it is a major demarcator in the sky. From an earth-bound and inherently geocentric perspective, it *connects* the sky and the earth and its top and bottom mark the apparent *centre* of these.

Most stars appear to rise from and set beneath the horizon in the course of their apparent daily revolution round the pole. The only stars that are exempt from this temporary disappearance from view are the circumpolar stars, literally the stars "around the pole". For any place on earth, the direct vicinity of the pole of heaven is the sole region in space that is visible from earth at all times. In connection with that, ancient traditions regard the pole not only as the centre, but also as the ultimate point of stability and rest and a virtual pivot of creation.

The poles of heaven and the cosmic axis are a matter of definition more than anything else. In some cultures, these concepts rose to greater prominence than in others. The ancient Babylonians knew the celestial north pole, but whether they ever introduced the concept of the cosmic axis in their astronomical theory is extremely doubtful. The Greeks alternately ascribed the – geocentric – discovery that the universe rotates about an axis passing through the centre of the earth to Pythagoras or to Parmenides,¹ who, at any rate, "associated with Ameinias the Pythagorean", whom "he was more inclined to follow" (Diogenes Laertius, *Life of Parmenides* [9.3], 21, tr. Hicks). Plato's description of the adamantine spindle-whorl in his *Republic* (10.13-14), discussed below, has the air of being a concealed introduction of the axis into Greek philosophy, especially considering Plato's strong Pythagorean leanings, but the first unambiguous, unembellished descriptions of the axis appear only in Hellenistic times: "But the Axis shifts not a whit, but unchanging is for ever fixed, and in the midst it holds the earth in equipoise, and wheels the heaven itself around." (Aratus, *Phaenomena*, 21-3, tr. Mair)²

The two poles do not have any physical substance and do not correspond to any "real" objects in space. They are imaginary points that lose their significance as soon as you leave the earth and take an extraterrestrial perspective on space. Just as the poles of heaven are immaterial concepts, so the cosmic axis is just an imaginary line, without any substance, that does not answer to any material object. For the classical astronomers, the celestial poles corresponded to genuine locations on the surrounding sphere of the cosmos, but the invisibility of the axis was recognised nonetheless. Manilius (*Astronomica*, 1.279-82, tr. Goold; 1st century CE) spoke of the *tenuis axis*, the "insubstantial axis" that "controls the universe, keeping it pivoted at opposite poles: it forms the middle about which the starry

sphere revolves and wheels its heavenly flight, but is itself without motion ...” He elaborated on the “insubstantial” nature of the axis:

Yet the axis is not solid with the hardness of matter, nor does it possess massive weight such as to bear the burden of the lofty firmament; but since the entire atmosphere ever revolves in a circle, and every part of the whole rotates to the place from which it once began, that which is in the middle, about which all moves, so insubstantial that it cannot turn round itself or even submit to motion or spin in circular fashion, this men have called the axis, since, motionless itself, it yet sees everything spinning about it. (Manilius, *Astronomica*, 1.285-93, tr. Goold)

In terms of modern astronomy, Manilius’ observations are certainly correct. They epitomise a fact that his contemporaries as well as all subsequent centuries of astronomical tradition have rightly taken for granted. Yet as soon as myths and early cosmogonical traditions are taken into account, matters are much more complicated.

SYMBOLS OF THE WORLD AXIS

In ancient traditions, references to the world axis are strikingly common, with a remarkable level of agreement between diverse cultures. The axis is often presented as a tree, a mountain, a “cosmic man” or world giant, a pillar, and the sacred building.³ A link of such forms to the world axis is suggested as soon as one or more of the following five features are associated with them:

- #1 centrality
- #2 causing the revolving motion of the surrounding world
- #3 motionlessness or stability
- #4 connecting or separating heaven and earth
- #5 supporting the sky

The occurrence of the characteristics of centrality (#1) or rotation (#2) in a mythological or cosmological context provides the strongest indication that the world axis was being referred to, but a careful distinction has to be made between sources specifying the

geographical location of the “centre” as the pole and sources that do not. Some reports specifically locate the mythical object at the pole of either the earth or the sky. For example, an astronomical text from India, the *Sūrya Siddhānta* (12.34, tr. Burgess; ±400 CE), introduces the holy Mount Meru as “passing through the middle of the earth-globe, and protruding on either side.” As this text was written at a time that the spherical earth and cosmos were established concepts, Meru is undoubtedly introduced here as a symbol of the world axis.⁴

Less clear are countless other traditions locating the heaven-spanning object in a place called the “centre” or the “navel” of the earth, the sea, or the sky, which tends either not to be identified at all or to be associated with another location than the pole – in some cases even in the far west or east, far removed from what one would imagine to be the “centre”. For example, the Pahlavi tradition of ancient Iran – based on Zoroastrian lore – spoke of “a tree, such as was of a single root, the height of which *was* several feet, and *it was* without branches and without bark, juicy *and* sweet; and to keep the strength of all kinds of trees in its race, it was in the vicinity of the middle of the earth ...” (*Zād-Sparam*, 2.5, tr. West). The Zinacantec Maya of Chiapas, Mexico, declared that *Mixik' balamil*, “the navel of the world”, was at the foot of *bankilal muk'ta vitz*, “Senior Large Mountain” (Freidel 1993: 124, 127). The earliest Vedic text, the *Ṛg-Veda*, portrays the fire god, Agni, as one who “like a builder raised his smoke to heaven ... Eager he rises like the new-wrought pillar which, firmly set and fixed, anoints the victims.” (4.6.2-3, tr. Griffith).⁵ Another passage locates this vaporous pillar, envisaged as a fiery tree, “at the navel of the earth”:

The other fires are, verily, thy branches; the Immortals all rejoice
in thee, O Agni.

Centre art thou, Vaiśvānara, of the people, sustaining men like a
deep-founded pillar.

The forehead of the sky, earth's centre, Agni became the
messenger of earth and heaven.

Vaiśvānara, the Deities produced thee, a God, to be a light unto
the Ārya. (*Ṛg-Veda*, 1.59.1-2, tr. Griffith)⁶

If the scattered verses of the *Ṛg-Veda* may be used cross-referentially as elements of a coherent, integrated belief system, the

underlying image is that of a stupendous personified pillar of smoke transfixing the reputed centre of the earth. These examples illustrate how symbols such as a tree, a mountain, and a giant pillar-man at the sacred centre could be used to represent what one might loosely call the “world axis”, even though it is debatable whether they really qualify as symbols of the astronomical *axis mundi*. The sophisticated level of respectively Persian, Mayan, and Indian astronomy may indicate they do, but the texts themselves are ambiguous.

The same lack of clarity is encountered in quite a few texts that locate the sacred tree or mountain in the “midst” of a mythical body of water. For example, a Zoroastrian hymn eulogises the sacred tree “on which rest the seeds of all plants” as “the tree of the eagle, that stands in the middle of the sea Vouru-Kasha” (*Khorda Avesta, Rašn Yašt* [12], 10.17, tr. Darmesteter). This is an archaic trait, for the Egyptian *Coffin Texts* relish the prospect of the disembodied soul alighting “under the sycamore which nurses (?) its ..., which is in the midst of the flood.” (*Coffin Texts*, 203 [III.130-1], tr. Faulkner).⁷ The same topography applies to the cosmic mountain. For example, in a passage in the *Pyramid Texts* the creative deity introduces himself as “the primeval hill of the land in the midst of the sea” (1022 [484], tr. Faulkner; cf. Plumley 1975: 29). Although this “primeval hill” is well known from Egyptian creation mythology and certainly belongs to the genre of the “cosmic mountain”, it would be facile to use the phrase “in the midst of the sea” as evidence that the pole was meant. Just so, Sumerian temples or parts thereof with names such as *é.ab.šá.ga.lá*, “house which stretches over the midst of the sea”, *du₆?.šà.abzu*, “mound in the midst of *Apsû*”, *èš.šà.abzu*, “house in the midst of *Apsû*”, or *é.ká.šà.abzu*, “house, gate in the midst of *Apsû*”,⁸ testify to an association with a mythical world mountain in the centre of the waters of chaos, but the primeval body of water is not immediately identifiable as a geographic feature on earth and the use of the word *šá*, literally “heart”, here and in related cases is not specific in astronomical terms.⁹

Sumerian temple hymns also repeatedly extol the temples and *ziggurats* of the land as representations of the cosmic mountain and as objects “suspended from heaven’s midst” or placed “into the midst of heaven” (Enheduanna [23rd century BCE], *Temple Hymn*, 16 [200]; 29 [371]; 31 [396]; 35 [450], tr. Sjöberg; anonymous, *Keš Temple Hymn*, 35, tr. Gragg). The temple of Anu at Aššur was itself called *é.šà.an*, “house of the midst of heaven” (George 1993: 143 s.v. no.

1009). The exact meaning of the term *an.šà*, literally “the heart of An” or “the heart of the sky”, and of the corresponding Akkadian phrase *qereb šamê*, the “midst of heaven”, has been the subject of much debate (Horowitz 1998: 238f.). Again, the mountain and its architectural expressions apparently embodied a “central” entity of some sort, but there is no reliable evidence to identify that centre as the pole; indeed, the likeliest focus would seem to be the zenith.¹⁰

A second, perhaps more reliable sign that symbols such as a tree, a mountain, or a stanchion stood for the world axis in the astronomical sense is a reference to the rotation of the heavens (#2). The Zoroastrian *Hymn to Mithra* characterised the sacred mountain Harā Berezaiti as “the bright mountain around which the many (stars) revolve, where come neither night nor darkness, no cold wind and no hot wind, no deathful sickness, no uncleanness made by the Daêvas, and the clouds cannot reach up unto the Haraiti Barezā ...” (*Khorda Avesta, Mihir Yašt* [10], 12.50; *Rašn Yašt* [12] 16.23, tr. Darmesteter). It was “the height Haraiti, around which the stars, the moon, and the sun revolve” (*Rašn Yašt* [12], 18.25, tr. Darmesteter), a condition that can only be understood with reference to the heavenly pole. For the Kintak Bong, who belong to the Negrito population of Malaysia, the principal symbol of the world axis was “a tree trunk rising high from the Batu Ribn, a mighty rock on the Pergau River which is the centre of the earth.” A turning disc was set up there, from which either six or four creepers hang down (Evans 1937: 186). The disc likely represented the heavens revolving round the Batu Ribn.

In a large number of cases, notably from very early sources, explicit textual confirmation of centrality (#1) and rotation (#2) is lacking, leaving the notion of a stationary object (#3) connecting, separating or supporting the extremities of the cosmos (#4, #5). For example, the Sumerian *Song of the Hoe* (4-7, tr. Black) expounds how the god Enlil employed a hoe “wrought in gold” to separate heaven and earth in a sacred place called *uzu-e₃-a*, “where flesh came forth”, raising or suspending the *bulug*, the “axis of the world” at Dur-an-ki in the ancient Sumerian city of Nippur.¹¹ The latter must have been the sanctuary of the goddess Ištar at Nippur, known as the (*é*.)*dur.an.ki*, “house, bond of heaven and underworld”. Assyriologists conventionally interpret this as a “name of Nippur as center of the universe” (George 1993: 80 s.v. no.18; cf. Eliade 1958: 376, 378; Butterworth 1970: 33; Maul 1997: 121f.)¹² and “the navel of the

earth" (Sjöberg 2002: 244 n. 28), but although this understanding may well be right, there is as yet no indisputable textual evidence tying the cosmic "bond" to a "centre" of the cosmos *per se*.¹³ Just so, texts from the Pre-Sargonic period onwards designate Isin as *bulug*, "the axis between heaven and earth" (Sjöberg 2002: 245 n. 30), but without the implication of centrality on the horizontal plane. Again, the Esagila temple complex in ancient Babylon symbolically marked the place from where all life had radiated at the time of creation. It was thought to be constructed over the *apsû*, the watery underworld, and – as the *markas šamê u iršitim*, the "bond of heaven and earth" – to connect this with the highest heaven inhabited by the god An (Unger 1970: 22),¹⁴ but no early text directly situates it at the cosmic centre.¹⁵

The same technical difficulties surface in connection with the sacred tree. The Babylonian text *Erra and Išum*, dated to the early 1st millennium BCE, mentions the *mēsu*-tree "Whose roots reach down into the vast ocean through a hundred miles of water, to the base of Arallu, Whose topknot above rests on the heaven of Anu" (Kabti-ilāni-Marduk, *Erra and Išum*, I.148-53 [5], tr. Dalley; cf. Cagni 1977: 32 [90]).¹⁶ The cosmic dimensions of this tree, reaching from the deepest underworld – again envisioned as a body of water – to the highest sky, can be taken as a hint that the world axis is meant,¹⁷ but nowhere is the *mēsu*-tree located in the centre of the universe. Similarly, a spell in the ancient Egyptian *Pyramid Texts* expresses the hope that the hollow tree of which Osiris' sarcophagus is formed may "gather together those who are in the Abyss, may you assemble those who are in the celestial expanses." (1485-6 [574], tr. Faulkner). Again, the venerated tree has the remarkable ability to unite the underworld with the sky, but the geographical location of that tree is hard to pin down. Just so, the *R̥g-Veda* (10.135.1, tr. Griffith) alludes to "the Tree clothed with goodly leaves where Yama drinketh with the Gods". As Yama was the governor of the underworld and the gods were thought to reside in the sky, in the crown of the sacred fig tree *Aśvattha*,¹⁸ this cryptic phrase can only mean that the tree was thought to serve as a means of communication between the underworld and the sky. Strictly speaking, one cannot be certain from the texts that its top was "in the north polar heaven of the gods" and that "its body is the sustaining axis of the universe" (contra Warren 1885: 269).

In cases such as these, as seen, anthropologists and students of religion and symbolism have often prematurely contented themselves with identifying such objects as symbols of the *axis mundi*,¹⁹ even though in principle any other stationary column between the horizon and the sky could have qualified. Indeed, a large set of traditions emphatically situate the heaven-spanning column at the “far end” or the “ultimate boundary” of the earth, a transitional boundary zone between the regions and the cosmos that is very hard to reconcile conceptually with the centre, where ancient cultures generally believed they were living themselves. For example, the earliest Greek attestation of the cosmic man is the giant Atlas who, in Hesiod’s words, “through hard constraint upholds the wide heaven with unwearying head and arms, standing at the borders of the earth before the clear-voiced Hesperides” (*Theogony*, 517-19, tr. Evelyn-White).²⁰

THE WORLD AXIS AS A LUMINOUS OBJECT

The above examples show that the term “world axis” has been defined in different ways, with a varying degree of astronomical precision. In the literature, one must therefore distinguish between three usages of the term *axis mundi*: (a) the strict, astronomical sense as properly discerned in ancient writings when the sacred object is placed at the pole (#1, #2); (b) a less precise semi-cosmological sense, reflected in a link with the “navel” or the “centre” of the earth, sea or sky (#1); and (c) an even more liberal, folkloristic sense, covering all mythological instances of trees, mountains, pillars and giants connecting the layers of the cosmos (#3, #4, #5). The first category (#a) can be seen as a subgroup of the second (#b), which itself is a specialised subgroup of the widest category (#c). This distinction is relevant, because the nature of the purported axis symbols poses considerable conceptual difficulties.

The nature school of myth, which still has its proponents today, holds that many of the characters and objects featured in myth are symbols representing certain phenomena that can be seen in the natural world. This is a reasonable hypothesis as long as the symbols are similar enough to the things they signify. For example, it is not difficult to imagine why the ancient Babylonians were wont to compare the lunar crescent to the horns of a bull. The matter is not so

easy with the symbology of the world axis, primarily for two reasons. Firstly, the closer one moves to the equator, the more the celestial pole approaches the horizon. In spite of that, even cultures indigenous in the tropics such as the Negritos of Malaysia or the Maya of Latin America produce abundant testimony of "axis" symbols like trees and mountains with a strong vertical component. Secondly, as the astronomical world axis is invisible by definition, the conundrum is that there is no obvious reason why symbols such as trees and mountains should be chosen to represent the world axis. Nothing in the "insubstantial axis" even remotely resembles a tree, a mountain, or a giant Atlas figure and it would have sufficed for the ancients to use the more abstract terms of a "line" or "link" connecting heaven and earth.

The mystery is compounded by the fact that mythological and early cosmological sources credit the forms of the world axis – the tree, the mountain, and so on – with a number of other specific features indicating that the referent of these symbols was a visible object with a specific morphology and a reconstructable history. This applies to symbols of the world axis in both the strict, astronomical sense and the loose, anthropological sense. This conclusion is not reached through a "cherry-picking" method, by which only those sources are selected that support a preconceived model, but by a rigorous and structural investigation of the complete inventory of alleged axis symbols as defined by the five criteria listed above. Of some thirty axis-related "archetypes" suggested by my analysis, I will discuss a few that highlight the apparent visibility and substantiality of the object described.

In mythology, the cosmic tree, mountain, pillar, and related symbols are typically portrayed as luminous objects.²¹ The nature of the glow emitted by the resplendent column was often expressed in terms of a non-consuming fire, an eternal flame, a dark purplish light, an ethereal substance purer than ordinary daylight, and so on. It was also commonly captured in terms of everyday metaphors such as light and radiance, fire and burning, lightning, a sun, a sparkling white, yellow, or red hue, bloody, or the dye of iron, silver, gold, or any other bright metal. These metaphors alternate freely. In addition, the refulgence of the column was often mythologised as a fateful "setting afire", for example on occasion of the feared end of the world.

In a fair number of cases, the radiant tree is directly associated with the world centre, with occasional hints that the polar region and

hence the *axis mundi* was being thought of. The Omaha, of Nebraska, refer to a luminous tree at the intersection of the four winds (Brinton 1896: 119 note; Alexander 1964: 100), which can only be the symbolic centre of the cosmos. Throughout Siberia one hears of a white or golden birch tree growing on the summit of an iron mountain in the centre of the earth (Holmberg 1923: 12, 52, 56f.; Butterworth 1970: 2, 5). Ainu lore includes “a metal pine tree” located *Samori moshiri, moshiri paketa*, “in the north of Japan” (Batchelor 1889: 134; cf. Lethaby 1892: 111);²² the curious metaphor of metal was probably used to indicate sheen.²³ The north-Asian traditions may or may not have been transported from India along with the philosophy of Buddhism, but the Vedic tradition, attested earlier, also referred to a giant tree often called *Aśvattha*, that was personified as the god Indra and the pillar *Skambha* and reputedly grew up “in the midst of the creation”.²⁴ The *Maitri Upaniṣad* (6.4, tr. Vidyarnava; 1st millennium BCE) added that “Its light is the yonder sun”.²⁵ Coomaraswamy (1977a: 387) confirms that the sacred tree of India “is a fiery pillar as seen from below, a solar pillar as from above, and a pneumatic pillar throughout; it is a Tree of Light, most like that of the *Zohar* ...”.

Perhaps more frequently, the glowing tree lacks an incontestable connection with the reputed centre of the world, let alone with the pole. Thus, in Icelandic lore, the sacred ash *Yggdrasil* was lauded as “the radiant, sacred tree” (*Edda: Völuspá*, 27, tr. Larrington) and “a high tree, soaked with shining loam” (*Völuspá*, 19, tr. Larrington). It would suffer greatly at *Ragnarökkr* or Doomsday, when “flames leap the length of the World Tree, / fire strikes against the very sky.” (*Völuspá*, 44, tr. Terry).²⁶ Mythologists have widely acknowledged *Yggdrasil* as a symbol of the *axis mundi*,²⁷ but although one can deduce from the texts that it was imagined to grow in the centre of the earth,²⁸ unequivocal, textual evidence for the link with the pole is lacking. Despite that, the image of the blazing tree reaches all the way back to the ancient Near East. The tree that formed *Osiris*’ coffin was imagined to be in an incandescent state, as it is qualified with the words “the end of which is cooked, the inside of which is burnt” (*Pyramid Texts*, 1485 [574], tr. Faulkner). Again, a bilingual Assyrian incantation of the 1st millennium BCE mentions the mysterious *kiškanû* tree in *Eridu*, of which the “radiance of pure lapis-lazuli stretches forth into the *Apsû*” (*Utukkū Lemnūtu*, 12. 5', tr. Geller).²⁹

Scholars have occasionally interpreted this tree as a symbol of the *axis mundi*,³⁰ but because the texts never explicitly connect it to the pole or the “navel” of the earth it falls into the category of purported axis-symbols in the loose sense.

Just like the sacred tree, so the cosmic mountain is frequently endowed with a luminous quality. Many such mountains were held to occupy the cosmic centre. According to Homer (*Odyssey*, 6.44-5, tr. Murray), a *leukē ... aiglē*, “a radiant whiteness”, not due to snow, hovered over Mount Olympus,³¹ which Plato (*Critias*, 121C, tr. Bury) revealed to be *katà méson pantòs tou kósmou*, “at the centre of all the Universe”. As seen, the followers of Zarathustra regarded the polar Harā Berezaiti as “the bright mountain ... where come neither night nor darkness”. In India, “the golden mountain Meru” (*Viṣṇu Purāṇa*, 2.2, tr. Wilson), likewise polar, was the “golden coloured peak of Himavān”, that “shines like the sun in the midst of eight mountains.”³² It was surmounted by the supreme abode of Viṣṇu, says the *Mahābhārata*, that was “brighter than sun and fire” and “is difficult to see for the Gods and Dānavas because of its splendor. When they reach there, even the celestial luminaries no longer shine, for the Lord of undaunted spirit outshines them by himself.”³³ “The sun does not illumine it,” but it is “bedecked ... with precious stones” (*Mahābhārata*, *Vana Parva* [3], 164 [36], tr. Van Buitenen)³⁴ that fulfil the same function. “A collection of manifold jewels, a mountain of gold, is Meru ...” (*Sūrya Siddhānta*, 12.34, tr. Burgess). And Sāvitra, a “former peak” of Meru, was “abounding with gems”, “radiant as the sun”, and a “glorious eminence, rich with mineral treasures”, upon which, “as upon a splendid couch, the deity Śiva reclined” (*Viṣṇu Purāṇa*, 1.8, tr. Wilson).

But again, the earliest sources offer many cases of dazzling bright mountains that cannot directly be linked to the pole or an ideological centre. For example, a Sumerian text speaks of “Inana’s mountain of multi-coloured cornelian” that “stood fast on the earth like a tower” (*Lugalbanda and the Anzud Bird*, 28-49, tr. Black), but nothing else is known about this mountain. The *du₆-kù*, normally translated as the “pure hill” or “sacred hill”, but literally the “shining hill” or the “white hill”, was the primordial mound that rose up from the waters of chaos and eventually gave rise to all forms of life (Maul 1997: 116-18; Sjöberg 1969: 50f.; George 1993: 77 s.v. no.178 to no.186), yet it was not explicitly set in the middle of the world. The ancient Egyptian noun *šht*, conventionally translated as “horizon” as the place

where the sun rises and sets, is a feminine cognate of *ʒḥw*, “glow of light”, derived from the root *ʒḥ*, “light, to light up”, and more literally means “light land” (Hannig 1995: 12 s.v. “*ʒḥw*”, 13 s.v. “*ʒḥl*”; Assmann 1977: 3).³⁵ Assmann explains that the horizon was not seen as a mere line or a circle, but as a concrete place constituting a liminal zone from where one could pass between the earth and the sky. As the hieroglyphs indicate – a combination of the signs for “mountain” and “sun” – this place was imagined as “the mountain of the sun”, during the Old Kingdom exclusively understood as the location of the sunrise, and later extended to include also that of the sunset (Assmann 1977: 3).³⁶ The Egyptians must have imbued the concept of this radiant mountain of sunrise with a cosmological significance, as they did not uniquely identify the place of sunrise in geographical east, as one would expect, but occasionally associated it with the “far north” as the region where disembodied souls dwell.³⁷ As it is difficult to gauge whether the original referent was “east” or “north”, it cannot as yet be determined if the *ʒḥt* was a symbol of the astronomical *axis mundi* or not. At the very least, the *ʒḥt* belongs to the class of axis symbols in the wider, non-astronomical sense, for it was identified with the “primordial hill” as the place of the creator’s first manifestation and was thought to have been “concealed” (*sštʒ*) when the creator “lifted up” the sky, in order to place the Ba-souls of the gods in it (Assmann 1977: 4f.).

Another class of data does not resort to symbols such as trees and mountains to connote the world axis, but more directly presents the axis as a pillar of light. Plato devoted a section of his *Republic* (10.14 [616 BC], tr. Shorey) to a detailed description of the vision of Er, the Pamphylian, regarding the fate of souls in the world beyond. Along with a host of other souls, Er observed a spectacular pillar of light:

... they came in four days to a spot whence they discerned, extended from above throughout the heaven and the earth, a straight light like a pillar, most nearly resembling the rainbow, but brighter and purer. To this they came after going forward a day’s journey, and they saw there at the middle of the light the extremities of its fastenings stretched from heaven; for this light was the girdle of the heavens like the undergirders of triremes, holding together in like manner the entire revolving vault. And from the extremities was stretched the spindle of

Necessity, through which all the orbits turned. Its staff and its hook were made of adamant, and the whorl of these and other kinds was commingled.³⁸

Plato derived this "vision of Er" almost certainly from a Pythagorean source (Adam II 1921: 442), not only because he is known to have relied heavily on Pythagoreanism in general, but especially because the Pythagoreans had a penchant for the peregrinations of the soul and perhaps in this respect approximated shamanism closer than any other cultural group within ancient Greece. Shamanism worldwide was generally preoccupied with the world axis in its anthropological sense, which it identified as the conduit of souls travelling up and down between the levels of the layered cosmos. Plato's best commentators were agreed that the "straight light like a pillar" must have been the astronomical axis connecting the *chiasmata*, or "holes", at the heavenly poles to those at the poles of the earth, and functioning as the "tethering post" of the planets and stars.³⁹ This Pythagorean version of the connecting axis, then, fits seamlessly into the wider framework of universal shamanism. Plato emphasises the luminosity of this pillar, calling it a *phōs euthy, hoion kiona*, a "straight light like a pillar", "brighter" and "purer" than the rainbow, and formed of *adamas*, "adamant". This light-giving aspect is neither obvious as a natural description of the *axis mundi* nor derived from the analogy with the spindle.

The concept of the "pillar of Er" survived through Neo-Platonism and was passed down into the mystical tradition of Islam and the European Middle Ages.⁴⁰ Proclus cited the Orphic fragments and the *Chaldaean Oracles* concerning the "demiurgic chain" that connected the supreme principle to the lowest segments of the cosmos as a golden life-giving line, "full of the fire of love" extending through "the centre of the earth" (Orphic Fragments, 160, 166, and *Chaldaean Oracles*, 25, 34f.).⁴¹ In medieval Iranian esotery, the soul's process of enlightenment was envisaged as "the ascent of a column of light, which extends from the depths of Hell to the lucid paradise in the cosmic north." (Godwin 1993: 168; cf. Chevalier 1994: 62 s.v. "axis") According to the Manichaeans, this *columna gloriae* or "pillar of glory" was "composed of all the particles of Light reascending from the *infernum* to the Earth of light, the *Terra lucida*, itself situated, like the paradise of Yima, in the north, that is, in the cosmic north." As Corbin (1978: 5) explains, "it means climbing the peak,

that is, being drawn toward the *center*; it is the ascent out of cartographical dimensions, the discovery of the inner world which secretes its own light, which *is* the world of light; it is an innerness of light as opposed to the spatiality of the outer world which, by contrast, will appear as Darkness.” Green was the light of the axis within which the pilgrim ascended:

Dark at the beginning, because it was the dwelling-place of devils, it is now luminous with *green light*, because it has become the place to which descend the Angels and the divine Compassion. ... Its atmosphere is a *green light* whose greenness is that of a vital light through which flow waves eternally in movement towards one another. (Najm-al-Dīn Kobrā [d. 1220], *Fawātih al-Jamāl wa-Fawātih al-Jalāl*, 17-18, in Corbin 1978: 79)

The Iranian philosopher Yaḥya ibn Ḥabaš al-Suhrawardī Maqtul (d. 1191) explicitly stated (*Kitāb al-talwīḥāt* or the *Book of Elucidations*, tr. Corbin 1977: 120) that Hermes – the exemplary prototype of the enlightened soul – climbed “the cable of our Irradiation” let down from the cosmic pole, “and there, beneath his feet, was an Earth and Heavens.”⁴² The mystical Jewish *Zohar* (1. 16b, 17a, tr. Matt; 13th century) identifies the primordial light created by God on the first day as “the central pillar ... this perfect light, standing in the center, to emit a radiance – foundation of the world, upon which worlds are established. ... All was united in the central pillar, generating the foundation of the world, who is therefore called כּוֹל (*Kol*), All, for He embraces all in a radiance of desire.” As the author made clear, this original light corresponded to the central pillar in the Qabbālistic system of the Səphīrōt, itself arguably an elaboration of the theme of the tree of life, along the lines of Neo-Platonic speculation.

THE WORLD AXIS AS AN EVOLVING OBJECT

Other recurrent traditions associated with the world axis – both in the astronomical sense and the liberal definition – suggest that the prototype was an evolving object, with a beginning, a sequence of

developing forms, and an end. The body of material is so vast that even a book could not do justice to the level of detail and coherence displayed in the interlocking data coming from so many different cultures and periods. Preliminary investigations suggest that the object described in these traditions was thought to have separated heaven and earth by its own growth; that it came to be enclosed by a helical spiral with seven to nine windings, frequently symbolised as a serpent coiled round the tree, mountain, or giant man; that it was segmented into seven to nine compartments placed one above the other, which were counted as so many "heavens"; that it developed a bilobate structure, with a "bird" placed on top of the tree or "two peaks" on the apex of the mountain; that the forces of the four cardinal directions – winds, breaths, rivers, arrows, limbs, flames of fire – issued down from its summit; that a mythological entity known as the creator, the culture hero, or some important ancestor travelled up and down along its length; and that it met its demise when it was severed, uprooted or disrupted, bringing the "world" down with it in a violent catastrophe of flood and fire. I will offer a few examples of three of these themes.

The tree at the centre of the earth was often held responsible for the unenviable task of forcing heaven and earth apart. In the creation myth of Tuamotu, Polynesia, a *pia*-tree lifted the sky up from the earth as it grew and it "remained as a prop for the center of the first sky; the foundation stone remained down on the lowest layer of earth to prop the world ..." (Henry 1928: 351). In the Maya tradition, *Wakah-chan*, "raised-up sky", was the tree that accomplished the separation, and it marked the centre of the cosmos.⁴³ The same role was played by the central giant. For example, the people of Mangaia, one of the Cook Islands, remembered how "Ru, the Sky-supporter, raised heaven ... and pushing up the sky, propped it up with strong stakes at Rangimotia, the centre of the Island, and of the world (!)." (Tregear 1890: 529 s.v. "Toko", 235 s.v. "Maui"; MacKenzie 1996: 215). "Mangaia thus became the centre of the universe, its central hill being accordingly called Rangi-motia (the Centre of the Heavens)." (Andersen 1969: 379f.). Thus, the image of this Polynesian Atlas – whom one version identifies as Rangi – was blended with that of the cosmic mountain, just as Atlas was in Greece.

Another cross-cultural property of the mythological world axis is the serpent winding itself around the tree, the mountain, or the giant. A ceremonial shield of Mixtec-Aztec provenance, dated to between

1400 and 1521 CE, portrays the principal divisions of the Aztec universe. A vertical reading reveals “a great serpent emerging from toothed jaws to coil upwards around a tall tree. The tree-trunk forms a ‘world-axis’ connecting the underworld, earthly and celestial spheres.”⁴⁴ In the natural world, snakes do wind themselves around trees, but mythological traditions do not hesitate to put the snake around entire mountains. One of the Late New Kingdom tombs of ancient Egypt shows the god Osiris enthroned on a mound, which is represented as a cone divided in seven layers. “The stepped hill is, of course, the Primeval Mound ... Around the mound the serpent Nehaher winds itself.” (Clark 1959: 171)⁴⁵ The Primeval Mound was the Egyptian version of the cosmic mountain *par excellence*, which was almost certainly regarded as the symbolical centre of the universe.⁴⁶ On Greek soil, Menander Rhetor of Laodicea (*Peri Epideiktikōn*, 2. 441. 17-25, tr. Russell; cf. Fontenrose 1959: 80; late 3rd century CE) noted that the serpent Python, encountered by Apollo, was so humongous that it surrounded Mount Parnassus completely:

The earth bore a dragon creature, indescribable in words and not easy to believe in from tales that are told; this dragon ravaged all the country adjoining Delphi and Phocis, and seized Parnassus, the greatest mountain under heaven, not inferior to Olympus or less than our own Ida. This it covered with its spirals and coils, and nothing of the mountain remained bare. It held its head over the very crest, rearing up towards the heaven itself.

Mount Parnassus was a prominent symbol of the cosmic mountain, with Delphi, the celebrated navel of the earth, on its slopes (e.g., Pausanias, *Periegesis*, 10.16.2; Statius, *Thebaid*, 1. 97-118). Hence, by covering the mountain completely, Python effectively spanned the length of the entire cosmos, from the highest extremity of the world axis to the earth below. This quaint tradition certainly had ancient roots. Statius (1st century CE) spoke of the monster forming *septem orbes*, “seven windings”, round Delphi.⁴⁷ And in the form of Apollo’s address to Thebes, the Alexandrian librarian Callimachus (±305-240 BCE) averred that Python ringed Parnassus *ennéa kýklois*, “with nine coils”.⁴⁸

A widespread yet barely recognised theme concerns the death and the uprooting of the world tree, paralleled by the collapse of the cosmic mountain or the felling of the universal giant. In the book of *Daniel* (4. 10-27, tr. *NIV*), Nebuchadnezzar had a vision of a giant, life-giving, sky-touching tree *bəḡō' ar'ā'*, "in the middle of the land", that he was commanded to cut down and strip of its leaves.⁴⁹ This is the common fate of the cosmic tree or mountain in countless traditions from many parts of the globe. The chief god of the Babylonian pantheon, Marduk, reflected on the time that he rose from his seat and thereby caused the devastating flood; at that time, he "changed the location of the *mēsu*-tree ... and did not reveal it to anyone. ... Where is the *mēsu*-wood, the flesh of the gods ... ?" (*Kabti-ilāni-Marduk, Erra and Išum*, I.148-50, tr. Dalley; cf. Cagni 1977: 32 [90]). In the Zoroastrian tradition cited above, the parent of all trees "in the vicinity of the middle of the earth" became "quite withered" when the evil god Ahriman infringed upon the good world created by Ahura Mazda (*Zāj-Sparam*, 2.5, tr. West). The Icelanders believed that, at Ragnarökkr, the ash Yggdrasil would not just burn, but also fall:

Yggdrasil shudders, the tree standing upright,
the ancient tree groans and the giant is loose ...
(*Edda: Völuspá*, 47, tr. Larrington, 10; cf. Yvanoff 1998: 79)⁵⁰

The same motif is encountered in mythologies from distant corners of the world, with no known history of diffusion from the larger centres of civilisation. The northern Aranda of Central Australia tell of a giant pillar called Tnatantja that "was long and slender and reached to the sky. It towered up loftily" and contained rings of white down, scattered abroad by the wind, from which "men were to arise at a later date." (Strehlow 1947: 24f.). After it had survived four previous attacks orchestrated by the winds of the cardinal directions, a certain Ilbumeraka eventually "grasped its trunk and shook it: the great tjurunga gave no move, it was rooted too firmly. Then Ilbumeraka snapped it off in the middle ... he carried away the stolen prize, the great red tnatantja." (Strehlow 1947: 24f.). Although there is no evidence that the Aranda connected the Tnatantja with the polar region, its prodigious, sky-reaching dimensions, its role as life-container, and various other features leave no doubt that this curious object ranks as an Antipodean parallel to

the uprooted trees listed here, especially considering that a broken fragment of the Tnatantja, grown back, was allegedly “still standing in the form of a bloodwood tree.”⁵¹ The metal pine tree of Ainu tradition, introduced above, was reputedly brought down by the culture hero Okikurumi and his wife (Batchelor 1889: 134-6):

Then there came a very old man and a very old woman upon the scene. The old man had a useless old axe in his girdle, and the old woman a useless old reaping hook. So they caused the ancients to laugh at them. Even the ancients were unable to cut down the tree, so they said: “Old man and old woman, what have you come hither to do?” The old man said:— “We have only come that we may see.” As the old man said this he drew his useless old axe and striking the metal pine tree cut a little way into it. And the old woman, drawing her useless old reaping hook, struck the tree and cut it through. There was a mighty crash; the earth trembled with the fall. Then the old man and woman passed up upon the sound thereof, and a fire was seen upon their sword-scabbards. The ancients saw this and greatly wondered, and then they understood that it was Okikurumi and his wife.⁵²

A final example hails from the Huaorani of Ecuadorian Amazonia, who recall a giant *Ceiba* tree, “attached to heaven by a strong vine” as the first object that ever existed and the container of all life-forms. At some point, “Squirrel’s teeth incised the vine that linked up the tree to the sky. While the vine sprang up, with Squirrel still biting on its end, the giant tree crashed onto the ground, westward. ... in his fall, the giant tree exposed the peg which blocked the underground waters” and the deluge was the result (Posey 1999: 361, cf. 353). With minor variations the myth is found across the northern half of South America.

Such detailed correspondences as the link between the disruption of the tree and the deluge both in ancient Mesopotamia and, some three thousand years later, in the rainforests of Amazonia show that the mythological “history” of the sacred tree, mountain, or pillar cannot be explained as a flight of fancy; the dominant themes in this history appear throughout the world with great consistency and it seems unlikely that so many different cultures were prone to such

similar fantasies. But what sort of natural phenomenon could have evoked the widespread symbolism of a radiant pillar, symbolised as a tree, a mountain, a giant, and much else, that lifted up the sky by its rising, became encoiled by a "serpent", and was eventually displaced under catastrophic circumstances? And why of all things was this imagery in many cases linked to the astronomical concept of the "insubstantial" world axis?

THE HISTORICAL EMERGENCE OF THE CONCEPT OF THE *AXIS MUNDI*

The first step is to acknowledge that the line drawn between the explicit and the "liberal" definitions of the world axis is not absolute and exists only for methodological purposes. In reality, it is evident that traditions relating to the tree or the mountain at the pole cannot be separated from similar accounts of shining, heaven-spanning objects whose specific location in space is not spelled out or is described as the "far ends" of the earth. Yggdrasil, the *kiškanû*-tree and the *Mēsu*-tree cannot formally be divorced from Aśvattha or the trees of Daniel and Zarathustra, but clearly belong to the same, wide category of "cosmic trees". In other words, the trees, mountains, and pillars enumerated above, and hundreds more, form a singular group of cosmic symbols that are sometimes associated with the world centre, the astronomical axis or the pole, but often not.

The mythological resonance of this nexus of interrelated symbols can in principle be explained in two different ways. One possibility is that it once existed independently in the realm of folklore and was at some point in some cultures attached to the astronomical concepts of the *axis mundi* and the pole. Alternatively, the symbols could have arisen in connection with the astronomical axis, even if the rationale for this is as yet elusive, and many cultures subsequently "lost" this connection. To determine which of these scenarios is correct, one must ask whether any geographical or chronological pattern can be perceived in the distribution of the specifically polar or axial subset of symbols within this genre.

Such a pattern does indeed suggest itself. Cosmologies from Africa, Australia, South America and Scandinavia abound with axis symbolism in the "loose" definition, but only rarely locate the symbolised column specifically at the pole or in the centre of the earth or the sky. Significantly, it is in these same locations that

astronomical knowledge was less advanced than in the great centres of ancient civilisation. Conversely, the places where the cosmic pillar was first directly aligned with the astronomical axis are also those where the pole star appears reasonably high in the sky and where astronomy was developed to great heights. But even in these areas the connection with the pole seems not to have emerged before the 1st millennium BCE. The earliest Sumerian and Babylonian hymns and epics contain a high incidence of hallowed trees and mountains, often as the cosmological prototypes of the king or the *ziggurat*-towers. These objects are frequently described as rooted in the underworld or “the midst of the sea”, reaching up to the sky or the “midst of the sky”, and excessively bright, but are never unequivocally placed at the pole of either the sky or the earth. Likewise, the early Egyptian writings repeatedly invoke the celestial sycamore of Nūt, the primordial Mound of Creation, or the giant Shu carrying the firmament on his shoulders, but never explicitly put these symbols at the pole.⁵³ There is little doubt that these ancient peoples would have imagined these sacrosanct structures to mark some ideological centre of the world, but incontrovertible evidence of an astronomical interpretation of that centrality is not forthcoming. The “navel of the earth” and the “midst of the sea” were simply located wherever popular tradition thought they should be, with no absolute control mechanism in place.

All this changed from the mid-1st millennium BCE onwards, when the assembly of stars reported to crown the West-Semitic Mount Šāphōn must have represented the circumpolar stars;⁵⁴ the Arabs mystically located the Ka‘ba “against the pole star”;⁵⁵ and the Persians and the Indians identified the holy Mounts Harā Berezaiti and Meru as the station of the pole star. The polar symbolism of Meru was dispersed across the length and breadth of Asia, as far afield as Malaysia and Japan.

This distribution suggests that the notion of a radiant pillar in the sky has existed around the world and since the dawn of civilisation, but was only explicitly connected with the pole in a few cultures as it evolved along with the rise of astronomy. It is not difficult to see why the association with the pole developed only secondarily and in a limited domain. Knowledge of the astronomical *axis mundi* requires two presuppositions. First of all, one must be familiar with the celestial pole as that location in the night sky that best suits the

description of a single “centre” irrespective of one’s location on earth. In addition, in order to appreciate the relevance of a column coming down from the celestial pole, one must recognise the poles of the earth, for which, in turn, the sphericity of the earth must be postulated first. As long as the earth is not regarded as a sphere, the polar regions cannot be verified as the earth’s “centres”. Cosmologies treating the earth as a flat surface, such as a circle, would in theory require a “centre” of the earth, but there would be no infallible way of telling which location on earth corresponded to that “navel”; in the absence of a spherical model of the earth and the cosmos, any place could lay claim on being the centre. The daily revolution of the stars around the celestial pole is relatively easy to discover and can be assumed to have been known in most cultures on earth, literate or not. The sphericity of the cosmos and the earth, however, was an advanced astronomical concept that emerged much later. Therefore, knowledge of the *axis mundi* in the strict, astronomical sense did not exist in some cultures and will not have sprung up anywhere before the 1st millennium BCE. And even when Greek astronomers had worked out that the spherical earth ought to have two centres located “against the poles” and connected through the world axis, the lack of a scientific means to identify these two “terrestrial poles”, as they are now called, initially allowed the flexibility to continue regarding traditional “navels” such as Delphi, Rome, Mecca or the Ka’ba as the points stationed directly below the pole. This information enables the reconstruction of three phases in the history of the subject.

During the first phase, the celestial pole was not known or had a very limited significance. The earliest sources describe an impressive luminous and stationary formation that spanned the entire sky, reaching perhaps from the horizon to the zenith and was believed to reach from the “centre”, “heart” or “navel” of the sky to a corresponding, though non-specific, imaginary or ideological “centre” of the earth, that each culture generally identified as its own land. At this point, the earth was still typically regarded as a flat disc and the column of light was an *axis mundi* in a sheet- or “pancake” model of the cosmos that must be seen as a predecessor to the concept of the true astronomical axis, though its location was not specified in absolute terms. The earliest Egyptian, Mesopotamian and Vedic texts, the Greek tradition concerning Delphi, the Jewish concept of Jerusalem as the centre of the earth, and much mythological material from other parts of the world originate in this stage.

As the celestial pole began to play an increasingly prominent role in cosmology as the “centre” of the sky and could be identified as the station of the luminous apparition in the sky, some of the “navels” at the lower end of the formation, such as the Ka‘ba, acquired a pseudo-scientific polar association, justifying their claims to centrality with the explanation that they were located “against the pole”.

During the late 6th century BCE, the Greeks postulated the sphericity of the cosmos and the earth. Subsequently, the modern, astronomical concept of the *axis mundi* emerged and the “centre” or “navel” of the earth was subtly reinterpreted – and duplicated – as the two points where the earth intersects with the axis and faces the celestial poles.⁵⁶ Whilst the determination of the exact location of the terrestrial poles, as they are now called, was an on-going process, beginning with the definition of the earth’s zones of habitation by Thales of Miletus, Pythagoras or Parmenides (Aetius, *Placita Philosophorum*, 2. 12; 3. 14; Strabo, *Geographia*, 2. 2. 2; cf. Aristotle, *Meteorologica*, 2. 5 [362a. 32 – 362b. 36]), the inherited tradition of the bright column in the sky was increasingly demythologised and consciously formatted as a symbolical description of the world axis. The fact that local landmarks formerly held as the traditional “navels” of the earth were clearly *not* situated directly below the pole was initially explained – it seems – with some contrived arguments. The incongruence could be accounted for with an expedient twist on the folklore theme of the uprooting and the displacement of the column: based on the – secondary – assumption that this motif concerned the *axis mundi*, Pre-Socratic philosophers – and sages in various other cultures – could transform it into a tradition that the pole used to be directly overhead, in the zenith, but has shifted since.⁵⁷ Alternatively, although he does not spell it out, Aristotle may have justified the traditional centrality of Greece with his observation that the civilised *oikoumenē* was positioned within the “temperate” zone separating the icy pole from the torrid equator. Perhaps for such reasons, some “navels”, such as Mecca and Jerusalem, managed to retain their moribund claims of centrality tenaciously throughout the medieval period. That status amounted to little more than claims, however, as the theme of the radiant polar mountain and its mythological attributes was increasingly separated from these places and associated with the geographical poles, fuelling a growing desire on the side of medieval map-makers and navigators

to chart the as yet unexplored poles. This full-fledged definition of the *axis mundi* and the inexorable concomitant shift of emphasis from the traditional “navels” to the still uncharted poles attained a limited geographical spread, radiating out from Greece. Following Plato, it found expression in the Neo-Platonic tradition, the sacred writings of the Zoroastrians, the Arabs, and – for the later period – the Indians, and affected Siberia, China, Japan, and other parts of the Far East under the influence of Buddhism.

THE ZODIACAL LIGHT AND THE AURORA

It now transpires that the category defined earlier as “loose” definitions of the world axis generally may not refer to the astronomical axis at all, but relate to a certain conspicuous apparition in the sky, lacking a precise geometrical topography and known from at least the 3rd millennium BCE onwards. The remaining question is what the widespread “pre-astronomical” folklore traditions regarding that “conspicuous apparition” were based on and why they came to be associated with the pole.

Not only did cultures from many parts of the world employ the same symbols to describe an elusive stationary column of light, but the respective forms and events associated with these symbols resemble each other closely and allow the reconstruction of an evolving sequence of events. In these intercultural connections the level of specificity is so high that it seems reasonable to suppose that these sources relayed eye-witness accounts of the progressing history of some visible object of high complexity. This object is apparently not or hardly discernible today, both because worldwide myths recount its cessation and because nothing in the material world corresponds to the mythological descriptions. The apparent universality of the dominant themes in this category further suggests that the original referent appeared in the sky, from where it could have been observed by many communities with no cultural connections between each other. It seems plausible, then, that the traditions on which the complex mythology of the *axis mundi* was ultimately based commemorated an atmospheric phenomenon involving the rise and fall of a luminous column.

The most noticeable streak of light in the night sky is the *Milky Way*, but its appearance is rather static and uneventful, unlike the

dynamic and apparently awe-inspiring rise and fall of the mythical column. It rotates around the pole, along with the stars, and is therefore no stationary column linking “underworld”, earth, and heaven.⁵⁸ Although many cultures describe the Milky Way in terms redolent of the resplendent pillar reconstructed here, it would seem that the Milky Way – like the astronomical *axis mundi* – is merely a replacement metaphor for the original referent, which has vanished.

A much closer candidate is the *zodiacal light*, a faint roughly triangular glow of light, seen above the western horizon in Spring and above the eastern horizon in Autumn, but more commonly in tropical climes. As this is no actual object in space, but the reflection of scattered sunlight from fine particles of meteoric dust in orbit around the sun, it appears almost stationary and could with some imagination be described as a luminous pillar or mountain. It may well be that a large segment of the traditions discussed here were written down with the zodiacal light in mind, particularly because the cosmic tree and mountain of myth are typically identified as the abode of the sun before and after its daily journey, and because the zodiacal cones are naturally described as “boundary pillars” located “at the ends of the earth”.⁵⁹ The association of the light-giving column with the astronomical axis – which appears to be secondary, as seen – may perhaps be explained as a natural interpretation of the fact that the zodiacal light sometimes stretches all the way to the zenith, which is the apparent middle of the sky from any position on earth, even though it never reaches as far as the pole and the sky never appears to revolve around it. But upon closer examination, the quiescent zodiacal light as we know it does not conveniently account for all aspects of the myths reviewed here. Why did mythical traditions associate the growth of the pillar with the separation of heaven and earth and describe its ultimate demise amid a scene of universal disaster? How does one explain its decisive cosmogonic role?

An important key factor in this respect is the possibility that the zodiacal light has had a turbulent history in geologically recent times. As the amount of dust in the inner solar system is variable, so is the intensity of the zodiacal light. Based on an extensive reconstruction of the paths of comets in this region, the astronomers Victor Clube and Bill Napier (e.g. Clube 1982; 1990; Bailey 1990) proposed that a number of giant disintegrating comets must have showered large amounts of debris roughly from the beginning of the Holocene

onward. Their colleagues Mark Bailey and Duncan Steel concluded that this must have resulted in a considerably more intense zodiacal light than the one that is seen today:

The boulder-sized particles and dust ejected during evolution of a giant comet will spread around the orbit and undergo mutual collisions leading to more dust and eventually a brighter zodiacal light ... The general prediction, therefore, is for a significantly more active "sky" than that we are now used to, with implications for the appearance of the night sky during past millennia and the perceived connection between the sky and the Earth.⁶⁰

There is evidence, then, from the zodiacal dust and from meteoroids of a recent, exceptional event in the inner solar system. ... when a large comet breaks up, a great replenishment of the zodiacal dust cloud will occur, making the zodiacal cloud and band much brighter than they appear to us today. (Steel 1995: 132, 164)

The dynamics of this effect could then have become the subject of mythological traditions regarding the formation and collapse of a "giant pillar of light".⁶¹ But why was this column claimed to have been cut down to the ground in a cross-cultural tradition? Of relevance here is Kristian Birkeland's extensive evidence for "a pulsation in the intensity and shape of the light which has at times been noticed, a pulsation which surely testifies to an electric origin..." (1913: 611).⁶² If the dust particles "either themselves emit luminous rays or scatter the light of the sun", this indicates that the zodiacal light is more than reflected sunlight, and that it is, in fact, "akin to the pulsation which is sometimes seen in auroral lights and the oscillations in terrestrial magnetism." (1913: 611, 619).⁶³ And this leads to a further possibility.

The *auroras* or the *northern and southern lights* – as Birkeland was the first to explain – are plasmas or ionised gases that attain glowing mode when the ionosphere of the earth experiences an increased influx of charged particles from space, notably from the solar wind.⁶⁴ The auroras are at their brightest and most powerful around the magnetic poles of the earth, as that is where particles flow into the magnetic field of the earth. An ancient Chinese record naturally associates one with "the middle of ZIGONG (i.e., the

circumpolar region)".⁶⁵ Dancing "curtains" and cavorting flames are the most familiar forms of the aurora, but certain less familiar auroral manifestations match the descriptions of the brilliant column in the mythical sources remarkably well. "Auroral pillars", now rarely seen due to extensive artificial illumination, are defined as "Isolated, often breath-taking, white-to-greenish-white shafts of light 1-10° wide extending from the horizon to near and occasionally past zenith", which "may remain visible from a few minutes to over an hour, drifting slowly north or south." (Corliss 1982: 7).⁶⁶ One instance observed on the 8th May 1837 over the Bay of Toronto was described as "a well-defined, equal, broad column of white strong light, resembling in some degree that of the aurora, but of a steady brightness and unchanging body" (Corliss 1982: 8). Whether auroral pillars are caused by exactly the same mechanism as the more familiar patterns or not,⁶⁷ it is clear that they can readily be recognised in classical and medieval sources designating the auroras as *columnae flagrantēs*, "blazing pillars", *columna candida*, "a white pillar", *columna lucis*, "a pillar of light", *columna rubei et cerulei coloris*, "a red and dark-green pillar", *columnae igneae*, "fiery pillars", *columnae rubeae*, "red pillars", or *columnae sanguineae*, "bloody pillars" (Dall'Olmo 1980: 12f.). Some East Asian observations portrayed the aurora as a shaking, scarlet tree in the sky,⁶⁸ a bright apparition "that reached from the earth to the sky",⁶⁹ or a "white vapor like a rainbow" that "extended downwards from north of the zenith to the ground"⁷⁰ or that "rose from the northern horizon and passed the zenith."⁷¹ Auroras or auroral pillars may also be accountable for the violent circumstances surrounding the mythological "creation" and destruction of the world. Although they are generally mild, benign and relatively short-lived phenomena, in theory there is no reason why violent solar weather – a solar storm – or some other extreme disturbance of the geomagnetic field could not have provoked an excessive auroral outburst, producing an enduring, illuminated column visible as far as the equator. What exactly would happen if the earth experienced a significantly more dramatic solar wind than the ordinary pattern?

In a lecture given in 1962, the astronomer Thomas Gold proposed that great solar outbursts may have occurred in the past. In case of "one big outburst every ten thousand years", the "incoming gas bringing its strong field into the virtually insulating atmosphere"

would result in “very large electric fields so directed that the resulting currents would maintain those fields. But in the atmosphere this can be done only by electrical breakdown. Since the ground is a good conductor such a breakdown is likely to take a path of breakdown through the entire thickness of the atmosphere on each side of the magnetic cloud being pressed in, and through the body of the earth from one site of breakdown to the other ... This breakdown would be in the form of a series of sparks, burning for extended periods of time and carrying currents of hundreds of millions of amperes.” (Gold 1963: 161-3). As a result, Gold was led to believe that a long glowing tail could once have emanated from the sun, which he appears to have identified as the solar wind:

But there will certainly be, initially, a very high rate of decay due to instabilities, and then there will be a long tail, and I suppose that we are still now on this tail and still see, every now and again, a little bit of internal field being got rid of. (Gold 1963: 170)

Gold’s hypothesis was almost entirely speculative, but plasma physicist Anthony Peratt (2003a; 2003b) has recently supported it with persuasive observational data. Unprecedented high-energy disturbances of the geomagnetic field would produce an intense aurora undergoing a set of complex phenomena known as “plasma instabilities”. Extensive laboratory experiments offer an increasingly clear picture of what exactly such instabilities would look like. It transpires that, under extreme conditions, the aurora – or Gold’s “path of breakdown” – would take the form of a glowing high-energy current tube connecting the poles of the earth to those of the sky as a cathode with an anode. This enormous radiant column would achieve a semi-permanent mode, as its collimating forces would keep it from falling apart. Under increasing electrical stress one or two helical configurations would form around the highly energised column and it would differentiate into a stack of nine superimposed plasmoids that would interact, display a strong level of vorticity, and then merge into three components. Eventually, the current flow would terminate and the column would dissipate, scattering pieces of glowing debris into space.

A large-scale, global survey of petroglyphs has convinced Peratt that prehistoric man witnessed the existence of such a plasma column

and recorded it on rock, the most durable of all substances at his disposal. Many of the images seen in archaic petroglyphs, hitherto elusive, are recognisable plasma patterns, many of which have only first been analysed in the last decade or so. As these petroglyphs are recorded *in situ* – and do not migrate, like myths – they offer a unique opportunity to study the different perspectives under which these plasma formations were seen from different points on earth. At the same time, they provide a crucial litmus test to determine whether these images represented the *same* celestial configuration or a number of different ones. Peratt's preliminary results suggest that Neolithic petroglyphs document the appearance and collapse of a single plasma tube coming into the earth's south magnetic pole and witnessed by eyes across the globe.⁷²

If Peratt's analysis is correct, it stands to reason that the mythological and archaeoastronomical accounts of the "radiant pillar" refer to the same auroral column as the one recorded in petroglyphs. In-depth examination of the many particulars of a high-energy plasma column, petroglyphs, and "axial" mythology shows convincingly that these three classes of data dovetail down to the finest level of detail. During different phases of its existence, the reconstructed plasma tube must have looked remarkably similar to a shining tree, mountain, or man with uplifted arms.

At present, the earliest recorded auroras are supposed to have been "a multi-colored light" listed in Chinese annals for the last year of king Zhao of Zhou, about 950 BCE,⁷³ and an unusual "red glow" in the night sky mentioned on a Babylonian tablet dated to 567 BCE. The latter observation "occurred at a time when the geomagnetic (dipole) latitude of Babylon was about 41° N compared with the present value of 27.5° N, suggesting a higher auroral incidence at Babylon in 567 BC than at present." (Stephenson 2004: 615).⁷⁴ The mythology of the radiant pillar can now be seen collectively as a set of recollections of a much earlier aurora, albeit a hypothetical event on a much more extreme scale, experienced long before the rise of an appropriate astronomical terminology such as the one employed in the scientific literature of the Babylonians.

The hypothesis also gives an interesting twist to the issue of the relationship of symbols such as the cosmic tree and mountain to the astronomical *axis mundi*. Since the auroral column is naturally centred on the polar regions of the earth, where charged particles flow

into the geomagnetic field, the astronomical prototype of these myths will have been a polar phenomenon, accompanied or followed by displays of a strong zodiacal light. Yet at the early time that this hypothetical aurora transpired, mankind had probably not yet defined the pole of heaven and almost certainly had not conceived of the *axis mundi*. This leads to the intriguing conclusion that the eventual association of the luminous pillar with the astronomical *axis mundi*, probably from the 1st millennium BCE onward, was essentially correct.⁷⁵ Still, the many local identifications of the remembered object – such as the Mounts Olympus and Parnassus in Greece, Mount Sion in Israel, or Mount Kailas in Tibet – testify to a time that the cosmic prototype was not fixed in a geometric model of space, but could freely be localised wherever tradition deemed that appropriate.

Needless to say, the plasma theory at present raises more questions than it answers, and the study of this enhanced aurora is still in its infancy. The history of each individual symbol, such as the spindle of Er, Mount Meru, or the ash Yggdrasil, must be studied in isolation with the best and earliest sources, and then balanced against the general model. More research is needed on the way the concept of the *axis mundi* was affected in different cultures by the transformation of astronomy itself, as it evolved – in some cultures – from a sheet-system to a spherical cosmology. The directionality of the petroglyphs requires sorting out and the dating question needs settling. Nonetheless, even at this early stage it is already clear that the many mysteries surrounding the mythology of the world axis can eventually be solved satisfactorily. This requires an interdisciplinary study with an open mind towards the turbulent events of the past.

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Notes

- 1 “Further, we are told that he [Pythagoras] was the first to call the heaven the universe and the earth spherical, though Theophrastus says it was Parmenides, and Zeno that it was Hesiod.” Diogenes Laertius, *Life of Pythagoras* (8), 48, tr. Hicks. Pythagoras proposed “a universe animate, intelligent, spherical, with the earth at its centre, the earth itself too being spherical and inhabited round about.” (8), 25-6, tr. Hicks. “He [Parmenides] was the first to declare that the earth is spherical and is situated in the centre of the universe.” *Life of Parmenides* (9. 3), 22, tr. Hicks. Cf. Heath 1991: 11; 1913: 49.
- 2 Cf. Pseudo-Aristotle, *De Cosmo*, 2 (391b-392a); Vitruvius, *De Architectura*, 9. 1. 2. Perseus is the “winged axis which extends to both poles through the middle of the earth and makes the cosmos revolve”, according to Aratus, apud Hippolytus (d. ±236 CE), *Refutatio Omnium Haeresium*, 4. 6. 4, tr. Legge.
- 3 These forms are *symbols* in the sense that the axis does not really correspond to any of these, but from the perspective of many early sources they are accurate descriptions of what these people regarded as the true nature of the axis.
- 4 “Out of this mountain the astronomical system makes the axis of the earth, protruding at either extremity, indeed, but of dimensions wholly undefined.” Burgess (1977: 287)
- 5 Cf. “upheld his pillar of smoke, upheld the sky”, in Coomaraswamy (1977b: 483).
- 6 The terms translated as “Centre” and “earth’s centre” are *nābhir* and *nābhir pṛthivyāḥ*, “navel” and “navel of the earth” respectively. In *Ṛg-Veda*, 1.164.34, the altar is called *bhuvanasya nābhiḥ*, “the centre of the world”, tr. Griffith, but literally “the navel of the world”, and it is fitting that offerings to Agni were therefore kindled at that place: “bearing (food)/ For him as fodder to a stalled horse,/ ... / Kindled on earth’s navel, Agni/ We invoke” *Taittirīya Saṃhitā*, 4.1.10c-d, tr. Keith; cf. Coomaraswamy (1977a: 384f).
- 7 Variant manuscripts offer: “the twigs of the *ḥs-nṛt*-tree ... which is in the middle of the island of the flood-land” and “the beautiful sycamore which is in the middle of the mound of the two sycamores of the flood-land” (Faulkner 2004: 1.165 n. 7).

- 8 These were the temple of Ninmar at Guabba, built by Ur-Nanše (±2500 BCE) and various parts of the *e.saĝ.il* at Babylon respectively (George 1993: 64 s.v. no. 28, 78 s.v. no. 194, 85 s.v. no. 287, 107 s.v. no. 559).
- 9 The ancient Sumerian city of Nippur was styled Sumerian *uru-ša-uru*, Akkadian *Libbi-āli*, “heart-city” (Maul 1997: 121), a title which certainly reflected Nippur’s perceived function as the source of life and vitality, but does not necessarily imply a central location.
- 10 Employing the term *axis mundi*, Hruška (1996: 173) recognises the Sumerian cosmic mountains *Kur* and *Du₆.kù(g)* as the “*Mittelpunkt zwischen Himmel und Erde*” (“midpoint between heaven and earth”), the “*Zentrum*” (“centre) and the “*‘Mitte’ der Welt, wo sich Himmel und Erde berühren*” (“‘centre’ of the world, where heaven and earth touch each other”), but is not specific about the relative geometry of that “centre”, for which he offers no textual support. To be a connecting medium between sky and earth does not automatically require a central location.
- 11 The translation “axis of the world” is justifiable in the loose sense of the word, but *bulug* literally means “shoot, sprout, needle, drill, seal pin, boundary post, border” (Halloran s.v. “bulug”).
- 12 Roscher (1913: 23) presumed that it meant at once the umbilical cord and the highest point of the earth.
- 13 Based on a ritual text attributing the title *markas šamê* to the circumpolar constellation of Ursa Major, Burrows (1935: 62) supposes that Nippur may have been seen as the symbolic centre of the land (1935: 60, cf. 46), but the astronomical tradition is very late and proves nothing for the early period.
- 14 Maul (1997: 114f.) brilliantly exposes the cosmic significance of the Esagila in terms of “*eine vertikale Achse, in deren Zentrum Babylon mit dem Tempel Marduks liegt*” (“a vertical axis, in the centre of which is Babylon with the temple of Marduk”), but applies the term *axis mundi* without adducing direct, textual evidence for a “central” topography: “*Ausdrücklich wird Esagil als Stütze und Verbindung des in der Erde befindlichen Grundwasserhorizontes apsû mit dem Himmel bezeichnet. Das Heiligtum Esagil und die Stadt Babylon liegen also in der Mitte der vertikalen kosmischen Achse, und verbinden diese mit der irdisch-gegenwärtigen Welt. ... Diese axis mundi nahm für den Besucher des alten Babylons sichtbare Gestalt an in dem siebenstufigen Tempelturm, der den Namen Ê-temen-an-ki, ‘Haus Fundament von Himmel und*

Erde' trug. Auch auf der horizontalen, irdischen Ebene befand sich der Tempel Esagil in Zentrum der Welt." ("Esagil is explicitly designated as the support and connection of the *apsû*, the horizon of groundwater located in the earth, with the sky. The sanctuary of Esagil and the city of Babylon also lie in the middle of the vertical cosmic axis and connect this with the earthly-present world. ... For the visitor to ancient Babylon, this *axis mundi* acquired visible form in the seven-storeyed temple tower that bore the name *É-temen-anki*, 'house foundation of sky and earth'. On the horizontal, terrestrial plane, too, the temple Esagil was situated in the centre of the world.") But the fact that "*alle Götter ... betrachteten das Esagil ... als ihren tatsächlichen Kultort ...*" ("all gods ... regarded the Esagil ... as their actual cult site ...") (1997: 115) is not sufficient proof that the Esagila was deemed to mark the centre at this early time. More carefully, De Santillana and Von Dechend (1969: 413) surmise that "The idea may be that the temple is as it were a lofty column, stretching up to heaven and down to the underworld – the vertical bond of the world", without committing themselves to any particular location in horizontal space.

- 15 According to Jeremias (1919: 40) the north pole of the sky was held to be located over the *markas*, but I have not been able to confirm this.
- 16 Margulis (1974: 9) compares this and six other examples of the *Weltbaum* in respect of connecting the sky and the underworld.
- 17 "In many cultures we find the belief that the Cosmic Tree is attached to heaven, its roots reaching the centre of the earth. The roots plunge into the primordial, underground river, the river of life and death." (Posey 1999: 360)
- 18 "The *aśvattha*, seat of the gods, in the third heaven from here; there the gods won the *kuṣṭha*, the sight of immortality." *Atharva-Veda Saṃhitā*, 6. 95. 1-2, tr. Whitney.
- 19 Examples could be multiplied. Margulis (1974: 19) styles the Sumerian Mount Dilmun "a cosmic axis located in the middle of the gulf", but no textual or iconographic evidence is given that the mountain marked any centre.
- 20 The Greek for "at the borders of the earth" is *peirasin en gaiēs*, a term alternatively associated with different points of the compass (Romm 1992: 12).

- 21 Guénon (1962: 330): “d’une façon générale, l’« Axe du Monde » est toujours regardé plus ou moins explicitement comme lumineux ...”.
- 22 Batchelor (1889: 136) translated *paketa* as “at the head of”, but offered “at the north”, “north-eastern” and “eastern end of the island of Nippon” as alternative possibilities.
- 23 Contra Batchelor (1889: 136), who remarked: “‘Metal pine tree’ rather indicates that the pine trees were very beautiful rather than that they were really made of metal. The word *kani*, ‘metal,’ was often used in ancient times to express a thing of beauty. ... not only beauty is indicated here, but also hardness ...”.
- 24 “A great monster (*yakṣa*) in the midst of the creation (*bhuvana*), strode (? *krānta*) in penance on the back of the sea – in it are set (*śri*) whatever gods there are, like the branches of a tree roundabout the trunk.” *Atharva-Veda Samhitā*, 10.7.38, tr. Whitney. An alternative translation is: “This germ stood at the navel of all things.” (Rano 1978: 57)
- 25 Cf. “therein inheres the fiery-energy (*tejas*) that is the Supernal-Sun.” (Coomaraswamy 1972: 8f.; Eliade 1958: 273). The word for “light” is *tejah*, that for “sun” *ādityah*.
- 26 Larrington (1996: 11) translates the first half as “steam rises up in the conflagration”, with no reference to the tree.
- 27 “There, in the northern heaven, at the top of Yggdrasil, the world-axis, stood the fair city of Asgard, the home of the Asen. The Eddas expressly say of it that it was built ‘in the Centre of the World.’” (Warren 1885: 217). According to Campbell (1959: 120), Yggdrasil’s shaft “was the pivot of the revolving heavens”, but no references are given. Cf. Yvanoff (1998: 79).
- 28 Snorri Sturluson (d. 1241) wrote that the gods settled in “a city in the middle of the world which is known as Asgard”, from where Odin, seated on his throne, “saw over all worlds and every man’s activity”, *Edda: Gylfaginning*, 9-10, tr. Faulkes. One of Yggdrasil’s three roots extended over this place, *Gylfaginning*, 15, tr. Faulkes. *Edda, Völuspá*, 46, sometimes cited as a more direct enunciation of the central location, is actually ambiguous, Grimm IV 1976: 1536. The *Codex Regius* reads *mjötviðr*, which the 19th-century scholar, Finn Magnusen, interpreted as *arbor centralis*, the “central tree”, based on a derivation from *mjöt*, “middle”. Modern scholars, however, favour *mjötuðr*, “dispenser of fate, ruler, judge”. Thus, Larrington translates “fate catches fire”, Terry

- “fate will summon”. Still, *mjötuðr* may also be seen as a variant of *mjötviðr*, “the world-tree” (Zoëga 1910: 301 s.v. “mjötuðr”, “mjötviðr”). The issue remains unresolved.
- 29 Tablet K 111 reads *kiškanû šalmu*, “black *kiškanû*” (Geller 1980: 37 note; Civil 1971: 453 s.v. “kiškanû”). This passage may have harked back to a Sumerian tradition, for a tree called *gišgana* or *ĝiš.kin* is known from Sumerian texts.
- 30 Sayce (1877: 146-7) translated lines 8'-9' as: “Its seat (was) the (central) place of this earth”, noting: “Compare the Greek idea of Delphi as the central $\Omega\mu\phi\alpha\lambda\acute{o}\varsigma$ or ‘navel’ of the earth” (cf. 1898: 238). Warren (1885: 264f. n. 4) and Rano (1978: 60f.) followed this interpretation uncritically, whilst Philpot (1897: 111), Eliade (1958: 271f.), Butterworth (1970: 71) and others, retained the connection with the *axis mundi*, but without the explicit notion of centrality, which the original text lacks. The correct translation is “his dwelling is the place of the underworld” (Geller 1980: 34), or “Its abode is the place of the underworld” (Langdon 1928: 847).
- 31 Citing this passage, Pseudo-Aristotle, *De Mundo*, 6 (400a), folk-etymologically derived the name *Olympos* from *hololampēs*, “because it shines brightly all over”, and demythologised it as a reference to the blue, cloudless sky (Furley 1978: 398-401).
- 32 Mani (1975: 462-3) s.v. “Mahāmeru”. The name “Himavān” referred to the Himalaya mountains.
- 33 *Mahābhārata*, *Vana Parva* (3), 160 (36), tr. Van Buitenen: “even the Gods can only with difficulty look at that divine and auspicious place, which is made of light.”
- 34 Tilak (1903: 69), following Ganguli’s earlier translation, offers: “The mountain, by its lustre, so overcomes the darkness of night, that the night can hardly be distinguished from the day.”
- 35 A homonymous word, spelled with different hieroglyphs, means “the glowing fire, flame” (Hannig 1995: 12 s.v. “3ḥt”) . In some passages, the translation “horizon” appears downright misleading. For example, Horus announces: “My flight aloft has reached the horizon, I have overpassed the gods of the sky, I have made my position more prominent than that of the Primaeval Ones. ... I have used the roads of eternity to the dawn, I go up in my flight ...” (*Coffin Texts*, 148 [2.223-

4], tr. Faulkner). How can a “flight aloft” towards a loftier place than the abode of the sky gods culminate at the horizon?

- 36 “*Die Verwendung des Wortes 3ht in Pyramiden- und späteren Texten sowie der Zusatz ‘des Himmels’ (seit NR) machen deutlich, daß bei Achet an einen Ort (im Osten) des Himmels gedacht ist, zu dem der Sonnengott aus anderen Regionen ‘aufsteigt’ und ‘überfährt’ und den der Schöpfer bei der ‘Hochhebung’ des Himmels ‘geheim machte’ ... Später bürgern sich für diesen irdischen Aspekt der ‘Achet’ Bezeichnungen wie 3ht nt B3hw (= 3ht j3btjt nt pt) für den Osten und 3ht nt M3nw (= 3ht jmntjt nt pt) für den Westen ein, wobei B3hw und M3nw Bezeichnungen für dieselben ‘Randgebirge’ oder ‘Randberge’ im Osten und Westen der Erde bzw. für die Ost- und Westwüste sind ...*” (“The use of the word 3ht in Pyramid and later texts as well as the addition ‘of the sky’ (since the New Kingdom) indicate that Achet was conceived as a location (in the east) of the sky, to which the sun god ‘ascends’ and ‘ferries across’ from other regions and which the creator ‘made secret’ on the occasion of the ‘lifting up’ of the sky ... Subsequently, indications like 3ht nt B3hw (= 3ht j3btjt nt pt) for the east and 3ht nt M3nw (= 3ht jmntjt nt pt) for the west come in vogue for this earthly aspect of the ‘Achet’, where B3hw and M3nw are designations for the same ‘peripheral mountain ranges’ or ‘peripheral mountains’ in the east and west resp. for the eastern and western deserts ...”) (Assmann 1977: 3f.). Thus, 3ht indicated the “two poles of the solar axis” (1977: 5).
- 37 “*Andererseits ist diese Beziehung nicht so fest, daß nicht gelegentlich das Wort Achet auch einmal als Bezeichnung des ‘fernen Nordens’, einer Art ‘ultima Thule’, verwendet werden könne. Auch dabei handelt es sich um einen Grenzbereich, dem im Himmel die ‘nördlichen Seelen’, auf Erden Kreta und die Ägäis (Kfjw) zugeordnet werden.*” (“On the other hand, this relation is not so rigid that the word Achet cannot occasionally be used as an indication of the ‘far north’, a sort of ‘ultima Thule’. Even then, the reference is to a liminal zone, with which in the sky the ‘northern souls’ and on earth Crete and the Aegean (Kfjw) are classed.”) (Assmann 1977: 4)
- 38 Cf. Heath (1913: 148f.; 1991: 47f.). Plato goes on to describe how the orbits of the planets and the stars were attached to this pillar, but that need not detain us here.
- 39 Some ancient commentators interpreted the pillar as the *axis mundi* or a cylinder of aetherial fire surrounding the axis. “Plato, at the end of the *Republic*, ... recounts a fable in which, speaking of the arrangement of

the celestial bodies, he says that an axis traverses the celestial pole like a pillar." (Theo of Smyrna, *Mathematics*, 16 [143], tr. Lawlor; cf. Suidas; Photius s.v. "tetaménon phōs"; Proclus, *In Rempublicam Platonis Commentarius*, 2.199. 31f.) "... we have a representation of the outermost or sidereal sphere, girdled by a circle of light, which is prolonged through the poles into a column or shaft of light spanning the Universe from pole to pole and symbolizing to all appearances the cosmical axis. ... Necessity and her spindle, the shaft of which again represents the axis of the Universe. ... The only natural interpretation of these words is that a column or shaft of light spans the entire Universe, like the diameter of a circle, and passes through the centre of the Earth, which, according to Plato, is situated in the middle of the whole ..." (Adam II 1921: 441f., cf. 445f., 470-2; Heath 1913: 150f.; Warren 1885: 145 note 2; Guénon 1962: 195; Butterworth 1970: 11). Adam (1921: II 442) denied that Plato's "Spindle of Necessity" was intended as a real astronomical theory and argues that it was "poetical throughout". The Pythagoreans, however, would not have a strict distinction between astronomical theory and poetical expression; in Plato's work, poetic language is often the vehicle of astronomical ideas that are not enunciated in direct terms.

- 40 Adam (1921, II: 447) noted: "I have found no parallel in ancient astronomical theories to this conception of a light stretching from pole to pole." But the concept was well-known in *speculative* astronomy as found in Neo-Platonism and other mystical traditions.
- 41 Apud Proclus, *In Platonis Timaeum Commentarius* (1. 206. 3-7; 1. 222. 22-23; 1. 314. 13-19; 3. 13. 19 – 17. 7; 3. 24. 24-29; 3. 54. 5-11; 3. 107. 6-11; 3. 112. 3-6, tr. Festugière). "For the generative channel proceeds up until the center, as even the *Oracles* say when speaking about the middle of the five centers, which extends from on high straight through to the opposite side via the center of the earth: 'And there is a fifth in the middle, another channel of fire, where the life-bearing fire descends as far as the material channels'." (*Chaldaean Oracles*, Fr. 65, apud Proclus, *In Platonis Timaeum Commentarius*, 2.107.6-11).
- 42 Elsewhere (1978: 46), Corbin paraphrases "the cable of the ray of light". As Corbin shows (1978: 11, 45f.), the mystics symbolically saw the illumination of the soul as the supreme form of sunrise, turning the heavenly pole into the true east: "The mystic Orient, the Orient-origin is the *heavenly pole*, the point of orientation of the spiritual ascent ... the *illuminatio matutina*, the brilliance of dawn rising in the Orient-origin of

the soul, that is, at the *pole*”, where “the *aurora consurgens* rising at the Emerald Rock, at the keystone of the heavenly dome, is the *aurora borealis* in the Heaven of the soul.” “The *Orient-origin* ... is the celestial *pole*, the cosmic North, ... so it is not a region situated in the East on the maps, not even those old maps that place the East at the top, in place of the North.” (1977: 71, cf. 6). The prototype of the genre may have been Eratosthenes’ poem *Hermes*, in which Hermes rose up and attained a vision of the whole earth.

- 43 “The Classic texts at Palenque tell us that the central axis of the cosmos was called the ‘raised-up sky’ because First Father had raised it at the beginning of creation in order to separate the sky from the earth.” (Freidel 1993: 53; cf. L. Schele, in Dröbner 1999: 166)
- 44 British Museum, Meso-America hall, given by A. W. Franks, Ethno. St. 397a; personal observation, 27th July 2002.
- 45 “The Egyptian artists found it difficult to show a mound surrounded by the coils of a serpent and still keep the essentials of the interior. Hence the coils are reduced to two great loops.” (Clark 1959: 171)
- 46 “Egypt offers some evidence that the primal hill is the center of the cosmos, that life arises there and spreads outward.” (Clifford 1972: 29; cf. De Bock 1922)
- 47 “When that the god had smitten the dark and sinuous-coiling monster, the earth-born Pytho, who cast about Delphi his sevenfold grisly circles and with his scales ground the ancient oaks to powder ...” (Statius, *Thebaid*, 1. 562-71, tr. Mozley; cf. Fontenrose 1959: 82f.).
- 48 “Not yet is the tripod seat at Pytho my care; not yet is the great serpent dead, but still that beast of awful jaws, creeping down from Pleistus, wreathes snowy Parnassus with his nine coils.” (Callimachus, *Hymns*, 4. 90-3, tr. Mair; cf. Fontenrose 1959: 82f.) “Pytho” is the old name of Delphi. The Pleistus is a river near Delphi.
- 49 The cutting down of the tree signified the expulsion of the king. The comparison of the king to the sacred tree was a long-standing tradition in ancient Mesopotamia.
- 50 The Younger Edda cites this passage, adding: “Then the ash Yggdrasil will shake and nothing will then be unafraid in heaven or on earth.” (Snorri Sturluson, *Gylfaginning*, 51, tr. Faulkes)
- 51 “It grew again; soon it had grown too long to be dragged along the ground. He again broke it in halves: one part he set up on that spot, and

- the other he carried along with him. ... In the morning he broke off another part from the tnatantja which had grown again; he left it there: it is still standing in the form of a blood-wood tree. The other portion he bore away to the north.” (Strehlow 1947: 24f.)
- 52 *Kamui* or “the ancients” is “a term applied to the gods” (Batchelor 1889: 134-6).
- 53 Some of the *Pyramid Texts* appear to locate the supreme deity at the heavenly pole, but I am not aware of any good evidence that this polar abode was associated with the astronomical *axis mundi*.
- 54 Hēlēl, the prototype of Lucifer, vowed: “I will ascend to heaven;/ I will raise my throne/ above the stars of God;/ I will sit enthroned on the mount of assembly,/ on the utmost heights of the sacred mountain.” *Isaiah* 14. 12-16, tr. *NIV*. The Hebrew for “the sacred mountain” is *Ṣāphōn*. Gunkel (1895: 132 n. 7), Albright (1968: 232), and Cross (1973, in Page 1996: 101, 131f.), opined that the *kōkabē ’ēl*, the “stars of El”, were the circumpolar stars of the north; cf. Etz (1986: 293); Margulis (1974: 15, 16 n. 47); Clifford (1972: 57-79). Lauha (in Prinsloo 1981: 438 note) argued that *Ṣāphōn* corresponds to the Mesopotamian northern mountain that marked the centre of the earth. The interpretation of *Ṣāphōn* as the cosmic mountain or as a symbol of the sky itself does not rule out its geographical identification with the Syrian Mount Casius (Grelot 1956: 21). Curiously, Bonnet (1987: 106) denied the cosmic dimensions of *Ṣāphōn*, but admitted that “*dans les mythes, la montagne sacrée fait souvent figure d’axis mundi*.”
- 55 “Tradition says: the polestar proves that the Ka’ba is the highest situated territory; for it lies over against the centre of heaven” (al-Kisā’ī [d. 904 CE], fol. 15a, 7 infra, in Wensinck 1916: 15; Eliade 1958: 100).
- 56 Wilhelm Roscher (1913: 79) was probably the first to formulate this: “*In der späteren Zeit, als man die Vorstellung der Erde als einer kreisrunden Scheibe aufgegeben hatte und an deren Stelle die einer Kugel getreten war, auf deren Oberfläche kein Mittelpunkt mehr gefunden werden kann, verwandelte sich naturgemäß der ‘Erdnabel’ in den Punkt auf der Kugeloberfläche, durch welchen die Erd- und Himmelsachse ... hindurchgeht.*” (“In the later period, when the conception of the earth as a circular disc had been discarded and replaced with that of a sphere, on the surface of which no centre could be found anymore, the ‘navel of the earth’ was naturally transformed into that point on the surface of the sphere through which the axis of the

earth and heaven goes.”) However, neither Roscher nor Wensinck, 1916, used this insight to distinguish the relatively late attestations of the true *axis mundi* from earlier, folkloristic prototypes with a more obscure point of reference. Both authorities worked mostly with comparatively late material – of Greek, Hebrew, and Arabic provenance – and did not balance this against older Mesopotamian and Egyptian sources.

- 57 On this notion, see Empedocles, apud Aetius, *Placita Philosophorum*, 2. 8. 2. The subject is too complex to be discussed here.
- 58 “*Wenn man gewöhnlich bei den Himmelssteg an die Milchstrasse denkt ..., so vergisst man, dass sich die Milchstrasse mit dem ganzen Himmelsgewölbe dreht ...*” (On the usual assumption that the celestial bridge was the Milky Way ..., one forgets that the Milky Way turns around with the entire heavenly firmament ...) (Helmbold 1906: 28 n. 36).
- 59 The significance of the zodiacal light as a source of mythical imagery was first proposed by Julius Helmbold (1906), but has been completely ignored. Helmbold applied the thesis especially to the themes of the pillars of Atlas in the east and west respectively, the sacred mountains associated with Atlas and Prometheus, the “white rock”, and the gates of the sun. Helmbold’s work ignores the concepts of the navel and the world axis, but then it preceded Roscher’s studies of the *omphalos* and the cosmic centre.
- 60 “It should be emphasized, however, that the details of such a model, in particular whether the presumed streams of cometary debris and the zodiacal cloud can really be shown to evolve on the short timescales (~ 10000 yr) of interest to historians and archaeologists, have still to be worked out ...” (Bailey 1995: 663). Cf. “an earlier, more intense zodiacal light, presumably emanating from a more massive former zodiacal cloud.” (1998: 17)
- 61 The marked diminution of the zodiacal light in later times, especially in the temperate zones, may explain its apparent absence in the treatises of Aristotle and other ancient natural historians (Helmbold 1906: 7).
- 62 “It appears to me very probable, in view of the properties above described, that the zodiacal light must be primarily occasioned by electrical phenomena.” (Birkeland 1913: 612). For example, the Reverend George Jones reported “a swelling out, laterally and upwards, of the zodiacal light, with an increase of brightness in the light itself;

then in a few minutes, a shrinking back of the boundaries, and a dimming of the light; the latter to such a degree as to appear, at times, as if it was quite dying away; and so back and forth for about three quarters of an hour ..." (1913: 612). Thanks to I. Tresman for this reference.

- 63 But note that, for Birkeland, the debris surrounding the sun originated not as meteoric dust, but is "undergoing constant renewal from the central body" (1913: 524).
- 64 Birkeland found that "under certain conditions luminous rings were produced around the poles Birkeland identified these rings with the auroral zones. As we know today, this is essentially correct." (Alfvén 1981: 1)
- 65 "AD 104 May 30 [China] / 'Emperor He of Han, 16th year of the Yongyuan reign period, 4th month, day *dingwei* [44]. A white vapor like unspun silk emanated from the middle of ZIGONG (i.e., the circumpolar region).' " (Fan Ye [d. 445 CE), *Hou Han Shu, Tianwen Zhi*, 21, tr. Xu 2000: 190).
- 66 Auroral manifestations have sometimes been seen to descend below the generally accepted lower limit of 80 kilometers for auroral displays, apparently touching the horizon (Corliss 1982: 16).
- 67 "The long-lived, isolated auroral pillar with a bearing well away from magnetic north may have a different origin than the ever-changing beams and flickerings associated with the usual auroral display." (Corliss 1982: 8). As auroral pillars "usually appear in the eastern or western horizon, well away from the zone where auroral activity normally occurs" (1982: 7), and one case, observed on the 4th March 1896 across Great Britain, had its initial location "almost coincident with the axis of the zodiacal light" (1982: 8f.), one may be tempted to associate them with the zodiacal light, but Corliss (1982: 8) warns that the zodiacal light differs from auroral pillars in that it is triangular in shape, slanted along the ecliptic, and fixed in space.
- 68 "15 BC Mar 27 [China] / 'Emperor Cheng of Han, 2nd year of the Yongshi reign period, 2nd month, day *guiwei* [20]. At night, in the east there was a scarlet coloration as large as three to four arm spans. It was two to three *zhang* long and shook like a tree.' " (Ban Gu [d. 92 CE], *Han Shu, Tianwen Zhi*, 26; *Xi Han Huiyao*, 28, tr. Xu 2000: 190)

- 69 “AD 478 Mar 20 – Apr 17 [Korea] / ‘21st year of King Chabimaripkan of Silla, spring, 2nd month. At night, there was a scarlet light like a bolt of unspun silk that reached from the earth to the sky.’ ” (Kim Busik [d. 1151], *Samguk Sagi*, 3; *Chungbo Munhon Pigo* [1770 CE onwards], 6, tr. Xu 2000: 193)
- 70 “AD 307 Jan 22-26 [China] / ‘Emperor Hui of Jin, 1st year of the Guangxi reign period, 12th month, day *jiashen* [21]. A white vapor like a rainbow extended downwards from north of the zenith to the ground. It appeared for five nights and then was extinguished.’ ” (Fang Xuanling [d. 648 CE] et al., *Jin Shu*, *Tianwen Zhi*, 13 *xia*; Shen Yue, *Song Shu* [488 CE], *Tianwen Zhi*, *er* 24, tr. Xu 2000: 191)
- 71 “AD 937 Feb 14 [China] / ... ‘Emperor Gaozu of Later Jin 2nd year of the Tianfu reign period, 1st month, day *yimao* [52]. On this night, there were alternating scarlet and white vapors, like a planted grove of bamboo, extending from the *hai* direction (NNW) to *chou* direction (ENE). It rose from the northern horizon and passed the zenith.’ ” (Ouyang Xiu [d. 1072 CE] square bracket, *Xin Wudai Shi*, 76, tr. Xu 2000: 199)
- 72 “Data obtained by GPS logging the locations of archaic petroglyphs throughout the American Southwest, Valcamonica Italy, Northern South American, Australia, and Chile indicates that the plasma influx was into the Earth’s southern magnetic pole. In all cases the petroglyphs have a southern Field-of-View (FOV) component. The southern horizon inclination angles of the carvings are nearly zero degrees at 50 degrees latitude north increasing to a maximum of about forty degrees inclination at latitude 31 degrees south.” (Peratt 2005)
- 73 *Zhu Shu Ji Nian* or *Bamboo Annals*; *Gujin Tushu Jicheng*, 102; *Taiping Yulan*, 874, tr. Xu 2000: 188.
- 74 For the evolving orientation of the global geomagnetic field over the past 3000 years, see Constable (2000).
- 75 Note that the Manichaeans identified the mystic pillar of light at the pole with the *aurora borealis* (Corbin 1978: 5).

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