

Chapter 5. The Presocratics in Western Eurasia: Four immutable elemental categories as the norm throughout Western Eurasia for the last two millennia

5.1. The Presocratics

Western philosophy and natural science are commonly held to have begun in Ancient Greece, with the Presocratic philosophers each seeking to identify the nature of primal matter: Thales (Water), Anaximenes (Air), Heraclitus (Fire), Xenophanes (Earth) and Empedocles (Water, Air, Earth, Fire) – all flourishing in the middle of the 1st mill. BCE.

The distinction between Greek philosophy before and after Socrates was introduced around 1800 CE by Hegel and Schleiermacher; the Presocratics had a considerable influence on European Romantic poets such as Hölderlin, whereas the designation ‘Presocratics’ (always begrudged by Modern scholarship) was coined by Nietzsche.¹¹⁴ The extensive corpus of sources on Presocratic philosophy was first systematically brought together by Diels¹¹⁵ and subsequently considered in a vast literature.¹¹⁶ In this corpus, Aristotle takes pride of place. He represents the Presocratics, notably Empedocles, in a way that – as we shall see – still could be read

¹¹⁴ Nietzsche 1923 (1873); cf. Huehn 2001, who also points out critically alternative designations.

¹¹⁵ Diels 1960 / 1903, cf. 1899; also cf. Burkert 1999.

¹¹⁶ The vast literature on the Presocratics includes, among much else: Allen & Furley 1975; Bakalis 2005; Barnes 1979; Bernabé 2001; Buchheim 1994; Burnet 1934; Capelle 1935; Cornford 1962; Fairbanks 1898; Grünwald 1991; Guthrie 1978; Kirk *et al.* 1983; Lami 1991; Macauley 1998; Mansfeld 1983-1987; Snell 1955.

to imply the cyclical nature of the system. It was mainly Aristotle's version of Empedocles' four-element doctrine (*but deprived of its implicitly cyclical character*) that was subsequently enshrined in Graeco-Roman, Arabic, Indian and European natural science, astrology,¹¹⁷ other forms of divination, medicine, iconography, etc. as one of the central paradigms leading to Modern science and Modern thought.

Whereas the Taoist system is one of an unending transformation cycle, at the other extreme of the spectrum we find the use to which the Empedoclean system has been put in the ontologies of Graeco-Roman Late Antiquity, medieval Byzantine, Arabic and Latin science, and their Early Modern derivatives *e.g.* in the four humours doctrine of Galenus, in the Hebrew high priest's ephod claimed to symbolise the four elements and containing the cleromantic apparatus of the 'Urim and Thummim (Cooper 1988, *s.v.* 'vestments'), in classic Arabian *'ud*-(*i.e.* lute-)centred musical theory (Howard 1993), in geomancy (*'ilm al-raml*), which emerged in Iraq at the end of the 1st millennium CE in the context of the philosophical movement of the *Iḥwān al-Ṣafā*. All these later interpretations combined to produce an orthodoxy where the four elements had become a rigid, conventionalised classification system in which all notion of a transformation cycle had been lost.

In view of the enigmatic, unspecified nature of the 'Urim and Thummim as pre-Exilic Israelite ritual divination apparatus, and the enormous literature on this topic, Cooper's suggestion as to an Empedoclean background must be treated with suspicion. The went goes *in disuse* after the Babylonian Exile, a century before Empedocles. A traditional translation of the Hebrew terms is 'lights' and 'perfections', respectively (*cf.* Strong 1989: 1058, 1093; Dahlby *n.d.*), but their plural Hebrew morphology has been found puzzling (Kitz 1997), perhaps suggestive of superficial localisations of words from other languages than Hebrew, *e.g.* Ancient Egyptian, Akkadian, or Greek; or, within the Hebrew domain, relating to other roots than those usually adduced, *e.g.* תְּהוֹם *t-hom*, 'abyss' (*Genesis* 1:2). By analogy with an Assyrian form of divination, Horowitz & Hurowitz (1992) suggest an interpretation in terms of psephomancy *i.e.* divination by means of pebbles, thus setting a standard for two decades now and bringing the 'Urim and Thummim procedure close to divination methods

¹¹⁷ Pingree 1978 splendidly offers an overview of the transcultural connections involved.

– including geomantic ones – in sub-Saharan Africa, especially Southern Africa. (Cf. Coon 1977: 136 *f.*, where on the basis of the unreliable Trilles (1932) a Pygmy hunting divination rite is described ‘comparable to the Urim and Thummim’). Many authors (e.g. Reiner 1960: 25; Rowley 1956: 28 *f.*; Vriezen 1963: 74) claim a mechanical, one-bit ‘yes / no’ function for the ‘Urim and Thummim’ oracle, but if that were true it would not make sense to have more than one element (stone, gem, stick) involved – a single element falling in two different positions, e.g. facing up or down, is already sufficient to produce yes-no answers. Hence Mary Douglas’ insistence (1999) that more complex answers must have been possible (*I Sam.* 28:6 reports a *neutral* outcome, for instance, in addition to mere ‘yes / no’), and that the positions where the elements end up in a imaginary astronomical or astrological grid may influence the outcome – in the sense of the *microdramatics* that the anthropologist Werbner (1989) sees involved in Southern African cleromantic divination, which also applies to the bones oracles and basket oracles of Southern and South Central Africa, and which, in the Ancient Mediterranean region, moreover underlies the casting of dice on the calibrated so-called Tabula Bianchini, for adulterated astrological purposes (Bouché-Leclercq 1899: 213, 227). Such microdramatics are entirely absent in the geomantic four-tablet oracles of Southern and West Africa and of the Indian Ocean, where the outcome is entirely determined by the stochastic production of any of the 2ⁿ combinations, as interpreted in the light of a fixed, abstract oracular catalogue. Therefore it is interesting that Greek gods whose shrines have a cleromantic function, especially those of Heracles, are claimed to have Levantine / Phoenician connotations.¹¹⁸ In the same Phoenician direction point suggestions that the ‘Urim and Thummim’ are associated with the alphabet (Robertson 1961; Auerbach 1953). The topic is of considerable interest to our present argument, especially because, in the sphere of divination, it might be suspected to provide a missing link between (a) the Aegean, (b) the more specifically Pelasgian realm of West Asia, and (c) the proposed West Asian cosmological continuities between West Asia and China (see below, Ch. 7, on Terrien de Lacouperie). Such continuity, at least, is the opinion of the Sinologist Carus

¹¹⁸ E.g. Levy 1934; Van Berchem 1967. The Levantine claim implies that these gods and shrines hail from the region associated not only with West Semitic speakers but also with Pelasgians. That both identities may be found within one and the same regional community is the point of Fig. 7.2, below.

(1911, *cf.* 1898 / 1902 and 1907), who sees close parallels between the 'Urim and Thummin on the one hand, and Chinese 羅盤 *Lo Pan / luó pán* divination on the other; and who stresses Sumerian / Chinese continuity. Similarly the Sinologist Walters 1992: 131:

'What the Urim and Thummim were can only be guessed at, but it is entirely probable that they were similar to the two ancient traditional methods that are still found being used in Chinese temples today. These are the two blocks of wood called *chiao pai* and the bundle of sticks known as *chim*.'

Perhaps as an unreferenced echo from Terrien de Lacouperie, Karst (1931a: 464, 1931b: 93 *f.*) suggested a pre-Semitic or pre-Semitic background for these divinatory instruments, no doubt on comparative-linguistic grounds which however are not made explicit.

Nor does the above exhaust the applications of an element system in the Greek, and by extension Indo-European, context. It has long been recognised by classicists that the rudimentary outlines of a four-element system can already be found in Homer and Hesiod, dated to the 8th-7th c. BCE (*cf.* Fontenrose 1958: 213, 221*f.*; Cerri 1998; Longrigg 1976). For example (it is Poseidon who speaks):

τρῆς γάρ τ' ἐκ Κρόνου εἰμὲν ἀδελφοὶ οὓς τέκετο Πῆρα
Ζεὺς καὶ ἐγώ, τρίτατος δ' Αἴδης ἐνέροισιν ἀνάσσω.
τριχθὰ δὲ πάντα δέδασται, ἕκαστος δ' ἔμμορε τιμῆς:
ἦτοι ἐγὼν ἔλαχον πολὴν ἄλα ναίμεν αἰεὶ
παλλομένων, Αἴδης δ' ἔλαχε ζόφον ἠερόεντα,
Ζεὺς δ' ἔλαχ' οὐρανὸν εὐρὺν ἐν αἰθέρι καὶ νεφέλῃσι:
γαῖα δ' ἔτι ζυγὴ πάντων καὶ μακρὸς Ὀλυμπος.

'We were three brothers whom Rhea bore to Saturn – Jove, myself, and Hades who rules the world below. Heaven and Earth were divided into three parts, and each of us was to have an equal share. When we cast lots, it fell to me to have my dwelling in the sea for evermore; Hades took the darkness of the realms under the earth, while air and sky and clouds were the portion that fell to Jove; but earth and great Olympus are the common property of all.' (Homer, *Iliad*, XV, 184*f.*; English tr. Samuel Butler.)

ἐκ Χάος δ' Ἐρεβός τε μέλαινα τε Νύξ ἐγένοντο
Νυκτὸς δ' αὐτ' Αἰθήρ τε καὶ Ἥμερη ἐξεγένοντο,
οὓς τέκε κυσαμένη Ἐρῆβει φιλότῃ μιγεῖσα.
Γαῖα δὲ τοι πρῶτον μὲν ἐγείνατο ἴσον ἑαυτῇ
Οὐρανὸν ἀστερόενθ', ἵνα μιν περὶ πάντα καλύπτου,
ἄρ' εἴη μακάρεσσι θεοῖς ἔδος ἀσφαλῶς αἰεὶ.

'From Chaos came forth Erebus and black Night; but of Night were born Aether and Day, whom she conceived and bare from union in love with Erebus. And Earth first bare starry

Heaven, equal to herself, to
cover her on every side, and to
be an ever-sure abiding-place
for the blessed gods.' (Hesiod,
Theogonia, 116*f.*: (English
translation Hugh G. Evelyn-
White)

A further case in point is the Homeric struggle of Achilles (hero before Troy, a sea god in the Black Sea region, but¹¹⁹ structurally to the equated with Earth), aided by Hephaestus, *i.e.* Fire, at the instigation of Athena (= Air?), against the River Scamander (Water) (Homer, *Iliad* XX, 74 *f.*, XXI, 136 *f.*). In a recent paper Nick Allen (2010) drew attention to the unmistakable parallels between this account and the struggle between the rainstorm god Indra (Water) and the water-absorbing snake Vṛtrá (Earth). Hephaestus is a key figure in this connection.¹²⁰ There is a parallel in Nordic mythology: the rain god Freyr on the day of Ragnarok (the Nordic Apocalypse) will battle without weapons (for he gave his sword away to

¹¹⁹ For reasons beyond our present scope; briefly, as son of a sea goddess, Achilles structurally (under the Separation-of-Water-and-Land cosmogony) corresponds with 'Land', hence 'Earth'.

¹²⁰ My recently drafted extensive study, with the rather too epigonistically-Bernallian, working title *Black Vulcan* (van Binsbergen, in preparation (b); written to contest my friend Blažek's (2010b) claim that the name *Hēphaistos* [Hephaestus] should be considered a reflex of the Ancient Egyptian theonym Pth [Ptah] casts further light on the extensive, and early (8th century BCE as the oldest date for the composition of the Homeric poems) applicability of the transformation cycle of elements in the Ancient Greek context and its regional antecedents in West Asia, where the Hephaestus cult is said to originate. Interestingly, Fire is an exceptionally capricious and destructive case as compared to the other elements, not just in Ancient Greek mythology – also *cf.* the disasters attending the descent from Heaven of the non-personified Fire in the hands of Prometheus, and (for further comparative significance) inside a reed stalk or *narthex*, of all possibilities – but also in Uralic mythology (where Canto II of the *Kalevala* may be read as a narratised transformation cycle of elements, and the birth of Iron, *cf.* Fire, in Canto IX creates dramatic conditions comparable to those attending Hephaestus' childhood; Lönnrot 1866, Tamminen 1928), and on the other end of the Eurasian Steppe belt, the Japanese gods カグツチ Fire / Kagutsuchi and スサノオ Storm / Rain / Ocean Susanowo, with comparable destructive impetuousness. I suspect a case could be made (it has been made, but not yet on solid grounds) for Fire being among a more original, smaller set of elements than four, five, six or eight, perhaps paired with *Water* – and later augmented and systematised with the addition of Earth, Wood, Metal, Air, etc. Fire, and to a lesser extent Water (but see what it does to Fire!) are much more obviously aggressive and destructive than the other elements, and the cycles of destruction and production (insult and blessing) in transformation may have been primarily inspired by Fire and Water.

Skirnir), and will be the first to be killed by the formidable Surt (a Fire Giant) – again enacting the same scheme of Water being destroyed by Fire.¹²¹ Vlastos (1955: 74) and Stokes (1962-1963: 33) suggest that in archaic Greek thought, Chaos / Tartarus, as an element in its own right, was considered the origin of the three elements Air, Earth and Water / sea (Longrigg 1976: 426f). Also the well-known Greek myth of the birth of Athena, adult and fully armed, from the head of her parthenogenetic father Zeus,¹²² while the divine blacksmith Hephaestus splits the head open with his hammer, could be considered an incomplete evocation of a transformative element cycle.



Source: Majer 1687: 67, cf. Seligmann n.d.: 133

Fig. 5.1. *The birth of Athena as an instance of the transformative cycle of elements.*

Thus the narrative of the birth of Athena seems to amount to the follow-

¹²¹ By further comparison, in the Nkoya narrative of king Shihoka Nalinanga and his sister who is his main enemy, the dry / wet opposition is applied in several ways. The king's name means 'Snake, Child or Parent of Drought', and although producing boats, he lives in the forest, while his counterpart lives in the open Flood Plain, as the structural exponent of the Mother of the Waters, who in vain claims her privilege of supremacy, after her position has already been redefined from intergeneration (Virgin Mother and Only Child, who becomes her lover) to intrageneration Elder Sister / Younger Brother – with further humiliation in stock for the Elder Sister. The opposition between Rain and Drought is, however, not just a binary cosmological opposition, but may be interpreted as part of a transformation cycle involving, besides Fire and Water, also Earth, Air, Metal, and possibly other elements such as Aether.

¹²² Cf. Hesiod, *Theogonia*, 886 f., 924 f., 929a f.; Pindar (1865), *Olympian Ode*, 7, 33 f.; Apollodorus, *Bibliotheca*, 1, 20; Philostratus the Elder, *Imagines*, 2, 27; Philostratus, *Vita Apollonii*, 6, 19; Atsma, Theoi, s.v. 'Athena'.

ing element transformative formula:

Zeus → Athena / with Hephaestus as catalyst
Air (Earth?) → Water^{123?} / with Fire as catalyst

Note, however, that the logic of the transformation cycle of elements is rather misunderstood in Fig. 5.1 (a late-17th c. fanciful alchemical rendition of the Greek narrative: Hephaestus / Vulcan appears with all the insignia of his identity as Fire (the smithy in the background, with blazing furnace, tongs, hammer in the foreground) but Zeus / Jupiter also holds fire in his right hand – in mythology his main emblem is the thunderbolt. In the background, where (as during Zeus' visit to Danae) it rains gold, note an apocryphal couple (Sol with Aphrodite / Venus) making love under a canopy under the encouraging eye of Eros / Cupid, while a narcissistic Apollo poses on a pedestal, holding his bow. The title of the copper-plate (*Aurum pluit, dum nascitur Pallas Rhodi, & Sol concumbit Veneri*) refers to gold-making: the birth of Athena (with Sun making love to Venus in the back) evokes the liberation of gold from its surroundings, and the triumph of mind over matter.

If the Ancients had been totally unaware of the notion of a cyclical transformation of elements, one could not understand a major, widely received text like Ovid's *Metamorphoses* (cf. della Corte 1985), many stories in which could be read as illustrations of the transformative element cycle. Another indication of the Ancients' implicit awareness of a transformative element cycle, with the idea of elements seeking to dominate each other, may be read into the *Allegoriae Homericae* by Heraclitus Ponticus (388-315 BCE):

'Thus the chaining of Hera (*Iliad*, III, 277) is explained as the union of the elements (...); the hurling of Hephaestus through the air (*Iliad*, I, 592) signifies the earthly fire, which is weaker than the heavenly flame' (Geffken 1908: 329).

¹²³ Whatever the transformations which Athena has undergone so as to become the (Pelagian-associated) principal patroness of Athens and of arts and crafts, her prime identity is that of an aquatic goddess, for reasons which I set out in van Binsbergen 2011d – ultimately, she (and the same applies to her cognates Neith, Anat, Anahita, Nyambi etc.) may be seen as a late manifestation of the putative, prehistoric Mother of the Waters.

The four elements then appear, in the established later use, as fixed ontological positions, which have their own immutable inherent characteristics. The world is composed, not of an unending systematic cycle of transformations in which one substance constantly transforms into another, but of the varying amalgamation of four fundamentally different substances which each remain constant in the process.

The idea of such absolute differences appears to owe a considerable historical and conceptual debt to the logic of writing and of a writing-based formalised science. Letters are like immutable elements, texts their permutations; both ‘letters’ and ‘elements’ were called *stoicheion* in Greek, (*cf.* footnote 133, below). A four-element system is no longer a merely oral nature philosophy capable of underpinning the practical cosmologies of illiterate peripheral peoples – on the contrary, it is the literate, articulate science that belongs to a life world in which writing, the state, science and organised religion have totally altered the shape of culture and of society, in a general application of notions of transcendence that are the opposite of the immanentist transformation cycle of Taoism. However, we must not exaggerate this effect of writing and the state, for also Taoism, with its emphasis on cyclical transformation, is a product of a literate state with priests and proto-science. At the far end of these transcendental, immutable distinctions lies Early Modern natural science, Modern atomic theory, and Modern physics and chemistry in general. The great French historian of science Gaston Bachelard has written poetical-philosophical analyses of all four Empedoclean elements (Bachelard 1938, 1942, 1943, 1946, 1948) in a bid to articulate their essence in terms that are still acceptable to natural science and philosophy today, stressing the importance of the thinkability of scientific and pseudo-scientific representations.

A closer look at Empedocles, Aristotle and Plato suggests that the discarding of the transformation cycle and the fixing of elements in immutable, parallel ontological positions may have occurred not in classical Greek civilisation but only in later centuries, and that this later reading has then been projected back into the emendation, understanding and reception of classical sources.

In 2005 James Butler challenged mainstream Empedocles interpretations by stressing the latter’s concept of *effluvia* over that of *rhizomata*, thus

evoking an image of fluidity that may well be in line with that of a transformation cycle of elements. In Butler's words (2005: 215),

'Taking as a guiding theme his [Empedocles'] claim that "there are effluvia from all things that have come to be" (Diels & Kranz B 89), the author presents a reading of Empedocles that stresses the central role of effluvia in his natural philosophy. In presentations of Empedocles, the tradition has usually emphasized the importance of the elements – Earth, Air, Water, Fire, Love, and Strife. But as an alternative to that tradition, the author here argues that one must bring to the forefront the role of the effluvia, which give to Empedocles' cosmology a fluid, viscous character. The history of western natural science has been dominated by a mechanics of solid bodies following, however indirectly, in the tradition of the atoms and void of early Greek atomism. Empedocles represents a forgotten exception to that history, and the present argument attempts to return to his philosophy, unearth its fluid mechanical foundations, and presents a challenging alternative to the dominant physical paradigm.'

5.2. Empedocles

5.2.1. Empedocles: Introduction

There exists an enormous literature on the Four Elements in the Graeco-Roman tradition, and specifically on Empedocles.¹²⁴ Most of this literature (up to the late 20th century CE) tends to ignore the wider, global ramifications of element systems, and to see Empedocles as the unprecedented inventor of the foursome. Already in the light of the Homeric and Hesiodic passages cited above, this seems untenable. Moreover, we already see the nucleus of a four-element doctrine when another Pre-socratic philosopher, Anaximenes, nearly a century before Empedocles, considered Air the original element, which however turns into Fire through thinning, and then into Water, Earth and Stone.

In the most recent decades the Empedoclean corpus was augmented by a

¹²⁴ The literature on Empedocles includes, among many other publications: Baltzer 1879; Barnes 1982; Bidez 1884, 1896; Biès 1969; Bollack 1965-1969; Burkert 1962, 1975; Classen 1970; Cornford 1926; Diels 1880, 1898; Dumont *et al.* 1988; Ferwerda 1997; Feshbach 1988; Kingsley 1995a; Lambridis 1976; Leonard 1908; Lommatzsch 1830; Macauley 1998, 2005; Millerd 1908; O'Keefe 1969; Osborne 2000, 2005; Parry 2005; Primavesi 1998a, 1998b; Tiedemann 1781; Trépanier 2004; Vitek n.d.; Wagner 2000; Wright 1995, 1997.

few new papyri finds. These new Strassbourg fragments¹²⁵ are rather uncertain and their importance for Empedocles studies is widely considered to have been exaggerated by their editors (Vítek 2004; Laks 2001). Even so, they seem to suggest that Empedocles left only one combined physical / moral-purification text, not two separate texts (Campbell 2004-2005). However, it may go too far to suggest, with Osborne (1987: 48f; 2005) that Empedocles envisaged in the first place to propound, not a cosmology, but a moral philosophy to regulate the lives of humans.

The received reading of Empedocles has been that, for him, reality consists of an ever varying mixture of immutable elements (*rhizomata* ῥιζώματα), which were conceived of as minute discrete particles but not necessarily as atoms (Longrigg 1976: 437f). This compromise between mutability and immutability is considered to be Empedocles' answer to Parmenides' paralysing ontological claim of total immutability (*cf.* Heidel 1906). Finkelberg (1997) argues that this aspect of Empedocles' theory originates in Xenophanes's theory of the mixture of original bodies. In this light we might also view Empedocles' theory of element interaction (*cf.* Acri 1870): the small divisible parts of each element are supposed to enter the pores of each other element during the maximum dominance of Strife – one of the two phases (the other being Love) the cosmological process of the world goes through in a perpetual cycle (Solmsen 1965). Table 5.1 presents the core of Empedocles' doctrine.

Greek	English	identification
6. τέσσαρα γὰρ πάντων ῥιζώματα πρῶτον ἄκουε/	6. And first the fourfold root of all things: hear! –	
Ζεὺς ἀργήης	White gleaming Zeus,	Fire
Ἦθη τε φερέσβιος ἦδ' /	Life-bringing Here	Air
Αἰδωνεύς (...)	Dis,	Earth
Νῆστις θ', ἥ δακροῖς τέγγει κροῦνῶμα βρότειον. /	And Nestis whose tears bedew mortality.	Water
7 ἀγένητα,	7. Uncreated	
8. (...) ἄλλο δέ τοι ἐρέω φύσις οὐδενός ἔστιν ἀπάντων / θνητῶν, οὐδέ τις οὐλομένου θανάτοιο τελευτή, / ἀλλὰ μόνον μίξις τε διάλλαξις τε μιγέντων / ἔστί, φύσις δ' ἐπὶ τοῖς ὀνομάζεται	8 But when in man, wild beast, or bird, or bush, / These elements commingle and arrive	

¹²⁵ Curd 2002; Janko 2004; Martin 1998; Martin & Primavesi 1998b; van der Ben 1999.

<p>ἀνθρώποισιν. 9. οἱ δ' ὅτε μὲν κατὰ φῶτα μιγέντ' εἰς αιθέρ' ἴκωνται] / ἢ κατὰ θηρῶν ἀγροτέρων γένος ἢ κατὰ θάμινων / ἢ ἐ κατ' οἰωνῶν, τότε μὲν τὸ [λέγουσι] γενέσθαι / εὔτε δ' ἀποκρινθῶσι, τὰ δ' αὐ̄ δυσδαίμονα πότμον' / ἢ θέμις [οὐ̄] καλέουσι, νόμοι δ' ἐπίφημι καὶ αὐτὸς./ 10. θάνατον . . . ἀλοίτην. / 11. νήπιοι οὐ γὰρ σφιν δολιχόφρονές εἰσι μέριμναι, / οἱ δὴ γίγνεσθαι πάρος οὐκ ἔδον ἐλπίζουσιν / ἢ τι καταθνήσκειν τε καὶ ἐξόλλυσθαι ἀπάντη. / 12. ἔκ τε γὰρ οὐδ' ἀμ' ἔοντος ἀμήχανόν ἔστι γενέσθαι / καὶ τ' ἔδον ἐξαπολέσθαι ἀνήυστον καὶ ἄπυστον· / αἰεὶ γὰρ τῆι γ' ἔσται, ὅπῃ κέ τις αἰὲν ἐρείδῃ.</p>	<p>9 The realms of light, the thoughtless deem it 'birth'; / When they dispart, 't is 'doom of death;' and though / Not this the Law, I too assent to use. / 10. Avenging Death. / 11. Fools! for their thoughts are briefly brooded o'er. / Who trust that what is not can e'er become, / Or aught that is can wholly die away. / 12. From what-is-not what-is can ne'er become; / So that what-is should e'er be all destroyed, / No force could compass and no ear hath heard – / For there 't will be forever where 't is set.</p>	
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Source: Leonard 1908, based on Aetius' *Placita Philosophorum* I, 3; *Doxographi Graeci* 287 – Diels 1879

Table 5.1. The four elements according to Empedocles.

5.2.2. Remarks to Table 5.1 (Empedocles' doxology)

Since Antiquity, scholars have been in disagreement (Kingsley 1994a) as to the specific interpretation of the four theonyms in terms of the four elements enumerated by Aristotle (*Meteorologica* (339a 15-19 and 36-b2; for Greek text see six pages down). Wellmann (1905) sums up the major disagreements:

'...Solcher Grundstoffe oder Elemente, die er noch nicht Elemente (στοιχεῖα) nennt, sondern Wurzeln (ρίζωματα) von allem, nimmt er nun vier an, nämlich Feuer, Luft, Wasser und Erde, oder, wie er sie mythologisch bezeichnet. Ζεὺς, Ἥρη, Ἄιδωνεύς, Νῆστις. Über die Bedeutung dieser Benennungen gab es später zwei verschiedene Ansichten: nach der einen, die sich auf Theophrast zurückführen läßt, ist unter Here die Luft, unter Aidoneus die Erde zu verstehen, nach der anderen, die schon Krates von Mallos vertreten zu haben scheint, bedeutet Here die Erde und Aidoneus die Luft. Darüber, daß mit Zeus (für den auch Hephaistos oder Helios eintritt) das Feuer und mit Nestis das Wasser gemeint sei, herrschte im Altertum kein Zweifel. Die neueren Gelehrten halten Theophrasts Auslegung für die richtige, nur Thiele [(...) (1897)] meint Zeus, müsse die Luft, Here die Erde bezeichnen.'

Some have interpreted Hera as Earth, which however leaves Air unac-

counted for.¹²⁶ On the basis of the transcontinental methodological principle cited at the end of Chapter 1, we are justified to look to other manifestations of element systems elsewhere for arguments in favour of a particular attribution. Since Zeus is both the god of thunder (an aspect apparently implied here by Empedocles) and of the clear Sky and in the latter capacity equivalent to Ancient Egyptian Šw (Shu), his sister and spouse would be homologous to Tfn̄t (Tefnut), *i.e.* Moisture, Mist, Air – in line with Theophrastus’ view. Meanwhile, nonetheless, the disagreement continues over the element interpretation of Empedocles theonymic doxology (Thiele 1897; Wellmann 1905; Snell 1943; Kingsley 1994a). Kingsley, however, was severely criticised by Mansfeld (1995) and O’Brien (1998):

‘Kingsley seeks to revive the nineteenth-century thesis that Aidoneus, an alternative name for Hades, god of the underworld, is fire, that Zeus (the rival candidate for fire) is air, and that Hera (the rival candidate for air) is earth.’ (O’Brien 1998; the same interpretation of Aidoneus is followed in the Dutch translation of the *Fragments* (Ferwerda 1997); on Plato’s view that Hera is equal to Air and not to Earth, *cf.* Sprague 1972).

According to Longrigg (1976) Empedocles himself did not attach great value to the identification of the theonyms with specific elements.

The name Αἰδωνεύς that is here used for Dis / Hades, is often equated with the Hebrew expression אֲדֹנָי *Adonai* ‘Lord’, as a designation of the High God. The identification and interpretation of Nestis here pose considerable problems and have been considered by several scholars.¹²⁷ The once leading classicist Von Wilamowitz-Möllendorff (1931: 20) considered Nestis *verschollen*, ‘unheard of’, and denies her name a Greek etymology. Vlastos (1947) calls the name ‘so inconsequential that its very identity remains in doubt’. Yet Nestis comes back elsewhere among Empedocles’ *Fragments*, I, 96 (Leonard 1908: 45):¹²⁸

¹²⁶ Chitwood (1986) speaks, with reference to the same passage, of ‘bright-shining Hera’, unconvincingly applying ἀργήεις (‘bright, as lightning’) to her and not to lightning-throwing Zeus. The most authoritative Greek-English dictionary (Liddell & Scott 1901: *s.v.* ἀργήεις) translates Empedocles’ expression ‘Ζεὺς ἀργήεις’ as ‘fire’.

¹²⁷ Sedley 1999; Barnes 1998: 461; Kingsley 1995a: 359; Picot 2004; Sheppard 1996.

¹²⁸ Fairbanks (1898: 183) gives a substantially different translation: ‘And the kindly earth in its broad hollows received two out of the eight parts of bright Nestis [*i.e.* Water – WvB], and four of Hephaistos [*i.e.* Fire – WvB], and they became white

ἡ δὲ χθὼν ἐπίηρος ἐν εὐστέρνουσι χοάνουσι
τῶ δύο τῶν ὀκτῶ μερέων λάχε Νήστιδος αἰγλης,
τέσσαρα δ' Ἡφαίστιοιο· τὰ δ' ὀστέα λευκὰ γένοντο
Ἄρμονιῆς κόλλημισιν ἀρηρότα θεσπεσίηθεν.

Kind Earth for her broad-breasted melting-
pots,
Of the eight parts got two of Lucid Nestis,
And of Hephaest[u]s four. Thence came
white bones,
Divinely joined by glue of Harmony.

Some scholars have assumed, on the basis of the Empedoclean attestations alone, that Nestis was a water goddess in Southern Italy. For Kingsley (tacitly following Leonard 1908: 68, who in turn refers to van ten Brink and Heyne as discussed by Zeller 1881: II, 117 *f.*) she appears as a Sicilian cult name of the underworld goddess Persephone / Proserpina – which does not seem to tally with the probable underworld connotations of *Aidoneus*, listed as a distinctly different element evocation – if Nestis is the underworld / Earth, what is *Aidoneus* still doing in this summing up? However, perhaps a more satisfactory identification of Nestis (also in view of the Egyptian undercurrents attending the identification of Hera, above) is *Neith* (Ancient Egypt's major goddess of the waters throughout the dynastic period), with the possibility of a *Neith* cult in Southern Italy. Already Karst (1931a, 1931b) concluded to considerable Ancient Egyptian influence on the Capitolinus cult of earliest Rome. Egyptian archaeological finds from Southern Italy have been abundant (Lambrou-Phillipson 1990), but so was the case in many parts of the Early to Middle Iron Age Mediterranean.

Another approach to Nestis would be via the comparative mythology of divine tears. Of this, Fig. 5.1 presents the global distribution, showing that the mytheme of divine tears producing humans is so rare that a common origin may be suspected for the individual attestations even though distributed (probably as a result of Pelasgian transmission) across the three continents of the Old World. However, the mytheme 'divine tears produce other major aspects of reality than humans, especially water-related ones' is rather more common, and links Northern Europe via the Mediterranean to the Middle East and (by a strange parallelism which we have already noticed) to Oceania.

bones, fitted together marvellously by the glues of Harmony'.

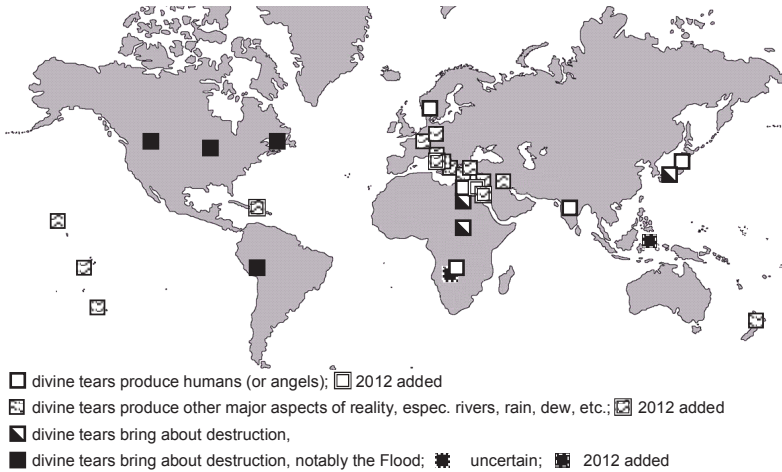




Fig. 5.2. *Distributional aspects of the global comparative mythology of divine tears.*

Most data point in this diagram have been adequately presented and referenced elsewhere (van Binsbergen 2010a: 197 *f.*). The present discussion allows me to add a few extra data, identified as such in the Figure, and to be accounted as follows. From Graeco-Roman mythology, several more cases than I recognised in 2010 can be cited about surface waters created by divine tears, *e.g.* the Cygnean Lake (Ovid 1815, *Metamorphoses*, VII, 371 *f.*). From the tradition of Judaism we may add that the Tears of the Archangel Michael produced the Cherubim (a class of angels), and those shed at the death of Abraham produced precious stones (Davidson 1967, *s.v.* ‘Michael’). Moreover, Rabbinical wisdom speaks of the ‘channel whereby the tears of God flow downward into the world’ (Fishbane 2003). Also in the Taino culture, Jamaica, in Early Modern times, divine tears were equated with rain (Ronnberg *c.s.* 2011: 357). Among the many stories worldwide where *human mortals’* tears give rise to surface waters or cause the Flood, some may be singled out because their protagonist may be suspected to be a god in human disguise featuring in a transformed Flood myth; thus a case from Halmaheira, Indonesia, involving a variety of the unilateral being known as Luwe or Mwendanjangula in Africa but also

widespread elsewhere.¹²⁹ Although my Egyptological references in 2010 were correct and fairly complete, the picture could be further refined; notably as regards the precise identity indicated for the weeper (which for instance could be the Earth god Geb, whose

‘tears filled the seas and his semen fertilized the Sky goddess, Nut, who produced Isis, Osiris, Seth, and Nephthys’; Andrews 2000: 80; Ions 1983).

The Egyptian mytheme ‘humans from divine tears’ is usually (e.g. Pinch 1994: 68) attributed to punning on Ancient Egyptian  *remt* ‘people’ and *remj* , ‘tears’. In some contexts the tears produce not humans but bees. Moreover, it is specifically in the *Coffin Texts*, from the late 3rd mill. BCE on (de Buck 1935-1961: VII, 465a; Faulkner 2004), that the oldest attestation is found of mankind springing from the tears of the Sun’s (Rē^c) eye. The Ancient Greeks attributed the inundation of the Nile to the tears of Isis when violated by her brother Seth or her son Horus.¹³⁰ Isis’ violation is described, among other places, in the *Papyrus Harris VII*, 10 (12th c. BCE). Still in Ancient Egypt, all substances used in embalming were supposed to derive from the tears which the gods shed at the death of Osiris (Anonymous, ‘Osiris cult’).

There is meanwhile a most interesting connection between this ‘divine tears produce humans’ complex, leopard symbolism (the leopard skin is spotted / sprinkle as if caused by rain), and the inexhaustible subject of the Pleiades – the latter widely connected with tears and rain through various aetiological myths and calendrical events marking the onset of the planting season (occasionally with promiscuous sexual rites) and, months later, the remembrance of the dead. Throughout the Old World there seem to have been periods when (as suggested by ancient string figures) the Pleiades were considered the most important stars in heaven; and in this respect China, West Asia, Africa, North America, and the European Upper Palaeolithic show remarkable convergence – just as there is a general and ancient tendency, with unmistakable shamanic overtones, to

¹²⁹ von Sicard 1968-1969: 793; Bezemer 1904: 385; the global distribution of the mytheme of the unilateral being is given in Fig. 9.10 of van Binsbergen 2010a: 199.

¹³⁰ Hopfner 1940-1941: II, 175; Plutarch 1934-1935, *De Iside et Osiride*; Frankfort 1948: 179.

interpret the Milky Way as the ‘road of the souls’, to Heaven or to the Underworld. The persistent symbolism of seven or six dots can be encountered from the Upper Palaeolithic to the Bronze Age; in Ancient Mesopotamia it was particularly marked, and we cannot rule out the possibility that it is in the Pleiades – featuring prominently in the context of ancient cosmologies – that the initially notational system of geomancy in the form of either open or filled dots (another application of the ubiquitous theme of the dark / light opposition) finds its specific origin (Carus 1911 reminds us that, in *Yi Jing*, the system of broken and unbroken lines was only introduced after the invention of the writing brush; thus also Legge 1993: 363 *f.*). However, fuller treatment of the Pleiades would require a book in its own right.¹³¹

Equating Nestis with Neith would take us down to an ancient layer implied in Egyptian mythology, where Neith, as the Mother of the Waters, is still the goddess of Heaven (‘Waters Above’) as well as of the surface waters and even of the Waters Below, the Abyss – thus revealing her pre-Re^c kinship with Tiamat, T-hom and Leviathan. Thus Nestis’ tears may be assumed to be related to the tears of Rē^c out of which humankind was supposed to have found its origin (another possible link between South Italy and Ancient Egypt), but also to the tears of Mvula / Rain, the demiurge whom the Nkoya people of South Central Africa consider to be the child of the High God Nyambi, and thus (especially in view of the life-bringing nature of rain) the connection between Heaven and Earth (*cf.* van Binsbergen 1992, 2010a).

5.2.3. Empedocles’ evocation of the elements to be interpreted as a transformation cycle

Especially from lines 8 *f.* in Table 5.1 it is clear that even for Empedocles the four elements constitute primarily a transformation cycle. This is also how Aristotle has read the Empedoclean heritage, although many later readers have tended to see the four elements as fundamentally different and disparate ontological categories. Aristotle stresses that the four ele-

¹³¹ *Cf.* Bates 1914: 179; Baudouin 1916a, 1916b; Cavaignac 1959; Harva / Holmberg 1938; Miller 1988; Rappenglück 1997, 1999; Elliot Smith 1919: 212 *f.*; Stanley 1926; van Buren 1939-1941 (but see Goff 1963); Walters 1989: 75.

ments constantly transform into each other.¹³²

‘... τεττάρων δόντων τούτων, πυρὸς καὶ ἀέρος καὶ ὕδατος καὶ γῆς, τὸ μὲν τούτοις πάσιν ἐπιπολάζον εἶναι πῦρ τὸ δ’ ὑφιστάμενον γῆν· δύο δ’ ἄ πρὸς αὐτὰ τούτοις ἀνάλογον ἔχει, ἀπὸ μὲν γὰρ πυρὸς ἐγγύτατα τῶν ἄλλων, ὕδωρ δὲ γῆς...’ (Aristotle, *Meteorologica*, 339a15-19; initial capitals interpreted WvB)

This Aristotle quote already demonstrates that that philosopher conceived of the four elements, not as totally separated, parallel ontological givens, but as hierarchically ordered along one dimension, from Fire on top, via Air and Water, to Earth. Michelini’s 1993 argument ‘The Dance of the Elements: Fragment B 17 of Empedocles’ might be read in a similar vein. Contrary to the received post-classical conception of the four-element doctrine, there can be no doubt that for Aristotle, the elements would constantly change into each other, as steps in a transformation cycle:

‘φαμὲν δὲ πῦρ καὶ ἀέρα καὶ ὕδωρ καὶ γῆν γίνεσθαι ἐξ ἀλλήλων, καὶ ἕκαστον ἐν ἑκάστῳ ὑπάρχειν τούτων δυνάμει, ὥσπερ καὶ τῶν ἄλλων οἷς ἐν τι καὶ ταῦτόν ὑπόκειται, εἰς ὃ ἀναλύονται ἔσχατον.’ (Aristotle, *Meteorologica*, 339a36-b2; capitals WvB)

Already in Plato (*cf.* O’Brien 2003) we find resonances of these Empedoclean ideas but in a vaguer form:

[48b] ἀναχωρητέον, καὶ λαβοῦσιν αὐτῶν τούτων προσήκουσαν ἐτέραν ἀρχὴν αὐθις αὐ, καθάπερ περὶ τῶν τότε νῦν οὔτω περὶ τούτων πάλιν ἀρκτέον ἀπ’ ἀρχῆς. τὴν δὴ πρὸ τῆς οὐρανοῦ γενέσεως πυρὸς ὕδατος τε καὶ ἀέρος καὶ γῆς φύσιν θεατέον αὐτὴν καὶ τὰ πρὸ τούτου πάθη: νῦν γὰρ οὐδεὶς πα γένεσιν αὐτῶν μεμῆνυκεν, ἀλλ’ ὡς εἰδόσιν πῦρ ὅτι ποτέ [48b] and taking once again a fresh starting point suitable to the matter we must make a fresh start in dealing therewith, just as we did with our previous subjects. We must gain a view of the real nature of Fire and Water, Air and Earth, as it was before the birth of Heaven, and the properties they had before that time; for at present no one has as yet declared their generation, but we assume that

¹³² However, like the later Stoics, Aristotle adds a fifth element, Aether, to the four familiar ones of Empedocles.

ἐστὶν καὶ ἕκαστον αὐτῶν λέγομεν ἀρχὰς
αὐτὰ τιθέμενοι στοιχεῖα¹³³ τοῦ παντός,
προσῆκον αὐτοῖς οὐδ' ἂν ὥς ἐν συλλαβῆς

men know what fire is, and each of these things, and we call them principles and presume that they are elements of the Universe, although in truth they do not so much as deserve to be likened with any likelihood (Plato, *Timaeus*, 48b; capitals WvB).

If the cyclical transformation of elements is at all recognised by modern scholars in the Greek four-element system, it is mainly as a secondary interpretation of Empedocles by Aristotle and Plato.¹³⁴ Thus the Nobel-prize winning chemist Arrhenius (who also credits Empedocles with the discovery of the Law of Conservation of Matter; 1907: 14) wrote:

‘As far back as about 500 b.c, Empedocles had already introduced the notion that everything consists of four elements; Earth, Water, Air, and Fire. These elements of antiquity correspond more nearly to what we now call states of aggregation, if we except fire (which is equivalent to hot gases). Consequently Plato and Aristotle asserted that the elements might be converted one into the other. For instance, we read the following passage in *Timaios*: “We believe from observation that water becomes stone and earth by condensation, and wind and air by subdivision; ignited air becomes fire, but this, when condensed and extinguished, again takes the form of Air, and the latter is then transformed to mist, which resolves into water. Lastly, rocks and earth are produced from water.” To put it more simply, it had been observed that by cooling hot gases (“fire”) cool gases (“air”) were obtained, and that by condensation of moist Air one got water-drops, which might be united to give ordinary water. On the other hand, out of water were deposited solid substances, which had formerly been suspended or dissolved in the water. The ancient philosophers evidently only considered the *qualities* of the bodies, and therefore the hypothesis of the transformation of one element into another was a natural consequence. This hypothesis dominated the alchemistic view of the nature of substances. Again, the [P]hlogiston¹³⁵ [H]ypothesis is only a variety of the

¹³³ στοιχεῖον, *stoicheion*, here applied to physical ‘element,’ was the regular term for ‘letter’ of the alphabet; Cf. *Theaet.* 203 B f., *Rep.* 402 A f. The basic meaning appears to be ‘item in a series, calibration point, item determining rank order’ (van den Es 1896, s.v.; Liddell & Scott 1901, s.v.).

¹³⁴ Especially in Plato’s *Republic* (1975b), there is much emphasis on the number four, and one even believes to encounter, especially in Book VIII, some of the specific symbolic personages associated with the sixteen configurations of geomantic divination – as if the latter was conceived under direct influence of Plato. Contrary to common belief, it was Plato, not Aristotle, who dominated Islamic philosophy in the late 1st millennium CE, when *ilm al-raml* was invented.

¹³⁵ ‘Phlogiston’ refers to Joachim Becher’s 17th-c. CE hypothesis, soon to be discarded, that matter contains an enigmatic substance, without weight, extension, colour, taste etc., which is evicted through combustion – WvB.

[T]ransformation [H]ypothesis.’ (Arrhenius 1907: 12f)

Around the turn of the 20th century it was a popular idea among historians of science and philosophy that Empedocles, as the supposed author of the four-element system, arrived at his insight by a simple extension of the observable aggregation states of matter. Thus the once leading historian of philosophy Überweg (1891: 40):

‘The triad: fire (including air), water, earth, corresponds with the three “aggregate states” of matter (as they are now called); Empedocles (...), separating air more distinctly from fire, first arrived at the distinction of the four so-called elements.’

Although the Western Empedocles reception was largely dependent on Aristotle’s rendering of the former’s thought, Aristotle’s Empedocles reading has been severely and convincingly criticised for centuries (Cudworth 1678; Leclerc 1712: 78 *f.*). This debate still goes on, for instance, Longrigg (1976) takes exception with Aristotle’s view that Empedocles came to his four-element doctrine simply by adding the element Earth to the other three elements already circulating in Presocratic thought; and in the light of the world-wide parallels discussed in the present argument, Aristotle was certainly wrong on this point.¹³⁶

Not all modern commentators agree on the immutability allegedly ascribed to Empedocles’ *rhizomata* by Aristotle. Thus Osborne (1987: 44):

‘Aristotle does not say that Empedocles denied that the elements could lose and gain their *differentiae*; in fact he specifically attributes to him the doctrine that they do lose and gain their *differentiae* in changing into and out of the one. (...) What Empedocles is supposed to have denied is that one element might lose its own *differentiae* and gain those of another; a part which was earth before ought only to become earth again after it leaves the one. Aristotle’s criticism goes home only on his assumption that the elements lose not only their actual characteristics but also their potential *differentiae*, a distinction which Aristotle does not import here though he might have done. On his view no part of the sphere can be distinguished, even by having the capacity to become earth rather than water or vice versa. Thus so far from suggesting that

¹³⁶ Meanwhile, also Longrigg (1976: 44; *cf.* Lloyd 1964) is to be faulted for claiming, with the majority of commentators (*e.g.* Campbell 2004-2005), that Empedocles’ originality consisted in the latter’s insistence on the four elements being unchangeable and irreducible. Such insistence, in my opinion, only emerged in the subsequent *reception* of Empedocles.

Empedocles' one [sic] is a mixture, Aristotle envisages it as an absolute unity from which all distinctions, actual or potential, have been eliminated.'

Although Western scholarship has generally failed to recognise the extent to which the Empedoclean cosmology can be seen as an element transformation cycle,¹³⁷ yet it is increasingly becoming aware of the central cyclical element in that cosmology,¹³⁸ even if this expresses itself in a different way than the cyclical transition of one element into another.

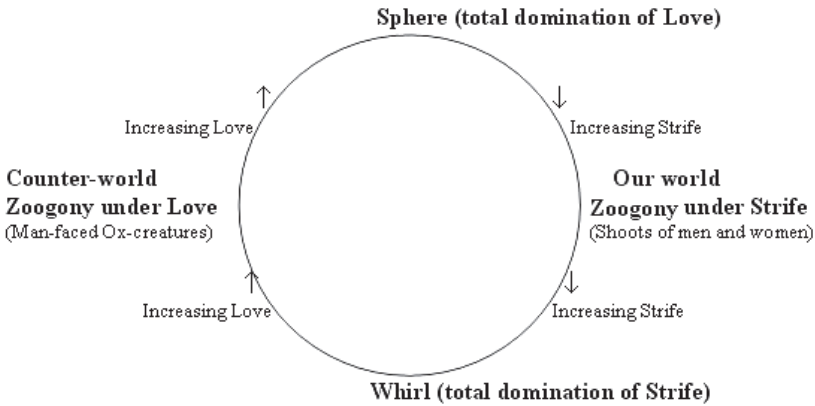


Fig. 5.3. Campbell's (2004-2005) rendering of Empedocles' Cosmic Cycle.

¹³⁷ That underneath the four-element system of the Presocratics lures a five-element one, is suggested by the symbolic reading of the Pythagoreans' sacred symbol, the Pythagorean *tetractys* (Meier-Oeser 1998 with full references),



where the foursomes that dominate the figure are raised to a five-some by highlighting the one central dot – and subsequently the five-some is interpreted as the five senses, and equated with Wood, the one element in which the Chinese set differs from the Presocratic one (Graves 1988: 189).

¹³⁸ Cf. dos Santos Gomez 2004; Graham 1988, 2005; Laks 2005; Long 1974; Minar 1963; Mugler 1953; O'Brien 1967, 1969; Pierris, 2005; Primavesi 1998b, 2005; Sedley 2005; Trépanier 2003; van der Ben 1984.

While many modern commentators have acknowledged the cyclical nature of Empedocles' worldview (*cf.* Mugler 1953: 30f), this is usually taken to mean, not a transformation cycle of elements, but a cyclical progression from a state (the cosmic Sphere) where all elements are totally fused under the all-dominant influence of Love, to the disintegration of that Sphere down to the element level under the all-dominant influence of Strife, and so on *ad infinitum*. Campbell (2004-2005) offers a useful diagram (my Fig. 5.3) of this process (also *cf.* Wilcox 2001 and Empedocles' Sphere).

Moving from perfect fusion of the elements in some sort of primordial globe / sphere, via total separation and fragmentation, back to perfect fusion, Empedocles' is essentially a cyclical cosmology – in Franklin's words (2002) it:

'is a self-governing, self-balancing, cyclical system – and is in fact depicted as a wheel',

which, when all is said and done, comes quite close to the idea of a transformation cycle of elements.

Another way in which some substrate underlying Old World transformation cycle of elements can be seen to surface in Empedocles' work, is in the central role he attributes to two paramount principles: 'Love' (φιλία *Philia*; Ἀφροδίτη *Aphrodite*) and 'Strife' (νεῖκος *Neikos*).¹³⁹ Although lacking the sense of 'one element transforming into another under the positive or negative catalytic influence of a third element', one may still recognise here the two basic functions of 'production' versus 'destruction' (*cf.* Fig. 5.3). Love (or Fusion) and Strife (or Separation) are incessantly involved in a universal cycle, taking the world from

- (a) being a Sphere of totally fused elements, via
- (b) a state of total separation of the elements, back to
- (c) the Sphere of totally fused elements (*cf.* Brown 1984).

¹³⁹ Aristotle *Physica*, 8. I, 15, *de Anima* I. 2, 10; Brun 1966; Campbell 2004-2005; Hershbell 1974; Pierris 2003; Solmsen 1965; Todoua 2005; Wada 1997.

From a viewpoint of comparative mythology, Empedocles' Sphere is another variant of the Cosmic Egg,¹⁴⁰ a major theme in cosmogonies distributed over mainly Eurasia and Oceania (van Binsbergen 2011b, see Fig. 5.4 – another example of Pelasgian distribution over time) and represented in the Ancient Greek world with the Dioscuri and their sisters Helena and Clytemnaestra, born from the eggs of Leda as a swann impregnated by Zeus in similar disguise.

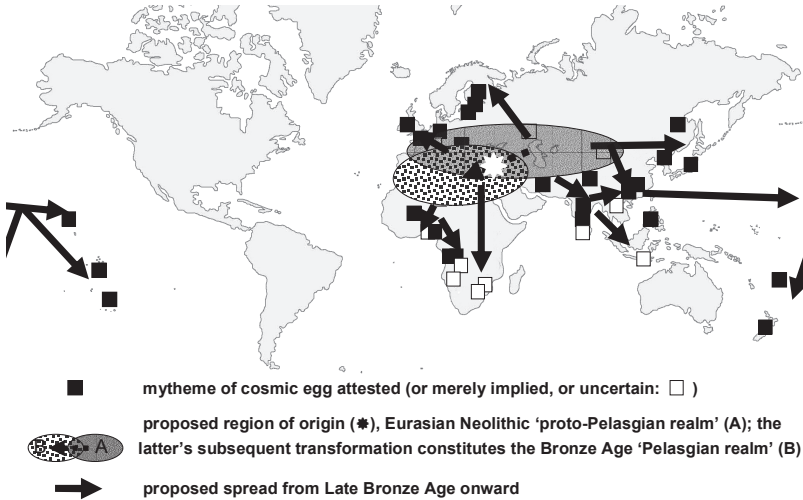


Fig. 5.4. Global distribution and tentative historical reconstruction of the mytheme of the Cosmic Egg

For details and sources of data points see: van Binsbergen 2011b¹⁴¹

¹⁴⁰ In addition to notions apparently derived (via Orphic cult milieus) from the mytheme of the Cosmic Egg, and probably – as we shall see – the very notion of a transformation cycle of elements, there may yet be other non-Hellenic, essentially Pelasgian features that have entered Ancient Greek science, for instance the deviant *ferdariae* order of planets, which is also found with Apollonius of Tyana; cf. Tester 1989: 169.

¹⁴¹ Although the proposed historical reconstruction appears to me the most plausible, and tallies with that of scores of other supposedly Pelasgian traits (cf. van Binsbergen 2010a, and in press (a); van Binsbergen & Woudhuizen 2011: 372 f.), it is only fair to indicate an alternative interpretation, in terms of Oppenheimer's (1998) Sunda Hypothesis – situating the origin of the mytheme of the Cosmic Egg in South East Asia, and assuming it to have spread, not only north and east into East Asia and Oceania, but also west, on the wings of the postulated Sunda maritime expansion in the course of the first half of the Holocene. Oppenheimer claims that the core mythologies of the

With a lapse into ‘misplaced concreteness’ (Whitehead 1997: 52, 58), Campbell (2004-2005) claims that, for Empedocles, the four elements

‘...correspond closely to their expression at the macroscopic level of nature, with the traditional quadripartite division of the cosmos into earth, sea, air, and the fiery aether of the heavenly bodies: these four naturally occurring ‘elements’ of the cosmos clearly represent a fundamental natural division of matter at the largest scale. This division at the macroscopic level of reality is applied reductively at the microscopic level to produce a parallelism between the constituents of matter and the fundamental constituents of the cosmos, but the reduction of the world into four types of material particles does not deny the reality of the world we see, but instead validates it. Empedocles stresses this parallel between the elements at the different levels of reality by using the terms ‘Sun’ ‘sea’ and ‘Earth’ [*sic*] interchangeably with ‘fire’, ‘water’ and ‘earth’. Of the four elements, although Empedocles stresses their equality of powers, fire is also granted a special role both in its hardening effect on mixtures of the other elements and also as the fundamental principle of living things.’

Did Empedocles personally invent the very notion of element?

The comparative perspective in the present argument suggests otherwise – the idea of a elementary form of Being implied in all manifestations of the visible world, was ‘in the air’ in the Greek Presocratic world, and was anticipated by Orphic (ultimately Pelasgian) notions of the Cosmic Egg, Night, Chaos, Time, or Earth and Water as primary givens.¹⁴² Stauffer (1986) reminds us of the parallels between the Ionians’ view of Water and Earth, and the mythology of the Ancient Near East. Also Kingsley (1994c, 1995a) traces the extensive background, in space and time, within which Empedocles’ ideas emerged as much less than totally original. In a more extended transcontinental perspective, in terms of our two Working Hypotheses, the widespread parallels to Empedocles’ system *suggest* that the notion of element had already been commonly accepted for one or two millennia when Empedocles formulated his doctrine.

Ancient Near East including the Bible thus have a prehistoric Sunda origin. I have elsewhere argued why specifically in regard of Ancient Near Eastern myths this is very implausible (van Binsbergen with Isaak 2008), although as a general hypothesis of transcontinental influence Oppenheimer’s model has, as admitted above, considerable value especially for the study of Africa – so much so that in the context of the 2012 Leiden conference I presented (2012e) a paper setting out the genetic, comparative religious, archaeological and ethnographic evidence in favour of what I have come to designate as the ‘*Oppenheimer—Tauchmann—Dick-Read Hypothesis*’.

¹⁴² Freeman 1948: 51 *f.*; on the link between the Presocratics and the Orpheus complex, also *cf.* Burkert 1968; on the World Egg and the innumerable worlds derived from it, *cf.* Cornford 1934: 16.

Once we have been alerted to the possibility of a transformation cycle of elements to be implied in relatively archaic Ancient Greek expressions, from Empedocles' time and even before, we may look at Hellenic iconography with a different eye. For instance, aquatic gods are known for their shape-shifting – Proteus (thought to dwell near the island of Pharos off the Egyptian coast, near Alexandria) and Scamander being cases in point. In this light the four stages which the sea goddess Thetis struggles through in her attempt to escape from her shameful marriage with a mortal, Peleus,¹⁴³ have all the appearances of a transformation cycle of elements: Fire, Water, Lion and Snake (my Fig. 5.5; from Ronnberg *c.s.* 2011: 773, with thanks).¹⁴⁴



Fig. 5.5. *Peithinos' rendering of Thetis' metamorphoses, kylix, 6th c. BCE.*

¹⁴³ Peleus was to be Achilles' father; as noted before, Achilles was venerated as a sea god in his own right, especially in the Pontic region.

¹⁴⁴ By the etymological punning on 'earth' / 'snake' to be discussed below (footnote 159), we may confidently interpret 'snake' as 'Earth' here, which leaves 'lion' to be interpreted as 'Air' – perhaps by analogy with the Sun, to which often a lionine nature is attributed in ancient cosmologies. Another, somewhat suspect, indication of a four-element transformation cycle is to be found in the following quotation from Graves 1988 / 1948: 415, probably (the statement is unreferenced; notoriously, Graves considers himself above bibliographical diligence) paraphrased from the 5th-c. CE Latin writer Macrobius (1848), *Saturnalia*, I, 18f:

'the oracle of Colophon, one of the twelve Ionian cities of Asia Minor, gave the nature of the transcendent God Iao as fourfold. In the Winter he was Hades, or Cronos; in the Spring, Zeus; in the Summer, Helios (the Sun); in the Autumn, Iao, or Dionysus'.

Such suggestions of a nearly world-wide ancient substrate element system are intriguing and find much support in our ethnographic overview in the preceding Chapter. Yet, given the state of proto-globalisation that prevailed in many parts of the world from well before Empedocles, it just remains remotely possible that all these apparent element systems throughout the Old World and North America were, in fact, indebted to Presocratic thought. Towards the end of this argument, in Figs. 9.1 and 9.3, we will come back to this question and answer it.

Did Empedocles personally invent the four-element doctrine? This question has been considered repeatedly in the literature. Thus Longrigg (1963: 171 *f. n.* 16):

‘...the suggestion has been made that there is evidence of the four element theory before Empedocles. O. Gigon (*Untersuchungen zu Heraklit* [Leipzig 1935-1 p. 99] writes: ‘Man kann kaum Frg. 126 für Heraklit beanspruchen und zugleich die Vier-Elementenlehre ihm absprechen’ and uses this fragment as evidence for accepting air as Heraclitean in Frg. 76. K. Reinhardt (*Parmenides* [Bonn 1916] p. 223) even goes so far as to hold that since no one can have known of the four elements as early as the traditional date of Heraclitus, this date must be wrong and the latter was actually younger than Parmenides. [*Thus assuming, in fact, that Empedocles was the author of the four-element doctrine; however, we have seen that one excursion to Egypt under the New Kingdom, or even Old Kingdom, would have been enough to learn about the elements many centuries before Heraclitus, let alone Empedocles – WvB*] G.S. Kirk, however, rightly points out (*Heraclitus: The Cosmic Fragments* [Cambridge 1954] pp. 342-44) that the mention of air in Frg. 76 is almost certainly due to Stoic influence and that Frgs. 31 and 36 show sufficiently clearly that Heraclitus held that there were three, not four, world masses.’

Aristotle¹⁴⁵ presents Empedocles as the inventor of the four element doctrine. Longrigg (1976) however rightly stresses that Empedocles was not the only one to have a four-element doctrine but that such a doctrine was a general characteristic of the entire Milesian school:

‘In claiming that his elements are of fundamental importance in the physical world, Empedocles presents a theory which is in accordance with traditional belief. As C.H. Kahn has pointed out,¹⁴⁶ it is clear from the evidence which has survived of Milesian cosmology and cosmogony that ‘their conception of the natural world contained, in potential form, a view of earth, water, air and

¹⁴⁵ Aristotle, *Metaphysics* 985aS2 [Diels-Kranz 31A37]. 984a8 and 988a20 *f.*; *De generatione et corruptione* 329a.

¹⁴⁶ Kahn 1960: 149; reference in the original.

fire as ‘members’ or ‘portions’ of the cosmos.” Simplicius, in a passage where he is closely following Theophrastus, actually defines Anaximander’s doctrine by reference to the four-element theory and concludes: ‘It is clear that having observed the change of the four elements into one another, he did not think fit to make any one of these the material substrate, but something else besides these.’ A similar interpretation is given by Aristotle when he records the opinion of “those who say that there is a single simple infinite body . . . besides the elements, from which they generate the latter.” (It is generally agreed that Aristotle’s reference here is to Anaximander.) Although it is just as much of an anachronism to project back to the sixth century the four-element theory as it is to ascribe to Anaximander the Aristotelian material cause, the beliefs here described may be accepted as Milesian, for, as has been seen above, Anaximander explains the phenomena apparent on and around the earth by interactions of fire, air, and terrestrial water. In like manner a speaker in Cicero credits Anaximenes with what resembles a four-element theory...’ (Longrigg 1976: 425)

Gigon (1935: 99) sees not Empedocles but Heraclitus as the originator of the four-element system, but Longrigg (1976: 44) finds this unconvincing.

Yet, with his general emphasis on movement and change, it is Heraclitus, more than any other Ancient Greek philosopher, who has retained an awareness of the transformation cycle that links the elements in the underlying, Pre-Hellenic, presumably Pelasgian conception. Patrick (1889: 14, 26) even credits Heraclitus with the notion that the elements are continually passing into one another. Little of this awareness, however, has been retained in the general Modern reception of the Presocratics.

Even regardless of the question as to Empedocles’ originality vis-à-vis the Ionian philosophers, it is central to our present argument to ask whether the Presocratic four-element doctrine was a Greek invention, or was merely the surfacing, in Western Eurasia, of a much more widespread and much older cosmological substrate. The latter view, of course, is the one advocated by our two Working Hypotheses. But this argument does not stand on its own. Partly under the influence of the *Black Athena* debate as initiated by Martin Bernal (1987), but also as a direct result of painstaking specialist research into the intellectual ramifications in the Eastern Mediterranean in Antiquity¹⁴⁷ there has been, in recent decades, a

¹⁴⁷ West 1971; Dodds 1951: 145-156; Böhme 1989: 29-41; Bidez & Cumont 1938.

trend¹⁴⁸ to stress Empedocles' characteristics as a magician and shaman conversant with West Asian initiatory traditions, and to play down his qualities as a philosopher. This trend was foreshadowed already in the 19th century (Gruppe 1887; Gladisch 1858).¹⁴⁹ Unfortunately, the passionate criticism of this trend often seems to be triggered by the critics' Eurocentrism, considering the idea of an original, antecedent-less, incomparable Greek philosophy the cornerstone of their European identity. Long before it was vocally exposed by Bernal 1987, this Eurocentric if not racist prejudice was already discarded by the scholarly *Ex Oriente Lux* ('*Light Comes from the East*') movement (Ball 1899; Lepsius 1903; Winckler 1905; Szemerényi 1974 – in addition to a German scholarly journal for Ancient History, the expression *Ex Oriente Lux* has also formed the title for the leading Dutch journal and scholarly association in this domain from the 1930s onward). There is also a typological and ideological problem here: while the identity construction of Europe and the North Atlantic region as a whole, via-à-vis the rest of the world, has often stressed alleged European rationality versus non-European obscurantism, there can be no doubt that decisive early intellectual achievements during the Bronze Age were made in West, South and East Asia and in North Eastern Africa (Egypt), only to reach South-eastern Europe (the Aegean) subsequently, the latter constituting an economic and cultural periphery. Reconstructing continuities between the European and non-European historic cultural achievements therefore should be seen as an admonition to thankfulness on the part of Europeans, and not as an historical insult.

But while thus inclined to play down the exalted position North Atlantic specialists have accorded Empedocles, we end up with the paradox that the four-element system, deprived of such aspects of cyclical transformation as it may initially have had in the Middle to Late Bronze Age and Early Iron Age Aegean and West Asia, still proved to be eminently successful and a path-breaking achievement on the road to Modern, global

¹⁴⁸ Biès 1968, 1969; Kingsley 1995a, 1995b, the latter much criticised in the scholarly literature; e.g. Mansfeld 1995; O'Brien 1998; Picot 2000.

¹⁴⁹ Gladisch 1858 was dismissed by a principal present-day Empedocles bibliographer as a 'very fantastic and improbable identification of Empedoclean teaching with Egyptian beliefs' (Vitek 2004), yet this appears in a different light once we take into account the strong indications (see Chapter 4) for a four-element doctrine in Ancient Egypt.

natural science and medicine. One might ask whether the number four is really all that arbitrary as a basis for a world-view. Ever since Empedocles until quite recently the Western tradition of thought has distinguished four elements. This conception cannot be separated from the image – widespread in Eurasia including South East Asia, as well as in Africa and the Americas, and hence probably of great antiquity – of the world as supported by the four corners or pillars of the directions. The latter foursome is directly connected with the specific anatomy of the human body and therefore of the human gaze: left / right symmetry combined with front / back symmetry yields four basic orientations. I submit that the emphasis on four, and the trend toward immutable, clearly demarcated categories between which no continuous transition takes place, is due to interference from the concept of four directions / the earth's four corners.

However, there may be other sources for the preoccupation with four, as suggested in the Assyriologist Gadd's statement in 1966:

‘There is indeed nothing original or peculiar in making the primitive distinctions of up, down, right, and left, to which these “regions” [S[outh], N[orth], W[est], E[ast]; Akkad, Subartu, Amurru, Elam] conformed, but it was surely a legacy of “Chaldaean” astrology first, to make these directions identical with a geographical scheme, and second, to transfer this scheme to the heavens. The zodiac and its signs is known to be a later development, but still in the ambit of “Chaldaean” astrology, and the geographical arrangement applied to these signs gave rise to a division into what were afterwards called the four “trigons”. In later oriental and western conceptions the four trigons of the zodiac had their differing natures, like the original countries of the Babylonian world, and found their counterparts in the four elements, the four humours of the body, and notions concerning four ages of man, and the four cardinal virtues; associations of ideas and a common derivation is clear enough in all these.’

When Kammerzell (1994), in his approach to leopard symbolism of the Ancient Near East and especially Ancient Egypt, suggests that – according to his not uncontroversial etymology – this species appears as the ‘four animal’, he attributes this to the four toes out of which the ripping claw is composed; however, more general foursomes lurk behind here, *e.g.* the four directions, and the four components out of which the panther skin's design is composed (white, black, red-brown, in rosettes; van Binsbergen 2004 / 2013). Also the elaborate mantle with which the priest-king (or god) of Mohenjo-Daro is depicted in a well-known statue, is evidently a transformed leopard skin (still retaining traces of red) with the rosettes rendered as a foursome (a three-leaved clover with a central dot).

Numerous significant foursomes occur in the symbolism and iconography of many peoples¹⁵⁰ – only a few examples are: the four trigons of the zodiac (significantly named after the four elements); the four humours of Galenus (blood, black bile, yellow bile, and phlegm); the four ages of man (Golden, Silver, Bronze and Iron); the four virtues – justice, fortitude, prudence and temperance – of Plato (in his *Meno*; Plato 1962) but also of the Chinese philosopher Meng-Tze 孟子 (Mencius; probably no relation of Meno); the four noble truths of Buddhism (life means suffering; the origin of suffering is attachment; the cessation of suffering is attainable; the specific path to the cessation of suffering); the four horsemen of the Apocalypse; the four different suits (clubs, diamonds, hearts and spades) of the deck of cards; the four modalities of *al-ʿud* in classical Arabian musical theory; the paired foursomes of the Hermopolitan cosmogonic myth in Ancient Egypt; the four principal characters in classical Chinese opera; the four tonalities of Middle Chinese; the four principal castes of India; the four Books each in four Parts of the *Veda*; the four interlocking worlds of the Kabbalah; the four Archangels; the Four Lights of Gnostic mysticism. Many of these foursomes may ultimately be predicated on the four-element system; others are unlikely to be so.

There are even indications to the effect that the number four plays a special role in the world order even regardless of the agency of human subjectivity, for instance: physicists distinguish between four basic interactions in nature which for the time being have not yet been subsumed under one unifying theory (gravity, electromagnetic force, strong nuclear force, weak nuclear force); the four-colour problem in mathematics (‘why is four the minimum number of colours one needs to colour a political world map while avoiding that adjacent countries have the same colour?’) has only recently been solved; quantum mechanics limits to four the

¹⁵⁰ Cf. Frobenius 1923: 81: ‘Sepp, Pott, Brinton und vielen anderen fiel es schon auf, daß bei ganz bestimmten Völkern die 4 eine besondere Rolle spielt’. However, Frobenius’ elaboration of this point is very different from mine. Given to something like geographical mysticism, it is his impression (1923: 94*f.*) that different continents are dominated by different numbers: the ‘peripheral remnant cultures of the Extreme South’ = 2; Africa and Asia = 3; South Asia, Oceania and Meso-America = 4. Frobenius’s characterisation, arbitrary and sweeping though it may sound, might be a very faint echo of what I reconstruct in the present book as an Upper Palaeolithic four-element system, which Frobenius with his usual perceptiveness then may have picked up intuitively.

number of sub-shells (within each principal shell) in which electrons may find themselves, in such a way that each electron can be described with four quantum numbers – at least, to the extent to which we may limit the description to electrostatic interaction between electron and nucleus; each DNA and RNA protein turns out to be composed of a combination of four amino-acids; stability of carbon atoms in a compound requires the absorption or emission of four electrons (hence the tetraeder molecular model), and as a result carbon could become the fundamental building brick of life on the planet Earth.

*Did Empedocles, after all, hit on one of the most significant aspects of the architecture of the world? Or, rather, to the extent to which he was merely replicating a four-element system that may already have been around for millennia, had humankind already discovered the number four as a major key to reality at a very early stage? Is that why two, four and eight are the only numerals reconstructed for *Borean? And what might have given putative prehistoric proto-philosophers the idea of such a four-based key (the human body's two-fold symmetry? the almost universal gender duality of Nature? the four phases of the Moon? divine or extra-terrestrial inspiration...)?*

Or have even the Modern scientists formulating these four-based recent theories, unconsciously still been influenced by Empedocles? Must we discard our Working Hypothesis of a transcontinental, Upper Palaeolithic substrate element system, even give up our Bronze-Age Alternative Working Hypothesis, and join those singing the praises of Empedocles as a unique genius who (much in line with the myth of the Greek genius in general, as rightly challenged by Bernal 1987) allegedly invented his shockingly insightful theory out of the blue, without historical antecedents?

We have still several steps to go before this particular question can be satisfactorily answered. Let us now, in the next Chapter, leave Graeco-Roman Antiquity, and turn to the Palaeolithic, in order to explore such antecedents as (in terms of our Working Hypothesis) may have prepared the ground for the Presocratics.