

Transcontinental mythological patterns in prehistory

A multivariate contents analysis of flood myths worldwide challenges Oppenheimer's claim that the core mythologies of the Ancient Near East and the Bible originate from early Holocene South East Asia

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ABSTRACT. The present argument is devoted to the Sunda thesis, launched by the leading British geneticist Stephen Oppenheimer in 1998. He made two claims: (1) there was decisive Indonesian / Sundaland prehistoric cultural influence on West Asia (the General Sunda Thesis); (2) this influence is specifically manifest in the core mythologies of the Ancient Near East and the Bible (the Special Sunda Thesis). Van Binsbergen's Aggregative Diachronic Model of Global Mythology, which is briefly introduced, suggests that many of the mythical themes for which Oppenheimer claims a unique Sunda origin, have a much older history elsewhere in the Old World. These themes may have undergone major transformations and innovations, in the Sunda context, and may have subsequently spread to Oceania and the western half of the Old World, in that context. The Nuahic (Noah-related) type of 'Elaborate' Flood Myth, centring on 'The flood hero in his ark as an ally of the Supreme God', is taken to be exemplary for the core mythologies of the Ancient Near East and of the Bible addressed in Oppenheimer's Special Sunda Thesis. *However, multivariate analysis (upon a contents analysis of a representative corpus of flood myths from all over the world), far from massively and unequivocally confirming Oppenheimer's Special Sunda Thesis, merely makes plausible that for a minority of mythemic traits found in flood myths worldwide, a Sunda effect may be claimed, not for the origin of that trait, but for relatively minor aspects of its subsequent distribution.* One multivariate analysis was based on discriminant analysis, another on factor analysis; both bring out that – *pace* Oppenheimer – most probably, and in line with conventional views, the mytheme of 'The flood hero in his ark as an ally of the Supreme God' originated in that form in Central Asia, and from there spread worldwide, also to Sundaland, from where sometimes a further spread with Sunda effect may be reconstructed. Far from being the source of Western, subsequently global, civilisation, as Oppenheimer claims, Sunda turns out to have been mainly a relatively recent recycling context. These statistical analyses unexpectedly highlight the possible role of the New World in the intercontinental prehistory of flood myths. They further demonstrate that the Nuahic mytheme is in itself composite; one or two of its twelve principal components could perhaps have originated in South East Asia or have been intercontinentally transmitted via that region from a New World origin.

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1. Introduction: Eden in the East, *the General Sunda Thesis* and the *Special Sunda Thesis*

Can we identify, with any justifiable claim to scientific validity and reliability, the ‘deep history of stories’, across vast stretches of space and time (i.e. across continents, and several millennia) – in other words in a long-range perspective? On what kinds of data, and what methodologies, can we call to substantiate such claims? How can we argue the competitive plausibility of rival reconstructions of such ‘deep history of stories’? In global long-range studies, can a scholar become aware of, and avoid, such biases (e.g. Eurocentrism, North-Atlanticism, racialism) as reflect his or her own geopolitical and historical position, e.g. as inhabitant of an ephemerally dominant part of the world seeking (with less and less success) to maintain its hegemony over the other continents and their human populations?

These are – as amply demonstrated by the 2007 Edinburgh conference on ‘The Deep History of Stories’, at which an earlier version of the present argument was delivered – some of the core questions of comparative mythology today. They are also central to the present paper, in which I will try to come to terms with one, particularly courageous and inspiring, recent reconstruction of the deep history of stories: Stephen Oppenheimer’s argument in his book *Eden in the East: The drowned continent of Southeast Asia* (1998). He seeks to contribute to the already considerable literature on the genetic, demographic and cultural history of insular South East Asia (‘Sundaland’) and the Pacific. So far, scholarly attention has focused on Sunda expansion¹ to New Guinea (Austronesian languages are found in North New Guinea as a result of a Sunda-related migration c. 5 to 3.5 ka BP; Cavalli-Sforza et al. 1994: 357), Australia (the Carpentarian wave of migration), Oceania and Madagascar. However, Oppenheimer’s claims go much further and revolutionarise this field of enquiry. In *Eden in the East* he develops at length and (although the book is primarily meant for the general reader) with considerable sophistication two connected theses:

- (a) *The General Sunda thesis*: In the more recent cultural history of Anatomically Modern Humans, out-migration (7.5 to 5.5 ka BP) from the Sunda plateau (now insular South East Asia, increasingly drowned because of the melting of the polar caps) has been a decisive factor
- (b) *The Special Sunda thesis in the field of comparative mythology*: Complementing the recognised eastbound movement, westbound Sunda out-migration had a major impact on South and West Asia, the Ancient Near East and the eastern Mediterranean basin, in that it brought from Sundaland the core mythologies of the Ancient Near East, including those making up the first chapters of Genesis: creation, paradise, the fall of man, the first murder, the flood, the restoration of order after the flood.²

I consider the *General Sunda Thesis* a serious candidate for addition to mainstream models

¹ As the global maps in Forster 2004 indicate, these expansions are usually marked by mitochondrial DNA Type B, although that complex did not emerge in a Sunda context but in Central Asia c. 30-20 ka (=kiloannum/-i, millennia) BP (=Before Present).

² My distinction between General and Special Sunda thesis reflects my critical admiration for Oppenheimer’s contribution; yet the parallel thus created with Einstein’s General and Special Theory of Relativity (Einstein 1960) may be somewhat exaggerated.

of cultural pre- and proto-history at a global scale (van Binsbergen, in preparation). In the present argument I must however concentrate on the *Special Sunda Thesis*, as a claim to be largely rejected yet marginally granted, and more in general as a timely invitation to further sharpen our theoretical and methodological tools in comparative mythology. Oppenheimer's 1998 book was written over a decade ago, and of course his own work and related studies by others have progressed in the meantime. However, his argument has lost none of its challenging potential: it encompasses much of global comparative mythology in one grand, anti-hegemonic and anti-Eurocentrist framework, and proposes to let the central constitutive myths of North Atlantic civilisation emerge from a part of the world, South East Asia, hitherto often considered as a palimpsest of Indian, Chinese, Islamic and West European cultural influences. Comparative mythologists have so far hardly engaged with Oppenheimer's thesis, so the argument that follows is timely.

Oppenheimer's *Special Sunda Thesis* addresses the core mythologies of the Ancient Near East. As we know, these were relatively recently (from 3 ka BP on³ enshrined in the Judaeo-Christian-Islamic tradition (Genesis 1-11 and its less extensive Qur'ānic counterparts – oldest tangible attestation in manuscripts from the 5th c. CE until the discovery of the Dead Sea scrolls from around the beginning of the Common Era). However, the first textual and iconographic attestations of these Ancient Near East core mythologies are much older, and date from the second millennium CE. In the trappings of world religions, and as a result of the latter's proselytising, these Ancient Near East core mythologies found world-wide distribution especially in the course of the 2nd mill. CE.

Oppenheimer's position is not only implicitly counter-hegemonic – it is also counter-intuitive. 'Elaborate' flood myths, i.e. those centring on the mytheme of 'The flood hero in his ark as an ally of the Supreme God', may be taken to be exemplary for the core mythologies of the Ancient Near East and of the Bible. How could we argue that myths whose textual and iconographic attestations go back to nearly 5 ka BP could derive from myths from the Indo-Pacific region whose attestations are no earlier than the 18th c. CE, in other words whose *certain* minimum age is 25 times younger! The original myths behind the attested Indo-Pacific ones (whose uncanny parallelism⁴ with myths from the Ancient Near East, and of Graeco-Roman Antiquity, is undeniable) *might* be local and *might* be much, much older, even older than the Ancient Near East ones, and the prototypes of the latter, but how can we ever be sure? On this point Farmer's (2007) methodological criticism of long-range approaches in comparative mythology is very well taken. One would be tempted to add, to these textual attestations, also iconographic attestations of the flood story from the Ancient Near East. However, although a wealth of mythology, and many details of everyday, ritual and royal life have been depicted on tens of thousands of cylinder seals, these are nearly always without textual caption, and there is little agreement among scholars as to the identification of such seals as carry a depiction of the flood. Smith's (1873: 257; our Fig. 1) claim is often cited, but his interpretation of the central, enclosed figure as Nuah in his Ark has later been criticised: the figure in question

³ Specialists now consider Genesis to have received its main redaction in the sixth century BCE; cf. Soggin 1997 and extensive references there.

⁴ Without going into detail, these parallels may be found in any global collection of mythologies, and include, in addition to Elaborate flood myths: the invention of the sail; fishing up the land from the sea; the leg child coming into the world through a different route than the usual birth channel; and the delay of creation because the creatrix's male partner blocks the same channel by incessant mating.

may be the water god Ea / Enki himself.⁵ By and large, these seals do not have any greater antiquity than the cuneiform texts we have for the Sumerian flood story.

Fig. 1. Proposed depiction of the Flood on a Sumerian seal



So we might be tempted to jump to conclusions (particularly if we are dismissively sceptical of long-range comparative mythology anyway; Farmer 2007), and suggest that all evidence of Elaborate flood myths, wherever in the world, can be explained away as resulting from recent Judaeo-Christian-Islamic proselytising. Such a facile argument would run counter to Oppenheimer's – for it would no longer need the Special Sunda thesis, with its claim that Sundaland and not the Ancient Near East, is the origin of the latter's core mythologies; it would also do violence to the very extensive world distribution of flood stories, and to the firm mathematical features of that distribution, as we shall shortly see.

2. Preparing our analytical tools

As my principal analytical tool in the present argument, I have developed (van Binsbergen 2006a, 2006b, and in preparation) an 'Aggregative, Diachronic model of world mythology' across all continents and over 80 ka. The model is based on recent genetic insights in the emergence and spread of Anatomically Modern Humans, combined with long-range linguistics, archaeology, and comparative ethnography. In terms of this model:

1. a handful of identifiable initial mythological traits in Pandora's Box in sub-Saharan Africa
2. were taken to Asia – and beyond, even ultimately back into Africa – on the wings of the demic diffusion known as the 'Out-of-Africa' migration,
3. and on their way underwent very substantial (and to a certain extent, reconstructible) transformations and innovations,

⁵ Reinhold 2005-2007, which is also the picture source for our Fig. 1. Smith's interpretation has also been contested by McHugh, who has proposed the Elaborate flood myth to be an programmatic narrative grounded in Babylonian astronomy; cf. Thompson 2004-2007; McHugh 1998. I am indebted to these two researchers for personal feedback on these points.

4. proliferating into a few dozen of Narrative Complexes, ‘NarComs’, i.e. coherent complexes of mythemes such as we may define analytically so as to impose some manageable order (hence: ‘aggregative’) on the confusion and abundance of the data of comparative mythology, and place them in a hypothetical historical sequence (hence: ‘diachronic’)

Initially, I distinguished twenty NarComs on the basis of a corpus of African cosmogonic myths attested in historical times – which I then projected onto Eurasian (mainly literate) mythologies and their distribution maps, so as to try and identify pre-Out of Africa NarComs if any, and to suggest how, from that handful of NarComs in Pandora’s Box, the others may have emerged as transformation and innovations, in the course of an extended world history of mythology which largely coincided with the world history of the spread and diversification of Anatomically Modern Humans. Later, when concentrating on the present analysis of a global sample of flood myths,⁶ I had occasion to define nearly the same number of additional NarComs,⁷ which had not been conspicuous in the earlier, African sample.

5. such proliferation especially took place in the context of less than a dozen Contexts of Intensified Transformation and Innovation – CITIs, which are in principle identified in time and space (see Fig. 2) although much further linguistic and archaeological work needs to be done on this point, and which largely coincide with the contexts in which new modes of production and new (macro-) linguistic families can be argued to have emerged.

It is the segmented nature of this process that allows us to propose dating for its phases. Traits that tend to universality in the cultures of Anatomically Modern Humans may be surmised to have been part of the original ‘Out-of-Africa’ package, which I propose to call ‘Pandora’s Box’. Two Sallies out of Africa have been reconstructed, of which the first (c. 80 ka BP)⁸ reached Australia along the Indian Ocean coast, but was further abortive; while the second, c. 20 ka later, populated the other continents; hence traits that are found in Africa, the Andaman Islands, New Guinea and Australia, but nowhere else, could be argued to date from Sally I and possibly from Pandora’s Box. The latter’s further contents may be argued on the basis of calibration against sub-Saharan African traits in historical times – which must be a combination of (evolved) Pandora-Box materials and Asia-evolved materials brought to Africa in the context of the Back-into-Africa movement from Asia from c. 15 ka BP on.⁹ This feedback movement’s importance for comparative mythology cannot be overestimated: bringing back to Africa (and, as a side-effect, to Europe) the complex mythologies that had meanwhile evolved in Asia, the result was an amazing (but little appreciated) continuity mythologies of the three continents of the Old World from the Neolithic onward: emphasis on the separation of Heaven and Earth, the devices to effect their re-connection (demiurge, king, shaman, sacrifice, any vertical nature or man-made object) etc. (van Binsbergen 2007)

⁶ Isaak 2006. I am greatly indebted to Marc Isaak for preparing a well-referenced global collection of hundreds of flood myths, and for granting me permission to use these data for the present quantitative contents analysis. I repay this debt by listing Mr Isaak as collaborator to the present argument, although all responsibility for its contents and errors remain mine.

⁷ In the flood myths context, the following new NarComs had to be added: 21 The white god; 22 Astronomy pole halfling; 23 Trickster Raven Coyote; 24 Raising the corn spirit; 25 Cow of heaven; 26 Earth diver; 27 Music Orpheus flute reed; 28 Games contests combats; 29 The four (elements and/or cardinal directions); 30 Blood as poison, menstruation; 31 Tortoise / turtle; 33 Fragmented monster becomes the world or humankind; 34 Vagina dentata; 36 Fire; 37 Earth-dragon mountain volcano. NarComs nos. 32 and 35 were defined but subsequently discarded as superfluous.

⁸ Population genetics based on multivariate analysis inevitably works with error margins of tens of ka. The date of 80 ka BP reflects Forster’s (2004) the high dating which I have so far tried to follow, but there is increasing internal evidence that the lower dating of 60 ka BP gives better results for comparative mythology.

⁹ Cf. Hammer *et al.* 1998; Cruciani *et al.* 2002; Coia *et al.* 2005; Forster 2004.

Table 1. NarComs identified in African cosmogonies

1 Separation of heaven and earth	11 Primal waters and the flood
2 Reconnection of heaven earth	12 From the tree
3 What is in heaven (on further analysis turned out to combine 4 (cf. Rain), 13, and 19)	13 Cosmic rainbow snake
4 Lightning bird and World egg	14 Duality Two children Twins
5 Mantis	15 Spider and feminine arts
6 Rescue from ogre	16 Shamanism /hones
7 From the mouth	17 Spottedness / leopard
8 The stones	18 Honey bees (honey-)beer
9 The moon	19 Cosmogonic virgin et her lover son
10 The earth	20 Contradictory messengers bring death

Table 2. Contexts of Intensified Transformation and Innovation (CITIs) in the history of world mythology among Anatomically Modern Humans

CITI		proposed Narrative Complex (no. and description)	mtDNA type	remarks	linguistic context
in time	in				
I. Pre-Out-of-Africa Middle Palaeolithic 80 ka P and earlier	Sub-Saharan Africa	‘Pandora’s Box’: the original mythical package, perhaps containing: 4. The Lightning Bird (and the World Egg) 8. The stones (as earth; under CITI VI revised as the stones as connection between heaven and earth) 9. The Moon 10. The Earth as primary (10 was subsequently revised towards cattle, in the Neolithic) 12. From the Tree (in subsequent CITIs diversified into 12a ‘The world and humanity from the tree’, and 12c ‘the leg-child’) 13. The Cosmic / Rainbow Snake 15. The Spider (subsequent transformed into ‘the feminine arts’ in CITI VI)	L (L1, L2, L3)	<ul style="list-style-type: none"> The emergence of Anatomically Modern Humans as a biological mutation? Africa’s soil carrying capacity, even for hunting and collecting, is the lowest in the world, mainly due to geological conditions that predate the appearance of humans by hundreds of millions of years., so it is possible that there was a push out of Africa The emergence of myth as constitutive of a new type of human community: self-reflective, coherent, communicating, engaging in hunting and collecting, and creating coherence, through the narrative and ritual management of symbols, leading to articulate language <p>If this last point is plausible, then the earliest phase in the overall process is in itself myth-driven</p>	Proto-Human
II. Middle Palaeolithic, c. 80 ka BP	West Asia, and from there to Australia and New Guinea	5. The Mantis	N and/or M	leaving Africa and venturing into West Asia is likely to have produced new challenges and to have given access to new opportunities; possibly Neanderthaloid influence;	

III. Middle Palaeolithic, c. 35 ka BP	West Asia	6. Escape from the Ogre	A and B (out of N)	Neanderthaloid influence?	
IV. Upper Palaeolithic, c. 20 ka BP	Central Asia	11. The Primal Waters and the Flood	B (out of N)	installation of the cosmogony of the Mother / Mistress of the Primal Waters, and the Land	Borean ¹⁰
V. Upper Palaeolithic, c. 15 ka BP	Central Asia	1. The separation of Heaven and Earth 16. Shamanism, bones	N (H, A, B)	The separation of Heaven and Earth as central cosmogonic theme; shamanism associated with naked-eye astronomy (for hunters, later agriculturalists). The shaman's (belief of) travelling along the celestial axis to underworld and upper world, created (the idea of) a politico-religious social hierarchy on which more effective forms of socio-political organisation could be based.	Borean
VI. proto-Neolithic c. 12 ka BP	Extended Fertile Crescent	2. The Re-Connection of Heaven and Earth (after separation) 19. The Cosmogonic Virgin and her Son/ lover 14. Twins	R and M1	Neolithic food production through agriculture and animal husbandry; Neolithic arts and crafts such as pottery, spinning, weaving; male ascendance; complex society, the emergence of writing, the state, organised religion, and science; incipient metallurgy	Eurasianic, Afro-Asiatic, Sino-Tibetan, Austric, Amerind, Nilo-Saharan, Niger-Congo
VII. Neolithic or Bronze Age c. 5 ka BP	Extended Fertile Crescent	7. From the Mouth	too recent and too limited in scope to be interpreted in terms of mtDNA type	Masculinisation and mythical 'hysterical displacement' of procreative functions, from groin to mouth and head – transcendentalism as triggered by writing, the state, organised priesthood, and science	
VIII. Neolithic to Iron Age c. 3 ka BP	Extended Fertile Crescent	14a. Twins, Two Children, Duality		further reflection needed	

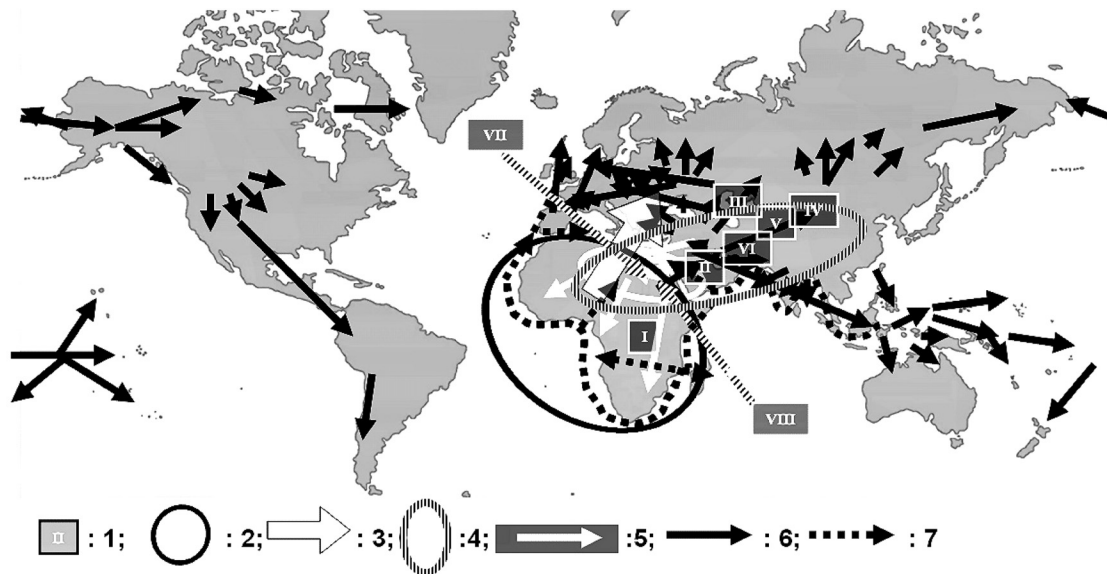
This model constitutes, at a global scale, my personal theory of the Deep (or rather, Long-range) History of Stories. It sets the theoretical and empirical background to the rest of the present argument. Meanwhile I can only stress its provisional and over-ambitious nature, the huge empirical and methodological difficulties entailed, and its dependence on interdisciplinary borrowing, which almost inevitably lags decades behind.

3. *Flood myths as touchstone*

Flood myths have played a central role in comparative mythology (cf. Frazer 1918, Dundes 1988). They are especially strategic in the context of the Special Sunda Thesis. Could I systematically interpret flood myths on the basis of my emerging 'diachronic aggregate' approach to world mythology? And if so, would my conclusions corroborate, or contradict, those of Oppenheimer?

¹⁰ *Borean (named after the semi-mythological and hardly localisable Hyperboreans as recognised in Graeco-Roman Antiquity) is the highest, i.e. oldest level of historical reconstruction that long-range specialist historical linguists have recently proposed. It reconstructs a hypothetical parent language (with Eurasianic – including Indo-European, Uralic, Dravidian etc. – , Sino-Caucasian, Afro-Asiatic, Austric, as well as Amerind and African languages, as putative descendants) spoken in the Upper Palaeolithic, c. 20 ka BP, in Central Asia, where the Mal'ta culture of Lake Baikal, although somewhat later, gives us an indication of likely *Borean speakers. Cf. Bengtson & Ruhlen 1994; Tower of Babel 2005.

Fig. 2. Contexts of Intensified Transformation and Innovation (CITIs) in Anatomically Modern Humans' global history of mythology



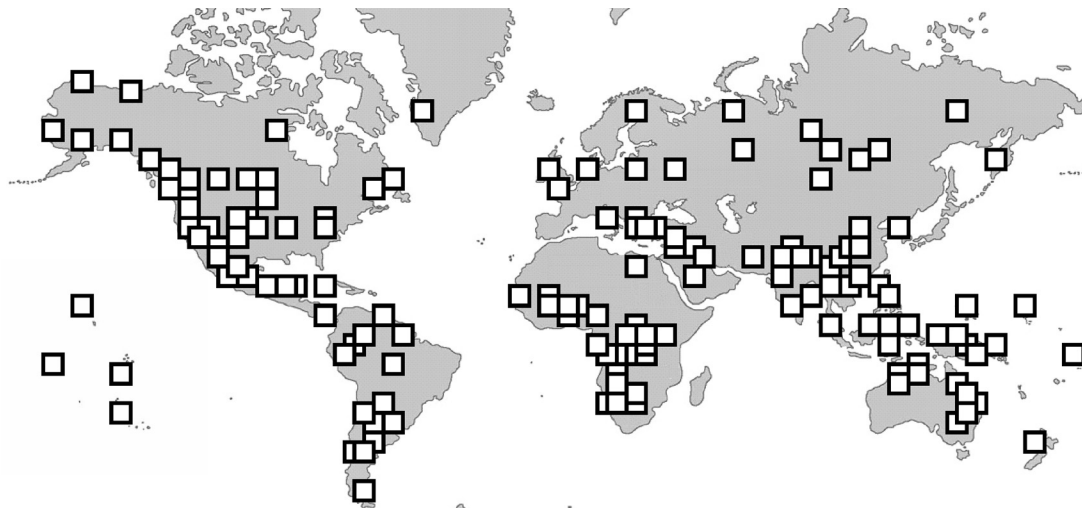
1: CITI (VII and VIII could not be drawn in location, hence the broken connecting lines); 2: Pandora's Box, 200-80 ka BP; 3: Extended Fertile Crescent, proto-Neolithic; 4: Back-into-Africa movement, 15 ka BP; 5: spread of Anatomically Modern Humans (Forster 2004); 7: Extended General Sunda Thesis (Oppenheimer 1998 and van Binsbergen, in preparation)

Oppenheimer suggests that the historical flooding of Sundaland 7.5 to 5.5 ka BP (resulting in insular South East Asia) was the original, concretely historical origin of flood stories the world over. Flood myths are, to him, the enshrinement of tangible historical collective experience – a recollection of an actual event. He makes such a claim in a long tradition, ranging, from several millennia of fundamentalist, literal, interpretation of the Bible; to the work of the archaeologist Woolley, who in the 1920s believed to excavate the geomorphological evidence of the actual historical flood; the never-ending search for the Ark of Noah on the slopes of the Caucasus; and the prominent rock art specialist Anati (1999) who, in order to explain flood stories, appeals to the same global rise of the sea level, but several ka earlier.

The world distribution of flood myths (Fig. 3) is by no means confined to South East Asia and the Ancient Near East, but encompasses most of the Old World, Oceania, and of the New World. It was a real eye opener for me to find, in the account of Philippines flood myths by the Chinese mythographer / anthropologist 史阳 Shi Yang (2006; cf. Demetrio 1968), not only the 'Elaborate' flood myth' familiar from the Ancient Near East, but even a more extensive package familiar from the latter region and period: the connection of heaven and earth in the form of: a bridge; creation; paradise; the discovery of sexuality which given the minimal composition of humanity at the time inevitably had to be incestuous; the fall of man; the flood as punishment; the destruction and post-flood re-creation, and re-erection of the bridge (cf. the tower of Babel) between heaven and earth. Could Oppenheimer have a point, after all, with his Special Sunda thesis, and did Shi Yang's data offer us a glimpse into an original South East Asian flood story of

the Nuaḥic type, before it was – presumably – exported to West Asia in order to end up in the Gilgamesh Epic and the Bible? Or was Steve Farmer right (2006, 2007) in sardonically stressing the fact that, down the hill of the Philippines site, there was a Christian missionary outpost, and that it had been there, or somewhere near, for five centuries – implying that the Philippines flood myth was not a cognate, but a descendent of the Judaeo-Christian-Islamic flood myth, in Farmer’s words a form of contamination.

Fig. 3. Global attestations of flood myths



□ : 1

1: Flood myth attested in historical times (all types and sources aggregated; sources include Frazer 1918; Dundes 1988; Isaak 2006)

Apparently in the ‘Elaborate’ Philippine package, as in Genesis, the flood myth does not stand on its own but formed part of an extensive cosmogony – which in fact, in the case of Genesis, extends through the first 12 chapters of that book. That cosmogonic cycle ranged from the original coming into being of the world, via destruction, to a second creation, which is the present world order.

Struggling to fit world distributions of mythological traits into my emergent model of Narrative Complexes and CITIs, I found it made sense to distinguish between at least two may types of creation stories or (since not all such narratives involve the idea of creation as an act of personalised agency) *cosmogonies*:

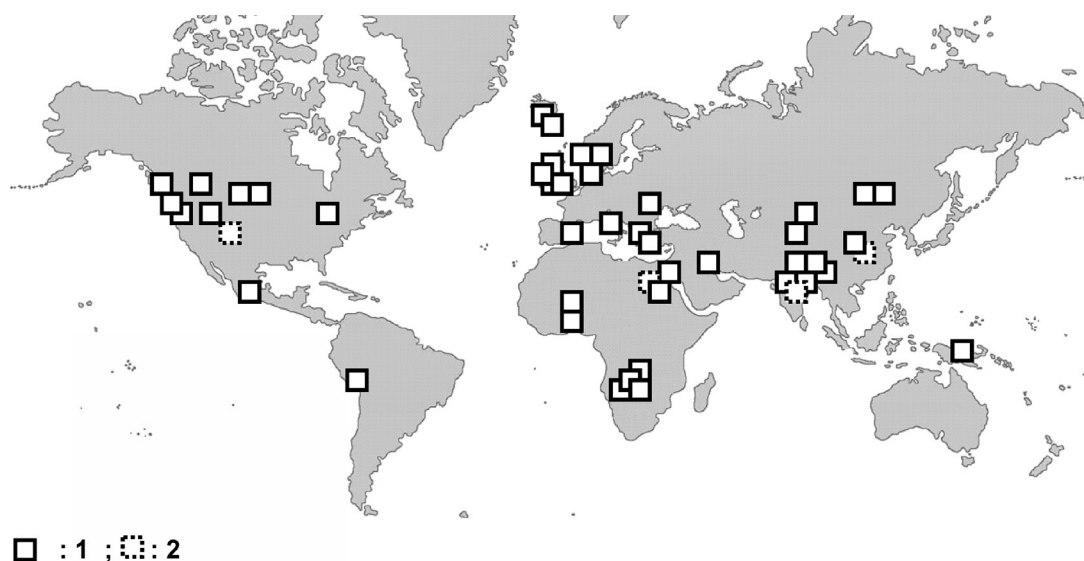
1. the separation of Land and Water
2. the separation of Heaven and Earth.

3.1. Type 1 Cosmogonies: The separation of land and water

Type 1 Cosmogonies revolve on NarCom 11 (‘The primal waters, and the flood’) – a Narrative Complex that sees creation as the establishment of cosmic order through the process of separation of the chaotic Primal Waters (often personalised by the Mother or Mistress of the Waters – cf. Tīāmat (Ancient Mesopotamia), Neith (Ancient Egypt), Thetis

(Graeco-Roman Antiquity), etc.; white aquatic birds are often her symbols), and the emerging first land (often personalised as the son and/or lover of the Mother of the Primal Waters: Kingu, Horus/ Sobek, Achilles, respectively). Since the production of life is associated with the female body, and the notion of ‘the beginning’ (however dimly perhaps) implies the absence of a male to impregnate the Mother of the Primal Waters, she is implicitly or explicitly a – potentially bisexual – virgin; when her oneness segments into duality, in other words, when she produces another being, this is likely to be both the opposite and her counterpart: a junior male to impregnate her. Although here is one obvious key to the Oedipus myth, the virginity attributed to primal goddesses such as Neith, Anahita, Athena, Aphrodite and Hera, the dynamics of the relationship of Achilles and his mother, of Joseph and Potifar’s wife, Horus’ rape of his mother Isis, etc. etc., yet this central, white-associated character of Type 1 Cosmogonies has been little recognised in comparative mythology. However, its manifestations (from Janus’ geese protecting the Ancient Roman Capitol to the White God Shiva in South Asia and to the albino Nuaḥ), have left traces all over the globe, often in a form that manifests the shift to male gender typical of post-Neolithic literate cosmologies (Fig. 4.).

Fig. 4. Attestation of the White God of Cosmogony or Second Cosmogony



1. Attestation of the idea of the White (lowly pigmented, often gigantic) god of cosmogony or (after cosmoclasm) second cosmogony; 2. uncertain attestation. Sources include Hastings 1909; for a full treatment see van Binsbergen, in prep.)

Type 1 Cosmogonies pose a horizontal process in that they does not involve the notion of transcendence or verticality (heaven). *If separation of land and water means cosmic order of creation, then annihilating such separation means dissolving the cosmic order, in other words the end of the world.* The idea of a global flood is thus a cosmoclastic statement, and the restoration of the world and of life after the flood is a second creation. No historical flood ever needs to have occurred¹¹ – flood stories are in my view merely

¹¹ Yet Central Asia, as the proposed origin of NarCom 11 and hence of flood myths, has Lake Baikal as a major inland sea; this region is also the putative scene of the emergence of two linguistic

ancient thought experiments in thinking through, to their extreme consequence, the perceived foundations of the cosmological order. Since cosmoclastic flood stories are often found among populations carrying mtDNA type B (in North and East Asia, South East Asia, Oceania, the Americas), I formulated the hypothesis that, along with that DNA type, flood stories had emerged in Central Asia 30-20 ka BP. Demic diffusion (cultural transfer by the geographical peregrinations of a genetically distinct population) seemed to go a long way to explain the global distribution of flood stories. But I still had to assess whether in more recent cultural history (from the proto-Neolithic onward), such flood stories may not have spilled over (by non-demic, cross-population cultural diffusion – probably aided, demically, by the Back-into-Africa migration) to populations characterised by other mtDNA types including those inhabiting the Near East, Africa, and Europe.¹² Could Oppenheimer’s Special Sunda Thesis be the answer?


3.2. Type 2 Cosmogonies: Creation as the establishment of cosmic order through the process of separation of Heaven and Earth

Type 2 Cosmogonies revolve on NarCom 1 (‘The separation of heaven and earth’). Here, as compared to the scenario of Type 1 – the separation of Land and Water, the gender dynamics are reversed in that the land or the earth now still appears as the junior agent, but female – whilst heaven has taken the place of the Primal Waters (which already under Type 1 had implied the waters below, those on the surface, and those above i.e. the sky). By a process analogous to that of the emergence of later and more complex NarComs out of previous ones, Type 2 Cosmogonies seem to some extent to have incorporated and transformed those of Type 1. Often, in the mythologies attested in historical times, the gender inversion typical of Type 2 has also contaminated such remnants of Type 1 as may still be identified, so that Neith becomes eclipsed by Horus¹³ and Re^c,¹⁴ and so that a male

(macro-)families: *Borean, and (Fortescue 1998) Uralic.

¹² Another question, so far unanswered and as such a reminder of the exploratory and provisional nature of the insights presented here, concerns the apparent absence of flood stories in Madagascar, even though that island was populated largely from South East Asia, with predominantly mtDNA type B.

¹³ As testified by the marital politics and the funerary patterns of first dynasty Egypt – several in-marrying royals from the Delta, and funerary human sacrificial victims, carrying theophoric names on Neith.

¹⁴ From the 5th dynasty, Re^c as sun god becomes the dominant god in the Egyptian pantheon, and Neith is demoted to the status of funerary goddess, with only a trickle of mythological indications (e.g. her forcing the issue at the trial of Horus and Seth, and Plutarch’s account of her self-acclaimed exalted status) to remind us of her former paramount status. Of course, as the Mother of the Primal Waters, Neith is the adversary, not the ally, of any flood hero. As the goddess of Saïs in the Egyptian Delta, Neith’s – initially reed-constructed – temple has been known as *pr bit* ‘House of the Bee’ since the earliest dynastic times; cf. *melissai* ‘bees’ or *Melisseus* ‘Bee Man’, which feature as titles of a Mother-goddess priesthood throughout the Bronze Age Eastern Mediterranean. Neith is intimately associated with the Egyptian kingship, one of whose main titles is *nswt bit* : ‘The One of the Reed and the Bee’. She is however not the king’s protector unless as a late funerary goddess; and she may well be an initial adversary gradually encapsulated in male royal symbolism, and transformed in the process. Having struggled for a decade to break the code of this enigmatic royal title (the Egyptological conventional wisdom that reed and bee refer to the two parts of Egypt unified at the beginning of dynastic times has little textual support and seems secondarily derived anyway) I now venture the following suggestion: the *nswt bit* title is an implicit reference, no longer understood in dynastic times, to a postulated Central Asian variant of the Elaborate flood story (well documented in South West China e.g. Dang 1993, and with North American parallels) in which the ark takes the form of a reed, and bee’s wax is used to plug it up. From the earliest

Poseidon¹⁵ replaces the Mother / Mistress; Athena, who is Poseidon's antagonist but also ceremonial double in the Athenian context, retains something of that Mother / Mistress (Kerényi 1978), etc.

In the Judaeo-Christian-Islamic tradition Nuaḥ, dependent on divine intercession for his survival in the cosmoclastic flood, is traditionally considered a white albino.¹⁶ This shows Nuaḥ to be a complex transformation of the Type 1 narrative. Originally, Nuaḥ will have been another Primary Divinity of (Second) Creation. Subsequently Nuaḥ may have become the junior male element in the horizontal Primal Waters / Land creation story (and so may be the Ark, as *pars pro toto* for the emerging land). However, the senior, female Creatrix element of (1), in the Nuaḥic flood story, is dissociated into two components:

- a. an inimical but often no longer personalised flood element (cf. Neith in footnote 14),
- b. and a male, vertical, *heavenly* creator and protector god, who is a radical transformation of the Mother of the Waters.¹⁷

In Type 2 Cosmogonies, emphasis is on verticality. I take this Type to have arisen c. 5 ka later than Type 1, but still in Central Asia, with later ramifications all over the Old World and part of the New World. Type 2 cosmogony seems to be associated with the emergence of other themes of verticality: naked eye astronomy, shamanism (i.e. inventing the notion of the world axis so central to naked eye astronomy, and spiritually travelling

times the Egyptian king was associated with sacred boats (O'Connor 1995; the predynastic Nubian Qustul incense burner – Williams 1986 – even shows three boats, in addition to the perennial royal symbols of elongated white crown, falcon standard, and *srkh* palace façade). This combined evidence makes the Egyptian king appear as a mythical flood hero *par excellence*, surviving thanks to his reliance on reed and bee. This is not smuggling in the Special Sunda model through the backdoor: the Elaborate flood mytheme is, in my reconstruction, Central Asian and is supposed to have travelled, on the wings of *Borean fragmentation, both to South Asia (in the hands of Austric speakers), to West Asia (in the hands of Eurasiatic and Afroasiatic speakers, some of which ended up in Egypt), and even to the Americas.

¹⁵ Poseidon continued to be associated with white – white horses, especially, which throughout the Upper Palaeolithic still appear as emblems of the Creatrix – and with the sea. A likely *Borean etymology of his name is *PVCV, 'vulva, penis', and *TVNV 'stream' or – homonymically – '[family] tree'; V = any vowel (Tower of Babel 2005, section Long-range etymology). Among the more than a thousand confidently and convincingly reconstructed *Borean words, those referring to semantic binary opposites (wet/dry, light/dark, male/female) usually encompass the full semantic range, with either of the opposites surfacing in the various putative descendant languages. The idea of an absolute binary distinction, which is simply taken for granted in the modern academic tradition (but cf. Derrida 1967a, 1967b, where every concept is argued to contain its own negation), appears as a real innovation against the background of the reconstructed *Borean lexical material. This lends further plausibility to my insistence on the cosmogonic nature of separation. Incidentally, also Oppenheimer 1998 speaks of 'separation stories', but uniquely in the Holocene (< 10 ka BP) South East Asian context. It is attractive and illuminating to consider the East Asian culture hero 伏羲 Fu Xi (without satisfactory Chinese meaning or etymology, but possibly < *PVCV) as cognate or identical with Poseidon. In the last centuries BCE he was paired to the South Western Chinese flood heroine 女娲 Nü Wa / Gwa (cf. previous note), whose Chinese interpretation (a popular etymology?) as 'Lady Frog' scarcely conceals the assonance with the name of that other flood hero, Nuaḥ. Many narrative and linguistic details corroborate these connections, but their discussion is unfortunately beyond our present scope.

¹⁶ Thus in the *Book of Enoch*, 105: 2, cf. Charles 1977.

¹⁷ This transformation is strikingly manifest in Genesis 1: 2, where the Breath of the Divine Beings (fem. plural) [hovers] over the Waters.

up and down along that axis), and social inequality leading to kingship which is probably an elaboration of shamanism. The cosmogonic conception of Type 2 has become dominant throughout the Old World. By feed-back, it appears¹⁸ to have greatly altered the shape of the earlier flood stories. The latter, however, had constituted such a key cosmological idiom that they survived in many places even if obsolete, utterly transformed, and deprived of their original sense.

So far this is mere speculation, albeit systematic speculation in the light of an abundance of distributional and mythemic data, which I had struggled to fit into a reasonably coherent model. If I were on the right track, then Oppenheimer's Sunda claims (in which separation stories of either type but especially of the Heaven / Earth type do play a major role) for the mythology of the Ancient Near East including Genesis would not survive any serious quantitative test involving a representative sample of all flood myths of the world – for in my model flood myths would be much, much older, lacking a historical occasion, and having (cf. Fig. 3!) a near-global distribution centring on Central Asia c. 20 ka BP. However, if Oppenheimer were right, his claims would survive such a test, in which case I would have to revise my 'Diachronic Aggregative' approach to global mythology.

4. Putting the Special Sunda Thesis to the test

For the testing, I had at my disposal a corpus of 395 adequate, well referenced flood myths worldwide. It turned out that I had to spend much time on designing a system for detailed systematic data entry towards contents analysis, dissecting the very heterogeneous contents of the flood myths in the corpus by reference to 182 variables (many of them dichotomous). Since I lacked the resources to process the entire corpus, I took a 20% aselect sample, considering 79 cases.¹⁹ There is not an obvious way to statistically test hypotheses in long-range comparative mythology concerning proposed cultural indebtedness thousands, even tens of thousands of years ago, and on the basis of a highly diverse corpus of flood myths worldwide, most deriving from oral literature collected less than two centuries ago, but some from the oldest texts at our disposal, nearly 5 ka old. A lot of reflection and trial and error went into this challenging task. Finally I designed two approaches for statistical testing that promised to be viable and valid:

4.1. Approach 1: Discriminant analysis of cases corresponding with the 'Elaborate flood myth type'²⁰

Following Isaak, my working definition as to what constitutes a flood myth was so wide that most cases in the sample were not of the Elaborate type. I concentrated on flood stories displaying what we know as the biblical flood mytheme (Genesis 6-9): *'The man*

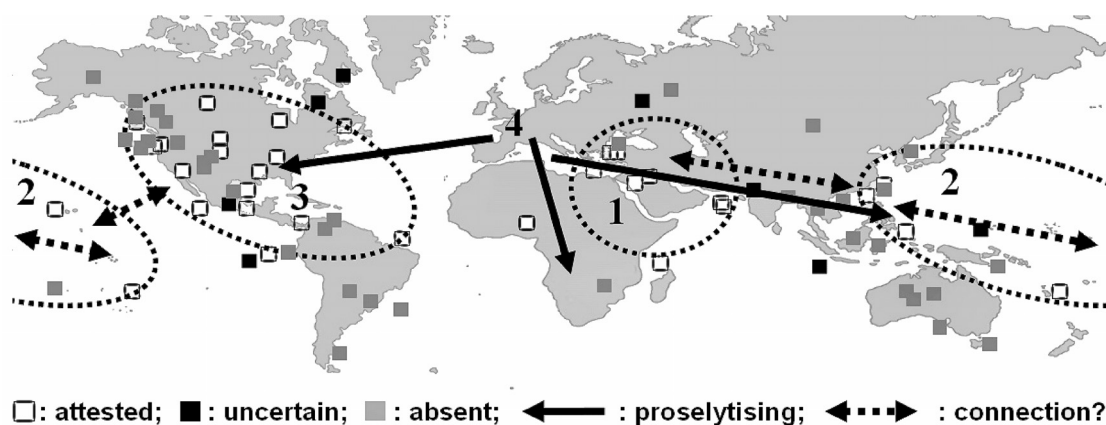
¹⁸ Until we have developed a methodical, intersubjective key for the reading of prehistoric rock art and other pre-literate or proto-literate iconographic representations (and I submit that my Aggregative Diachronic Model can be part of such a key), we lack all direct contemporary evidence of both types of Cosmogonies, but only know them in their, no doubt greatly distorted, attestations from historical times.

¹⁹ For a full statistical description of the data set, see van Binsbergen, in preparation.

²⁰ Another possible approach for this type of problem would be partial correlation analysis, whose results however are not yet available at the time of writing; see van Binsbergen, in prep.

who survived the flood in an Ark, as ally of the Supreme God'. If Oppenheimer was right, the distribution of this type would have to display Sunda traits, i.e. marked concentration on South East Asia and Oceania, and along the postulated Sunda westbound trajectory. In order to test this, I first subjectively determined for each flood story in my sample if it was of the Elaborate type: yes, no, or uncertain. This resulted in a variable CONTAMIX. Then I let a discriminant analysis produce a mathematically constructed variable CONTAMIN, approximating the values of CONTAMIX on the basis of a correlation matrix containing as many of my contents analysis variables as could be included without running into defects of multicollinearity or other statistical undesirabilities; by long-standing consensus among statisticians, dichotomous nominal variables were included in the matrix as if they were equivalent to variables measured on a ratio scale (Cohen 2003). The idea was that, whereas I personally (or any other human) could only take a few traits into account and might be subjective and one-sided in my scoring of individual cases as 'yes, no or uncertain', the discriminant analysis, by contrast, could manage vast numbers of variables, and therefore would be more objective and balanced. This was confirmed. Much to my surprise and satisfaction (and also as a sign of the overall quality of my data set) CONTAMIN proved superior to my own subjectively scored CONTAMIX: a case-by-case confrontation of CONTAMIN with CONTAMIX against the original texts of the flood myths in question corrected several obvious misjudgements on my part, and thus allowed me to confidently interpolate some of the missing cases. Mapping the individual values of CONTAMIN on a world map was to reveal the Sunda effect, if any. The following Fig. 5 gives the geographical distribution:

Fig. 5. Sample global distribution of variable CONTAMIN as constructed with discriminant analysis: 'The man who survived the flood in an Ark, as ally of the Supreme God'²¹



We note a surprising number of cases in the Americas (all three categories: attested, uncertain and absent); hardly any positive attestations, but many negative ones, in insular South East Asia although a few in India and South China. The global distribution (in so far as reflected in our sample) displays three concentration areas of positive attestations:

1. West Asia, where the Ancient Near East / Bible world constitute the conven-

²¹ The computer-generated maps based on my contents analysis of flood myths are still provisional; locations of individual cases may be off by a few degrees but the overall pattern is correct. I thank Yuri Berezkin for his advice as to how to improve these shortcomings in future.

tional cradle of the Elaborate flood stories

2. South East Asia cum Oceania, their cradle according to Oppenheimer's Special Sunda Thesis
3. North and Meso America, which despite its surprisingly massive attestations of the Elaborate type is an uninvited guest in this setup, where primacy is being contested between West Asia and Sundaland.

The only area where nearly all attested cases are Elaborate is West Asia. We note the concentration of flood stories other than Elaborate (i.e. cases marked as 'absent') especially to the West and South of Sundaland. Such a negative belt sealing off Sundaland from its presumed target, West Asia, is not in agreement with the Special Sunda Thesis, which would make us expect many attestations in South East Asia and a more or less continuous distribution of positive attestations all the way to West Asia. A similarly negative concentration of flood stories other than Elaborate is found throughout the Americas, especially on the West coast of North America, despite the fact that there are many attested Elaborate cases especially in North and Meso America.²²

Distributions are directionally neutral and do not dictate the geographical vectors by which one would like to turn them into processes. It is far from obvious how the distributional pattern of Fig. 5 could be argued into a historical reconstruction. One way of making sense of it is to stress the active dissemination of the Elaborate type through the spread of the Judaeo-Christian-Islamic tradition in historical times. Perhaps Farmer did have a point when explaining the Philippinian Elaborate case as due to centuries of Roman Catholic missionising; for Indonesia, Islam is another possible factor. Christian proselytisation in Meso and North America is also several centuries old and could explain the American Elaborate cases to a certain extent.²³

However, this would leave unexplained the fact that flood myths of the non-Elaborate type are so numerous in the Americas that one is almost tempted to consider the New World as the cradle of the flood myth, and the Elaborate attestations in West Asia and South East Asia as evolved derivations from some original, less elaborate, North American pattern. The idea has been contemplated before. Heyerdahl's Kon Tiki expedition of the 1940s was based on his prior scholarly study of the possibility and indications of cultural contacts between the Americas and Oceania, and the apparent success of his strange experiment has meanwhile been confirmed by geneticists finding some tangible evidence of a trans-Pacific East-West gene flow (Cavalli-Sforza et al. 1994) and by the archaeological evidence of South American seedless (!) sweet potato in Polynesia (Jett 2002). Another indication is that certain American food crops are claimed (Dick-Read 2005) to have reached West Africa well before Columbus formally established the

²² Incidentally, the many unmistakably 'absent', non-Elaborate cases in Approach 1 demonstrate beyond any doubt that (contrary to Farmer's 2007 assertions) *most* flood myths in the world are fundamentally different from the mytheme of 'The man who survived the flood in an Ark, as ally of the Supreme God', and therefore cannot be attributed to proselytising of the Judaeo-Christian-Islamic complex.

²³ Already in the 1820s (McLoughlin 1974), missionary influence among the Cherokee of the South East United States of America had been sufficiently extensive to give rise to strong and violent anti-mission sentiments. In the process a truncated flood myth was recorded involving the common mythological figure Dog who gives a flood warning and orders a boat to be prepared – possibly, but not necessarily, an echo of the divine warning to Nuaḥ in the Bible. Warning as a theme appears in many flood stories worldwide, including quite a few other North American cases; and in many North American flood stories a canine plays a similar role as in the Cherokee myth.

trans-Atlantic connection (1492 CE); the idea is that – rather than through trans-Atlantic pre-Columbian contacts, which Afrocentrist writers prefer to stress²⁴ – these crops made the trans-Pacific voyage from South America to South East Asia (this is an old research theme, cf. Carter 1953; Jett 1968, and from there were taken to Africa on the wings of westbound Sunda expansion, whose reality *for Africa* appears to me to be undeniable and ranges from East African kingdoms to West African xylophones, ecstatic cults, cowries, divination equipment, and, in West and Southern Africa, stray Roman coins that once circulated widely in the Indian Ocean region but never reached the Guinea Coast long the Atlantic route (Dick-Read 2005; van Binsbergen, in prep.). Bananas are an excellent example: they do not multiply by seed, and from their original cradle in New Guinea they could only reach West Africa, 3 ka BP (and to Meso America, for that matter,; cf. Jett 2002) through conscious human agency, as well-tended saplings. If crops could make that intercontinental voyage, flood myths could too – in fact, the Peruvian Kon Tiki myth pressed into service by Heyerdahl is not only associated with the trans-oceanic transfer of crops but also depicts a proverbial flood hero. Cloves– with an unique origin in the Moluccan Islands – found their way from East Indonesia to West Asia in the Bronze Age.²⁵ However, before we declare the New World the unexpected cradle of flood myths (reducing Sunda to the role of transmitter, not originator, of the Elaborate flood story), let us admit that movement from Central and North Asia has until recently provided the standard model for the peopling of the New World (recently contacts from East Asia and Australia are, in addition, being contemplated in that connection), so that even Elaborate flood stories may have travelled from West Asia to the New World without the intercession of Sunda. Recently, Americanist studies have become far less dismissive of trans-Oceanic contacts in pre- and proto-history, and there are several indications that migrants have continued to travel across the Bering Street in recent millennia, bringing languages such as Jeniseian, Uralic and even Semitic – their luggage may also have included West Asian Elaborate flood myths, that could subsequently spread in North and Meso America well before the advent of Christian missionaries (Jett 2002).

Beyond highlighting the pivotal role of American flood myths, Approach 1 remains inconclusive as far as the testing of the Special Sunda Thesis is concerned. This need not surprise us – after all, the basis of Approach 1 has been subjective judgment. A more conclusive test is the following.

4.2. Approach 2: Factor analysis of the total variance contained in the global sample of flood myths

4.2.1. *Factor analysis*

My second approach to testing Oppenheimer's Special Sunda Thesis again starts with a

²⁴ Cf. Van Sertima 1995; for a dismissive view cf. Ortiz de Montellano *et al.* 1997.

²⁵ E.g. Wright 1982; Chavalas 1996. These examples indicate that, apart from the application to comparative mythology, there is much to be said for Oppenheimer's General Sunda Theory, especially in the African context; and even more (since that would steer away from the undesirable and unrealistic monocentrism of classic diffusionism, which Oppenheimer has unfortunately taken over) for the idea of a multidirectional and multcentred, transcontinental maritime network, emerging in the Bronze Age and effectively creating the conditions for goods, people and ideas to travel virtually across the globe from the Bronze Age onward – cf. van Binsbergen, in prep.

correlation matrix containing as many of my contents analysis variables (including; dichotomous nominal variables) as could be taken along without running into defects of multicollinearity and other statistical undesirabilities. Factor analysis is a complex mathematical technique indicating how many mutually uncorrelated, independent variables have to be constructed (given certain reasoned choices on process parameters such as number of iterations, and convergence tolerance of the resulting matrix), in order to account for as large a percentage as possible of the total variance in the sample.²⁶ Inspection of which mathematically constructed factor does load highly on which combination of input variables allows us to suggest the nature of each factor, and to name it. Each of the factors thus constructed has a geographical distribution, and can be mapped for all cases (N=79). For our present purpose it is sufficient to merely map the upper quartile (25%) of the distribution, because this is where the obviously positive cases are to be found; the quartiles have been distinguished by letters a to d, and the upper quartile appears as a scatter of 'd's on the distribution maps below. If a particular factor map displays a marked Sunda effect, that means that Oppenheimer is probably right, and I am probably wrong.

Let us first consider (Table 3) the constructed factors, their constituent primary variables, and their identification.

Table 3. Detailed discussion of the factors identified

Factor, with percent-age of total variance explained	PROPOSED FACTOR NAME, cursory indication of variables involved, and proposed interpretation
FACTOR(1) 4.461	VERTICAL FROM PARADISE: In this factor/motif the vertical dimension is emphasised, with the vertical reed (NarCom 27) which, like the shamanism (NarCom 16) that is also explicitly included in this factor, represents the vertical connection between the separated heaven and earth – and also in the image of animals suspended from heaven in their attempt to escape from the flood. The same idea of suspension between heaven and earth we find in the spider motif. While this separation implies the notion of transcendence, the vertical, spatial separation also becomes a conceptual and temporal separation in the sense that a transcendent paradise, not here and not now, is evoked as pre-flood and having ended with the flood. To this attaches the NarCom 14 of the two children, twins often, who belonged to a paradisiacal state which however came to an end when one killed the other – the Cain and Abel theme (which however in the Bible is not recognised as specifically part of the Nuaḥic flood story there).
FACTOR(2) 5.646	GOD AS ALLY OF HERO: The supernatural is present in the form of the supreme god, who dwells in heaven (NarCom 3), sends the flood (NarCom 11) and enters into an unequal alliance with the flood hero – the supreme god being evidently superior to the hero. The latter receives warning of the flood, sends out birds (probably transformations of the earth diver i.e. NarCom 26, belonging to an earlier phase of mythological development) at the end of the flood, and (in a sense that is evoking NarCom 24) engages in agriculture after the flood – this is the core of the biblical or in general Ancient Near Eastern Elaborate flood story
FACTOR(3) 4.694	HERO AND ARK: There are survivors to the flood, specifically there is a flood hero who is the survivor, and there is a concrete material rescue device (an 'Ark') which

²⁶ Parameter choices in the present analysis were: number of factors = 12; Eigenvalue = 2, tolerance = 0.03; rotation method chosen is Varimax; for full statistical details including the correlation matrix, see van Binsbergen, in preparation.

	allows the hero to survive; this motif/ factor is an alternative to the ogre motif (NarCom 6 – there the confined space is doom rather than rescue), and also an alternative to the blood motive (NarCom 30)(both of which are evocations of the feminine traits – the feminine as source from which life emerges (womb/earth) and to where it returns in death (grave/earth); cf. the Primal Waters, or earth not as male land, but as life-giving and death-receiving)
FACTOR(4) 4.815	FLOOD ALTERNATIVE: An alternative to the flood motif is the evocation of other cosmoclasms besides the great flood. Here the attention is drawn to the vertical axis, with the emergence of mountains as a result of the flood, the evocation of the celestial cow (NarCom 25), and cosmogony from the fragments of a shattered featureless object (NarCom 33)
FACTOR(5) 5.310	ANIMAL SURVIVORS: Animals survive the flood, especially the earth diver (NarCom 26) who is usually in the shape of a rodent-like small mammal. The theme also speaks of the human demiurge of male gender. A formal characteristic attaches to this factor: if it is high, also the length of the flood story in question will be high – which reflects the tendency for Elaborate North American flood stories, where the themes of this factor prevail, to be rendered in extenso in the professional ethnographic literature
FACTOR(6) 3.890	SWEETNESS THROUGH INCEST (cf. Shi Yang 2006): The themes of sibling incest and honey (NarCom 18) appear to celebrate the discovery of sexuality (cf. Lévi-Strauss's equation of honey and sexuality; Lévi-Strauss 1969-78; cf. Cook 1976). In some, still unclear way this is associated with the theme of a warning which comes to the flood hero from some third party and not from the causer of the flood himself or herself – one is reminded of the snake in the biblical paradise, since the fall of man was sometimes (especially in the Christian tradition) associated with, again, the discovery of sexuality. ²⁷
FACTOR(7) 3.777	POST-FLOOD REPOPULATION ABNORMAL BUT NOT STONE: Since the flood usually is held to destroy the whole of humankind with the exception of up to a handful of flood survivors, there is usually the need for post-flood repopulation of the earth. Under FACTOR(7), such repopulation proceeds along abnormal lines i.e. otherwise than through normal heterosexual human sexuality. This FACTOR(7) offers several variations for the connection between the flood and stones (NarCom 8) – flood victims

²⁷ It is in the nature of factor analysis that each factor is constructed to be totally unrelated to any other factor from the same analysis, e.g. that highlighting the two siblings (see FACTOR(1)) in combat. Yet it is tempting to see a relationship between these two sets of siblings: in FACTOR(1) siblings of the same gender and adversaries; in FACTOR(6) siblings of opposite gender and sexual mates. Could the male sibling adversaries of FACTOR(1) be seen as a transformation of the incestuous siblings of FACTOR(6) – as if FACTOR(1) dates from a later phase of mythological development than FACTOR(6), when the idea of sibling incest could no longer be entertained and instead the siblings, who were yet too important to leave out of the story altogether, were reconstructed in the most forbidding, anti-incestuous form: as both male, and as enemies?

²⁸ Cf. Lot's wife at the fiery cosmoclasm of Sodom and Gomorrah (Genesis 19: 26); here the destruction is in the form of fire (NarCom 36) as an alternative to the flood; but there are many similar examples in the regular flood stories in our global sample.

²⁹ In many flood stories worldwide we find an emphasis on non-normal means of post-flood reproduction. An obvious rationalisation is that after the flood the usual, human, non-kin mates are no longer available, so that the one or two survivors have no choice but to take recourse to sibling incest, father-daughter incest (Lot), or to producing offspring with the help of animals, plants and stones. I think the real reason goes deeper. In the first place, sexuality may be simply too sacred in an archaic context to deal with explicitly in public narrative – a convention prevailing even in the urban North Atlantic region less than half a century ago. Another reason, more particular to the flood stories as a genre in their own right, is that the flood often appears to be triggered by the discovery of sexuality, and/or by engagement in illicit sexuality, and that therefore all sexuality is to be ruled out in the earliest post-flood period, when the restored cosmic order is still very precarious. For instance (but there are many other cases from other

	turning into stones, ²⁸ and repopulation after the flood taking place by means of stones ²⁹ which (as in the Greek flood story of Deucalion and Pyrrha) turn into human beings. This factor appears to reveal relatively very ancient mythological layers, with the original creator identified as female.
FACTOR(8) 4.393	KILLING ANIMAL DEMIURGE AND WHITE GOD: This motif highlights the animal trickster or demiurge, who is being murdered or himself engages in murder. This attaches to the theme of the White God (NarCom 21), who may be evoked as a Primary God of Creation, subsequently to be supplanted by a later divine generation or dynasty, and then may be associated with the sun or moon – bright luminaries between heaven and earth in a less than supreme role. One reason for the appearance of the White God theme appears to be the following: this is typically the original God of Creation, and the narrative therefore is situated at a time, and emulates a worldview, when the separation of the waters into sea, heaven and underworld had not yet taken place or at least not completed. In the context of this primordial mythical time, repopulation was not by normal means (i.e. sexual, and intra-species), but by a-sexual, homosexual or inter-species means. We are here in the presence of such shape-shifters are Proteus, Nereus etc.: transformations of the Original Mistress of the Primal Waters once she was dethroned by the gods of a later dispensation, and typically of male gender. This suggests something about the origin of the trickster figure in general: possibly as a transformation of the original Creatrix, of reversed gender. The typical North American flood hero is a trickster: Coyote, or Raven, who may cause and fight the flood at the same time.
FACTOR(9) 3.485	SACRIFICE AS RE-CONNECTION: This is an unusual factor in that it only loads considerably on one variable only, in the data set: the variable measuring whether in the context of the flood, and especially after the flood, an explicit reference is made to sacrifice.
FACTOR(10) 4.359	HEAVEN, LUMINARIES, CONNECTION, PARADISE: I have postulated that the flood stories are predicated on a thought experiment revolving on the following idea: ‘if the essence of the cosmic order is the separation of Land and Water (later verticalised and otherwise transformed into the separation of Heaven and Earth), then destruction of that order must be equivalent to the annulment of the separation of the Waters (or of Heaven and Earth, respectively). This factor considers heaven, not (as in factor 2) as the dwelling place of the supreme god as flood causer, but as the context of the great luminaries Sun (NarCom 35) and Moon (NarCom 9). Remarkably, the Spider complex (NarCom 15) turns out to belong to this factor – confirming an earlier hypothesis of mine, which equates the Spider with the Sun in ancient cosmologies. In the mytheme conveyed by this factor, the connection of heaven and earth is still intact, hence the inclusion of the chain theme, and the explicit idea that the flood ended the period of paradise – which, of course, what that of the unproblematic, self-evident connection – the incessant embrace – of heaven and earth.

parts of the world) Talmudic and Islamic sources (cf. Heller 1993; Qur’ān, sura 71, al-Nūh [= Nūah]; Talmud: Sanhedrin 108a-b – cf. Goldschmidt 1908-1935; Mishna as in Danby 1983) emphasise that Noah’s family had to observe strict abstinence whilst in the Ark – Ham’s curse being based, not so much on ridiculing his father when the latter was indulging himself in alcoholic drink (Genesis 9: 22f), but on his own indulging in sexuality while aboard the Ark. There is an interesting parallel here with sorcery (of which Ham is also accused in the same traditions – especially manipulating, with evil intentions, the potent remains of Adam and Eve, and their leopard-skin clothes, which has been taken along in the Ark as ancestral mementoes). There is an even clearer parallel, on this point, with the use of fire, which (as an alternative cosmoclasm) in some flood stories triggers the flood, and which in many flood stories needs to be re-initiated specifically after the flood. Again there is a practical rationalisation: all fire will have been extinguished by the flood, but again there seems to be more to it. Also compare Prometheus (uncle of the Greek flood hero Deucalion) who – after the flood, as the comparative logic of flood stories suggests – brought the stolen fire in a narthex i.e. a reed (!); and whose name means ‘Thinking Ahead’ – like bees (!) accumulating their honey, and contrary to crickets who just sing and dance without a thought to the future (cf. the name of Prometheus’s brother Epimetheus, ‘Thinking Afterwards’, the husband of Pandora).

FACTOR(11) 3.683	HEROIC COMBAT: In this motif the combat theme (NarCom 28) appears as, emphatically, an alternative to the flood motif; there is a heroic evocation of the hero as the human incarnation of the re-connection (NarCom 2) par excellence between heaven and earth; yet, in line with the biblical and Ancient Near Eastern conception of the Flood Causer and the Flood Hero as allies, the combat is not between the Flood Causer and the Flood Hero, but with a third party – other with the Flood itself.
FACTOR(12) 3.056	NUMBERS: This motif is predominantly about numbers, especially entire numbers greater than one. One might even say that this motif is about numerical rationality. It stresses that there is more than one flood hero. If we are allowed to proceed to consider the weaker loading variables, the emphasis on a plurality of heroes merges with another plurality: that of the four directions and/or elements (NarCom 29); ³⁰ since these are, virtually globally, the dominant evocation of the land, and since the flood hero, in the light of the above analysis, is another evocation of the land, it is not surprising that the four directions / elements have come to be thought of as persons, implicitly even as flood heroes joining their forces. Moreover we encounter a number of additional themes here: if there are more flood heroes mentioned, these will not be closely related as siblings. The emphasis in this factor is on equality. No special, exalted rank is attributed to the flood hero. The flood hero is not picked for such rank, but for instance for his moral quality; the latter could be interpreted in terms of personal achievement, since in traditional contexts rank is often a matter of ascription, of birth right. If this factor is high, a specific duration for the flood tends to be given. Also this factor loads slightly on the theme of volcanic qualities (NarCom 37(fire, earthquakes etc.) as opposed to the theme of the earth as source of life and nourishment).
51.569	

4.2.2. Discussion

My analysis is predicated on the idea that if we have a composite phenomenon in cultural history, we can only reconstruct its history by tracing the distinct history of the component parts. This is a strategy I have also followed in my earlier analyses of the global cultural history of geomantic divination systems. It is in fact a standard procedure in palaeontology – the application of a principle known as Watson’s Law (Thenius &

³⁰ The Four (directions, elements) return in many disguises through global mythology and religious systems, for instance: as the four sons of Horus and the guardian spirits of the canopic jars in which the entrails of an embalmed person are interred; as the four basic sign in the geomantic divination systems of the Islamic world, Africa, and Renaissance Europe; or as ‘The Four’, mythical ancestors of the Nkoya people of Zambia in their national oral history *Likota Iya Bankoya* (van Binsbergen 1992); as four winds, shaman’s guardian spirits in Peru (Sharon 1978), etc. The mainstream anthropological objection of this kind of argument being theory-less, haphazard diffusionist comparison, no longer applies: in the light of state-of-the-art genetic and linguistic reconstructions of the prehistory of Anatomically Modern Humans, these regions, however far apart geographically, must be recognised to have shared a common cultural source in Central Asia 20 ka BP, subsequently transmitted to the New World (trans-Bering migration) and to Africa and Europe (back-into-Africa migration). A further discussion of the connection between four directions and other foursomes, especially as cosmological elements or phases featuring in divinatory and therapeutic systems, is regrettably outside our present scope; cf. van Binsbergen, in preparation. Yet, I may stress that the notion of four primal elements, found with the pre-Socratic philosopher Empedocles (cf. Leonard 1908; Fairbanks 1898; Kingsley 1994), has not (in some naïve, New Age style) been spuriously projected here by me onto remotely ancient times, but has been brought out, by my contents analysis of flood myths world wide, to be a very widespread and ancient theme (the number of elements can vary between four and eight), which was merely picked up by Empedocles due to his, and his associates’ (including Pythagoras’) exposure to shamanic traditions. The latter were, I submit, the cradle of numerical rationality in astronomy, arithmetic, numerical games, and divination, both in the Old World and in the New World, in the Upper Palaeolithic.

Wendt 1974: 602).

Factor analysis leads us to mathematically construct twelve factors that, while so constructed as to be mutually uncorrelated (in fact they all have a Pearson correlation of 0.000 vis-à-vis one another), together explain as much of the data set's variance. Thus, for each individual case the factor analysis produces, for each of the twelve constructed factors, a specific *factor score* that can also be projected onto a world map. Here we are in for surprises, for instance, factor analysis indicates that what we have so far taken to be one valid and coherently integrated mythical type ('The man who survived the flood in an Ark, as ally of the Supreme God' – the Elaborate type) is in fact a composite of two in principle unrelated mythemes, each presumably with its own history in space and time: FACTOR(2) GOD AS ALLY OF FLOOD HERO and FACTOR(3) FLOOD HERO AND ARK. For each factor we will only consider those cases whose factor score for that particular factor is in the upper quartile (upper 25%, 'd') – their mapping will tell us where on the globe that particular factor takes its highest values, and we will use these geographical distributions as an guide for a historical reconstruction of the history of that factor. We need to proceed with great caution, for our twelve factors are mere mathematical constructs that, in their particular combination of primary data entry variables, may only have a *virtual* existence – may only be mere figments of our analytical imagination. Moreover, we are only working with a 20% sample of the available data, which slightly (not dramatically) increases the error inherent in any statistical analysis. Yet, considering the fact that our attempts to name and identify these twelve factors have a fair degree of consistency, and considering the reasonable size of the 20% sample (N = 79), I am confident that the historical reconstruction based on the factor analysis has some heuristic value. It is rather reassuring that we are able, with our twelve factors, to account for as much as 52% of the total variance in the worldwide sample of flood myth, despite the sheer heterogeneity of historical periods, cultures, languages and types of sources.

The main underlying assumption of my interpretation here is that parallel invention has made no significant contribution to the phenomena under study. Since the flood myths clearly constitute one data set, with continuity and often near parity in the distribution between New World and Old World, and since coherent and meaningful patterns (Table 3) are found to underlie the entire global sample of flood myths however heterogeneous on the surface, I try to do without the possibility of parallel invention, and do not wish to contemplate the idea of a totally separate history of flood myths in the New World and the Old. In general I do not believe in the existence of two independent continental epicentres. I admit that this is very one-sided, yet it is a position which intensive application to comparative mythological data over several years has suggested to me.

Summarising the results of the detailed factor-by-factor discussion below, we may say that for most of our 12 factors we can propose three models which each propose a different origin and epicentre for diffusion, and which we have already encountered in our inconclusive account of Approach 1, above:

1. Central Asia
2. Sunda
3. New World

The prominence of a New World origin in my analysis of these twelve factors comes as a surprise, also to myself. On the one hand I take recourse to the common, intuitive consideration that the place of the highest concentration of later attestations may

well the place of origin. About as many flood stories have been recorded for the Americas (and especially for North and Meso America) as for the rest of the world as a whole! We must be careful not to relegate the Americas, too, to the same position that Africa has so long unjustifiably occupied (and in most researchers' minds, still occupies): that of the perennial, proverbial periphery, towards which major elements of cultural history may have drifted but from where such major elements could never have originated. Let us not forget that my Aggregative Diachronic Model is predicated on African cosmogonic myths and on the Out-of-Africa model! On the other hand, a primary New World origin of some of the factors under consideration only comes in once the overall idea of a total cosmoclasm in the form of a flood has been established, and (given the relatively late peopling of the Americas, no earlier than 20 ka BP, and according to most authorities less than half that period, with a trickle of even later inroads) in all likelihood that basic idea emerged in Central Asia in the Upper Palaeolithic, and not in the New World.

The factors we have mathematically constructed cannot be fully analysed and understood, just on the basis of an examination of their geographical distribution, and of the identification of their nature from the constituent original input variables. Thus, in the course of my struggling with the results of the quantitative analysis of flood myths, I have gradually and painfully made a transition from the formal, mechanical interpretation of distribution maps of factors (a very dicey approach anyway, due to the virtual, mathematically constructed nature of these factors; the imperfect and partial nature of the input data; and the reliance, largely, on dichotomous, nominal variables) to a semantic, hermeneutical approach against the background of the systematics of my Aggregate Diachronic Model of Global mythology. This Model can be usefully invoked here, to explain the implied meaning of each factor, its position in the modelled history of mythology, and thus its probable dating. In my personal, myopic infatuation with this model, it sometimes appears to me as some kind of Periodic System of world mythology, in which (like the chemical elements of the physical world) specific mythemes can be situated in time and place merely on the basis of the internal systematics of the model. Such ambitions are certainly grossly exaggerated, yet the interpretation of the twelve factors constitutes a test for the explanatory power of my Aggregative Diachronic Model, which it sustains rather well. In the original formulation of the NarComs and CITIs, and their tentative positioning in time and place (van Binsbergen 2006a, 2006b), we have relied greatly on a hermeneutical methodology that looked for the formal and semantic implications of particular mythical elements, and sought to relate these to modes of production etc. The same methodology will be much relied on in the following sections.

By and large, the Central Asian model appears to be the most convincing for nearly all the twelve factors to be considered. For one or two factors, however, it looks as if a combination of a Sunda and a New World model seems to provide the best explanation for the diffusion pattern on the map. Within the scope of this paper I cannot discuss in detail the geographical distribution of all twelve factors (cf. van Binsbergen, in prep.); instead, I will only discuss two factors in some detail, and summarise the results for all twelve factors in Table 4. This will also allow us to choose between the three epicentres (Central Asia, Sunda and America) we have in principle available as possible origin for each of our twelve factors.

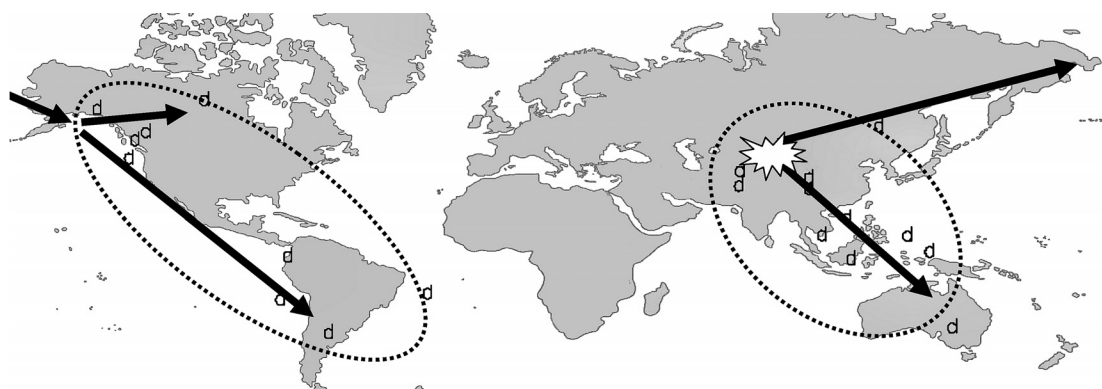
4.2.3. FACTOR(1) VERTICAL FROM PARADISE

Our first factor to be discussed in detail, FACTOR(1) VERTICAL FROM PARADISE,

combines two themes (paradise and verticality) which may be better understood, and tentatively situated in place and time, on the basis of my Aggregative Diachronic Model of world mythology. It is not possible that FACTOR(1) could directly reflect the contents of Pandora's Box, i.e. the original cultural package with which Anatomically Modern Humans left Africa c. 80 ka BP. In my approach, humankind's vertical gaze has been proposed as a product of CITI V (Central Asia, Upper Palaeolithic, c. 15 ka BP, when a general verticalisation of the world-view brought naked-eye astronomy, the role of the shaman, and social hierarchy; the invention of Heaven was a requisite for the installation, some 5 ka later, of the mytheme of the Separation of Heaven and Earth – Cosmogony Type 2 –, which as a central cosmogonic concept came to supplant the hitherto dominant idea of the Separation of the Primal Waters and the Emergence of the first Land – Cosmogony Type 1). With Separation came the idea of CONNECTION and RE-CONNECTION (NarCom 2), the central themes of CITI V. The emergence of the notion of Heaven meant the beginning of transcendence as a state fundamentally different from the actors' conscious experience here and now.³¹ Paradise (the evocation of the state of bliss that obtained before the Separation of Heaven and Earth) is the articulation of such a difference, and there is some evidence³² to suggest that, in addition to the idea of an underworld the idea of heaven as paradise was widespread in the Upper Palaeolithic and persisted into historical times.

I therefore propose one continental epicentre for FACTOR(1), Central Asia c. 15 ka BP, a time window early enough to ensure the demic diffusion of FACTOR(1) to the New World and inside the New World, and to allow for overland further diffusion within the Old World, without a substantial role for the Sunda model to be played. The trans-Bering diffusion from Central Africa is generally supported and needs no special argument, nor does it need to be marked as 'putative'; however, it does not exclude other trans-Pacific routes.

Fig. 6. FACTOR(1) VERTICAL FROM PARADISE: Central Asian epicentre



³¹ Although in principle the possibility of transcendence was already implied of all language use and *a fortiori* all story telling (the two must have evolved together): a standard lexicon available for general use and capable of being applied to specific situations here and now – but also to far away and imaginary situations that only exist in language, in the mind.

³² E.g. the transcontinentally widespread idea of the Milky way as the Souls' Path; and celestial notions attending the deceased king in Egypt during the Old Kingdom as articulated in the Pyramid Texts.

4.2.4. FACTOR(8) KILLING ANIMAL DEMIURGE, AND WHITE GOD

Our second factor to consider in detail is FACTOR(8) KILLING ANIMAL DEMIURGE, AND WHITE GOD. One reason why FACTOR(8) is so important is that it contains, in a nutshell, the myth of salvation through violence that is at the heart of Christianity as one of the most successful mythologies in history. The demiurge is the connection between heaven and earth, and is murdered by humans on earth. This is the essence of Christian Christology, which however (see below) has ramifications throughout the Old World that are too old than that could have found their origin in Christianity, barely 2 ka BP: they suggest a powerful and very ancient underlying mytheme, surfacing here in the context of flood stories.

Above we have touched on the presence of animals in prehistoric mythology. With the Lightning Bird, the Rainbow Snake, and the Spider of the oldest NarComs (numbers 4, 13 and 15 respectively), this is, at least according to my tentative reconstructions, a trait going back to Pandora's Box. In the course of tens of millennia, such an archaic trait is likely to be overlaid with all sorts of transformations and innovations at the central growth points of world mythology (the various CITIs in Asia and in the Extended Fertile Crescent), and therefore we are not surprised to find upper-quartile cases of FACTOR(8) especially in the New World and in the Old World periphery, at the places where the influence of such later developments is likely to be less dominant and less consistent.

Above we have also discussed the White God, and assigned to that mytheme (NarCom 21) an origin in CITI IV (Central Asia, c. 20 ka BP). Nuaḥ, in the biblical flood myth, has the trappings of a White God relegated to subaltern status under a new cosmologico-religious dispensation. That Nuaḥ has Central or East Asian connotations has been recognised over a century ago by several biblical scholars, in which they followed Islamic scholars (e.g. Mas'ūdī – 4th c. AH / 10th c. CE) who had been asserting the Chinese identity of Nuaḥ's son Japheth for centuries (cf. Leslie 1984; Cook & Rosemont 1984).

This leaves two ingredients of FACTOR(8) still to be accounted for: the Demiurge, and the killing of the Demiurge. The demiurge is a central element in NarCom 1: The separation of Heaven and Earth, which I situate in CITI V (Central Asia, 15 ka BP) – the separation produces the idea of an undesirable state, which has to be remedied by restoring the connection between heaven and earth – for which there are many devices: dead matter (rope, thongs, ladder, mountain, temple, altar), living matter such as plants and animals that are being transmitted between heaven and earth, by being lowered from heaven or sent up in the form of sacrifices, as well as divine and mortal personnel: the demiurge, the king, the shaman, the human sacrificial victim.

Currently several views circulate concerning the emergence of sacrifice in global cultural history, each with specific implications for dating. From the 1970s on the dominant view in anthropology and religious studies has been that of René Girard; he saw the establishment of human society as based on *mimesis*, which for him is not Plato's remembering of the original and eternal Ideas in present human life, but more a reinvented humanities version of what sociologists already in the 1930s called 'reference group behaviour': Ego constructs himself or herself by emulating the Other; the contradictions of this process lead to sacrificial killing, which therefore, theoretically at least, must be situated at the very dawn of human consciousness – it is a 'Primal Scene'³³ which – for

³³ Freud 1995 / 1918 uses that term for a different situation – the infant witnessing its parents'

followers of Girard, that is – may well mark the emergence of Anatomically Modern Humans, in Africa 200 ka BP, or perhaps earlier, for archaeological evidence on intragroup killing has been argued for even earlier periods. Another view has been advocated by the classicist and comparative religionist Walter Burkert (1983), who sees sacrifice as a transformation of Palaeolithic hunting; of course, without anything to offer one cannot make a sacrifice, and for bloody sacrifice hunting is an obvious requirement in times when there are no domestic animals yet to kill as offerings – moreover, comparative ethnographic evidence from Africa (cf. de Heusch 1985) does reveal that hunting quarries may be sacrificed in historical times. One should however not overlook the potential contribution as victims, in this connection, from human captives produced by intergroup warfare. Although specific archaeological evidence on Palaeolithic sacrifice other than the killing of humans is both scarce, and contested by complex and convincing taphonomic arguments, under Burkert’s theory one would expect sacrifice to date from no later than the Mesolithic, perhaps the Upper Palaeolithic – 25 to 10 ka BP. Mithen, a theorist of the emergence of mind, would situate the emergence of sacrifice rather earlier, on the basis of the fact that sacrifice is a form of anthropomorphising man’s interaction with nature (which is then patterned after the way interpersonal relations are manipulated by gift-giving), and since anthropomorphic artefacts and representations begin to abound in the Upper Palaeolithic,³⁴ Mithen (1994) proposes to situate the emergence of sacrifice at the transition from Middle to Upper Palaeolithic – which in Europe coincides with the appearance of Anatomically Modern Humans from the Near East and ultimately from Africa. That transition has been hotly debated by palaeoanthropologists since the 1980s, and several of them would concur with Mithen. Finally however there is a proposal to see sacrifice strictly in the context of domestication of animals, therefore dating it to the Neolithic. My own view is that sacrifice, probably including human sacrifice, to the earth (the underground, chthonic spirits, the ancestors, the dead) may be as old as the NarCom 10: ‘The earth as primary’ – which I would situate in Pandora’s Box; however, for sacrifice (including human sacrifice) to be conceived as re-connecting heaven and earth it is necessary that the vertical gaze has been installed and that the separation of heaven and earth has established itself as the dominant cosmological myth – which in terms of my Aggregative Diachronic Model was only the case with CITI V, c. 15 ka BP or later. FACTOR(9), which we cannot discuss in detail here, ‘Sacrifice as Reconnection’) is another application of the same NarCom 2.

Among the means of re-connecting heaven and earth *after the flood*, sacrifice occupies an important place. It is typically a relatively late development, in that it is predicated, not only on the notion of a flood as cosmoclasm (NarCom 11), but also on the fully conceptualised separation of Heaven and Earth, hence on a developed notion of the transcendence of Heaven and of transcendence *tout court*; moreover, sacrifice as re-connection usually depends on two notions which we would intuitively consider to be developed at an advanced state of the conceptual development of Anatomically Modern Humans: the conscious recognition of human agency in order to be realised; and on the moral or ritual purity, as well as the procedural competence, of the sacrificer, in order to be effective at all.

love-making – but the reference to Freud is appropriate here because in his 1913 book *Totem und Tabu* he sketched a similarly violent, and similarly prehistoric scenario, projecting into a postulated prehistorical ‘reality’ what he encountered in the present-day psychopathological imagination of his patients.

³⁴ Recent research would however claim several such artefacts already for the Middle, even Lower Palaeolithic, cf. Bednarik 1995.

NarCom 2 speaks of the Re-connection of Heaven and Earth, for which the Demiurge is an excellent device – just like the king, the shaman, the ladder, mountain, rope, etc.; and there is nothing there that inherently points to the necessity for the demiurge to be killed in the process. Was the killing added to this NarCom in the New World, subsequently to be exported all over the globe? Is it an image of humans' calculating, manipulative, exploitative intercourse with nature, typical of Neolithic food production through animal husbandry and agriculture, but rather at variance with the generally awed attitudes with which nature is approached in hunting and gathering cultures? Or is the eminent success of the idea of demiurge killing (cf. a world religion like Christianity, which entirely revolves on this idea), as an elaboration of NarCom 2, simply to be explained from the fact that such an elaboration happens to be a uniquely apt expression of the human condition, likely to be recognised worldwide, and a major tool for myth-making and for any other kind of literary and philosophical reflection? Further research and reflection are needed on this point.

Probably the idea of restoring the connection between heaven and earth is not in itself the origin of the mytheme of sacrificial killing – after all, killing and being killed in the context of hunting, intragroup violence and intergroup warfare are likely to have been fairly common human experiences in the Upper Palaeolithic. Mythical themes of combat and death could be (and probably were) already derived from two NarComs in Pandora's Box: NarComs 13 'The Cosmic / Rainbow Snake' (which typically features as 'the Adversary', notably of Rain/ Lightning, and of the Earth); and NarCom 15 'The Spider' (whose hunting and killing – notably of her male mate – is as conspicuous as its weaving; that both the violent and the skilful traits were recognised is clear from the transformation of this NarCom into 'feminine arts' under the proto-Neolithic CITI VI, when goddesses (as role models for young womanhood) appear as transformations of the demoted Mother of the Primal Waters, combining weaving with warfare and virginity. In CITIs II and III, shortly after 'Out-of-Africa' Exodus, the mythical killing element is also implied in NarCom 5 'the Mantis' and NarCom 6 'Escape from the Ogre'. So the model of sacrificial killing was available and ready to be applied by the time the NarCom 2 was formulated as 'the re-connection of heaven and earth'.

Finally, the Demiurge – a junior divine being who because of his or her intermediate status between divine and mortal is eminently suited to connect heaven and earth. We have seen this figure build up in a long process that noticeably started long before the Out-of-Africa Exodus. Dissociation of an initially One divine figure is already implied in NarCom 4 'the lightning Bird and the World Egg' – where the latter is the dissociated, junior product of the former. Also the idea of the Rainbow Snake evokes divine plurality, inhabiting the sky as the divine Adversary of both Rain / Lightning and of the Earth below, who are also divine. Escape from the Ogre suggests both dissociation (the escapees on the one hand, the ogre on the other), and (in many versions at least) complex difference in rank among the escapees – the Mother produces the Son, but is also saved by the latter (often together with other persons inside the ogre), and the two may be lovers. The logic underlying such mythemes is very similar to the production of Land from the Primal Waters (NarCom 11, 'The primal waters and the flood'), where the senior Mother of the Primal Waters produces the junior Land, as her Son and Lover. When to such ranked dissociation the idea of verticality and heaven is added which as the main achievements of CITI V, we have all we need to conceive of the idea of the demiurge, which therefore may be considered a product of CITI V in Central Asia, 15 ka BP.

Again we end up with a time window suitable for demic transmission to the New World, and for FACTOR (8) we need neither a Sunda origin nor an origin in the New

World (Fig. 7). Yet it is not impossible that Sunda played a role in the further distribution of this factor once it has emerged in Central Asia: FACTOR(8)'s distribution of 'd's, which in Fig. 7 is interpreted (admittedly, somewhat eccentrically) from a Central Asian epicentre, in Fig. 8 is interpreted, perhaps more convincingly, in terms of a distribution originating in Meso America and subsequently spreading to Oceania and South East Asia, and from there to other parts of Asia – in other words, with a secondary Sunda component.

Fig. 7. FACTOR(8) KILLING ANIMAL DEMIURGE, AND WHITE GOD: I. Central Asian epicentre



Fig. 8. FACTOR(8) KILLING ANIMAL DEMIURGE, AND WHITE GOD: II. American primary epicentre, Sunda secondary epicentre for Old World spread



FACTOR(8) appears to be very much a New World one, with the larger part of the upper quartile concentrated in (especially North) America. When we also consider the other quartiles we see most of the lower quartile spread out all over the Old World – but with a remarkable extension of the lower quartile to North-western North America. The following observations may help to explain this situation. North America is relatively peripheral to the setting of mythological innovation along the CITIs of Asia and the Extended Fertile Crescent – so whereas in the latter parts of the world the contents of FACTOR(8)

were already being overlaid and supplanted by innovations and transformations from later CITIs, in the New World the inheritance from CITI V remained paramount. The New World did not participate in the ever intensifying trend of Asia and the Extended Fertile Crescent towards the idea of transcendence, which – although already implied in CITI V – yet became one of the principal products of the later CITIs, and the very basis of the development of human thought and society ever since – by the dramatic ascendance of the package containing writing, the state, organised priesthood, and proto-science. In the Old World, the demiurge therefore could develop into major religious figures that in many ways were to determine the global future of humankind from 5 ka BP: Osiris, Dionysus, Buddha, Christ, Muḥammad. Two of these (Osiris and Dionysus) are vegetation gods, whose bodies are literally torn apart and with whose fragments humankind feeds itself; Christ follows the same imagery and, although symbolically, the same fate, on the cross and in the Eucharist – and so do Muḥammad’s grandson the Shi’ite martyr al-Ḥusayn in the Middle East, and in Africa the figures of Mbona (16th century Malawi) and Mwana Lesa (19th century Zambia).³⁵ It is most remarkable that these figures have so much in common with Central and North American vegetation gods, – as if the latter could still fully realise the potential already available, *in nucleo*, in CITI V when it was transmitted to the New World through demic diffusion. In fact, the correspondences are so striking that one would prefer to see a more direct and recent link, for instance through American food crops, and the attending myths of vegetation gods killed and eaten, travelling to the Old World either westbound, across the Pacific by a Kon Tiki scenario, or eastbound across the Atlantic. This tallies with the above claims concerning the Pacific trajectory of American food crops found in Africa. However, also the reverse scenario is possible: Old World vegetation gods spreading to the New World – for instance from West Africa. I find it difficult to choose between these scenarios. Both are attractive as exercises in anti-Eurocentric, anti-hegemonic knowledge production; but both therefore run the risk of letting our reading of the remote past be determined by the socio-political concerns of intercultural accommodation and affirmation, as imposed by today’s globalisation. *What is important, however, is that by and large, the subsequent mythologico-religious development inside the New World was such that the promise of transcendence inherent in the demiurge of CITI V could not easily be sustained – the New World partook only peripherally, and by occasional trickles of migration and maritime contacts, of the subsequent developments after CITI V with which the intellectual history of the Old World was shaping up with ever increased impetus since the proto-Neolithic, and as a result the New World demiurge lost much of its transcendence and became – the divine trickster which abounds in American flood stories.*

4.3. Conclusion: The composite prehistory of flood myths worldwide

Thus we have discussed two factors underlying our global sample of flood myths in some detail. We have seen how careful consideration of the results of our factor analysis and the ensuing mapping of factors on a world map, against the background of the qualitative overall qualitative insight gained from comparative mythology and re-interpreted in the light of the ‘Aggregative Diachronic Model of Global Mythology’, offers a coherent framework in which to assess, for each of our statistically constructed factors, the merits and demerits of Oppenheimer’s Special Sunda Theory, – including his

³⁵ Schoffeleers 1992 (Mbona); van Binsbergen 1981 (Mwana Lesa).

claim that the core mythologies of the Ancient Near East and the Bible derive from prehistoric South East Asia. Instead of a discussion of all twelve factors we will have to satisfy ourselves with the summary offered in Table 4:

Table 4. Summary of Approach 2: Factor analysis interpreted in the light of the Aggregative Diachronic Model of Global Mythology

	proposed origin		does the distribution suggest a Sunda epicentre (Oppenheimer)?	does the distribution suggest a New World epicentre?
	place	time		
FACTOR(1)	Central Asia	20 to 12 ka BP	distributionally possible but improbable in view of the systematics of the Aggregative Diachronic Model	no
FACTOR(2)	Extended Fertile Crescent	Neolithic to Bronze Age	no	distributionally possible but improbable in view of the systematics of the Aggregative Diachronic Model
FACTOR(3)	Central Asia	15 ka BP	probable but only secondary	despite Modern Old World influx, yet possible, with subsequent Sunda effect
FACTOR(4)	Africa (Pandora's Box), subsequently mediated via Central Asia	>80 ka BP, subsequently 15 ka BP	very unlikely	very unlikely
FACTOR(5)	Central Asia	20 ka BP	no	no
FACTOR(6)	Central Asia	20 ka BP	probable but only secondary	no
FACTOR(7)	Central Asia	20 ka BP	no	no
FACTOR(8)	Central Asia	15 ka BP	possible but only secondary	possible, with subsequent Sunda effect
FACTOR(9)	Central Asia	15 ka BP	no	no
FACTOR(10)	Central Asia	15 ka BP	possible but only secondary	no
FACTOR(11)	Central Asia	15 ka BP	no	no
FACTOR(12)	Central Asia	15 ka BP	no	no

In general this analysis nicely confirms my insight, arrived at on qualitative grounds, that the origin of the worldwide distribution of flood myths lies in Central Asia, c. 20-15 ka BP. Of our twelve factors / themes, the distribution of ten may be explained on the basis of a model of such an Central Asian origin. For two factors (FACTOR(3 and 8)) we had occasion to contemplate, as an alternative, an origin not in the Old World but in the New World; however, also for these factors the Central Asian explanation remains possible, and in fact (for systematic reasons), superior. For as many as six factors (FACTOR (1, 3, 4, 6, 8, and 10) we could remotely contemplate a Sunda effect, but never as an origin, but only as a context of secondary further diffusion, after and in combination with a Central Asian origin of that factor – or perhaps, for FACTOR(3 and 8), a New World origin.

So Oppenheimer may be congratulated on what turns out to be a genuine insight (a few aspects of flood stories turn out to have some Sunda influence, not in their origin but in their secondary diffusion), yet his grossly exaggerated claims as to the significance of Sunda in Global Mythological history (the Special Sunda Thesis) must be dismissed: *on the ground of the data and analysis presented in the present argument, Sunda turns out to*

be merely the, relatively minor, recycling and redistribution point of pre-existing mythical material.

In the process, we have had occasion to apply, specifically and at length, the Aggregative Diachronic Model of Global Mythology. The consistent and illuminating discussion to which this led for all twelve factors considered, is an extra reassurance of the explanatory value and the competitive validity of that Model.

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