

Further steps towards an aggregative diachronic approach to world mythology, starting from the African continent

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ABSTRACT. This paper is one of a series of explorations that attempt to combine (1) the ‘Out-of-Africa’ scenario with (2) Witzel’s seminal idea (2001) of myth constituting an independent source on humankind’s remotest past. The project seeks to identify (in addition to other cultural, linguistic and religious elements: Anatomically Modern Human’s near-universals) some putative ‘Out of Africa’ original *mythological* package (designated ‘Pandora’s Box’), consisting of a few specific Narrative Complexes (NC). Moreover, it attempts to trace this package’s subsequent transformations and innovations in the course of global spread, identifying (in space and time) a handful of specific Contexts of Intensified Transformation and Innovation (CITI) in which that process made leaps, closely associated with historic advances in the field of modes of production and language families. Emphasis is on the development of an explicit methodology, without which the entire exercise would be pointless. The first paper in this series was presented at Kyoto, 2005 (van Binsbergen 2006a). The present paper seeks to develop that argument in a number of ways: making explicit its theoretical background (universals, the status and nature of myth); adducing ample prehistoric iconographic corroboration of the NCs identified; situating the model more firmly in molecular genetics (Forster 2004); suggesting several Neanderthal connections to the long-range development of Anatomically Modern Human’s mythologies; and proposing major alterations for the format, the dating, and the specific geographical path of the unfolding of world mythology as stipulated by the model. For four NCs their global history (200 ka to present) is tentatively reconstructed. This brings out the close association between the emergence and spread of specific NCs, and specific mitochondrial DNA types, and thus offers new opportunities for dating the NCs. The model stresses and explains the high rate of continuity between present-day sub-Saharan African mythologies, and those of the rest of the Old World: partly as a result of the initial universality of Pandora’s Box, partly as a result of the (genetically well established) ‘Back into Africa’ movement from Central Asia from c. 15 ka BP. This clearly steers away from essentialising Africa, and a penultimate section refutes the allegation that the present model would be Afrocentrist. The conclusion considers the many implications of this model for comparative mythology.

I am indebted to the following persons and institutions: Michael Witzel, to whose pioneering work on long-range comparative myth analysis, and to whose continued support, my approach has owed a great deal; to him and Duan Qing 段晴 for making my participation in the present conference possible; participants in earlier Harvard Round tables, who have suffered my earlier arguments and greatly inspired me towards the present one; participants in the present conference, whose contributions, formal discussions and informal conversations have both encouraged me, and inspired me to improve my argument; the African Studies Centre, Leiden, and especially my colleagues in the Theme Group on Agency in Africa, for loyally supporting, for many years already, my explorations outside their favourite paths of knowledge production, where they concentrate on present-day Africa and use participant observation as their principal method; my wife, Patricia, as sparring partner in the protracted intellectual struggle on which the present argument is based. Since this conference was held in China, and my contribution is the analysis of world mythology on the basis of a corpus of African cosmogonic myths, I chose as a background illustration a famous relief depicting the primal pair of Chinese cosmogonic myth, Nü Wa/Kwa 女娲 and Fu Xi 伏羲, with their intertwined snakelike tails, and with overhead the emblems of phoenix and frog that refer to (some of the popular etymologies of) their names as written beside them.

1. Introduction

This paper is one of a series of explorations (cf. van Binsbergen 2006a and n.d.) in which I attempt to combine two seminal ideas:¹

1. the ‘Out-of-Africa’ scenario with

¹ During the 2006 Beijing conference, various colleagues, especially from China and Japan, expressed the wish to know more of the background which led me to formulate my aggregative diachronic approach to world mythology, starting from the African continent. Obviously, this request cannot be met in the present paper; however, see van Binsbergen 2007a, which is the draft introduction for a collection in which I hope to bring together earlier instalments of my ongoing long-range research.

2. Witzel’s idea (2001) of myth constituting an independent source on humankind’s remotest past.

I seek to identify (in addition to other cultural, linguistic and religious elements: Anatomically Modern Human’s near-universals) some putative ‘Out of Africa’ original *mythological* package; moreover, I attempt to trace this package’s subsequent transformations in the process of global spread. Emphasis is on the development of an explicit methodology, without which the entire exercise would be pointless. Meanwhile, the fact that I have termed the putative original mythical package ‘Pandora’s Box’, is a reminder (cf. van Binsbergen 2003) of the fact that our scholarly approach to myth cannot and should not escape from our own mythopoiesis (myth-making).

My first paper in this series was presented at the Pre-Symposium / 7th ESCA Harvard-Kyoto Roundtable on ‘Eth-

nogenesis of South and Central Asia', organised by RIHN, NIHU / Harvard University, the Department of Sanskrit and Indian Studies, Kyoto, Japan, 6-8 June, 2005. The abstract² to that paper defines the context for the present paper:

The present argument reflects an attempt to write a coherent world history of mythology along strict methodological lines of empirical enquiry. Point of departure is the Out-of-Africa hypothesis. The argument seeks to identify the mythological content, if any, of the Out-of-Africa package (80,000 BP).³ For this purpose a corpus of c. 20 mythemes is constructed from sub-Saharan Africa cosmogonic myths as attested in historical times. The corpus is then subsumed, with inevitable and violent simplification,⁴ under 20 Narrative Complexes or NCs (see Table 1), whose number is further reduced because some turn out to be implied in others.

1. The separation of heaven and earth
2. The Reconnection between heaven and earth after separation
3. What is in heaven?
4. The lightning bird (and the world egg)
5. The mantis
6. Rescue from the ogre
7. From the mouth
8. The stones
9. The moon
10. The earth as primary
11. The primal waters and the flood
12. From under the tree
13. The cosmic / rainbow snake
14. Fundamental duality
15. The spider and feminine arts
16. Shamanism, bones
17. Spottedness and the leopard
18. Honey and honey-beer
19. The cosmogonic virgin and her son/ lover
20. Contradictory messengers bring death

Table 1. The 20 Narrative Complexes as found in a corpus of African cosmogonic myths recorded in historic times.

The basic orientation of my approach has been: each NC has a history, and I am determined to identify that history, if at all possible. The Narrative Complexes are subjected to elaborate methodologies of absolute and relative dating, based on considerations from the fields of astronomy, genetics, archaeology, modes-of-production analysis, ethnographic distributional analysis, and hermeneutics; these are also argued to offer clues as to the location of origin of each Narrative Complex. It turns out that, as an abstract model with mainly heuristic claims, all Narrative Complexes may be

² Edited for the present purpose.

³ In the Kyoto paper I used the date of 140,000 BP for the Out-of-Africa Exodus, but there is far more specialist support for the lower date.

⁴ In their inspiring contribution to the 2006 Beijing conference on Comparative Mythology, Boris Oguibénine and Nataliya Yanchevskaya (2006) posit that comparative mythologists have to choose between sophisticated typology, or sophisticated comparative historical reconstruction⁵; clearly, my choice is for the latter, but at extreme costs of simplification as far as the specific mythical complexes, and the individual mythemes, are concerned. A further aggregative element is the claim that these various NCs are not just specific to sub-Saharan Africa in remote or historical times, but may also be found back in much (though probably not all) mythology outside Africa. Meanwhile my model's purpose is merely heuristic, and not exhaustive: we cannot expect the stunning riches of world mythology to be exhaustively described by reference to what is, after all, both in subject matter (cosmogony) and provenance (sub-Saharan Africa) a rather limited corpus.

situated, in space and time, along a sustained global mainstream process of mythological development. This starts out in South East Africa with a pre-Out-of-Africa package, subsequently follows the recursive path (first eastward along the Indian Ocean coast, then westward) (Fig. 1) of Anatomically Modern Humans across the Old World, finally to be fed back, secondarily, into Africa.

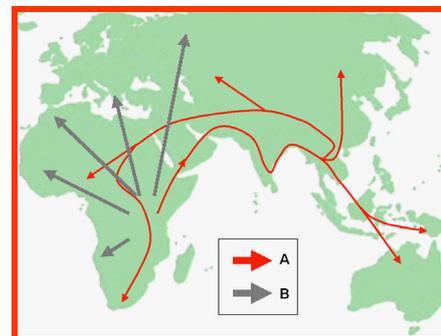


Fig. 1. The model I used in 2005: A. Main-stream path of spread and transformation of the core cultural package of Anatomically Modern Humans ('Pandora's Box'), taken to coincide with the primary spread of Anatomically Modern Humans (the hairpin movement 'A' from Africa to SE Asia); after the hairpin bend, the 'Back into Africa' (from c. 15 ka (= kiloyears) onwards) is manifest⁵. A is secondarily complemented by: B. Diffuse percolation of pre-Out-of-Africa cultural contents within the African continent and to Anatomically Modern Humans who had arrived in West Asia and Europe as a result of A.

In the process, the successive Narrative Complexes emerge, spread, transform, are innovated, and interact, in argued relation with innovations in the fields of modes of production, socio-political organisation, and languages. The dynamics of this process were far from steady; on the contrary, situated along path A I identify a handful of Contexts of Intensified Transformation and Innovation (CITI), which are the main cradles of new Narrative Complexes arising in the period between the Out-of-Africa Exodus, and the Neolithic and Bronze Age. Since the path is conceived as essentially one-dimensional, the location of these CITIs (numbered I to V in Fig. 2) along path A is taken to indicate relative, even absolute, dating of the origin of these NCs.

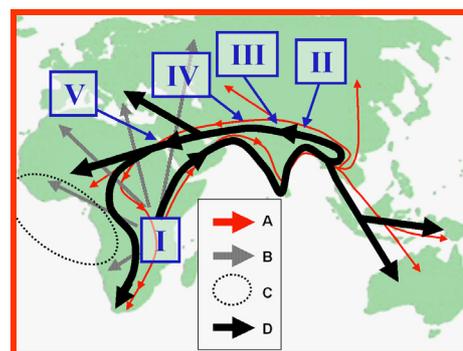


Fig. 2. Summary of 2005 results, showing the CITIs (I to V) on a one-dimensional geographical path also taken to be a time axis. A and B as in Fig. 1, D is the fat hairpin curve of mythological spread and innovation, coinciding with path A. C marks the African Atlantic littoral region which was once (cf. Frobenius 1993/1933) identified as relatively untouched by the kind of cultural influences (especially the spread of shamanism) that I have come to associate with the 'Back-into-Africa' movement, from c. 15 ka BP.

⁵ Cf. Cruciani c.s. 2002.

Reasoning backwards from those NCs whose emergence we can specifically argue *after* the Out of Africa Exodus, along path A, we end up with a small original pre-Out-of-Africa mythical package. This turns out to revolve on the NCs of ‘the Earth’ (10), the eminently cosmogonic ‘Lightning Bird’ (4) (also with rain connotations), and the ‘Rainbow [Snake]’ (13) as the original, *solar* Adversary of Rain). All the other Narrative Themes in the recent African data set are continuous with Asian material and are argued to have originated on Asian soil, or (in the case of the most recent Narrative Complex) to originate in the Neolithic Extended Fertile Crescent ranging from West Asia to North-eastern Africa including the (once fertile) Sahara. From the Upper Palaeolithic onward, the mainstream east-west recursive movement interacted with a direct northbound diffusion (path B) of pre-Out-of-Africa material (again the NCs 10, 4 and 13: Earth-Lightning-Rainbow) into North Africa, Europe and Asia, provided Anatomically Modern Humans had already arrived there; this has resulted in a substratum (in myth, ritual and folklore) that complements the otherwise prevailing Asian antecedents. Thus, sub-Saharan African mythology finally sheds its habitual isolation from world mythology, and turns out to be, in its own right, world mythology *par excellence*. Extensive continuities between African, West and South Asian, and European mythologies are revealed and explained. While predicated on Witzel’s (2001) seminal long-range approach to world mythology, his Laurasian/Gondwana dichotomy is replaced by a systematically argued combination of continuity, transformation, interaction, and feedback.

With the generosity characteristic of the Harvard Roundtables, my 2005 argument was very well received, but of course, its extreme scope and ambitions, as well as its reliance on auxiliary disciplines way out of the author’s competence made it inevitable that within a year substantial additions and alterations need to be advanced – which is the principal aim of the present paper.

My argument will dwell on the following topics:

1. (section 2) I will discuss some of the theoretical issues raised by my model: universals of culture, the dynamics of NCs, and background assumptions
2. (section 3) I will adduce, from the field of ‘iconographic archaeology’ (the interpretation of rock art and other ancient images), possible corroboration for some of the NCs claimed in 2005
3. (section 4) I will situate my original model more firmly within state-of-the-art genetics, which is after all our main inspiration for the ‘Out of Africa’ hypothesis
4. (section 5) In this connection we may consider the Neanderthal connection. Neanderthals occupied West Asia and Europe throughout the period ranging from before the emergence of Anatomically Modern Humans in Africa, to the extinction of Neanderthals 30 ka BP. Inevitably therefore, Neanderthals interacted, one way or another, with the systematic effects from my model, and we may try and identify these interactions.
5. (section 6) Still in the genetic context, I will follow the example of Villems 2005 and propose, much more specifically than before, links between specific genetic types arising in the course of the global spread of Anatomically Modern Humans, on the one

hand, and the rise and spread of specific NCs, on the other.

6. (section 7) This involves a re-examination of the global distributions of selected NCs, accords us new, genetics-based tools of periodisation, and brings us to revise the original model of five Contexts of Intensified Transformation and Innovation – rethink their situation in space and time, propose specific links between CITIs and genetically established branches (in terms of mtDNA types) of Anatomically Modern Humans, and rethink, for all CITIs, the ecological and economic trigger mechanisms as well as their association with major linguistic families.
7. (section 8) On the basis of the above I will formulate some substantial revisions of the model as formulated in 2005, but without affecting its main thrust
8. My 2005 model (which I have designated ‘an aggregative diachronic approach to world mythology, starting from the African continent’, situated NCs neatly along path A (taken as one-dimensional) of the spread of Anatomically Modern Humans. However, already two major situations were indicated where this systematics was breached by feed-back mechanisms:
 - a. the ‘Back into Africa’ movement (which made the end products of transmission, transformation and innovation along path A interact with (locally transformed) pre-Out-of-Africa elements inside Africa); and
 - b. the gradual diffusion (along path B) of such pre-Out-of-Africa elements from Anatomically Modern Humans who, after the detour via South East Asia, had arrived in West Asia and Europe.

Such feedbacks upset the neat systematics of the distribution of mythologies that would have resulted on the basis of my model alone. However, since by definition culture is learned and not genetically inherited, and therefore can move, geographically, even more freely than human genes, we must also consider the probability of far more erratic displacements of mythological materials, way outside the place and time where the systematics of the model would make us expect them, and thus serving as *contaminations* of the theoretical distribution of the mythological data. Yet all we have, as our empirical data to begin with, is the end product of such contaminations having worked, presumably, on our theoretical distribution. Therefore we must heed the advice given by Stephen Farmer during public discussion at the 2005 Kyoto conference, and give special attention to the problem of contamination.⁶ From its inception, the field of comparative mythology has been obsessed with the global distribution of flood myth, since these seem to resonate with Biblical (as Qur’anic) materials (Genesis 8-11); here the problem of contamination is especially tricky, because Christianity, Judaism and Islam, as well as Buddhism, have been particularly responsible for the

⁶ Meanwhile there is one major postulated contamination effect which we will not discuss in the present paper, but will reserve for the 2007 conference of the International Association for Comparative Mythology at Edinburgh: the westbound Sunda effect as postulated by Oppenheimer (1998). For a preview of my proposed argument on this point, see van Binsbergen 2007b.

spread of mythological themes way outside their original historic context. I touch upon these problems when, in section 6, I trace the global distribution and attempt to reconstruct the world history of NC 11, 'the primal waters and the flood'. However, I found that the topic was too extensive to be accommodated in the present argument, and instead I will treat it in a subsequent paper on the Sunda hypothesis, which Oppenheimer (1998) has alleged to constitute the greatest instance of mythological contamination in history (cf. van Binsbergen 2007b).

9. It would be opportune to take a closer look at the effect identified above under 4b: the gradual diffusion (along path B) of such pre-Out-of-Africa elements from Anatomically Modern Humans who, via the detour via South East Asia, had arrived in West Asia and Europe. If the 2005 paper's spectacular and ingenious identification of the mythological contents of 'Pandora's Box' (i.e. the NCs earth, lightning, and rainbow) can be sustained, then the attestation of such NCs in West Asia and Europe in the Neolithic and later need not be due to these mythological elements have completed the entire hairpin movement from Africa to South East Asia and back again – they may also have diffused directly north from sub-Saharan Africa, along path B. In the 2005 version I have already briefly indicated how the three NCs then identified to be in Pandora's Box (the earth, the lightning bird and its egg, the rainbow snake) may have diffused directly north; this would account for traces (typically rather isolated and underdeveloped, disconnected from the more elaborate dominant mythologies) of these NCs in, for instance, the Ancient Egyptian mythologies of the abysmal snake Apep (cf. Greek Python, Mesopotamian Tiamat, Syrian Yam, Hebrew Leviathan, Hittite Illuyanka), the earth-centred Osiris mythology, the lightning (Zeus, Tarhun, Pihassassa) and rainbow (Iris, Bifrost) elements in Greek, Hittite and Germanic mythology, the world egg in Egyptian and isolated Greek myths (cf. Helen and the Dioskouroi), the cult of the earth (shrines, oaths, incubation, sanctuary, ritual cleansing of murderers) throughout Northern Africa and the Mediterranean with inroads into West Asia. Now that I see reason to add three more NCs to the original contents of Pandora's Box (NC 9: the Moon, NC 12: From under the Tree, and NC 13 The Spider (and feminine arts) many more themes from Egyptian, West Asian and European mythologies come to mind (Selene, the luminaries as the two eyes of Horus, Neith/ Athena/ Anahita, Germanic Yggdrasil etc.) as possibly due, in part, to direct north diffusion of pre-Out of Africa mythical contents from sub-Saharan Africa. However, this again would obviously constitute a paper or chapter in its own right, and (although much of this happens to be written already) it must regrettably remain outside our present scope.⁷ Meanwhile, from an Africanist

point of view, we now discern three accumulative reasons for the (I insist) massive continuities between sub-Saharan African, and other Old World mythologies:

1. the continued percolation, inside Africa, of the Out-of-Africa package of a handful of NCs taken to other continents and transformed there,
 2. the Back-into-Africa movement, bringing Asian mythological innovations (new NCs) back into Africa
 3. the amorphous northbound diffusion via path B from Africa into West Asia and Europe, outside the path of genetic ramification of Anatomically Modern Humans (path A), and with a time lag of several dozens of ka needed to allow Anatomically Modern Humans to arrive in West Asia and Europe in the first place
10. (section 9) I thus go against the grain of much comparative mythology, which has generally had difficulty relating to the (mainly oral, often poorly recorded, and not readily accessible) sub-Saharan African mythologies, by and large assuming that the African mythologies are discontinuous with those of the rest of the Old World, and represent particularly ancient and primitive forms of mythology (Witzel 2001, despite all its qualities, is a recent example). However, I will once more stress the amazing continuity between African, Asian and European mythologies. This brings out the dilemma of Africa in recent millennia: relatively ancient genes, but (due to the Back-into-Africa migration from 15 ka BP onward) largely 'recent' mythologies.
 11. (section 10) In line with the Out-of-Africa hypothesis now generally accepted by specialists in human genetics and palaeoanthropology, my model accords a central place to the African continent, as the cradle of Pandora's Box including its mythological contents. At the 2006 Beijing conference some discussants from East Asia felt that such an approach slighted the original, independent mythological achievements of their own continent. Some critics from the North Atlantic region, on the other hand, may reject my approach because, to them, it smacks of Afrocentrist ideology. I will consider these objections, and show that they are – unnecessary.
 12. (section 11) Finally, I will spell out in more detail what the wider implications of my model are for comparative mythology.

2. Some of the theoretical issues raised by my model: Universals of culture, the dynamics of NCs, and background assumptions

2.1. Why (near-)universals in human culture?

We have ample evidence of an extensive corpus of (near-)universals attested for humankind in historical times (Brown 1991, 2000; Wiredu 1990, 1996; Gellner 1990), including universals in the linguistic field (Greenberg 1963; Décsy

⁷ Meanwhile van Binsbergen 2007c presents essential data towards such an analysis, in the form of an 'Extensive table of Old World mythological continuities, classified on the basis of 20 Narrative Complexes (NCs) as found in a corpus of sub-Saharan African cosmogonic myths collected in historic times: including mythologies from Ancient Egypt, Graeco-Roman Antiquity, the Bible, and selected other literate civilisations of the Old World, outside sub-Saharan Africa'.

1988; Hawkins 1988; Aitchison 1989) and the mythological field (Fontenrose 1980).

These universals have been explained by reference to, e.g.

1. The presumably universally uniform, innate structure of the (Anatomically Modern) human mind, producing multiple parallel but independent cultural inventions
(e.g., if Flood myths would be truly universal – and we will see that they are certainly not! –, then we could have: ‘Flood myths result from dreaming about having a full bladder, as all humans do’ (Roheim 1952))
2. The presumably converging effects of non-human reality, governed by presumably immutable natural laws
(e.g. ‘Flood myths result from the universal experience that – under pre-modern technology – no human life can be sustained under water for more than a few hours’)
3. The increasing convergence of human experience under proto-globalisation and globalisation
(e.g. ‘Flood myths have one unique origin in some historical catastrophe or some historical imagination, specific in time and space, and from there they have spread to other communities through population movements and through pre-modern means of information and communication, including sailing ships, caravan trade, itinerant shamans and story-tellers, conquering armies, etc.’)

However, the ‘Out-of-Africa’ model offers a 4th partial explanation:

4. Anatomically Modern Humans manifest (near-)universals because of common origin, not only as regards genetics (and on this point most specialists agree), but also as regards cultural universals.⁸
- The ‘Out-of-Africa’ model then becomes a rather convincing basis for a developmental/ historical/ genetic model of world mythology:
 - myths are carried by human communities which, as gene pools, are more or less traceable genetically
 - therefore, if all Anatomically Modern Humans (i.e. the whole of present-day humankind) ultimately derive from a fairly limited gene pool that was situated in the African continent over 80 millennia (kiloyears, ka) ago,
 - then we may presume that these ancestors of Anatomically Modern Humans held in common not just a set of genes but also a set of cultural including linguistic, social-organisational and mythological traits,

⁸ It is prudent to confine ourselves to the claim of *near*-universals; for after all, even with a shared common origin, the traits present in that origin will only survive integrally and without exception to the present if there is *total retention*, i.e. if no traits die out in-between; and since we understand too little of the mechanisms of cultural, including mythological, retention over many thousands of years (although the fact of such retention is undeniable, on the one hand the underlying assumption, on the other hand one of the principal findings, of the present project), any claim of total retention would amount to *hybris* – even more so than the present argument in itself already does.

- which were taken ‘Out-of-Africa’ along with these genes,
- and like these genes were substantially transformed and innovated after leaving Africa, in the process of the global history of mythology.

2.2. The dynamics of NCs

For each NC a putative origin is proposed in space and time – in each case prompted by a combination of considerations:

- the NC’s empirical distribution in space and time, not only in texts (which only afford a time depth of 5 ka (kiloyears, millennia) maximum, but also iconographically in archaeological data, which go back much further
- any relevant outside material constraints open to scientific scrutiny, e.g. in astronomy, glaciology, modes of production analysis, and especially genetics;
- hermeneutics of a NC’s contents, which may bring out implications that may contain time- and space specific clues.

Below we will see that often the association between a NC and a genetic type offers us an additional means of situating that NC in time and place.

A few remarks are in order in regard of modes of production. My proposed aggregative diachronic approach to world mythology amounts to the reconstruction of the sequence of emergence and transformation of NCs in time and space (in reflection of Anatomically Modern Humans’ increasingly complex and diversified modes of articulating reality through myth), along the paths which Anatomically Modern Humans (according to the reconstructions by genetics and archaeology) appear to have taken since their emergence in Eastern and/or Southern Africa 200 ka BP. Central myths (cf. our NCs) constitute the ideological/ cosmological knowledge component of any mode of production. Therefore specific modes of production, and specific changes therein, are *among* the factors that power the demographic and mythological processes attending Anatomically Modern Humans before and after their exodus ‘Out-of-Africa’. Myths may occasionally be expressed in iconographic materials and thus leave archaeological traces in their own right; however, archaeology allows us to trace the history of modes of production with much more detail and confidence than the history of NCs. Many myths imply a specific mode of production (e.g. growing crops, shooting arrows, weaving), and this can be fixed to a point in time before which they can hardly be supposed to have originated.

Partly informed by the dynamics of modes of production, the world history of the successive and cumulative innovation and transformation of myth is not a constant process, but is spasmodic, concentrated in a limited number of Contexts of Intensified Transformation and Innovation (CITI), which I seek identify in time and place (see below).

Triangulation may give further clues as to the relative age of specific NCs. My emerging aggregative model of global spread and transformation of world mythology is, in the first place, predicated on the geneticists’ finding that Anatomically Modern Humans initially migrated east from Africa along the Indian Ocean coast to South East Asia, Australia and New Guinea (Path A1). Only subsequently, in a new

migratory wave, were Asia and the other continents populated by Anatomically Modern Humans (Path A2).⁹ Subsequently, from c. 15,000 BP onwards, a westbound and southbound return migration from Asia ‘Back-into-Africa’ has been attested genetically; I take this to be the final phase of path A2. In this way, clues as to the situation of specific NCs in time and space, may be derived from triangulation of the Australian and New Guinean material with data from elsewhere in the world.

2.3. Background assumptions

In the background, my approach is based on a number of assumptions that are highly contentious and whose critical testing, as well as the invitation to critical testing and subsequent improvement by others, are among the aims of my project. These assumptions include:

- Myth may be defined as ‘telling collectively managed stories about fundamental reality’, in other words the fundamental human act of subjective world-making
- Although Anatomically Modern Humans have, admittedly, an infinite capability for imaginative invention, hence – on the surface – an potentially infinite repertoire of myths, still that invention is constrained by a limited number of basic thought operations (e.g. distinction, juxtaposition, identity etc.) – which are constrained, at least in part, by the structure of the human mind and the structure of the non-human environment
- Each NC encodes and facilitates one or more of these basic thought operations, in principle related to the mode of production with which that NC occurs.
- Although myth can be told in music, dance, spatial layouts etc., its typical (more recent?) form is language-based
- It is only partially true that myth expresses culture in language; rather, it is myth that constitutes language and culture in the first place (cf. Cassirer 1946, 1953f; Donald 1991) – it is, again, the central human act of subjective world-making

Therefore, myth may have been Anatomically Modern Humans’ principal claim to adaptive advantage.

3. Possible corroboration from ‘iconographic archaeology’ (the interpretation of rock art and other ancient images) for selected NCs claimed in 2005

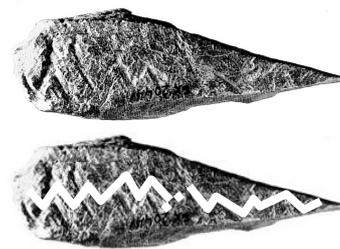
3.1. Not just Anatomically Modern Humans?

Anatomically Modern Humans are considered to have been the first type of humans possessing articulate language, representation, symbolism, art. We may have to substantially qualify this assumption. Some authors (e.g. Bednarik n.d./1990) claim evidence for human representations already in the Lower Palaeolithic, 0.3 Ma BP or older, and Fig. 3 indicates that such claims are not without ground. Be this as it may, we now consider whether the NCs which we have reconstructed from an examination of a sub-Saharan corpus

of cosmogonic myths collected in historic times, may also be found back in iconographic material that has far greater antiquity.



a Engraved forest elephant bone fragment from Bilzingsleben, Germany, c. 350 ka BP (Bednarik n.d.)



b1, b2. Stringer & Gamble 1993: 189 fig. 92: Middle Palaeolithic piece of bone with zigzag line (highlighted below), from Bacho Kiro in Bulgaria, Europe: a potential expression of NC 4 (The Lightning Bird) (even though in a Neanderthaloid context, and despite Stringer & Gamble’s denying it any meaning)



c. Middle Palaeolithic sculpture, Central Europe; NC 17 (Speckledness and the Leopard)



d. The jasperite manuport from Makapansgat Cave, S Africa, 2.5 to 3 Ma BP – claimed to be the oldest known palaeoart object in the world (Bednarik n.d.)

Fig. 3. Iconographic evidence suggestive of symbolic activity before Anatomically Modern Humans

Initially, our only indication of such NCs as I discern, was in a corpus of African cosmogonic myths attested in historical times. From there to pre-Out-of-Africa times (80+ ka BP) is an enormous step. Documentary evidence only has a time depth of 5 ka. Do we have any other data to bridge the remaining 75 ka?

3.2. Iconographic evidence for NCs?

Specialists (e.g. Leiden 2005 conference on Creation Myths and the Visual Arts) have complained that so little of the African cosmogonic mythical material seems to be reflected in African visual arts. I think they are mistaken: they fail to recognise mythical content that is in fact there, because they lack an heuristic device to open up such cosmogonic mythical clues as the African visual arts material contains. A re-examination of the extensive corpus of African visual art in the light of my NCs would reveal that many items of African visual art could be interpreted as attestations of NCs, or a combination

On the following pages I will elaborate a number of concrete examples of this claim:

- The Separation and subsequent Reconnection of Heaven and Earth (one of the most common African cosmogonic themes, and one typically associated with the Back-into-Africa return migration

⁹ In the 2006 version I conflated A1 and A2 into A, as in the summary above.

from c. 15,000 BP), exemplified in prehistoric rock art from Southern Africa

- the Lightning Bird, part of the original pre-Out-of-Africa package, and to my mind a candidate as possible referent of the geometric pattern displayed by the Blombos block, South Africa, 70,000 BP

Besides, I will show a few possible further examples, without much comment.

Of course I realise that the interpretation of iconographic material across the mists of time and cultural difference is far from self-evident. Here we have to study and further develop hermeneutical methods leading to interpretational intersubjectivity; however, the present scope cannot accommodate adequate discussion on this point. Incidentally, the meta-African distribution of the NCs suggests also meta-African distributions of these Visual Arts applications of cosmogonic mythical themes; e.g., the Reconnection between Heaven and Earth (ladder, staircase, cosmic tree, sun beam, moon beam, birds, rain, rainbow, etc.) is a recurrent theme in European, art history, as it is, e.g., in Ancient Egyptian and Indian art). This stands to reason because this theme belongs to the Extended Fertile Crescent of the Neolithic, ranging from the fertile Sahara to the Indus, ultimately with extension into China. The latter, through a cultural diffusion whose human agents have remained below the resolution threshold of our data on mtDNA types, and such western influences upon China from the Neolithic onward are contested anyway. However, there are myriad other genetic markers. Yet we had better face the truth that not all steps in the history of world mythology can be traced genetically; especially not the closer we come to the present, with its reality of (post-Neolithic) genetic globalisation.

3.3. African rock art as attestation of NCs: 2: Separation of Heaven and Earth, and their subsequent Reconnection, and of NC 3 'What is in Heaven'

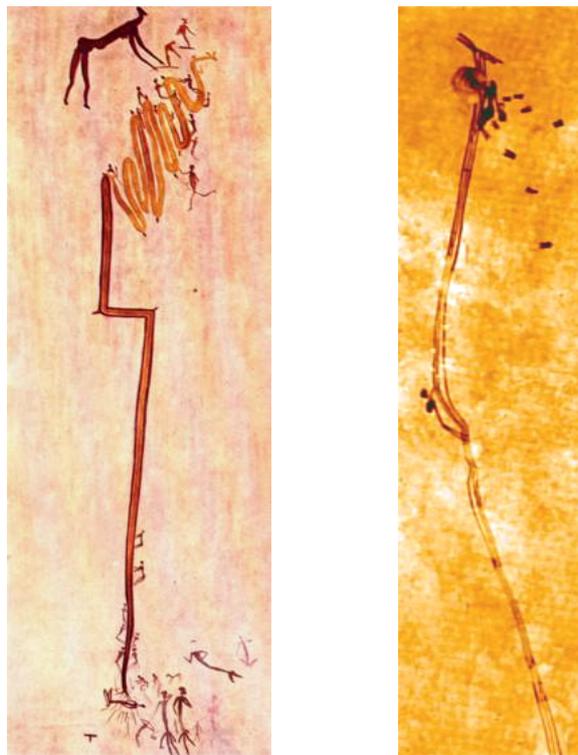
Our first example is that of a rock painting from Marondera (Marandellas), Zimbabwe, showing a vertical line dominating the entire figure.

This image has been explained (Lommel 1976: 149) as a rain ceremony, where a virgin princess is buried alive as sacrifice at the foot of a tree (the vertical line however looks very little like a tree – but it is certainly suggestive of some kind of connection between heaven and earth), people ascending, and a large female goddess, with smaller human figures, up in the sky, as well as a heavily zigzagged being which is probably the Rainbow Serpent – its position at the top of the vertical suggests that it is obstructing Rain. Lommel's explanation finds much support in recorded local myths and practices prevailing up to the middle of the 20th c. CE.

However, considering the age of this painting, estimated (Garlake 1995) at a few thousand years at least, this reading may be totally inappropriate in its potential anachronism: it may be the iconological equivalent of a popular etymology.

The same figure appears (black and white, and schematised) in Garlake 1995: 131, Fig. 157, with discussion p. 130f), where the interpretation is exclusively in terms of trance of the reclining bottom figure – ladder and snake are relegated to mere representations of the trance state. Much as such an emphasis on altered states of consciousness is fa-

voured in current Southern African rock art studies (esp. the work of Lewis-Williams), any one-factor explanation must be distrusted as one-sided, especially if local practices and myths (which after all have been a great inspiration to Lewis-Williams) suggest additional perspectives, as above.



From left to right and from top to bottom:

- (1): Rock painting from Marondera (Marandellas), Zimbabwe as evidence of NR 2 'The connection of Heaven and Earth'
- (2): Rock painting, Cueva de la Araña, Mesolithic Spain, style, microliths and continuous African distribution and styles of rock art suggest historical connection with (1)
- (3): honey hunting in present-day Nepal (*National Geographic* Nov. 1988)
- (4): Relevant for the mythical themes of the Tower / Ladder into Heaven appearing in connection with Flood stories, is the Thai practice of collecting swallow's nests in caves along the Andaman Sea; the collectors use extremely long ladders of bamboo (up to 100 m), and their other implement is a metal trident. There is a parallel with honey hunting but there rope or rope ladders are used. (source: Armijo, R., et al., 1993)

Fig. 4. Rock painting from Marondera (Marandellas), Zimbabwe as evidence of NC 2 'The connection of Heaven and

Earth'; with parallels from Mesolithic Spain and contemporary Nepal.

3.4. A string figure in historical times, the Blombos block, and the Janmart plaque, as possible expressions of NC 4: The Lightning Bird



Fig. 13. Red ochre block discovered in 2002 in Blombos Cave, South Africa, among the older attested human art, c. 70 ka BP; considering the colour and the pattern, this may well be a representation of NC 4, the Lightning Bird – one of only three NCs I have argued (van Binsbergen 2006a) to have been part of the original Out-of-Africa package (source: d’Errico et al. 2003, cf. Henshilwood et al. 2001a, b; also <http://cogweb.ucla.edu/ep/Art/BlombosOchre.jpg>).



Fig. 14. The identical pattern displayed in one of several sacred string figures (termed ‘Jacob’s Ladder’ in the comparative literature) managed and transmitted in the Nkoya female puberty rites, Kaoma district, Zambia, 1978. These rites are strictly controlled by senior women. The figures are secret, and only by making extensive payments could I, as a male researcher, gain access to this and other information on the rites in 1978. The women managing this knowledge did not explain or name the figures to me, so the interpretation in terms of the lightning bird is my own.



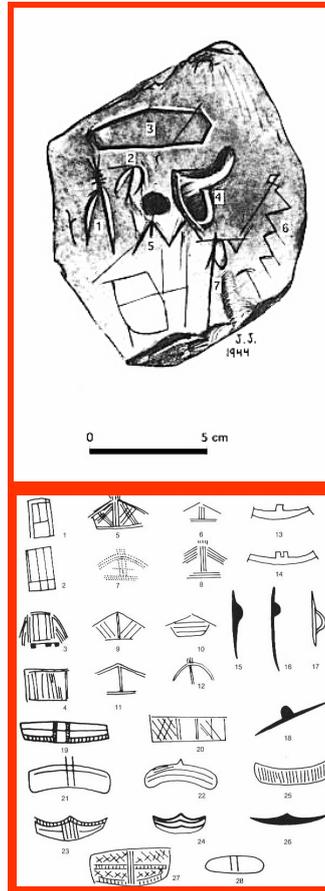
Fig. 15. The same string figure produced by an Aboriginal girl in present-day Australia (if the Lightning Bird NR 4 was in Pandora’s Box, as I claim, it would have been transmitted to Australia along Route A1).

Fig. 5. The Blombos block, and string figures in Africa and Australia, as evidence of NC 4: ‘The Lightning Bird’.

Even if the trance interpretation were in principle correct in the sense that it tallies with the participants’ own conscious and explicit interpretation (of which we cannot be sure, considering the age of these paintings and their illiterate cultural environment)

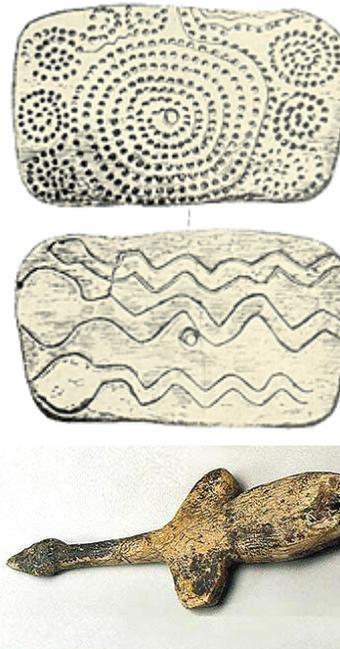
Then the images of trance would still follow a particular cosmology, e.g. one in terms of ascent to heaven (NC 2) or descent into the underworld, and of the existence of anthropomorphic and snakelike beings in heaven (NC 3).

Although the specific interpretation in terms of a particular NC remains conjectural, finds like this make it plausible that initiation rites served as a context to preserve the mythical contents of the Out-of-Africa package, in other words, as a rare mechanism of cultural retention across dozens of millennia.



Top: A Middle Palaeolithic schist stone plaque found in Angola (Janmart 1946: 56); the tectiforme signs are reminiscent of the repertoire of Franco-Cantabrian Upper Palaeolithic art (Leroi-Gourhan, bottom, cf. Leroi-Gourhan 1958, 1968a, 1968b); the zigzag lines may indicate the Lightning Bird (although Janmart offers different, anthropomorphic interpretations)

Fig. 6. A Middle Palaeolithic schist stone plaque found in Angola, as evidence of NC 3 ‘The Lightning Bird’; and compared with Leroi-Gourhan on the European Palaeolithic



This plaque from Mal’ta, Siberia, c. 18 ka BP, looks like an apt illustration of the equivalence of

- snakes (above, aside and below: of sky, sea, and underworld) and
- the Primal Waters (above, aside and below: of sky, sea, and underworld)

Both the location and the period match my reconstructions as to the presumable period when the ‘Primal Waters/Land’ cosmology was dominant

Incidentally, the Mal’ta material holds another iconographic corroboration of my reconstructions: it is here that the swan as representation of the Primal Waters is particularly in evidence among the mobile art

Fig. 7. Upper Palaeolithic mobile art from Mal’ta (Lake Baikal, Siberia), suggestive of NCs 10 (The Earth), and 11 (The Primal Waters, and the Flood)

3.5. Further corroboration from Australia?

- If the mythological contents of Pandora’s Box were transferred to Australia along Route A1, and
- if the above interpretation of the ‘Jacob’s Ladder’ motif in terms of the Lightning Bird is correct

then we would expect traces (in more or less transformed form) of the same connotations to be found in Australia. This appears to be the case, as Fig. 8 indicates

- Not only because of the continuity in string figures
- But also because of the symbolism attached to the ‘Jacob’s Ladder’ pattern in the Australian context in historical times.

From an Australian perspective (Venbrux n.d.; cf. Chaloupka 1993) the Jacob’s Ladder pattern would have an obvious interpretation, in the conventionalised *yam* pattern – evoking the creepers of the yam plant (genus *Dioscorea*). This is claimed to have been an art motif in Australia since the Middle Palaeolithic (60,000 BP), i.e. from the arrival of Anatomically Modern Humans there.

This offers interesting possibilities in terms of the wider cosmogonic mythical repertoire (cosmic tree/ world axis/ perch of the cosmogonic Lightning Bird), and the unfolding and transformation of that repertoire in the course of the transition from (pre-Out-of-Africa) Africa to Australia. Particularly significant is (in Venbrux’s words)

‘that the clan using this [conventionalised yam] image has for its major “dreaming” (*irumwa*) a bird, notably the jungle fowl. Digging up the yam causes rain and lightning, according to the ritual leader of this clan [who was Venbrux’s initiation mentor – WvB]’.



Top: Australian Aboriginal bark painting: Fish; yam; echidnas. Natural earth pigments on eucalyptus bark. Artist unknown; source: <http://www.bcgalleries.com.au/gf35.htm>

Bottom: *Dioscorea villosa*, photographed in New Zealand; source: http://www.sbs.auckland.ac.nz/info/schools/nzplants/food_climb_dioscorea.htm



Fig. 8. *Dioscorea* vegetal symbolism from Australia as obliquely referring the NC 4 ‘The lightning bird’

In Africa, the lightning bird is often fowl-like. So there are several indications that the lightning bird association also adheres to the motif in its latter-day Australian usage.

3.6. Further iconographic suggestions of ancient NCs

Even though, inevitably, we lack documentary evidence for the presence of our NCs for nearly the entire span of Anatomically Modern Humans’ history, either inside or outside Africa, there is a wealth of archaeological and iconographic material, e.g. in rock art, that could be read as attestations. I will only give a few examples



Shamanism (Nr-Mr tablet, Ancient Egypt 0th Dynasty.; 5 ka BP); NC 16 (‘Shamanism, bones’)

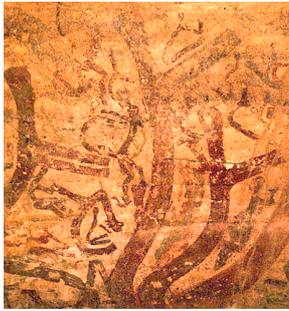


Tassili, Sahara, 7 ka BP: NC 17 (‘Speckledness, the Leopard’) or NC 2 (Luwe, personification of the celestial pole, cf. von Sicard 1968 and van Binsbergen 2004a, b, c on leopard-skin symbolism)



Shrine for Heitsi-Eibib (mantis-shaped culture hero), Namibia, undated: NC 8 (‘The Stones’), and 5 (‘The Mantis’).

Fig. 9. Further iconographic evidence of NCs.



NR 5 ('The Mantis'), undated rock art, Chad



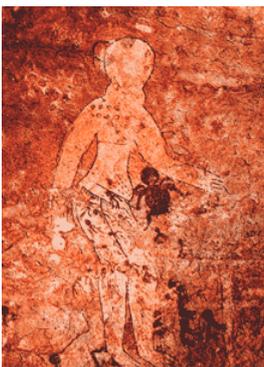
NR 17 ('Speckledness and The leopard'), Apollo 11 Cave, Namibia, 25 ka BP



NC 2 ('The Reconnection between Heaven and Earth'): Mwendanjangula, personification of the celestial pole, a manifestation of Luwe cf. von Sicard 1968f), Angola, early modern.

Fig. 10. Further iconographic evidence of NCs.

These selected images from a variety of provenances and suggestive of a variety of NCs do not, of course, prove the reality of my NCs, but at least remind us that we have additional, archaeological sources for NCs, once our theory tells us what to look for.



NC 15 ('The spider and the feminine arts'), Tassili, Archaic period, 7 ka BP, from: <http://creativity.bgsu.edu/africanArt/part1/xtassili/T2.html>



NC 15 NC 15 ('The spider and the feminine arts'), Iberian peninsula, Mesolithic (15 ka BP) (Bandi & Maringer 1952: 139)



NC 17 ('Speckledness and the leopard'; and 16 ('Shamanism, the bones'), Tassili, c. 6 ka BP; source: Breuil et al. 1954



NC 15: the spider (and feminine arts) Australian rock art, conventionally considered a 'sun symbol', more likely a spider's web (but ancient spider goddesses tend to be solar), undated, probably several ka old (Stubbs 1978)

Fig. 11. Further iconographic evidence of NCs.

4. Situating my original model more firmly within genetics

4.1. Reconstruction of the rise and spread of Anatomically Modern Humans: Evolution, expansion and migration of human mtDNA types across the world on the following seven maps (based on Forster 2004)

In order to situate my original model more firmly within state-of-the-art genetics, let us have an extensive look at Peter Forster's 2004 state-of-the-art model of the Out-of-Africa spread of Anatomically Modern Humans, derived from the analysis of mitochondrial (mt) DNA – which, as is well known, is only inherited in the direct female line

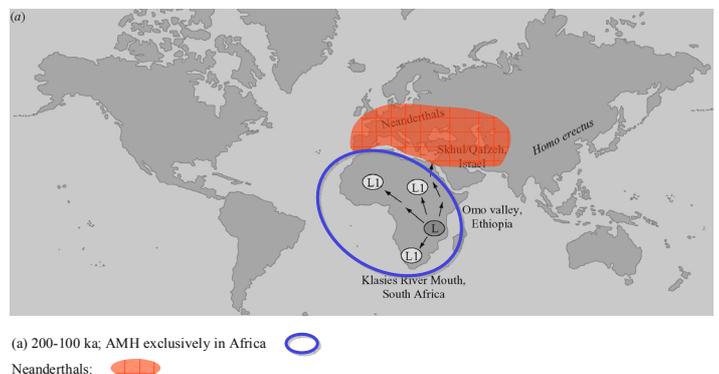
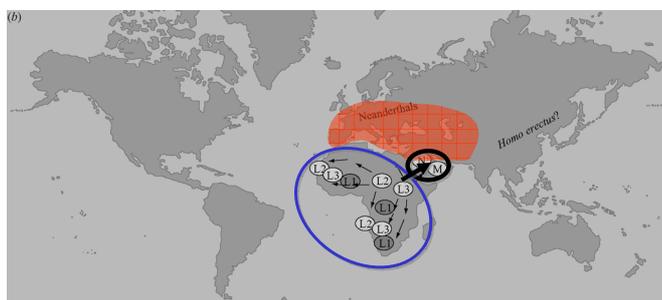


Fig. 12. Spread and genetic diversification of Anatomically Modern Humans (a) 200-100 ka BP (largely after Foster 2004)

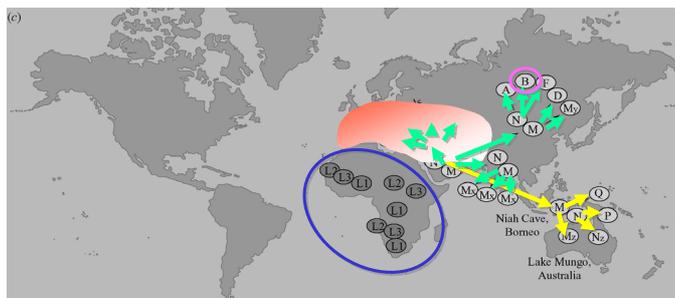
My maps of the distribution and historical development of mtDNA types derive from Forster 2004. I have added the dynamics of the Neanderthal area¹⁰ and its postulated influence on the expansion of Anatomically Modern Humans; the distinction between Routes A1 and A2 (with a time lag of c. 15 ka); singling out the Back-to-Africa – including circumlittoral – migration process; and highlighting the global significance of type B (slides below, in purple continuous or dotted lines).

The first map depicts the period (ca. 200-100 ka BP) when Anatomically Modern Humans were exclusively confined to the African continent. It is during this period that ‘Pandora’s Box’ was established: the cultural (including mythological) package that was more or less shared by Anatomically Modern Humans in Africa in the pre-out-of-Africa period, and subsequently spread, and transformed, and innovated, worldwide.



(b) 80-60 ka further percolation and diversification of AMH inside Africa
Neanderthals blocking access to most of West and Central Asia, and to Europe
yet we see AMH’s first expansion into West Asia, 80 ka BP, with mtDNA types N and M:

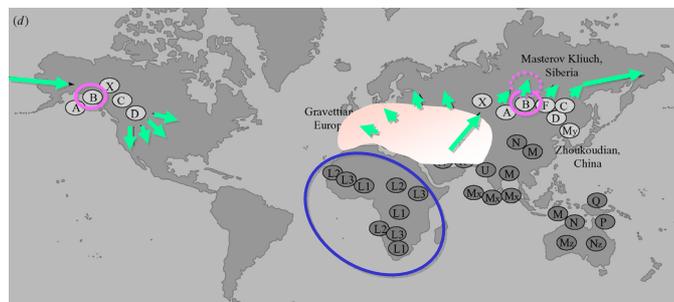
Fig. 13. Spread and genetic diversification of Anatomically Modern Humans (b) 80-60 ka BP (largely after Foster 2004)



(c) 60-30 ka
Route A, into Australia and New Guinea along the Indian Ocean coast
<45 ka: Neanderthals retreating: Route B opens up: AMH beginning their expansion into Asia and Europe;
(type B is singled out because it is to play an important role in the Back-to-Africa migration)

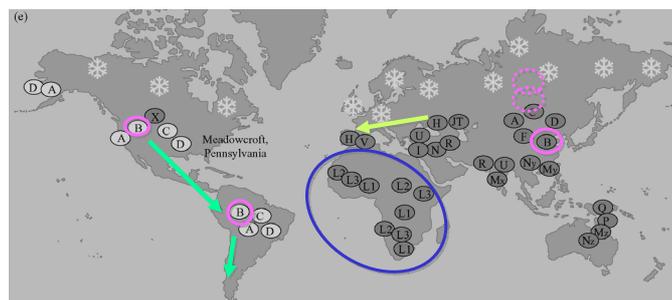
Fig. 14. Spread and genetic diversification of Anatomically Modern Humans (c) 60-30 ka BP (largely after Foster 2004).

¹⁰ The Neanderthal distribution derives from: Klein 2003; Cavalli-Sforza et al. 1994: 61 (their Fig. 2.1.2 reproduced here), after Giacobini and Mallegni 1989 and Vandermeersch 1989.



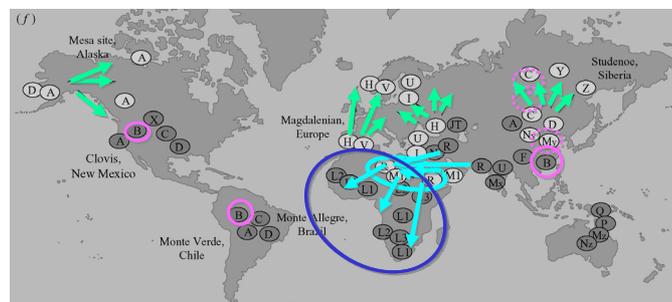
(d) 30-20 ka Neanderthals all but disappeared, last glaciation building up. AMH further expanding into Asia, the New World, and Europe, further diversification with the appearance of the mtDNA types X (Central N Asia) and C (NE Asia) which subsequently made a major contribution to the New World population, along with the earlier types A, B and D

Fig. 15. Spread and genetic diversification of Anatomically Modern Humans (d) 30-20 ka BP (largely after Foster 2004)



(e) 20-15 ka Neanderthals have disappeared; 18 ka BP height of last glaciation
installation of Basquoids in the Iberian peninsula, from the Caucasus

Fig. 16. Spread and genetic diversification of Anatomically Modern Humans (e) 20-15 ka BP (largely after Foster 2004)



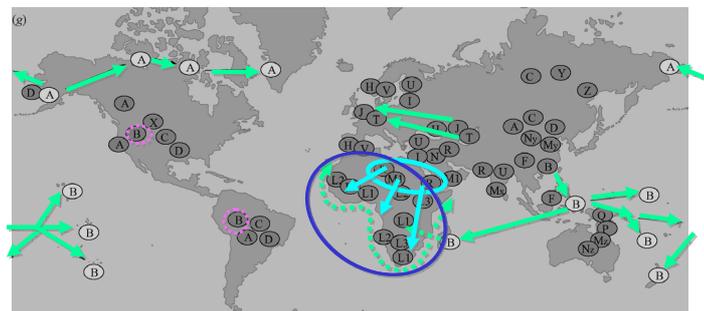
(f) 15-2 ka
Spread of types H, U, V into NW Europe; emergence of types Y and Z in NE Asia
Back-into-Africa return migration involving types M1 and R

Fig. 17. Spread and genetic diversification of Anatomically Modern Humans (f) 15-2 ka BP (largely after Foster 2004)

Even though the ‘Back into Africa’ migration seems to be one of the constituent factors of Africa’s four language families today (Afro-Asiatic, Nilo-Saharan, Niger-Congo and Khoi-San), admittedly the relative contribution of Asian and palaeo-African elements towards the present-day linguistic pattern remains a puzzle.

The diagrams underplay the geographical scope and the relative impact of this ‘Back into Africa’ migration (e.g., there is no indication of its effect in the Southern half of the African continent, where Niger-Congo speakers are now dominant, and where all Khoi-San speakers are found, as tiny minorities

Yet do note the relative stability, from a genetic perspective, of the South-western half of the African continent – a likely basis for Frobenius’ ‘pristine Africa’ (see below), despite massive linguistic, cultural and mythological change.



(g) less than 2 ka: Expansion into the northern arctic (type A); expansion of J/T from Caucasus to North Sea
 Expansion into the Pacific Ocean and (as part of the Back-into-Africa migration) Indian Ocean (type B, originally emerged in NC Asia, then associated with China, then Indonesia)
 (not in Forster): type B expands via Madagascar into East Africa and circumlittoral Africa in general

Fig. 18. Spread and genetic diversification of Anatomically Modern Humans (g) <2 ka BP (largely after Foster 2004)

4.1. Some remaining questions

- Why did Route A1 become abortive after reaching Australia and New Guinea?
- Why was there a considerable delay (15 ka) before Route A2 successfully made inroads into Asia?
- Why was Route A2 so successful and so richly elaborated, both demographically and mythologically? For it is along this Route that Anatomically Modern Humans succeeded in conquering the entire world
- Why did the mythological elaboration along Route A2 take the form it did?

4.2. ‘Windows of opportunity’?

Current wisdom seeks the answer to this kind of questions by reference to ‘windows of opportunity’ at least partly dictated by fluctuations in sea-levels and climatic conditions’, while stressing the intensive and transformative intra-Africa percolation of Anatomically Modern Humans during the first 100 ka after their emergence (Forster 2004).

Such ‘windows of opportunity’ are intuitively relevant for Route A1: on their first sally Out-of-Africa, Anatomically Modern Humans apparently stuck to a littoral tropical climate more or less familiar from East Africa. Presumably, Anatomically Modern Humans crossed significant sea straits only when the opportunity arose – notably, when glaciation heights at the poles produced low sea levels. Fig. 19 suggests as likely points in time for crossing the Bab al Mandhab and subsequently the sea separating Indonesia from New Guinea / Australia, dates of c. 46, 52 and 68 ka BP. Forster (2004: 262) prefers the most recent windows; but this compresses the time scale unduly, and I intuitively prefer the least recent windows.

However, Route A2 is largely or entirely overland, across a considerable variety of (palaeo-) climatic zones. Therefore less mechanical, less natural factors need to be invoked to

explain both the demographic and the mythological processes that characterise it.

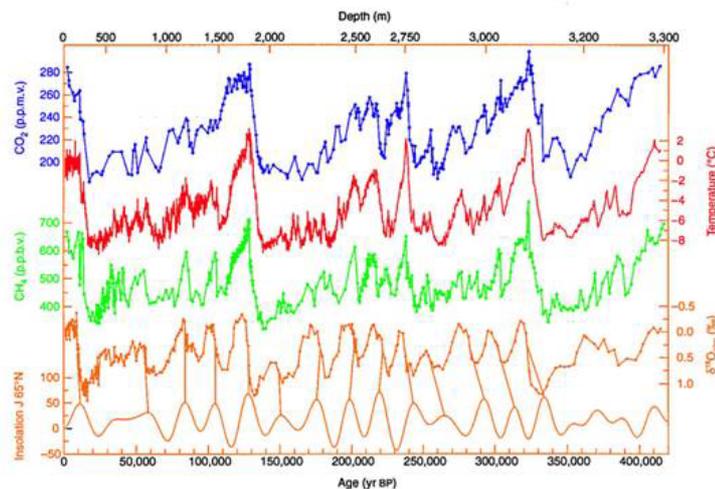


Fig. 19. Recent geophysics research (Vostok ice core analysis on the Antarctic, going to the depth indicated) has yielded fairly consensual and reliable information on the global rise and fall of glaciation over the last few 100 Ka.

420,000 years of ice core data from Vostok, Antarctica research station. Current period is at left. From bottom to top:

- Solar variation at 65°N due to Milankovitch cycles (connected to 18O).
 - 18O isotope of oxygen gas.
 - Levels of methane (CH4).
 - Relative temperature (converted from 2H isotope in ice).
 - Levels of carbon dioxide (CO2).
- Source: <http://www.usgcrp.gov/usgcrp/images/Vostok.jpg> / and: http://upload.wikimedia.org/wikipedia/en/7/77/Vostok_420ky_4curves_insolation.jpg

5. The Neanderthal connection

In this connection, we may point to a cultural and demographic ‘window of opportunity’ that is recently being rescued from the realm of science fiction, and ushered into the realm of empirical science: *the Neanderthal connection*. In my above maps of the historical development of mtDNA types in association with mythological NCs, I have already taken this factor into account.

For c. 15 ka, around the time when Anatomically Modern Humans set out on Route A2, Anatomically Modern Humans and Neanderthals lived side by side in the Levant. Despite geneticists’ claims that they constitute two independent branches of *Homo sapiens*, palaeoanthropologists point to intermediate forms.

In recent decades (e.g. d’Errico *et al.* 1998; d’Errico *et al.* 2003) there has been increasing appreciation of the cultural achievements of Neanderthals, ranging from burial to flute music, from flower symbolism to bear-cult ritual, from sculptural representation to stellar maps, from clothing to articulate speech. In that connection, the question of possible cultural exchange between Anatomically Modern Humans and Neanderthals has been reconsidered.

In Europe and West Asia the Neanderthals’ disappearance goes hand in hand with the expansion – into a cooling temperate climate – of Anatomically Modern Humans from subtropical environments – not exactly a climatic window of opportunity.

There is no consensus among specialists about what made Neanderthals disappear: genocide on the part of Anatomically Modern Humans, and inability to adapt to new environmental conditions, are among the scenarios proposed.

Mathematically, an only marginally lower reproduction rate as compared to Anatomically Modern Humans occupy-

ing the same ecological niches would already have been sufficient to lead to extinction if kept up through dozens of kiloyears.

Taphonomics is the branch of archaeology studying the systematic effects of the non-human environment on archaeologically significant remains (Binford 1981; Chase & Nowell 1998); it has severely criticised the above claims of Neanderthaloid cultural achievements, yet fails to entirely sweep away the emerging image of Neanderthaloids living up to their brain size (which was, on the average, larger than that of Anatomically Modern Humans!)

Regardless of the question of genetic interaction between Anatomically Modern Humans and Neanderthaloids, and regardless of popular and literary appropriation of the notion by New Age and the novelist Jean Auel, yet it is almost inevitable that cultural exchange took place between these groups in the very long time span of these living side by side in West Asia.

Inevitably, modern researchers are Anatomically Modern Humans, and their chauvinism as such has persuaded some to think that any cultural exchange between Neanderthaloids and Anatomically Modern Humans, whatever its scope, could only have been a mere one-way process, with the apparently culturally deprived Neanderthaloids as sole beneficiaries.

However, our attempt to construct a diachronic approach to world mythology seems to be better served by exploring the following points:

For over 100 kiloyears, from c. 200 ka BP, Anatomically Modern Humans existed in the African continent without spreading into Asia, Europe, and further afield. During much the same time, Neanderthaloids in the narrower sense occupied West Asia and Europe, in such a way that Anatomically Modern Humans would have had to pass through Neanderthaloid territory if these Anatomically Modern Humans were to expand into West Asia, Europe, and further. During the relatively short period of their conviviality, Neanderthaloids and Anatomically Modern Humans lived side by side in the Palestine, and intermediate phenotypical forms have been claimed between the two human types. The earliest sally of Anatomically Modern Humans out of Africa took the southernmost route (Route A), into the Arabian peninsula, probably across the Bab al Mandhad at the southern end of the Red Sea (at the time only about 5 km of open sea), thus merely skirting or even effectively avoiding Neanderthal territory. All this leads to the following suggestion:

- Anatomically Modern Humans' expansion into Asia and Europe and further afield seems to have been effectively blocked by Neanderthaloids
- The gradual disappearance of Neanderthaloids, whatever its causes, opened a window of opportunity which was one of the factors facilitating Anatomically Modern Humans taking Route A2

Perhaps more was involved than an opening geographical frontier: perhaps, after the dead-end of Route A1, Anatomically Modern Humans' embarking on the eminently successful Route A2 was partly due to cultural, including mythological, contributions from Neanderthaloids living due north and northeast of Africa.

Even though our view of the Neanderthaloid cultural package is still dim and contested, triangulation within the framework of my model may suggest some possible specific contributions of Neanderthaloids to Anatomically Modern

Humans in the mythological field; I think NC 16 with shamanistic overtones is a possible candidate; so is NC 6 ('escape from the ogre').

Above, Fig. 3, we have also seen Neanderthaloid expressions that could be interpreted in terms of NC 4 (Lightning Bird) and 17 (Speckledness and the Leopard), although these NCs are likely to have a long history among Anatomically Modern Humans inside Africa *prior to* Anatomically Modern Humans and Neanderthaloids living side by side in the Levant. So it looks as if not all NCs were Anatomically Modern Human inventions – as if part of the contents of Pandora's Box may have derived from non-Anatomically Modern Humans, – from Neanderthaloids! Of course, Neanderthaloids in a more general sense were not confined to Europe and West Asia but have also been attested in Africa, e.g. Broken Hill/Kabwe, Zambia, in the Lower Middle Palaeolithic.

6. Links between specific genetic types arising in the course of the global spread of Anatomically Modern Humans, on the one hand, and the rise and spread of specific NCs, on the other.



Fig. 20. Genetic associations of the Earth diver motif according to Villems (2005)

One of the regulars of our Harvard Roundtable, Richard Villems, discovered the association between the mythological motif of the Earth Diver, and particular genetic traits (Villems 2005). I believe that this approach can be extended to the NCs I have discerned in the African cosmogonic material. Not pretending any competence in genetics, I will simply take Forster's mapping of the history of mtDNA types, and suggest how this can be used as a possible clue to the history of specific NCs. I will have to limit my demonstration to only a few NCs, which already involves a considerable amount of work finding, world-wide, specific mythemes belonging to each NC, and tracing their global distribution.

The provisional results are extremely encouraging, and the analysis may ultimately be extended to include all my NCs.

The main merit of this genetic association of NCs is that now are tentative situation of NCs in space and time (hitherto based on a heterogeneous complex of considerations, from astronomy to modes of m\production analysis and hermeneutics), can now be matched with the (admittedly provision, but far better substantiated) periodisation of Anatomically Modern Humans' genetic ramification in space and time, as tentatively established by geneticists. If the unfolding of world mythology is concomitant with the spread and diversification of Anatomically Modern Human genes, then we have, in principle, an instrument to situate specific myths (at least, NCs) in space and time.

6.1. Narrative Complex 11 (the Primal Waters and the Flood), and mtDNA type B (out of type N); type B emerged in northern Central Asia, c. 35 ka BP: Model A.

Our first attempt at association between a NC and a genetic type will be in connection with the NC 11: The Primal Waters and the Flood. In the 2005 paper I have discussed African flood myths, stressing that, although relatively rare, they are far more numerous than is often assumed. Since then, my data on flood myths in Africa have considerably expanded since I had the benefit of Isaak (2005). I will first indicate the (tentative) global distribution (Figure 21), then, in the next Figure, use Foster's (2004) date on genetic types (notably: mitochondrial DNA types), to try and associate the NC distribution with a particular genetic type. Here I do not yet distinguish between

1. the most simple version involving the emerging of the world from Primal Waters in some cosmogonic connection, and/or the subsequent annihilation of that first cosmogonic order by its destructive reversal: the world's sinking back again into the Primal Waters,¹¹ and
2. the more elaborate version known from the Bible, SE Asia and Oceania, and typically composed of the sequence (a) human transgression (b) divine wrath (c) divine selection of a survivor, who is informed (d) the flood (e) survival and reconsideration of the connection between Heaven and Earth (ladder, tower, rainbow).

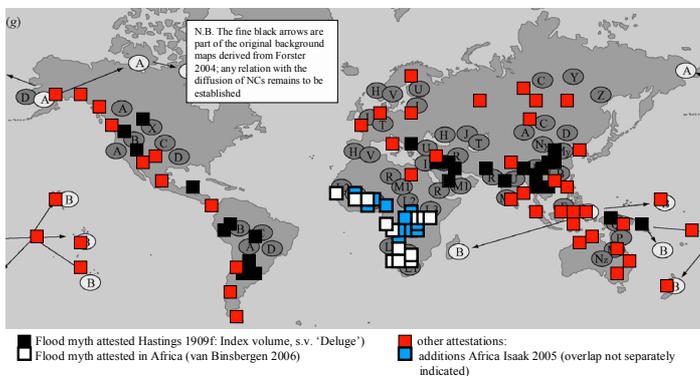


Fig. 21. Distribution data on NC 11 (Primal Waters and the Flood)

¹¹ I take it that this is the original meaning of the simple flood myths: evocation of the abolition of the cosmogonic order by return to the Primal Waters. Based on the actors' conceptual thinking through of the meaning of reality and order in the context of a world image based on the Primal Waters producing land as the first reality, there is absolutely no need for any historical hydrographical catastrophe to trigger such a myth. Therefore, northern Central Asia (see below), regardless of its hydrography (sea, lakes, rivers, deserts) is as good as any other place for such a NC to emerge. Of course, the elaborate flood myth defined in the text, will have a different origin in time and place (CITI), and a different subsequent history.

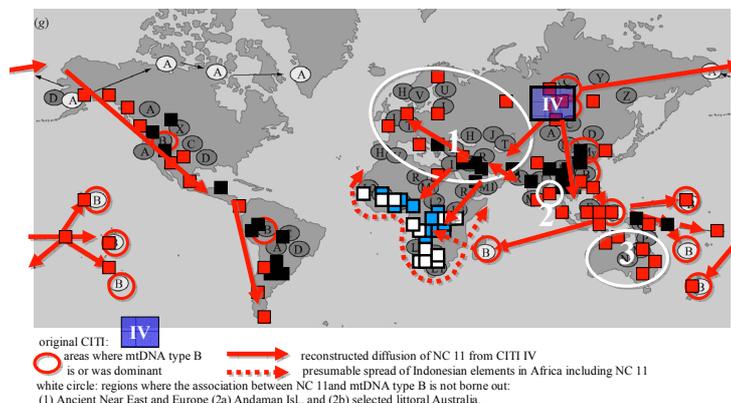


Fig. 22. Historical interpretation of the previous Fig. highlight mtDNA Type B.

From Figure 22, it is manifest that for most of the world distribution of NC 11, it is closely associated with the distribution of mitochondrial DNA type B. This association holds for Central, East and South East Asia, throughout Oceania, and throughout the Americas. The association is amazingly consistent. This leads us to postulate that NC 11, indeed, emerged in the same time and place where Forster (2004) situates the emergence of mtDNA Type B: northern Central Asia, which will henceforth feature as our CITI IV. However, this is far from the entire story, for in significant other regions where NC 11 has been attested, mtDNA Type B is inconspicuous or absent. In Fig. 22, the regions surrounded by a circle are those where hypothetical association Flood myth/mtDNA type B is not borne out: (1) Europe and Ancient Near East, (2a) Andaman Isl., and (2b) selected littoral Australia. These exceptions may be explained

1. By secondary diffusion (from northern Central Asia to the Ancient Near East – Nuah often given Central or East Asian connotations cf. Nü Wa 女媧 –), there greatly elaborated, then to Europe; to the Indo-Iranian domain either before or after the Ancient Near East; shamanism as vehicle of spread;
2. the Sunda hypothesis;¹²
3. (least convincing) on the basis of the near-global distribution, we may suggest that the Flood myth was already part of Pandora's Box.

So we are reminded as we come nearer to the present, the diffusion pattern of myths may more and more separate from that of detectable genetic markers.¹³ Above (section 1 point 8) we have identified this as the problem of contamination,

¹² Such secondary diffusion is identical to the mechanism of contamination cf. van Binsbergen 2007b, where the Sunda westbound migration from Indonesia in early Holocene times will be critically discussed as – in Oppenheimer's (1998) claim – the greatest single event of contamination in the world history of mythology; I will conclude there that the distribution of NC 11 in South and West Asia, Africa, and Europe is the *only* major Sunda effect in the field of comparative mythology, *pace* Oppenheimer's (1998) far more extensive claims that the whole of West Asian mythology, including Genesis 1-11, is Sunda based.

¹³ This was the point I had reached in my research in the Spring of 2006, when this paper was delivered at the Beijing conference. Meanwhile, I have done further work on the global distributions of NCs, and I have considered Oppenheimer's (1998) 'Sunda' thesis in great detail. I am now considering rewriting this passage in the light of a modified Sunda thesis, but the argument is far too extensive and complex to be summarised here, and moreover would no longer faithfully reflect my contribution to the Beijing conference; cf. van Binsbergen 2007b.

already stating that it is particularly manifest in the context of flood myths – to which I hope to devote a separate paper (cf. van Binsbergen 2007b).

6.2. Attempted reconstruction of the genetic association and global history of selected other NCs

The case of NC 11 is relatively exceptional, in that (due to the central position of the Flood myth in Judaeo-Christian-Islamic traditions, which have formed the cradle for North Atlantic scholarship; but also due to the near-ubiquity of Flood myths globally) there is a very considerable scholarly literature on this topic. Moreover, my work on progress on ethnicity in Mediterranean proto-history has recently made me study the biblical flood myth, and the Nuaḥ-related chapters of Genesis, in great detail and from a long-range comparative perspective.

If such a relatively well-documented case already manifested tantalising complexities and analytical difficulties, we cannot expect the reconstruction of the global history of other NCs, in association with genetic markers, any more easy. Yet I will now attempt three more such reconstructions, realising full well that – would we have more data – the relatively straightforward pattern of these reconstructions would soon fall apart. If anything, the following reconstructions are even more problematic and provisional than that of NR 11, above.

However, making the attempt is a precondition for any future critical discussion and improvement. So here goes.

6.3. The association of NC 2 (The Reconnection of Heaven and Earth) with mtDNA types R and M1 in the context of the Extended Fertile Crescent and the 'Back-into-Africa' movement

Note that this NC overlaps with that of the Spider (see below), who as a mythical figure may be credited with creating the reconnection of Heaven and Earth (= NC 2), but without the shamanic, subsequently royal, connotation yet. Again, I shall first present the tentative distribution (Fig. XXX). followed by a tentative historical reconstruction in terms of the association of NC 2 with a particular mtDNA Type.

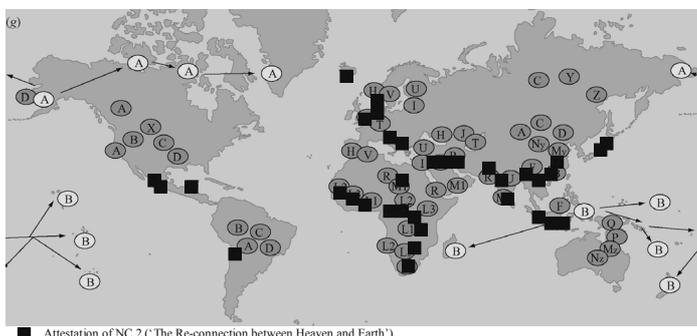


Fig. 23. Distribution of NC 2: The Reconnection between Heaven and Earth.

The distribution clearly brings out the association between NC 2 (The Reconnection of Heaven and Earth) and mtDNA types R and M1 in the context of the Extended Fertile Crescent and the 'Back-into-Africa' movement. This makes us situate the emergence of NC 2 in the proto-Neolithic context

of West Asia: CITI VI. This, of course, explains the occurrence of NC 2 not only in Neolithic and Bronze Age West Asia but also in sub-Saharan African cultures from the Neolithic onwards. However, again we are confronted with the problem that in several regions NC 2 is attested without immediate association with Neolithic West Asia. For Europe, this cannot be a problem because it is accepted that most of its cultures and languages ultimately derive from West Asia or have undergone very profound influence from there. For South and East Asia a similar argument may be used, with world religions (especially Buddhism and Islam) and proto-globalisation (Hellenism!) conveying the mythical contents of NC 2 to those regions, in ways that are historically attested. The claim of a West Asian influence on China and (via Korea) Japan since Neolithic and Bronze Age times remains a moot point, for which there is however sufficient support in scholarship to allow us to pass over this point here. Our greatest puzzle is the attestation of NC 2 in Meso and South America, and, frankly, I cannot resist the temptation¹⁴ to appeal here to transcontinental influences, either from East Asia across the Pacific, or from West Africa across the Atlantic.

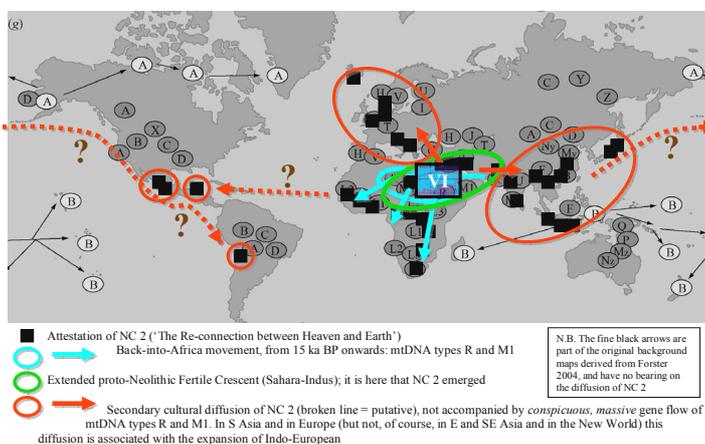


Fig. 24. Historical reconstruction of NC 2 highlighting mtDNA types R and M1

6.4. The association of NC 15 ('The Spider [and Feminine Arts]') with mtDNA type L (L1, L2, L3): Pandora's Box, subsequently transformed in the (proto-) Neolithic context of the Extended Fertile Crescent

In an earlier version of my argument I simply conflated all mythical attestations involving spiders, regardless of their association with the feminine arts of not. I also ignored the use of spider imagery in magic, omens and taboos. On reconsideration, and with a few additional attestations, a more complete and detailed picture emerges. I now propose to distinguish between the following manifestations of the Spider motif.¹⁵

¹⁴ Like the pioneer anthropologist Tylor (1879, 1896), or the prominent archaeologist Heine-Geldern – not to mention Afrocentrists like van Sertima; but see Ortiz de Montellano 2000 and Amselle 2001 for a devastating mainstream anthropological critique of such transcontinentalism.

¹⁵ Attestations of the spider mythological motif as shown in the Figures in this section include the following. Banks Isl., Melanesia: death was introduced by the Spider creator spirit, Marawa (Cotterell 1989: 151). Enki (water god) pursues his daughters incestuously, and his wife Nimhursage

1. NC 15a: spider as significant god usually Supreme Being or Creator, often with solar connotations
2. NC 15c: spider motif associated with goddesses that do not have (any longer?) the status of Supreme Being or Creator, and that are emphasised to be associated with the feminine arts of spinning and weaving, and warfare (!)
3. the Spider prominent in the domain of magic, omens and taboos, but (no longer?) without articulate mythical elaboration

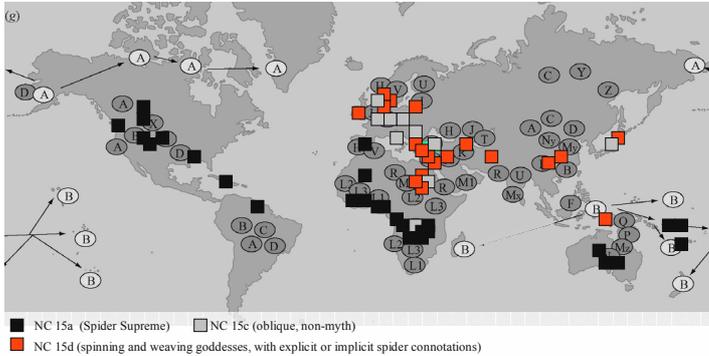


Fig. 25. Distribution of variants of NC 15 (The Spider – and feminine arts)

Once more Native Americans appear to have retained very ancient traits, of Pandora's Box and Route A, across c. 80 ka.

We note however the disturbing absence of NC 15a attestations for most of Eurasia. Is this compatible with the idea that NC 15a was in Pandora's Box? It would be compatible, if we may assume that, distributed among the literate post-Neolithic civilisations of Eurasia and probably originating there, NC 15b (which both narrows down, and elaborates, the spider theme in the direction of the feminine arts of spinning and weaving) has supplanted NC 15a, from c. 6 ka BP onwards. Such replacement is also suggested by 15c, where 15a has been relegated to the obscure, peripheral domain of

retrieves Enki's semen from the body of Uttu the spider goddess of weaving, 'whom the god had used and left' (Cotterell 1989: 86); so it looks as if Uttu us not just the sun but also the goddess of weaving. This is an ancient thought, which we encounter from Japan to sub-Saharan Africa: the sun is a weaver, hence female. Probably this is also why fly, midge etc. are sacred in the Ancient Near East including Egypt: they reflect the sun/rainbow, and thus the de Supreme Deity. Gilbert Isl.: Nareau is the spider lord, creator deity (Cotterell 1989: 133); he made Na Atibun, from his spine grew the sacred tree where all mankind came from; the people scattered falling from this tree (this is the widespread theme of the confusion of nations, usually associated with the tower motif; luminaries, sky etc. were made from Na Atibu's body parts (Cotterell 1989: 224: another common theme, cf. Babylonia, Masai); there was Nareau the older (the spider spirit) and also Nareau the younger (Cotterell 1989: 242). Leza (Zambia) departs to heaven on a spider's web (Cotterell 1989: 89). Marawa: Melanesian spider spirit (Cotterell 1989: 219). Nauru (west of Gilbert Islands): the primal spider Areopenap, creates heaven and earth from shell with the assistance of insects (Willis 1994: 294). Ogun (war god Yoruba) climbs down from heaven on a spider's web before creation (Cotterell 1989: 143). The spider of Cingle de la Mola Remigia, Gasulla cañon, Castellon, Spain: Levant Mesolithic art (Bandi & Maringer 1952: 139; cf. Fig. 3 above). Melanesian spider spirit 151; Spider woman 134, 240 (Cotterell 1989: index). Also Hastings 1909f: index volume. Spider woman among the Navaho; here the spider is not the sun god but facilitates, for two heroic sons, their access to the sun god; (Cotterell 1989: 134); Spider woman Naste Etsan (a palindrome!) was the benevolent god of the Navaho (Cotterell 1989: 240). The Spider Inkтоми appears as culture hero and trickster in parts of the N. American prairie (Willis 1994: 227). The Spider is an ancient Australian icon (Cotterell 1989: 58; Stubbs 1978).

magic, far from a society's central religious representations. If this line or argument is correct, more attestations of NC 15a should be expected from peripheral Eurasian cultures -- folklorists can help us out here.

The post-Neolithic transformation of NR 15a towards feminine arts (NC 15c) reflects widespread masculinisation associated with the package of writing, the state, organised religion and science; solar Supreme goddesses are replaced by male ones (or rather, transmogrified into, e.g. Neith > Re^c), their once all-powerful female originals being relegated to the weaving room under male domination. Fig. 26 offers the historical reconstruction. We notice how Native Americans have retained very ancient traits, of Pandora's Box and Route A, across 80 ka

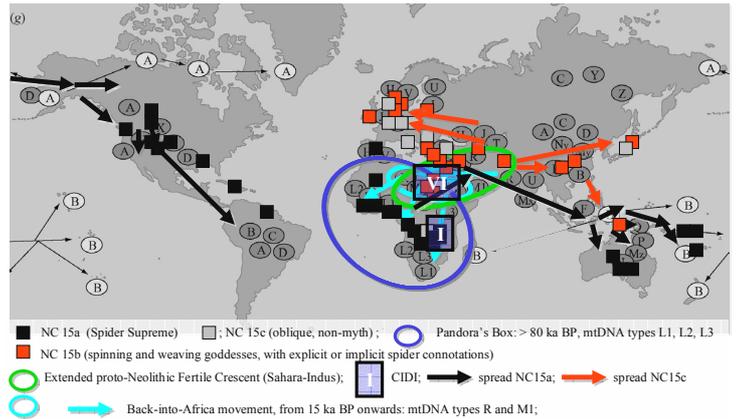


Fig. 26. Historical reconstruction of NC 15, highlighting mtDNA types L1, L2, L3, as well as those dominating the Neolithic context of the Extended Fertile Crescent.

6.5. Rescue from the ogre (NC 6)

In the first stage of this project (2005), when I worked through the data on cosmogonic myths attested in sub-Saharan Africa in historical times, I was impressed by what seemed a NC in its own right: 'the rescue from the ogre'. In its essential form,

- a protagonist
- is swallowed
- by a much larger enemy,
- and subsequently the protagonist is rescued from inside that enemy.

Often the protagonist effects the rescue, not only of himself, but also of others similarly imprisoned. He is often a young hero, accompanied by his mother whose lover he may turn out to be. The protagonist may not originally be imprisoned himself but he may accept that condition so as to liberate others. Sometimes there is only no rescue.

I believed to be able trace the historical development of this motif. The following discussion will show that today I am no longer so confident.

Already then did I realise that the story could be considered a sophisticated metaphor of all cosmogony, if cosmogony is conceived as the liberation of Being from the state of non-Being (cf. Endymion's eternal sleep in a cave). An initial 'chaos' invoked in many cosmogonies all over the world (Greek Chaos; Nordic Ginnungagap, etc.). The initial chaos often appears as 'the Primal Waters', is then hardly distin-

guishable from the ogre in a concrete, personified sense. By the same token, the annihilation of being (in deluge, or some other cosmic disaster) seems equivalent to being swallowed by the ogre.

The organic body of imprisonment may be replaced by

- a cave (like the one where Amaterasu 天照 the hidden sun goddess was hiding – Japan; or the one where Proteus hid Helen, sending a substitute to Troy...; or the cave from which the Zuñi Pueblo culture hero Kanahuhu ushered his people to the surface of the earth),
- a house (like, among the Navajo, the liberation of the game animals from the house of Crow, the black god)
- a prison (like Minos's labyrinth, from which Daedalus and Icarus rescue themselves),
- the underworld,
- a grave.

The equation of the ogre with the Primal Waters brings us back to another fundamental cosmogonic mytheme, that of the separation of land and water.

If the emergence of land is the fundamental act of creation, then, of course, the ogre is equivalent to the Primal Waters, from which protagonists (like Thor and Hymir in Nordic European myth; or Mauri in Maori myth, New Zealand, and elsewhere in Polynesia)¹⁶ rescues the land by fishing it up. What Thor and Hymir actually bring up is not so much land, but the world snake

– but that is not so very different, once we remember that in many myths, with wide global distribution, the world is made from the fragmented body of the initial Water Monster (which is really a personification of the Primal Waters): Tiamat (Babylonia), Leviathan (Ancient Israel), Ymir (Nordic Europe), Vrtra (South Asia), Panku 盤古 (Southern China) – or the South Asian Maruts (cloud riders), considered the fragments of an embryo that was initially supposed to remain long enough in his mother's womb (a hundred years) so as to become greater than Indra (Cotterell 1989: 219)

The cosmogonic connotations of the Primal Waters may doubly combine with the ogre theme, in that a box-like vessel is imagined in which (like from an artificial, secondary Cosmic Egg), the Flood hero rescues himself and others from the ogre of annihilation: the Ark, the Pumpkin (in the Southern Chinese version of Nü Wa 女媧 and Fu Xi 伏羲 as Flood heroes)

- Primal Waters, Giants and Flood mythemes further proliferate in a Talmudic story, where, during the Flood, the giant Og ride on the Ark and is fed by Noah. Og was ultimately slain by Moses (Aunt 1919).

In addition to these cosmogonic/cosmoclastic conditions, other important associations come to mind in connection with the 'rescue from the ogre' motif:

- Any normal birth from a parental body is a delivery similar to 'being rescued from the ogre' – as infantile and pathological adult fantasies often indicate; thwarted or delayed birth is then another application of the 'rescue from the ogre' theme. Myths from Ancient Egypt, Ancient Greece and from Oceania sketch the initial state of constant copulation be-

tween heaven and earth, -- the moment of creation consists in the two lovers being prised apart or the male partner emasculated, which (in the Greek and Oceanian versions) finally also allows the second generation of deities, sired by Heaven, to leave their imprisonment in Earth's womb. Miraculous births, e.g. the 'legchild variant' (Dionysus) or Athena's, inevitably combine initial imprisonment in a body with subsequent rescue – very similar to the ogre scheme, especially in that Zeus in both cases first swallows the mother – in imitation of his own father, Kronos, who used to swallow his offspring until Zeus escaped that fate by his mother's ruse (cf. Egyptian Nut daily swallowing her child, the sun).

- The underworld as the dwelling of the deceased is similar to the ogre's belly, and very rarely does a protagonist effect a rescue from this place – the motif of Orpheus', Inanna's, and Jesus' descent into hell, the first couple according to Japanese mythology, etc.
- In these two cases there is only virtual or symbolic eating, and the emphasis is on confinement and liberation; however, the latter notions may give way to a cannibalistic motif stressing true anthropophagy
- The imprisonment may be merely spatial, no longer corporal, so that it becomes imprisonment in a room (e.g. Isis' weaving chamber, cf. Penelope's; Bluebeard's room...)
- Close to the cosmogonic notion of the liberation of Being is that of the Cosmic Egg, in which all potentialities are contained, only to be released at Creation; and the Egg may be replaced by other sealed carriers of generation, such as a seed, a nut, etc.
- The Cosmic Egg theme may have shed its cosmogonic connotations, merely retaining the idea of contained potentialities – and then it becomes the magic box locked with unrevealed contents (Pandora's – her box was initially a vase), or a coffer or coffin like the one Set tricked his hated brother Osiris into, St Patrick who lures a snake (no doubt, the Rainbow Snake i.e. Adversary!) into a box and drowns it, or the wind god's bag full of winds
- The cosmogonic aspects of the ogre motif may merge with the idea that it is from inside the Earth, from the underworld, that all being originates, and then we have arrived at the cosmogonic motif 'From the earth'

Clearly, the ogre motif is very complex. It can be said to form a 'poor men's' or bowdlerised version of several of the most fundamental myths of humankind. Normally we would prefer to classify these various implied myths under a number of clearly distinct NCs, but here they turn out to intersect and proliferate in ways that bring out the limitations of all classification, especially in comparative mythology. Considering the complexity and their implication of so many different NCs, it is probably not very useful to try and map out the distribution of the ogre motif: we never now which aspect is stressed, and which underlying NCs may be implied.

The unsatisfactory results of an earlier attempt of mine to map out the distribution of the ogre NC (Beijing 2006) are probably due, not so much to a deficient data base (although there is that problem, too), but to the multidimensionality and secondary nature of the ogre NC.

¹⁶ E.g.: The Polynesian myth of Tangaroa and Turi-a-faumea, who fished the sea monster Rogo-tumu-here up and hacked it to pieces, after it had swallowed Tangaroa's daughter-in-law [elsewhere named as Hina-rauriki].

Fig. 27 specifies what sources are at my disposal for the analysis of the 'ogre' NC 6.

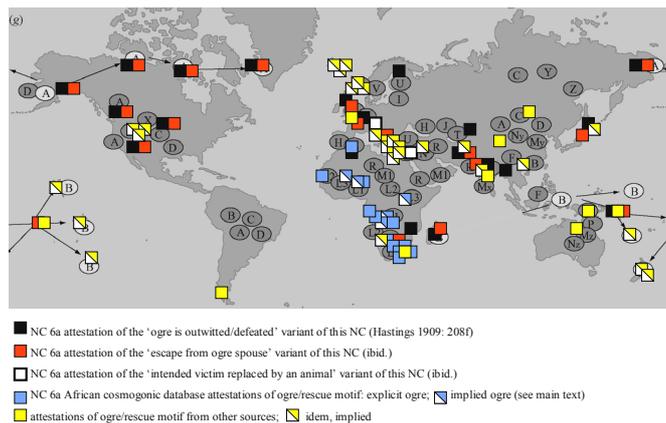


Fig. 27. Distribution of various types of NC 6: Rescue from the Ogre.

After discarding those cases where the 'ogre' motif is merely implied (see legend), and after lumping the remaining cases in one single category (once more, this kind of comparative mythology thrives by simplification, which is also its greatest defect), we are ready to try and reconstruct the historical pattern, if possible in association with a genetic type. The result is Fig. 28:

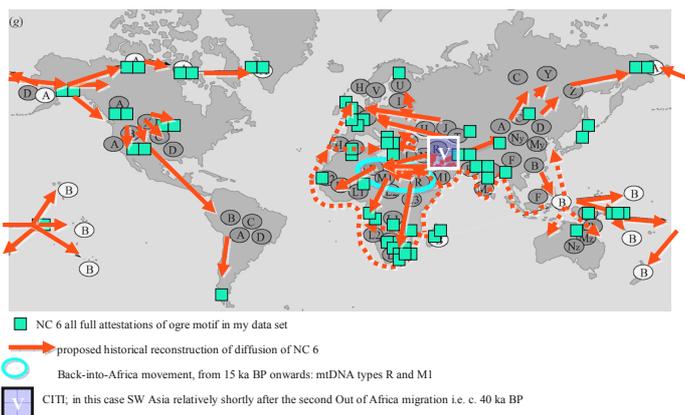


Fig. 28. Historical reconstruction of NC 6: Rescue from the Ogre.

NC 6 is clearly transmitted in NE Asia, Oceania, and N/S America in combination with mtDNA types A and B (both!). These two types only emerge in Central Asia c. 40 ka BP, both from type N. The fact that both types A and B are capable of transmitting NC 6 into NE Asia, Oceania, and N/S America suggests that in fact NC 6 was already present in the common ancestor of types A and B, notably N. It is mtDNA types N and M that carried the contents of Pandora's Box out of Africa. Subsequently, types M and N were widely distributed in E and SE Asia, New Guinea and Australia.

The Khoi-San attestations are likely to have a Central Asian rather than African (in the sense of pre Out of Africa) background; but even so they may echo very ancient motifs carried out of Africa by N -- so in principle they may still reflect pre Out of Africa motifs, i.e. the contents of Pandora's Box. Therefore, NC 6, however heterogeneous in its manifestations in historical times, is extremely old (at least 40 ka), which is when we can trace it to Central Asia; we still have to

ascertain whether NC 6 emerged at that moment in Central Asia, or have an even earlier history, in West Asia or in Africa, as part of Pandora's Box.¹⁷

To these contradictory implications in the sub-Saharan African attestations we must add the possible influence of the Back into Africa migration, of which the Khoi-San cases offer clear examples; but so do the Masai. Moreover, nearly all other African attestations are in the Niger-Congo realm, which I consider permeated with Back into Africa elements.

The Dogon attestation of NC 6 is interesting. Willis has identified that particular (mainly northern) section of the Niger-Congo speakers who do not belong to the Bantu-speaking sub-family, as particularly rich in elaborate and sophisticated mythologies that, he says, rival those of West Asia and Ancient Europe. The Dogon are a case in point, and remain so, even when we compensate for the scholarly critique that Griaule and Dieterlen's accounts of the Dogon have elicited. I am inclined to see this section of non-Bantu Niger-Congo speakers are largely a manifestation of 'Back into Africa' effects, and do not consider the ogre element here as a genuine and reliable indication of pre Out of Africa mythology.

By the same token, the many attestations of NC 6 from among Bantu speakers I would consider a Back into Africa effect rather than a revelation of pre Out of Africa mythology. All attestations, even those in the interior, are conveniently situated on the hypothetical routes of Sunda expansion.

An important consideration in my decision to deny NC 6 inclusion in Pandora's Box is given in the above introduction to this NC. Clearly, the ogre theme is complex, contradictory, multidimensional, and secondary rather than original. It is not a NC in its own right, but the simplified, bowdlerised, 'poor man's' echo of purer and more original NCs. One could imagine that this is the form in which cosmogonic myths, featuring the Primal Waters or the origin of Being from inside the earth, where cast in a simplified form suitable for the consumption by non-initiates or neophytes.

Overlooking the evidence and the above chain of considerations, I propose to situate the origin of NC 6 in West to Central Asia, c. 40 ka BP, in the context of mtDNA type N, where it was a derivative from more fundamental NCs, notably those of 'the Primal Waters' (= NC 11) and of 'the Earth' (= NC 10), both in Pandora's Box. With this great antiquity, and its close affinity with fundamental NCs which themselves did originate from Pandora's Box, it stands to reason the NC 6 followed the subsequent expansion of Anatomically Modern Humans. Thus this NC 6 ramified all of Eurasia, where it can be found either as implied or in full form featuring a literal ogre. Expansion into NE and SE Asia, the Americas, and finally Oceania was largely due to the spread of Anatomically Modern Humans specifically carrying mtDNA types A and B. Spread into Northern and sub-Saharan Africa was partly (perhaps largely) due to the Back into Africa migration from Central and West Asia; but, throughout Africa, also with the added effect of the Sunda migration.

The latter may also have helped, to some extent, to disseminate NC 6 in North Africa, Western Europe (especially Nordic Europe), and the Eastern Mediterranean especially the Aegean.

¹⁷ Probably the details of the distribution of NC 6 have a bearing on the Sunda model, which however I cannot discuss in our present scope; cf. van Binsbergen 2007b.

6.6. Concluding

Thus we have seen how for a few selected NCs their situation in space and time becomes much more transparent once we make the association with the differentiation of genetic types, as recently established by molecular genetics. However, such association also brings out the limitation of our model, and the – sometimes massive – influence of contamination as a non-systematic factor upsetting the neat systematics of the model. Against this background, let us now see what this genetic elaborated does to our proposed pattern of Contexts of Intensified Transformation and Innovation.

7. Contexts of Intensified Transformation and Innovation (CITIs)

Already in this model's earlier version it was clear that the unfolding of world mythology turns out *not* to be a gradual process evenly spaced out along the migration routes of Anatomically Modern Humans. On the contrary, a limited number of Contexts of Intensified Transformation and Innovation (CITI) can be discerned, in which specific new NCs emerge, in a spasmodic and far from mechanical process. The overall pattern is represented in Table 2. This table tentatively situates CITIs in space and time, indicates for each particular CITI the specific NCs that find their origin there, tentatively indicates the MtDNA type apparently associated with that CITI, proposes the specific trigger mechanisms that may help to explain the rise of each CITI from its historic context, and tentatively indicates the linguistic groups identified with each CITI.

Some of these CITI may be associated with the emergence of new modes of production (e.g. CITI VI, with the emergence of Neolithic food production)

By and large, these CITI coincide with the contexts in which significant new linguistic families have arisen (among others, proto-Khoi-San, proto-Dene-Sino-Caucasian, and proto-(Mega-)Nostratic (Kaiser & Shevoroshkin 1988), and the further differentiation of the latter into, among others, proto-Indo-European, proto-Afro-Asiatic, proto-Niger-Congo, and proto-Nilo-Saharan. (Of course, the latter three languages together with Khoi-San sum up the language map of Africa in historical times.)

Earlier, I believed that my method allowed me to identify only three NCs in Pandora's Box: 10 the Earth, 4 the Lightning Bird (and its Egg), and the 13 Rainbow. Further attempts to establish the specific global distribution of each NC, now lead me (for reasons I can only discuss at length in forthcoming papers) to identify three more NCs as probably having belonged to the original mythological package with which Anatomically Modern Humans started out on the Out-of-Africa exodus: 9. The Moon, 12. From Under the Tree, and 15 (the Spider) – although the latter was much redefined towards the feminine arts, in the proto-Neolithic.

A dramatic further step, but which I am not ready yet to take, would be to try and model in detail how the various NCs are not just innovations emerging and existing detachedly side by side, but how some of them may be argued systematic transformations of certain others, particularly of the NCs that were already available in Pandora's Box. For

some NCs this would not be so difficult, for instance, if we see NC 2 'The reconnection of heaven and earth (after separation)' become the most prominent NC in mythologies throughout the Old World from the proto-Neolithic onwards, we might admit that prototypes of such a connection have been available, throughout, in some of the NCs among the extended set we now discern in Pandora's Box: Lightning, the Tree, the Rainbow, and the Spider, are all pressed into service as cosmological imagery of the connection of heaven and earth, even though they were much older, and initially independent from NC 2, and even if a developed notion of heaven as a distinct realm in its own right, may be argued to be relatively late (I take it to be a fruit of NC 16: shamanism (see table 2). By the same token, NC 6 (Escape from the Ogre) – which is an image of birth/coming-into-being, but also of rebirth i.e. escaping death and burial – could be seen as a transformation of NC 10 (The Earth). And so could NC 8 (The Stones), so much so that I did not even bother to reserve a separate place for NC 8 in Table 2.

The most recent of these CITIs are the ones connected with Neolithic food production through agriculture and animal husbandry. Here the NC of 'The Reconnection of Heaven and Earth' emerged (among others), whose richly elaborated ramifications (in such themes as creation, kingship, salvation, human conception and birth, the origin of death, etc.), often with shamanistic overtones borrowed from NC 16, are found – cf. extensive tables in van Binsbergen n.d. – all over the Ancient Near East including Ancient Egypt, the Indus valley, China, Ancient Europe, and (as a result of the 'Back-into-Africa' movement) much of Africa.

As a result, the African continent today combines (and I shall come back to this point below) a genetically highly diverse and relatively ancient Anatomically Modern Human population with, largely, a relatively recent mythology that is in striking continuity (pace Witzel 2001) with the rest of the Old World.

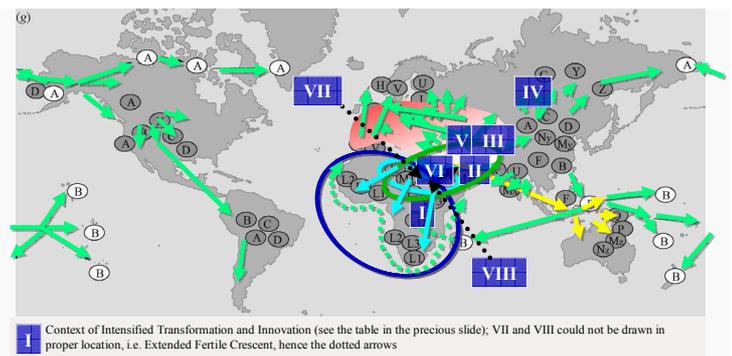


Fig. 29. Synthesis: Contexts of Intensified Transformation and Innovation in the history of mythology among Anatomically Modern Humans
the symbols used are in line with preceding diagrams, and explained there

Contexts of Intensified Transformation and Innovation (CITI)		Narrative Complex (no. and description)	mtDNA type of AMH community launching this Narrative Complex	Proposed trigger (much further reflection needed)	tentative linguistic context
in time	in space				
I. Pre-Out-of-Africa Middle Palaeolithic 80,000 BP and earlier	Sub-Saharan Africa	'Pandora's Box': the original mythical package, perhaps containing: 4. The Lightning Bird (and the World Egg) 9. The Moon 10. The Earth as primary (10 was subsequently revised towards cattle, in the Neolithic) 12. From under the Tree 13. The Cosmic / Rainbow Snake 15. The Spider (and the feminine arts, a subsequent revision in the proto-Neolithic)	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 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 If this last point is plausible, then the earliest phase in the overall process is in itself myth-driven	Proto-Human
II. Middle Palaeolithic, c. 70,000 BP, Route A	West or South Asia	5. The Mantis	N and/or M	venturing along the Indian Ocean coast from Africa to SE Asia is likely to have produced new challenges and to have given access to new opportunities, e.g. new and more sophisticated tools	Proto-Khoi-San
III. Middle Palaeolithic, c. 40,000 BP, Route B	W or C Asia	16. Shamanism, bones	N (H, A, B)	shamanism is associated with detailed naked-eye astronomy which was an asset to hunters (orientation away from home, seasonality) even before it became an asset to agriculturalists. More important probably was that the vertical worldview of shamanism, with the shaman's privileged (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. One of the triggers may have been Neanderthaloid influence in SW Asia	Proto-Dene-Sino-Caucasian?
IV. Middle Palaeolithic, c. 35,000 BP, Route B	C N Asia	11. The Primal Waters and the Flood	B (out of N)	perhaps a historical inundation catastrophe? (temperatures had been slowly declining since ca. 150 ka BP therefore rise of sea level due to melting polar caps (as in early Holocene, 10 ka BP) not applicable); perhaps here again Neanderthal influence?	?
V. Middle Palaeolithic, c. 35,000 BP, Route B	West Asia?	6. Escape from the Ogre	weak association with B and A	Neanderthaloid influence?	?
VI. proto-Neolithic c. 10,000 BP	Extended Fertile Crescent	2. The Connection between Heaven and Earth (after separation) 19. The Cosmogonic Virgin and her Son/lover	R and M1	Well-established 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	Proto-(Mega-)Nostratic
VII. Neolithic or Bronze Age c. 5,000 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	(proto-)Afro-Asiatic, Indo-European, Niger-Congo (Bantu), Nilo-Saharan
VIII. Neolithic to Iron Age c. 3,000 BP	Extended Fertile Crescent	14. Fundamental Duality		?	(AA and IE, cf. genus in language)

Table 2. Contexts of Intensified Transformation and Innovation (CITIs) in the history of world mythology among Anatomically Modern Humans (AMH): Their tentative situation in space and time, the Narrative Complexes emerging in each CITI, the mitochondrial DNA types associated with each CITI, possible trigger mechanisms for each CITI, and possible association between each CITI and major linguistic families.

8. Revision of the theory as compared to earlier versions

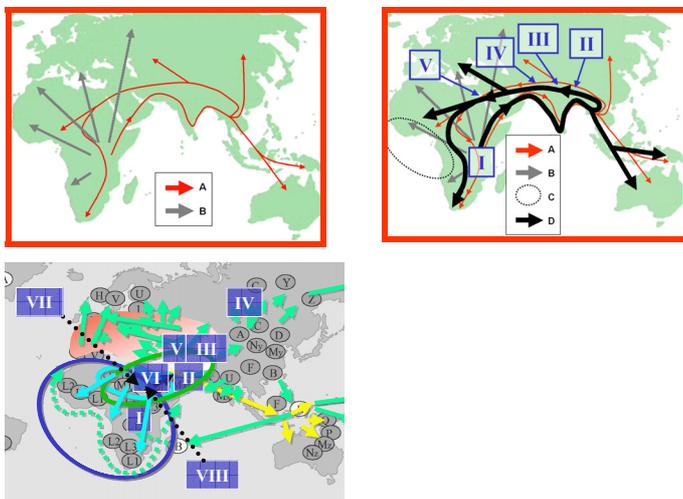


Fig. 30a, b, c. Discarded (2005, top row) and presently proposed model (bottom)

Further reflection on the contradictory empirical implications of my 2005 model, and more extensive perusal of the genetic and archaeological literature, now leads to extensive revision. Route A has now been differentiated into A1 and A2, c. 15 ka apart and fundamentally different: A1 to Australia and New Guinea, then abortive; A2 to C. Asia, the rest of Asia, and the rest of the world, and continued till today. The neat one-dimensional hairpin line has been replaced by a much more complex set of vectors, but ultimately, the original idea of eastbound movement out of Africa, followed by westbound movement back into Africa, has been retained for A2. The hairpin curve is not so conspicuous anymore, the path is somewhat fuzzier and broader, and the turning point now is supposed to lie in C Asia instead of SE Asia (as in the original version), but the basic outline of the model has survived, still implying massive Asian contributions to latter-day African mythologies.

Initially I restricted the pre-Out-of-Africa mythological package to very few elements, between which a narrow local connection could be argued, the Threesome (Trinity) :

- The Earth,
- the Lightning Bird (and its Egg)/Rain,
- and the latter's adversary, the Cosmic / Rainbow Snake

Further scrutiny and adduction of intercontinental comparative material suggests that Pandora's Box may be considered as more extensive and more heterogeneous, also comprising:

- From under the Tree
- The Moon
- The Spider

Another correction is that the time scale of the Out-of-Africa migration, turns out to be substantially compressed (from 140 ka to 80 ka), as is the temporal distance between Route A and B (from 100 ka to a mere 15 ka)

'The Mantis', which I initially considered a very recent theme situated at the moment of Khoi-San immigration into Africa from West Asia (10 ka BP), is relegated to a position of high antiquity, as part of Route A2.

'Primal Waters and the Flood' could be more precisely and convincingly situated in time and space (Central Northern Asia, 35 ka BP), revealing a much older, and more northerly origin

Also, the link between detailed genetic history of Anatomically Modern Humans, and the history of specific NCs (= coherent groups of mythemes) has now become much more clear and convincing – also in its limitations.

In the process, the contents of Pandora's Box, inside the African continent, has substantially increased

This implies a dramatic increase of the proposed impact of pre-Out-of-Africa material upon world mythology

By the same token, I was able to discard my initial impression that African mythologies in historical times are merely innovations and transformations, made in Asia, of Pandora's Box – which would have placed Africa once more in a position of receptive dependence. If 6 out of 20 NCs in latter-day African cosmogonic mythologies were in Pandora's Box, this strongly suggests that at least their latter-day presence in sub-Saharan Africa is primarily due to retention on African soil, and only secondarily to the 'Back into Africa' migration from Asia.

These changes led to new formulations, in space and time, of specific CITIs in the history of world mythology; and new associations between CITIs, genetic markers, language (macro-)families, and possible triggers in this process.

Another alteration in the model is that now it is less unilinear and mechanical. In the earlier version the whole of mythical history was forced into the straightjacket of one, recursive (hairpin-like) movement, Route A. The new version is somewhat more truly historical, in that movement is more multi-directional, and multi-factored.

Of course, it has been the extremely ambitious conception of my project in scope (200 ka, global, not just isolated mythological themes but the whole of mythology) which has necessitated substantial revisions so soon after the model's first formulation; the earlier versions were premature, but the present, hopefully more balanced version could only be formulated once the earlier ones had been made explicit, and had found initial peer and institutional support.

9. The dilemma of Africa in recent millennia: relatively ancient genes, but (due to the Back-into-Africa migration from 15 ka BP onward) largely 'recent' mythologies

Our most recent CITIs is the one preceding and facilitating Neolithic food production through agriculture and animal husbandry. Here the Narrative Complex of 'The connection of Heaven and Earth' emerged (among others), whose richly elaborated ramifications (in such themes as creation, kingship, salvation, human conception and birth, the origin of death, etc.), often with shamanistic overtones, are found all over the Ancient Near East including Ancient Egypt, the Indus valley, China, Ancient Europe, and (as a result of the 'Back-into-Africa' movement) much of Africa. Consequently, the African continent today combines a genetically highly diverse and relatively ancient Anatomically Modern Human population with, largely, a relatively recent mythology that is in striking continuity¹⁸ with the rest of the Old World.

Genetically, the 'Back-into-Africa' return migration as from c. 15 ka BP was superimposed upon the populations that had remained in Africa and that had greatly diversified there, probably before, but certainly after the Out-of-Africa exodus.

By the same token, we may assume that, in the course of the 'Back-into-Africa' return migration, mythological (as well and more general cultural and linguistic) transformations and innovations from Asia were fed back into the African mythological etc. scene.

The extensive inroads, into Africa, of more general Old World later NCs in the wake of the 'Back-into-Africa' return migration, are associated with all four African linguistic families without exception (including the Khoi-San speakers, whose ancestors Cavalli-Sforza has convincingly traced to Central or West Asia, 10 ka BP).

The last point suggests that in the mythological, cultural and linguistic fields, the effect, upon present-day Africa, of the 'Back-into-Africa' return migration were far more substantial than in the genetic field. It is not impossible to identify relatively old clades, and perhaps Palaeo-Africans such as certain Pygmy populations – demonstrated (Cavalli-Sforza) to have been separate from their neighbours for (only) 25 ka. (Khoi-San speakers are not Palaeo-Africans, of course.) Linguistically and culturally, these older elements today only appear as mere fragments, and never as intact comprehensive complexes. Even 'Palaeo-African' Pygmies are linguistically and mythologically hardly distinguishable from their full-size neighbours, whose mythologies and languages are dominated by Back-into-Africa effects.

Since the 'Back-into-Africa' migration came in from the North East and South East, the half of the African continent adjacent to the Atlantic Ocean (i.e. West) is likely to have retained most of some 'pre-Out-of-Africa', 'pristine' cultural (including linguistic and mythological) traits, even if only in fragmented form.

Here Frobenius (1931, 1993) has identified systematic indications to that effect – converging with my own recent research into leopard-skin symbolism (van Binsbergen 2003, 2004b).

¹⁸ Contrary to the otherwise excellent and path breaking argument in Witzel 2001, which I have already discussed in detail in my Kyoto paper, van Binsbergen 2006a; elaborate conclusive evidence for my claim here is to be found in van Binsbergen 2007c.

However, we are now in a position to suggest a new and more positive appreciation of Witzel's (2001) distinction between Gondwana (Africa/Australia/New Guinea) and Laurasian (rest of the Old World, and the New World) mythologies:

- Witzel's Gondwana complex largely corresponds with the NCs emerging in Africa in the Middle Palaeolithic largely as part of Pandora's Box
 - Whereas his Laurasian traits contain a selection of NCs developed in the subsequent course of the history of world mythology,
 - partly outside Africa,
- but (notably, as from the proto-Neolithic onward) also inside Africa, in communality and continuity with West Asia (and perhaps SE Europe, depending upon definition) within the Extended Fertile Crescent.

10. The allegation of Afrocentrism

In line with the Out-of-Africa hypothesis now generally accepted by specialists in human genetics and palaeoanthropology, my model accords a central place to the African continent, as the cradle of Pandora's Box including its mythological contents. To some East Asian critics, this may imply slighting the mythological achievements of their part of the world (but not how I relegate much of *today's* African mythology to Asian sources!); and to critics from the North Atlantic, this may smack of Afrocentrist ideology. Is not my insistence on the African origin of world mythology an attempt to restate, with the deceptive trappings of scientific methodology, the Afrocentrist claim of 'Africa as the mother of all culture'?¹⁹ Such a claim seems so much a reflection of the marginalisation and exploitation of Black peoples in recent modern history that one would be justified to take it less seriously as an objective, detached factual statement. My interlocutors' question is all the more worthy of consideration because, in recent years, I have repeatedly²⁰ advocated Afrocentrism as containing – despite its *admittedly* defective scholarship and ideological orientation – some kernel of objective scientific truth open to methodological empirical investigation.

The answer to my interlocutors' well-taken question comes in a number of steps, and it will be negative:

1. The first step is that we admit that state-of-the-art genetic research, aided by long-range approaches in the linguistic, archaeological, ethnographic, and mythological domain, now allows us to reconstruct the earliest global history of humankind in unprecedented detail – and that the evidence happens to point, overwhelmingly, to the pivotal place that the African continent has played in those early periods. In this respect there is no ideology involved in my above argument, except in two respects, neither of which disqualify our position:
 - a. it was the geopolitical ideology of a past era (an era characterised by European imperialism, and the attending racism and

Eurocentrism) that never allowed us to seriously consider such a honourable place for Africa before – but now we have left that hegemonic ideology behind;

- b. we agree (and this is surely ideology, but permissible among scholars) that state-of-the-art scientific methods constitute at least one possible intersubjective road to truth
2. The second step is the realisation that, under no conditions, are we allowed to project today's ideological and identity distinctions and positions onto Lower to Middle Palaeolithic origins in the African continent. (Incidentally, let us not forget that the name 'Africa' has a capricious and erratic history. Whereas the oldest attestations of Africa/ Ifriqa applied to regions both in West and Central Asia and the Central North African littoral, it is only through a process of extreme aggregation that the name Africa came to be applied to the Old World's entire major south-western landmass – a development originating only in Late Graeco-Roman Antiquity, and mainly consolidated in Early Modern Europe.) If Anatomically Modern Humans originated in the African landmass c. 200,000 BP, and from there spread out to other continents from 80,000 BP on, that makes *all now living humans* into 'Africans', but only in such a nominal sense as to make the designation 'African' meaningless. The extremely small trickle of Anatomically Modern Humans who left Africa c. 80,000 BP were not Africans in our modern sense; not any more than that those they left behind in the African continent, were Africans. The cultural orientation of both groups of humans at that time (the Lower Palaeolithic!) was originally shared with all other Anatomically Modern Humans, and in that sense could not be meaningfully designated as 'African'. And beyond their general belonging to Anatomically Modern Human stock we know nothing of their specific outside physical characteristics, including those external physical features (skin pigmentation, hair texture, nasal anatomy) that may or may not have made them look like certain relatively conspicuous types of *modern* Africans. Most likely, these particular sub-species phenotypical characteristics were a product of local ecological adaptations and emerged long after the Out-of-Africa Exodus. By contrast, the mobilising identity appeal of Afrocentrism refers to the perception and the redress of recent wrongs, experienced by Black people over the last few centuries (or at the very maximum the last few millennia); these retrace their claimed African background to ancestors living on African soils in recent centuries, before forced intercontinental migration in the course of the slave trade, followed by voluntary intercontinental migration in the late 20th century CE. *The frame of reference of Afrocentrism is entirely modern, on a time scale that encompasses less than 1% of Anatomically Modern Humans' life span of 200,000 years.* It would be nonsensical to appropriate the views expounded in the present paper as a corroboration of Afrocentrist claims relating to modern global history; it would be equally nonsensical to denounce my argument on the grounds that it smacks of Afrocentrism.

¹⁹ Cf. ben-Jochanan 1988. Other major works of Afrocentricity include: Asante 1990; Winters 1994, 1996; van Sertima 1985; Van Sertima & Rashidi 1988, to mention only a few. The critical literature on Afrocentrism is equally massive, and includes works like Fauvelle 1996 (about Diop as a major inspiration of the current Afrocentric movement), Fauvelle et al. 2000; Howe 1999; Lefkowitz 1996.

²⁰ Cf. van Binsbergen 1997, 2000a, 2000b, 2005a.

- Point (2) presses all the more since, as a third step, we have to recognise that the model advocated in the present paper implies, if anything, a radical deconstruction of any notion of African essentialism. The recognition of a considerable return migration Back-into-Africa from c. 15,000 BP onwards, means that genetically, linguistically, culturally and mythologically, there is *the empirical fact* of very marked continuity between modern Africans, modern Asians and modern Europeans. This makes any celebration of an African identity as much a source of pride and self-construction as any other regional and (sub-)continental identity, but no more than that, and always against the background of the overarching unity of Anatomically Modern Humankind as a whole.

11. Conclusions: Implications of my model for comparative mythology

11.1. Suggested merits of the proposed theory

The resulting *aggregative diachronic approach to world mythology* might appear to be a mere house of cards – a myth, perhaps, in its own right.²¹

However, the present theory's claims to scholarly merit appear not exactly negligible.

It does take into account much comparative state-of-the-art evidence from a variety of disciplines.

I am not aware that it selectively obscures contradicting evidence, but on this point I need the critical feedback from my peers.

It throws light onto hitherto unexplained continuities and affinities within and across continents, even if this goes against inveterate geopolitical stereotypes.

- Such as the assumption that the African continent has always been peripheral to, or even (Hegel) excluded from, global cultural history
- Or the conviction (cf. the xylophone debate from Jones 1964 to Oppenheimer 1998 and Dick-Read 2004) that E and SE Asian cultures including mythologies could not have left substantial traces on present-day sub-Saharan Africa

Contrary to a house of cards, it is internally coherent and will not collapse as soon as one constituent element is replaced or removed; the latter is demonstrated by the considerable changes that had to be made, and (in the present paper) could be made, in the model's details since it was first formulated in 2005.

And most importantly, the model suggests fascinating paths for further research, which will surely enhance our insight even if at the cost of rendering obsolete the present model that has prompted them.

Let me end with a list of specific points: real or imagined achievements of the present model, items for an agenda for further research, and points of admitted weakness and doubt.

1. First a disclaimer: as an Africanist, I have only a limited comparative grasp of world mythology, on the basis of often obsolete and incomplete data. This partly accounts for many omissions and for much one-sidedness, which the present paper no doubt displays and which regional specialists on other continents are invited to spot and redress
2. Yet it appears possible to design a coherent aggregative diachronic approach to world mythology
3. By linking genes (mtDNA types) to Narrative Complexes we may even trace the early world history of specific myths in some detail, and pinpoint their place and time of origin
4. Such an approach is, moreover, in line with more or less state-of-the-art genetics, linguistics and archaeology/palaeoanthropology; yet here again, my amateurish appropriations need the critical input from experts in these respective fields
5. In the genetic field, a possible confusion must be avoided: if I (and others before me, e.g. Villems; and by general implication, Witzel) link mythical themes to genes (mtDNA types), we are not saying that mythical content is enshrined in genes instead of culture; all we say is that a specific human community, identifiable by specific genes, is postulated as the original owner and transmitter of that specific myth.
6. Yet we must look again at long-range mechanisms (perhaps including biological mechanisms) of cultural inertia and retention, in order to explain a chief finding of my approach: *the persistence of mythical themes across tens of ka*; neither our own cultural experience today, nor standard anthropological theory, has prepared us for this finding
7. We must also keep in mind that not all aspects of even quite early history of world mythology may be traced by genetic markers of the owners and transmitters of myths (e.g. Oppenheimer's 1998 postulate of diffusion of Flood myths to the Ancient Near East, Europe, and the Indo-Iranian region, where the obvious original owners of that myth, marked by mtDNA B, are inconspicuous)
8. Our analysis is based on aggregated mythemes ('Narrative Complexes', NC) in a corpus of cosmogonic myths attested in sub-Saharan Africa in historical times; even regardless of the regrettable simplifications involved, this is not an exhaustive set of all NCs in African mythology, let alone of all NCs in world mythology. Additional NC may be discerned even in our African data set (e.g. the theme of the trickster could be made into a NC in its own right), and there is much room for further research

²¹ In passing we note that the same can be said of all pre- and proto-historical reconstructions! Whoever finds this an intolerable condition may be reminded that the field of scholarship does not necessarily coincide with that of science; and that both fields are pluralistic, fragmented, and open to negotiation and paradigmatic change.

9. The approach nicely brings out a point that in the conflict-torn, globalising world today may prove to have unique and indispensable survival value: the cultural unity and shared cultural history of us, Anatomically Modern Humans
10. This topical relevance may be the approach's saving grace, but of course may also be construed to be a disqualifying ideological slant.
11. Perhaps some NCs are older than Anatomically Modern Humans, as is suggested by some of our Lower and Middle Palaeolithic visual material above (Fig. 3), as well as the intriguing Neanderthal connection.
12. Much light is cast on parallels and continuities which more local or regional, and more presentist approaches to comparative mythology are unable to explain, e.g.
 - a. The close parallels between African and North American mythology, especially in regard of themes that I have identified as part of 'Pandora's Box': the initial mythical repertoire of Anatomically Modern Humans before setting forth 'Out-of-Africa' (see point 15 below)
 - b. The amazingly wide, yet far from global, distribution of Flood myths, whose place and time of origin I could rather precisely identify (North Central Asia, 35 ka BP), and the paths and mechanism of whose subsequent spread I could spell out in a way that accounts very well for the distribution – however capricious – of this mythical complex in historical times
 - c. The near-ubiquitous themes of 'the Adversary' and of 'the Threesome (the Trinity!)', which (as stories conveying basic logical operations) appear to go back to Pandora's Box
 - d. The extensive continuities between the mythologies of the Ancient Near East, Ancient Egypt, Graeco-Roman Antiquity, the Indo-Iranian region, Ancient Northern Europe, and (as uninvited guest in most world mythology) sub-Saharan Africa – communalities that are adequately explained by
 - The accumulative effects of world mythology development between the Out-of-Africa Exodus and the Neolithic in West Asia
 - The Back-into-Africa migration
 - The seething of cultural (including mythological) innovation across a vast region, extending from the Indus to the fertile Sahara, in the proto-Neolithic
 - The subsequent diffusion of these innovations, concomitant with the spread of Afro-Asiatic, Indo-European, Niger-Congo, Nilo-Saharan, and Khoi-San.
13. *Towards transcontinental long-range intellectual history.* The emerging long-range perspective with its obvious explanatory power adds an indispensable extra dimension to merely local/regional and presentist or a-historical approaches.
 - a. We will no longer be so thrilled by approaches (common, e.g., in Africanist mythological studies and in religious anthropology) seeking to explain a particular myth by reference to merely local, merely present-day social and religious organisation alone
 - b. For the formal comparison of myths, Lévi-Straussian structuralism continues to offer essential tools. Also, instead of denouncing his 'empty' rationalism, we are aware of the logical operations implied in, e.g., the mythical Pandora's Box. However, the present approach offers a coherent and elaborate historical model that may help liberate structuralism from its timelessness, and that allows the content implications of specific, enduring NCs to set limits to (as Lévi-Strauss has it) the free play of some timeless human ratio – and that allows us to look for pre- and proto-language forms of myth
 - c. By the same token, this approach adds a grounded and detailed, long-range historical corrective to the tendency, among historians of religion, to a-historically jump from concrete religious (including mythical) phenomena to timeless (near-) universals.
 - d. Martin Bernal's Black Athena thesis (1987) posits a model of Aegean dependence (also mythologically) from Ancient Egypt, within the limited time frame of the Late Bronze Age, and the regional frame of the Eastern Mediterranean. It converges with other Afrocentrist approaches (e.g. Diop), which substitute 'sub-Saharan Africa' for Ancient Egypt, and 'Europe' for 'Ancient Greece, and hence claim decisive cultural dependence of European (by extension North Atlantic, and global) culture from post-Neolithic Africa. Laudable (van Binsbergen 1997) as a pioneering critique of Eurocentrist scholarship, yet Bernal's model must be faulted as myopic in space and time,

as Egyptocentric, and as unidirectional and monocausal. Rather than being directly dependent from one another in the mythological field, Greece, Egypt, and sub-Saharan Africa all participated in, and benefited from, the extensive communalities evoked above under Conclusion point 12d; these communalities informed the entire Extended Fertile Crescent (Sahara to Indus), and had been building up over a dozen of ka, against the background of the entire cultural (including mythological) history of Anatomically Modern Humans.

14. *Further pitfalls.* Dealing with a domain of human culture where the boundless flight of the imagination manifests itself perhaps more than anywhere else, our greatest mistake would be to expect a world history of mythology to be straightforward and simple. On a number of counts we have noted major contradictions that upset transparent modelling and represent a constant risk for our models to collapse:
 - a. The ‘Out-of-Africa’ model would promise a clear temporal and spatial progress, but it is muddled by (i) the (genetically unmistakable) feedback ‘Back-into-Africa’ movement; (ii) by the amorphous trickle of diffusion directly from Africa to the north (path B), regardless of the spread of Anatomically Modern Human genes; (iii) by further diffusion from one point along path A2 to another, in other words, by *contamination*. As a result fundamental uncertainty arises as to whether specific individual traits may be reckon as belong to Pandora’s Box, or only ended up in Africa (and by extension in West Asia and S and W Europe) as mere feedbacks from (SE) Asia
 - b. By the same token, what would appear to be a ‘pristine’ region of relatively intact ‘pre-Out-of-Africa’ traits, notably the Atlantic side of sub-Saharan Africa, can also be considered a region where, through nautical contacts, Asian feedback is particularly marked
 - c. Sometimes a particular pattern of mythological traits brings us to postulate, for a particular region, a layered accumulation of converging effects dating from very different periods; e.g. for the NC of the Spider (and the feminine arts), we reconstructed the Spider as part of Pandora’s Box, but the subsequent reformulation in terms of the feminine arts as Neolithic (as possibly as Sunda related) – both effects occurring, and reinforcing each other, in Western sub-Saharan Africa in historical times.
15. ‘Anti-Wegener’:²² *The remarkable rapprochement between Africa and the Americas.* Another such interpretational puzzle is posed by the mythological parallels that so often appear, in our above analysis, between sub-Saharan Africa, and the New World (especially N America). In our Beijing 2006 conference, the same parallels were stressed independently by Yuri Berezhin, on the basis of an enviable wealth of finely classified and well referenced distributional data. But for years already I have been familiar with, and have drawn attention to, these parallels from the domains of cleromantic divination and female puberty rites, even before exploring them in the mythological field.
 - a. An overland connection starting from Central Asia c. 15 ka BP, NE to the New World and SW to sub-Saharan Africa would take care of these connections, but would have a number of disadvantages:
 - b. For all African/American elements involved, we would be forced to take them out of Pandora’s Box and instead attribute them to relatively recent ‘Back-into-Africa’ cultural flow (especially for puberty-rites and for Spider myths this would be unattractive)
 - c. But the alternative is also puzzling: even if we heed the old familiar law according to which primitive traits tend to be preserved better in the periphery than in the centre (and clearly, our analysis has shown that both the Americas and sub-Saharan Africa have been peripheral to world mythology in the last 10 ka), how can we expect the relatively recently populated New World to retain or revive so many elements from Pandora’s Box?
 - d. With American mt DNA types A, B, C and D (producing type X in the New World), and M1 and R feeding ‘Back-into-Africa’, we would not be able to pinpoint a genetically marked population to connect America and sub-Saharan Africa back to Central Asia 15 ka BP
 - e. By the same token, linguistically the overall remoteness between Africa and America is brought out by the disparity between
 - f. North American language families (with Dene-Sino-Caucasian as the

²² A pun: a century ago, Wegener explained the present shape of continents with his theory of continents drifting apart – albeit on a scale of dozens of millions years, not (like in the present case) ka.

- most conspicuous continuity with Central Asia), and
- g. Niger-Congo, which only the most generous lumping would admit as Mega-Nostratic (Kaiser & Sheveroshin 1987)
 - h. Both (1) and (2) being very tangential, at best, to the most comprehensive, 'Borean' macrofamily.

One way of settling this dilemma, is to play down the extent to which Niger-Congo speaking cultures as attested in historical times, may have retained 'pre-Out-of-Africa' traits, and instead to stress their continuity with the Extended Fertile Crescent and the 'back-into-Africa' movement; in other words, again the adage 'old genes, modern myths' for sub-Saharan Africa. But, within our present argument, there is a very clear limit to such an explanation: for after all, my analysis is based on a data set of sub-Saharan cosmogonic myths, in which we have argued that some 'pre-Out-of-Africa' elements may be identified, and their subsequent global diffusion and transformation traced.

Another way out to explain the unmistakable parallels between sub-Saharan Africa and America is to take recourse, in addition or instead of overland connections, to maritime connections, – notably such as Oppenheimer's Sundaland theory may provide, if we assume that SE Asian maritime technology, from 8 ka BP onwards, succeeded not only in reaching S Asia and Madagascar (as is uncontested), but also (as is much less accepted)

- the Persian Gulf, the Red Sea, circum-littoral Africa, on the one hand,
- and the American Pacific coasts, on the other.

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