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WESTERN SAHARAN SCULPTURAL FAMILIES AND THE POSSIBLE ORIGINS OF THE OSIRIS-HORUS CYCLE

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Abstract. This article identifies two sets of Neolithic symbols from the eastern and western ends of the Sahara, which seem so similar, isolated at their loci and unlikely to result from parallel evolution, because of the variety and intimate association of the symbols in the sets, that the similarities may indicate a cultural connection; and perhaps even a displacement between 4000 and 3700 BCE, rather than cultural diffusion during the earlier westward spread of pastoralism. Several observers, including Henri Lhote and Raymond Vaufrey, have already noted individual resemblances between central and western Saharan iconography and Egyptian symbols, such as falcon imagery and rams wearing discs between their horns. But this article argues that the set of similarities is both larger than reported and more concentrated, with several strands of evidence converging on a zone encompassing the Kem-Kem Hamada and Wadi Draa on the Algerian-Moroccan border. While some of these similarities probably derive from the common roots of Nilotic and Saharan cultures during the spread of pastoralism from Nubia to the Maghreb from 6000 to 5400 cal. BCE, others — such as grinding platforms with low relief, inwardly spiralled snakes on their backs, which occur in the western Sahara as part of a tradition of decorated querns, and northern Nubia, where there was apparently no such tradition — may signal a later connection. The article weighs the probability of a westward contact versus an eastward one around 4000 BCE and speculates that some of the resemblances may represent the arrival in the Nile Valley of refugees who fled the increasing aridity of the 4th millennium BCE by retracing the steps of pastoral ancestors. If this scenario is correct, some of the elements of Egyptian theology that became the prerogatives of royalty and the rationale for kingship, including the Horus-Osiris cycle, arrived from the west as the result of an exodus caused by climate change.

Introduction

This article's analyses grew out of a study of the distribution of sculptural forms and conventions across the Sahara. This effort led to the definition of a number of sculptural families whose ranges overlapped in some cases. The discovery of some sculptures, which hybridised aspects of two or more sculptural families that came from the same area, indicated that those particular families might be related to one another as part of an evolutionary continuum or as contemporaneous expressions of the same culture. In two perplexing cases, the same diverse array of symbols, with such cross-links and no functional reason for being the same, seemed to converge in separate zones in the first half of the 4th millennium BCE. The only surprising thing about this was that the zones were so far apart — one embracing the Kem-Kem Hamada and Wadi Draa in the western Sahara and the other in a zone encompassing Lake Nasser in Egypt and Sudan, instead of being nearly contiguous. If there had been only one or two bodies of convergent evidence, it would have been easy to dismiss the similarities as another example of different cultures being drawn, for utterly different reasons, to similar themes like raptorial birds as symbols of power, instead of evidence of a link between them. But, as we will see, this evidence is becoming so varied that it may point at a weave of influences and displacements in the ancient Sahara, and, more specifically, at a journey on the same scale as the Gypsies' exodus from India to Europe that may have added a major new ingredient to the cultural mix which gave rise to pharaonic civilisation: the Horus-Osiris myth which became the ideological underpinning for cyclical kingship in what became one of the most durable civilisations of all time.

Background

Although this article will eventually build a case for considering the possibility of a rapid transfer of symbols from the western Sahara to the Nile Valley sometime

between 4000 and 3700 BCE, let us start by looking at earlier attempts at identifying the origins of symbols that became the prerogative of Egyptian royalty.

Classical archaeologists have typically looked for the antecedents of these motifs in the two Middle Eastern regions that gave rise to the first cities — the Fertile Crescent and Egypt itself. The common description of these two areas as 'cradles of civilisation' is based partly on the assumption that their first kingdoms developed almost exclusively from indigenous roots with an admixture of influences from polities that had reached similar levels of political and economic hierarchisation nearby. As we will see, the assumption that Egyptian royal symbols must have all arisen during a period of political amalgamation or been borrowed from urban centres that were evolving in similar ways in the Middle East may have prevented researchers from looking for the origins of some symbols among less stratified cultures, which were living outside the two 'cradles of civilisation' in areas that have now become deserts.

But, in the meantime, one must admit that the search for indigenous sources and evidence of cross-fertilisation between Egypt and the Fertile Crescent has been highly productive. One of the first appearances, for example, of the red crown, which became an important Egyptian royal symbol, seems to be headdresses worn by two figures in an Egyptian petroglyph (Winkler Site 18, Wadi Qash, Egypt), that has been dated, on the basis of adjacent motifs, which match ones on Naqada I pots, to sometime around 3700 BCE (Wilkinson 2003). To put this in perspective, the date places the first evidence for this symbol around 600 years before an identifiable pharaoh.

In passing, this is a good place to emphasise the syncretism of ancient Egyptian beliefs and practices, which accommodated many of the local deities and symbols that had evolved in the independent 'nomes' that preceded the unification of Egypt, since the red crown (*Deshret*), which came to represent so-called Lower (northern) Egypt, was often fused with the white crown (*Hedjet*), which represented Upper (southern) Egypt, in a combined crown (*Pschent*), which came to represent the unification of the two parts of the country. We shall come back to other examples of symbolic flexibility and transference when we examine possible relationships between some examples of Saharan rock art and the sky goddesses, Nut and Hathor, and ram-headed gods Khnum and Amon-Re.

In the meantime, another example of a royal symbol that has been traced back within the Nile watershed is falcon imagery. The oldest examples of such imagery, which always seems to have been associated with the Western Desert and Horus-Osiris cycle, come from classical Hierakonpolis (Kom el-Ahmar), which was also known as 'The City of the Falcon', where this symbol first appeared — like the red crowns of Wadi Qash — around 3700 BCE (Hendrickx and Friedman 2007: 9–10).

But the search for antecedents has not succeeded in going much farther back within the Nile Valley, because of the dearth of sites older than 4000 BCE. Both of the explanations for the near absence of such sites have to do with a change in the timing and sources of the river's floods, which occurred between 4000 and 3600 BCE as a result of climate change and the resulting desertification of the Sahara, with the eastern Sahara drying out faster and more completely than almost any other part of North Africa. One explanation for the dearth of older sites along the river is that they may have been swept away or buried under the sediment, which was being deposited from many sources during the period when the river was still being fed throughout the year by water along its entire length, instead of from one seasonal source, far to the south.

The other is that the lack of sites is simply an indication that the Egyptian part of the valley, as opposed to the Nubian part, was not inhabited until 4000 BCE in any consistent fashion. This supposition is based on the fact that the Nile's floodplains did not become conducive to agriculture until the surrounding Sahara became a desert, because they were drowned at sporadic intervals by floods fed by rain falling in many latitudes, over many times of the year, leaving no time between inundations for crops to grow. Even if it turned out that there was time to grow crops between two floods, the fact that one could not predict the inundations meant that it was impossible to know when to plant. The valley would still have been good for hunting, but it would not have become attractive to the agriculturalists and pastoralists living on the surrounding plateaus, until those highlands stopped receiving the very rains that made them good places for raising livestock, while making the swampy valley such an unreliable place to plant crops.

But falcons and the red crown are not the only royal symbols that have been traced back to early roots. Classical archaeologists have traced an even wider array of such symbols to antecedents in the Fertile Crescent. One of the main vectors of this influence was seals and sealings — or to put it in another word, glyptics — which were widely copied when they were first imported from the northeast. Some of the patterns that were copied in Egypt during the Naqada IIc–d1 phases from Middle Uruk and Susan glyptics were quite simple, amounting to nothing more than constellations of dots, oblique arrays of bars and triangles, concentric ovals and rows of fish or lions (Watrin 2004–2005: 69). But some of the later ones, which arrived on late Uruk (V–IV) glyptics, were immediately adopted as symbols of kingship. One of the best examples is a pair of snakes on the ivory handle of a late Naqada IId to early IIIa knife from Djebel el-Tarif. Identical sets of snakes, entwined in precisely the same way around each other and three compartments containing rosettes, exist on Susa II glyptics (Watrin 2004–2005: 77).

Another example of a royal symbol, which probably arrived in Egypt around the same time in the form of glyptics, is an Asian representation of the power of a

king over his enemies, which is popularly known as the 'master of the animals'. This highly conventionalised scene, which shows a man between two lions that he is holding by the throat, appears, once again, in precisely the same way on both Uruk IVb glyptics and the handle of a late pre-dynastic knife, this time from Djebel el-Arak (Watrin 2004–2005: 77).

But the existence of one complex symbol on Susa I glyptics — a double-headed animal with front legs at both ends of a single body — in Egypt, where a double-headed bovine appears on the Naqada IIc/d or IIIa hunters' palette, in the central Sahara (Le Quellec 1993: 99–122) and as far as Morocco (Searight 2004: 158, Fig. 49j) suggests that the Nilotic region may have served, prehistorically, not only as a source and recipient for some symbols, but as a turntable for influences flowing both east and west. Despite the Mesopotamian examples, the variety and apparent antiquity of this symbol across so much of the Sahara forces us to consider the possibility that the Fertile Crescent even received the symbol from Africa, before reintroducing it to pre-dynastic Egypt in the form of glyptics.

Another problem with simply searching for the antecedents of Egyptian royal symbols in the Fertile Crescent is that some of them seem to be older than the Naqada IIc–d1 period, when the importation and reproduction of Late Middle Uruk pottery styles in Egypt signal the beginning of significant trade links between the two areas (Watrin 2004–2005: 59). The previously mentioned falcon imagery from a Naqada Ib/c horizon at Hierakonpolis, for example, precedes the arrival of the first glyptics in Egypt, which seems to have occurred during the Naqada IIb/c (c. 3550–3400 BCE) (Watrin 2004–2005: 67), by at least 150 years.

Such avian imagery, which goes back at least as far as 3700 BCE, probably even pre-dates one of the most precocious signs of trade from Asia — the arrival of small amounts of lapis lazuli that came all the way from Afghanistan during Naqada Ic–IIa (c. 3700–3550 BCE).

So where should we look for even older antecedents?

The most obvious places to look for the roots of early pre-dynastic Egyptian symbols are the deserts on either side of the Nile, which supported significant Neolithic populations. But the Eastern and Western Deserts were no more equal in the eyes of the first researchers to look for such antecedents than they were in the eyes of the ancient Egyptians, who equated the Eastern Desert with the rising sign, foreign goods, which entered the valley through the Wadi Hammamat from the Red Sea, and materials such as metagraywacke, which was quarried in the same wadi and turned into pigment palettes; while equating the western one with the setting sun, desolation, and the afterlife. When Herodotus wrote in 440 BCE that the Western Desert was 'nothing but sand, terrible aridity, absolute desert', he was just conveying the terror that Egyptians had felt about the Place of Testing (Duat) for souls trying to get to a fertile land, which lay beyond the sands, for thousands of years. So why would anyone waste his time looking for life there?

The discovery of early examples of the red crown in one of the wadis just to the east of the Nile and realisation that the petroglyphs could be as old as 3700 BCE was so surprising that their discoverers jumped to the conclusion that the ideological template for Egyptian royalty had evolved in the Eastern Desert. That might be correct as far as the use of the red crown goes, but their claim still seems exaggerated for two reasons. First, because the figures are associated with petroglyphs of large boats, containing numerous rowers, and men who are engaged in hunting hippos; which means, in turn, that the petroglyphs were made by people who were already completely at home in the valley — not people whose culture was focused on an area with little or no contact with the river. All their discovery really proves is that a valley people, who used the red crown, visited the wadis and nearby plateaus from time to time as well.

The second reason the claim seems exaggerated is that it ignores the much larger stretch of the Sahara on the other side of the Nile.

Possible links between the Western Desert and pre-dynastic Egypt

The gradual realisation that the desert on the other side of the Nile was filled with thousands of archaeological sites covering tens of thousands of years, including ones like:

1) Nabta Playa, which produced some of the earliest evidence for the spread of pastoralism from the Red Sea to the Atlantic (Wendorf and Schild 2002: 13–20);
2) the Cave of the Headless Beasts (also called Wadi Sora or Sura II, Abû Râ's Shelter and Foggini-Mestekawi Cave) in the Wadi Sora, with its plethora of paintings and petroglyphs; and
3) the Abu Ballas donkey trail of evenly spaced pharaonic water depositaries from Dakhla Oasis to the Gilf el-Kebir and even the Jebel el-'Uweynāt (Uweinat)

led prehistorians to the realisation that the Western Desert had once been more than a metaphysical state and that its populations might have been in intimate contact with the Nile's pre-dynastic cultures.

Jean-Loïc Le Quellec's suggestion that two types of imagery in Wadi Sora rockshelters might have been ancestors of beliefs that were later recorded in the Book of the Dead (Le Quellec et al. 2005: 243–257) represents one of the main efforts so far to identify links between the iconography of the Western Desert and Nile. The first type of imagery is lines of supine figures, which he thinks look like Egyptian analogies of souls in transition with swimmers. The second type is a set of creatures in the Cave of the Headless Beasts, which seem to be the goal of many of the 'swimming' figures. These 'beasts'

Figure 1. (A) Top left: *One of the headless beasts from the Cave of the Headless Beasts (also called Wadi Sora II, Abû Râ's Shelter and Foggini-Mestekawi Cave) in the Wadi Sora, is surrounded by people, one of whom seems to be holding a smaller individual (perhaps a child) towards the 'beast's' forelegs.* ***Top right:*** *A second 'beast' in the same shelter seems to be ingesting or regurgitating a stick figure, who is shown holding his hands over his face or behind his head, while dozens of stick figures seem to be drawn to the creature like iron filings to a magnet. The person on the right, who is reaching for the 'beast's' tail, has a distended belly, which may indicate either pregnancy or illness. Animals with humans gravitating around them occur across the Sahara, creating a set of 'family resemblances' between such images and a painting of a bovid amid people* ***(bottom left),*** *who are touching its legs, belly and tail at Trachori, in Libya, and the portrayal of Hathor as a celestial cow* ***(bottom right)*** *with five-pointed stars along her belly and humans touching the same parts of her anatomy. It may be worth noting that the Trachori bovid is surrounded by an inner contingent of figures with female attributes, including four with breasts. One of these figures with breasts is touching the tail, another the belly, a third the head, and a fourth is seated above the animal's back. A final indication that the large figures in the inner circle are mainly women is the leftmost figure touching the bovid's back leg, who has a distended belly like the personage reaching for the Wadi Sora 'beast's' tail at top left.*

are surrounded by people, who are doing things like holding a child towards the creature (Fig. 1, top left) or touching the 'beast's' belly or tail (Fig. 1, top left and right). But a couple of the 'beasts' actually seem to be ingesting or regurgitating a stick figure, one of whom is shown holding his hands over his face or behind his head (Fig. 1, top right), while dozens of more schematised stick figures seem to be drawn to the creature like iron filings being drawn to a magnet. Le Quellec interpreted these composite creatures, whose neck zones look like buttocks, tails look feline and legs look vaguely human, as the ancestors of a composite monster from Egypt, the goddess Ammit (or Ammut) or 'Devourer of the Dead' (Le Quellec et al. 2005: 243–257), who the Egyptians depicted with a crocodile's snout, lion's mane and hippo's hindquarters.

Although Le Quellec's arguments may seem far-fetched because of the gap in time between the Saharan paintings, which must have been painted before the Gilf el-Kebir became uninhabitable, due to desertification, around 3300 BCE (Lindstädter and Kröpelin 2004; Le Quellec et al. 2005: 273–274) or 3500 cal. BCE (Riemer 2009: 43), and the first use of the Book of the Dead, which is associated with the New Kingdom and the period between 1550 BCE and 50 BCE, the beliefs recorded in the book have antecedents in the pyramid and coffin texts and were the product of a highly conservative culture with a proven ability to preserve traces of ancient traditions for millennia.

Another commonality, which Le Quellec highlighted between the imagery of the Western Desert and pre-dynastic Egypt, was the theme of canines harassing

mouflon (*Ovis orientalis*) from the rear (Le Quellec 2010: 70).

Finally, Julien d'Huy and Le Quellec went on to argue that a variety of methods for preventing images of dangerous animals and their 'hostile spirits' from becoming animate or supernaturally dangerous were used in both Egyptian and eastern Saharan art. In Egypt, scribes 'would choose to leave out dangerous hieroglyphs and replace them with representations of inert objects', cut images of lions in two, amputate representations of scorpion tails, 'kill' dangerous signs by mutilating them, and paint large aggressive animals with so many arrows that they look like pin-cushions. In the eastern Sahara, artists either avoided making images of dangerous animals, so that some species are rarely, if ever illustrated; or they prevented such imagery from becoming dangerous by mutilating or attenuating representations of such animals, by portraying them with partial or absent heads (d'Huy 2009a; d'Huy and Le Quellec 2009: 93–95).

It is intriguing to note, given a hypothesis which will be developed later, that portrayals of felines and even large aggressive animals were rare by comparison with cattle or shown as being shot in one other part of North Africa — the Moroccan Atlas Mountains (Rodrigue 1999: 65) — while un-wounded and un-mutilated representations of such dangerous animals as elephants, rhinos and felines are common between the Sahara's extremities (Aumassip and Chaid-Saoudi 2004: 271; d'Huy and Le Quellec 2009: 95). Felines, for example, represent just 1.6% of the petroglyphs at a 'Pecked Cattle' site called Adrar n'Metgourine in Morocco while cattle represented 56.5% (Searight 2004: 102). Elephants in the same area were 'often' portrayed without tusks, eyes or ears (Searight 2004: 102) — just like dangerous animals around the Nile, which were often shown without their most intimidating features.

Regardless of the merits of d'Huy's and Le Quellec's arguments concerning the links between Wadi Sora's iconography and Egypt's swimming souls and monster Ammit, animals with humans gravitating around them are a common theme across much of the Sahara (Le Quellec 1993: 304, 306, 409–430, 439, 442, 446) creating a set of 'family resemblances' between such images as a painting of a bovid amid people, who are touching its legs, belly and tail at Trachori, Libya (Fig. 1, bottom left) (Muzzolini 1995: 292, Fig. 324; Le Quellec 1993: 310, Fig. 96-2), and such Egyptian images as the portrayal of Hathor as a celestial cow with five-pointed stars along her belly and humans touching the very same parts of her anatomy (Fig. 1, bottom right) (Le Quellec et al. 2005: 352, Fig. 899). If the figures arrayed around Wadi Sora's headless beasts (Le Quellec et al. 2005: 252–256, Figs 701, 702, 703, 704, 712) fit into this tradition, then the 'beasts' may represent a being with both nourishing and destructive aspects, instead of just a destructive deity, but Ammit could still be a distillation of some of the 'beast's' more destructive aspects — those associated with death.

It is interesting to note in passing that Červíček (1986: 83, 97) argued that scenes of humans holding cattle, if not other animals, by their tails may have spread from the central Sahara to the south and east, where they finally reached Ethiopia and the Arabian Peninsula, while Le Quellec discussed the possibility that an even older Saharan theme of humans touching the tails of a variety of wild animals might indicate a 'purely Saharan origin for the trait, without prejudging [the possibility] of eventual "returns" towards the south-eastern Sahara' (Le Quellec 1993: 430).

Another type of dangerous animal that was shown in unnatural proximity to humans in the eastern Sahara (but which appears to have been an exception to the rule that such illustrations were avoided or mutilated) is the ostrich. D'Huy (2009b: 82) has argued that the speed, combativeness and visual acuity of ostriches made the birds and their plumes symbols of courage for warriors in both the eastern Sahara, where plumed archers and a figure touching the chest of an ostrich with raised wings exist at Karkur Talh, Libya, and in Egypt, where the feather, *shwty*, was already part of the red (*Deshret*) crowns worn by the pre-dynastic figures in the Wadi Qash. Another early Egyptian example of the use of such plumes to symbolise combativeness occurs on the same Naqada IIc/d or IIIa 'palette' alluded to above in relation to double-headed animals, since it also shows plumed warrior-hunters led by standard bearers carrying falcon-headed staffs as they close in on arrow-ridden lions (d'Huy 2009b: 82).

'Family resemblances' between Saharan and Egyptian art

The existence of all these 'family likenesses' between Nilotic and Saharan practices and iconography finally brings us to the question of possible connections between Egyptian symbols and the vast stretch of desert beyond Egypt and the Libyan Desert. The first explanations for such resemblances were based on just a few strands of evidence, which were easy to explain away, because they seemed so defuse and isolated.

One of the first people to suggest that there were links between western Saharan and Egyptian art was Raymond Vaufrey (1939), who wondered why there was such a resemblance between petroglyphs of rams with discs between their horns at hundreds of sites in the Saharan Atlas Mountains in Algeria (Fig. 2, left) (Lhote 1984: 111, Fig. 9, Pls 12, 14, 69; Le Quellec 1993: 153–174) and Egyptian portrayals of a ram god named Amon-Re (Fig. 2, centre), who was illustrated in the same way. This resemblance led Vaufrey to suggest that ram iconography at such sites as Bou Alem (Muzzolini 1995: 159, Fig. 168) and Ras-el-Ahmar in Algeria (Fig. 2, left) (latitude 32.2500, longitude -0.9167) (Aïn-Seba 2007: 168–173) were evidence for the colonisation of the western Sahara by Egyptians during the historic period (Vaufrey 1939). This proposal was easy to dismiss, both because of the lack of intermediary evidence, and because the Saharan Atlas rams did not seem to be

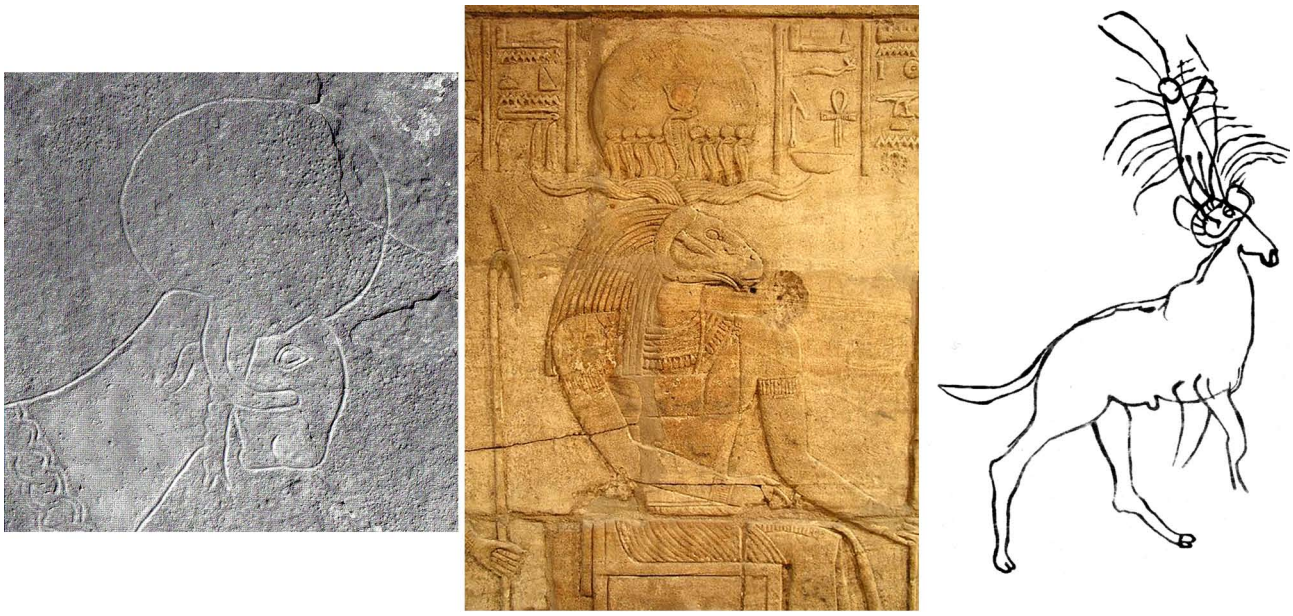

Figure 2. *Three coifed ovicaprids from north Africa: (**A**) a ram wearing a disc from Ras-el-Ahmar, Djelfa, Algeria (Aïn-Seba 2007: 168–173). (**B**) A ram-headed deity with a cephalic disc from the Temple of Amun, Kawa, Nubia (Sudan). Although this iconography became associated with Amon-Re (Amun-Ra) during the New Kingdom, it was originally used to portray one of the oldest Egyptian gods, Khnum, who is named in the pyramid texts of Unas in the 5th Dynasty and was thought to have created the 'First Egg' from which the sun was born. **(C)** An ovicaprid with a tall pointed 'crown' with a circular form on the summit of its headdress from the Wadi Aramat in Libya (Achrati 2003: 170).*

accompanied by any other Egyptian symbols from the period in question, such as hieroglyphs, that colonists probably would have taken with them. Even today, no hieroglyphs have been found any farther west than an inscription of Mentuhotep II, along the final extension of the Abu Ballas donkey trail, in the Jebel el-'Uweynāt in south-eastern Egypt (Clayton et al. 2008).

Another reason why Vaufrey's idea of colonisation was rejected was that he seemed to be equating images from two totally different periods, since it was thought that the naturalist bubalus style, which was used in portraying many of the Saharan Atlas rams, was over 7500 years old, while the cult of Amon, which produced the Egyptian rams, only became prominent around 3500 years ago. The 4000-year gap seemed so long that the resemblance looked like a coincidence.

A third reason for dismissing the colonial hypothesis, which was pointed out by a more recent prehistorian, Alfred Muzzolini (2001), was that even pre-dynastic Egyptians would have had little incentive to move westwards, because:

1) they lived in a land which was becoming increasingly productive once rainfall fell in the Sahara and the river settled into a predictable pattern of fertilising — as opposed to destructive — floods, based on seasonal monsoons in Ethiopia; and
2) the Libyan Desert had already sealed Egypt off from the west by 3600 BCE.

But Muzzolini agreed with Vaufrey on at least one thing: that the similarities seen across the Sahara, which included:

- hearth piles ('*Steinplätze*') (Gabriel 1986);
- rams wearing discs or spheroids;
- wavy line pottery, which is found from the Nile to Mauritania, and from Khartoum to Middle Egypt along the Nile (Muzzolini 2001: 210); and
- 'family likenesses' in paintings

were real and must have common roots. Ironically, his explanation, which was that they were related to 'a very ancient common linguistic and symbolic source, linked to the emergence of the Afro-asiatic linguistic group (around 10 000 BCE?) ...' (Muzzolini 1995: 346–347), placed the common origins so far in the past, that he closed a gap of just 4000 years (5550 BCE–1550 BCE / 7500 BP–3500 BP), while opening another one of 8500 years (10 000 BCE–1550 BCE).

The most ironic thing about Muzzolini's linguistic hypothesis, though, was that some of his own work could be used both to refute and salvage it by assigning most of the 'family resemblances' to a much more recent and provable westward expansion from the Nilotic region. This was because Muzzolini was one of the two researchers (along with Le Quellec) who revolutionised the dating of Saharan rock art styles by pointing out that all of the ones known at that time seemed to contain illustrations of domesticated animals (Muzzolini 1990, 1995: 90; Le Quellec 2004: 59–74). This realisation implies that most of the styles actually developed after the expansion of sheep, goat and cattle husbandry in the 5th and 6th millennia BCE (Le Quellec et al. 2005: 304, 335), instead of after a supposed linguistic expansion four millennia earlier, and that even the oldest of the known styles extended into the period after the arrival of the pastoralist wave.

This means that most of the 'likenesses' that are seen across the Sahara probably derive from a cultural wave that spread across northern Africa with the bushy and generally westward expansion of pastoralism, after a mix of autochthonous domestication (for cattle) (Wendorf and Schild 2001; Searight 2004: 126; Gatto 2011: 22) and introduction of livestock (especially for ovicaprids) from the Levant. The first signs of such animal husbandry in Africa are the appearance of domesticated:

- cattle in a stratified context at Wadi el-Arab in the Kerma region around 7000 BCE (Gatto 2011: 22), and even possibly at Bir Kiseiba and Nabta Playa, around 8400 and 7750 BCE (Wendorf and Schild 2001; Gatto 2011: 22);
- ovicaprids at Sodmein Cave in the Red Sea Mountains around 5900 cal. BCE (Le Quellec et al. 2005: 335; Gatto 2011: 22).

It took just five or six centuries after the first signs of the powerful economic combination of cattle and ovicaprids in north-eastern Africa for them both to arrive in northwest Africa, where the oldest evidence for their presence is bones, from Capeletti, Algeria, which have been dated to 5400 cal. BCE (Le Quellec et al. 2005: 335). The two groups of animals also arrived in the central Sahara (in the Akäküs) simultaneously, around 4900 cal. BCE (Le Quellec et al. 2005: 304, 335), showing that they accompanied the same front as it moved westwards. The spread of ritual cattle burials from Nabta Playa (5400 cal. BCE) in Egypt to the Messak (5300–4100 cal. BCE) and Adrar Bous (5200–4100 cal. BCE and 5200–4900 cal. BCE) in the central Sahara, and, finally, Mankhor (4500–3500 cal. BCE) in the west add significance to the economic wave by showing that it was definitely the vector for the spread of new rituals and symbols (Le Quellec et al. 2005: 313).

While we are on the subject of waves of more efficient economic models — like Neolithic pastoralism over hunter-gathering — across continents, we should probably address two ancillary points. The first concerns the debate over whether the spread of pastoralism indicates that there was a 'movement from east to west of people conveying the new Neolithic techniques' or a 'simple transmission ... to existing populations still living as hunter-gatherers' (Searight 2004: 169). The closest parallel to the wave across North Africa is probably the Neolithic expansion across Europe, where the relative contributions of the continent's Mesolithic hunter-gatherers and Neolithic farmers from the Near East to Europe's Neolithic populations have been fiercely debated.

This debate was settled when it was discovered that the commonest European Y-chromosomal lineage, haplogroup R1b1b2 (R-M269), increases in frequency from east to west, and is carried by 110 million European men. The find showed '... that the geographical distribution ... is best explained by [the] spread from a single source in the Near East via Anatolia during the Neolithic. Taken with evidence on the origins of other haplogroups, this indicates that most European Y chromosomes originate in the Neolithic expansion. This reinterpretation makes Europe a prime example of how technological and cultural change is linked with the expansion of a Y-chromosomal lineage, and the contrast of this pattern with that shown by maternally inherited mitochondrial DNA suggests a unique role for males in the transition' (Balaresque et al. 2010). In a nutshell, this means that Europe's last Mesolithic men were largely eliminated as mates while its women were often absorbed into the expanding Neolithic wave. If a similar process occurred during the spread of pastoralism across Africa, pastoralists as far as Morocco would probably have been direct descendants of male pastoralists in the Nilotic region and were likely to have retained origin myths about their largely male ancestors' journey.

The second point concerns the nature of such waves, which are rarely uniform, since several groups may expand from an area where a more efficient technology or economic model has been adopted. The Neolithic wave across Europe typifies this, because it consisted, in general terms, of two distinct but nearly contemporaneous currents, one of which moved up the Danube while the other moved along the Mediterranean, leaving offshoots along the way that converged, for example, in northern France. A similar pattern exists in northern Africa, where one pastoralist wave moved along the Mediterranean while another moved west on the latitude of Wadi Bakht and central Saharan highlands (Le Quellec et al. 2005: 304, 335). The different distributions of roman-nosed rams, which are found in the rock art of the Saharan Atlas, flat-chanfrein rams, which occur in Iheren-Tahilahi and Atlas imagery, and fat-tailed sheep, which are portrayed in the eastern Sahara (Ahmed Achrati, pers. comm. Dec. 2012), probably reflect both the diversity of such a multi-pronged expansion of pastoralists with huge advantages over indigenous hunter-gatherers, and the later adoption of new breeds between economic equals, because of changing pastoral preferences. The first type of expansion, which probably involved partial population replacement, was much more likely than the second to have spread ideas such as the beliefs behind coifed rams with high fidelity across the continent.

Returning to Mankhor, the site and dates associated with it (4500–3500 cal. BCE) will take on particular importance when we try to establish the age of three-dimensional sculptures from the Algerian Sahara, since a workshop for making them, which contained a preform, finished but broken sculpture, and lithic scatter of the same granitic material, was found on the surface at Mankhor, according to a knowledgeable eye-witness (Marie Maka, pers. comm. 25 Nov. 2012). As far as I know, none of the archaeologists who participated in the excavations have written about this remarkable discovery, so we eagerly await a complete description.

At least one other practice involving the livestock,

which pastoralists depended on for their success in replacing hunter-gatherers, can be ascribed to the same expansion via sites like Mankhor. This practice involved the aestheticisation of certain animals by giving them artificial horn patterns (Chaix 2006: 49–54). These conventionalised styles, which some Nilotic tribes in southern Ethiopia still produce by operating on the heads of their favourite cattle (Dubosson 2006, 2012), appear in bovine imagery and/or osteological remains from Egypt to Morocco (Searight 2004: 102). The presence of such horn forms in some stylistic groups, such as Morocco's 'Pecked Cattle' group, which show bovids with 'mottled coats' and 'forward-pointing, widespread and lyre-shaped' horns, as opposed to others, like Morocco's Tazina groups, which 'invariably depicted their cattle with forward-pointing horns and no coat markings' (Searight 2004: 169), may be a sign that the pecked cattle group branched off from the westward wave before the Tazina. A second reason to consider this scenario is that 'black and white coats in domestic cattle are 'signs of a repetition of cross-breeding between animals of different origins and a lack of fixedness in their descendants' (Aumassip et al. 1988: 137), which, according to Searight, denotes 'an early stage in domestication' (Searight 2004: 102).

A third reason for thinking that the origin of the first pecked cattle petroglyphs may be older than the Tazina ones in Morocco (contra Searight) is that both previously pecked body contours and unpecked horns and tails of some pecked cattle petroglyphs were 'carefully polished' (Searight 2004: 98) — which suggests that the Tazina style of polishing contours (Muzzolini 1988: 179–201) was a derived trait, where a superfluous step in making polished lines was abandoned. These considerations will take on additional significance when we get to western Saharan sculptures, their probable ages, and their links to movements in the Sahara.

In the meantime, the best evidence for the extension of the horn deformation across the Sahara is pathological, since one form of bovine horn binding not only makes a bovid's horns meet over its head in a lyre-shape, but creates a bony excrescence between them (Chaix 2006: 51). Examples of such horns have been found:

- In a frieze showing cattle in a Meriotic chapel (N17) at Musawwarat es Sofra, Sudan (Hofmann and Tomandl 1987), where they are shown with such bumps;
- On bucrania, which were buried around chiefs' graves at Kerma, Sudan, between 2000 and 1800 BCE (Chaix 2006: 51), again with the bumps; and
- Numerous Saharan paintings (Dupuy 1991).

The extension of horn binding across the Sahara and its survival into modern times also proves that symbols can (sometimes) survive for millennia, when economic and semiotic systems reinforce each other in a feedback loop.

The existence of ovicaprids with discs above their horns at opposite ends of the Sahara may be another manifestation of the expanding pastoralists' obsession with 'dressing up' their livestock's horns. It turns out that there is a lot of intermediary evidence, which shows that the disc-bearing rams of Egypt and the Maghreb were not quite as isolated from each other as was thought (Achrati 2003: 170–174), and that they belong to the kind of evidentiary pattern that is left by an expanding wave. The evidence, which helps to fill the temporal and spatial gaps, includes:

1. A correction concerning the link to Egyptian deities, since ancient Egypt had two ram gods, who were illustrated with discs, not one. One of them was indeed Amon-Re, who turned out to be an anachronism, since the deity was a fusion of a Kushite ram god with an Egyptian solar divinity, which only occurred after the Egyptians defeated Kush around 1460 BCE (O'Connor 1994: 60). The second one, Khnum, is much older, though, since he was one of the first Egyptian divinities. If one compares the western rams from sites like Bou Alem to Khnum, who was associated with the creation of both the sun and life from the Nile's dark clay, instead of the latter-day deity, Amon-Re, the temporal gap between the ram iconography at the two ends of the Sahara largely disappears.
2. Rams, which were buried with spherical headdresses at Kerma, Sudan (tomb 81) between 2500 and 1500 BCE (Chaix 2006). Although this evidence is much younger than the pastoralist expansion, it still proves that such iconography existed at an early period close to the wave's source.
3. The discovery of a few ovicaprids wearing spheroids in the Tassili-n-Ajjer (Masy et al. 2004; Gauthier and Lionnet 2005: 135–137), which proves that the zone where they occur in the Sahara is much bigger than was supposed.
4. The existence of Hathoric imagery, showing quadrupeds surmounted by disks (Yoyotte et al. 1990: 69, Fig. 355), at least as far back as 3800 BCE and Naqada I in Egypt (Wilkinson 2003: 100–101).
5. Finally, the presence of a wide variety of 'Hathoric' animals in the area between the Nile, Saharan Atlas Mountains (Achrati 2003), and even Morocco (Searight 2004: 158–159, Fig. 49l), including at least three bovines with discs between their horns in the Wadi Zirmei of southwest Libya (Arkell 1964: Pl. 54), which Arkell calls Megaceroides, and another Hathoric bovine in the naturalistic bubalus style from Maia Dib (Mwayya-d̲-D̲îb) in southern Tripolitania (Muzzolini 1995: 219, Fig. 202; Le Quellec 1993: 123–152).

When one adds such animals with cephalic attributes to the mix, the symbolism becomes so ubiquitous in northern Africa that it even has modern variants. Thus Algerian Berbers conceived of 'the world as a flat disk resting on one of the horns of the black Bull' (Le Quellec 1993: 149) and the Nilotic Shilluk believed that humanity and animals were born from a calabash carried out of a river on the horns of a cow. Such ubiquity shows how such iconography must have spanned the length of the

Saharan world once pastoralists reached the Atlantic.

One does not have to look any further than the east-west extension of several modern peoples, including 'the Fulani from Senegal in the west to Cameroon and beyond in the east, as well as the Tuareg distribution in Algeria, Mali and Niger' (Smith 2004: 56), and the Peul from the Casamance to Chad, to realise how peoples and their symbols have moved over vast latitudinal distances in the Sahara and Sahel, and probably moved just as far before the region grew so dry.

But the most intriguing images involving rams with headdresses are a set of petroglyphs, which were reported by François Soleilhavoup in 1999, showing ovicaprids with tall pointed 'crowns' with a circle at the top in the Wadi Aramat, in Libya (Fig. 2, right) (Achrati 2003: 170), since they prove that coifed ovicaprids are found across the entire desert while also confirming that ones with simple discs are indeed isolated at the desert's extremities. We will examine the possible significance of this pattern after gathering more evidence.

Falcon imagery

In the meantime, we must jump to another researcher who suggested a link between the iconography of the zone along the southern side of the Atlas Mountains and Egypt, Henri Lhote. His suggestion was just as audacious as Vaufrey's, since Lhote thought that there might be some relationship between a falcon figurine from the Hamada du Guir in the western Sahara with the Horus cult along the Nile, over 3200 km away (Lhote 1970: 75)! Although his idea titillated amateurs, it was generally dismissed by prehistorians and Egyptologists because Lhote could neither explain the mechanism for such a distant link, which apparently did not have any intermediary steps, since no falcon imagery has been found anywhere between the western Sahara and Egypt; nor produce more than one other symbol, Vaufrey's rams wearing discs, from the southern watershed of the Atlas, which the area seemed to share with pharaonic imagery. As far as his peers were concerned, Lhote's hunch was based on nothing but a couple of unsubstantiated inferences, taken out of context, without a shred of intermediary evidence.

This is where some recent findings concerning the distribution of Neolithic sculptural types come into play.

The additional evidence, which I will use to argue that one must consider the possibility that there was a link across the whole of the Sahara, was not gathered with the goal of proving any particular hypothesis, since it was simply compiled in an effort to map the ranges of the Sahara's sculptural forms and conventions. One of the most productive attempts at mapping such a Saharan distribution was carried out by Jean-Loïc Le Quellec, who tried to match the zone where a set of legless zoomorphic sculptures had been found to the known zones of various types of mortuary monuments and rock art (Le Quellec 2008). My plan was to expand the study to other sculptural types in the hope of establishing more correspondences with monuments and rock art, which might help to draw together and date the various aspects of a series of cultures, which had been studied in fragmented ways.

But two things interrupted this plan. The first was the discovery that many of the figurines from the south-central Sahara, which had always been spoken of as Neolithic, were actually made within the last two millennia, since the corpus contains multiple representations of dromedaries, so I decided to publish that data separately (Caldwell 2012). The second discovery, which disturbed my reasoning, was the realisation that my maps showed a convergence of the same set of conventions and symbols in two widely separated regions, although they seemed to be absent from the rest of the desert. If these overlaps in two zones can be trusted, they might be a reminder that ranges are not static, but often expand, shrink, split and fuse over

Figure 3. *The oldest known falcon sculpture (**G**) from pre-dynastic Egypt, which was found at Hierakonpolis and dates to c. 3700 BCE, resembles several 'avian sceptres' from the western Sahara (**A–F, H**). These 'sceptres' represent both falcons and owls (**H**). **E** and **F** are the same object. The contours of the faces of **B**, **E** and **F** are similar to those of the orb-owl (**Fig. 7**) and the supposed anthropomorphs from Tabelbalet, which Henri Lhote (1955: 727) compared to barn owls.*
***(A)** 23 cm H × 5 cm W. **(B)** 15.5 cm H. **(C)** 17.5 cm. **(D)** 18.5 cm × 10 cm. **(E, F)** 13.5 cm H × 7 cm. **(G)** 6.2 cm L (after* Nekhen News*). **(H)** 14 cm H × 6.8 cm W at eyes. Private collections, except for G.*

Figure 4, A–F. *A sampling of 'eyed cobbles' from the western Sahara. They have eyes formed by small pecked cupules, contrasting pecked representations on their flanks, and, frequently, a groove to differentiate a somewhat phallic head. A relatively modern break across the giraffe's neck on the top object showed both the complexity and depth of the patina under the sculpted surface.* ***(A–B)*** *25.5 cm H × 14.3 cm W. A pecked cupule, which seems to represent an eye, is visible above the neck groove on side A.* ***(C–D)*** *15 c. H × 8.5 cm W.* ***(E–F)*** *13 cm H × 5.5 cm W. Private collections.*

time.

The other thing, which was surprising, was that the two regions were precisely the ones that had been linked by Lhote and Vaufrey: the north-western Sahara and a region in Upper Egypt and northern Nubia. So let us focus on the families of Neolithic sculptures that have been found along the Algerian-Moroccan border.

Western Saharan comparisons and related statuary

Avian sceptres

The obvious place to begin is with the kind of avian sculpture, which inspired Lhote's conjecture. 'Avian sceptres', as I shall call them, are elongated sculptures in the round, which, in some cases, suggest hawks, and, in others, owls (Lhote 1970: 75; Demoule and Lessing 2007: 17) (Figs. 3A–F, H). Several of these 'sceptres' share the same owl-like facial contours (Fig. 3B) as some of the supposed anthropomorphs from Tabelbalet (Hachid 1998: 148–149) on the northern edge of the Tassili n'Ajjer that Henri Lhote (1955: 727) compared to barn owls. It is difficult to put this avian imagery into the context of the area's rock art, but one correspondence might be with a possible falcon silhouette in the petroglyphs of Oued El Kebch in the Foum Zguid region of Morocco (Rodrigue 2009: 125, Pl. 29-8; 131–132), which Rodrigue listed as being unidentifiable (Rodrigue 2009: 131). The petroglyph occurs amidst bovines, rhinos, felines and giraffes and a wide variety of carefully pecked geometric motifs, which resemble decorations on the backs of Neolithic grinding platforms from the same part of the Sahara. This point will take on special importance in a moment when we examine the relationship between two more sculptural families — quadrupeds and 'eyed cobbles' — to the pecked cattle style, since the cattle at El Kebch are in that style as well (Rodrigue 2009: 131; Searight, pers. comm. 1 Oct. 2012).

In the meantime, the oldest example of the kind of Egyptian falcon that inspired Lhote's conjecture concerning a link, which has been found so far, is a sculpture (Fig. 3G) dating to c. 3700 BCE that was found at Hierakonpolis (Kom el-Ahmar), with the polished stone wings of similar sculptures (Hendrickx and Friedman 2007: 9–10). Although such avian imagery was probably already associated with Horus and kingship at Hierakonpolis and such later pre-dynastic sites as Naqada and Gebelen (Petrie 1974[1896]: Pl. 60), the associations became explicit in the Gebel Tjauti rock inscriptions (Friedman et al. 2002: 10–19) and Siali sealings, which were found in a Naqada IIIa context in northern Nubia, because early hieroglyphs make it possible to associate two 'archaic' falcons perched on rectangular hoops with an actual person named Ta-Seti, who is shown holding a bovine by the muzzle. Such embedded hoops and rectangles are known, from other contexts, to represent palace facades, so this is probably one of the first associations of a nameable ruler with Horus (Williams 1986: 169–170).

The Qustul incense burner, which was made somewhat later and buried in the same cemetery (A-group royal cemetery L) as a pair of snake mortars, which will reappear below, takes this theme further, since it is the 'first unequivocal representation of a pharaoh in his person, the first definite linking of the pharaoh's figure with the Horus falcon ...' (Williams 1986: 2, Pl. 38).

Eyed cobbles

A second, and at first glance, unrelated type of northwest Saharan sculpture, is a hitherto undescribed canon of objects, which I shall call 'eyed cobbles' (Fig. 4A–F). Each sculpture is a naturally rounded cobble from a riverbed with a pair of pecked cupules, which look as though they represent eyes, on a knob at one end of the rock. This knob is often separated from a larger

Figure 5. *A sampling of spiral snake motifs on the bottoms of grinding platforms from the western Sahara (A, B) which are similar to a fragment illustrated by Camps-Fabrer (1966: Pl. 27-2), and snake metates from pre-dynastic Egypt (**C**). **C** was found in A-group Cemetery L in northern Nubia (after Williams 1986: Pl. 42b). **(A)** 27 cm L × 19.5 cm W. Private collection. **(B)** Private collection. **(C)** 25.75 cm L × 20.25 cm W.*

Figure 6. *The concentration of snake metates belongs to a widespread Saharan tradition of making grinding platforms with low-relief designs on their backs. Although the tradition seems to be focused on the northwest Sahara, where this example (which may combine allusions to a head, hand and rayed celestial body) was found, a few outliers have been reported from as far away as Libya and Mauritania. Private collection, 32.2 cm L × 20 cm, W × 5 cm H.*

mass, which becomes the figure's body, by a pecked groove. This annular groove ends up making the bulbous 'head' above it look like a glans penis and the entire cobble somewhat phallic.

But all the sculptures in this class have another dimension, since the bodies below the neck always have contrasting figurative imagery on their flanks. This carefully pecked imagery, which is deeply and uniformly patinated, includes such combinations as a lion on one side vs a giraffe on the other, an ithyphallic man vs a quadruped; and a long-necked bird vs a giraffe and bovine. All of these figurative images have the diagnostic traits of the pecked cattle A as opposed to Tazina styles as defined by Susan Searight (2004: 98, 111), which she argues were roughly contemporaneous (Searight 2004: 136–137). The lines, in other words, are firm and pecked, instead of free-flowing and exclusively polished.

It is tempting to read these 'eyed cobbles' as central abstract beings with contrasting figurative emanations, such as a large predator vs a large herbivore, on their sides.

Snake metates

'Snake metates' (Fig. 5A–B) and other shallow grinding platforms (Fig. 6) with a rich assortment of complex designs around the rims and on their backs. Although such grinding platforms with low relief patterns have been found from the Messak in Libya to Mauritania (Le Quellec et al. 2009: 187–190), the zone encompassing the Moroccan-Algerian border has produced at least three examples of a sub-type with inwardly coiled serpents on their backs (Fig. 5A–B, plus Camps-Fabrer 1966: Pl. 27-2). What is so extraordinary about these specific grinding platforms is that their snakes show exactly the same shapes, proportions, internally turned heads, pecking, bas-relief technique and number of concentric turns, in the case of two intact western Saharan 'metates', as an example from a pre-dynastic cemetery in northern Nubia (Fig. 5C) (Williams 1986: Pl. 39d; see also 113, 225, Fig. 77; Pl. 39b, Pl. 42 and Pl .105). A fragment of one of these western snake 'metates' illustrated by Camps-Fabrer (1966) comes from erg Abbès el Atchane (29°10′ N, 3°14′ W), which is near the Moroccan frontier with Algeria, placing one of the western examples 3500 km away from the Nubian necropolis with almost identical objects. Thus the three snakes on the intact specimens from opposite ends of the Sahara have exactly four complete outward coils in relief, counting from the central head (Figs 5A–C). Spirals, which are common in the rock art of the Tassili and Hoggar (Le Quellec 1993: 479–501), are probably the rupestrian expression of the same theme, which may allude to both the sun and snakes, but it should be emphasised that neither Egypt nor the central Saharan zones has a known tradition of making inwardly spirally, low relief snakes on the backs of metates, isolating such artefacts around two poles at opposite ends of the desert.

The rock art of both Oued Ed Kebch and Imaoun Sud (Searight 1996: 79–82), which is about 30 km north of Akka in sub-Saharan Morocco, may be helpful in placing the motifs seen on such decorated grinding platforms from the western Sahara into temporal and spatial contexts, since the art contains the same kinds of regular, low-relief spirals (Searight 1996: Figs 3, 7, at Imaoun Sud), wavy lines and symmetrical abstract patterns as are found on the backs of the metates. These curvilinear geometric motifs are accompanied at both sites by images of domestic cattle (Searight 1996: 81, Fig. 8; Rodrigue 2009: 112, Pl. 22-3, 117), which Searight has

Figure 7. *A polysemic sculpture representing an owl, with a crescent moon and four- and five-pointed stars on one side and a pecked pit surrounded by concentric polished and pecked zones that probably represent the sun in the centre of parhelia or 'sundogs'. The height is the same as the depth, completing the sculpture's allusion to celestial orbs by making the body nearly circular. The facial structure is reminiscent of both the 'avian sceptres' and standing sculptures or 'betyls' of the central Sahara while the representations on the flanks recall the 'eyed cobbles' (Fig. 4A–F), revealing affiliations among the three genres. 16 cm in diameter, private collection.*

identified as belonging to the same stylistic grouping in which I have placed the imagery on the flanks of the 'eyed cobbles' — the pecked cattle group (Searight 2004; also pers. comm. 1 Oct. 2012). Although she admits that 'it is impossible to prove that the curvilinear designs and the domestic cattle [at Imaoun Sud] ... were the work of a single population living at approximately the same time', she goes on to say that 'there is no reason to suppose the contrary' (Searight 1996: 81).

Later, in her most comprehensive publication on Moroccan rock art, Searight went on to show that sites where the pecked cattle and Tazina styles predominate are geographically distinct and clustered. For example, eight pecked cattle sites have been found southeast of Tissint, ten more exist north of Akka, six occur between Ait Ouabelli and Foum el Hassane, and there are 13 more pecked cattle sites, one Tazina site and finally a mixed Tazina/pecked cattle site without overlapping animals going north up the Oued Tamanart. As Searight says, 'the area where these two different styles did occur close together was along the densely occupied O Tamanart. Here, one Tazina stands out in a region dominated by Pecked Cattle, and one site is divided between Pecked Cattle and Tazina engravings' (Searight 2004: 117). The lack of overlaps except at the periphery of distinct zones is probably an indicator that the two styles were created by separate populations, which were roughly contemporaneous and able to maintain enough demographic pressure upon each other to establish stable territories.

But when? While citing the arguments for both long and short chronologies for the two styles — in other words ones that range from '4000 to 500 bc' (c. 4800 to 600 cal. BCE) and '1500–500 bc' (c. 1750 to 600 cal. BCE), Searight opted for a compromise, which extends from '2500 to 500 bc' (c. 3200 to 600 cal. BCE). One of her main reasons for rejecting the 'long chronology' is that it entails such a long period, when one considers that the most recent examples of the style show metal weapons, which may not have been introduced until '500 bc' (Searight 2004: 136–137). But the survival of several cultures and their corresponding artistic conventions for longer periods in Australia, Upper Palaeolithic Europe and many other places makes the creation of a 1500 to 2000-year-gap between '4500 bc', when 'climatic conditions in southern Morocco became favourable for both wild and domestic animals' (Searight 2004: 135), or '4000 bc', when 'cattle pastoralists were probably well established throughout North Africa' (Searight 2004: 126, 131, 135), and the start of rock art production seem arbitrary. If we add the affinities between the pecked cattle group and central Saharan imagery (Searight 2004: 137), continuity of such trans-Saharan artistic themes in the same group as men mounted on bovids (Searight 2004: 102, 159, 169), mottled coats seen at pecked cattle sites — which implied that the cattle were in an early stage of domestication (Searight 2004: 102) — and presence of possible precursors for the Tazina style's polished lines (Searight 2004: 98), the long chronology for the pecked cattle 'style' becomes more likely, and may even stretch slightly farther back than '4000 bc'.

Another significant reason for dismissing the compromise chronology is that it starts in '2500 bc' (2004: 136–137), which is precisely when Searight says desertification began steadily progressing in south Morocco (Searight 2004: 125). The idea that the rock art started just as the area was becoming inhospitable becomes all the more unlikely when one considers that southern Morocco probably began to experience droughts and environmental stress even earlier, since a 'trans-Saharan drying trend evidenced in ... the increase in aeolian dust in core 658c off Cape Blanc, Mauritania', and other Saharan and oceanic deposits actually began at least as far back as 3500/3600 cal. BCE (Riemer 2009: 43).

Standing owl figures

Standing figures suggestive of owls (Fig. 7) (Demoule and Lessing 2007: 8, 13, 19) clearly resemble:

- The betyl statues reported from Tabelbalet in the Tassili n'Ajjer (Lhote 1970: 74);
- The owl-like sculpture from Erg Issaouane (Savary 1965: Fig. 1, No. 11);
- A 5.6-cm sandstone cobble with a schematised owl's face from the 'central Sahara' (Klenkler 2003: 122, text 193)
- The limestone anthropomorph from Ouan-Sidi in the Edeyen (Lhote 1955: 730).

One of these standing figures is a disk with convex sides, an owl's scalloped eye sockets, like ones seen on some of the 'avian sceptres' (Figs. 3B, E, F) that inspired Lhote's suggestion concerning a link with the Horus cult, and contrasting motifs on its flanks (Fig. 7, left and right), just like the 'eyed cobbles' cited above (Fig. 4A–F). This puts the orb-like owl at the juncture of the betyls, sceptres and 'eyed cobbles', suggesting that the three canons were related and perhaps even contemporaneous expressions of the same culture. One side of this owl sculpture (Fig. 7), which is almost perfectly circular, except for a slight flattening at the base and scalloped eye zones, shows the night sky (Fig. 7, left), with both a crescent moon and the same kind of four- and five-pointed stars which makes another appearance:

- in pre-dynastic Egypt (Fig. 8, top, centre left and bottom) (Vandier 1952: Figs 244, 276-6, 297; Graff 2009: 187, 295) and, soon afterwards,
- on Hathor's belly in her guise as a celestial cow (Fig. 1, bottom right); and
- around another sky goddess, Nut, on the inside of Egyptian sarcophagi.

It is interesting to note that the same convention for showing a star appears as early as Naqada Ic in Egypt, when a motif with five concentric stars was painted at the centre of a white cross lined pot. The complex pattern, which may represent a waterhole as well as a celestial body, is attached to a frond-like structure and is surrounded by a herd of three adult giraffes and their young (Graff 2009: 216, No. 067). Although such star-like or serrated motifs were common on white cross lined pottery (Petrie 1974[1896]: Pl. 28; Randall-Maciver 1902: Pl. 15), where one was even painted around a snake-like spiral (Graff 2009: 199, No. 018), it is not clear if they were meant to be interpreted as celestial bodies, except in a few cases where they were shown above another object. One of the best examples of the use of a rayed motif in conjunction with something that provides some scale and indicates that it was meant to be seen as something in the sky is a petroglyph (Fig. 8, bottom) near the red crowns in the Eastern Desert (Wilkinson 2003: 37, Pl. 9), where a 'star' was carved over a boat. The interesting thing about this motif is that there is enough associated iconography to date it to the same period as the appearance of star-like patterns on white cross lined pottery — in other words, to around 3700 BCE, which is well before the arrival of the first glyptics in Egypt in Naqada IIb (Watrin 2004–2005: 67–68), much less later ones with rosettes, which have always been assumed to be the origin of Egypt's four- and five-pointed stars, even though the Mesopotamian rosettes have more branches, which are often pinched at their bases, as if they were flower petals.

Several artefacts show the continuing importance of five-pointed stars in pre-dynastic Egyptian iconography. One of the most extraordinary instances is a slate palette from El Gerzeh (Fig. 8, centre left), where a form, which has been interpreted both as a schematised

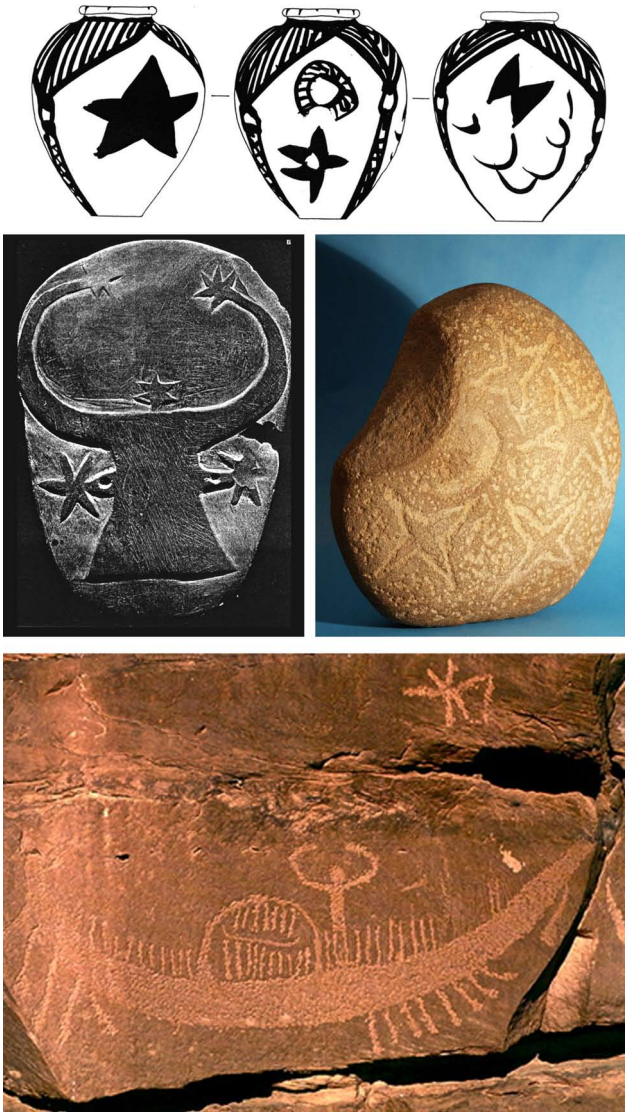

Figure 8. *Rayed stars from across pre-Historic north Africa, including the astral-lunar-solar orb-owl from the northwest Sahara (**centre right**). One of the best examples of the early pre-dynastic use of a rayed motif in conjunction with something that indicates that it was meant to be seen as something in the sky is a petroglyph (**bottom**) in the Eastern Desert (Wilkinson 2003: 37, Pl. 9), where a 'star' was carved over a boat. One of the most extraordinary instances of pre-dynastic stars is a slate palette from El Gerzeh (**centre left**), where a form, which has been interpreted both as a schematised anthropomorph and frontal view of a bovine head, has a six-pointed star where an anthropomorph's head would be. This apparent combination of cephalic, astral and manual imagery is surprisingly reminiscent of the form seen on the western Saharan metate illustrated in Fig. 6.*
*Another example of the pre-dynastic (Naqada IId2?) use of five-pointed stars occurs on a vase (**top**) with three fields, which seem to show astronomical imagery, with the first compartment showing nothing but a fully coloured star; the second, a circle in a rayed hoop above a star with a hollow centre; and the third, a series of crescents around a 'butterfly' motif (Payne 2000: Fig. 38, 835; Graff 2009: 187, 295, No. 306).*

Figure* 9.** ***A–B *This crude sculpture from the 'Kem Kem' zone along the Moroccan-Algerian frontier consists of a natural cobble composed of two globular masses separated by a pecked ring. This groove creates the same kind of 'neck' as on some of the 'eyed cobbles' (Figs. 4:A–F), making it all the more likely that the owl-like standing figures (betyls) (Fig. 7) and 'avian sceptres' (Fig. 3: A–F, H) are associated with that family. The larger of the two masses, which apparently corresponds to the object's body, has a pecked crescent on one side and rayed circle on the other. This convention is known to go back in northwest Africa as far back as the Tazina style in the Neolithic.*

anthropomorph and a frontal view of a bovine head, has a six-pointed star where an anthropomorph's head would be, between its arms (or the bovine's horns), which are tipped with five-pointed stars instead of hands, just like two projections below the horn-arms, which can be read either as the animal's eyes or ears, since they both have a cupule that can be read as a pupil or ear-hole (Petrie et al. 1912: Pl. 6).

Another example of a pre-dynastic (Naqada IId2?) use of five-pointed stars occurs on a vase (Fig. 8, top) with three pictorial fields, which seem to show astronomical imagery, with the first compartment showing nothing but a fully coloured star; the second, a circle in a rayed hoop above a star with a hollow centre; and the third, a series of crescents around a butterfly-shaped motif (Payne 2000: Fig. 38, 835; Graff 2009: 187, 295, No. 306). It is tempting to interpret the imagery as representations of stars, a solar motif (perhaps at sunrise or sunset, which would explain the incomplete circularity of the outer hoop), and the movement of a waning crescent moon.

But one example of a pre-dynastic star shows especially clearly how stars became associated with awe-inspiring power. The motif in question appears in a serekh in Wadi Mineh of the Eastern Desert (Rohl 2000: 99), which represents one of the earliest naming devices of an Egyptian ruler. The serekh shows a falcon or swallow perched on a rectangle containing a five-pointed star. This means that the star is in the naming compartment or palace door, making the serekh for 'King Star' a royal combination of two motifs, birds and stars, which are known from the other end of the Sahara.

Which brings us back to the western orb-owl (Figs 7, 8: centre right). The opposite side of this sculpture (Fig. 7, left) is much more enigmatic than the one with the night sky (Fig. 7, right), since it consists of an apparently abstract arrangement of pecked and polished zones around a central pit. I finally realised what the pit surrounded by polished and pecked circles might mean when I lay on my back, exhausted after hours of digging vehicles out of dunes in the Great Sand Sea, and saw the sun surrounded by parhelia or sundogs, which are concentric haloes around the sun that are formed in dry regions by dust suspended in the atmosphere. The concentric motif on the owl sculpture looks like a faithful representation of this phenomenon, making it, in all likelihood, a representation of the sun at its brightest. If this interpretation is correct, the Neolithic owl may be one of the oldest known objects to show both the night and day skies — let alone one of them!

This reading is confirmed by another artefact that was supposedly found by diggers hunting for dinosaur fossils in the 'Kem Kem' (Fig. 9). This rather crude relative of the owl, which was seen in a Belgian gallery some 20 years ago, simply consists of a natural cobble composed of two globular masses separated by a pecked ring. This ring or groove obviously creates the same kind of 'neck' that we saw on some of the 'eyed cobbles' (Fig. 4A–F), making it all the more likely that the owl-like standing figures and 'avian sceptres' are associated with that family. The larger of the two masses, which apparently corresponds to the object's body, has a pecked crescent on one side and rayed circle on the other. A homogeneous petroglyph of a Tazina bovid with a similar rayed disc at the tip of its horns exists at Daiet el Hamra (33° 03′ 00″, N 4° 23′ 00″ E) in the Saharan Atlas of Algeria (Capderou 1992–93: 98–100), so that convention, which is still used today to illustrate a bright sun, is known to go back in northwest Africa as far back as that style. It is interesting to note that the same convention also occurs in Egypt, where it went back once again to Naqada I (Graff 2009: 186), creating yet another commonality between the two zones at the ends of the Sahara.

The difference between the 'Kem Kem' cobble and astral-lunar-solar owl, which both seem to have opposing solar and lunar motifs on their flanks, is that the owl takes this theme to an extreme in terms of refinement, since the animal's form is adapted to that of an orb and is designed to divide, in most lighting, into dark vs light sides, with contrasting eyes to match, making the being into a powerful symbol of transitions.

But why did the maker choose an owl to be the interface between night and day? One reason may be that such birds tend to be seen in the Sahara at dawn and dusk — not in full daylight, when they often sleep in burrows, or complete darkness, when one cannot see — making them perfect symbols for intercessors between light and dark and perhaps the states that they have evoked in many cultures, life and death. This adds a bit more support to the hypothesis that the Sahara's other owl-like standing sculptures (Lhote 1970: 74; Demoule and Lessing 2007: 17) represent beings involved in transitions.

If the iconography that we have encountered among these

sculptural families only shared one or two similarities, such as falcons or five-pointed stars, with those from pre-dynastic Egypt, one would be tempted to dismiss the resemblances as coincidences, even if the Nilotic artefacts were found together in one cemetery, but it turns out that artefacts from the same royal necropolis (A-group royal cemetery L at Qustul) that produced one of the oldest Egyptian associations of falcon imagery with kingship and snake mortars that looked like they came directly from the western Sahara, share a third parallel with those from the west — images of watchful owls. One side of a pot from the cemetery, for example, shows a horned owl perched in a tree over a crocodile and a caprid, which is balanced on the embedded hoops of the tree's roots (Williams 1986: 348, Fig. 163-c) — a pattern that resembles the sign for a palace facade. The other side shows a second eared owl — this time in profile — looking at three large birds, which are standing on and biting snakes (Williams 1986: 348, Fig 163 c; Pls 84, 85).

Another vase — this time from a Naqada I cemetery — not only seems to portray an owl but appears to anthropomorphise it in a way that is surprisingly similar to the owl statuary and related standing figures from the central and western Sahara (Yoyotte et al. 1990: 53, Fig. 316). Finally, some of the Naqada II Hathoric amulets (Yoyotte et al. 1990: 69, Fig. 355) mentioned above seem to combine the dorsal view of a bovine head with a disk and cupules suggesting the forward gaze of an owl in a tour-de-force of assembled imagery, which recalls the celestial owl from the western Sahara.

Hieratic zoomorphic sculptures

Hieratic zoomorphic sculptures with legs (Fig. 10A–H). Although all the western zoomorphs that I have seen have legs, they are probably closely related to the legless zoomorphs from the Djanet area that were studied by Le Quellec (2008), since some of the sculptures in each group share the same conventions for illustrating ears, eyes and horns (Fig. 10G–H). Although the western zoomorphs do not appear to be as central to arguments concerning trans-Saharan links as the sculptural families examined above, they are still important for several reasons. The first involves their highly unusual materials.

One of the features which sets the western zoomorphs apart from the 'Djanet' group is that several of them, including one whose head resembles those from the central Saharan group and another from Tabelbala (Camps-Fabrer 1966: Pl. 28-4), are made of black-and-white banded marble (Fig. 10B, D, G, H; plus Demoule and Lessing 2007:15). The maker of another small quadruped (Fig. 10F) may have gone to even greater lengths to find striking multi-coloured banded stone, whose banding may have suggested the variegated bovine coats seen in some Saharan rock art styles, and most especially, from a regional perspective, in the pecked cattle group (Searight 2004: 102, 169), by using red-and-white silicified coral. Another zoomorphic

Figure 10. *A sampling of zoomorphic figurines from the northwest Sahara. B, D and G/H are made of the same banded black and white stone as one from Tabelbala.* ***F*** *is made of silicified coral and shows differential erosion because of sand storms.* ***G*** *and* ***H*** *are the same sculpture, which has suffered a fracture and wind erosion on the front leg. The conventions that were used to make its horn, ears and eyes are the same as those that were used in making several of the legless zoomorphs in the 'Djanet' group while the pecking and contours link it to the pecked cattle group.* ***(A)*** *9 cm L × 4.5 cm H.* ***(B)*** *7.7 cm × 3.5 cm.* ***(C)*** *10 cm on diagonal × 7 cm H.* ***(D)*** *10 to 12 cm L.* ***(E)*** *19 cm L × 13.3 cm.* ***(F)*** *7 cm L × 4 cm H.* ***(G/H)*** *15.2 cm L × 10 cm H. Private collections.*

figurine with legs, which is made of variegated stone — in this case a hard, brownish-red stone with a light vein crossing the figure — makes the association of such zoomorphic sculptures with the pecked cattle group all the more likely, because it was found, albeit on the surface, at Adrar n'Metgourine (Bravin 1995: 102–103) — which, as we have seen, is a 'Pecked Cattle' site (Searight 2004: 102). The rocks in both cases are so unusual that they can probably be traced to specific locations near Adrar n'Metgourine and Tabelbala that would further clarify the sculptures' cultural affiliations.

The second reason that the zoomorphs are important

Figure 11. *A small zoomorphic 'palette' with a horned bovine head at one end (**centre**), which leads to low-relief linear representations of an animal's body. The portrayal of the body on the left side (when the head is facing away from one) only has a foreleg (**right**), while the body on the other side only has a back leg (**left**), making the composite image, when the representations are taken together, one of an animal with both front and back legs, which is probably shown running. The 'bodies' join both at the head and tail, making the 'palette 'the representation of a single animal. 10.6 cm L × 7 cm H × 6 cm W, private collection.*

is that the silhouettes of bovine figurines, like the sexed bull illustrated here (Fig. 10G, H), share the same firm contours and stance as bovids in pecked cattle group A (Searight 2004: 114, Fig. 39b), making it all the more likely that the sculptural and rupestrian styles are closely associated, even when the sculptures come from areas like the Kem Kem, which are neither known for their rock outcroppings nor, unsurprisingly, for their rock art.

The third reason for including the zoomorphic sculptures in this discussion is that the similarity between the head details of one of the largest banded sculptures from the northwest (Fig. 10G, H) and those seen in the 'Djanet' group suggests that at least some of the western zoomorphs might date to the same period as two of the figurines in the central Saharan grouping: a stone bovid from Jabbaren and a terracotta one, with the same kind of profile, from Ti-n-Hanakaten. Although Henri Lhote was inconsistent in his dating of the Jabbaren sculpture, which was calculated on the basis of ashes found nearby, the date that he provided most commonly was 3550±200 BCE (Lhote 1970: 73; Le Quellec 2008: 49). The terracotta bovine from Ti-n-Hanakaten was extracted from a layer that provided an 'average' date from about 2700 BCE (Le Quellec 2008: 49, citing Aumassip 1980).

There are at least two more reasons for thinking that '[i]t would hardly be surprising' to learn, that the sculptures' 'makers were the ancient nomadic herders of the central Sahara around the 4th to 3rd millennia before our era' (Le Quellec 2008: 49). The first is that two thirds of the bovine representations in the 'Djanet' group (and, one might insert, all of the bovine figurines from the northwest) lack humps, which means that they were probably made before the introduction of *Bos indicus* (Le Quellec 2008: 49). The other is that the distributions of legless zoomorphs and key-hole funerary monuments overlap so closely that they might be contemporaneous expressions of the same culture (Le Quellec 2008: 54–56), in which case the sculptures might have been made around the same time as the monuments, which have provided dates that centre on 3500 BCE (Gauthier and Gauthier 2006: 98), after beginning around 500 years earlier.

Zoomorphic 'palettes'

Several small zoomorphic 'palettes', probably for grinding pigments (Figs 11, 12), have a head at one end and representations of animals around the sides. The highly schematised head on the first example illustrated here (Fig. 11) seems to be a horned bovid's and leads to linear low relief representations of an animal's body, which has a foreleg on the left side (when the head is facing away from one) and a back leg on the other, making the composite image, when the two corporeal representations are taken together, of an animal with both front and back legs, which is probably shown running. The tails of the outlined 'bodies' join in the back, making the palette the representation of a single creature.

The head at the end of the second, heavily patinated 'palette' illustrated here (Fig. 12, bottom centre), which has a shallow oval basin with flat rims, has the same owl-like contours as some of the 'avian sceptres', showing that the 'palettes' and sceptres were probably contemporaneous expressions of the same culture. If one rolls the object to the left, with the head facing away from one, the first side has a long-necked bird (Fig. 12, right), the second, which corresponds with the bottom, has a running canine, which is probably a fennec fox (Fig. 12, top centre), and the third, before returning to the top, has a long-horned ibex (Fig. 12, left).

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Up till now, prehistorians have done a good job of accounting for such features as pottery motifs, *Steinplätze*, coifed cattle and ovicaprids, and thematic resemblances such as people touching the bellies, legs and tails of large animals, which are seen across the length of the desert, by associating them with the pastoralist expansion. But researchers have done a

Figure 12. *A small zoomorphic 'palette' with a shallow oval basin and the outline of an owl's face at one end (**bottom centre**). The head has the same contours as some of the 'avian sceptres' and standing figures (betyls) from Tabelbalet, showing that the 'palettes', 'sceptres' and betyls were probably contemporaneous expressions of a single complex of cultures. If one rolls the object to the left, with the owl facing away from one, the first side has a long-necked bird (**right**), the second, which corresponds with the bottom, has a running canine (**top centre**), and the third, before returning to the top, has a long-horned ibex (**left**). 9.9 cm L × 4.5 cm H × 5.5 cm W, private collection.*

poorer job of explaining why falcons and rams with discs are found in the same two zones at the desert's extremities, and nowhere in between. One of the reasons why Lhote and Vaufrey were unable to prove that the 'likenesses' with Egyptian symbols, which they had observed in the western Sahara, might represent a real connection with Egypt — let alone a direct one — was that each of them knew about only one or two lines of evidence. But when one adds such similarities as rayed suns, stars which have the same number and form of points, and snakes which are identical in their positioning, manufacturing technique, sculptural style, proportions and orientation (with their heads at the centre of the vertical axis), the evidence begins to look like it is reaching critical mass. When we overlay the information about the spots where hawk sceptres (Hamada du Guir), snake metates (erg el Atchane), zoomorphs (Tabelbala and Adrar n'Metgourine), owl imagery (Kem Kem, western Sahara), rams wearing spheres, five-pointed stars, and rayed suns have been found, they converge upon a zone to the south of the Atlas Mountains along both sides of the Algerian-Moroccan border. The convergence of so many shared features, which share strong resemblances with Egyptian iconography, suggests, for the first time, that there may be enough concentrated smoke to consider the possibility that there might actually be a fire.

But what kind of fire? Do these new 'likenesses' just represent more evidence for the seminal influence of the pastoralist expansion or a second movement? The realisation that many of the resemblances seen across the Sahara probably resulted from the pastoralist wave makes it all too easy to assume that they all did. After all, the interval separating the first appearance of domesticated animals in northwest Africa (5400 cal. BCE) from the combination of cattle and ovicaprids near the Nile (5900 cal. BCE) was about 500 years — a negligible amount of time for the survival of beliefs and even stories concerning the pastoralists' eastern origins. The interval is so short that it is tempting to assign all of the iconographic similarities between the western Sahara and pre-dynastic cultures in Egypt starting around 3800 BCE to their common Nilotic roots, a little over 2000 years before, around 5900 cal. BCE. This is all the more tempting since the eastern Sahara started drying up by the end of the 6th millennium BCE (Gatto 2011: 24), and became so arid by 3500/3600 cal. BCE, when desertification began progressing rapidly across northern Africa (Riemer 2009: 43), that authors like Muzzolini (2001: 212) have argued that the creation of a hyper-arid, 500-km-wide corridor from northwest Egypt to the Darfur in the south created an uncrossable barrier by 3600 BCE.

Another reason for being prudent is that there is little or no local evidence in the Western Desert of Egypt for an even transitory presence of the iconography under consideration. On the contrary, the archaeological evidence for the region, which has been summarised by Heiko Riemer (2009), 'presents a very clear cultural divide running diagonally across the ... [desert], traceable from the region of Siwa to Lower Nubia. This divide progressively widened, with cultures east of the divide ... moving and eventually reaching the Nile, while those on the western side of the divide shared commonalities with other Saharan pastoral cultures (rock art, ceramics, lithics), became

ever more removed from the Nile, and were pushed southwards by desiccation' (András Zboray, pers. comm. Dec. 2012).

A third reason for being cautious is that the antiquity of the pecked cattle style is still uncertain. If the style does not go any farther back than the Bronze Age or Chalcolithic — as Renate Heckendorf (2010) has argued for the neighbouring Tazina — it will be almost impossible to prove that any pre-dynastic symbols were inspired by 'equivalents', including 'avian sceptres', 'eyed cobbles', low relief snakes, zoomorphic figurines and animals with discs (Searight 2004: 158, Fig. 49l), which have been linked to it. The only way of salvaging the notion of a link in that case would probably be to imagine that the western versions of the 'shared' iconography were made by a pre-literate society with only indirect knowledge of a distant, but inspiring civilisation.

But the most parsimonious response to proof that the symbols from the poles did not overlap while the Sahara was still traversable, would be to decide that the 'likenesses' probably evolved independently, even though some of them could still have developed from symbolic substrates, which were spread during the pastoralist expansion. One could even argue that the existence of falcon, owl and snake imagery in Nubian A-group cemeteries and the western Sahara supports the hypothesis that the symbols were inherited from the pastoralist wave, since the A-group was related to even older Khartoum Neolithic sites in central Sudan (Rampersad 1999: 10), which probably contributed to the pastoralist expansion (Gatto 2011: 26). According to this scenario, the ancestral versions of the symbols would have spread both westwards and northwards from Nubia and evolved into superficially similar forms at the two ends of the Sahara. One can even explain away the lack of intermediary forms by arguing that they were probably made of perishable materials like leather.

But the A-group, which was contemporaneous with Naqada Ic–IIa and lasted from c. 3800 BCE to 2900 BCE (Gatto 2006: 67) had more than ancestral links to the Sahara, since it was linked to the desert in its own right.

> A-Group related evidence is quite common [in the Western Desert], being found in the plateau behind Armant, in the Nabta-Kiseiba region, in Bir Sahara, in the oases of Kurkur and Dunqul, in the Laqiya region and possibly in Kharga ... [T]he oldest evidence seems to come from Kurkur and it may be linked to the mixed Naqadian/Early A-Group culture already attested in the First Cataract area (Gatto 2006: 64).

This means that the symbols could also have spread westwards from the A-group's far-flung traders (Gatto 2006: 64) or their cultural cousins after the symbols developed near the Nile, or that some of their desert outposts received the package from Saharan groups beyond the Libyan Desert who had developed the package on their own.

One way of determining whether such scenarios might be valid is to see if they match the known patterns of evidence. We should keep two things in mind while doing so: first, that a strong signal may hide weaker ones, and, second, that resemblances, which result from the gradual and bushy expansion of a more efficient technology or economic model (like pastoralism, as opposed to hunting-and-gathering) may differ from ones which result from a rapid displacement, for example, by refugees, who usually have few if any advantages over groups they encounter and are likely to be expelled from place to place, until they reach an area where they can impose themselves or their presence is tolerated. The widespread variations and signs of continuity across space and time of cattle burials, horn stylisations, coifed ungulates and people gravitating around large animals all seem to fit the first type of cultural conveyance, which can be equated to a complex game of 'telephone', in which the same message is whispered down several branching lines, creating increasingly greater variations along the way, before becoming completely and differently distorted at the various ends.

But the snake metates, falcons, identical stars, rayed suns and, to a lesser degree, rams wearing discs, which are all polarised in the same two areas at opposite ends of the desert, seem to fit the second pattern, since displacements like the Gypsies' from India to Europe around 1000 years ago tend to leave very few traces between the points where they start and come to rest. One would be hard put, for example, to find evidence of the Gypsy displacement anywhere along the path of their exodus across Persia and Mesopotamia. But if one can prove that a large enough variety of artefacts are tightly grouped in two places such as Viking colonies on Greenland and Anse-les-Meadows in Newfoundland, the near absence of such artefacts between them is not a persuasive counter-argument against displacement.

Even if the same conventions for producing stars, suns, snakes and falcons do signal a displacement, though, the question remains; which direction did it go: east or west? One way of determining the answer would be to see if the imagery at one pole seems to appear without any warning while the same imagery at the other fits into a large and varied body of related forms. The area where the imagery was just one aspect of a rich and earlier tradition is likely to be the source for the iconography, while the area where the imagery crops up without any apparent antecedents will probably be the receiving end.

We have seen that none of the shared iconography seems to go back in Egypt before 3800 BCE while one variant of the Saharan sculptural canon, zoomorphic pestles, appears to be associated with key-hole monuments, which began to appear around 4000 BCE. The discovery of a sculptural workshop on the surface at Mankhor (Marie Maka, pers. comm. 25 Nov. 2012), whose cattle burials have been dated to 4500–3500 cal. BCE, cannot be dated directly, but still suggests that central Saharan sculptures were already being

made by 3500 cal. BCE, and perhaps much further back. The 'naturalistic' bubalus style, which was used in illustrating rams with discs in the Saharan Atlas, may have started even earlier than the production of sculptures, when pastoralism arrived in northwest Africa around 5400 cal. BCE. Snake metates from the Moroccan-Algerian border zone are just one aspect of an extensive western and central Saharan tradition, both of making low relief motifs on grinding platforms and, more narrowly, of making similar motifs at sites like Oued el Kebch and Imaoun (Rodrigue 2009: 131), whose pecked cattle belong to a style that may have begun around 4000 BCE. The two snake metates from A-group Cemetery L in northern Nubia, on the other hand, are not known to have any earlier or regional antecedents in the eastern Sahara.

Falcon imagery shows a similar distribution, since west Saharan falcon sceptres are just one expression of a tradition which produced more anthropomorphous variations on the theme in the central Sahara, where standing figures with similar facial contours can be read as owls or anthropomorphs, while Egyptian falcons do not seem to belong to a diverse family of forms until the late pre-dynastic period.

Together, these and other distributions, such as the one for stars, suggest that a displacement could have taken place from the area in the western Sahara, where the shared conventions overlap, after evolving in some cases from symbols, like coifed ungulates, which arrived with the pastoralist expansion (Achrati 2003), to an area along the Nile, where at least one of them, the falcon, became the prerogative of royalty, while the coiled snake became the central symbol on a late pre-dynastic royal palette (Hayes 1953: 29; Montet 1955: 194), only to give rise to a divinatory board game, in which pieces were moved around a serpent's coils (Montet 1955: 189–197; Quibell 1989: Pl. 43).

One of the most glaring questions that must be answered in defending the idea of an eastward displacement is: why would a western Saharan group have left the Moroccan-Algerian border area and gone all the way to the Nile? The reason, one could argue, might have something to do with the worsening conditions created across the Sahara by the same desertification, which was finally making the valley conducive to agriculture in the 4th millennium BCE. Displacements can happen for many reasons, including defeat, famine or epidemics. It is likely that all of these phenomena became more common among Saharan populations as they were forced to compete more fiercely for resources, including cattle and pasturage, after rainfall began declining across northern Africa because of climate change. The rising death toll and loss of resources would have forced pastoralists to look for refuges in the Maghreb, Saharan highlands which could still capture some rain, oases and river valleys.

One way of documenting such forced moves is to look at the changing pattern of such datable vestiges as mortuary monuments. As rainfall declined in the Aïr, for example, a population, which used crescent-shaped tumuli abandoned the increasingly arid highlands and started building the characteristic structures in the Azawagh valley to the south around 2550 BCE (Durand et al. 1999: 74). It is safe to assume that their descendants moved even farther south, to the next refuges, which were the Sahel and Niger River valley, as the Azawagh itself dried up.

It is also safe to make Le Quellec's assumption that some populations in the Western Desert withdrew from the increasingly uninhabitable desert by seeking refuge in the Nile valley, which was close enough to be known by nomads. As we have seen, the archaeological evidence for the northern Western Desert even proves that he was partially right (Riemer 2009: 35, Fig. 2), although it appears that the Gilf population mainly moved south. But it is hard to imagine why a population in the western Sahara, which was completely beyond the range of such living knowledge of the Nile, would have gone east in their search for a sanctuary, when they were so close to the fertile Maghreb and valleys of the Atlas Mountains. This reservation is reinforced by the fact that the distribution of pecked cattle sites 'seems to indicate ... a northern movement up the River Tamanart, towards higher ground around Tafraout, in the Anti-Atlas ... and from there into the High Atlas ...' (Searight 2004: 136). But a movement from lower altitudes because of increasing aridity does not preclude the possibility that other people from the group or its cousins — especially ones who lived outside the watershed of the Atlas Mountains in the western Sahara — sought other refuges farther back in time.

The explanation for the movement in the first half of the 4th millennium BCE, if it did take place, might be that it was driven by the desire of some west Saharan pastoralists to retrace the route that their pastoral ancestors had taken from the Nilotic region to the foothills of the Atlas about 2000 years before. If such a movement took place, it might have resembled the efforts that many Jews have made to 'return' to an ancestral 'homeland' after an equally long period, when they came under particularly acute stress. The neighbouring refuges in the Atlas and Maghreb might have been populated, subject to increasing competition due to the arrival of other refugees, or barred to the group by enemies, while the path to the east would have been blessed with the imprimatur of the greatest authorities of all, one's ancestors and their divinities.

But the exodus of western Saharan groups back to a mythological land of plenty around the only huge river that their ancestors would have crossed during their westward expansion — a river so wide that it would surely have become a mythological landmark, even though its valley had not been arable, when their ancestors had hunted there — would have taken more than blessings, because the refugees would have had to cross both the territories of other armed pastoralists and the 500-km-wide desert wall, which was rapidly forming in their path. It would probably have been a

desperate exploit, made in the last few centuries before such a feat became impossible, and would have taken the resiliency and persistence of persuasive leaders with a gripping ideological narrative.

But why, one might ask, would the refugees not have been expelled from their 'homeland' in the Nile as well? The answer, if this scenario is even correct, probably lies in the timing of their arrival. The same desertification, which forced them to move, was making the Nile a place that could sustain a large population for the first time since the invention of agriculture, with a newly predictable growing season, because it was getting most of its water now from a single rainy season far to the south. As the valley opened up to agriculture, it could absorb immigrants, who were certainly arriving from all of the lands that were drying up around it (Riemer 2009).

Finally, what did the ancient Egyptians have to say about their relationship with the Western Desert? Although they connected it with death, that is really another way of saying that they connected it with their ancestors. They thought their pharaohs were part of a perpetual cycle of resurrection and return between the land of the living king, Horus, along the Nile, and the fertile land of their ancestors, Amenti, where Horus's father and avatar in death, Osiris, ruled beyond the Western Desert. Between the Nile and Amenti lay the Duat — the 'place of testing' for transient souls. The Duat matches the closing wall of desert, which would have posed the final and greatest obstacle to a 'return' from the western Sahara.

A real individual who led another, much shorter exodus (whether from Egypt or, as some have theorised, from Mesopotamia) across a wasteland and place of testing thousands of years later may have been memorialised by the name of Moses. It is just possible that Egyptian mythology did the same thing for the person (or persons) who led a band of Saharans through much greater obstacles by memorialising those leaders as Osiris and Horus.

Conclusions

This article has done several things. First, it has added several families to the known repertoire of western Saharan Neolithic sculptures. It has also linked the western sculptures repeatedly to the pecked cattle group, and, more distantly, to one central Saharan sculptural family, zoomorphic pestles. This adds to our knowledge about the pecked cattle style while suggesting that the same population that produced rupestrian art in rocky areas — or its cousins — produced mobiliary art on the hamadas and plains along the Moroccan-Algerian border, which lie between the known pecked cattle group sites and related ones in the central Sahara. And, finally, it has offered the first strands of evidence in support of the idea that the falcons, four- and five-pointed stars, inwardly curled, low relief snakes, rayed suns and other shared imagery at the eastern and western ends of the Sahara signal some sort of culture conveyance between them after the pastoralist expansion, either directly, through a population movement, or indirectly and diffusely. The population displacement scenario is still an example of reasoned speculation, rather than proven fact, since more evidence will have to be gathered at both ends before it can be raised, by general agreement, to the level of a viable hypothesis, let alone established truth. In the meantime, this article has indicated:

- The nature of the preliminary evidence for such a link
- Where to look for more
- Several possible mechanisms for the transfer
- The approximate period, when an eastward transfer could have taken place
- Several evidentiary models, which can make sense of the known distribution of artefacts

It has also shown that the resemblances between Nilotic and Saharan iconography fall into two categories, which may indicate the presence of two competing signals. The first one is associated with the pastoral expansion, which accounts for 'family likenesses' between Egyptian iconography and many examples of Saharan rock art, and the second one involves a variety of nearly identical objects thousands of kilometres apart. The existence of competing signals for related phenomena makes it difficult to separate their specific contributions in such cases as coifed ungulates — but it might still be possible to date the receiving end of the flux represented by identical conventions, which have no functional reason for being the same and no apparent antecedents from the pastoralist expansion, by looking for their sudden appearance at one end.

The article has also shown that there are so many similarities between the iconographies of the late pre-dynastic period and western Sahara that a link between the two might just be possible. The concentration of several of these symbols in royal cemeteries in a zone embracing Qustul, Hierakonopis and Naqada, which all have links to the Western Desert, suggests that Egyptians and Nubians could have received those symbols from even farther west than Wadi Sora, which d'Huy and Le Quellec saw as the source for other pre-dynastic and dynastic beliefs, when another iconographic package arrived with a different group of refugees from the Sahara's increasingly stressed environments and demographics.

If the nearly identical artefacts and motifs from the two ends of the desert, but hardly anywhere in between, are indeed related, it seems more likely that their similarity is due to a one-way flux eastwards, which left little trace, instead of a movement of Egyptians or their influence to the west during either the pre-dynastic or historic periods, since the Egyptians had little incentive to leave their valley once the Sahara started turning into a desert. If this eastward flux took place, it is likely that it was caused by increasing drought, which would have driven ethnic groups into leaving their home ranges, even when it meant that they would have to fight others

in order to find territories where they could impose themselves or be tolerated, while cutting them off from anything but symbolic return. One of these groups may have been driven to come from so far and against such terrible odds that their survival must have seemed like divine validation of their beliefs. That certainty may explain why a group from the northwest Sahara could have managed to impose some of its symbols at the top of an amalgam of Egyptian cults, as their descendants absorbed competitors and their ideologies into the first kingdom and its syncretistic religion.

If this is in fact what happened, the Osiris/Horus myth, which associates kingship with a perpetual cycle of exodus and return from a fertile land, *Amenti*, beyond the Place of Testing, *Duat*, in Egypt's Western Desert, may have become the embodiment of one of the longest, earliest, and most arduous exoduses of all time.

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THE ADELAIDE COLLECTION - PART 2

Guest Editor: R. G. Gunn

The following collection of selected papers presented at the September 2012 AURA Inter-Congress Symposium in Adelaide has been edited by Guest Editor R. G. ('ben') Gunn. This issue of *RAR* contains the second part of the Adelaide Collection, the first having appeared in *RAR* 30-1, pp. 67–114. This series is to be continued in the next issue.