THE AURIGNACIAN VIEWED FROM AFRICA

Christian A. TRYON

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Abstract
The Aurignacian technocomplex in Eurasia, dated to ~43-28 ka, has no direct archeological taxonomic equivalent in Africa during the same time interval, which may reflect differences in inter-group communication or differences in archeological definitions currently in use. Extinct hominin taxa are present in both Eurasia and Africa during this interval, but the African archeological record has played little role in discussions of the demographic expansion of Homo sapiens, unlike the Aurignacian. Sites in Eurasia and Africa by 42 ka show the earliest examples of personal ornaments that result from extensive modification of raw materials, a greater investment of time that may reflect increased their use in increasingly diverse and complex social networks.

Keywords
Upper Paleolithic, Later Stone Age, Middle Stone Age, Homo sapiens, dispersals.

Introduction
The Aurignacian is a Eurasian Upper Paleolithic technocomplex with a current estimated age range of ~42-28 ka (Jacobi et al., 2010; Higham et al., 2011, 2012; Nigst et al., 2014). Across ~15 kyr and >6 500 000 km² (estimated from Szmidt et al., 2010: 3321), Aurignacian sites show reasonably well understood temporal and geographic variation in lithic and organic tool types, production methods, and in parietal art and personal ornament form and frequency (e.g., Knecht, 1991; Chiotti, 2005; Mellars, 2006a; Vanhaeren, d’Errico, 2006; Hoffecker, 2011). Although sparse and largely restricted to dental remains, the available fossil evidence suggests that the Aurignacian is the product of early populations of Homo sapiens (Bailey et al., 2009). In many parts of Europe and the Levant, Aurignacian strata postdate a complex array of regionally specific late Mousterian and Initial Upper Paleolithic assemblages variably attributed to Neanderthals and H. sapiens that likely record an interval of profound behavioral and demographic changes (Slimak, 2008; Teyssandier et al., 2010; Flas, 2011; Mellars, French, 2011; papers in Otte, 2014).

H. sapiens in Eurasia ultimately derive from dispersals out of Africa beginning ~70 ka (e.g., Soares et al., 2012), but distinctly African archeological signatures of this dispersal remain elusive (see discussions in Tryon, Faith, 2013; Marks, Rose, 2014). A few tenuous links have been proposed between the northern African record and that of the Levant (e.g., Nubian Levallois methods, chamfered pieces, blade production) but none of these elements of lithic technology are specific to Upper Paleolithic industries in the Levant, or their place(s) of origin remains uncertain (see discussions in Belfer-Cohen, Goring-Morris, 2009; Ioviţa, 2009; Vermeersch, 2009; Marks, Rose, 2014). The origins of the Aurignacian substantially post-date these initial dispersals, with hypothesized first appearances in eastern and central Europe and central Asia (Conard, Bolus, 2003; Mellars, 2006a; Otte et al., 2011), with the Aurignacian in the Levant now considered to be intrusive to
the region and one of the few archeologically manifested dispersal events from Europe to the Levant (Belfer-Cohen, Goring-Morris, 2009). My goal in comparing the Aurignacian record with that from Africa is not to suggest any direct connection between the African and Eurasian records, but rather to place the Aurignacian in a broader comparative context. The lack of direct connections is useful, as it allows a better recognition of each region’s particular historical trajectory and emphasizes convergent behaviors among modern human foragers (cf. Kuhn, Hovers, 2013).

The African archeological record of 43-28 ka as a comparison

I will not attempt a comprehensive description and comparison of the Aurignacian and comparably aged African records, but will instead emphasize three features of similarity and difference that I think merit further consideration in future inter-regional comparisons.

1. The Aurignacian has no equivalent archeological taxonomic unit (sensu Gamble et al., 2005) in Africa during the 43-28 ka interval;
2. The Aurignacian has historically played a prominent role as an archeological proxy for the dispersal of H. sapiens and the replacement or assimilation of Neanderthal populations, the latter persisting in parts of Europe until perhaps ~28 ka (Finlayson et al., 2006; but see Galván et al., 2014). Genetic data from Africa suggest the persistence of archaic taxa until ~38 ka, but the archeological record there has, as yet, played little role in contact or replacement scenarios;
3. In both Eurasia and Africa from ~43-28 ka, high-modification personal ornaments first appear, which I interpret as a signal of the increased number of roles or messages for which durable symbols are being used within a society.

A - The Aurignacian has no direct equivalent in Africa

While there remains discussion about the nature of internal variation within the Aurignacian, from the perspective of someone who does not work directly on Aurignacian material, it is the similarities among Aurignacian sites that most distinguish them from contemporaneous sites in Africa. To be blunt, there is nothing like the Aurignacian in Africa from ~42-28 ka. In Africa, the Stillbay, Howiesonspoort, and Iberomaurusian technocomplexes all have relatively narrow (< 10 kyr) temporal spans, wide (~350 000-1 500 000 km²) geographic ranges, and a suite of shared features seen in lithic and organic tool production, symbol use, bodily ornaments or modifications, and settlement patterns (Humphrey, Bocaeghe, 2008; Jacobs et al., 2008a; Close, 2009; Olszewski et al., 2011; Henshilwood, 2012; Barton et al., 2013). While these technocomplexes are comparable (or closer) in scale to the Aurignacian (figure 1), all pre- or post-date the temporal interval under consideration by several thousand years.

If the maintenance of similarities in material culture among Aurignacian sites across Eurasia signifies some general level of inter-group contact and communication, the record from Africa could be read as fragmentation and isolation, as many industries across Africa ~43-28 ka are poorly known and/or have very restricted geographic distributions. While sample size is certainly part of the problem, so too may be issues of definition. Archeological taxonomy, particularly defining new artifact industries and complexes, largely (but by no means entirely) fell out of favor after the 1965 Burg Wartenstein conference (Clark et al., 1966; Bishop, Clark, 1967). Recently, a number of researchers have emphasized the importance of these basic units of comparison (e.g., industries) and returned to working towards their definition and application across a range of sites (e.g.,
Conard et al., 2012; Will et al., 2014). This trend is mirrored in the ongoing definition, comparison, and integration of sites variably attributed to the proto-Aurignacian, Ahmarian, and Initial Upper Paleolithic (IUP) (Bar-Yosef, Zilhão, 2006; Mellars, 2006a; Kuhn, Zwyna, 2014).

Prior to 1965, most sub-Saharan sites that we now know date to ~43-28 ka on the basis of radiometric age estimates would have been attributed to the ‘Second Intermediate’ on the basis of lithic artifact typology. The ‘Second Intermediate’ was an interval chronologically between the Middle Stone Age (MSA) and Later Stone Age (LSA), and sites attributed to it contained elements typical of both, such as Levallois technology, retouched points, and backed pieces or microliths. The ‘Second Intermediate’ terminology was abandoned in part because the combination of MSA and LSA artifact types at one of the second intermediate type-sites, Magosi (Uganda), was shown to result from stratigraphic admixture from horizontal excavation across steeply dipping strata (Hole, 1959; Cole, 1967).
Whatever the problems with Magosi, assemblages with the combination of prepared cores, points / small bifaces pieces, and backed elements are found in carefully excavated and radiometrically dated sequences from shelter 7 at Laas Geel in Somalia (Gutherz et al., 2014), Mochena Borago and Goda Buticha in Ethiopia (Brandt et al., 2012; Pleurdeau et al., 2014), Enkapune ya Muto in Kenya (Ambrose, 1998), Nasera and Mumba rockshelters in Tanzania (Mehlman, 1989; Marks, Conard 2008; Diez-Martín et al., 2009; Gliganic et al., 2012), and further south, at Sibudu Cave in South Africa (Wadley, 2005; Jacobs et al., 2008b). These and other sites from ~43-28 ka also preserve strata that lack MSA elements, and record the appearance of fully LSA technologies during this interval (often with an increased use of bipolar technology), as at Border Cave, South Africa (Beaumont et al. 1978; d’Errico et al., 2012; Villa et al., 2012), Matupi Cave in the Democratic Republic of the Congo (Van Noten, 1977) and Shum Laka in Cameroon (Cornelissen, 2003). The MSA / LSA technological shift was a prolonged (> 10 kyr) and in places erratic process, with sites from this period characterized not only by changes in flaked stone but also the widespread use of ochre, ground stone tools, and ostrich eggshell beads (d’Errico et al., 2012; Tryon, Faith, 2013), the oldest occurrence of which is now dated to >50 ka at Magubike in Tanzania (Miller, Willoughby, 2014), as well as rare instances of figurative paintings (Vogelsang et al., 2010).

In Africa north of the Sahara, recent evidence from Taforalt Cave, Morocco, demonstrates the presence of a non-Levallois flake-based assemblage intermediate between the Iberomaurusian and Aterian ~35-25 ka (Barton et al., 2013); detailed formal descriptions are as yet unavailable but this assemblage is remarkable in suggesting population continuity for a period and region long considered to be characterized by a pronounced occupational hiatus (see Close, 2009). Nazlet Khater 4, Egypt, at ~30-35 ka, preserves unusual large bifacial axes possibly related to chert nodule extraction from subsurface quarries at the site, as well as clear evidence for diverse non-Levallois volumetric and ‘planimetric’ blade production unlike that found at other regional assemblages (Vermeersch, 2009; Lelongeon, Pleurdeau, 2011), a comparison hindered by the specialized nature of the site.

Although I have only reviewed a portion of them, well dated, carefully excavated and published assemblages from Africa ~43-28 ka are few in number. One prominent feature of the African record during this interval is the gradual abandonment of typical MSA technologies, and in terms of its length and complexity, the MSA/LSA transition may resemble the Middle/Upper Paleolithic transition in Eurasia. However, no regional entity approximating the Aurignacian exists during this interval in Africa, and a number of authors, particularly those working in southern Africa, have noted the informal and regional nature of assemblages from this interval (e.g., Vogelsang et al., 2010; Conard et al., 2012). For eastern Africa, Mehlman (1989) made the strongest efforts towards defining such an entity. He defined the quartz-based, scraper dominated Nasera Industry with its frequent use of bipolar technology, and rare points and backed pieces, ochre, ostrich eggshell beads and ground stone tools dated to ~26-38 ka (Mehlman, 1989; Gliganic et al., 2012). He recognized it at Nasera, Mumba, and Kisese II rockshelters in Tanzania, sites separated by ≤ 300 km (figure 1). Sadly, many of the artifacts from these sites have since been lost (Prendergast et al., 2007; Tryon, personal observation), making further comparisons difficult. We now need to build on this work by defining new industries, or reviving old ones (as with the ‘Hargesian’; Gutherz et al., in press) as the first step towards more detailed inter-site comparisons. Only then will we better understand similarities and differences among these African sites and determine whether or not the Aurignacian record is truly profoundly different.
B - Archaic hominins persist in Africa through much of the Late Pleistocene

Genetic evidence suggests a number of dispersals of *H. sapiens* across and perhaps out of Africa ~43–28 ka (Soares *et al*., 2012; Rito *et al*., 2013), with environmental change throughout the Pleistocene facilitating both population isolation and subsequent expansion (e.g., Blome *et al*., 2012; Lorenzen *et al*., 2012; Pearson, 2013; Faith *et al*., in press). All African fossils securely dated to ~43–28 ka (and younger) are attributed to *H. sapiens* (e.g., Grine *et al*., 2007; Crevecouer, 2012; Willoughby, 2012; Pleurdeau *et al*., in press). However, analyses of the modern human genome suggest contact ~38 ka in central Africa and introgression with populations of archaic hominins as distinct from modern humans as are Neanderthals (Hammer *et al*., 2011; Lachance *et al*., 2012). As in Eurasia, one feature of the period of ~43–28 ka in Africa is the persistence but gradual disappearance of non-*sapiens* hominins. Unlike the Eurasian record, recent archeological scholarship in Africa has, as yet, contributed little to the discussion of the spread of modern humans across Africa (but see Jacobs, Roberts, 2009; Mellars, 2006b).

C - High modification symbolic artifacts in Africa and Eurasia

Claire Heckel (2015), in her recent dissertation research on proto- and Early Aurignacian personal ornamentation, distinguishes between low modification and high modification personal ornaments. I borrow these terms and concepts, although I use and define them slightly differently in an expanded comparison of non-utilitarian, modified and decorated objects presumed to convey symbolic information (see figure 2). Low modification objects are those where the original form of the raw material is minimally modified; examples include the use of naturally perforated shells at MSA and IUP sites around the Mediterranean (e.g., Bouzouggar *et al*., 2007; Stiner, 2014) or the addition of geometric lines to ostrich eggshell containers, as at the MSA site of Diepkloof, South Africa (Texier *et al*., 2013). By high modification objects, I refer to pieces where the final product does not resemble the raw material, such as is the case with Aurignacian basket-shaped beads and MSA/LSA ostrich eggshell beads.

Basket-shaped beads from early Aurignacian sites are predominantly made of mammoth ivory (but also other materials), produced through a physically demanding procedure of fragmentation using wedges and percussion, perhaps boiling or soaking, scraping, gouging, drilling, and grinding prior to use (White, 1997; Heckel, Wolf 2014; Heckel, 2015), a process that results in a bead morphologically dissimilar to the tusk of which it was a part. Ostrich eggshell beads from MSA, LSA and recent sites are made through a lengthy process of breaking, drilling, and grinding (Wingfield, 2003; Kandel, Conard, 2005; Orton, 2008), and no longer look like eggshells (figure 2). Beads (whether low modification or high modification) were selected or created for their shape, color, or some other property such as lustre (White, 1997), and were used singly or in combination with other beads or different media (e.g., leather or twine) to convey messages significant at a variety of personal and larger social scales (e.g., Gamble, 1999; Ambrose, 2002; Whallon, 2006; Kuhn, Stiner, 2007; Kuhn, in press). What differentiates the high modification from the low modification beads is the investment of time.

I suspect that the shared presence of high modification personal ornaments among Eurasian and African sites ~43–28 ka indicates similar social contexts characterized by a high demand for a wide array of material objects to convey diverse and complex messages. The complexity and importance of these messages is perhaps best seen in the use of locally available raw materials that mimic properties of possibly more rare or valuable items, as in the Aurignacian facsimiles of seashells made of ivory (White, 1997). In Africa, the use of marine shells as personal ornaments is
Figure 2 - High modification vs. low modification objects ~30-80 ka in comparative context: ostrich eggshell beads in various stages of production (original form not apparent) from Enkapune ya Muto and Mumba and a reconstructed engraved ostrich eggshell canteen (original form intact) from Diepkloof Rockshelter, South Africa. Illustration by Sheila Nightingale with portions after Ambrose, 1998; Mehlman, 1989; Texier et al., 2013.
≥15 kyr older on the coast than in the use of ostrich or snail shell beads in the interior (cf. Bouzouggar et al., 2007; Assefa et al., 2008; Miller, Willoughby, in press), which may well track the similar adoption of local raw materials to a concept of bead production and use introduced from the coast.

Of course, beads and other personal ornaments, often found as isolated fragments in excavation, form only one type of personal ornamentation that happened to survive. The ‘low modification’ vs. ‘high modification’ dichotomy probably fails to capture the investment of time or energy or the complexity of composite objects such as strings of beads, or their addition to perishable items such as clothing or bags, or even the time involved in the preparation of abrasives such as ochre (e.g., White, 1992; Rifkin, 2012). But by focusing on those portions of the archaeological record that do survive, the ‘low modification’ vs. ‘high modification’ dichotomy is useful in identifying a change in human behavior beginning ~50 ka.

Conclusions

By comparing sites of the Aurignacian complex with those from Africa ~43-28 ka, I have explored a number of issues, all of which require further development elsewhere. The comparison has (I hope) been useful in emphasizing the lack of an equivalent to the Aurignacian in Africa type, at least based on our current understanding of the archeological taxonomy. I believe that the time is right to renew efforts at regional syntheses that begin to examine more closely the extent to which patterns of material culture are shared across sites in Africa. Given its size and environmental and topographic complexity, it should perhaps not come as a surprise that archaic hominin taxa persisted until relatively recently in Africa, but given the historical emphasis the Aurignacian has played in the demise of Neanderthals in Eurasia, the absence of comparable discussions from the African record is striking. A final theme that links the Aurignacian with the African records is the use of high modification personal ornaments. The time and energy investment in these materials suggest changes in the importance and role(s) of these items, changes that may well signify increasingly complex social relations within and among groups and the use of material culture to navigate them. In Eurasia and Africa, we are only just beginning to understand the full range of ways in which these materials were transformed, used, and shared (Ambrose, Slater, 2013; Slater et al., 2013; Heckel, Wolf, 2014).

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