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General History of Africa Revisited

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CHAPTER 16

THE INVENTION OF POTTERY IN AFRICA AND THE CONTEXT IN WHICH IT APPEARED

Eric Huysecom

Introduction

In the context of this work on the 'General History of Africa', it is particularly important to examine the emergence of pottery and its context. Many members of the public and decision-makers still consider that the 'African man has not sufficiently entered into history: in his imagination, where everything begins again, there is no room for human adventure or for the idea of progress' (Sarkozy, 2007). But field research carried out over several decades shows that Africa was, on the contrary, one of the cradles of this crucial invention, which was the discovery of firing shaped clay materials (Huysecom and Sanogo, 2008). We will not only review the most recent archaeological discoveries, most of which are still little known to the general public, but we shall also consider the concrete significance of mastering this art of fire, its implications, and its use on the African continent during Neolithic times.

Technical, economic and social significance of pottery

We must first examine the various definitions of 'Neolithic' within an African context, an indispensable step in putting into perspective the archaeological findings that will be discussed later.

For Europe and the Near East, the term Neolithic usually refers to sedentary societies with economies based on a system of food production. A few rare exceptions aside, the Neolithic is characterized in these regions by the adoption, in one form or another, of animal husbandry, crop farming, pottery making and sedentarization, a process which eventually led to urbanization in cereal-based societies (Guilaine, 2015).

By contrast, the process of 'Neolithization' in Africa is unclear. It varies from region to region – even among human groups – and the uneven quality of research has not facilitated matters. There are two conflicting schools of thought, one prioritizing material culture and the other a set of economic activities (Huysecom, 2012). In the first case, the presence or absence of pottery is used to classify material assemblages discovered in Africa, prior to the advent of metallurgy, as Neolithic or not – as pottery is an excellent indicator fossil that is often well preserved due to its physical properties. This is clearly a practical solution for a typological approach to societies, and the term 'Neolithic' is then used as a shortcut without consideration of the specific economic characteristics of each of the populations studied. Although this definition is still used by many researchers working in Africa, who find it relevant from a classificatory and typological point of view, it is clear that it has now lost its validity in many cases, particularly in Europe and the Far East, where the emergence of pottery is clearly independent of a process of Neolithization (Guilaine, 2015).

In the latter case, 'Neolithic' is used only to refer to cultural groups prior to the appearance of metal for which a true production economy could be identified, according to the model of the Near East or Europe. Although this viewpoint could be considered more satisfying from a conceptual perspective, since it takes into account the economic characteristics of the societies concerned, it most often excludes Africa from the Neolithic period. In fact, organic remains such as bone fragments and cereal grains are often so poorly preserved in the iron-rich, acidic, tropical sub-Saharan soil that it is difficult, if not impossible, to find evidence of animal husbandry or agricultural practices. Moreover, Africa has developed societies with original, complementary and highly diverse economies, with evolving mechanisms that were very different from those in the regions used as benchmarks in the West or East. Even today, there are societies in Africa that produce pottery but are not sedentary nor domesticating plant or animal species and still do not fit the classic definition of 'Neolithic' (Huysecom, 1996).

The complex question of an 'African Neolithic' has been a thorny topic of debate for decades, and this chapter is not intended to back either school of thought. However, we believe it is important to emphasize that the invention of

pottery demonstrates a certain degree of human control over the environment, and that the creative shaping of clay and its firing to make containers for storing, fermenting or cooking food and liquids should probably be considered one of the first steps in the transformation of natural elements. It should be noted in particular that, before being consumed, the starches contained in collected grass or cultivated cereals must be processed so that our bodies can assimilate them through amylase, as humans do not possess the digestive enzymes necessary to break them down (Stahl, 1989). Cereals must therefore be treated by heat, whether boiled or roasted, or by fermentation. The use of ceramics thus considerably broadens the range of exploitable food resources by making it possible to consume cereals, both wild and domesticated. Mastery of pottery thus enables societies to strengthen their food security and diversify their diet. They could then practise intensive selective gathering, i.e. targeted, systematic and rational harvesting of certain edible wild plants, which, given their importance, can be considered a genuine strategy for acquiring foodstuffs (Huysecom, 2012). In a historical evolutionary process, this intensive selective gathering preceded agriculture proper, which is characterized by seed selection and ploughing. This form of 'proto-agricultural' economy can lead not only to land use changes involving more or less extensive and regular clearing, particularly by fire, thereby promoting the regrowth of plants sought for their nutritional properties, but also to a certain semi-sedentary lifestyle, with populations staying seasonally in areas conducive to gathering (see also Willcox, 2016). Thanks to pottery, humans were also able to protect their crops from predators such as insects and rodents, which was not possible with containers made of perishable organic materials.

Last but not least, we must consider another point: the invention of pottery also had repercussions on the social division of labour and knowledge, given the expertise required to identify the quality of clay and tempers and to master shaping techniques and firing parameters. If we add to this the fact that pottery is not particularly compatible with a highly mobile lifestyle, particularly due to the need for access to clay sources and the constraints associated with transporting raw clay or fragile finished pots, the regular practice of this craft must have necessarily involved a certain break with the nomadic and more opportunistic lifestyle of hunter-gatherers of the late Palaeolithic era.

Ounjougou: an emergence in a specific climatic and environmental context

As early as the 1980s, certain archaeological finds indicated the emergence of pottery in the Southern Sahara, probably in two distinct locations: around the Central Saharan massifs and in the Eastern Sahara, including the Nile Valley. Approximately thirty Carbon-14 and thermoluminescence (TL) dates situate this emergence between the end of the tenth millennium and the very early ninth millennium calBCE (Close, 1995; Jesse, 2003, 2010), coinciding with the onset of climatic improvement in the early Holocene (Nelson et al., 2002). The origin of this early African pottery – clearly linked to the repopulation of the Sahara after the arid phase of Isotope Stage 2, also known as the Ogolien – is the subject of debate. Two scenarios have been proposed. The first suggests provenance from the regions south of the Sahara (Close, 1995), but the oldest evidence did not date back further than the eighth millennium calBCE (particularly in Kenya: Robbins, 1974). The second hypothesis considers, purely speculatively, that pottery was invented by populations who survived in refuge areas of the Sahara during the hyperarid late Pleistocene (Jesse, 2003, 2010).

Ceramic sherds discovered between 1997 and 2009 in early Holocene layers at two sites in the deposit at Ounjougou made it possible to clarify the data within the context of the emergence of pottery in Africa. This deposit is situated in the Niger River loop, in Dogon country, more precisely on the Bandiagara plateau, some 15 km east of the eponymous town (Huysecom, 2014). Researchers have discovered more than 100 archaeological sites there, located in the watershed of a tributary of the Niger called the Yamé. Topographically, the area in question appears as a series of gullies carved out of a complex succession of Quaternary aeolian, alluvial and colluvial formations, with a stratigraphic sequence reaching up to 16.50 m in places (Lespez et al., 2011). The sediments contain considerable plant debris (pollen, leaves, charcoal, wood, seeds, etc.), all exceptionally well preserved. The various sites of the layer have, therefore, made it possible to link human occupation with climatic and environmental variations over a long chronological sequence.

The ceramic sherds were discovered more than 15 m deep in the early Holocene levels at Ravin de la Mouche and at Ravin du Hibou (Huysecom et al., 2004, 2009; Soriano and Huysecom, 2012). The well-documented stratigraphic context of Ravin de la Mouche (Rasse et al., 2006; Neumann et al., 2009; Lespez et al., 2008) – and several dates obtained using a combination of Carbon-14 and optically stimulated luminescence (OSL) chronological techniques – have made

Figure 1. *Ceramics from the tenth millennium BCE discovered in Mali in the stratigraphy at Ounjougou, on the Ravin du Hibou site.*
Source: APA (Archaeology and Settlement of Africa) laboratory, University of Geneva.

it possible to give the layers a *terminus ante quem* of 9400 calBCE for the oldest of the sherds. Only one shape could be reconstructed: it shows a hemispheric bowl with a straight rim and an opening diameter of 21 cm (Figure 1). Although the function of this vessel cannot be determined with absolute certainty, we can exclude the boiling of seeds in water, since the contents would inevitably have overflowed. However, it is possible that the grains were roasted or fermented in this type of bowl.

These pottery fragments are associated with a lithic industry comprising small bifacial arrowheads. Geomorphological and sedimentary analyses indicate a powerful hydrological regime that reshaped the landscape of the valley where the layer is situated. This confirms that the emergence of the typo-technical complex coincides with the onset of wetter conditions during the early Holocene. In fact, recent reports have confirmed that the monsoon front reached 14° north latitude around 9500 calBCE (DeMenocal et al., 2000; Lézine et al., 2005; Duplessy et al., 2005; Garcin et al., 2007). Palaeoenvironmental analyses indicate that the landscape was changing. Zones that had been desert for several millennia were now turning into open tropical grasslands with an abundance of available panicoid grasses (Neumann et al., 2009). The typological and technical complex evolved locally from the eighth millennium calBCE at the Ravin du Hibou with the appearance of grinding tools alongside pottery, and the abandonment of bifacial tools for geometric segments.

This discovery not only allows us to decide in favour of the scenario of the emergence of pottery in sub-Saharan Africa but also to link, as in Asia (Habu, 2004; Yasuda, 2002), the invention of clay vessels with climate oscillations during the Pleistocene–Holocene period.

Central and Eastern Sahara: an invention brought by the first populations resettling in the Sahara during the Holocene?

It is likely that this new typological and technical complex observed at Ravin de la Mouche then spread rapidly to northern regions, particularly the Central Sahara, in conjunction with the rise of the intertropical convergence zone, as the Saharan zone became increasingly green. This climate change resulted in the development of grasslands and changes in the composition of wildlife. From an archaeological point of view, if we only consider sites where pottery remains are directly associated with charcoal samples taken for dating, or where sherds are directly dated using the thermoluminescence method, we note that few of them have yielded dates earlier than 9000 calBCE (for a summary of the dates: Huysecom et al, 2009; Jesse, 2010). Two sites should be considered as close to the appearance of pottery in Ounjougou: Temet, in the western Ténéré in Niger, and Bir Kiseiba, in the Southern Egyptian Sahara, both sites having also yielded grinding equipment.

The excavation of the lacustrine deposits at Temet yielded a date indicating the contemporaneity of this site with the HA2 formation at Ravin de la Mouche, at the junction of the tenth and ninth millenna calBCE (9550 ± 100 BCE) (Roset, 1983b, 1996). Moreover, this is the only site to date that has yielded bifacial arrowheads comparable to those found in the HA1 formation at Ravin de la Mouche, indicating a clear relationship between the two sites (Soriano and Huysecom, 2012). Interestingly, Temet contains only yielded fibrolite bowls that were all fragmented, apart from one hemispheric bowl with a straight rim, slightly oval in shape, with an average

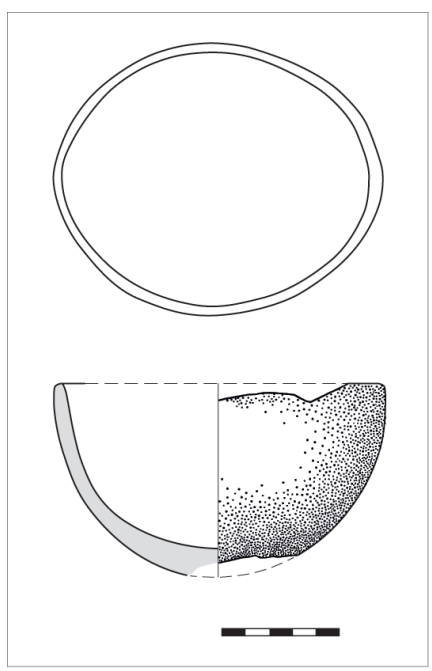

Figure 2. *Fibrolite vase from the stratigraphic excavation conducted in 1981 by J.-P. Roset at the Temet site in Niger, dated to around 9000 calBCE.*

Source: J.-P. Roset, 1983a.

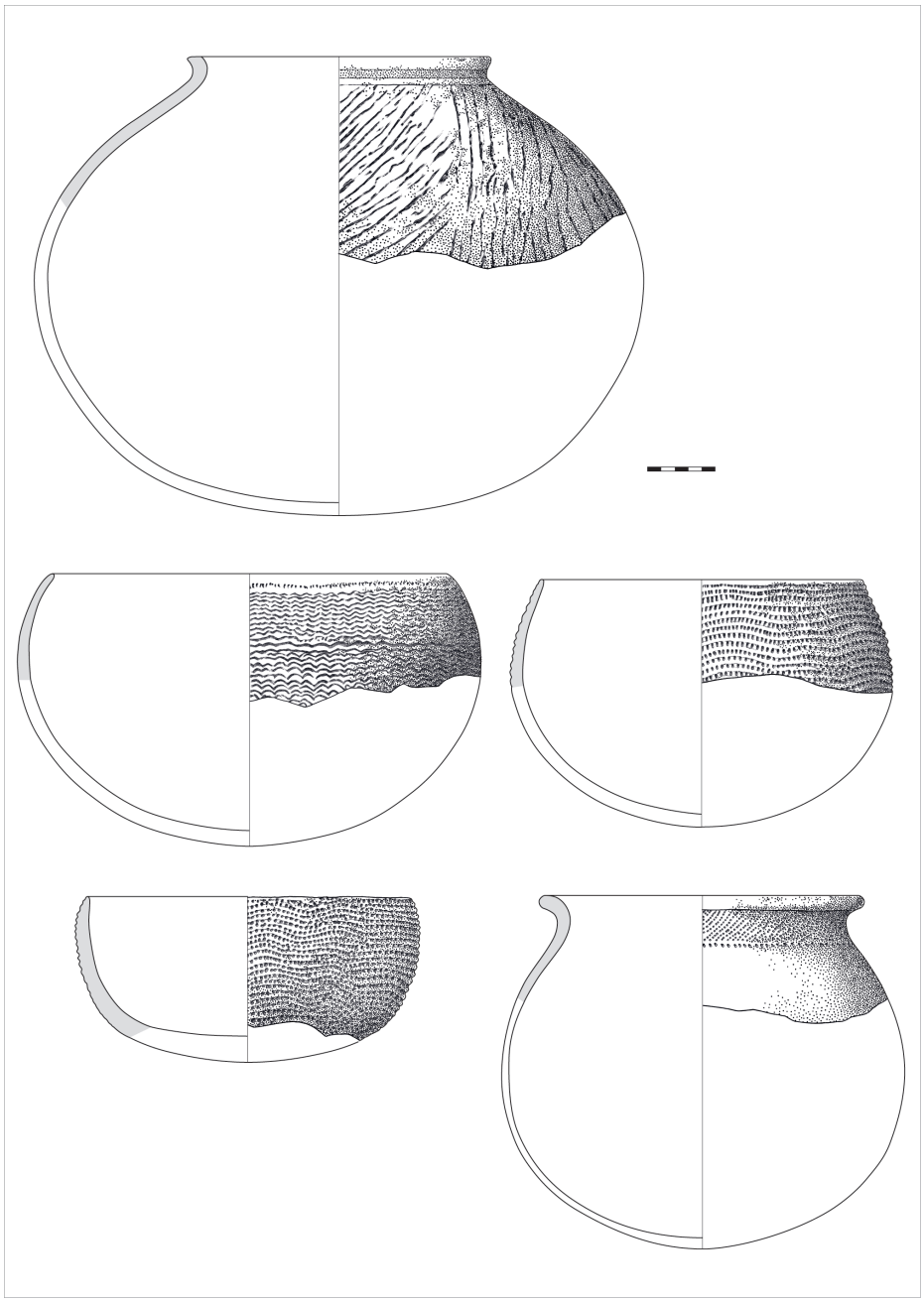

Figure 3. *Pottery from the ninth millennium calBCE discovered by J.-P. Roset at the Tagalagal site, at the top of the Aïr Mountains in Niger. The chronology is established on the basis of Carbon-14 dating, confirmed by TL dating on the shards.*

Source: J.-P. Roset, 1983b.

diameter of 12 cm (Figure 2). Although smaller, this bowl is similar to the pottery shown above that was found in the lower level of Ravin de la Mouche and was several centuries older. The use of ceramics has been assumed at Temet, but this assertion is based solely on the discovery of a fragment of a chlorite-schist plaque with a denticulated edge. The object was interpreted as a potter's comb after the observation of impressed motifs on surface-find sherds (Roset, 1983a). The sherds cannot, however, be reliably correlated with the occupation of the site during the Early Holocene. Until proof to the contrary, the populations of Temet appear to have opted for the use of carved and polished stone and not fired clay for the fabrication of some of their containers. This is of great interest and could be interpreted as a desire to imitate or revise practices in line with an innovation from further south, as grasslands were beginning to expand to the Central Sahara.

It is equally interesting that, only a few centuries later at the onset of the ninth millennium calBCE, sites in the Central Sahara yielded pottery with diverse decorative elements and elaborate shapes, such as those from Adrar Bous 10 and Tagalagal (Roset, 1983a, 2000), demonstrating perfect mastery of shaping and decorative techniques (Figure 3).

As for the Eastern Sahara and the Nile Valley, the site E-79-8 at Bir Kiseiba yielded three sherds discovered during excavations in sandy sediments (Connor, 1984), located just below the surface of the ground, as well as at depths of 10 cm and 60 cm. In the Connor publication, the excavator indicates for the latter that: 'it is possible that the sherd might have been moved to this depth by traffic over the surface of the site' (1984). Three other sherds were nearby surface finds. The seven Carbon-14 dates obtained on charcoal samples, unfortunately, have large margins of error and therefore a wide calibration range, from the end of the eleventh millennium to the beginning of the eighth millennium calBCE (between 9820 ± 380 BCE and 8920 ± 130 BCE). Without a stratigraphic context to correlate clearly the three sherds and the dates, it is impossible to go further in the interpretation of this site in terms of dating the emergence of pottery. Nevertheless, it is clear that from the ninth millennium calBCE, pottery was well attested at several sites, including Nabta Playa E-06-1, Sarurab 2 and Wadi el Akhdar (Connor, 1984; Jórdeczka et al., 2013; Khabir, 1987; Schön, 1996). Do these early ceramics from the Nile Valley represent the next milestone in the spread of pottery-making from the Southern Sahara, or an independent centre of invention? Future discoveries will certainly tell us.

Conclusion: a turning point for Africa

The mastery of pottery-making can be considered a major invention of prehistoric 'African' societies. It enabled them to master the management of wild grasses and their consumption after cooking or fermentation at a very early stage. Current data confirm this as an invention south of the Sahara, at the latitude of the Ounjougou site, during the climatic improvement of the early Holocene (first half of the tenth millennium calBCE). The invention is clearly linked to an environmental change, as the sub-desert landscape of the previous arid episode gave way to grasslands with edible panicoid plants. From this southern area, populations moved towards the Central and Eastern Sahara around 9000 calBCE, and it is possible that some bowls were initially imitated in stone, such as those found at Temet. Shortly afterward, around the mid-ninth millennium calBCE, pottery-making was perfectly mastered in the Central and Eastern Sahara, as well as in the Nile Valley, with craftspeople producing a diversity of shapes and decorative elements, as finds from the site at Tagalagal indicate. The question of an independent invention in the Nile Valley remains unresolved at present, as the conditions of the discoveries and the quality of the Carbon-14 dating do not allow for a definitive conclusion.

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