

Research Article

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“*New Kids on the Block?*” Reappraising Pottery Styles, aDNA, and Chronology from Western Iberia Early Neolithic

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Abstract: Western Iberia Early Neolithic has been described as an ultimate and very altered form of the Mediterranean Neolithisation process. Despite its Atlantic position, this territory – corresponding mainly to Central/Southern Portugal – is, in its physical and cultural geography, a Mediterranean landscape deeply connected to a historical process arriving from beyond the Strait of Gibraltar. The presence of cardial pottery led archaeologists to ascribe Portuguese Early Neolithic to a Mediterranean impressed Pottery cultural area, and according to demic diffusion models, small pioneer groups carrying the Neolithic package originated there. Recently, the archaeological record for the Western Mediterranean Neolithisation is becoming more complex and longer lasting cardial dominance over the seas has been disputed. Previous Neolithic groups seafaring the Mediterranean coasts with *Impressa* style pottery could have reached Iberian Peninsula by 5600–5400 cal BC, proving that by the mid-sixth millennium, different cultural entities were moving in the Western Mediterranean regardless of their genetic features. The main goal of this study is to disclose this cultural diversity in Western Iberia using a robust chronological database and debating how different proxies, like pottery styles and ancient DNA (aDNA), reveal it in Western Iberia. While recognising the Mediterranean input to Western Iberia groups, mapping the variability and the significance of different decoration techniques, such as cardial, *false acacia leaf*, impressed stripes, and using the aDNA to identify continuities/changes in ancient populations are here as tools to understand when, who, and how *new kids came to the block*. To do so, different disciplinary boundaries are crossed, and some transdisciplinary critical aspects are also commented.

Keywords: Early Neolithic, culture and aDNA, Western Iberia, social identities, genetic groups

1 The Big Picture

The origin of the Neolithic way of life has been a core issue to European prehistory since the late nineteenth century. Attending to its exogenous character, it led the Portuguese anthropologist António Mendes Correia to assume that the Portuguese Neolithic could be the result of the arrival “(...) of frankly Caucasoid types (...) perhaps corresponding (...) to the cultural wave that would have brought the polished stone, agriculture, domestication of animals, and perhaps even the rudiments of ceramic modelling” (Correia, 1924, p. 216) to this westernmost area.

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However, “When, how, and where did (...) Neolithic culture come from, (...) is a new problem that is also obscure for other countries” (Corrêa, 1928, p. 116).

Decisive light on this matter was shed only in the 1970s by Jean Guilaine, who with O. Veiga Ferreira, identified cardial pottery in Portuguese habitats and funerary caves, establishing, in spite of Portugal’s Atlantic position, the North Mediterranean shore affiliation of the Western Iberia Neolithic (Guilaine & Ferreira, 1970). However, the quantitative and qualitative impacts of crossing the Strait of Gibraltar were soon understood by Portuguese archaeologists (Gonçalves, 1978; Silva & Soares, 1981). Not only core items, such as agriculture and sedentary lifestyles, seem very elusive in the Western Iberia record (Arnaud, 1982) but also cardial pottery – the *nec plus ultra* among Mediterranean influences – was rare and not typologically similar to the one found at other Iberian coastal areas (Bernabeu Auban, 2011; Carvalho, 2008; Diniz, 2007), exception made for some solitary and decontextualised vessels (Martins, Neves, & Cardoso, 2010, Figure 7) and some extraordinary funerary wares (Diniz, 2009).

Although this cultural divergence was perceived mainly at a regional scale and by local archaeologists, the cardial culture was charted as a homogenous entity sea spreading from the Ligurian Strait to Western Iberia in less than 500 years. Cardial culture kept its status of the historical entity even when J. Guilaine drew several arrhythmic lines on Neolithic Europe (2001) to identify the boundaries where the Neolithic package suffered strong variations. The transition from the Mediterranean to the Atlantic was not suggested

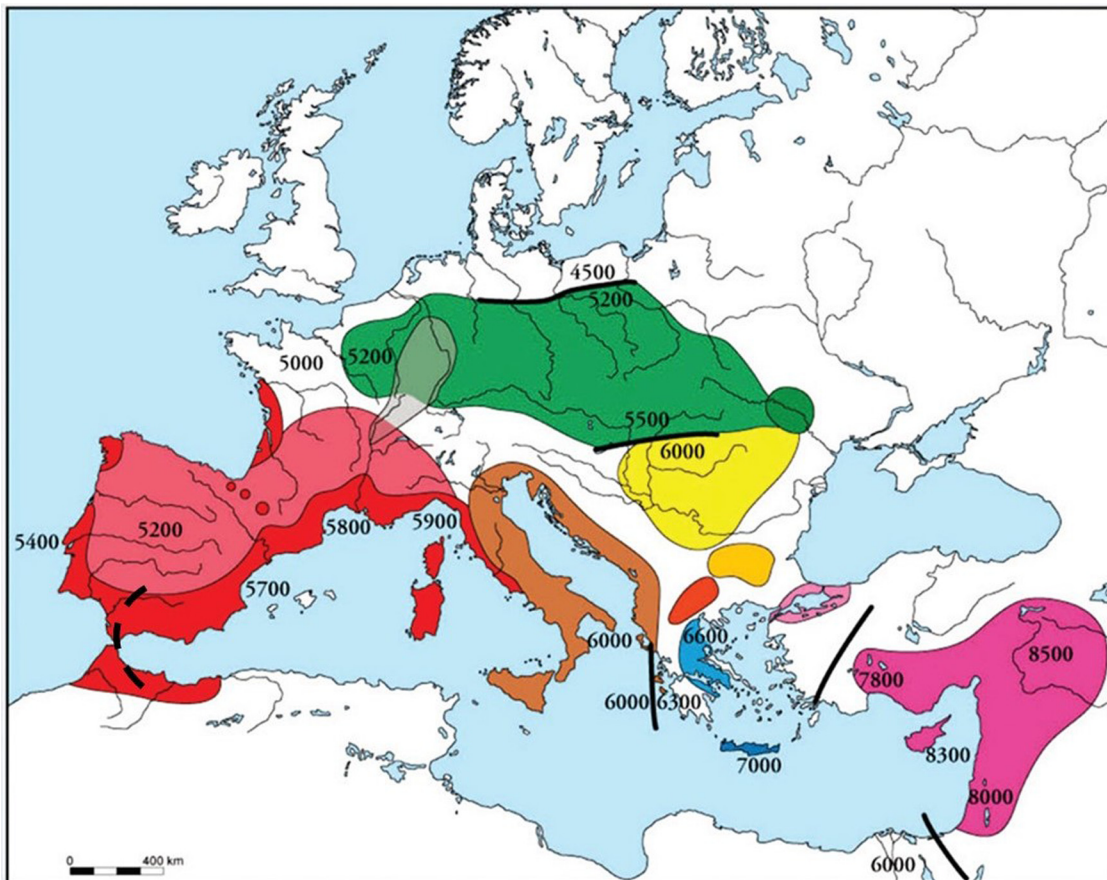


Figure 1: Near East and Neolithic Europe map. Coloured areas represent different Neolithic cultures, and black solid lines represent the areas where cultural and chronological recomposition occurs, according to Guilaine (2001). The original map was modified to include the Mediterranean/Atlantic transition around the Strait of Gibraltar – dotted line. This last Western recomposition does not correspond to a chronological gap between Iberia Mediterranean/Atlantic façades, as documented in other European areas.

as one of those areas (Figure 1), although some major differences can be detected between them, considering the material culture techno-typological choices underlying pottery and flaked industries.

Recently, economic data on Western Iberia Early Neolithic largely increased (Davis & Simões, 2016; López-Dóriga, 2015; Valente, 2016), leaving no doubt on the agro-pastoralist, exogenous, and Mediterranean nature of the first Neolithic groups. However, these, still scarce, direct data on economic patterns are lacking for many sites, since not only climacteric features but also geological environments are not favourable to organic preservation in Western Iberia. This natural background is thus responsible for the role still played by material cultural – sometimes as the only element – to infer social entities and identities of Early Neolithic groups, which means that some specific artefacts – mainly pottery styles – are here considered to reflect different cultural groups.

However, this correlation between material culture, or specific artefacts, and archaeological cultures immediately evoked an old agenda in which groups, or *peoples* – spread in time and space, along with their objects – were the basic foundations for archaeological discourse, and such a conceptual framework underlies the maps of cultural areas as the one presented in Figure 1. This epistemological background is not an innocent one and was partially rejected after WWII in a process led by Anglophones against culture-historical archaeology and its major statements – like race and racism, physical and mental rankings among humans – that allowed the emergence of a new and scientific archaeology (Clarke, 1968). However, as often happens during epistemological revolutions, the baby was thrown out with the bathwater, and along with the rejection of several cultural-historical dogmas, the assumption that material culture expresses cultural entities was also banned in some academic circles. But history, anthropology, sociology, and archaeology themselves demonstrate *à outrance* that such an aphorism is an effective social evidence and not a mere ideological statement (Diniz, 2019; Kramer, 1985; Pikirayi, 2007; Woodward, 2007) since, beyond their function, objects are also cultural creations that display messages about those who create them.

Being so, a fundamental tension between centripetal and centrifugal forces seems to emerge around the Early Neolithic Europe big picture. A contradiction arose concerning this large global process with a common Near Eastern historical root, sharing the same bio-technological features – namely domestication, polished stone, pottery, sedentism, etc. – and the different ways of locally re-arranging these common elements. Similarities and divergences between groups can be partially related to different environmental backgrounds, nevertheless latitude, altitude, and distance from the coastline cannot explain changes in pottery decorative styles or lithic armatures typology detected in those areas.

2 Moving Closer

Recognising archaeological cultures relies upon an inventory of explicit similarities and differences according to the focus applied on material records. The consistence of archaeological entities tends to be stronger when described from a distance and explodes into countless different things when more closely examined. Moving from the Neolithic Europe big picture so clearly illustrated by Jean Guilaine's maps to the most detailed archaeological regional records, diversity emerges and the overall homogenous colour covering large areas occupied by a single culture shatters into several and smaller “cultural groups.”

If recipient's decoration – both techniques and motifs – and recipient's handles are considered, the Western Iberia archaeological record – an area corresponding to Southern Portugal – presents different pottery traditions during the late sixth/early fifth millennium BC. Those pottery groups were identified through quantitative analysis of large assemblages, where the dominant and the peripheral decoration motifs and techniques – as the impressed stripes style – could be recognised, but also through qualitative information from sites with no quantitative data available. As expected, different pottery traditions do not represent hermetic assemblages, and even if some almost exclusive decoration areas are documented reflecting strong regional preferences, the overall picture shows that some general motifs present large distribution areas due to social interaction among groups (Figure 2).

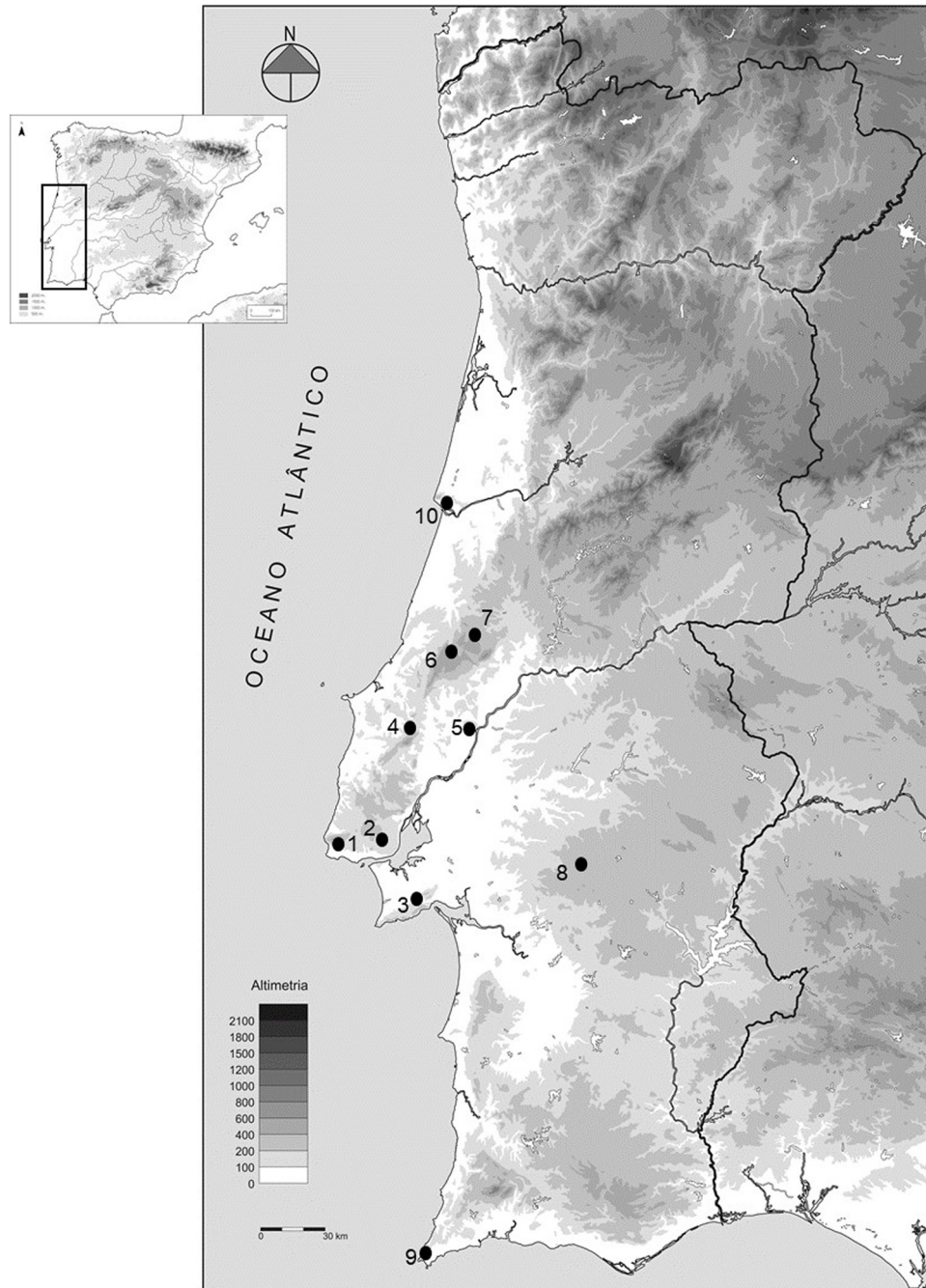


Figure 2: Iberian Peninsula and Portugal main sites mentioned in the text: (1) São Pedro de Canaferrim and Lameiras (Sintra), (2) Correio-Mor cave (Loures), (3) Lapa do Fumo cave (Sesimbra), (4) Nossa Senhora da Luz'cave (Rio Maior), (5) Santarém (Santarém), (6) Almonda Spring cave (Torres Novas), (7) Caldeirão cave (Tomar), (8) Valada do Mato (Évora), (9) Cabranosa (Sagres), and (10) Junqueira e Várzea do Lírio (Figueira da Foz). Cartography after Trabajos de Prehistoria and Boaventura (2009).

In a closer observation, three main traditions can be identified in the area previously identified as a cardinal zone (Figure 3):

1. In Upper Estremadura and the Lower Mondego Basin, cardinal pottery, albeit not as frequent as in Iberia Mediterranean façade, is regularly present in and around the Limestone Massif, in funerary caves as Almonda or Caldeirão, and in open air sites as Várzea do Lírio or Forno da Cal (Andrade, 2015; Carvalho,

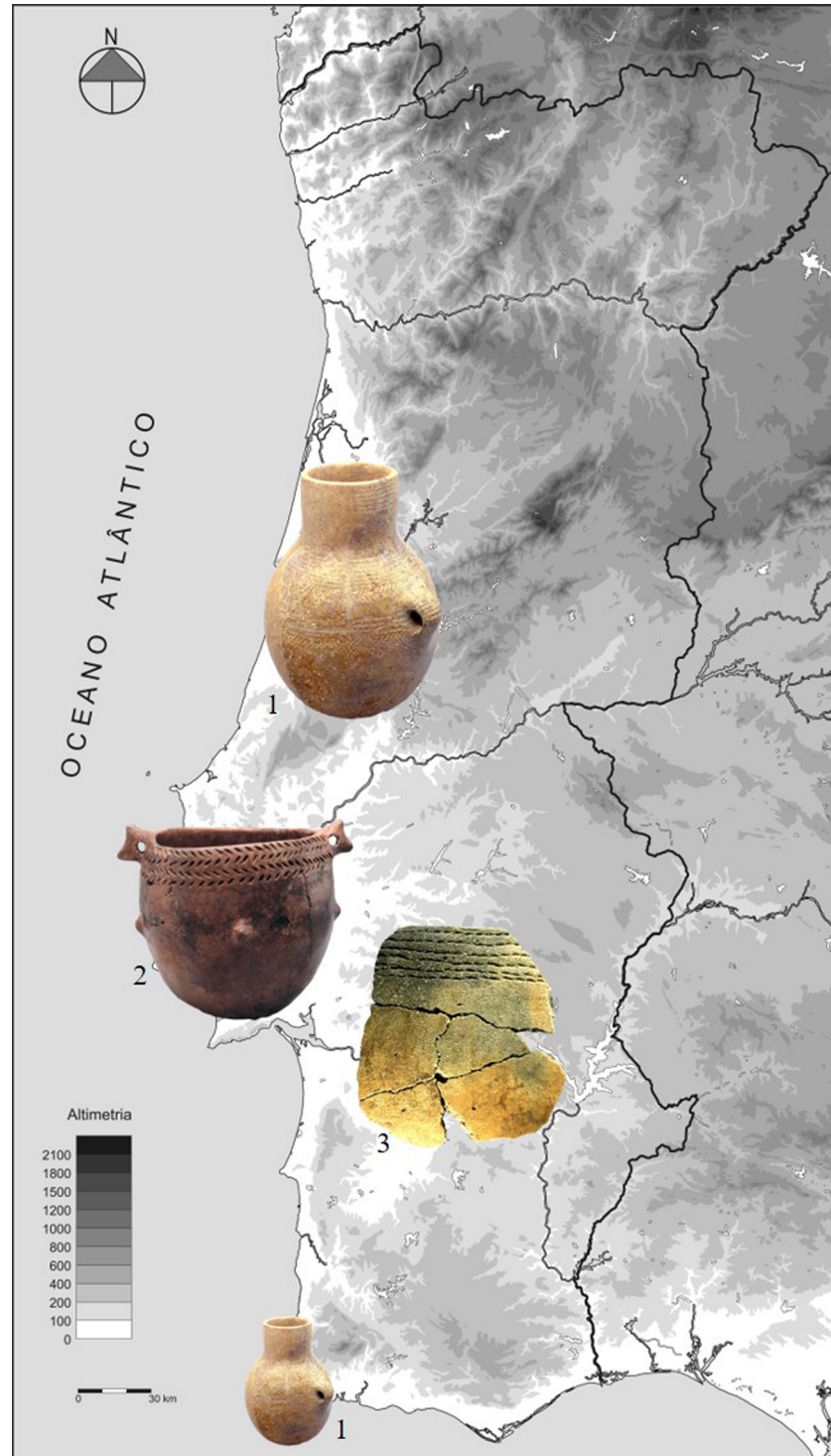


Figure 3: Southern Portugal Early Neolithic pottery traditions. (1) Upper Estremadura illustrated after Santarém cardial vessel (Matriznet.dgpt.pt), (2) lower Estremadura after Nossa Senhora da Luz – *false acacia leaf* vessel (Matriznet.dgpt.pt), and (3) interior/Southern Portugal after Valada do Mato impressed stripes vessel (Diniz, 2007). Cartography after Boaventura (2009).

2008; Jorge, 1979; Zilhão, 1992, 2001). Frequently, cardial ware is reduced to very fragmented sherds, with small and repetitive zigzag commissure impressions although, in some rare cases, a more baroque decoration covered almost the entire vessel. Besides cardial pottery, other impressed, and sometimes incised, motifs are documented in this area, such as *boquique/punto y raya* or *false acacia leaf* – a motif

- impressed (rarely incised), mostly in parallel lines below the rim, bringing to mind a branch of the bush it is named after.
- In Lower Estremadura, pottery tradition presents different features: the scarcity, or even absence, of cardial vessels in a pioneering area occupied by the middle of the sixth millennium cal BC (Table 1), and the dominance of a different motif – the *false acacia leaf* motif – associated with the presence of the *pig head* perforated handles reflects the consistent identity of the area. São Pedro de Canaferrim (Sintra) (Simões, 1999), Abrigo Grande das Bocas (Rio Maior) (Nukushina, 2015), or Lapa do Fumo (Serrão & Marques, 1971), stand as paradigmatic cases since this particular motif, associated with those peculiar handles, can represent more than 50% of the decorated pottery.
 - These two and indeed permeable worlds identified in Estremadura do not illustrate the entire diversity of the Western Iberia Early Neolithic. In the interior/Southern Portugal, in the habitat of Valada do Mato (Évora), where cardial pottery can represent only 2% and *false acacia leaf* does not reach 1%, a different pottery tradition was recognised. Here the pottery assemblage, one of the largest in the Iberian Peninsula, with more than 6,000 sherds, sustained a quantitative analysis of decorations motifs and techniques and allowed the identification of meaningful patterns. At Valada do Mato, under the apparently random decorative procedures that arose from the use of different matrixes, the impression of several lines, above and parallel to the rim, prevails, representing around 60% of the assemblage (Diniz, 2007). In addition, incised and combined motifs are present, and handles, abundant and also perforated, circular or elongated, never appear as the *pig head* type.

These different pottery traditions covering neighbour regions are, attending to the Early Neolithic absolute chronology, synchronous. By the second half of the sixth millennium BC, using only short-lived and almost exclusively cultural meaningful samples (Table 1), the spread of Neolithic groups throughout Western Iberia territories is marked by the appearance of different pottery styles, although the most ancient *impressed* tradition is not documented in the area (Carvalho, n.d.).

In those different areas, lithic assemblages, both flaked and polished, are more uniform. Flaked industries rely heavily on flint – either local or not (Cardoso, Carvalho, & Gibaja Bao, 2013; Carvalho, 2008; Diniz, 2007; Simões, 1999) – to produce mainly small bladelets, used with or without just marginal retouch.

Table 1: Chronological framework for Early Neolithic pottery styles

Archaeological site	Region	Pottery tradition	Sample	14C date	cal BC 2 σ	Reference
Almonda cave	Upper Estremadura	Cardial	<i>Homo</i>	OxA-28855 6280 ± 34	5330–5200	Olalde et al. (2015)
Almonda cave	Upper Estremadura	Cardial	<i>Homo</i>	MAMS-18262 6319 ± 22	5360–5220	Olalde et al. (2015)
Caldeirão cave	Upper Estremadura	Cardial	<i>Ovis</i>	OxA-1035 6330 ± 80	5480–5079	Zilhão (1992)
Caldeirão cave	Upper Estremadura	Cardial	<i>Homo</i>	OxA-1033 6130 ± 90 BP	5296–4843	Zilhão (1992)
S. Pedro de Canaferrim	Lower Estremadura	Acacia false leaf	<i>Triticum</i>	OxA24835 6176 ± 32	5220–5030	López-Dóriga (2015)
S. Pedro de Canaferrim	Lower Estremadura	Acacia false leaf	<i>Triticum</i>	OxA24906 6257 ± 35	5316–5078	López-Dóriga (2015)
Lameiras Lapiás	Lower Estremadura	Acacia false leaf	<i>Ovis</i>	OxA-29110 6494 ± 34 BP	5517–5374	Davis and Simões (2016)
Lameiras Lapiás	Lower Estremadura	Acacia false leaf	<i>Triticum</i>	OxA24832 6381 ± 34	5469–5308	López-Dóriga (2015)
Correio-Mor cave	Lower Estremadura	Acacia false leaf	<i>Homo</i>	Sac – 1717 6330 ± 60 BP	5422–5090	Cardoso (2006)
Valada do Mato	Interior/Southern Portugal	Impressed stripes	Charcoal	Beta-153914 6030 ± 50	5040–4790	Diniz (2007)

Among the most significant tools, geometric armatures present dominantly the segment shape obtained by abrupt retouch. This feature, along with the small blank dimensions, separates these Atlantic industries from the Mediterranean ones, dominated by trapezoids on small blades, as detailed elsewhere (Diniz, 2007, pp. 198–200). The sole exception seems to be Casas Novas, in the Lower Tagus, where trapezoids and transversal armatures dominate the assemblage of this not securely dated open-air site (Gonçalves & Sousa, 2018).

Polished stone tools are not abundant in all areas and appear as small adzes and axes with round or oval sections, sometimes polished only near the edge.

From an economic perspective, all these agro-pastoralist groups depend, with variable importance, upon animal/plant husbandry, although particular product weight and strategies should vary according to specific environmental features. Although, due to taphonomic bias, organic materials are usually rare or even absent, economic quantifications remain unusual.

However, more than the similarities arising from a shared economy, *difference* emerged from one of the most significant social creations as pottery styles are. From a broad visual perspective, those distinct and profusely decorated ware assemblages found in Southern Portugal are part of the large impressed ware of the Western Mediterranean horizon, as shown by Guilaine's maps. However, *differences* in matrix selection, using or using not a shell, and *differences* in motif design, vegetative motifs or repetitive impressed lines around the vessel's mouth, that even (post-)industrial personages can recognise were intentionally and socially meaningful (Millán-Pascual, Martínez, Alonso-Pablos, Blanco, & Criado-Boado, 2021).

In the Iberia Peninsula, other *areas of difference* can be recognised, as shown by the repeated *punto y raya*/Neolithic boquique in Central Iberia (Alday & Moral del Hoyo, 2011, p. 76; Alday et al., 2009) or by the quantitative significance of the *almagra* tradition in Andalusia (García Rivero et al., 2018; Rivero Galán, 1985). In fact, both boquique/*punto y raya* and *almagra* decorations are found outside their main distribution area, and although *almagra* pottery is rare in Southern Portugal, Early Neolithic, boquique/*punto y raya*, is well documented during the entire timespan of the phase. So far, boquique/*punto y raya* technique also appears in assemblages where corded or impressed stripes seem the most significant trait and is almost absent from *false acacia leaf* sites (Cardoso, Silva, & Soares, 2008, Simões, 1999). However, in the area herein discussed, the large geographic dispersion of *punto y raya*, combined with its large chronological duration (Carvalho, 2018, Figure 2), depletes this technique of a particular chrono-cultural dimension.

In short, during the first Neolithisation wave and despite a common Mediterranean origin, the maintenance/creation of new cultural canons in pottery production reflects an emerging diversity, expressed through material culture, that will shape Early Neolithic traditions in Western Iberia. As mentioned above, those different pottery styles were apparently already defined when the groups occupied a particular region, and their main technical and aesthetical features stood as coherent, but in no case hermetic, entities during the Early Neolithic phase.

As in a punctuated equilibrium model, the expansion of Neolithic groups is characterised by a sudden eruption of different cultural personalities that will persist between the second half of the sixth millennium and the middle of the fifth millennium BC.

This scenario, where *difference* is the main trait to describe Early Neolithic pottery assemblages, was already identified in other regions (Bernabeu Auban, 2011; Valdiosera et al., 2018); however, during the Middle Neolithic, by the end of the fifth millennium or the first half of the fourth millennium BC in Southern Portugal, this diversity in ceramic was no longer present. At this moment, hemispheric plain potteries without long necks or perforated handles replaced all previous traditions and, from an artefactual point of view, Southern Western Iberia seems to be occupied by a single and homogeneous cultural entity (Neves, 2018) – as if previous local identity discourses merged into one.

3 Moving Inside

In the last decades, debates around Europe's Neolithisation included genetic information as a new and powerful but also handle-with-care, type of data (Frieman & Hofmann, 2019; Hofmann, 2015). By the

beginning of the twenty-first century, prehistoric genetic history still relied on contemporary materials to infer the genetic history of Neolithic populations (Richards, 2003; Semino et al., 2000; Underhill et al., 2001). A decade later, archaeologists were confronted with mitochondrial DNA (mtDNA) and Y-chromosome analysis of prehistoric individuals, tracing back maternal lineages and male movements from the East to the West, across the Mediterranean and through the continent. Recently, mtDNA and Y-chromosome analyses were overcome by ancient genome-wide DNA analysis, which confirms what was predicted by archaeological data: (1) the eastern origin of some of the Neolithic population, mainly in SE Europe and (2) the discontinuity and the complex interactions between exogenous agro-pastoralist and indigenous hunter-gatherer groups after the former settled in a territory.

By the end of the twentieth century, cultural diffusion or percolation theories (Dennell, 1983; Rodríguez Alcalde, Alonso Jiménez, & Velázquez Cano, 1995), already fragile and hard to sustain as the major cause of Europe's Neolithisation, were definitely abandoned since aDNA analysis demonstrated that both by land and sea, not only plants, animals, and techniques, but also genes – which mean humans – spread during the process.

However, the introduction of genetics into the archaeological debate and the use of next-generation techniques to recreate the past deserve some epistemological reflexions (Downes, 2021; Hofmann, 2015) on the potentials and dangers of this information – easily assumed as the last veil before truth by a community that is always drawn by the transdisciplinarity of hard sciences.

It should be highlighted the resurgence of biological questions about the actors of the past after nearly 50 silent years on the matter. By the end of the last century, physical anthropology was indeed a regular tool in archaeology, but this science, in the past so committed, kept a neutral tone when referring to human beings focused in age, sex, pathologies, death causes, post-mortem gestures, and modifications (e.g. Duday et al, 2009), thus avoiding controversial issues, such as phenotypic features, or eradicated topics such as races. Today, genes once again reveal the colour, or pigmentation, of hair and eyes (Brace et al., 2019; Olalde et al., 2015), geographic origins, and routes and pathways. Small- or large-scale migrations, invasions, and population replacements return to archaeology at a time when (before, during, and after COVID-19) human displacement on the Mexican/USA border, between East/West – South/North Mediterranean shores, and over the English Channel is one of the most tragic catastrophes. In addition, science is in the right ideological environment to quickly turn into *policy*. The fear of the other is stimulated and presented – even by those responsible to communicate science – as *natural*, considering past invasions and conquests. When translated into historical scenarios, genetic analysis apparently shows that large-scale genocides must have happened, attending to gene replacement (e.g. Carlin, 2020), and media misuses of data demand a vigilant attitude from the archaeological community (e.g. Criado, 2018).

Additionally, genetic data were brought to a non-geneticist's world, hardly equipped to deal with its biomolecular jargon and complex statistics tools or to argue and contradict the odd scenarios sometimes proposed by genetics. In addition, archaeological samples were used in aDNA studies, and the archaeologists, who possessed them, launched their sites (and names) into high-profile journals. However, this irresistible gateway to the first league has very strict admission criteria, and the social processes that underlie the genetic information are often undervalued. On occasions, hypotheses advanced to explain genetic data seem historically unsustainable, such as the 100% replacement of the Y-chromosome in the Iberia Peninsula around 2000 BC (Olalde et al., 2019), as Basílio (2020) recently stated.

Regarding Neolithisation processes, present-day aDNA results point to – as far as an archaeologist can interpret the available information – a genetic scenario where “The first Neolithic migrants that arrived in Iberia had low levels of genetic diversity, potentially reflecting a small number of individuals...” (Valdiosera et al., 2018).

The arrival of small groups is a common feature of the cultural spread because quick and long-distance movements of large groups of people are very rare in historical periods and usually connected with catastrophic situations – which is not the case. Small groups arriving by land and, in the Mediterranean/Atlantic area, mainly by sea, in small canoes carrying domestic juveniles and fresh seeds, presenting a low genetic diversity, suggest that a particular branch of a larger group reached and rapidly spread along the Iberia façade and its interior.

This Iberian Early Neolithic low genetic diversity was coupled by an initial small and heterogenous hunter-gatherer contribution to the gene pool (Brace et al., 2019; Valdiosera et al., 2018, Figure 2b; Villalba-Mouco et al., 2019), which is according to the archaeological record where Mesolithic–Neolithic interactions are not well documented (Diniz, Arias, Araújo, & Stjerna, 2021). The genetic data suggest that, during the first phase, a small, homogenous, and somehow closed population reached Iberia in a scenario resembling the bottleneck situation that is frequently documented in human diasporas.

The same picture reveals when mtDNA is used to define Neolithic genetic history (Szécsényi-Nagy et al., 2017). Early Neolithic data exhibit a low diversity in mtDNA, which increases during the Neolithic period due to the growing influx of local hunter-gatherer genes.

After c. 5500 BC, small groups with an Oriental/North coastal Mediterranean origin, attending to the somehow unexpected late appearance of African genetic material (González-Fortes et al., 2019), arrived at the Iberia Peninsula. These genetic groups, sometimes referred to by their mtDNA or Y-chromosome haplogroup letters and numbers, are described when their wide genome is considered after their geographic origin. Thus Western Hunter-Gatherers (WHG), Eastern Hunter Gatherers (EHG), Central Europe EN, and Western Mediterranean EN become a familiar terminology for relating peoples and geographies, as races did it in the past.

Figures illustrating genetic results, such as Figure 3, emphasise a (deceptively simple) dichotomous world where hunter-gatherers and Early Neolithic groups appear as two discontinuous, and in themselves uniform, entities with a large territorial expression. However, this genetically homogenous, small, and fast-moving Early Neolithic groups present distinct patterns of material culture in deep contrast with those data (Figure 4).

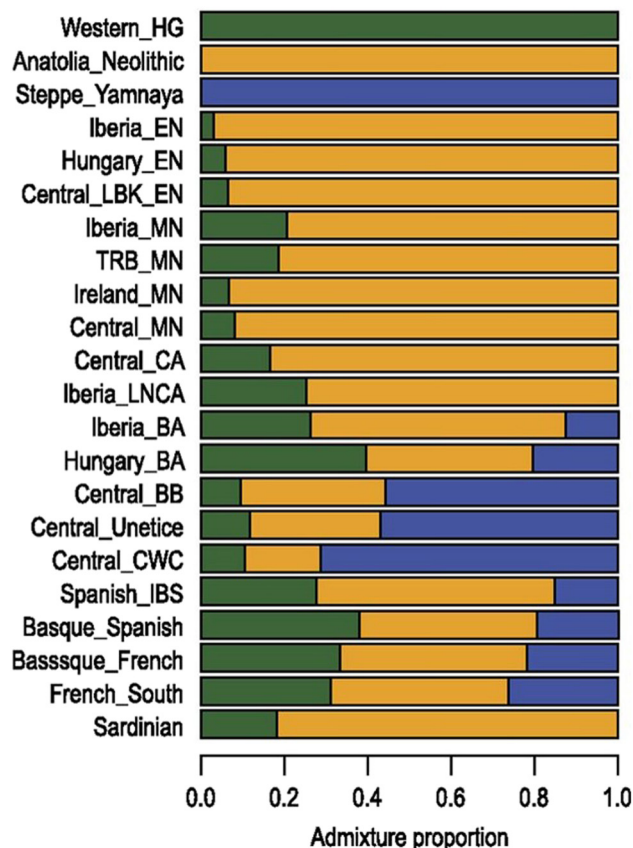


Figure 4: Genetic admixture between hunter-gatherers and Neolithic groups after Valdiosera et al. (2018). Unlike the diversity observed in material culture (Figure 2), genetic analysis points to low variability within groups. Iberia's Early Neolithic communities present a considerably small amount of genetic information from previous hunter-gatherers.

4 Time After Time

Neolithic groups spread throughout Europe have been a topic under continuous debate over the last 50 years. Not only pathways but also the speed of Neolithisation are crucial to understand Europe's change from a hunter-gatherer's land to an agro-pastoralist continent in around three millennia.

Ammerman's and Cavalli Sforza's seminal work in the 1970s estimated a European rate progression of 1.08 km/year, an increase rate of 1.52 in the Mediterranean, and a vivid acceleration in the Western Mediterranean to 2.08 km/year (1971, p. 684). Thirty years later, using accelerator mass spectrometry (AMS) dates and updated calibration curves, Zilhão (2001) estimates a much higher speed of around 10 km/year for the Western Mediterranean, recently supported by Davis and Simões (2016) using dates from sheep collected in Lameiras – a site symbolically located less than 20 km NE from the Westernmost end of Europe's Neolithic journey.

This quick and, attending to the lack of evident environmental and demographic causes, still perplexing journey from East to West (Hofmann, 2020) seems almost simultaneously when measured the Iberian Peninsula Eastern and Western façades: according to 14C timespans, both shores are occupied around 5500–5400 BC (e.g. Diniz, Neves, & Martins, 2016; Martins et al., 2015), making the Mediterranean/Atlantic frontier a cultural, albeit not chronological, Neolithic recomposition area.

This speed perfectly matches the genetic low variation – since time is also a fundamental feature of genetic drift. However, it renders the described cultural variation unpredictable, attending to the short period elapsed between the departure and the arrival points.

Regarding only southwestern Iberia, the area herein considered to outline the cultural drift, establishing contemporaneity between different pottery traditions, became fundamental to reject the chief economic argument, in diachronic terms, used to explain *difference* in the archaeological record.

Early Neolithic Western Iberia chronological framework, for which representative timespans are presented in Table 1, clearly demonstrates that the first agro-pastoralist groups settled after c. 5400 BC possessed different pottery traditions.

Those different and long-lasting pottery styles match three regional areas: Lower Mondego basin/Upper Estremadura – where cardial style is well documented; Lower Estremadura – where *false acacia leaf* dominated some large pottery assemblages, as in Lameiras, and S. Pedro de Canaferrim (Simões, 1999, personal information), where cardial could even be absent from the decorative repertoire, as in the Correio-Mor cave (Cardoso, 2006); and Interior Southern Portugal – where cardial and false acacia leaf are present but statistically insignificant when compared to the dominant parallel impressed stripe style, above the rim.

Few more data can be added to depict differences between those groups. Lithic assemblages do not reflect the same diversity found in pottery, and, from an economic point of view, archaeographic and post-depositional factors can affect the overall picture. Husbandry is documented in every region, but agriculture demonstrated by the presence of seeds is only attested in Lower Estremadura (López-Dóriga, 2015; López-Dóriga & Simões, 2015). Its presence in Interior/Southern Portugal granitic areas, such as Valada do Mato, is only indirectly confirmed, and its absence in limestone areas of Upper Estremadura can indeed point to a more pastoral economy in the area. Organic remains, exception made for Lameiras Lapiás, are usually very rare, or even absent, inhibiting a quantitative analysis that could express the group's economic identity.

So, the exaggerated and wisely condemned *ceramographic* tendency of this analysis is not only the result of available data but also intended as it is admitted that pottery traditions are a powerful tool to create, maintain, and communicate *Identities* among traditional societies, just as archaeologists stated through typologies and cultural maps, long before Bordieu's *habitus* (1972).

5 Moving in Between (As a Conclusion)

The population of Çatal Hüyük is in fact mixed, Euraficans, descended from an Upper Paleolithic-like Combe-Capelle man, formed about 59 percent of the population. Proto-Mediterraneans of finer build (17 percent) are the second

dolichocephalic stock, but the third group consists of brachycephalic Alpines (24 percent). Such a heterogeneous population greatly accounts for the inventiveness and the quick advance of cultural activity seen, in every field, at Çatal Hüyük. (Mellaart, 1975, p. 99).

From an archaeological point of view, reappraising pottery styles, aDNA, and chronologies from Western Iberia Early Neolithic imply a debate using different proxies, which sometimes do not point to the same direction. Topics about the mechanisms used for crossing genetic data with historical phenomena emerge as an old epistemological temptation surrounding the question if “(...) regional cultural groups could be recognizable as genetic identifiable entities?” (Szécsényi-Nagy et al., 2017).

Using Çatal Hüyük as a paradigmatic case as demonstrated by Mellaart’s text, and more recently by mitochondrial haplotypes (Chyleński et al., 2019), it becomes obvious that cultural identity coexists with high anthropometrics and genetic diversity reflecting how differing those traits can behave within a single group.

Also, in Early Neolithic Iberia, those different proxies point to different directions. The stories told by genes and artefacts do not merge and a contradiction seems to emerge. Herein, the small dimension of the founder groups and the low genetic diversity deeply contrast with the scenario of material culture diversity. As if the founder groups – even if sharing a common framework – behave as staminal cells, almost immediately developing into distinct cultural traditions.

Genes and artefacts reveal different stories, and those trajectories are not easy to correlate. Nevertheless, the appeal of replacing the old formula: archaeological cultures = races with the new one: identities = genes, is indeed a strong temptation even when physical anthropology and genetic analysis reveal, as in Çatal Hüyük or Neolithic Europe, that types, or genes, and culture are not equivalent entities.

“(…) Neolithic transition (...) across Europe resulted in a relatively low genetic variability in the reported Neolithic genomes, which makes it difficult to distinguish the Mediterranean and the Danubian routes of expansion of Neolithic ways of life” (Villalba-Mouco et al., 2019, p. 1173).

However, this low genetic variability results into two large and unmistakable archaeological horizons, namely Linearbandkeramik (LBK) and cardial. From pottery styles to burial patterns and dietary preferences, early farmers behave as different systems in North Europe, Central Europe, or Western Mediterranean.

Small sailing groups carrying similar genes gave origin to a diversified cultural landscape when material culture is regarded. Preferences for specific shapes, motifs, techniques, total or partial rejection of shapes, motifs, techniques, gestures, and *habitus* maintenance or abandonment can be described under the identity label.

In Early Neolithic Iberia, during the first settling phase, although genes are shared by the first agropastoralist groups, cultural *difference* appears to be intentional and considered a positive social issue. However, the most diversified Middle Neolithic genetic picture – with a larger hunter-gatherer input, with an occasional African genetic material – is from a material culture perspective linked with an unprecedented homogenization of pottery morphologies and an almost mandatory lack of decoration.

After a first Early Neolithic impulse to fission (Leppard, 2014), groups evolve towards a more genetic diverse and cultural consistent fusion horizon. As people get more diverse, artefacts become more similar. *New kids arrived at the block*, as archaeologists knew since the beginning of the twentieth century, bringing with them traces of Anatolian-Aegean genes so oriental as the domestic animals and plants that would soon totally re-shape the European cultural identity.

Different from genes, an unconscious and durable heritage, culture can more actively be transformed to create something new. Plastic materials – as clay – are a superlative and resilient way to express identities as Early Neolithic artefacts reflect. Genes and culture do not follow the same paths, do not follow similar paces, and do not share the same history (Bryc, Durand, Macpherson, Reich, & Mountain, 2015).

So, reappraising the past from those different proxies requests an enlarge transdisciplinary debate between accurate genetic analysis and intelligible social process as the way to achieve the effective multi-dimensional ontology of past events.

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