Special Issue: Personal Ornaments in Early Prehistory

Cultural Implications of Uniformity in Ornament Assemblages: Paleolithic and Mesolithic Ornaments From Franchthi Cave, Greece

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submitted: 27 November 2017; accepted 10 January 2018

ABSTRACT

The Paleolithic and Mesolithic ornament assemblages from the Franchthi Cave are possibly the richest in Europe in the number of specimens. They are also, undoubtedly, the most restricted in terms of ornament types and the most uniform through time. Perforated *Tritia neritea*, *Tritia pellucida*, *Antalis* sp. and *Columbella rustica* constitute the dominant types throughout the sequence, from the earliest Upper Paleolithic to the end of the Mesolithic. Pre-Aurignacian, Aurignacian, and Gravettian assemblages, for instance, are completely similar in terms of types and frequency, and the same holds true for the Final Upper Paleolithic and the Lower Mesolithic. Such stability in the choice of ornament types, despite repeated changes in the status and function of the site, contradicts the discontinuities exemplified by the lithic assemblages. This raises the question of the cultural proxies we use to define past cultural entities and suggests a revision of the paleogeography of prehistoric Europe.

This special issue is guest-edited by Daniella E. Bar-Yosef Mayer (Steinhardt Museum of Natural History and Institute of Archaeology, Tel Aviv University) and Marjolein D. Bosch (McDonald Institute for Archaeological Research, University of Cambridge). This is article #11 of 12.

INTRODUCTION

The Franchthi Cave and its Neolithic open-air settlement, the 'Paralia,' were excavated from 1976 to 1978 under the direction of T.W. Jacobsen, from Indiana University (Jacobsen and Farrand 1987). The site nowadays overlooks directly the bay of Koiladha and the sea has destroyed part of the Neolithic settlement. During prehistoric times, Koiladha Bay was a gently sloping coastal plain, cut by the fossil 'Franchthi River' (van Andel 1987). The distance from the cave to the nearest shore varied according to the fluctuations of the sea level, from ca. 5km after the Pleniglacial, 3.8km during the Aurignacian and the Epigravettian, to ca. 2km in the Final Mesolithic (Lambeck 1996; Perlès 2018; van Andel and Llianos 1983). During all periods, however, varied coastal environment were reachable within one to two hours walk—sandy beaches, marshes, and rocky shores on both sides of the bay (Shackleton 1988). Despite erosional hiatuses, the cave presents an unusually long sequence in the European context, from the Middle Paleolithic, which was reached but not excavated, to the end of the Neolithic (Table 1).

During the first half of the Upper Paleolithic (ca 38,500–25,000 cal BC), the Franchthi Cave was sporadically occupied as a hunting halt by small groups that focused on the exploitation of game and the procurement of ornamental shell species (Stiner and Munro 2011). By the end of the Upper Paleolithic, between 13,000 and 10,000 cal. BC, it became a residential camp for whole families who gathered plants and shellfish, fished a variety of coastal species such as gilt-head sea-bream and grey mullet, hunted a variety of game including furry animals and, at times, collected huge quantities of land snails. At the beginning of the Mesolithic (8700–8350 cal BC) the cave became a burial ground, with the remains of at least 10 individuals, both buried and cremated (Cullen 1995). The very large quantities of carbonized seeds and land snails recovered may possibly be related to ceremonial events linked to the deceased. The cave's status changed again radically during the Upper Mesolithic (8000–7600 cal BC) when it became a fishing camp for the exploitation of tuna fish, sea breams, and barracudas (Rose, in preparation). However, the focus on fishing did not last; by the end of the Mesolithic (ca 7000 BC), the groups that occupied the cave reverted to small-scale hunting, plant gathering, and shellfish exploitation (Perlès 2010, 2016a).

Ornaments are present in all phases of occupation, but had remained largely undocumented and unpublished

ISSN 1545-0031
doi:10.4207/PA.2019.ART131

TABLE 1. SYNTHETIC CHRONOSTRATIGRAPHY OF THE FRANCHTHI CAVE PALEOLITHIC AND MESOLITHIC SEQUENCE.

Phase	*Dates cal. BC*	*Attribution*	*Occupation*	*Approximate distance to the coastline*	*Ornament types*
0	under CI ignimbrite tephra >39,000	Pre-Aurignacian	very sporadic, hunting halts?	na	*T. neritea/pellucida* *Antalis* sp. *H. sanguineum*
1	38,600–34,000	Aurignacien	sporadic occupations, hunting halts	ca 3.8km	*T. neritea/pellucida* *Antalis* sp. *H. sanguineum* *C. rustica*
2	ca 26,500 BC	Mediterranean Gravettian	sporadic occupations, hunting halts	ca 3.8km	*T. neritea/pellucida* *Antalis* sp. *H. sanguineum* *C. rustica*
3	undated	Mediterranean Gravettian	sporadic occupations, hunting halts	ca 4km	*T. neritea/pellucida* *Antalis* sp. *H. sanguineum* *C. rustica*
4	ca 12,300–12,000	Epigravettien	denser occupations, base camp	ca 5km	1 *Ibex* tooth
5	ca 11,000	Tardigravettian	denser occupations, base camp, shell middens	ca 3.8km	*T. neritea/pellucida* *Antalis* sp. *C. rustica* *Glycymeris* sp.
6	10,600–10,200	Tardigravettian	more sporadic occupations	ca 3km	*T. neritea/pellucida* *Antalis* sp. *C. rustica* *Glycymeris* sp.
7	8700–8300	Lower Mesolithic	dense occupation with burials	ca 2.5km–2km	*T. neritea/pellucida* *Antalis* sp. *C. rustica* rare perforated pebbles
8	8000–7600	Upper Mesolithic	fishing camp	ca 1.8km	*T. neritea/pellucida* *Antalis* sp. *C. rustica*
9	7050–6800	Final Mesolithic	sporadic occupations	ca 1.5km	*T. neritea/pellucida* *C. rustica*

(but see Miller 1996, 1997), until I resumed their study with the collaboration of M. Vanhaeren for the Paleolithic and S. Bonnardin for the Neolithic[1]. In particular, thousands of Paleolithic and Mesolithic ornaments, which will be the focus of this paper, awaited to be studied, mixed with marine shells and terrestrial molluscs (Shackleton 1988; Whitney-Desautels in preparation). These ornaments possibly represent the longest and numerically richest sequence in Europe. Franchthi Cave thus appeared to offer an exceptional opportunity to investigate changes in ornament conception and production in relation to environmental, economic, and social transformations. Ornaments are indeed most frequently considered from a synchronic viewpoint, as markers of group and individual identity, status and social role (e.g., Bains et al. 2013; Bar-Yosef Mayer 1997; Kuhn 2014; Newell et al. 1990; Stiner 2014; Vanhaeren 2010; Vanhaeren and d'Errico 2006; Wiessner 1984). Much less attention has been given to ornaments as technical and symbolic productions linked to specific socio-economic contexts. Our aim at Franchthi was consequently to address these issues based on first-hand knowledge of the chronostratigraphy, environmental, and archaeological data of the site. Our expectations, however, did not prove successful. Instead of repeated changes in the conception and composition of ornament assemblages, we faced a monotonous triad of three main taxa, *Tritia* (*Cyclope*), *Columbella*, and *Antalis*. Nevertheless, the contrast between the homogeneity of the ornament assemblages and the repeated economic and technical transformations brings to light interesting discrepancies between the lithic and ornaments assemblages in terms of cultural continuity/discontinuity, the implications of which go far beyond the site of Franchthi itself.

MATERIAL AND METHODS

The richness of the ornament assemblages that will be discussed here is in part due to pioneering methods of excavation in the seventies, with systematic dry sieving to a mesh of 3mm and systematic water-sieving of several important trenches, down to a mesh of 1.8mm. Uncarbonized and carbonized plant remains, shellfish, fish bones, and macro- and micromammals bones were, for the first time in Greece, systematically recovered. This allowed a precise reconstruction of subsistence activities and their transformations through time, from the beginning of the Upper Paleolithic to the end of the Neolithic.

Several trenches were excavated in the cave and on the Paralia. After the first exploratory two years, the trenches were dug by small 'excavation units' that attempted to follow horizontal and vertical variation in the sediment (Farrand 2000). We shall here focus on the cave's Paleolithic and Mesolithic deposits, and on the material from four trenches, FAS, FAN, H1B, and H1A[2]. To allow for correlations between the different trenches and to obviate the problem of random spatial variation, the excavation units have been grouped into phases according to the 'Franchthi general phasing,' devised through a synthesis of all available sedimentological, environmental, and archaeological data (Perlès 2018; Perlès and Vanhaeren 2010)[3]. It should be recalled, therefore, that each phase corresponds to a succession of units and to a succession of occupations, not to a single discrete episode of occupation.

Our four reference trenches were entirely water-sieved down to a mesh of 1.8mm (Diamant 1979) with the exception of H1A, which was only water-sieved in the Paleolithic layers. All the residues from the 10mm and 5mm sieves were sorted in the laboratory, but the smaller fractions were only sorted on samples varying from 1/4th to 1/32nd of their total volume. Small fragments of *Antalis* sp., abundant in these small fractions, are thus under-represented in our assemblages.

Most of the ornaments were otherwise retrieved from the bags of "molluscan remains," which contained mixed marine and terrestrial molluscs. Because Franchthi was a near-coastal site where shellfish was exploited, the definition of ornamental species had to be strict—we only considered as ornamental taxa that (a) could be shown not to have been exploited as food or tools, and (b) included specimens with clear evidence of anthropic perforation or use-wear (Stiner et al. 2013: 383). All the specimens belonging to ornamental species were recorded, digitized on Epson Perfection photoscanners 44990, and measured. They also were photographed by M. Vanhaeren under a Wild M3C microscope equipped with a Coolpix 995 camera when wear traces had been recognized. Identification of the species or genus follows WORMS and CLEMAM nomenclatures.

The analysis of the archaeological assemblages also relied on extensive modern reference collections collected on several beaches from the Argolid (Perlès 2018, Appendix 3). Several blackened specimens were analyzed at the Centre de Recherche et de Restauration des Musées de France (Lange et al. 2008) and the heat-treatment was reproduced experimentally (Perlès and Vanhaeren 2010).

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AN OVERVIEW OF THE ORNAMENT ASSEMBLAGES

The Franchthi Paleolithic and Mesolithic ornament assemblages comprise almost exclusively perforated shells. The very rare perforated pebbles and bone beads amount to no more than 0.1% of the material studied, and the richness of the faunal assemblage precludes an effect of differential preservation between bone and shell (see Stiner and Munro 2011).

THE PRE-AURIGNACIAN (PHASE 0)

The earliest assemblage of ornamental species was recovered in Pre-Aurignacian levels sealed by a layer of volcanic ash (tephra). The latter was identified as the Campanian Ignimbrite from the Phlegraean Fields near Naples in Italy (Farrand 2000: 86; Fitzsimmons et al. 2013), which is dated to 39,280±110 BP (De Vivo et al. 2001). This small assemblage, dispersed through nearly 1m of sediment and large rock falls in trenches H1B and FAS, comprises small tusk shell fragments (*Antalis* sp.), *Tritia* (*Cyclope*) *neritea*/*pellucida*, and one fragment of *Homalopoma sanguineum*. The state of preservation is very poor due to intense chemical attacks, and it is impossible to demonstrate that any of the shells was perforated or used. However, none of the taxa is edible and they strictly correspond to the shell taxa used for ornaments in the following phases. The shells are associated with a lithic industry that is unfortunately undiagnostic, but clearly not of Middle Paleolithic affinities. Considering the date and stratigraphic position, this industry could be equivalent to the Uluzzian of Klissoura Cave 1, also in the Argolid (Kozłowski and Stiner 2010).

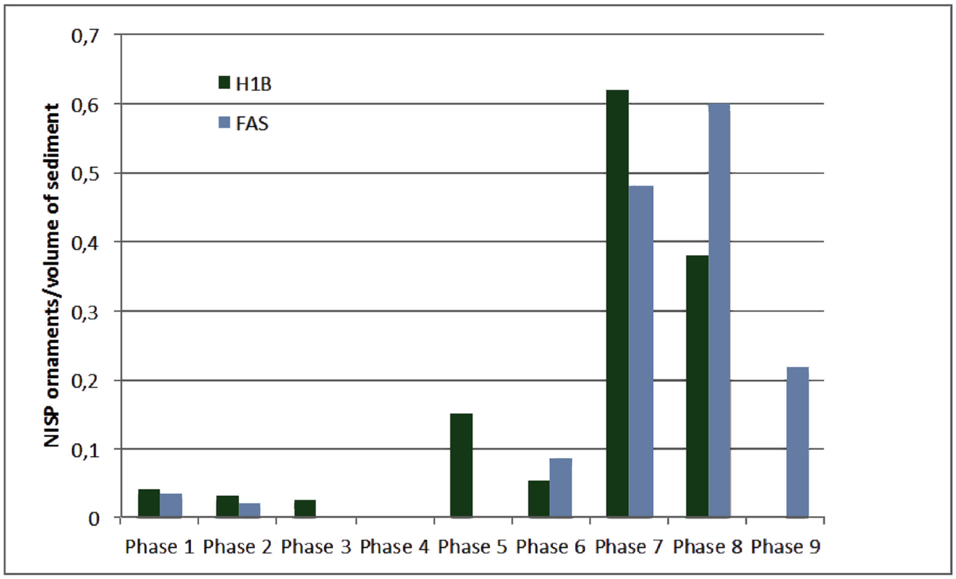

Figure 1. Number of identified ornamental specimens by volume of sediment (in liters). Not all phases are represented in each trench.

THE AURIGNACIAN AND MEDITERRANEAN GRAVETTIAN (PHASES 1, 2, AND 3)

The Aurignacian assemblage (Phase 1), dated to 38,600–34,000 cal BC (Douka et al. 2011) was found embedded into and overlying the tephra deposit. It comprises the same—restricted—range of taxa with the addition of rare *Columbella rustica*, the dove shells. Anthropic perforations, from inside the aperture to the dorsum, on *Tritia* (*Cyclope*) *neritea /pellucida* and *Homalopoma sanguineum* confirm their use as ornaments. Surprisingly, the richer assemblage from Phase II, attributed to the Mediterranean Gravettian, is absolutely similar in terms of types and proportions despite a substantial erosional hiatus and a date of ca. 26,000 cal BC. The following phase (Phase III), also a variant of the Mediterranean Gravettian, remains undated but is close to the preceding one in terms of environment and lithic assemblages (Hansen 1991; Perlès 1987; Stiner and Munro 2011). It yielded few ornaments, in large part because of the smaller volume of sediment excavated (Figure 1). Nevertheless, the ornament assemblage remains similar in composition.

The assemblages from Phases 2 and 3 (Figure 2) are better preserved than in Phases 0 and 1, and show that the dove shells and tusk shells, which display the characteristic stigmata of wave and sand abrasion—breakage, pitting, rounding, were collected from thanatocoenoses. Conversely, the Cyclopes bear none of these alterations and must have been collected live. *T. neritea/pellucida* preserve poorly in present days thanatocoenoses in the Argolid, and collecting them live is indeed far more efficient (Perlès 2018, Appendix 3.1). Juvenile specimens, that lack an outer lip, were systematically rejected without perforation. There was no selection for large specimens, and *Homalopoma* remains, as in other sites, often were unperforated (Broglio and Guroli 1984).

During all these four earliest phases of occupation, subsistence activities included no collecting or gathering, but only hunting. In particular, marine molluscs were not collected as food, but only for ornamental purposes. One may actually wonder whether the provisioning of shells for ornament production could have been an incentive to the hunting expeditions around the cave.

THE LATE PALEOLITHIC (PHASES 4, 5 AND 6)

A long erosional hiatus in the sectors of the cave that were excavated deprive us of data for the Pleniglacial. When the record resumes in Trenches H1A and H1B, around 12,500 cal BC (Phase 4), there is evidence that the status of the cave had changed from a hunting halt to a base camp where whole families were now residing (Perlès 2010). Contrary to what would be expected, however, there are almost no ornaments or ornamental shells, with the exception of a perforated *Ibex* tooth (Figure 3). It remains unclear whether this absence is due to the small amount of sediment excavated, or whether it constitutes an intrinsic feature of Phase 4.

Not long afterwards, ornaments reappear in Phase 5, an Epigravettian phase dated to ca. 11,0000 cal BC. Subsistence activities were very varied, and included the hunting of diverse mammals, rather intense coastal fishing, the collection of shellfish, of turtles, of plants, and of huge quantities of land snails (Perlès 2016b; Rose in preparation; Stiner and Munro 2011; Whitney-Desautels in preparation). *Homalopoma sanguineum* is no longer present in the ornament assemblage. Unfortunately, I found no data on the ecology of this species to evaluate whether this could be due to adverse environmental conditions or whether it reflects a deliberate human choice. Otherwise, the dominant taxa remain the same: *Tritia* (*Cyclope*) *neritea* is the most abundant, followed by *Antalis* sp. and *Columbella rustica*, now proportionally better represented. A few *Glycymeris* sp. also are present (Figure 4). Their status is ambiguous—they are perforated by abrasion on the umbo, but, as often occurs on *Glycymeris*

Figure 2. Representative sample of ornament assemblages from Early Paleolithic Phases 0–3.

Figure 3. Perforated Ibex *tooth from Phase 4.*

(Bar-Yosef Mayer et al. 2009; Bosch et al. 2019; Zilhão et al. 2010), several are stained with a red-pigment or contain a thick ochered deposit. Are they ornaments or ochre containers, supposing the distinction to be meaningful?

With the advent of the Dryas III, the climate during Phase 6 (10,600–10,200 cal BC) became cooler and dryer. The range of subsistence activities became more restricted, suggesting more sporadic and briefer occupations. The quantity of ornaments in relation to the volume of sediment, however, is higher than before, especially by the end of this Phase (Subphase 6.2) (see Figure 4). Despite this relative increase in abundance, the assemblage remains similar to the preceding one.

THE LOWER MESOLITHIC (PHASE 7)

After a short hiatus during the second half of the Dryas III, the occupation resumes in the Lower Mesolithic (Phase 7: 8700–8300 cal BC) with a ten-fold increase in the number of ornaments.

Given the marked transformation in the lithic assemblages, where microliths have virtually disappeared (Perlès 1990), and a presumed reliance on marine resources, Runnels (1995) suggested that the cave was then occupied by migrant seafarers from the Anatolian coast. Yet, the shell taxa and their respective proportions are identical to those of the previous, Late Paleolithic phases (Figure 5). The specific enlarged perforations on the dorsum of the Cyclopes and the use of heat-treatment to turn their color from ivory to black (Figure 6), already present in the late Upper Paleolithic (Perlès and Vanhaeren 2010), also point to continuity between the two periods. The only new feature in the ornament assemblage consists of a few perforated pebbles and unfinished specimens. However, this new ornament type only represents 0.1% of this very rich assemblage (more than 8,000 recorded specimens in the four reference trenches alone, with only partial sorting of FAN). Consequently, their absence in the preceding and following phases, where the size of the ornament assemblages is smaller, could be due to random sampling effects.

It would have been tempting to relate the vastly inflated quantity of ornaments to the presence of human burials, since the cave, just after it was reoccupied, became a burial ground (Cullen 1995; Cullen and Papathanassiou, in preparation). However, two arguments go against this view. First, the only intact burial contained no ornaments

Figure 4. Representative sample of ornament assemblages from Late Paleolithic Phases 5 and 6. The status of the Glycymeris *is uncertain.*

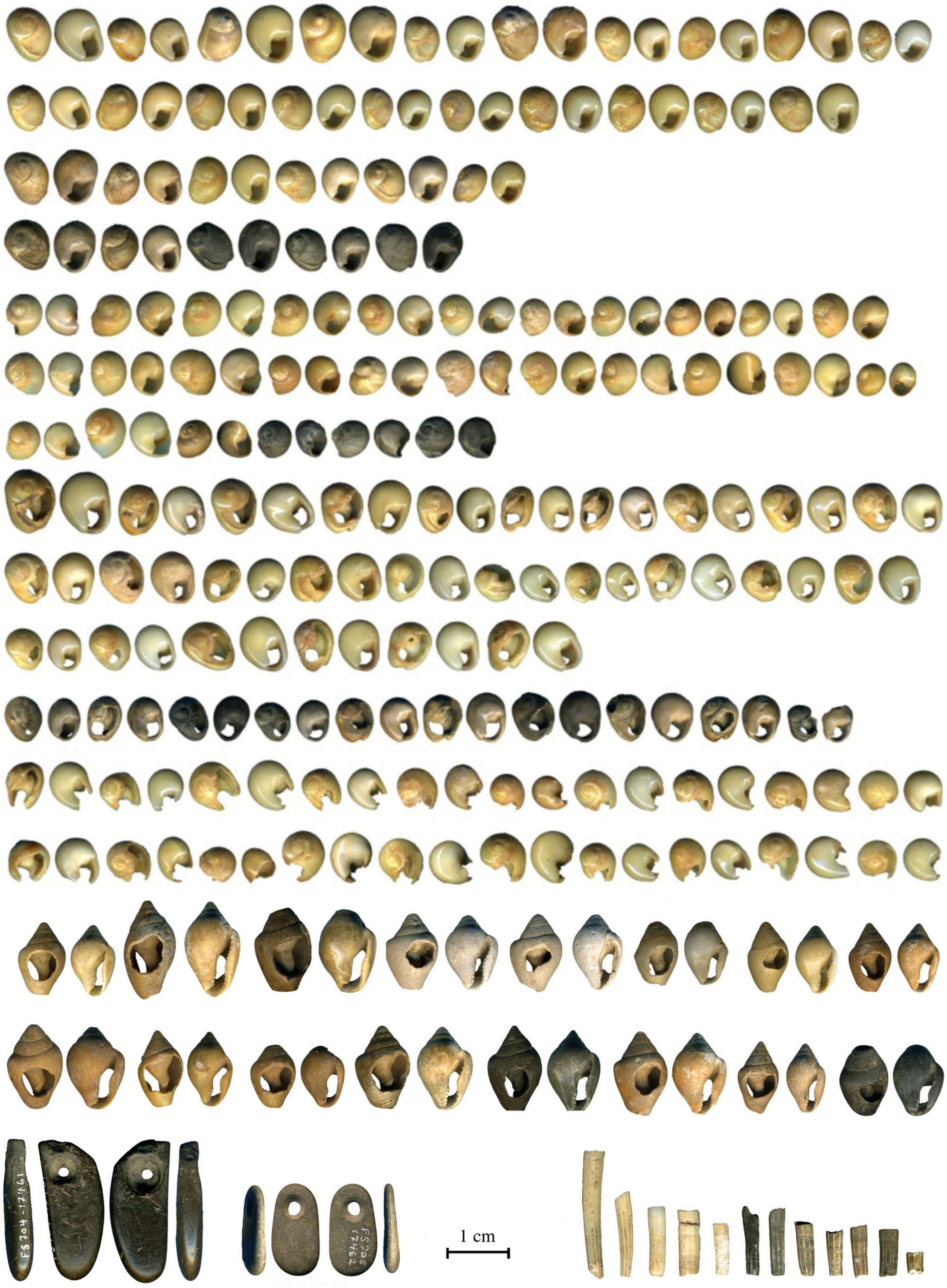

Figure 5. Representative sample of ornament assemblages from the Lower Mesolithic Phase 7.

or any grave goods. Second, in relation to the volume of sediments, the ratio of ornaments is slightly higher in the Upper Mesolithic of Trench FAS, when no burial was uncovered (see Figure 1). Use-wear traces suggest that the shells were embroidered on garments or head-dresses, and that old garments were replaced or re-embroidered at the site. But these garments were manufactured by and for the living, not for the deceased.

Figure 6. Experimentally heat-treated Tritia neritea *compared to untreated ones.*

THE LATE AND FINAL MESOLITHIC (PHASES 8 AND 9)

Cyclopes, dove shells, and tusk shells are again the only ornament types in the Upper Mesolithic (8500–8300 cal BC), when the cave became a fishing camp where large quantities of tuna, white-headed bream, and barracudas were caught and processed (Rose, in preparation). The proportions vary, however, with a significant decrease of tusk shells. This trend continues in the Final Mesolithic and tusk shells are absent from the much smaller, and only partial sample of the Late Mesolithic (ca 7000 BC), again possibly an effect of random sampling. By that time, tuna fishing was no longer practiced, and the site reverted to a sporadically occupied base-camp with small-scale hunting, fishing, and collecting.

MONOTONY IS MEANINGFUL

The three most salient features of the Franchthi Paleolithic and Mesolithic ornament assemblages are undoubtedly their numerical richness, the restricted range of types, and their stability through time.

More than 12,000 ornamental specimens, both perforated and unperforated, were recorded until we ceased to look for more. Franchthi thus presents one of the richest, if not the richest, collection of ornaments for the Paleolithic and Mesolithic around the Mediterranean Sea. This may be related to the coastal location of the site and to the production of ornaments that were used not only by the inhabitants of the cave, but probably also traded inland. This abundance demonstrates, in addition, that the extremely restricted range of types is not an effect of sampling. There is actually no relation at Franchthi between the size of the sample in each phase and the diversity of types (Perlès 2018, Chapters 7 and 14). This restricted range of types also is not due to a lack of alternate resources. The distance from the cave to the coast varied from ca. 5km to ca. 2km, but the geomorphological features remained the same and always offered, within walking distance, a mix of rocky shores, sandy beaches, marshes, and lagoons.

The species exploited as ornaments were dispersed over these three microenvironments, where many other shell taxa were present. From the Pre-Aurignacian on, the occupants of the cave chose to use specific taxa as ornaments, and not to use many others, as well illustrated by the rich Aurignacian assemblage from Klissoura Cave 1 (Stiner 2010)—several of the ornament types present at Klissoura are occasionally found in the shellfish assemblages, and were therefore locally available. Besides *Cerithium vulgatum*, *Patella* sp., *Phorcus turbinatus*, and *Hexaplex trunculus* that were eaten, several potential ornamental genera were also present—*Gibbula*, *Clanculus*, *Conus*, *Pisania*, *Cerastoderma*, *Nassarius*, *Pecten*, *Pinna*, etc. Birds such as partridges were hunted from the Aurignacian on, but only four doubtful bird bone beads were recovered (Perlès 2018: Chapter 13). Most significant, perhaps, is the absence of red deer canines. They are found in all the other Upper Paleolithic sites of Greece with the exception of Klissoura, and, in particular, in Kephalari, also in the Argolid (Reisch 1980). Red deer is constantly present in the Paleolithic and Mesolithic faunal assemblages from Franchthi (Payne 1975; Stiner and Munro 2011), yet it was never used to provide ornaments. A distinction should be made, however, between the Paleolithic and the Mesolithic. Whereas Franchthi is unique for the Paleolithic, the restricted range of ornaments is a current feature in European Mesolithic ornament assemblages (Cristiani et al. 2014; Newell et al. 1990; Rigaud 2011; Rigaud et al. 2015; Taborin 1974).

Both the selection of species and the rejection of others

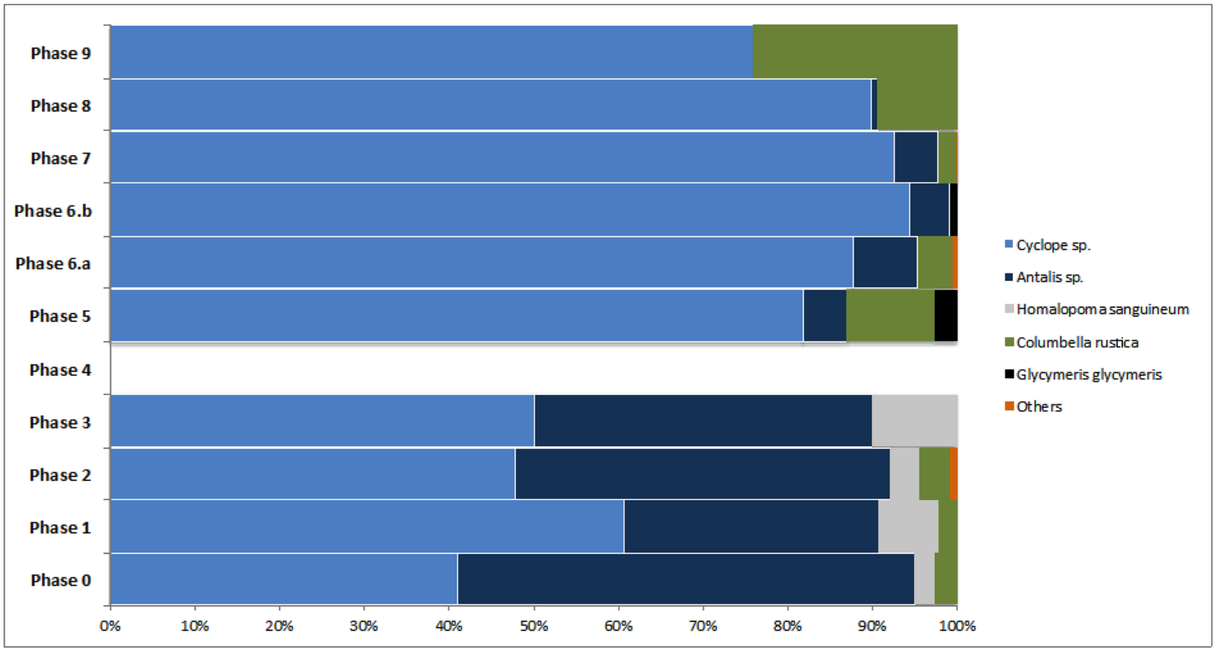

Figure 7. Variation of proportion of the ornament types throughout the Upper Paleolithic and Mesolithic sequence.

reflect choices in symbolic means of communication that were established at the very beginning of the Upper Paleolithic. What is remarkable is that these choices remained stable throughout 30 millennia, if one excepts the disappearance of *Homalopoma sanguineum*. However, 'stable' does not mean 'static'—the quantities of ornaments, in relation to the volume of excavated sediment, differs importantly between the Paleolithic and the Mesolithic (see Figure 1), with a spectacular increase in the Mesolithic, probably related to an increased use of ornaments to adorn garments, clocks, or blankets (see Cristian and Borić 2012; Laporte and Dupont 2019; Rigaud et al. 2019).

The proportions of the three taxa also show diachronic variation, especially between the Early and Late Upper Paleolithic (Figure 7). In parallel, the composition made with these different ornament types and the meaning they conveyed also might have changed through time. Nevertheless, what matters for the present argument is that the same taxa were systematically chosen as "elementary units" (Stiner 2014; Stiner et al. 2013) for these compositions, and other taxa avoided. If the melody varied, the same notes were used for 30 millennia.

Contrary to what we had initially expected, the ornament assemblages did not respond to climatic variation, to variation in sea level, or to the distance from the site to the coast[4]. They were also resilient to important transformations in the status of the cave and to changes in subsistence economy. Most importantly, the permanence of the ornament assemblages runs contrary to the presumed cultural breaks suggested by traditional chronocultural frameworks based on lithic assemblages (e.g., Pre-Aurignacian, Aurignacian, Gravettian, etc.). And Franchthi is not unique in this respect. This also holds true in several of the few long-term Upper Paleolithic/Epipaleolithic sequences, such as Ksar 'Akil (Bosch et al. 2019; Stiner et al. 2013), Üçağızlı Cave I (Stiner et al. 2013), the Riparo Mocchi (Stiner 1999, 2003), and to a lesser degree, Klissoura Cave I (Stiner 2010). A similar long-term continuity is exemplified at a regional level (Bar-Yosef Mayer 2019), and also far from the Mediterranean basin, in Australia and Timor-Leste (Balme and O'Connor 2019; Langley and O'Connor 2016, 2019). In each site, one or two shell species—which vary from site to site—predominate in the ornament assemblages for millennia[5]. In each case, as at Franchthi, variation in proportions of the type allow distinguishing several ornament phases, but their limits do not coincide with the boundaries defined by lithic assemblages. The lack of concordance between changes in ornament assemblages and the presumed 'cultural entities' defined by the lithic assemblages can lead one to argue that ornament types have no cultural value, as stated by Stiner (2014). Given their large geographic and chronological distribution, this is undoubtedly true if the types are considered individually. I consider, however, that the *association of types*, different in each site, is significant and reflects cultural choices.

Discrepancies between the technocomplexes defined by the lithics on the one hand and the ethno-complexes defined by ornaments on the other have already been brought to light, but on a narrower chronological scale (Newell et al. 1990; Rigaud 2011; Rigaud et al. 2014; Vanhaeren and d'Errico 2006). Adding now a long-term diachronic perspective forces us to raise the question of the proxies we use to define prehistoric chronocultural complexes. If Aurignacian and Gravettian ornament assemblages, for instance, or Upper Paleolithic and Mesolithic ornament assemblages, are locally the same, can they be made by groups of different descent and traditions? If the answer is 'no,' then we have to question the cultural validity of the main divisions based on lithics. And, there are grounds for this. These traditional divisions are not actually based on lithic assemblages and technical traditions, but on weapon inserts—the twisted Aurignacian bladelets, the Gravettian point, the Solutrean points, the Sauveterrian point[6]…. But, new weapons are prone to be adopted and reproduced by groups of different cultural origins and traditions if they are deemed to be more efficient. Quite possibly, these broad divisions define sweeping fashions in weapon conception that crosscut actual cultural entities (Bon 2009; Valentin 2008)—the Kalachnikov is not a cultural emblem!

In fact, recent technological analyses of Paleolithic lithic artifacts that concentrate on technical conceptions and technical traditions, rather than solely on projectile typology, demonstrate far more regional variability within each technocomplex and far more regional continuity than previously acknowledged. This supports the conclusions I reached through the study of my monotonous sequence, and leads us to envision cultural traditions of far longer duration and far more territorial stability than usually acknowledged. It also suggests we should thoroughly revise the cultural paleogeography of prehistoric Europe by including aesthetic and symbolic elements in the definition of chronocultural entities. Traditional chronocultural complexes such as the Aurignacian or the Madgalenian may be 'chronological,' yes. But, beads, among others, demonstrate they are not 'cultural.' We have probably cut the cake the wrong way, by slicing it in large horizontal (i.e., chronological) horizons rather than vertically (i.e., regionally).

ACKNOWLEDGEMENTS

I wish to thank first the organizers of this symposium for their invitation, and all the collaborators of the Franchthi ornaments projects: Julien Beck, Arnaud Blin, Sandrine Bonnardin, Mercédès Maya-Pion, Patrick Pion, and Marian Vanhaeren. Our work would not have been possible without the help of the members of the 4th Ephorate of Prehistoric and Classical Antiquities of the Greek Ministry of Culture, which is gratefully acknowledged. Our study seasons in Nafplion were funded by grants from INSTAP, which is warmly thanked, from ANR (ANR-06-Blan-0273), and from the Schrader Committee. The constant support of my laboratory, the UMR 7055 of the CNRS and University Paris Nanterre, was instrumental in completing the work.

ENDNOTES

[1] The project owes them a lot, but I take entire responsibility for the interpretations presented here.

[2] Since Paleolithic and Mesolithic deposits also were excavated in several other trenches, the material presented here only represents a fraction of the original assemblage.

[3] The details of unit by unit assemblages can be found in Perlès (2018,:Appendix 1).

[4] Except perhaps for the disappearance of *Homolopoma sanguineum*?

[5] This is not a rule, however, and important transformations in the ornament assemblages are observed in other Paleolithic sites (White, 2007).

[6] The situation is actually slightly different for the Mesolithic, when, beyond the broad chrono-cultural divisions such as 'Sauveterrian,' 'Tardenoisian,' 'Early Mesolithic,' etc., a multitude of small-scale entities have also been defined on the basis of weapon inserts assemblages. The ornament assemblages define intermediate entities between these two levels of analysis (Newell et al. 1990; Rigaud 2011; Rigaud et al. 2014).

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