



The Mesolithic at Franchthi: an overview of the data and problems

Author(s): Catherine Perlès

Source: *British School at Athens Studies*, Vol. 10, THE GREEK MESOLITHIC: PROBLEMS AND PERSPECTIVES (2003), pp. 79-87

Published by: British School at Athens

Stable URL: <http://www.jstor.org/stable/40960307>

Accessed: 30-01-2017 11:45 UTC

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at <http://about.jstor.org/terms>



British School at Athens is collaborating with JSTOR to digitize, preserve and extend access to *British School at Athens Studies*

The Mesolithic at Franchthi: an overview of the data and problems

Catherine Perlès

I would have liked to entitle this paper 'What Franchthi can tell us about the Greek Mesolithic', but this would have been doubly misleading. First, a site can only speak through interpretations, and all I can offer is my own reading of the data and my own story, taking sole responsibility for it.¹ Second, this paper may turn out to be as much about what Franchthi cannot tell us as about what it can tell us. Despite, or partly because of, the wealth of data it has provided,² the site is more complex than is frequently claimed. Seemingly contradictory sets of data may render interpretation difficult and, as often happens, require further lines of investigation into the material, not always easily feasible after the bulk of the analyses have been completed. Interpreting such a rich and complex site as Franchthi will probably always remain an ongoing process, and the 'story' presented here represents a mere instant in this long-term process. However, not all possible interpretations are equally warranted: Franchthi also offers a solid data base that cannot be ignored and that strongly orients potential interpretative frameworks. I hope I can convey here a balanced view of both the data at hand and the unsolved problems.

LITHIC TRADITIONS AND CULTURAL CONTINUITY

Amongst the problems raised by Franchthi's Mesolithic period, those pertaining to cultural continuity between the Palaeolithic, the Mesolithic and the Neolithic are of the utmost interest, given the length of the sequence and the privileged opportunity it provides of discussing these matters. For this problem, lithic assemblages are the only cultural remains that are present in sufficient abundance in every stratum, as well as in all of Greece's other contemporaneous sites, to allow systematic comparison. In other words, lithics often constitute the only category of material one can use to establish cultural continuity or cultural affinities.

Many different methods and techniques can be used to produce stone tools. There are many different pathways to similar results, just as there are many different conceptions of what a tool should look like and how it

ought to be used in order to fulfil a given task. Each group of people thus uses but a small array of the potential methods and techniques, in a specific combination related to their conceptions of the tools. Because stone tool manufacture will have been observed by children from an early age³ and because practice will have started long before adulthood, younger members of the groups will tend to reproduce those methods, techniques and tool concepts that they see adult members of the group implementing. Technical traditions, embedded in the larger cultural context of the group, will thus be established and maintained for generations, allowing us to use lithic assemblages as an index of cultural continuity (Pelegrin 1995).

However, each group has a repertoire of possible strategies in tool manufacture, and a given lithic assemblage is the outcome of a complex set of interrelated factors that also include the nature of the local raw materials, the constraints they put on tool production, the time available for the acquisition of raw materials and production of tools, functional requirements and the significance of the risk that may arise if tools or weapons are defective, as well as economic and social factors: who produces, for whom, what is the status of the

-
- 1 Analyses of the data, especially the lithics, and other versions of this 'story' have already been published in various forms (Perlès 1979; 1984; 1987*b*; 1988; 1989; 1990; 1995; 1999). Illustrations of the lithics will be found in particular in Perlès 1987*a* and Perlès 1990.
 - 2 See Angel 1969; Cullen 1995; Deith and Shackleton 1988; Farrand 1988; 1993; 2000 and this volume; Hansen 1991; 1992; Jacobsen 1993; Miller, in preparation; Payne 1975; 1982; Redding, in preparation; Renfrew and Aspinall 1990; Rose 1987; 1995 and in preparation; Shackleton 1988*a*; 1988*b*; Shackleton and van Andel 1980; 1986; Stroulia, in preparation; van Andel and Runnels 1987; van Andel and Shackleton 1982; van Andel and Sutton 1987.
 - 3 Examples of stone flaking that appear to be the results of practice by inexperienced youths have been brought to light in various Upper Palaeolithic sites (Pigeot 1988; Pigeot *et al.* 1991; Ploux 1991).

tool, etc. (see for instance Torrence 1986). As a consequence, interpreting changes through time or explaining the main features of a given assemblage requires the evaluation of a great many parameters before they can be related to economic, cultural or functional factors (Perlès 1992). The Mesolithic chipped stone assemblages from Franchthi are a good example of the difficulties of interpreting even the most drastic changes and obvious features, especially when some of the crucial economic data needed are not yet available. It would take too long to discuss all of this in full here, but the discussion will be briefly summarised below.

WHO WERE THE MESOLITHIC OCCUPANTS OF FRANCHTHI?

The Final Palaeolithic lithic industries of Franchthi present many diagnostic features that have almost disappeared by the earliest Mesolithic (or Holocene) levels. Foremost amongst these is the microlithic component, comprising microburins, various forms of backed bladelets and geometrics such as triangles, trapezes and segments. In the Lower Mesolithic (phase VIII) this microlithic component drops from almost 60% to no more than 8% (Perlès 1987a). Microliths reappear during the Late Mesolithic, but with completely different shapes and functional potential. These later microliths are clearly unrelated to the Final Palaeolithic/Lower Mesolithic ones and will require separate discussion.

I have discussed at length the possible meanings of the near-disappearance of the microliths in the Lower Mesolithic, which runs contrary to almost all of the other evidence from Europe and the Near East (Perlès 1990).⁴ Assuming that the microliths were used as components of composite weapons, does their near-disappearance mean that large game hunting had also virtually disappeared? Alternatively, was hunting still going on but using different techniques? In the latter case, was the shift related to environmental changes or to different hunting traditions? The fundamental issue behind these questions is that of continuity or discontinuity between the late Palaeolithic occupants of the cave and the first Mesolithic ones. Various kinds of evidence can be brought forward in support of both alternatives.

On the one hand, the time gap between the Final Palaeolithic and the Lower Mesolithic, which can be estimated as at least *c.* 650 calibrated years, might indicate a long period of abandonment of the site. The changes in the lithics and the appearance of new burial customs (Cullen 1995) and ornaments (dentalia beads, pierced pebbles) could be taken as indications of a break in traditions and of the reoccupation of the site by newcomers whose origins were different from those of the Palaeolithic occupants.

However, the hiatus observed in the excavated trenches need not imply that the cave was deserted. This hiatus (Farrand, this volume) could correspond to ero-

sional episodes that have removed all traces of occupation.⁵ Even if the cave was indeed deserted, it does not follow that it must have been reoccupied by populations of different descent from those who formerly lived in it. The lithics themselves can be taken, alternatively, as showing continuity in technical traditions: the non-microlithic component remains basically unchanged, as do the strategies of raw material exploitation and the flaking methods and techniques. The few microliths are indistinguishable from the Final Palaeolithic ones and if they are not mere contaminants they indicate strong cultural affinities. Similarly, the sparse Lower Mesolithic bone points have antecedents in the last part of the Palaeolithic and so do the rare Mesolithic pounding or grinding tools. Subsistence strategies, despite some modifications, also rely in both periods on a broad-spectrum exploitation of plants, molluscs, small fish and large game.

There are thus elements of both continuity and discontinuity in the technical traditions and subsistence strategies. Their interpretation depends, to a large extent, on the weight given to environmental factors as a major cause of change. Did large game become rarer, or more difficult to catch under more wooded conditions, leading to a change in hunting techniques and weaponry? Or is there no indication of any modification of faunal resources, implying that there may have been a drastic cultural change? I am afraid that the problem cannot be discussed much further until we have a complete report on the animal bones, including the bones from the sieving residues. The counts from the trench recovery do indicate a sharp decrease of large game bones in the Lower Mesolithic (which could explain the decrease in microliths), but this decrease actually starts during the Final Palaeolithic, when microliths are still abundant (Payne 1975; Redding, in preparation). In order to solve this apparent contradiction and interpret the subsequent Palaeolithic/Mesolithic transformations, we need to know whether large game hunting actually declined (and if so when), or whether more bone remains simply went through into the residues because they were reduced to smaller fragments. In the meantime it seems impossible to attribute the changes in the lithics either to cultural or to functional factors, and the question of cultural continuity or discontinuity between the Final Palaeolithic and the Mesolithic has to remain open.

4 Whether the Lower Mesolithic microliths are mere contaminants or whether they were still being used, but in much smaller numbers, is debatable. The recent data from Klisoura (Koumouzelis *et al.*, this volume) may shed light on this problem.

5 It will be recalled, for instance, that there is a hiatus of several millennia within the Palaeolithic deposits in trench FA, whereas deposits were preserved in H1.

WHAT WERE THEY LIVING ON ?

The discovery of spectacular numbers of tuna bones in Franchthi's Mesolithic layers (Rose 1995; Rose, in preparation) has made this site famous as an instance of specialised exploitation of marine resources. However, as already underlined by Rose (1987; 1995) and Powell (1996), the tendency has been to over-emphasize the importance of maritime exploitation and to consider it to have been a general feature of the Mesolithic subsistence economy at Franchthi, which clearly it was not.

During the Lower Mesolithic, dated to the 9th millennium BC cal. (Perlès 2001, table 2.1), sea resources constituted only a very small element of the diet, and the quantity of Melian obsidian in the Lower Mesolithic strata (Renfrew and Aspinall 1990) remains far too small (less than one piece per thousand) to have been procured directly by seafaring. The number of small fish actually declines from that observed during the last part of the Palaeolithic and only marine molluscs (amongst which the small *Cyclope neritea* predominates) indicate regular visits to the coast. However, marine molluscs are far less abundant than land snails and overall the bulk of the diet relied on terrestrial resources. Plant collecting shows a sharp increase in quantity and diversity, with a predominance of fruit remains (*Pistacia* sp., *Pyrus amygdaliformis*, *Prunus amygdalus*) and the constant presence of wild legumes (especially lentils) and wild cereals (*Avena* sp., *Hordeum* sp.) (Hansen 1991). Cervids were the preferred game, but wild boars, foxes, hares and birds were also caught (Payne 1975; 1982). *Helix figulina*, a land snail that was collected in huge numbers during the Final Palaeolithic, was still part of the diet, though in lesser quantities than before (Whitney-Desautels, in preparation). Some at least of these resources would only have been available seasonally and it is doubtful whether they could have supported year-round occupation of the cave. However, oxygen isotope analyses of marine molluscs indicate repeated visits at all seasons (Deith and Shackleton 1988, table 6).

Tuna bones (associated with sea bream remains) only appear in the Upper Mesolithic, together with abundant microliths, after a hiatus of several hundred years in the excavated trenches. The tuna bones then amount to 20–40% of the total number of bones recovered from the trenches. This suggests the capture of whole schools of tuna, probably by setting nets near to the shore (Payne 1975; Rose, in preparation). There can be no doubt that tuna provided a reliable source of animal protein and that this marine resource was an important element of the diet. However, Rose (1995) considers the actual number of individual tuna caught to have been small. In order to derive a better estimate of the balance of the diet we need to know more precisely how many fish and terrestrial game remains were discovered during trench recovery and in the residues.⁶ Judging by the remains from the trench recovery, large game, mostly

deer and wild boar, still made up most of the diet in terms of total amounts of animal protein: their remains are more abundant and there is a lot more flesh on a deer than on even a large fish. Even though plant remains are less abundant than before, terrestrial resources thus seem to have remained predominant. Finally, there is no indication that the tuna fishing phase was of long duration: the radiocarbon dates cover the first half of the 8th millennium, but the most probable dates cluster more tightly between 7850 and 7700 BC cal.

Whether or not the tuna fishing phase was as short as the hundred or so years indicated by these dates, what is clear is that at Franchthi it did not last until the end of the Mesolithic. A few hundred years later Final Mesolithic groups returned to the cave, relying again on terrestrial resources and marine molluscs. However, the remains from this period are scarce and their range is narrower than during the Lower Mesolithic. It should be noted, in particular, that wild cereals and pulses are extremely scarce and can hardly be considered an element of continuity with the following Neolithic occupations (Hansen 1991; 1992).

In sum, Franchthi provides some glimpses of the Mesolithic subsistence economy, but glimpses only. There is no indication that any phase lasted for more than a few hundred years at most, or that the cave was continuously occupied. Neither is there any indication that the subsistence economy was at any time *primarily* directed towards the exploitation of marine resources. For the most part the inhabitants of Franchthi seem to have relied on a broad-spectrum economy that included many r-selected animal and plant species of low energetic return. However, when the possibility arose of exploiting resources that could be captured in bulk and stored — the tuna — the groups occupying Franchthi at that time were clearly equipped to seize this opportunity. This demonstrates that they did indeed know how to exploit even the most demanding marine resources.

This raises the question of whether or not the tuna fishermen were related to the groups that had inhabited Franchthi previously, but had made so little use of marine resources. In many respects what took place within the Mesolithic is comparable to what took place between the Final Palaeolithic and the Lower Mesolithic: a long temporal hiatus, changes in subsistence patterns and drastic changes in the lithic toolkit. The Final Mesolithic, in particular, witnesses a disappearance of the microlithic component that parallels that of the Lower Mesolithic. If these changes can be

6 Isotope analyses of the human bone would also provide information on this problem. In the Mesolithic coastal site of Monte Leone in Corsica, for instance, isotope analyses showed that the diet relied primarily on small terrestrial game (Costa *et al.*, in press).

taken to indicate cultural discontinuity between the Palaeolithic and the Mesolithic, it is necessary to raise the problem of cultural continuity within the Mesolithic period itself.

CULTURAL DISCONTINUITY VERSUS FUNCTIONAL CHANGES WITHIN THE MESOLITHIC

The Lower Mesolithic assemblages are characterised not only by a very small microlithic component but also by expedient manufacturing techniques that relied mainly on the use of direct percussion with a soft stone hammer. Little attention was given to the selection of raw material, which was often of poor quality. The result is a rather crude flake assemblage with a retouched toolkit consisting mainly of marginally retouched flakes, notches, denticulates and end-scrapers.

This low level of technical investment may be related to the absence of any functional and temporal constraints that would have justified putting more effort into raw material selection and flaking methods. As trace-wear studies have shown (Vaughan 1990), the majority of these tools were transformational tools, used for the manufacture of wood and reed implements. Raw materials were abundant and defective tools did not give rise to any great risk. Similar toolkits with low technical investment and few if any microliths have been found in other Mediterranean Mesolithic areas, usually in sites with an emphasis on gathering and collecting rather than on large game hunting. Since these sites are surrounded by others that have yielded more classic microlithic assemblages (containing points, triangles and/or trapezes), it can be presumed that the absence of microliths is related not to specific cultural traditions but to the nature of the activities going on in and around the settlement. To look for cultural traditions in these industries one should turn to the methods and techniques used in flaking, rather than to the toolkit proper. Unfortunately, flaking methods and techniques depend partly upon the nature of the local raw materials (whether pebbles, plaquettes or large blocks) and are not usually well enough documented to allow detailed comparisons.

At Franchthi, at least, flaking methods and techniques did not change with the onset of the Upper Mesolithic: cores continued predominantly to be flaked in multiple orthogonal directions, often along the shorter axis of the block, using a soft stone hammer. This produced mostly small, short flakes. The basic toolkit also remained unchanged, containing a variety of denticulates, notches, end-scrapers and retouched flakes. Thus the spectacular change in lithics that took place at that time consisted exclusively in the appearance of very abundant microliths, most of which are not of any typical Mesolithic variety. Though they often have geometric shapes (such as a rectangle or square), most of them have no point or sharp edge. In-

stead all their sides are blunted by a combination of the butt, short steep retouch and 'rebroussé' on the distal end. They suggest tools used for scraping some kind of material that did not require too much force. The more classical microliths, such as trapezes, are also unusual, since they are manufactured on flakes rather than blades or bladelets, without the use of the microburin technique.

There seems to be a very clear stratigraphic relationship between the abundance of these microliths and that of tuna vertebrae (Payne 1975; Rose, in preparation). It is difficult to escape the conclusion that there was also a direct functional relationship between the two.⁷ The unpointed microliths could not have been used to catch the fish (though the rarer backed points may have been), but they could certainly have been used to scrape and prepare the masses of vegetal fibres needed to make nets, fishing gear or baskets.

This functional relationship is further confirmed by the concomitant decline in microliths and tuna vertebrae by the Final Mesolithic. The changes in lithics that took place during the Mesolithic were thus of an additive-subtractive nature and directly related to changes in activities. The basic toolkit and the flaking process remained stable. There is thus no reason to invoke cultural discontinuity and the arrival of new groups on the site. However, even though the factors underlying the changes in the lithics can be identified as new functional requirements, the microliths of the Upper Mesolithic are sufficiently distinctive in conception and techniques to provide bases for comparisons in terms of cultural affinities.

CULTURAL AFFINITIES OF THE FRANCHTHI MESOLITHIC ASSEMBLAGES

The only strong affinities that I could find for Franchthi's Upper Mesolithic assemblage, with its blunted, geometrically shaped microliths, were with other sites within Greece; more specifically (pending complete reports from other sites), with Sidari (Sordinas 1969; 1970; this volume)⁸ and perhaps with Ulbrich level VII (Galanidou, this volume). According to Adam (1999) Theopetra's lithic assemblage, devoid

7 Unfortunately, attempts to perform trace-wear analysis on the geometric microliths were unsuccessful (Vaughan 1990). The few non-geometric microliths analysed yielded non-diagnostic traces of the use of 'hard material' that may have included bone, reeds, wood, e.g.

8 Dr Sordinas has kindly granted J.-P. Demoule and me authorisation to see the material from Sidari. We were unfortunately unable to see the Mesolithic microliths, but Dr Sordinas' publications make it clear that they and the microliths from Franchthi are based on similar conceptions.

of microliths, appears more closely related to Franchthi's Lower Mesolithic assemblages, which is to be expected if the microliths are indeed related to tuna fishing. Nearer to Franchthi, the lithics from Cave 1 in the Klisoura gorge have been compared to Franchthi's Lower and Final Mesolithic assemblages (phases VII and IX), with a possible hiatus during the Upper Mesolithic of Franchthi (Koumouzelis *et al.*, this volume). The absence of any clear microlithic component from the Cave of Cyclope at Youra⁹ is puzzling when one considers the strong focus there on marine resources (Sampson *et al.*, this volume). However, the very small proportion of tuna vertebrae and cranial remains found may indicate fishing techniques (and thus lithic equipment) that were different from those used at Franchthi (Mylona, this volume; Powell, this volume). Alternatively, it may suggest the presence of groups of ultimately different origins and different cultural traditions.

I can see no significant affinities between the Franchthi assemblages and those from any sites in neighbouring areas outside Greece. As stated above, other crudely manufactured toolkits devoid of microliths have been found in Italy (Martini 1993; Taschini 1964; 1968), possibly in the former Yugoslavia (Tringham 1971; Radovanovic, oral comm.), in Corsica (Costa *et al.* in press; Costa, in preparation) and in Spain (Straus 1979; Clark and Straus 1983). Considering the distances and differences between these contexts, this most probably indicates similar patterns of resource exploitation and activities rather than actual cultural ties. As for the peculiar microliths of the Upper Mesolithic, they have no equivalent outside Greece that I am aware of.

The other categories of implement found in Franchthi's Mesolithic layers do not provide many more grounds for comparison. The simple bone points of the Lower Mesolithic¹⁰ and the very scarce grinding tools (Stroulia, in preparation) have undergone minimal work and transformation. They could have been found at any period in any context. The unworked dentalia beads were also used frequently wherever they were available, whether in a Palaeolithic or a Neolithic context (Taborin 1993), and as such cannot indicate a shared cultural background. The pendants made from pierced naturally flat pebbles may be more distinctive and are indeed characteristic of the Mesolithic period in Europe. However, they are found over large areas, and indicate little more than a general affinity with the European Mesolithic.

The presence at Franchthi of abundant human remains dating from the Lower Mesolithic (15–30 individuals) is undoubtedly one of the site's most significant features in terms of cave occupation (Cullen 1995; Cullen, in preparation). It shows that the cave had become a permanent symbolic focus for the groups inhabiting what was probably a limited territory¹¹ that may have centred around the site. However, neither the collective burials suggested by T. Cullen (1995) nor the

cremations can be taken as distinctive cultural practices: both have parallels in a variety of Upper Palaeolithic and Mesolithic sites in western Europe (Binant 1991; Ducrocq *et al.* 1996; Schulting 1996).

To the east, the cultural comparisons are no more compelling. The north-west Mesolithic assemblages from the Marmara area (Gatsov and Özdoğan 1994), with their abundance of pressure-made bladelets, are distinctly different and indicate radically different cultural traditions. The Mesolithic assemblages from Beldibi,¹² on Turkey's south coast, contain abundant bladelets and numerous segments and backed bladelets. The microburin technique was in constant use. Whether technically or typologically, these industries share no common conceptions with the Franchthi Mesolithic assemblages. The preliminary report on the recent excavations at the Öküzini cave (Otte *et al.* 1995) confirms the presence of backed bladelets and geometric microliths in this region during the Holocene.

Still further east, the Mesolithic remains of south-east Turkey, as exemplified by Hallam Çemi (Rosenberg 1999) and the Natufian of the Levant (Bar-Yosef and Valla 1991), reveal drastically different contexts in terms of settlement patterns, economic bases, technology and ideology. These sites are based on sedentary occupations, with elaborately built houses, grouped in small hamlets that have no equivalent in Greece. The elaborate and diversified bone tool industry (Stordeur 1991), often ornamented, can hardly be compared with the few crude bone points of Franchthi's Lower Mesolithic and does not include the more sophisticated fish hooks found at Youra but not at Franchthi (Moundrea-Agrafioti, this volume). The same can be said about the pounding and grinding equipment, there being no equivalent at Franchthi or anywhere else in Greece to the outstanding pestles and mortars from the Near East.

All in all it seems to me that the Mesolithic, as known at Franchthi and probably at other sites in Greece, was more remarkable for its idiosyncratic features than for any strong affinities with any other contemporaneous culture. Many of the typical artefacts that characterise the western European Mesolithic actually appear at Franchthi long before they do elsewhere in western Europe. The 'typically Mesolithic' Sauveterre points, scalene triangles and segments appeared at Franchthi as early as the Final Palaeolithic, perhaps two millennia

9 I agree with the authors' suggestion that the obsidian artefacts recovered from the Mesolithic levels are intrusive.

10 No bone tools, to my knowledge, have been recovered from later Mesolithic contexts.

11 This is to be expected if it is true that at this period there was greater reliance on plants and other collected species.

12 Even though Belbasi was also published as 'Mesolithic', its typology suggests the late Palaeolithic (Balkan-Atli 1994; Perlès 1987a).

before they did so elsewhere in western Europe. Similarly, trapezes are present in Franchthi's Mesolithic assemblages long before they appear in others from western Europe. Finally, the very characteristic transverse arrowheads with concave sides of Franchthi's Final Mesolithic period are again found elsewhere in later contexts, in which they are known as, for instance, 'pointes de Montclus' or 'pointes du Chatelet'.

Nor have these tool types been derived from the Near East: the 'Sauveterre points', the scalene triangles and the later trapezes (and, even more than these, the blunted microliths of the Upper Mesolithic) have no equivalent in the Late Geometric Kebarian or Natufian industries of the Levant or in the assemblages from the sea of Marmara. Although south-west Turkish Mesolithic assemblages have yet to be published, it seems that for several millennia Greece fostered original processes of evolution in lithic conceptions. These may later have spread out into western Europe or may have been reinvented independently to answer similar needs.

WHAT HAPPENED TO THE MESOLITHIC INHABITANTS OF FRANCHTHI?

A short stratigraphic hiatus is again observed at Franchthi between the Final Mesolithic deposits and the first Neolithic ones, when domesticated sheep/goats and some domesticated wheat and lentils appear at the site. These species are all foreign to Greece and find their origins in the Near East, as demonstrated by detailed studies of the Franchthi remains and more general genetic studies (Hansen 1991; 1992). Whether pottery was introduced to Franchthi at the same time is a matter of debate (Perlès 2001; Vitelli 1993).

It is clear that the introduction of domesticated species did not immediately result in a complete change in economic basis, subsistence activities, site occupation and lithic production. The scarce remains from this period, which I have suggested calling the Initial Neolithic, are still limited to the cave itself and indicate the persistence of a mobile way of life with periodic brief visits to the site. Shellfish continued to be collected as they were during the Final Mesolithic (Shackleton 1988), and the lithics remained unchanged but for the appearance of a few trapezes made on pressure-flaked blades and a few fragments of pressure-flaked obsidian blades. Since there is no indication that these were produced locally (there are no cores or preparation flakes and blades that could relate to *in situ* blade pressure flaking), they may have been acquired by exchange, together with the other objects that are foreign to the site. Although the remains are admittedly limited in number, they thus point to a continuity of occupation, with local Mesolithic hunter-gatherers acquiring new resources from already established farming groups.

This cannot, however, be taken as evidence for a local shift from a Mesolithic to a Neolithic economy at

Franchthi. This brief episode of occupation, during which an acculturation process probably took place, was followed (again after a sedimentological hiatus) by a full-fledged Early Neolithic occupation that shows few if any signs of continuity with earlier periods.¹³ The focus of occupation shifts from the cave to the outside 'Paralia', new domesticates are introduced and bone tools, querns, handstones, polished axes, celts, spindle whorls, etc., all appear together. Local production of chipped stone tools now relies on large quantities of imported obsidian and some honey flint blades as well as on local raw materials. Obsidian is pressure flaked to produce blades and bladelets and the toolkit includes new elements such as marginally retouched blades, sickle blades and large numbers of micropoints, borers and splintered blades. It also includes a significant proportion of micro-tools (micro-retouched flakes, micro-truncated flakes, microscrapers and microborers) that are completely absent from the underlying levels (Perlès, forthcoming).

There is thus a very sharp break between the Initial Neolithic and the Early Neolithic that corresponds to a temporal break in all of the cave's excavated trenches. The groups that settled at Franchthi at the onset of the Early Neolithic had a way of life and a repertoire of techniques that were radically different from those of the Initial Neolithic groups. It is still possible that they were descended from the latter (gradual transformations have been known to take place elsewhere), but this certainly cannot be established on the basis of the data provided by Franchthi or any other site in the Argolid. The available data show so much basic similarity to the newly established farming communities in central Greece and Thessaly that the alternative hypothesis, a spread of farming communities into the Argolid, is inescapable. Since the heyday of tuna fishing was long gone and since local conditions only allowed brief occupations based on what were apparently limited resources, I consider it likely that the local descendants of the Mesolithic hunter-gatherers would readily have joined these farming communities. The presence of human skeletons in Franchthi's Mesolithic and Neolithic layers should make biometrical comparisons possible and should enable us to test both the alternatives, biological continuity and discontinuity. Until these data are available we shall be no more certain of 'where

13 Whether or not complete cultural discontinuity can be suggested depends in part on the interpretation of the few sherds recovered from the Initial Neolithic stratum. If they are considered intrusive, the introduction of pottery is yet another element of discontinuity. If they represent the initial steps in pottery making, as suggested by Vitelli (1993), there is indeed some continuity in this domain. I personally favour the first interpretation, but acknowledge that the problem cannot be solved without further excavation.

the Mesolithic inhabitants went' than of 'who they were', as discussed at the beginning of this paper.

REFERENCES

- Adam, E., 1999. 'Preliminary presentation of the Upper Palaeolithic and Mesolithic stone industries of Theopetra Cave, Western Thessaly', in G. N. Bailey, E. Adam, E. Panagopoulou, C. Perlès and K. Zachos (eds), *The Palaeolithic Archaeology of Greece and Adjacent Areas: Proceedings of the ICOPAG Conference, Ioannina, September 1994*. British School at Athens Studies 3: 266–70. London.
- Angel, J. L., 1969. 'Human skeletal material from Franchthi Cave. Appendix II', in T. W. Jacobsen, 'Excavations at Porto Cheli and vicinity, preliminary report II: the Franchthi Cave, 1967–1968', *Hesperia* 38: 380–1.
- Balkan-Atli, N., 1994. *La néolithisation de l'Anatolie*. Paris: Institut Français d'Études Anatoliennes, de Boccard.
- Bar-Yosef, O. and F. Valla (eds), 1991. *The Natufian Culture in the Levant*. Ann Arbor: International Monographs in Prehistory.
- Binant, P., 1991. *Préhistoire de la mort*. Paris: Éditions Errance.
- Clark, G. A. and L. G. Straus, 1983. 'Late Pleistocene hunter-gatherer adaptations in Cantabrian Spain', in G. N. Bailey (ed.), *Hunter-gatherer Economy in Prehistory*: 131–48. Cambridge: Cambridge University Press.
- Costa, L. et al., in press. 'Early settlement on Tyrrhenian islands (8th millennium cal. BC): Mesolithic adaptation to local resources in Corsica and Northern Sardinia', in *International conference UISPP Mesolithic 2000, Stockholm (4–8 Sept. 2000)*. Oxford: Oxbow Monographs.
- Costa, L., in preparation. 'Espaces et productions lithiques taillées en Corse, VIIème–IVème millénaires'. Thèse de doctorat, Université Paris X.
- Cullen, T. C., 1995. 'Mesolithic mortuary ritual at Franchthi Cave, Greece', *Antiquity* 69: 270–89.
- Deith, M. R. and N. J. Shackleton, 1988. 'Oxygen isotope analysis of marine molluscs from Franchthi Cave', in J. C. Shackleton, *Marine Molluscan Remains from Franchthi Cave*. Excavations at Franchthi Cave, Greece, fascicle 4: 133–56. Bloomington, Indianapolis: Indiana University Press.
- Ducrocq, Th., I. Le Goff and F. Valentin, 1996. 'La sépulture secondaire mésolithique de la Chaussée-Tirancourt (Somme)', *Bulletin de la Société Préhistorique Française* 93 (2): 211–16.
- Farrand, W. R., 1988. 'Integration of late quaternary climatic records from France and Greece', in H. L. Dibble and A. Montet-White (eds), *Upper Pleistocene Prehistory of Western Eurasia*: 305–19. Philadelphia: University Museum, University of Pennsylvania.
- Farrand, W. R., 1993. 'Discontinuity in the stratigraphic record: snapshots from Franchthi Cave', in P. Goldberg, D. T. Nash and M. D. Petraglia (eds), *Formation Processes in Archaeological Context*: 85–96. Madison: Prehistory Press.
- Farrand, W. R., 2000. *Depositional History of Franchthi Cave. Sediments, Stratigraphy and Chronology*. Excavations at Franchthi Cave, Greece, fascicle 12. Bloomington, Indianapolis: Indiana University Press.
- Gatsov, I. and M. Özdoğan, 1994. 'Some epi-paleolithic sites from NW Turkey', *Anatolica* 20: 97–120.
- Hansen, J. M., 1991. *The Palaeoethnobotany of Franchthi Cave*. Excavations at Franchthi Cave, Greece, fascicle 7. Bloomington, Indianapolis: Indiana University Press.
- Hansen, J. M., 1992. 'Franchthi Cave and the beginnings of agriculture in Greece and the Aegean', in P. C. Anderson-Gerfaud (ed.), *Préhistoire de l'Agriculture. Nouvelles approches expérimentales et ethnographiques*: 231–47. Paris: CNRS, Monographie du CRA n°6.
- Jacobsen, T. W., 1993. 'Maritime mobility in the prehistoric Aegean', paper presented at the XXth Meeting on Maritime Archaeology, Nafplion.
- Martini, F. (ed.), 1993. *Grotta della Serratura a Marina di Camerota. Culture e ambienti del complesso oloceni*. Siena: Garlatti e Razzai Editori.
- Miller, M., in preparation. *Ornaments from the Franchthi Cave* (provisional title). Bloomington, Indianapolis: Indiana University Press.
- Otte, M. et al., 1995. 'The Epi-Palaeolithic of Öküzini Cave (SW Anatolia) and its mobiliary art', *Antiquity* 69: 931–44.
- Payne, S., 1975. 'Faunal change at the Franchthi Cave from 20,000 BC to 3,000 BC' in A. T. Clason (ed.), *Archaeozoological Studies*: 120–31. Den Haag: Elsevier.
- Payne, S., 1982. 'Faunal evidence for environmental/climatic change at Franchthi Cave, 25,000 BP to 5,000 BP', in J. L. Bintliff and W. van Zeist (eds), *Palaeoclimates, Palaeoenvironments and Human Communities in the Eastern Mediterranean Region in Later Prehistory*: 133–6. BAR International Series 133. Oxford: British Archaeological Reports.
- Pelegrin, J., 1995. *Technologie lithique: le Châtelperonnien de Roc-de-Combe (Lot) et de La Côte (Dordogne)*. Paris: CNRS Éditions.
- Perlès, C., 1979. 'Des navigateurs méditerranéens il y a 10,000 ans', *La Recherche* 96: 82–3.
- Perlès, C., 1984. 'Aperçu sur les industries mésolithiques de Franchthi (Grèce)', in J. K. Kozłowski and S. K. Kozłowski (eds), *Advances in Palaeolithic and Mesolithic Archaeology*: 163–71. Warsaw, Krakow: Archaeologia Interregionalis.
- Perlès, C., 1987a. *Les industries lithiques taillées de Franchthi (Argolide, Grèce)*. Tome I: *Présentation générale et industries paléolithiques*. Excavations at Franchthi Cave, fascicle 3. Bloomington, Indianapolis: Indiana University Press.
- Perlès, C., 1987b. 'Les industries du Néolithique "précéramique" de Grèce: nouvelles études, nouvelles interprétations' in S. K. Kozłowski and J. K. Kozłowski (eds), *Chipped Stone Industries of the Early Farming Cultures in Europe*: 19–39. Warsaw, Krakow: Warsaw University, Jagiellonian University of Krakow.
- Perlès, C., 1988. 'New ways with an old problem: chipped stone assemblages as an index of cultural discontinuity in the early Greek Prehistory', in E. B. French and K. A. Wardle (eds), *Problems in Greek Prehistory. Papers presented at the Centenary Conference of the British School of Archaeology at Athens, Manchester, April 1986*: 477–88. Bristol: Bristol Classical Press.
- Perlès, C., 1989. 'La néolithisation de la Grèce', in O. Aurenche and J. Cauvin (eds), *Néolithisations: Proche et Moyen Orient, Méditerranée orientale, Nord de l'Afrique, Europe méridionale, Chine, Amérique du Sud*: 109–27. BAR International Series 516. Oxford: British Archaeological Reports.

- Perlès, C., 1990. *Les industries lithiques taillées de Franchthi (Argolide, Grèce)*. Tome II: *Les Industries du Mésolithique et du Néolithique initial*. Excavations at Franchthi Cave, fascicle 5. Bloomington, Indianapolis: Indiana University Press.
- Perlès, C., 1992. 'In search of lithic strategies: a cognitive approach to chipped stone industries', in J.-Cl. Gardin and C. S. Peebles (eds), *Representations in Archaeology*: 223–47. Bloomington, Indianapolis: Indiana University Press.
- Perlès, C., 1995. 'La transition Pleistocène/Holocène et le problème du Mésolithique en Grèce', in V. Villaverde-Bonilla (ed.), *Los últimos cazadores. Transformaciones culturales y económicas durante el Tardiglacial y el inicio del Holoceno en el ámbito mediterráneo*: 179–209. Alicante: Instituto Juan Gil-Alvert.
- Perlès, C., 1999. 'Long-term perspective on the occupation of the Franchthi Cave: continuity and discontinuity', in G. N. Bailey, E. Adam, E. Panagoulou, C. Perlès and K. Zachos (eds), *The Palaeolithic Archaeology of Greece and Adjacent Areas, Proceedings of the ICOPAG Conference, Ioannina, September 1994*. British School at Athens Studies 3: 311–18. London: British School at Athens.
- Perlès, C., 2001. *The Early Neolithic in Greece*. Cambridge: Cambridge University Press.
- Perlès, C., forthcoming. *Les industries lithiques taillées de Franchthi (Argolide, Grèce)*. Tome III: *Du Néolithique ancien au Néolithique final*. Excavations at Franchthi Cave. Bloomington, Indianapolis: Indiana University Press.
- Pigeot, N., 1988. 'Apprendre à débiter des lames: un cas d'éducation technique chez les Magdaléniens d'Étiolles', in J. Tixier, *Technologie préhistorique*: 63–70. Paris: Éditions du CNRS, Notes et Monographies techniques du CRA.
- Pigeot, N., M. Philippe, G. Le Licon and M. Morgenstein, 1991. 'Système technique et essai de technologie culturelle à Étiolles: nouvelles perspectives', in Coll., *25 ans d'études technologiques en préhistoire, bilan et perspectives, Actes des XIèmes rencontres internationales d'archéologie et d'histoire d'Antibes*: 169–85. Antibes: Éditions APDCA.
- Ploux, S., 1991. 'Technologie, technicité, techniciens: méthode de détermination d'auteurs et comportements techniques individuels', in Coll., *25 ans d'études technologiques en préhistoire, bilan et perspectives, Actes des XIèmes rencontres internationales d'archéologie et d'histoire d'Antibes*: 201–14. Antibes: Éditions APDCA.
- Powell, J., 1996. *Fishing in the Prehistoric Aegean*. Jonsered: Paul Aströms Förlag.
- Redding, R., in preparation. *Faunal Remains from Franchthi Cave* (provisional title). Bloomington, Indianapolis: Indiana University Press.
- Renfrew, C. and A. Aspinall, 1990. 'Aegean obsidian and the Franchthi Cave', in C. Perlès, *Les industries lithiques taillées de Franchthi (Argolide, Grèce)*. Tome II: *Les Industries du Mésolithique et du Néolithique initial*. Excavations at Franchthi Cave, fascicle 5: 257–70. Bloomington, Indianapolis: Indiana University Press.
- Rose, M., 1987. 'Early fishing in the Aegean', BAR paper given at ICAZ meeting, York, Sept. 1987.
- Rose, M., 1995. 'Fishing at Franchthi Cave, Greece: changing environments and patterns of exploitation', *Old World Archaeology Newsletter* 18 (3): 21–6.
- Rose, M., in preparation. *The Fish Bones from Franchthi Cave* (provisional title). Bloomington, Indianapolis: Indiana University Press.
- Rosenberg, M., 1999. 'Hallam Çemi', in M. Özdoğan and N. Besgelen (eds), *Neolithic in Turkey. The Cradle of Civilization*: 25–33. Istanbul: Arkeoloji ve sanat yayinlari.
- Schulting, R. J., 1996. 'Antlers, bone pins and flint blades: the Mesolithic cemeteries of Tévéc and Hoëdic, Brittany', *Antiquity* 70: 335–50.
- Shackleton, J. C., 1988a. *Marine Molluscan Remains from Franchthi Cave*. Excavations at Franchthi Cave, fascicle 4. Bloomington, Indianapolis: Indiana University Press.
- Shackleton, J. C., 1988b. 'Reconstructing past shorelines as an approach to determining factors affecting shellfish collecting in the prehistoric past', in G. N. Bailey and J. Parkington (eds), *The Archaeology of Prehistoric Coastlines*: 11–21. Cambridge: Cambridge University Press.
- Shackleton, J. C. and Tj. H. van Andel, 1980. 'Prehistoric shell assemblages from Franchthi Cave and evolution of the adjacent coastal zone', *Nature* 288: 357–9.
- Shackleton, J. C. and Tj. H. van Andel, 1986. 'Prehistoric shore environments, shellfish availability, and shellfish gathering at Franchthi, Greece', *Geoarchaeology* 1 (2): 127–43.
- Sordinas, A., 1969. 'Investigations in the prehistory of Corfu during 1964–1966', *Balkan Studies* 10 (2): 393–424.
- Sordinas, A., 1970. *Stone Implements from Northwestern Corfu, Greece*. Memphis: Anthropological Research Center, Memphis State University.
- Stordeur, D., 1991. 'Le Natoufien et son évolution à travers les artefacts en os', in O. Bar-Yosef and F. Valla (eds), *The Natufian Culture in the Levant*: 467–82. Ann Arbor: International Monographs in Prehistory.
- Straus, L., 1979. 'Mesolithic adaptations along the coast of northern Spain', *Quaternaria* 21: 305–27.
- Stroulia, A., in preparation. *Ground Stone Artefacts from Franchthi Cave* (provisional title). Bloomington, Indianapolis: Indiana University Press.
- Taborin, Y., 1993. *La parure en coquillage au paléolithique*. Paris: CNRS Éditions.
- Taschini, M., 1964. 'Il livello Mesolitico del Riparo Bianco a Monte Circeo', *Bulletino di Paleontologia Italiana*, nuova serie 15 (73): 65–88.
- Taschini, M., 1968. 'La datation au C14 de l'abri Blanc (Mont Circé). Quelques observations sur le Mésolithique en Italie', *Quaternaria* 10: 137–65.
- Torrence, R., 1986. *Production and Exchange of Stone Tools*. Cambridge: Cambridge University Press.
- Tringham, R., 1971. *Hunters, Fishers and Farmers of Eastern Europe, 6000–3000 BC*. London: Hutchinson University Library.
- van Andel, Tj. H. and C. Runnels, 1987. *Beyond the Acropolis. A Rural Greek Past*. Stanford: Stanford University Press.
- van Andel, Tj. H. and J. C. Shackleton, 1982. 'Late Palaeolithic and Mesolithic coastlines of Greece and the Aegean', *Journal of Field Archaeology* 9: 445–54.
- van Andel, Tj. H. and S. B. Sutton, with contributions by J. M. Hansen and Ch. J. Vitaliano, 1987. *Landscape and People of the Franchthi Region*. Excavations at Franchthi Cave, fascicle 2. Bloomington, Indianapolis: Indiana University Press.

- Vaughan, P., 1990. 'Use-wear analysis of the Mesolithic chipped-stone artefacts from Franchthi Cave', in C. Perlès, *Les industries lithiques taillées de Franchthi (Argolide, Grèce)*. Tome II: *Les Industries du Mésolithique et du Néolithique initial*. Excavations at Franchthi Cave, fascicle 5: 239–53. Bloomington, Indianapolis: Indiana University Press.
- Vitelli, K. D., 1993. *Franchthi Neolithic pottery. Vol. 1: Classification and Ceramic Phases 1 and 2*. Excavations at Franchthi Cave, fascicle 8. Bloomington, Indianapolis: Indiana University Press.
- Whitney-Desautels, N. A., in preparation. *The Freshwater and Land Snails of Franchthi Cave*. Bloomington, Indianapolis: Indiana University Press.