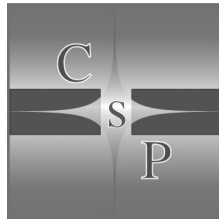


Tools versus Cores
Alternative Approaches to Stone Tool Analysis

Edited by

Shannon P. McPherron



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TRUNCATED-FACETED PIECES: HAFTING MODIFICATION, RETOUCH, OR CORES?

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Introduction

Truncated-faceted pieces are flakes that exhibit a truncation, often inverse (i.e., with retouch originating from the exterior surface) on one or several margins (often the proximal or distal end), which serves as a platform for the removal of one or more small flakes from the (usually) exterior surface. They go under a variety of names, including Kostienki knives in Europe (Otte 1980, esp. figure 5; Klein 1969), Nahr Ibrahim cores (defined by Solecki and Solecki 1970 at the Lebanese site of Nahr Ibrahim), and "sinew-frayers", named by Leakey (1931:99-100) after observing their manufacture and use in Kenya. There have been a number of studies of these tools in Near Eastern assemblages (Crew 1976; Dibble 1984; Goren-Inbar 1988; Hovers this volume; Nishiaki 1985; Schroeder 1969 and this volume), but since they were not included in Bordes' (1961) type list, they have not been consistently recognized in European collections until relatively recently.

In effect, truncated-faceted pieces resemble a small core on a flake, though there is no consensus on whether it is a method for producing small flakes, for producing a particular kind of working edge, or whether it is best interpreted as a hafting modification. In this paper we address this issue through detailed study of truncated-faceted pieces from three sites: Pech de l'Azé IV (the Asinipodian levels), La Cotte de St. Brelade, and Bisitun. These assemblages represent completely different kinds of Middle Paleolithic industries, but all of them have a significant truncated-faceted component. We will compare the truncated-faceted pieces from each of these sites in order to get some idea of the kinds of variability that exist in these pieces, and within each site we will compare the truncated-faceted pieces to other artifacts, both tools and cores, to see what distinguishes truncated-faceted pieces from other kinds of artifacts.

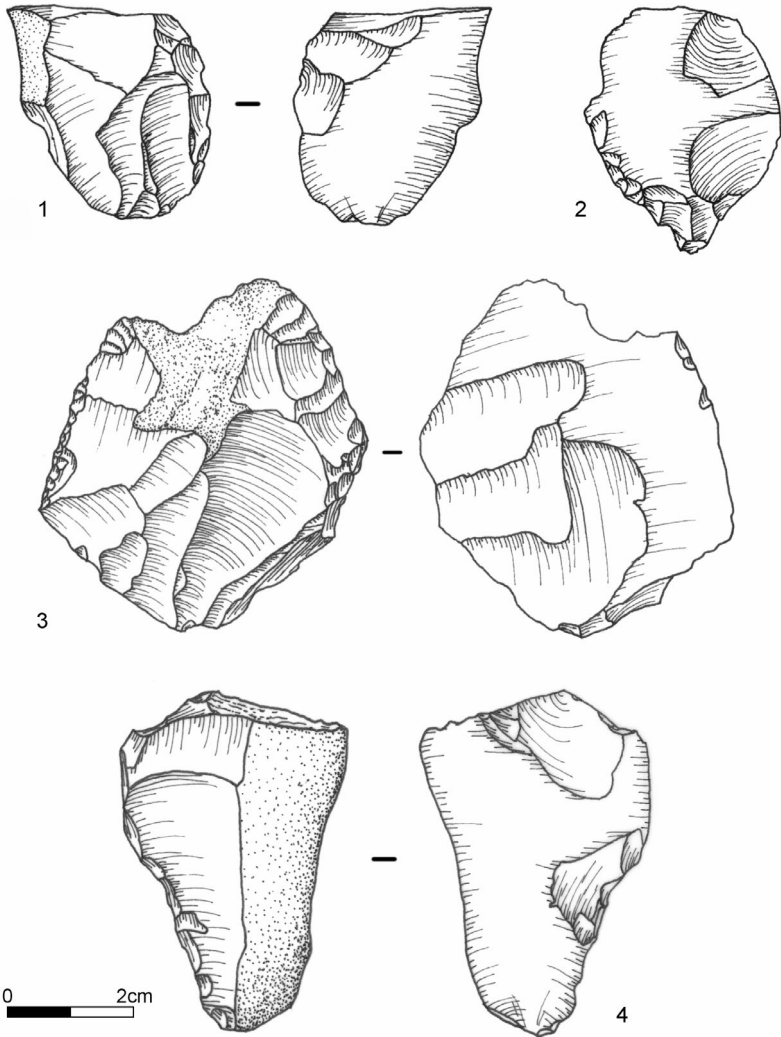


Figure 4-1 1-4, Truncated-faceted pieces from Pech IV.

Materials and Methods

The largest sample of truncated-faceted pieces and cores used in this study come from Bordes' excavations at Pech de l'Azé IV, a Middle Paleolithic site in Dordogne region of southwest France (Bordes 1975; McPherron and Dibble 2000) (Figure 4-1). In one set of levels, J3a – J3c, there exists a type of Mousterian that Bordes (1975) termed the "Asinipodian." There are many features of these assemblages that stand out. Typologically, the industry resembles either a Denticulate Mousterian or a Typical Mousterian rich in denticulates, as there are more notches and denticulates than scrapers, and virtually all of the latter are single types. This suggests a relatively low intensity of utilization in the assemblages, a point supported by the very low percentages of blanks to cores and of tools to flakes. Truncated-faceted pieces are also heavily represented in the Asinipodian layers, and there is the very high percentage of Kombewa flakes and cores – the percentage of cores that are classified as Kombewa reaches a high of over 12 percent in Level J3a. There are also a number of very small Levallois flakes. Many are less than 2 cm in length. That they should be considered Levallois flakes and not the result of retouching bifaces or scrapers is clear from the fact that bifaces are absent and scrapers are rare, but more telling is the presence of undeniable Levallois cores that are themselves extremely small: almost 10 percent of these are less than 3 cm in maximum length and the lengths of the primary removal scar average less than 2 cm with a minimum of 1.4 cm (McPherron and Dibble 2000). There are as yet no dates available for the Asinipodian of Pech IV, but Bordes argued on faunal and geological grounds that they dated to the early part of the Würm.

The second sampled used in the analysis presented here comes from Layer C of McBurney's excavations at La Cotte de Saint Brelade (Callow and Cornford 1986) (Figure 4-2). La Cotte, located on the island of Jersey just off the northern coast of France, contains a deep sequence situated at the base of a cliff that at times may have served as an animal trap. The sample presented here comes from Layer C, which is characterized as a Middle Paleolithic industry rich in single-scrapers. It is in this layer that specialized re-sharpening techniques increase in frequencies perhaps in response to changing raw material availability. The technique in this case involved the removal of a long (LSF) or transverse (TSF) flake from a flake presumably to re-sharpen it (Cornford 1986). Callow and Cornford did not identify truncated-faceted pieces, but in our own analysis of this material we found a high percentage of these pieces. At times the line between LSF/TSF and truncated-faceted was difficult to define and it is likely that some of Cornford's LSF/TSF flakes became truncated-faceted pieces in our study. The cores were not included in this study.

Thermoluminescence dates on four flints from Layer D and two from Layer C yielded a date of 238 ± 35 ka (Huxtable 1986).

The site of Bisitun, located in the Zagros region of Iran at an altitude of 1400 meters, has a large collection of both truncated-faceted pieces and cores (Figure 4-3). Coon excavated the site in 1949 and a highly selective portion of the collection, which has been described by one of us (Dibble 1984; see also Coon 1951, 1957; Skinner 1965; Lindly 1997), is housed at the University of Pennsylvania Museum of Archaeology and Anthropology. It contains a low but significant percentage of Levallois products and an abundance of heavily reduced scrapers, usually of double and convergent types. Some data from the site of Warwasi (Dibble and Holdaway 1993), also located in the Zagros region of Iran, are also presented. Dates are not available for either of these Middle Paleolithic collections.

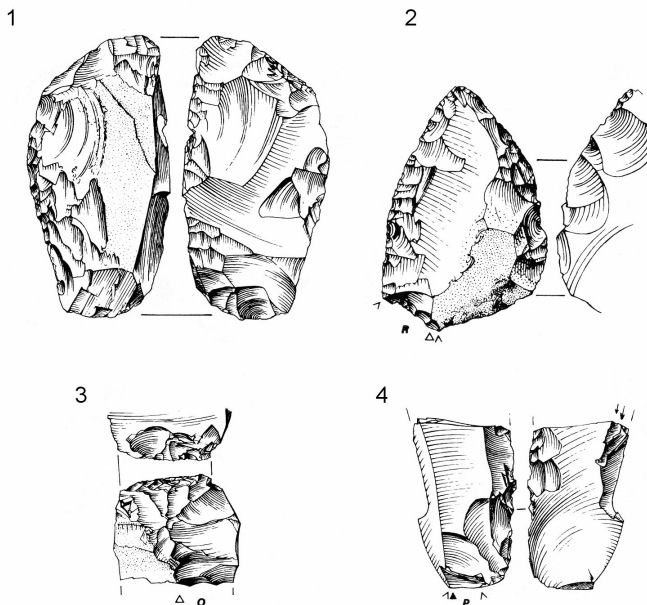


Figure 4-2 Tools from Layer C of La Cotte de St. Brelade. The original type designations are given here but these pieces could all be classified as truncated-faceted as well. 1 – Side-scaper with bifacial retouch, 2 – convergent side-scaper with thinning of one edge, 3 – side-scaper with bifacial retouch or miscellaneous with scaling, 4 – angle-burin on a break (reproduced from Callow 1986).

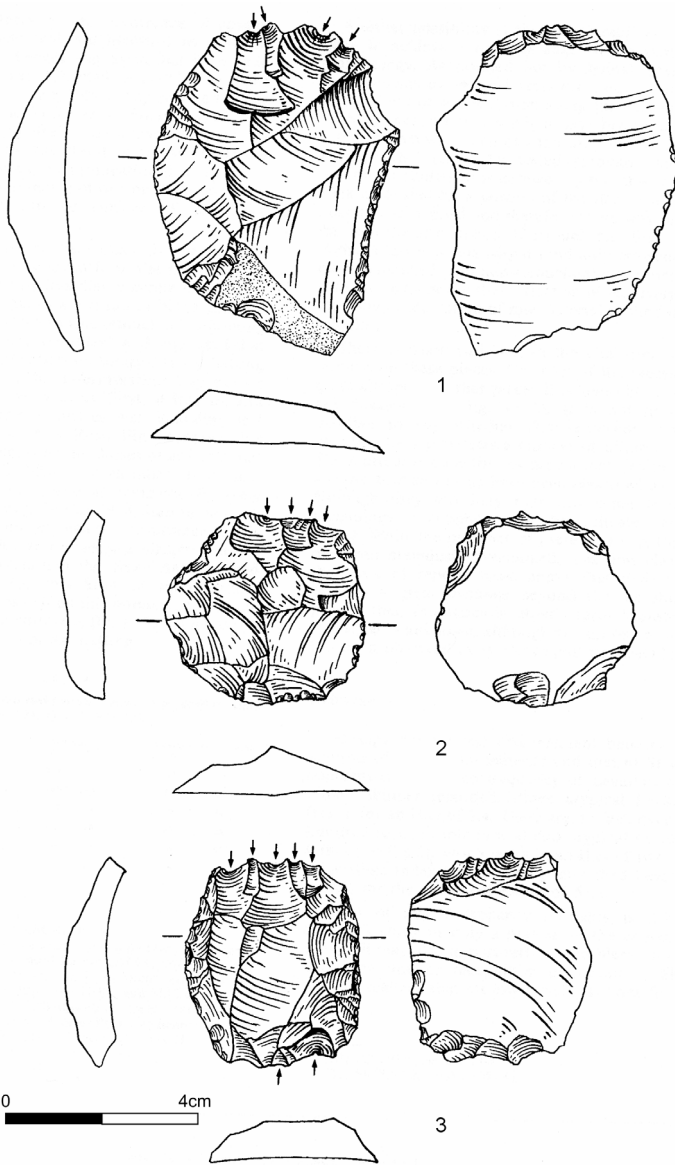


Figure 4-3 1-3, Truncated-faceted pieces from Bisitun (Iran) (reproduced from Dibble 1984:28).

In addition to the standard measurements and observations that we normally use for stone tool assemblages (see Dibble et al. 1995), we developed three observations specific to the study of truncated-faceted pieces. The first of these is the character of the truncated-faceted retouch, which can be, for example, typical truncated-faceted retouch, burin-like, core-like, LSF-like, Kombewa, etc. This variable acknowledges the fact that in many of these assemblages it is difficult to define a line that distinguishes these various tool and core types. The second additional observation is the location of the truncated-faceted retouch, i.e., whether it is on the proximal, distal, lateral, or multiple edges of the retouched blank. The third observation is the surface from which the truncated-faceting flake (as opposed to the truncated-faceting preparation) was removed, primarily from the exterior or interior. For truncated-faceted pieces and cores we also measured the length of the largest flake scar that is preserved on the piece to assess the size of the last, largest flake blank that these techniques could have produced.

Results

Our analysis was structured to address three competing hypotheses regarding the interpretation of truncated-faceted pieces. The first hypothesis is that truncated-faceted is a technique used to thin the piece, presumably for hafting (Crew 1976:109). Since in some industries, notably from the Zagros and Caucasus, truncated-faceted is often associated with pointed forms (convergent scrapers and Mousterian points), the hafting modification idea is credible. However, the data presented here are not consistent with such an interpretation.

In the first place, while truncated-faceting retouch often occurs on pieces that exhibit other kinds of retouch, there is usually no significant association between the presence of truncated-faceting retouch and other major tool classes (Figure 4-4). In fact, the presence of truncated-faceting retouch occurs more or less randomly on different typological classes (including otherwise unretouched pieces) (cf. Crew 1976). While this might be consistent with an interpretation that hafting occurred regardless of particular typological class, these data do not support the notion that particular typological classes were hafted or modified for hafting preferentially. Thus, taken on its own, the presence of truncated-faceted retouch cannot be used evidence for hafting.

Second, the fact that truncated-faceting retouch often occurs on multiple edges of the same piece (Figure 4-4) is definitely not consistent with the hypothesis that this is a hafting modification.

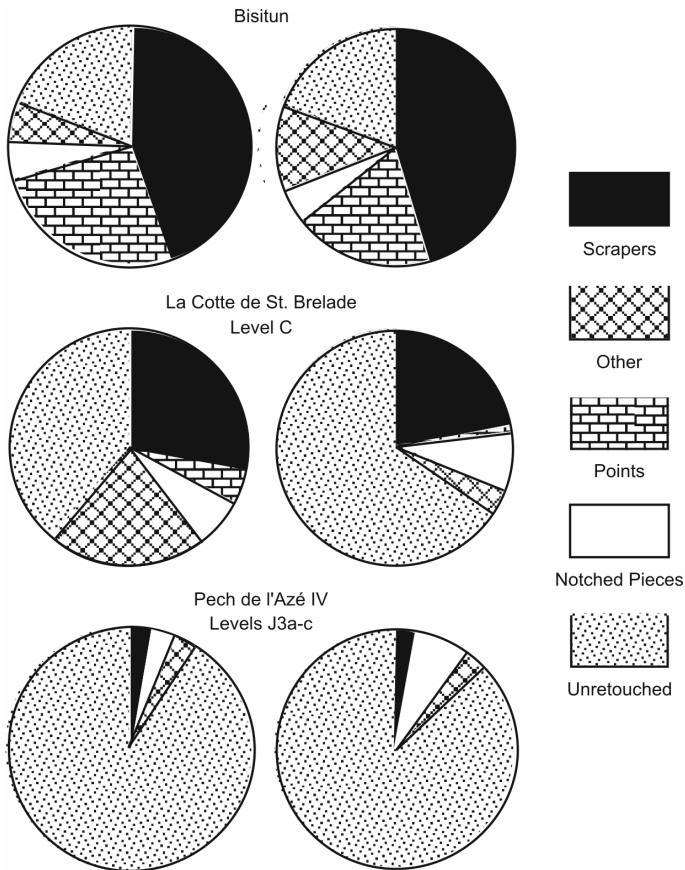


Figure 4-4 Association between truncated-faceted edges and other tool types on the same piece for truncated-faceted pieces (left) and all other tools (right) from the Pech IV, Bisitun, and La Cotte collections.

Finally, if truncated-faceted pieces reflect thinning, then we would expect them to be as thin as other tools (especially given that they are distributed evenly with respect to other artifact classes). To the contrary, truncated-faceted pieces are most often thicker than other, non-truncated-faceted tools (Table 4-1).

Given these results, our conclusion is that in these assemblages truncated-faceting is not done to thin the piece as a type of hafting modification.

	T-F non-T-F		<i>t</i> -value	<i>df</i>	<i>p</i>	N
	Mean	Mean				
Pech IV	9.3	8.8	-1.23	328	0.220	256
La Cotte	10.5	9.3	-2.25	324	0.025	266
Warwasi	7.9	6.8	2.51	40.3	0.016	197
Bisitun	8.2	6.5	5.79	500	0.001	431

Table 4-1 A comparison of flake thickness between truncated-faceted pieces and all other tools. Measurements are in millimeters.

The second hypothesis is that truncated-faceting retouch was applied to achieve a particular edge morphology that served some functional purpose. This conclusion was previously reached by one of us (Dibble 1984) based in part on Leakey's (1931) observations of their use among modern peoples and in part on a belief that the flakes removed during truncated-faceting are too small to have been effectively used (Crew 1976:109). Alternatively, the third hypothesis is that truncated-faceted pieces are in fact cores intended specifically to produce

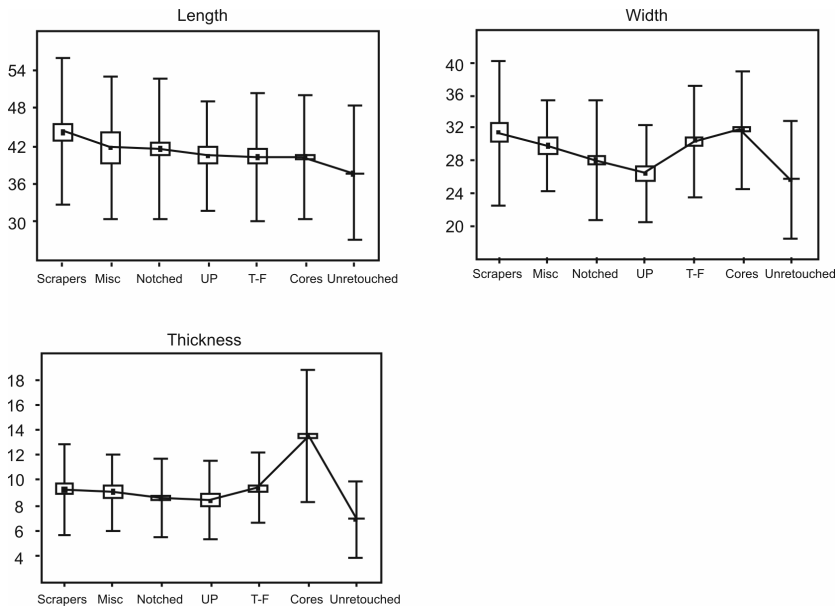


Figure 4-5 Length, width, and thickness measurements for scrapers, miscellaneous tools, notched tools (notches and denticulates), Upper Paleolithic types, cores, and unretouched flakes. Measurements are in millimeters.

these small flakes (Goren-Inbar 1988; Hovers this volume; Newcomer and Hivernel-Guerre 1974). In the absence of conclusive use-wear studies of truncated-faceted edges, the best way to address these two hypotheses is to see if truncated-faceted pieces display patterns more similar to other kinds of tools or to other kinds of cores. By and large, these results do not conclusively support either hypothesis, but there are elements of these comparisons that suggest that the better interpretation is that truncated-faceted pieces represent cores.

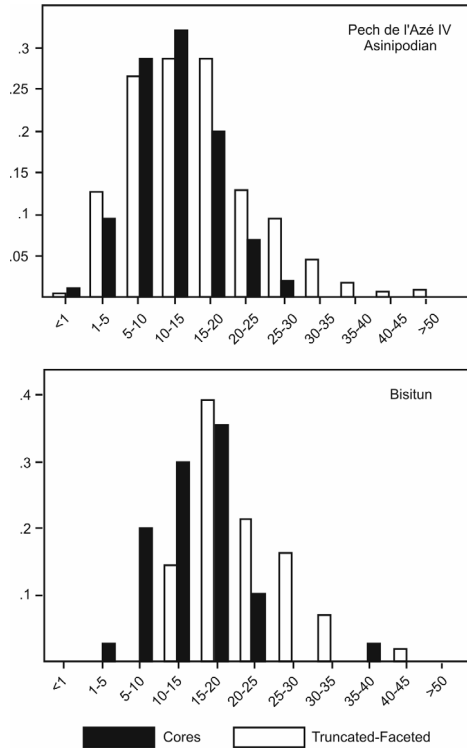


Figure 4-6 A comparison of the length of the longest complete removal from cores and truncated-faceted pieces at Pech IV and Bisitun. Measurements are in millimeters.

Looking first at basic metric data comparing truncated-faceted pieces to retouched tools, cores, and unretouched flakes (based on Pech IV sample only), it is not possible to discern any clear differences among these various classes

(Figure 4-5). The only exception is that unretouched flakes are consistently smaller than truncated-faceted pieces, tools, and cores. The lack of differences between the truncated-faceted pieces and tools on the one hand, and cores on the other, does not help in reaching a conclusion as to which pattern the truncated-faceted pieces more closely match.

On the other hand, it is clear that the technique of producing a truncated-faceted piece is clearly core-like – the truncation serving as platform preparation for the subsequent flake removals. While the basic technique is the same, the question is whether other characteristics of the truncated-faceted pieces are significantly different from those seen on recognizable cores.

The first characteristic to examine is the length of the longest flake scar representing a removal from both truncated-faceted pieces and cores. As can be seen from the figures, at both Pech IV and Bisitun, the distribution of scar lengths of both truncated-faceted pieces and cores follow roughly the same pattern (Figure 4-6). The scars of truncated-faceted pieces tend to be a bit smaller on average, but then again most of the flake scar lengths fall well within the distribution of the flakes scars of cores. That the flake scars of truncated-faceted pieces represent the smaller end of variability is not overly surprising given that the starting piece (the flake) is that much smaller.

In this regard, it is interesting that Kombewa cores, which are also made on flakes, exhibit an average scar length that is not significantly different from truncated-faceted pieces. In the Asinipodian levels of Pech IV, which are defined on the basis of very small Levallois flakes and cores, many of the cores and flake scar lengths, as well as the Levallois flakes themselves, are well within the distribution of truncated-faceted pieces. Given that Levallois is not at all viewed as a technique for producing a working edge on a core, there is no reason to suggest the same for truncated-faceted pieces.

Variability Among T-F Industries

Whatever the final interpretation of truncated-faceted pieces, it is interesting to examine them with regard to both similarities and differences that exist among the industries studied. Overall, the industries included in this study are not very similar, neither in terms of typology or technology. The Asinipodian of Pech IV has few tools, and most of them are notches and denticulates, while Bisitun has a large proportion of heavily reduced scrapers and points, and La Cotte has a much higher proportion of burins in addition to scrapers. The Levallois index of the three assemblages also vary, and Pech IV, in particular, has a much higher proportion of Kombewa flakes and cores.

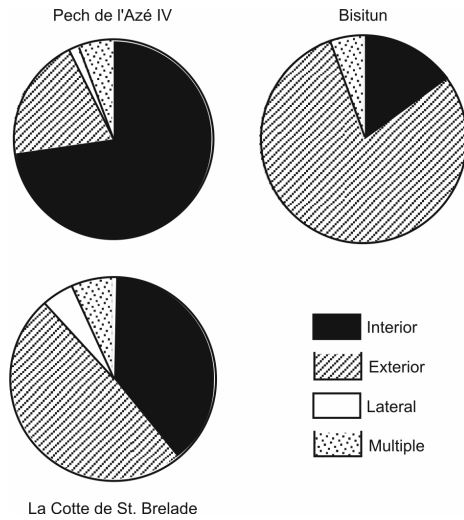


Figure 4-7 Location of the truncated-faceted edge on pieces from Bisitun, Pech IV, and La Cotte.

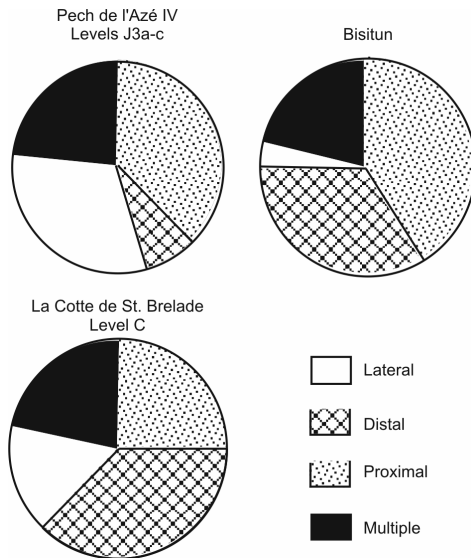


Figure 4-8 Location of the truncated-faceted edge on pieces from Bisitun, Pech IV, and La Cotte.

With regard to the surface(s) from which removals were taken from the truncated-faceted pieces, we see differences that, in effect, mirror some of these assemblage level differences. Thus, at Pech IV, most of the truncated-faceted removals occur on the interior surface (suggesting a relationship to Kombewa cores), and at La Cotte there is a higher percentage of removals from a lateral edge, reminiscent of both the higher proportion of burins and of LSFs at this site (Figures 4-7 and 4-8).

On the other hand, by some measures of size these assemblages are all extremely similar. Between Pech IV, Bisitun and Warwasi, for example, the only difference in the absolute sizes of cores is noted in terms of the thickness of single surface core types (Table 4-2). With the truncated-faceted pieces, length does not vary significantly between Pech IV, Bisitun, Warwasi, and La Cotte

Single Surface Cores	Pech IV		Bisitun		Warwasi		<i>df</i>	F	<i>p</i>
	N	Mean	N	Mean	N	Mean			
Length	320	39.5	41	38.1	72	42.3	2/391	1.81	0.16
Width	319	31.4	41	29.4	72	31.3	2/390	1.16	0.31
Thickness	319	13.7	41	11.9	72	14.2	2/390	2.98	0.05
Scar Length	270	19.0	40	19.8	73	23.0	2/391	2.42	0.09

Levallois Cores	Pech IV		Bisitun		<i>t</i> -value	<i>df</i>	<i>p</i>
	N	Mean	N	Mean			
Length	102	39.1	3	38.6	0.12	103	0.91
Width	102	33.6	3	33.1	0.10	103	0.92
Thickness	101	12.2	3	8.6	1.58	102	0.12
Scar Length	87	22.4	3	25.5	-0.46	103	0.64

Truncated-Faceted	Pech IV		Bisitun		La Cotte		Warwasi		<i>df</i>	F	<i>p</i>
	N	Mean	N	Mean	N	Mean	N	Mean			
Length	58	40.9	40	40.3	77	60.0	72	37.7	3/243	1.66	0.18
Width	58	30.9	40	27.0	77	32.4	72	25.6	3/243	9.67	0.00
Thickness	58	9.1	40	8.5	77	10.7	72	8.5	3/243	10.08	0.00
Scar Length	58	16.9	77	17.0	40	14.8	73	16.0	3/243	1.13	0.34

Table 4-2 A comparison of tool size and longest complete flake scar measurements for Levallois cores, single-surface cores, and truncated-faceted pieces. Some categories of data were not available for some collections. Measurements are in millimeters.

while the Bisitun and Warwasi pieces are narrower and thinner than Pech IV and La Cotte pieces. What is most interesting is that despite some differences in size and despite the very different chronological and spatial context of these assemblages, the longest flake scar length is consistent across these assemblages.

Discussion

There are two major implications of this work to emphasize. First, if we are correct in suggesting that truncated-faceted pieces are cores, there was a deliberate production in the Middle Paleolithic of very small flakes. If this implication were dependent only on the interpretation of truncated-faceted pieces as cores, there would be room for argument. The fact is, however, that even “true” cores show the production of such small flakes, which in many cases, cannot be interpreted as surface preparation flakes. This is especially true for the small Levallois flakes and Kombewa flakes seen in the Asinipodian of Pech IV. Thus interpreting truncated-faceted pieces as cores fits well within an existing pattern that while previously noted is perhaps under appreciated. Unfortunately, not only have Paleolithic archaeologists tended to overlook the small flakes that these techniques produce (they are so small that they often fall below the normal cut-offs for piece proveniencing and analysis), but it seems, based on industries discussed here, they their production and use represents a significant component of Middle Paleolithic industries and a significant aspect of assemblage variability. By failing to include this aspect, current interpretations of assemblage variability and Neandertal adaptations are limited in their scope.

Second, this study of truncated-faceted pieces and their products highlights the problem we, as archaeologists, face in recognizing behaviorally significant components of lithic assemblages. However open-minded and observant we try to be, the simple fact is that our observations, and therefore our interpretations, are very much dependent on the range and kinds of categories that we taught to see. This cultural filter, as it were, has been clearly demonstrated in anthropology, linguistics, and psychology, and it extends just as much to Paleolithic archaeology. What this means for us is that given a particular classificatory system, it is truly hard to see beyond it.

It is easy to show that this has been the case for truncated-faceted pieces. Even Bordes himself, who was particularly interested in recognizing patterns in lithic artifact morphology, was constrained by his own type list (Bordes 1961),

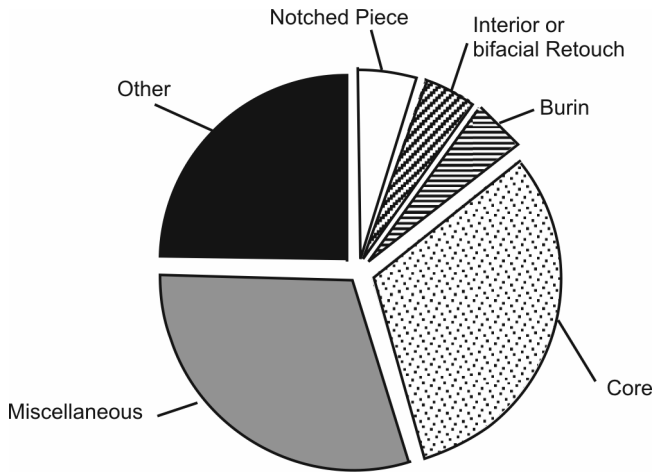


Figure 4-9 Bordes placed truncated-faceted pieces from Pech IV in a number of different typological categories depending in part on the location of the faceting and its character. In our own re-analysis of this collection, we typed all of these as truncated-faceted.

as shown by his handling of truncated-faceted pieces from Pech de l'Azé (McPherron and Dibble 2000) (Figure 4-9). The recognition of these pieces as a patterned type or technology has largely developed since his death and so it is only now that we can deal with it. Given that they are a focus of study, perhaps we can be optimistic that we may eventually understand the significance of these pieces, but it certainly raises a question: how much else are we overlooking?

Acknowledgements

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