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# The Compositional Integrity of the Aurignacian

## *La integridad composicional del Auriñaciense*

**KEY WORDS:** Aurignacian, lithic typology, lithic technology, organic technology, west Eurasia.
**PALABRAS CLAVE:** Auriñaciense, tipología lítica, tecnología lítica, tecnología orgánica, Eurasia occidental.

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**ABSTRACT**

For the Aurignacian to have heuristic validity, it must share a number of defining characteristics that co-occur systematically across space and time. To test its compositional integrity, we examine data from 52 levels identified as Aurignacian by their excavators. Classical indicators of the French Aurignacian are reviewed and used to contextualize data from other regions, allowing us to assess whether or not the Aurignacian can be considered a single, coherent archaeological entity.

**RESUMEN**

Para tener validez heurística, el Auriñaciense tiene que compartir características que co-ocurren sistemáticamente a través del espacio y tiempo. Para evaluar su integridad composicional, examinamos aquí los datos procedentes de 52 niveles identificados como 'Auriñaciense' por sus excavadores. Se repasan los indicadores 'clásicos' del Auriñaciense francés para contextualizar los datos procedentes de otras regiones con el objetivo de examinar si el Auriñaciense puede considerarse una sola coherente entidad arqueológica.

**LABURPENA**

Baliozkotasun heuristikoa izateko, Aurignac aldiak espazioan eta denboran zehar sistematikoki batera gertatzen diren ezaugarriak partekatu behar ditu. Haren osaketa osotasuna ebaluatzeko, beren hondeatzaileek 'Aurignac aldikotzat" identifikaturiko 52 mailetatik ateratako datuak aztertzen ditugu hemen. Aurignac aldi frantziarraren adierazle "klasikoak" berrikusten dira beste hainbat eskualdetatik lorturiko datuak bere testuinguruan jartzeko Aurignac aldia entitate arkeologiko bakar eta koherentetzat jo daitekeen aztertzea helburu.

At the annual meeting of the Society for American Archaeology in 2002, we asserted that the basic analytical units used in Upper Paleolithic archaeological research are (1) 'accidents of history', created – for the most part – by French prehistorians between c. 1880 and c. 1940 in order to solve chronological problems, (2) that they are based ultimately on typological systematics and have become essentialized by subsequent workers, (3) that they have little or no compositional integrity across space and time, (4) are defined differently by different workers, and (5) that there is no consensus about what they mean or represent behaviorally. In this paper, we offer a preliminary empirical assessment of these assertions in respect of the most visible of these analytical units, the Aurignacian, taken by many to mark the appearance of modern humans in western Eurasia (e.g., MELLARS 1992, 2004; KLEIN 1999).

For the Aurignacian to have heuristic validity, it must share a number of defining typological and technological features that co-occur consistently across space and time. To test its compositional integrity, we examine data from 52 Aurignacian layers at Kebara, Hayonim, Warwasi, Bacho Kiro, Siuren I, Geißenklösterle, Trou Magrite, Abri Pataud, La Ferrassie, La Laouza, Fumane, Riparo

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Mochi, Castelcivita, El Castillo, and Cueva Morín. All sites are compared to one another on the basis of (1) relative frequencies of endscrapers, burins, and Dufour bladelets; (2) aspects of technology that monitor the prevalence of lamellar blanks (blades, bladelets), and debitage characteristics, and (3) observations about organic technologies, 'art', and personal adornment. Indicators of the classic French Aurignacian are reviewed and are used as a yardstick to contextualize data from other regions, allowing for quantitative assessment of whether or not the Aurignacian can be considered a single, coherent entity, suitable for use as an analytical device. We close with some observations on the problematic nature of 'historicity' (i.e., treating pattern and process in the remote past as if they were analogous to patterns and processes known from recent historical contexts), and some remarks on the role of formal convergence in lithic technology.

## A BRIEF HISTORY OF THE FRENCH AURIGNACIAN

After it was first defined at Aurignac by Lartet, de Mortillet and their contemporaries in the last quarter of the 19th century, the Aurignacian was reassessed by BREUIL (e.g., 1912) to account for the discoveries of Piette and others in the 1890s. On the basis of characteristic typological features, Breuil created a unilineal scheme that divided the Aurignacian into three chronological subdivisions (Lower, Middle, Upper) with the latest supposedly allochthonous, unrelated to the others. In the 1930s, PEYRONY (1933) revised Breuil's scheme based on his work at La Ferrassie, creating a 'parallel-phylum' model in which Breuil's Lower and Upper Aurignacian were reassigned to a separate 'Perigordian culture' (eventually divided on typological criteria into six phases). Breuil's Middle Aurignacian was retained and divided into five phases. Shortly thereafter, GARROD (1936) proposed that Peyrony's Lower Perigordian be redesignated the Châtelperronian and his Upper Perigordian the Gravettian, changes predicated on a supposed lack of phylogenetic relationship between the former and the latter. These ideas were contested in various segments of the French research tradition over the 1940s and 1950s, with the status of Peyrony's Pergordian II, which had a lot of backed bladelets, being particularly controversial. In the 1950s, de SONNEVILLE-BORDES (e.g., 1958) and others argued that the Perigordian II showed greater similarity with the Aurignacian than with the Perigordian, and should therefore be extracted from its 'parent culture' and reassigned to the Aurignacian phylum. In the era of supposedly time-sensitive stylistic marker types, and in the absence of radiometric dates, this earliest Aurignacian phase was thought to pre-date Aurignacian I because of its stratigraphic position relative to the latter at sites like La Ferrassie. It was later christened Aurignacian 0 by DELPORTE (1968: 60). Despite the use of different typological systems (i.e., de SONNEVILLE-BORDES & PERROT, LAPLACE, HOURS, idiosyncratic) in different parts of Europe (e.g., France, Italy) and west Asia (e.g., the Levant, Zagros Mountains), there is a general impression that the earliest Aurignacian (= 0, I; Laplace's 'Proto-Aurignacian') is characterized by low tool-type diversity, a prevalence of Dufour bladelets, and very few bone tools and examples of 'art'. The modern view retains the notion of separate, penecontemporaneous 'phyla', although the credibility (and reality) of the various Aurignacian and Perigordian subdivisions continues to be debated, as does their behavioral meaning. A good synopsis of the history of Aurignacian research is given by DAVIES (2001: 195-201; see also DAVIES 1999).

**AURIGNACIAN TYPOLOGICAL DIAGNOSTICS**

- carinated, keeled and 'nosed' endscrapers
- ordinary endscrapers made on blades (usually) or flakes (less commonly)
- big blades with invasive, scalar retouch (Aurignacian, strangled blades)
- busqué and/or Vachons type burins
- Dufour bladelets, Font-Yves/Krems-type retouched bladelets
- split-based bone 'points'
- lozenge-shaped, biconical points in ivory, antler and bone

Table 1. Aurignacian Typological Diagnostics.

## THE IRREDUCIBLE AURIGNACIAN

The Aurignacian is defined, first and foremost, by a set of supposedly diagnostic, allegedly time-sensitive 'index fossil' tool types (Table 1). The earliest Aurignacian assemblages are supposedly rather meagre overall, but have substantial numbers of Dufour bladelets and carinated endscapers. Aurignacian I is defined by the occurrence of split-based bone points, numerous carinated and nosed scapers, and by 'Aurignacian' and strangled blades. Aurignacian II is marked by flattened, lozenge-shaped bone points and large numbers of *busqué* burins, Aurignacian III by oval-sectioned lozenge-shaped bone and antler points, and the appearance of Vachons-type burins (which differ only minimally from busked burins), and Aurignacian IV by biconical bone points. The Aurignacian V diagnostics are contested, as is the existence of the subunit itself, with some workers defining it by the occurrence of conical, bevelled-based bone points, and others (e.g., DE SONNEVILLE - BORDES 1982) arguing on chronostratigraphic and typological criteria that the Aurignacian V is a chimera, and that Aurignacian V assemblages have been systematically misclassified.

In addition to these allegedly time-sensitive stylistic marker types, there are also a small number of subjectively-defined non-utilitarian criteria that, in a broader sense, are taken by some to mark the appearance of cognitively and behaviorally modern humans – a system of generalized, flexible behaviors fully consistent with those observed among foragers ethnographically (Table 2).

Although we have taken issue with the ability of typological systematics to make meaningful distinctions amongst Upper Paleolithic retouched stone tool assemblages (e.g., CLARK & *al.* 1986), and have questioned the logic of inference that underlies the meaning assigned to pattern defined on the basis of typological criteria (e.g., CLARK & LINDLY 1991, RIEL-SALVATORE & CLARK 2001, CLARK 2002), our purpose here is simply to assess whether or not the Aurignacian, as conventionally defined by west Eurasian workers, exhibits any compositional integrity whatsoever. Leaving aside the question of meaning, we and other workers (e.g., MIRACLE 1998, STRAUS 1996) have become skeptical of the assumption that the Aurignacian is a single 'thing', that it is technologically and typologically consistent across space and time. If it can be shown that it has no compositional integrity, its utility as an analytical unit is open to question.

## THE TYPOLOGICAL COMPOSITION OF THE AURIGNACIAN

There are c. 185 reliably dated Aurignacian, Aurignacian-like, Proto-Aurignacian, and 'Aurignacoid' (e.g., Bachokirian) assemblages known from western Eurasia, roughly a 36% sample of the 507 radiocarbon dates available for the western Eurasian Aurignacoid industries through the late 1990s (DAVIES 2001: 202). We were unable to come up with a figure for the total number of Aurignacian and Aurignacian-like sites and levels reported from the region, but were able to examine a subset of assemblages that correspond to 52 levels in the 16 sites listed in Table 3. These were sites reported in sufficient detail to allow us to record basic statistical data on the numbers and kinds of retouched tools recovered. We make no a priori judgements about the comparability of artifact type definitions employed by different workers.

Retouched tool totals on these 52 assemblages amounted to 15720 pieces, with an average retouched tool component of 302 pieces per assemblage. The range varied from a low of one retouched piece (Siuren I, Fc) to a high of 1515 (Mochi, G). The incidence of retouched pieces relative to the total size of the collection is extremely variable in the 46 levels reported in sufficient detail for the statistic to be computed[1]. It varies from lows of 3.3% (Chainça), 3.5% (Morín, 7) and 3.8% (Trou Magrite, 2) to highs of 82% (Castillo, 18) and 54.6-69.5% (eight Pataud levels). The mean relative frequency is 25.5%.

1) The relative frequency of retouched pieces is the total number of retouched pieces divided by the sum of unretouched flakes and blades, waste, cores and retouched pieces.

**NON-UTILITARIAN INDICATORS OF 'AURIGNACIANNESS'**

- personal ornaments (beads made on organic blanks)
- tally-marked bone and antler objects; porTable art in general
- earliest examples of parietal art
- 'well-organized' campsites, with pits, constructed hearths and other features

Table 2. Non-Utilitarian Indicators of 'Aurignacianness'.

Figure 1 displays notched box plots for endscraper, burin and Dufour bladelet relative frequencies, the only retouched types reported in sufficient quantities for statistical analysis. The notch corresponds to the median percentage of the corresponding class total (i.e., half of the levels are above, half below the notch). Figure 2 gives absolute frequencies (left margin) and relative frequencies (right margin) expressed as histograms for these common artifact types. Inspection of the figures underscores the extreme variability in these Aurignacian collections, even in regard to its supposed diagnostics. Particularly striking are the low values indicated by the notch points in Figure 1 (23%, 7%, 4% respectively). Many of the values in the 10th percentile in Figure 2 are actually zeros for all three tool classes, and this is particularly true of the allegedly distinctive Dufour bladelets (see, e.g.,ZILHÃO & D'ERRICO 1999), lacking altogether at Chaínça and Castillo, in Trou Magrite 3, Geißenklösterle AH III, Pataud 11, 13, 8-11 ent., and at all but one (7-6a) of the Bacho Kiro levels.

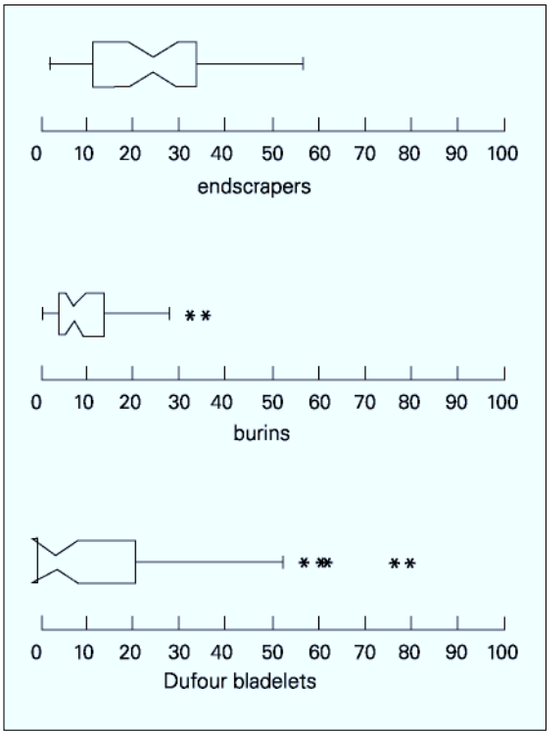


Figure 1. Box plots of the relative frequencies of endscrapers, burins and Dufour bladelets ( n = 51, Siuren I, lev. Fc had only a single retouched piece, a Dufour bladelet). 95% confidence intervals around the median.

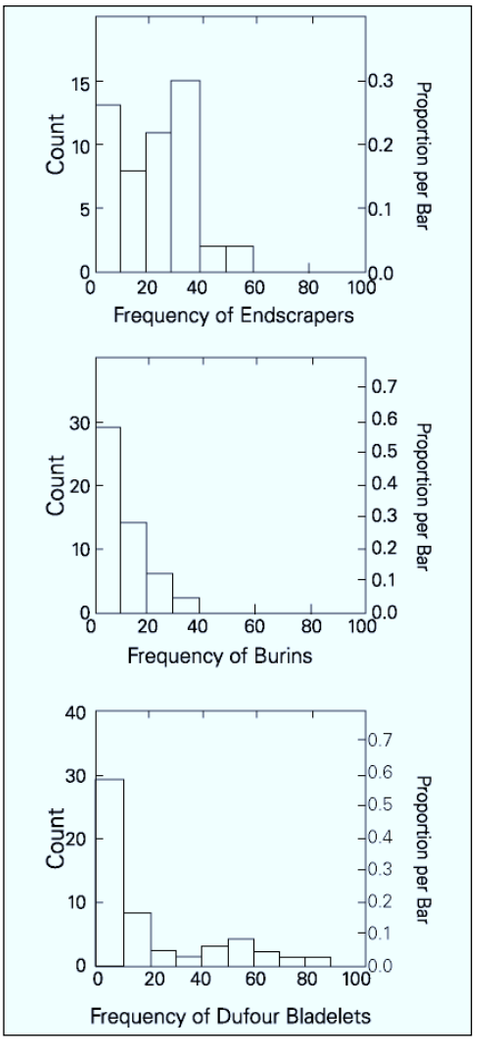


Figure 2. Absolute and relative frequency distributions for endscrapers, burins and Dufour bladelets (n=51).

Figure 3 and Table 4 indicate the extent to which these major retouched tool classes are correlated with one another. There is a moderately strong negative relationship between Dufour bladelets and endscrapers (r = -0.640) which might indicate the existence of at least two types of Aurignacian assemblage, as defined typologically (although sampling error is clearly a problem here). Table 5 displays the basic relative frequency statistics for the retouched tools; Table 6 summarizes the incidence of assemblages that fall outside the mean ± one standard deviation. The tables show that 61% of the assemblages (31/51) do not fall within one standard deviation of the mean for at least one of the three typological classes used to define the Aurignacian (more broadly, the EUP). Note that this figure includes assemblages that depart from the expected

pattern in two artifactual classes. For instance, four assemblages fall outside the mean ± 1σ for both endscrapers and burins, while seven fall outside that range for both endscrapers and Dufour bladelets; another two assemblages fall outside the mean ± 1σ for both burins and Dufour bladelet frequencies. No assemblages fell outside the expected range of variability in all three frequencies.

If the same method is applied to the 40 collections for which a standard Aurignacian Index[2] could be computed, three additional cases fall outside that range of variability, bringing the figure up to 67% (34/51) of the sample. In other words, fully two-thirds of the assemblages sampled do not conform to expected patterns of covariation within the distribution of Aurignacian typological categories. Virtually every possible combination of endscrapers, burins and Dufour bladelets occurs, and the collections as a whole exhibit no modal tendencies whatsoever, either quantitatively or qualitatively. Levels that contain significant numbers of endscrapers can have no, few or many burins, no, few or many DUFOUR bladelets, and so forth.

2) The Aurignacian Index comprises Types 1-14, and 32 (burin busqué) in a standard de SONNEVILLE-BORDES & PERROT (1953) type list. The remaining 11 assemblages were classified either by the Laplace system, or idiosyncratically, thus making it impossible to compute the index.

**SITES ANALYZED, WITH GEOPOLITICAL PROVENIENCE, NUMBER OF LEVELS EXAMINED, AND MAIN BIBLIOGRAPHIC REFERENCES**

| Site | Country | Number of Levels | Bibliographic Sources |
|---|---|---|---|
| Kebara | Israel | 1 | ZIFFER 1978 |
| Hayonim | Israel | 3 | BELFER-COHEN & BAR-YOSEF 1981 |
| Mochi | Italy | I | KUHN & STINER 1998 |
| Siuren I | Georgia | 9 | DEMIDENKO ET AL. 1998, DEMIDENKO & OTTE 2000/1 |
| Bacho Kiro | Bulgaria | 6 | KOZLOWSKI *et al.* 1982 |
| Chainça | Portugal | 1 | THACKER 2001 |
| Trou Magrite | Belgium | 2 | STRAUS & OTTE 1995 |
| Abri Pataud | France | 8 | BRICKER *et al.* 1995, BROOKS 1995 |
| Warwasi | Iran | 2 | OLSZEWSKI 2001 |
| Geißenklosterle | Germany | 2 | HAHN 1988 |
| Fumane | Italy | 5 | BARTOLOMEI *et al.* 1992 |
| Castelcivita | Italy | 2 | GAMBASSINI 1997 |
| La Laouza | France | 1 | BAZILE 1981 |
| La Ferrassie | France | 2 | DELPORTE 1984, BLADES 2001 |
| Cueva Morín | Spain | 5 | GONZÁLEZ-ECHEGARAY 1971 |
| El Castillo | Spain | 2 | CABRERA VALDÉS 1984 |

Table 3. Sites Analyzed, with Geopolitical Provenience, Number of Levels Examined, and Main Bibliographic References.

**PEARSON CORRELATION COEFFICIENT MATRIX FOR FIGURE 3**

| | Endscrapers | Burins | Dufour Bladelets |
|---|---|---|---|
| Endscrapers | 1.000 | | |
| Burins | 0.340 | 1.000 | |
| Dufour Bladelets | -0.640 | -0.237 | 1.000 |

Table 4. Pearson Correlation Coefficient Matrix for Figure 3.

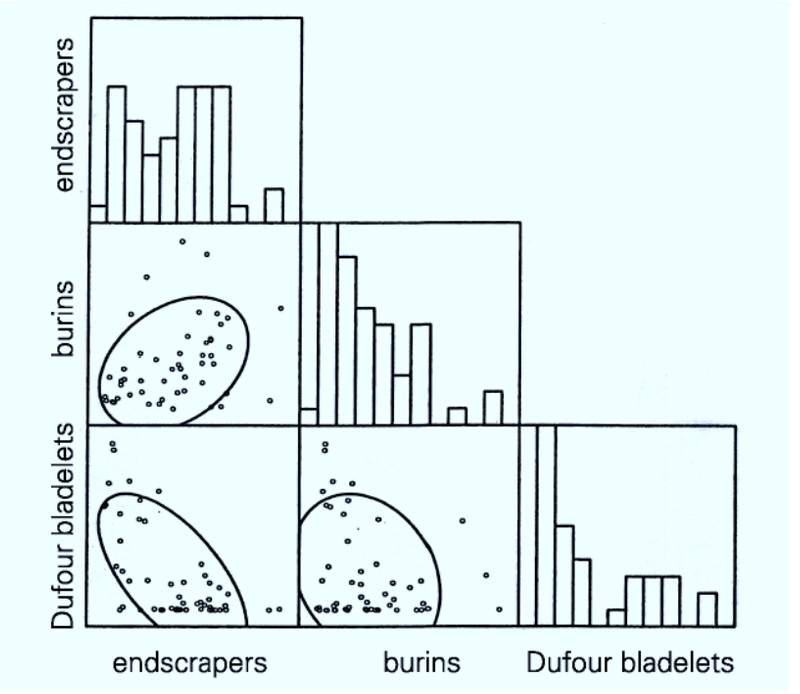


Figure 3. Correlation scatterplot matrices of endscrapers, burins and Dufour bladelets (n=51).

**BASIC STATISTICS ON ENDSCRAPERS, BURINS AND DUFOUR BLADELETS**

| | Endcrapers | Burins | Dufour Bladelets |
|---|---|---|---|
| Number of Cases | 51 | 51 | 51 |
| Minimum | 1.66 | 0.83 | 0.00 |
| Maximum | 56.48 | 35.96 | 80.29 |
| Range | 54.82 | 35.13 | 80.29 |
| Median | 24.59 | 7.50 | 3.80 |
| Mean | 23.14 | 10.27 | 16.75 |
| Upper Value – 95% CI | 26.99 | 12.59 | 23.25 |
| Lower value – 95% CI | 19.30 | 7.95 | 10.25 |
| Standard Deviation | 13.67 | 8.26 | 23.10 |
| Coefficient of Variation | 0.59 | 0.80 | 1.38 |

Table 5. Basic Statistics on Endscrapers, Burins and Dufour Bladelets.

**INCIDENCE OF ASSEMBLAGES ABOVE AND BELOW ONE STANDARD DEVIATION OF THE MEAN (ENDSCRAPERS, BURINS AND DUFOUR BLADELETS)**

| | Below $-1\sigma$ | $-1\sigma$ to $+1\sigma$ | Above $+1\sigma$ |
|---|---|---|---|
| Endscrapers | 12 (23.53%) | 32 (62.75%) | 7 (13.73%) |
| Burins | 5 (9.8%) | 37 (72.55%) | 9 (17.65%) |
| Dufour Bladelets | 0 | 40 (78.43%) | 11 (21.57%) |

Table 6 - Incidence of Assemblages Above and Below One Standard Deviation of the Mean (Endscrapers, Burins and Dufour Bladelets).

## THE TECHNOLOGICAL COMPOSITION OF THE AURIGNACIAN

Efforts to examine the basic technological properties of the Aurignacian were hampered by an emphasis on typology (many do not report blank, core or debitage frequencies), and inconsistencies in blank (esp. blade, bladelet) definitions[3]. An inability to extract meaningful quantitative information on blank and core frequencies effectively reduced the sample size by half (to 26), although more information is available for some of the blank categories. Table 7 summarizes basic technological properties of the blanks chosen for retouch; Table 8 provides quantitative data on blade, bladelet and flake débitage frequencies, regardless of retouch. Again, the technological properties of the Aurignacian are shown to be extraordinarily variable. While all Aurignacian assemblages contain at least some blade blanks, they range in frequency from 3.2% at Laouza (2b1) to 34.3% (Castelcivita, II) and 29.5% (Castillo, 18). The mean frequency of blade blanks in the 26 collections for which blank statistics could be compiled is 15.3%. Tools made on blade blanks range from 8.7% (Castillo, 16) to 73.3% (Bacho Kiro, 7-6b); the mean is 35.5%. Bacho Kiro is noteworthy for an exceptionally high incidence of retouched blades (40-73%), but is poor in bladelets. Unretouched bladelets (most often defined as blades < 3 cm long) range from a minimum of 0% (in 4 of 5 Bacho Kiro levels) to a maximum of 61.9% (Warwasi, P-Z); retouched bladelets from 0-65.1% (Siuren-I, Gb1-Gb2). The corresponding means are 22.2% and 24% respectively. Retouched bladelets are quite common in most of the Siuren-I levels, at Mochi (G), at Fumane, Castelcivita, Laouza, and El Castillo (18); they are rare or absent in Bacho Kiro and at most of the other sites. Although the Middle-Upper Paleolithic transition has been defined conventionally by a shift from flake to lamellar blanks, the incidence of flake blanks ranges from a minimum of 25.6% (Warwasi, P-Z) to a maximum of 92% at Castillo (16), and Morin (6, 7). Flakes larger than 3 cm are common in practically all Aurignacian collections, and the mean incidence of flake blanks is a robust 62.3%. Tools made on flake blanks range from a low of 13% (Castelcivita, I) to a high of 90% (Castillo 16, Trou Magrite 3). The mean is 40.1% (vs 35.5% for blades, 24% for bladelets), suggesting that the shift to lamellar blanks is more apparent than real, and that there is little evidence to support preferential selection for lamellar blanks to retouch in either the Aurignacian or the EUP (Figure 4).

The technological aspects of retouched tools and blanks are summarized in Tables 9 and 10. Based on the technological characteristics of the blanks selected for retouch, it appears that – following the methodology described above – 18 of 26 assemblages in the sample (69.2%) contain at least one technological category that falls outside the expected range of variation defined by the mean plus and minus one standard deviation. Some of the assemblages are exceptionally variable technologically, with two of the three technological categories lying outside their expected ranges (mean ± 1σ). Debitage characteristics are also interesting in this regard, with 16 of 26 collections (61.5% showing greater than expected variation in their distributions. As was the case with tools, some of the assemblages are exceptionally variable, with 13 cases in which two technological categories fall outside their respective ranges, and three cases where all three technological categories fall outside their ranges (Siuren-I, Fb1-Fb2; La Laouza, 2b1; El Castillo, 16). Flakes were the dominant blank type produced and selected for subsequent retouch, thereby departing from the received view that the Aurignacian is a blade-dominated 'technocomplex'. Blades only become more prevalent than flakes if they are combined with bladelets, and even then, only for tool blanks.

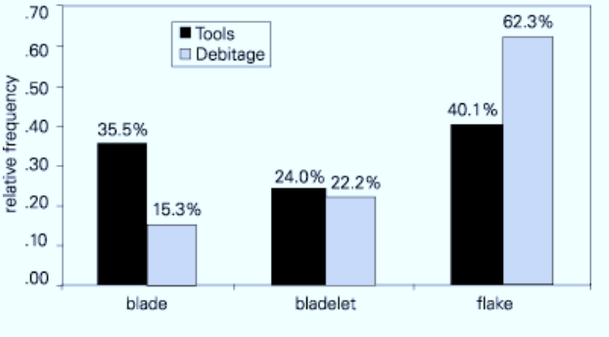


Figure 4. Mean frequencies for retouched and unretouched blades, bladelets and flakes (n=26).

3) BLADES are usually defined on the basis of length:width ratios > 2:1 as measured along, and perpendicular to, the axis of percussion, but some use the additional criterion of parallel dorsal ridges so, even if the dimensions of a piece as measured along the axis of percussion are > 2:1, it is not classified as a blade if it lacks parallel dorsal ridges.

**BASIC STATISTICS - INCIDENCE OF BLANKS CHOSEN FOR RETOUCH IN PERCENTS.**

| | Blade Tools | Bladelet Tools | Flake Tools |
|---|---|---|---|
| Number of Cases | 26 | 26 | 26 |
| Minimum | 8.69 | 0.00 | 13.00 |
| Maximum | 73.33 | 65.15 | 90.00 |
| Range | 64.64 | 65.15 | 77.00 |
| Median | 36.11 | 15.22 | 31.42 |
| Mean | 35.54 | 24.02 | 40.15 |
| Upper Value – 95% CI | 42.37 | 33.13 | 50.01 |
| Lower value – 95% CI | 28.70 | 14.91 | 30.28 |
| Standard Deviation | 16.93 | 22.55 | 24.42 |
| Coefficient of Variation | 0.47 | 0.94 | 0.61 |

Table 7 - Basic Statistics - Incidence of Blanks Chosen for Retouch in Percents.

**BASIC STATISTICS - INCIDENCE OF UNRETOUCHED BLADES, BLADELETS AND FLAKES IN PERCENTS**

| | Blade Debitage | Bladelet Debitage | Flake Debitage |
|---|---|---|---|
| | | | |
| Number of Cases | 26 | 26 | 26 |
| Minimum | 3.23 | 0.00 | 25.55 |
| Maximum | 34.30 | 61.92 | 92.11 |
| Range | 31.07 | 61.92 | 66.56 |
| Median | 15.75 | 15.57 | 63.54 |
| Mean | 15.34 | 22.18 | 62.27 |
| Upper Value – 95% CI | 18.39 | 30.34 | 69.99 |
| Lower value – 95% CI | 12.29 | 14.03 | 54.55 |
| Standard Deviation | 7.56 | 22.19 | 19.13 |
| Coefficient of Variation | 0.49 | 0.91 | 0.31 |

Table 8 - Basic Statistics - Incidence of Unretouched Blades, Bladelets and Flakes in Percents.

**INCIDENCE OF ASSEMBLAGES ABOVE AND BELOW ONE STANDARD DEVIATION OF THE MEAN (RETOUCHED BLADES, BLADELETS AND FLAKES).**

| | Below $-1\sigma$ | $-1\sigma$ to $+1\sigma$ | Above $+1\sigma$ |
|---|---|---|---|
| Blade blanks | 5 (19.23%) | 16 (61.54%) | 5 (19.23%) |
| Bladelet blanks | 1 (3.85%) | 19 (73.08%) | 6 (23.08%) |
| Flake blanks | 4 (15.38%) | 18 (69.23%) | 4 (15.38%) |

Table 9 - Incidence of Assemblages Above and Below One Standard Deviation of the Mean (Retouched Blades, Bladelets and Flakes).

**INCIDENCE OF ASSEMBLAGES ABOVE AND BELOW ONE STANDARD DEVIATION OF THE MEAN (UNRETOUCHED BLADES, BLADELETS AND FLAKES).**

| | Below $-1\sigma$ | $-1\sigma$ to $+1\sigma$ | Above $+1\sigma$ |
|---|---|---|---|
| Blade debitage | 6 (23.08%) | 17 (65.38%) | 3 (11.54%) |
| Bladelet debitage | 5 (19.23%) | 17 (65.38%) | 4 (15.38%) |
| Flake debitage | 5 (19.23%) | 15 (57.68%) | 6 (23.08%) |

Table 10 - Incidence of Assemblages Above and Below One Standard Deviation of the Mean (Unretouched Blades, Bladelets and Flakes).

## EVIDENCE FOR ORGANIC TECHNOLOGIES

It proved difficult to get adequate quantitative information on evidence for complex (by inference, 'symbolic') behavior, here reduced to 'ornaments' (beads, mostly) and 'mobiliary art'. Slightly more than half (51.9%) the sites in the sample yielded ornaments, and roughly one-quarter (26.92%) contained mobiliary art of some kind (usually fragments of notched or incised bone) (Fig. 5). As shown in Figure 6, however, ornaments tend to be very few. Twenty-seven collections yielded at least a single example, but of that number, 25.9% contained only one shell, bone or tooth bead; 66.7% between 1-10 such objects. Only four collections (c. 15% of the collections with ornaments, 7.7% of the total Aurignacian sample) yielded more than 20 ornaments. These four assemblages are MOCHI (G), and three layers from Fumane[4] both of which are temporally and geographically proximate, suggesting the kind of regional demographic clustering that might have selected for assertive style, rather than an identity expressed symbolically and shared across the western Eurasian landmass (see, e.g., BARTON ET AL. 1994, CLARK ET AL. 1996). Regardless of the plausibility of this interpretation, these data stand in sharp contrast to White's view of a 'symbolic explosion' coincident with the appearance of the Aurignacian, and tend to undermine the notion that their production was a significant time and energy 'drain' on the part of Aurignacian foragers (e.g., 1989, 1993).

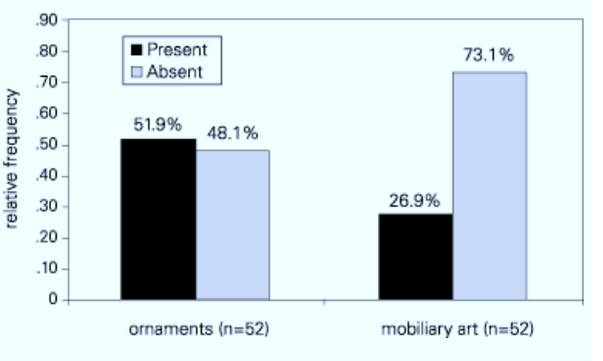


Figure 5. Presence and absence of ornaments and mobiliary art (n=52).

Pattern in the mobiliary art is also interesting. Although it undeniably occurs, it is extremely rare throughout the 18 millennia (c. 45-27k uncal BP) assigned to the Aurignacian by DAVIES (2001: 195). In our sample, only two Hayonim layers, two levels at Geißenklösterle, and Trou Magrite (3) produced anything that could be called 'complex' or 'elaborate' examples. Mobiliary art is a 'catch-all' category that includes the elaborate Geißenklösterle statuettes, but also (and predominantly) non-descript incised bone fragments like those sometimes found in Mousterian sites. In fact, only the five collections just noted (9.6% of the total sample) contain 'fancy' mobiliary art, again reinforcing the idea that complex examples are extremely rare (esp. when their occurrence is scaled to unit time).

4) These large collections also have lots of DUFOUR bladelets (e.g., 80.3% [562 examples] in Fumane, A3+A2).

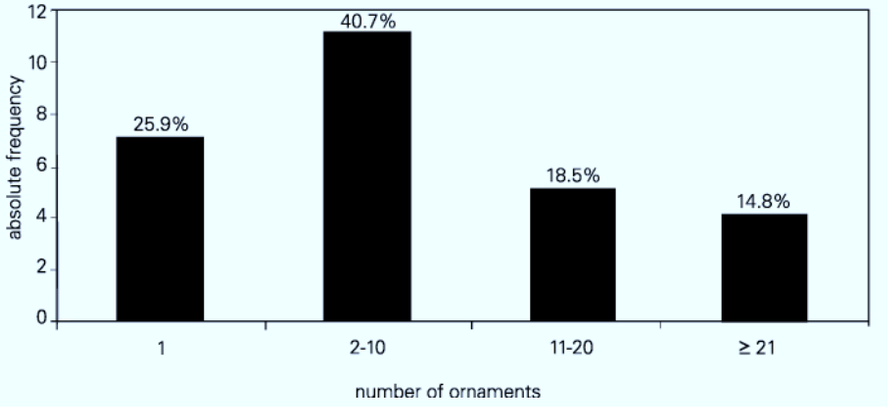


Figure 6. Absolute and relative frequency distributions of ornaments in sites that have ornaments (n=27).

## CONCLUSIONS

What is the Aurignacian? Many workers who have faith in the credibility of the Aurignacian as an analytical unit see it as a reflection of behavior related in some way to a modern human dispersal from a presumed source in Africa (e.g., MELLARS 1996; DAVIES 1999, 2001). Corollary heuristic assumptions of this view include rejection of the 'short chronology' proposed for it by ZILHÃO & D'ERRICO (1999), rejection of the idea that it represents an identity-conscious ethnic and/or linguistic group (a 'culture', in the conventional sense of the term), acceptance of the view that it is technologically and typologically consistent across space and time, and that it represents a complex system of flexible and generalized behaviors - manifest materially - that marks the appearance of behavioral 'modernity' (e.g., DAVIES 2001: 195, 196). This package of assertions cannot be broken apart; in a paradigmatic sense, it forms a unified whole. As we have shown, however, there is little empirical support for the technological and typological consistency invoked to sustain it.

Our pattern search uncovered many other aspects of Aurignacian material culture that call 'conventional wisdom' into question (e.g., the notion of 'imposed form' and its cognitive implications - see also HISCOCK & ATTENBROW 2003). We intend to develop these lines of inquiry further but, due to space constraints, we cannot do it here. Taken together, however, these empirical findings constitute strong support for our initial contention that the Aurignacian is not a single 'thing', but rather a chimera created by an illusion of technological, typological and chronological consistency that has no basis in reality. When a broader perspective is adopted that emphasizes the material correlates of human adaptation, what emerges from the west Eurasian archaeological record over the 54-27 kyr BP interval is a complex mosaic of different lithic technologies and tool types; patterns in raw material procurement, reduction and discard; blank types, metrics and frequencies, bone and antler technologies, evidence for symbolic behavior, subsistence strategies and settlement patterns that recalls the complex patterns evident in the late Mousterian (HOWELL 1999: 219-226). While these different aspects of adaptation doubtless comprised 'a complex system of flexible and generalized behaviors,' there appears to be little to distinguish a uniquely Aurignacian adaptation from the material record of the late Mousterian that preceded it.

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