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Mousterian Industries of the
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Mousterian Industries of the Gruta da Figueira Brava

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Abstract

Key words – Figueira Brava cave; Musterian; Portugal

The remains of the lithic industry from the Figueira Brava cave consist of a total of nearly four thousand artefacts, or around two and a half thousand if chippings are excluded. It was an occasional, impermanent industry, without typologically developed artefacts, mostly due to the poor quality of the locally available raw materials. Quartz blanks, in the form of small smooth pebbles, mostly flaked *in situ*, are largely predominant. They were taken from the nearby Upper Jurassic conglomerates of the Arrábida ridge, or in tertiary deposits. Other raw materials were also used: among these are different flint-like rocks, which, unlike quartz, were essentially worked elsewhere – at this site, they were only transformed into tools by secondary retouch of the edges. The flaking procedures – mainly discoid and Levallois – are characteristic of Middle Palaeolithic industries. The discoid procedure largely dominates. This is probably due to the nature of the available raw materials and initial blanks. Among the retouched tools, sidescrapers are predominant (IR: 57), especially those of simple convex forms; they are followed by denticulates (Group IV: 17) and notches (Group IVa: 22,6). According to the traditional analysis criteria of Bordes, applied to Middle Palaeolithic industries, it can be said that the industry of the Figueira Brava cave is *typically Mousterian, rich in denticulates, with non-Levallois debitage and non-Levalloisian facies*. "Upper Palaeolithic type" artefacts (cores and retouched tools) are merely residual.

This assemblage, associated with Neanderthal remains and dating from a very late period (*c.* 30 kyr), (Antunes, 1990-91), becomes one more important assemblage to be included among the twenty or so similar sites already known in southern Spain and in Portugal (Raposo & Cardoso, 1998), confirming the thesis of the remarkable durability of the Mousterian complex and of Neanderthal groups in southern and western Iberia.

Resumo

Palavras-chave – gruta da Figueira Brava; Mustierense; Portugal.

A indústria lítica recolhida na gruta da Figueira Brava compõe-se de um total de quase quatro milhares de artefactos, ou de cerca de dois milhares e meio, se excluirmos as esquírolas de talhe. Trata-se de uma indústria de ocasião, expedita, sem artefactos de grande recorte tipológico e pouco elaborados, sobretudo devido à má qualidade das matérias-primas disponíveis. É predominante o uso do quartzo, sob a forma de pequenos seixos, recolhidos em conglomerados do Jurássico Superior ou do Miocénico, talhados em parte no próprio local. As matérias-primas de melhor qualidade, designadamente as rochas siliciosas finas, seriam, ao contrário, preparadas essencialmente fora deste local; aqui eram apenas transformadas em diversos utensílios. Os procedimentos de talhe característicos do Paleolítico Médio – discóide e Levallois – são amplamente maioritários, com predomínio esmagador do primeiro. Este facto deve-se provavelmente ao tipo de matérias-primas e sobretudo de suportes iniciais utilizados. Nos utensílios, predominam os raspadores (IR: 57) – e, nestes, os simples convexos – seguidos dos denticulados (Grupo IV: 17) e entalhes (Grupo IVa: 22,6). Tendo em conta os critérios da diagnose bordiana tradicional das indústrias líticas do Paleolítico Médio, pode dizer-se que a indústria da Gruta da Figueira Brava corresponde a um *Mustierense Típico, rico em denticulados, de talhe não Levallois e fácies não levalloisense.* Nela são meramente residuais os artefactos (utensílios e núcleos) de "tipo Paleolítico Superior".

Esta indústria lítica, associada à presença de restos neandertalenses e com a datação recente (*c.* 30 kyr) que lhe foi atribuída (Antunes, 1990-91), vem constituir mais um importante conjunto integrável na cerca de duas dezenas de sítios idênticos reconhecidos no Sul de Espanha e em Portugal (v. Raposo & Cardoso, 1998), permitindo confirmar a tese do prolongamento extraordinário do complexo mustierense e das populações neandertais na região considerada.

Introduction

The lithic assemblage found in the cave of Figueira Brava totals almost four thousand items (or two and a half thousand if we exclude chippings). This number not only indicates a significant human presence in the area, but also allows a fairly precise technical and typological analysis of the finds, thus establishing their chronological and cultural position. This article, first presented as a communication at the 3rd Meeting on the Iberian Quaternary, (Cardoso & Raposo, 1993), summarises this analysis, using the Bordes method, adapted and developed in some aspects to respond to the nature of the finds.

We begin by studying aspects connected with the management of raw materials and with the most significant technological evidence. An analysis of the typological characteristics of the assemblage follows, and finally related conclusions are drawn.

Raw materials: distribution among the main categories of artefacts. Technical aspects

Table 1 shows the database for the technical and typological analysis of the industry; this is shown graphically in Figure 1 and in Table 2, and is summarised in this section.

First it is important to mention the general nature of the assemblage, and how it is distributed in the three main groups of artefacts: flaking products, cores and tools. The importance of them is clear from Fig. 1 – flakes and chips constitute over 80 % of the total. Tools make up 9.1 %, which would be perfectly normal in Middle Palaeolithic open-air sites, although it is rather low for a cave – this reinforces the interpretation of the site as a rock shelter, fully open to the outside. Cores however form 8.7 % of the total, which is quite normal in this type of site.

Considering the above indicators in more detail according to different raw materials (which can be simplified as quartz, quartzite, flint-like rocks, limestone, and jasperoid and porphyroid rocks) we find interesting new indicators of variation. In absolute terms, quartz is the predominant material in every technical category, but within each raw-material group we see that:

- quartz is most commonly found as chips (all lithic remains less than 30 mm in length), followed by cores; it is found least in the correspondent group (flakes in the broad sense, but excluding chips);

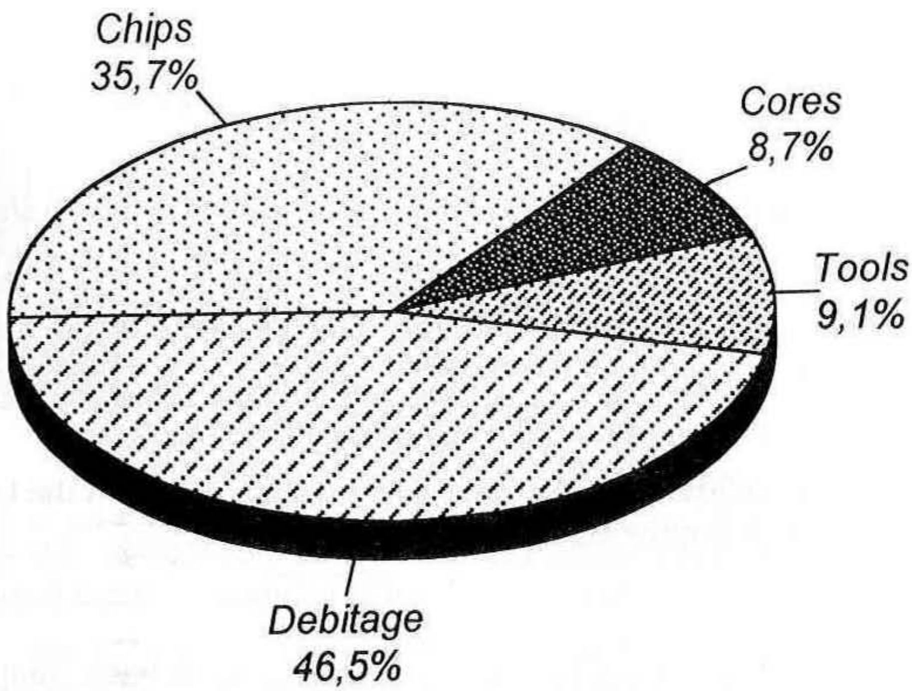


FIG. 1 - Total stone industry: distribution of main techno-typological categories.

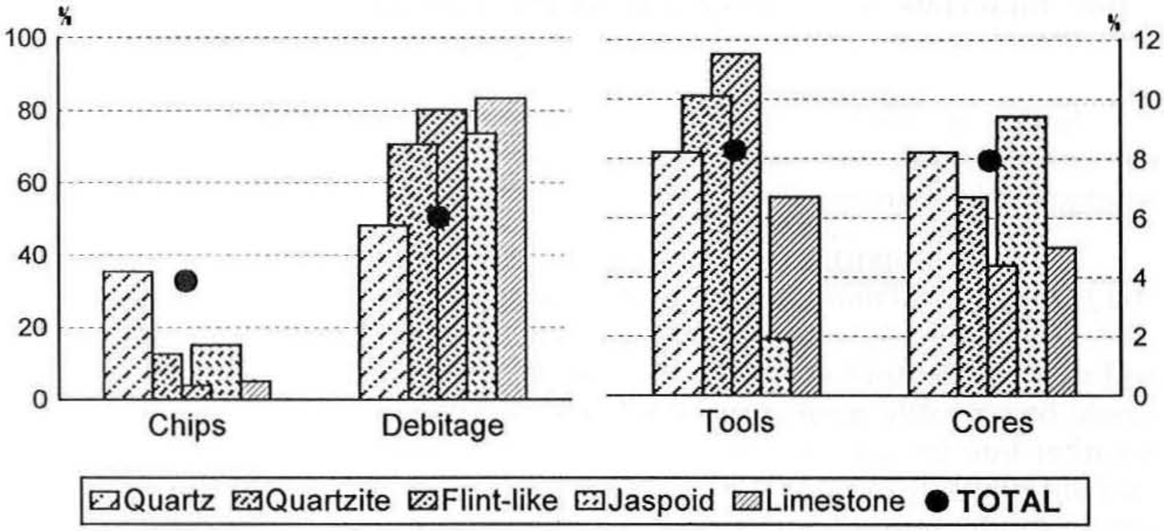


FIG. 2 - Total stone industry, by raw materials.

- quartzite is mostly used in tools and flakes, and least commonly in chips;
- flint-like rocks show the same pattern as quartzite, but with a greater emphasis on tools;
- jasperoid and similar rocks are mainly found in flakes and cores, and less in chips and tools;
- limestone is especially well-represented in flakes and tools; conversely, it is almost non-existent in chips.

Further inspection of this data in the flaking group (Figure 3) shows the following:

- quartz is seen least in preparatory and Levallois flakes and most commonly in decortical flakes;
- the reverse is seen in flint-like and jasperoid rocks;
- figures for quartzite are the same as for quartz, except in the Levallois group, which is quite significant here;
- the limestone group has a significant percentage of initial flakes.

This set of indicators can be interpreted according to three complementary lines of thought: the degree of accessibility of the different raw materials, especially the distance from the source; their physical properties, especially how they fracture when being worked; and what kind of blanks were available, particularly their average size.

The first aspect – supply of raw materials – is especially relevant to the understanding of any lithic industry. With reference to this site, we find that quartz, in the form of rough pebbles, is common in the tertiary sedimentary rocks in the region; it is thus easy to suppose quartz being relatively common on the outskirts of the cave shelter, especially in the form of small and medium-sized rough pebbles. A careful search for larger fragments could easily have led to the pattern seen in this particular industry. Quartzite, and jasperoid and porphyroid rocks, could have had the same origins as quartz, but they are rarer, obviously requiring a more intensive search. Quartzite, however, must have been mainly collected in the coastal alluvial deposits near the cave, where there is a reasonable quantity of pebbles of medium and even large size. Fine flint-like rocks would have had a remoter origin, perhaps coming from the interpolated bed in the Jurassic limestone of the São Luís mountain and further west near Santana (according to information from G. Manuppella, a geologist who pointed out the similar petrographic characteristics of this bed to the fine flint-like rocks at Figueira Brava). Finally, limestone or dolomite would have been collected in the form of

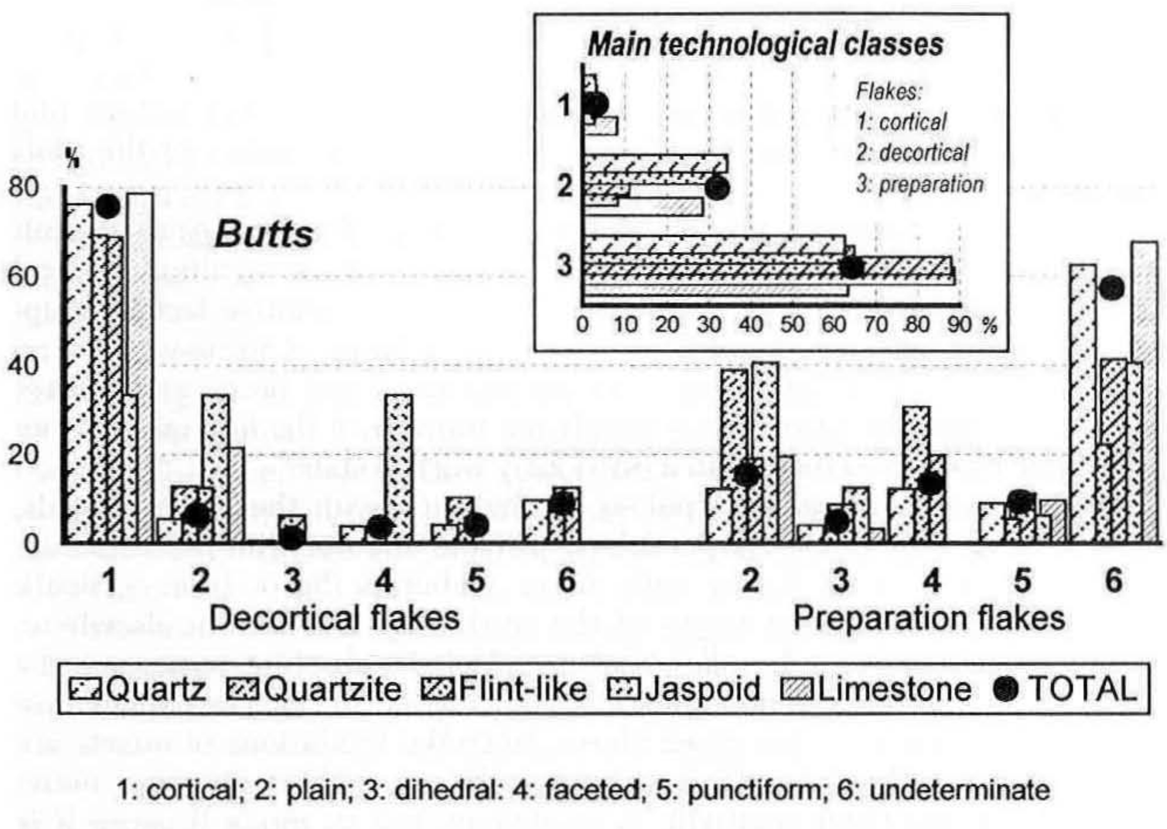


FIG. 3 - Flaking: composition of platforms and distribution by main techno-typological classes.

smooth pebbles along the former seashore, though it may also have come from the sedimentary deposits previously mentioned.

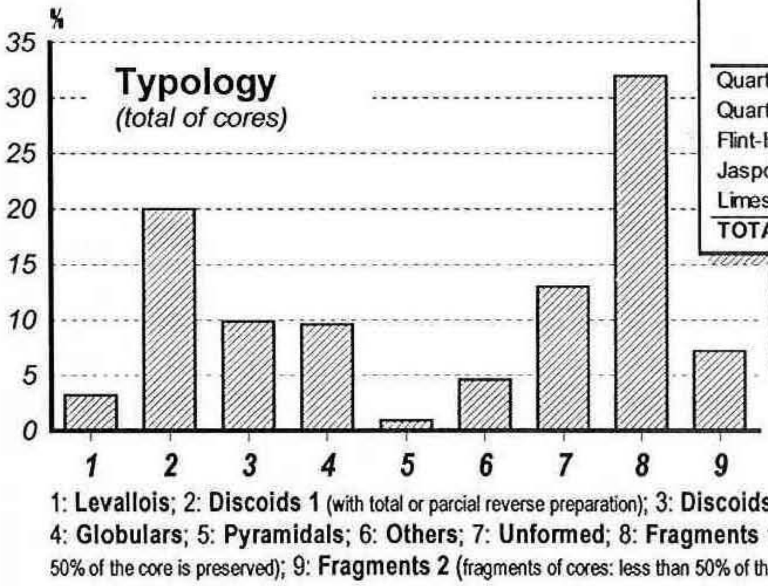
In summary, analysis of raw materials indicates local and regional supply, dominated by quartz pebbles collected and usually worked locally. Larger pieces of quartzite may have come from coastal alluvial deposits; only fine flint-like rocks, besides jasperoid and porphyroid rocks would have been collected further away, although it is possible that successive remobilizations may have resulted in their being found near the site.

These considerations can be illustrated at different levels. For example, the relative scarcity of chippings and cores in non-quartz rocks (apart from jasperoid rocks, which are not statistically significant here) would indicate that, since they were rarer and came from further away, they would have had preliminary work done on them at some distance from the cave. In other words, it is likely that the non-quartz blanks used for making tools were brought to the site in the form of flakes at a relatively advanced stage of work (as decortical and preparatory flakes).

The large number of quartz chippings, over-represented in relation to the rest, may imply local work with quartz, but they must also be at least partly a consequence of the intrinsically brittle nature of the material. On the one hand, this poor quality meant that cores often had to be abandoned in the course of being shaped, thus leading to much residue, including uncharacteristic core fragments, while on the other hand it would have limited the making of elaborate pieces and led to the adoption of quicker techniques. We see here a good example of the conditions imposed by the nature and intrinsic properties of the raw material on the characteristics of the tools produced from it.

The same argument, explaining the abundance of chippings as a result of the physical characteristics of quartz, based on the recognition of local flaking, could conversely be used to account for the relative lack of chippings in non-quartz rocks, which are always the basis of stone-work at an archaeological site. A careful study of the decortical and preparatory flakes strengthens the conviction that a significant number of the non-quartz artefacts were brought to the site in a previously worked state.

In fact, comparing the typology of the butts with the raw materials, (Figure 3), we can see that jasperoid, porphyroid and fine flint-like rocks are better represented in flakes with more elaborate butts (non-cortical), suggesting that the initial stages of the work were carried out elsewhere. Finally, a comment on Levallois flakes, which in absolute terms are the largest group among the non-quartz artefacts (over 20 %). The explanation for this is the same as that given above, since the limitations of quartz are such that it is difficult to obtain this kind of flake, unlike other raw materials. Among the latter, quartzite is prominent, not so much because it is easier to work than fine flint-like rock, but simply because it is found in larger pebbles, suitable for making this kind of flake.



Indexes

	(a)	(b)	(c)	(d)
Quartz	17	18	327	100
Quartzite	10	40	60	67
Flint-like	5	100	100	38
Jaspoid	13	-	-	50
Limestone	6	-	100	75
TOTAL	**16**	**24**	**256**	**96**

(cores x 100)
(a) total of cores / total of debitage
(b) Levallois cores / Levallois debitage
(c) Levallois+discoid cores / Levallois debitage
(d) total of cores / flake tools

FIG. 4 - Cores: distribution by main typological categories and related technical indices.

Typological aspects

Cores

In studying cores we are using the typology of Bordes (1961), as in Table1 and Figure 4. There we can see the remarkable importance of fragments (fragmented cores and nuclear fragments), together forming almost half of the total. This is due to the brittle nature of quartz, mentioned above.

The distribution of raw materials shows the predominance of quartz, which makes up over 90 % of cores. Of the remainder, never more than 3 %, the most abundant is quartzite, used for Levallois flakes, as we have seen.

Leaving aside anomalies caused by fracturing of quartz, it can be seen that among cores of well-defined type, discoids clearly predominate, mainly in the form of total or partly prepared reverse (discoids 1) (20 %), although the so-called over pebble caps (discoids 2: entirely cortical reverse cores) were also significant (10 %). After that come globular cores and those of non-standard form (diverse, shapeless). Forms of Upper Palaeolithic type are merely residual, and Levallois cores are also rare.

However, considering the typological spectrum of each raw material, it is interesting to note that cores occur in identical proportions (8 %) in quartz and quartzite, and that jasperoid, porphyroid and fine flint-like rocks are also found in equal, though smaller proportions (4 %). This reinforces the conclusion that these materials were worked somewhere else, away from the site. As for limestone, the high percentage (11 %) is due to the fact that the rock is found on the coast near the site, where it would have been worked in the form of pebbles.

Table 1. Lithic industry of Figueira Brava cave: general figures

	Quartz		Quartzite		Flint-like		Jaspoid		Limestone		TOTAL *	
	tot	ut	tot	ut	tot	ut	tot	ut	tot	ut	tot	ut
DEBITAGE												
Chips	1377		15		7		8		3		**1410**	
Flaks												
Ordinary flakes												
cortical	**91**	2	**4**	0	**1**	0	**1**	0	**4**	0	**101**	2
decortical												
cortical	773	87	27	1	11	1	1	0	11	3	**823**	92
plain	56	16	5	1	2	2	1	1	3	0	**67**	20
dihedral	6	2	0	0	1	0	0	0	0	0	**7**	2
faceted	39	12	0	0	0	0	1	0	0	0	**40**	12
punctiform	43	11	4	1	0	0	0	0	0	0	**47**	12
indeterminate	97	42	3	3	2	2	0	0	0	0	**102**	47
(total)	**1014**	170	**39**	6	**16**	5	**3**	1	**14**	3	**1086**	185
plattform types												
plain	90	24	14	2	24	6	13	0	6	0	**147**	32
dihedral	30	3	1	1	11	1	4	0	1	0	**47**	5
faceted	90	35	11	0	25	4	0	0	0	0	**126**	39
punctiform	66	19	2	0	14	2	2	0	3	0	**87**	21
indeterminate	460	51	8	2	52	3	13	0	21	0	**554**	56
(total)	**736**	132	**36**	5	**126**	16	**32**	0	**31**	0	**961**	153
(total)	**1841**	304	**79**	11	**143**	21	**36**	1	**49**	3	**2148**	340
Levallois flakes												
centripetal	29	16	4	1	2	0	1	0	1	0	**37**	17
pointed	3	1	1	0	1	0	1	0	0	0	**6**	1
blade-like	1	0	0	0	0	0	1	0	0	0	**2**	0
(total)	**33**	17	**5**	1	**3**	0	**3**	0	**1**	0	**45**	18
(total)	**1874**	321	**84**	12	**146**	21	**39**	1	**50**	3	**2193**	358

tot = total of blanks; ut = blanks transformed into tools. * including flake tools

	Quartz	Quartzite	Flint-like	Jaspoid	Limestone	TOTAL
CORES						
Levallois	6	2	3	0	0	**11**
Discoids 1	68	1	0	0	1	**70**
Discoids 2	34	0	0	0	0	**34**
Globulars	29	1	1	0	2	**33**
Pyramidals	3	0	0	0	0	**3**
Others	15	0	0	1	0	**16**
Shapeless	42	2	0	0	0	**44**
Fragments 1	101	0	4	4	0	**109**
Feagments 2	23	2	0	0	0	**25**
(total)	**321**	**8**	**8**	**5**	**3**	**345**
GLOBAL COUNT	**3572**	**107**	**161**	**5**	**56**	**3848**
(global count without chips)	2195	92	154	52	53	2538
TOOLS						
Scrapers						
(1) *single straight*	16	3	4	0	2	**25**
(2) *single convex*	62	1	2	0	0	**65**
(3) *single concave*	10	0	1	0	0	**11**
(4) *double*	16	1	1	0	0	**18**
(5) *convergent*	20	0	0	0	0	**20**
(6) *transverse*	9	0	2	0	0	**11**
(7) *on interior surface*	17	2	0	1	0	**20**
(8) *abrupt retouch*	0	0	0	0	0	**10**
(9) *alternate retouch*	11	0	0	0	0	**11**
(10) *denticulate cutting edge*	3	0	0	0	0	**13**
(11) Burins and others	3	0	0	0	0	**3**
(12) Borers and others	34	0	0	0	0	**34**
(13) Backed knifes	3	0	0	0	0	**3**
(14) Notches	17	3	0	0	0	**20**
(15) Denticulates	52	0	8	0	1	**61**
(16) Retouched flakes	27	1	3	0	0	**31**
(17) Choppers	0	1	0	0	1	**2**
(total)	**320**	**12**	**21**	**1**	**4**	**358**

Tools

As with the categories of artefacts already discussed (chips, flakes and cores), tools (see Table 1) show a marked predominance of quartz (90 %, corresponding to 320 examples). Among other raw materials, the most common is fine flint-like rock (21 examples), followed by quartzite (12 examples); limestone is very rare (4 examples) and jasperoid and porphyroid rock only vestigial (1 example).

As we have already seen (Figure 2), the highest relative percentage of tools in each of the raw materials is in flint-like rocks (12 %). The lowest levels are in jasperoid and porphyroid rocks (2 %) and in limestone (6 %). Quartz, numerically so strongly represented in the general average of the industry, makes up about 8 % of the tools, and quartzite about 10 %.

The preponderance of non-quartz rocks in tools, besides indicating the popularity of these materials for this purpose, adds to the evidence that tools were made at some distance from the site, since the usual by-products of manufacture are under-represented. As for flint-like rocks, porphyroid rocks and limestone, no conclusions can be drawn since the numbers are statistically insignificant.

As for the techniques of making flakes for tools, expressed in the rates for transformation of blanks (Figure 5), it is interesting to note that while in

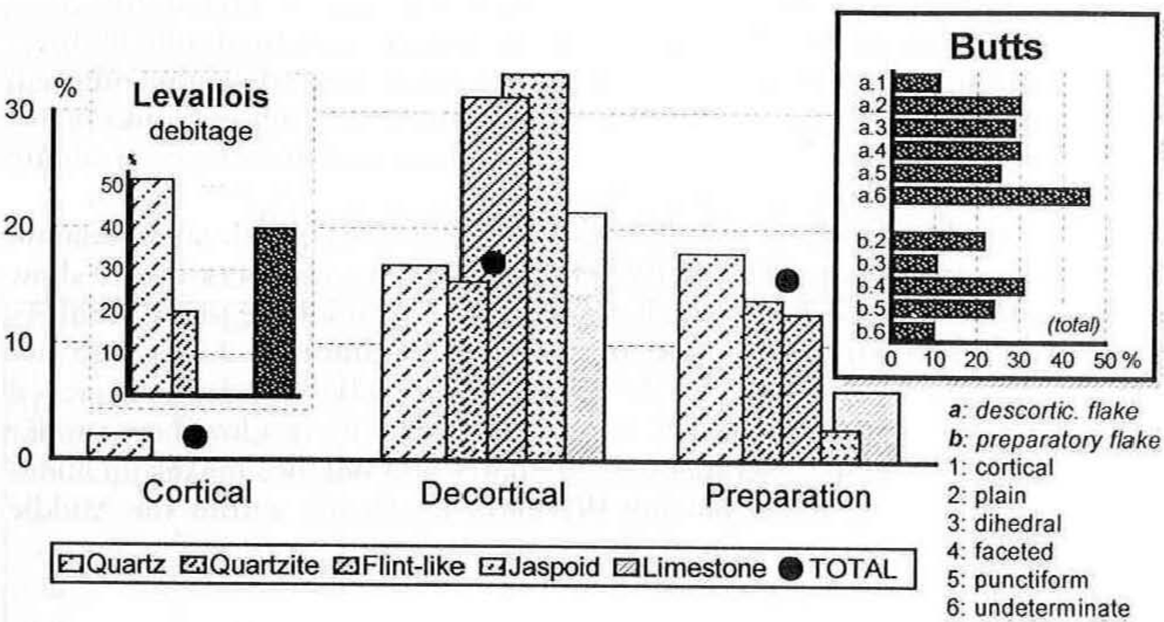


FIG. 5 - Transformation of blanks into retouched tools, according to main technical categories of flaking and platform composition.

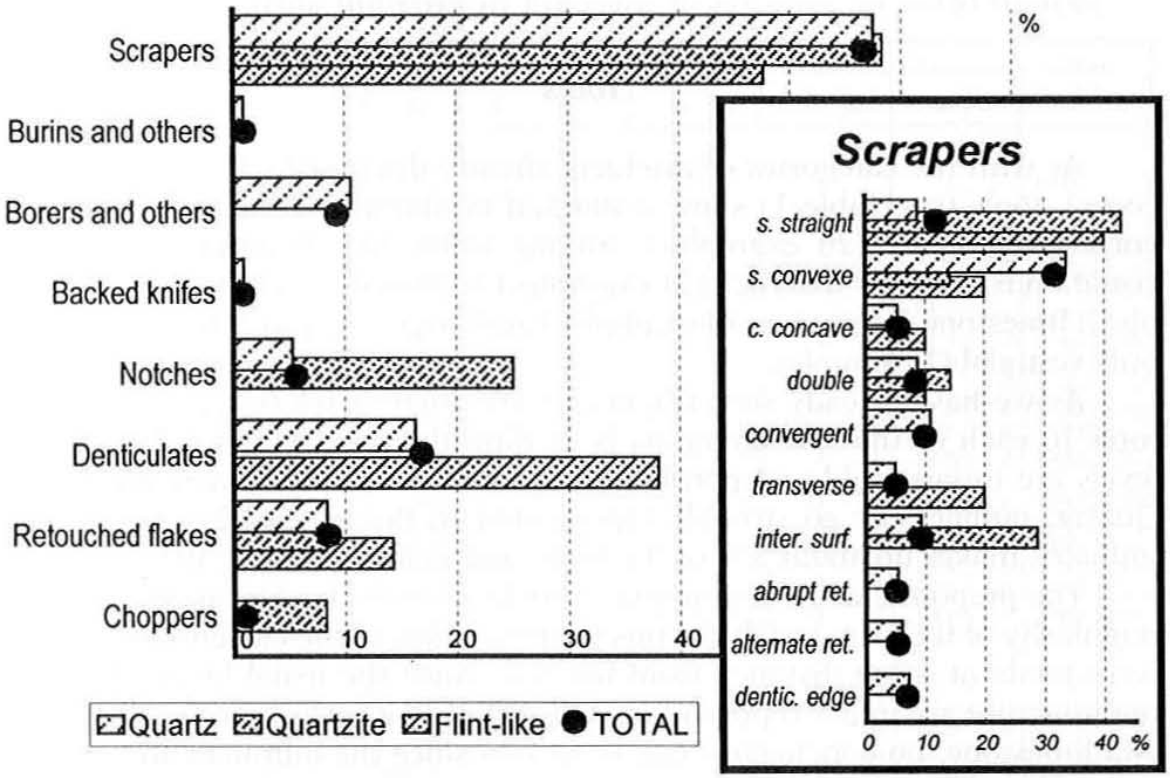


FIG. 6 - Flake tools: distribution by typological categories, with more detailed separation within sidescrapers group.

quartz and quartzite there is a slight predominance of preparatory over decortical flakes, in fine flint-like rocks the latter clearly predominate (over 30 % as against under 20 %). This fact is again related to the different degrees of fragmentation of the rocks, the nature of the initial blanks (especially the roundness of the cortical surface), how easy they were to obtain and how they were transported in the area.

Our study of tools is also based on Bordes (1961), with some adaptations and simplifications (Table 4 and Figure 6). Thus, numbers 1 to 10 show the importance of scrapers, which constitute 57 % of all the tools, numbers 11 and 12 represent burins and borers (13 %), numbers 14 and 15 are notches and denticulates (up to 23 %), number 16 is flakes briefly retouched or with signs of use, and number 17, choppers, is only residual here (under 1 %). In all, the group of scrapers, denticulates and notches makes up about four-fifths of all the tools, placing this industry firmly within the Middle Palaeolithic.

Conclusions

Preliminary study of the stone artefacts in the cave of Figueira Brava suggests the following conclusions:

1. This was an occasional, expeditive industry, without typologically developed artefacts, mostly due to the poor quality of the locally available raw materials.

2. The dominant material is quartz, in the form of small pebbles collected from the conglomerates of the Upper Jurassic in the Serra da Arrabida, or from Tertiary deposits. The rarity of other petrographic types found there, such as fine flint-like rocks, jasperoids and porphyroids, essentially reflects their comparative rarity in these levels. Some fine flint-like rocks may have been collected from thin interstratified beds in the Jurassic limestone of São Luís mountain. Limestone would have been collected mainly from the alluvial deposits on the nearby coast, as can still be seen.

3. There is evidence for local working in quartz and in limestone. Raw materials of high quality, particularly the fine flint-like rocks, on the other hand, would essentially have been prepared elsewhere: here they were only shaped into various tools. Their relative scarcity suggests they were used in activities more or less distant from the occupied site (hunting and gathering), but which are nevertheless reflected in the material uncovered.

4. The typical products of Middle Palaeolithic lithic assemblages, both discoid and Levallois, are in the majority here, but the former clearly predominate. This is probably due to the type of raw materials, especially the initial blanks that were used. In fact, we have to suppose that the relative scarcity of Levallois debitage, IL 2.1 (Table 2), is mainly owing to the nature of the quartz cores – rough pebbles – which were limited at the outset by

Table 2. Main techno-typological indices

(acc. to Bordes method)

	Quartz	Quartzite	Flint-like	Jaspoids	Limestone	TOTAL
IL	1.8	6	2.1	7.7	2	2.1
IF	21.3	26.5	64.6	30.4	14.3	22.9
IFs	18.5	25	49.4	13	10.7	19.4
IR/GII	57.5	58.3	47.6	100	50	57
IAu	0.9	–	–	–	–	0.8
GIII	12.5	–	–	–	–	11.2
GIV	16.3	–	38.1	–	25	17
GIVa	21.6	25	38.1	–	25	22.6
GI/ILTY	5	33.3	14.3	300	25	7.5

their small size and the difficulty of shaping them. That Levallois method was known to those who frequented the site is shown by their use in quartzite blocks in the form of large smooth pebbles, favourable for more complex operational processes.

5. The percentage of occurrence of tools is perfectly normal for industries at open-air sites, though rather low for caves. This reinforces the interpretation that the site must have once been far more open to the outside than it is at present, perhaps forming a rock shelter, with easy access to the sedimentary formations outside, where there would have been an abundance of useable fragments for rapid working of tools.

6. Among tools, scrapers predominate (IR: 57), and among these, simple convex shapes. Next in importance are denticulates (Group IV: 17) and notches (Group IVa: 22.6). The distribution of tools in each petrographic type shows the presence of fine flint tools of external origin, an observation which is reinforced by the imbalance between cores and tools seen both in quartz and in these flint-like rocks.

7. According to Bordes' now-traditional criteria of analysis for Middle Palaeolithic stone industries, expressed in technical and typological indices (Table 2), it can be said that the stone industry at the Figueira Brava cave corresponds to the *Typically Mousterian, rich in denticulates, with non-Levallois debitage and non-levalloisian facies*.

8. This industry, associated with Neanderthal remains and dating from a very late period (*c.* 30 kyr) (Antunes, 1990-91), becomes one more important assemblage to be included among the twenty or so similar sites already known in southern Spain and in Portugal (Raposo & Cardoso, 1998), confirming the thesis of the remarkable durability of the Mousterian complex and of Neanderthal groups in southern and western Iberia.

As mentioned above, the importance of the stone assemblage at this site is considerably strengthened by the existence of other clearly Mousterian assemblages from the same period. One of the most significant in Portugal is the one documented in the cave of Columbeira, where a Neanderthal fossil has also been discovered. The lithic industry of this cave, recently reviewed (Raposo & Cardoso, 1998), is made up of a total of almost six thousand artefacts. In global terms, they document an important presence of the populations that frequented the site. Some of the stratigraphic levels (levels 7 and 8) correspond to a succession of regular, long term occupations of the cave, with hearths and animal remains predominantly of herbivores; in other levels (levels 4 to 6a and 9), where stone assemblages are scarce and the animal remains are principally of carnivores, human presence in the cave would have been more sporadic. From analysis of the sequence of stone-working we may conclude that the production of tools was never done entirely inside the cave. In fact, the stone blanks were almost always introduced in the form of pre-shaped forms – mostly flakes, but also cores at an advanced stage of shaping. Signs of transformation of potential blanks into tools are always considerable (except within the Levallois debitage group, giving rise to a general "Levalloisian aspect" of the assemblage).

From the technical and typological point of view, it is worth noting that these assemblages do not show any significant evolutionary trend. Globally, they meet not only the technical Levallois definition (IL: > *c.*15), but also fit completely into the category of "Levalloisian facies" (ILty: >30). Denticulates (group IV) are almost always dominant, even though they tend to decrease slightly through the stratigraphic sequence. The so-called Mousterian group (group II), and within it the group of scrapers, tend to increase noticeably. Beginning with very low values (and dominated by typologically rough tools, common in Lower Palaeolithic industries), they reach significant, though never high, percentages (now dominated by tools characteristic of Middle Palaeolithic industries). The so-called nuclear tools are extremely rare (pebble tools are only found in vestiges in layers 7 and 8; bifacial tools are simply absent). In the same way, Upper Palaeolithic type tools are very scarce, with insignificant group III values and with a tendency to decline slightly through the sedimentary sequence. In general, retouching operations in tool manufacture are very limited. There is a complete lack of elaborated retouches, such as Quina or semi-Quina types. To sum up, using the classic Bordian terminology, this could be described as a Denticulate Mousterian, rich in scrapers, with Levallois debitage and levalloisian facies.

It is interesting to note the diversity of the assemblages described in these two caves. If other open cave sites were to be considered, this picture would be reinforced. Further studies are needed in order to establish useful comparative parameters between sites, taking into account geographical position (especially in relation to raw-materials) and presumed function. In general, all these assemblages seem to be largely makeshift in nature, but the diversity of knapping procedures and the variability of tool manufacture clearly indicate some dynamism, with no signs of any forthcoming extinction and/or acculturation.

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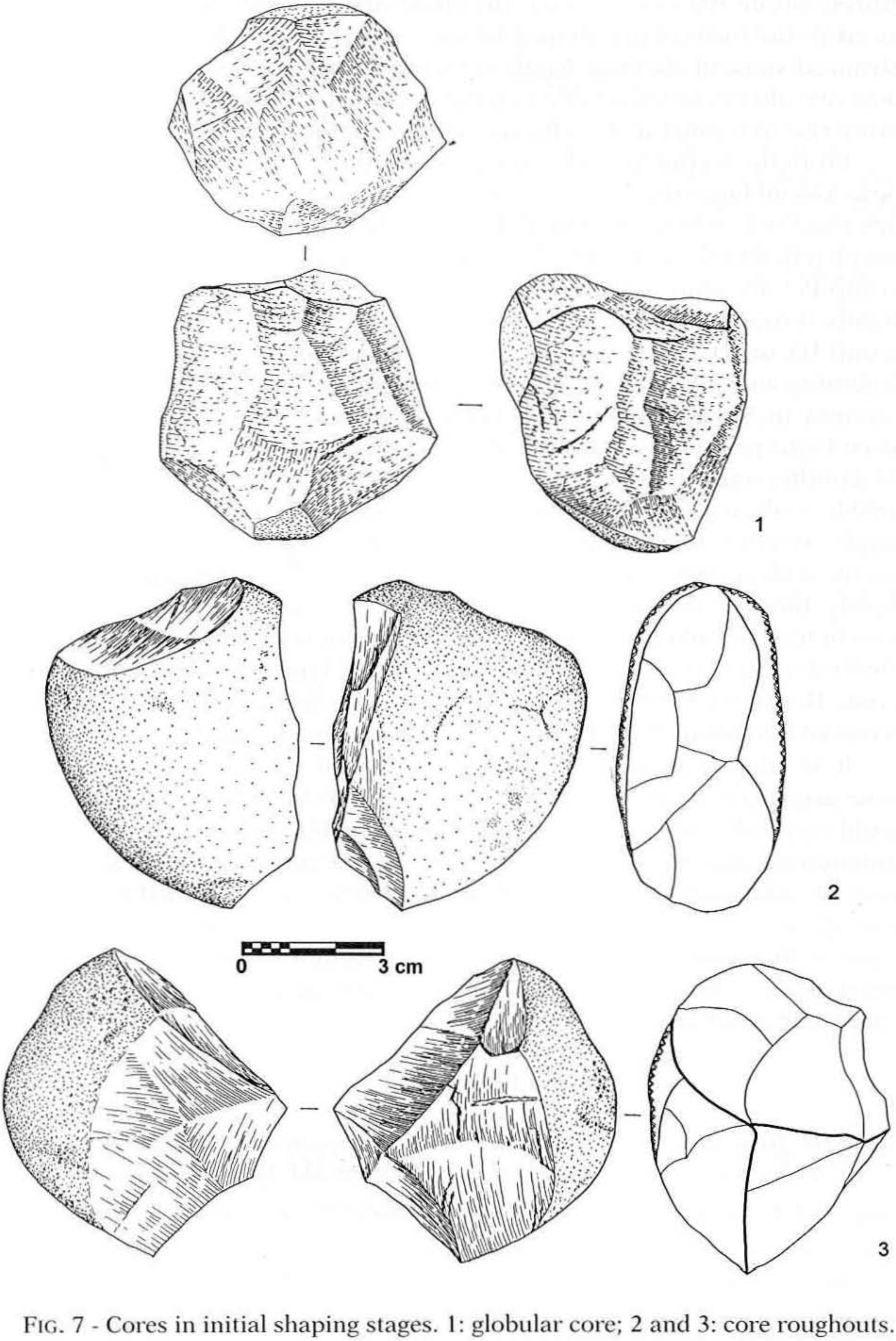

FIG. 7 - Cores in initial shaping stages. 1: globular core; 2 and 3: core roughouts.

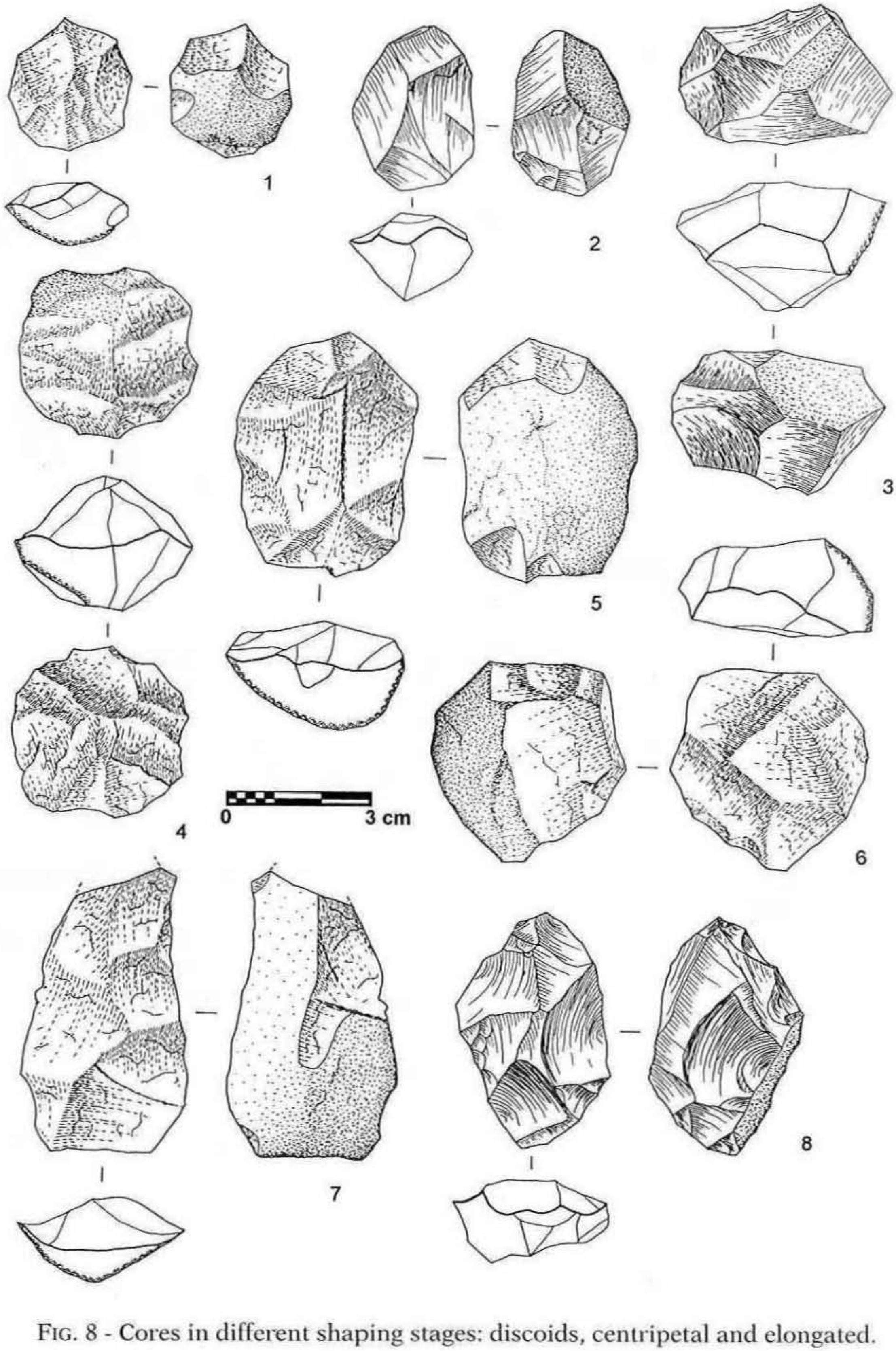

FIG. 8 - Cores in different shaping stages: discoids, centripetal and elongated.

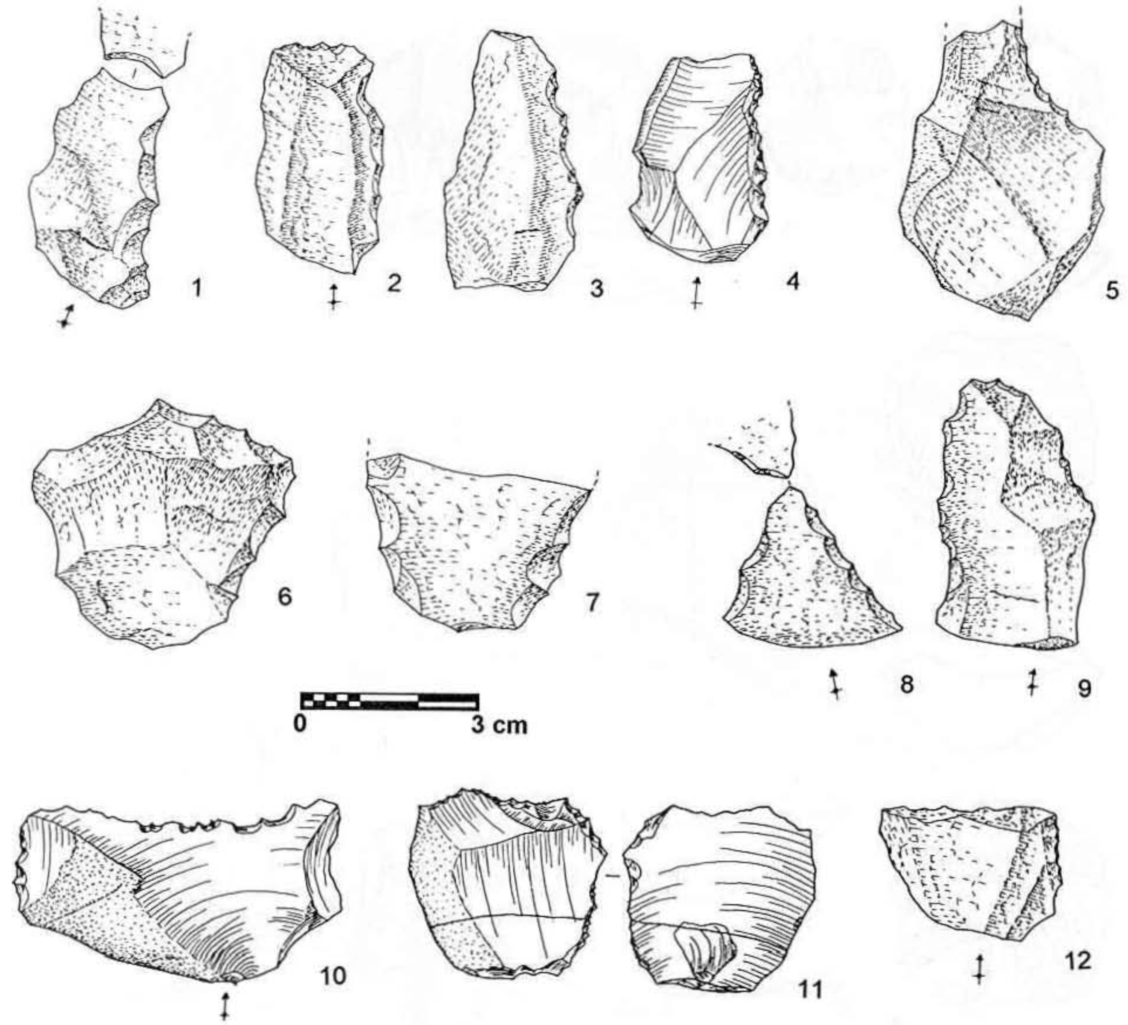

FIG. 9 - Sidescrapers. 1, 2, 3 and 4: single straights; 5: single concave; 6: single convex; 7: double; 8, 9: convergent; 10, 11, 12: transverse.

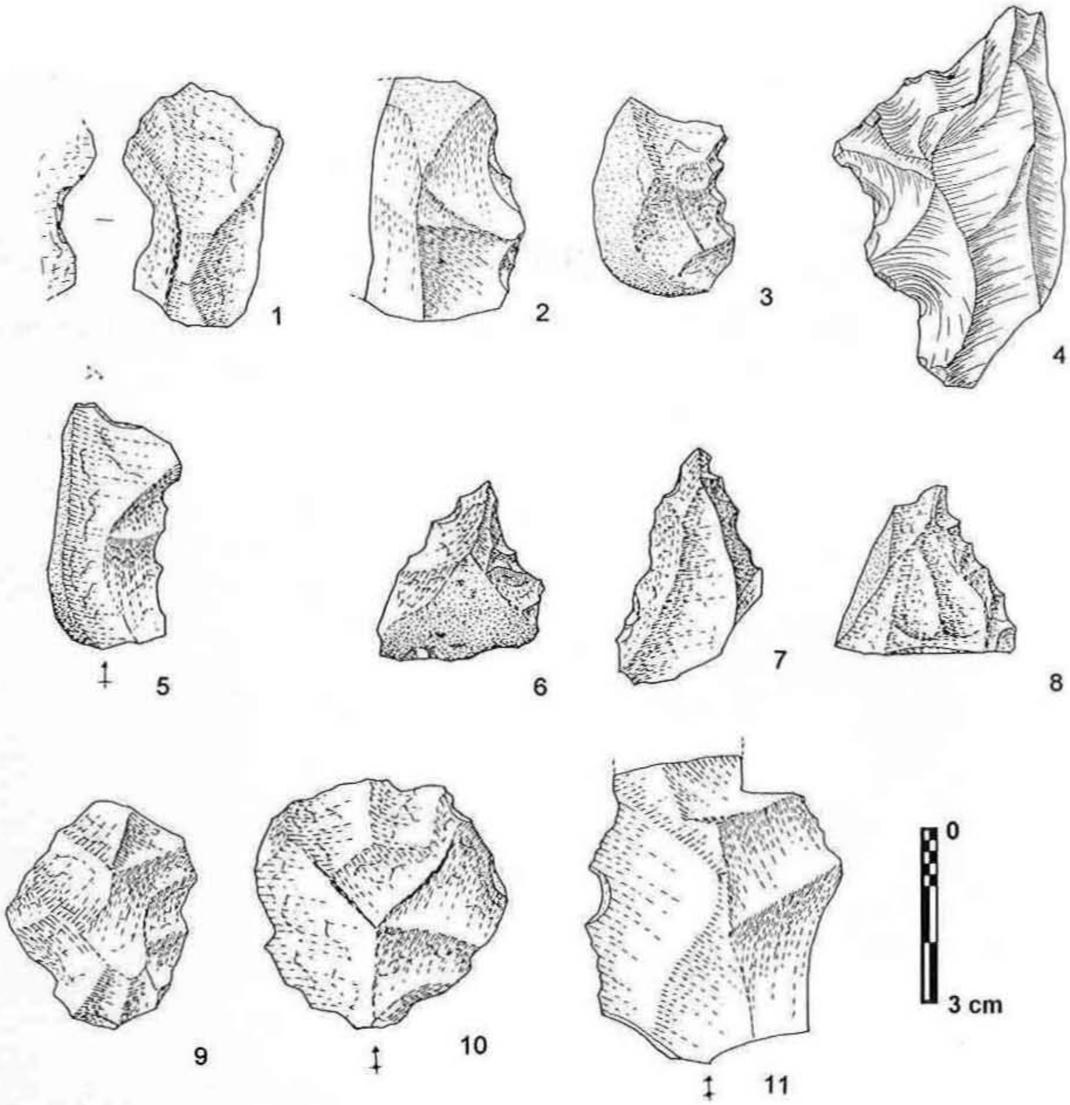

Fig. 10 - Other flake tools and Levallois debitage. 1, 2, 3, 4: denticulates and notches; 5: backed knife; nº 6, 7, 8: borers and perforating points; 9, 10, 11; Levallois-flakes, centripetal recurrent technique.

PLATE 1

Mousterian stone tools from Figueira Brava Cave. On the top: discoid cores; on the centre: centripetal and elongated cores; down: Levallois debitage

PLATE 1