Lithic and bone industries of OIS 9 and OIS 7 in the Roman area

A.P. Anzidei[1], I. Biddittu[2], P. Gioia[3], M. Mussi[4], M. Piperno[5]

[1]*Soprintendenza Archeologica di Roma, Roma, Italy*
annapaola.anzidei@archeorm.arti.beniculturali.it

[2]*Istituto Italiano di Paleontologia Umana, Roma, Italia; Museo Preistorico, Pofi, Italy*
biddittu@hotmail.com

[3]*Sovraintendenza Comunale ai Beni Culturali, Roma, Italia* - p.gioia@comune.roma.it

[4]*Dipartimento di Scienze dell'Antichità - Università di Roma "La Sapienza", Roma, Italy*
margherita.mussi@uniroma1.it

[5]*Dipartimento di Discipline Storiche "Ettore Lepore", Università degli Studi di Napoli "Federico II", Napoli, Italy* * - m.piperno@tin.it

SUMMARY: Lithic and bone industries from the Middle Pleistocene sites of Castel di Guido, Torre in Pietra levels *m* and *d*, La Polledrara and Casal de' Pazzi are discussed. The earlier sites – except La Polledrara – show greater variety in the choice of lithic raw materials, related to the production of large tools such as handaxes. On the later sites a greater variability in tool typology is displayed and more complex flaking techniques are used.

1. Introduction

The two main concentrations of lower Palaeolithic sites discovered so far close to Rome are located close to the Via Aurelia, and in the lower Aniene Valley. Some of these sites came to light during the nineteenth century. Many more were discovered by quarrying or during public works in the first half of the last century and still more with the post-war urban expansion of the Italian capital. The second half of the twentieth century witnessed the first modern archaeological research carried out by A.C.Blanc and L.Cardini at Torre in Pietra (Malatesta ed. 1978), A.M. Radmilli at Castel di Guido (Radmilli & Boschian 1996), and by the Soprintendenza Archeologica di Roma at Casal de' Pazzi (Anzidei & Ruffo 1985) and La Polledrara di Cecanibbio (Anzidei *et al.* 1999; Anzidei *et al.* in press), which is still under excavation. Following geo-stratigraphic correlation (Caloi *et al.* 1998; De Rita & Zarlenga 2001) three sites - Castel di Guido, La Polledrara and Torre in Pietra level *m* belong to the Aurelia Formation and accordingly to isotope stage 9 (OIS 9). Torre in Pietra level *d* and Casal de' Pazzi, both in the Vitinia Formation, date to isotope stage 7 (OIS 7). The only site with a stratigraphic sequence including both isotope stages is Torre in Pietra.

2. The Sites

2.1 Torre in Pietra

The Torre in Pietra prehistoric site lies close to the Via Aurelia some 26 km outside Rome (Fig. 1). The lower archaeological level *m* was excavated over an area of some two hundred square metres, and the upper level *d* over about forty square metres (Piperno & Biddittu 1978).

51 handaxes, 327 flakes, retouched flakes and pebble tools were retrieved from level *m*, while level *d* yielded up 734 lithic implements

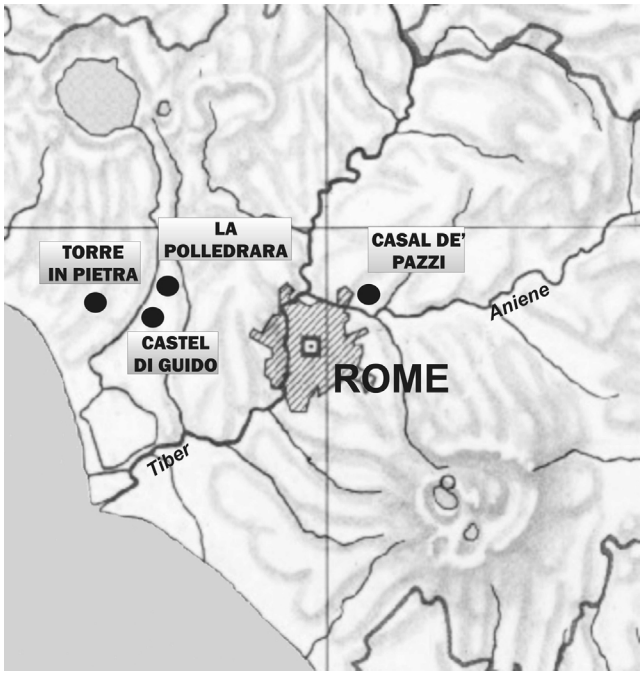


Fig.1 - Location of the sites.

(Piperno & Biddittu 1978). In both levels, lithic and faunal remains were distributed throughout the deposit (Caloi & Palombo 1978; Manzi *et al.* 2001). The finds from both levels were clearly reworked and often showed a considerable degree of rounding.

Volcanic tephra samples of *Tufo a pomici nere* from Torre in Pietra *m* were dated by K/Ar (KA 1185 and KA 304 = 431,000 BP; KA 334 = 434,000 BP; KA 345 = 438,000 BP) (Evernden & Curtis 1965). The dates are related to an eruption of the Bracciano volcano and cannot be taken as indicative of the age of the archaeological record.

2.2 Castel di Guido

The site, which lies some 20 km from Rome along the Via Aurelia (Fig. 1), was discovered during the Seventies. About 1200 square metres were excavated (Radmilli & Boschian 1996) and over 4000 archaeological and palaeontological finds retrieved. A level of silt rich in volcanic material later sealed the shallow basin in which the site is located. Of the 3000 bone remains, around 400 have been identified as tools. Most are handaxes, on top of 1300 lithic artefacts. A fair number of unmodified pebbles was also discovered, together with flakes, scrapers, handaxes, choppers and chopping tools. Five fragmentary human bones were found, belonging to a minimum of two individuals.

2.3 La Polledrara

La Polledrara di Cecanibbio (Fig. 1) is located between the Via Aurelia and Via Boccea, at about 20 km from Rome. It was discovered in 1984 during systematic surveys carried out by the Soprintendenza Archeologica di Roma and since 1985 over more than 700 square metres have been excavated. Over 9000 fossil bones, 400 lithic implements and a few bone tools have so far been discovered on a sector of a former seasonal watercourse, at its bottom as well as on its banks.

The finds had been washed downstream from their original position before being sealed under a layer of white limno-tuffitic clays

derived from pyroclastic products. Shortly after this phase of fluvial activity, a marshy microenvironment came in existence. Some bones, a few of them still in anatomical connection, were found in the marshy layers. They belong to at least two elephants and a wolf. A few lithic artefacts were associated with the bones; their surface is fresh and in some cases use-wear traces are still visible.

2.4 Casal de' Pazzi

The Casal de' Pazzi site lies close to the present river Aniene (Fig. 1), between the Via Nomentana and the Via Tiburtina. It was uncovered during public construction work. Over 1200 square metres were excavated between 1981 and 1986 (Anzidei 1983; Anzidei & Ruffo 1985) uncovering a stretch of the ancient course of the river Aniene, filled by alternating layers of gravel and pyroclastic sand. Lithic industry and bones were randomly dispersed. A fragment of human skull, taken as representative of an archaic *Homo sapiens* (Manzi *et al.* 2001), was retrieved from the lowermost level. 2200 bones and over 1500 lithics were discovered. Due to the fluvial origin of the deposit, the finds are in secondary position and present at least four different degrees of rounding. There doesn't appear to be any correlation between the degree of rounding and the stratigraphic position.

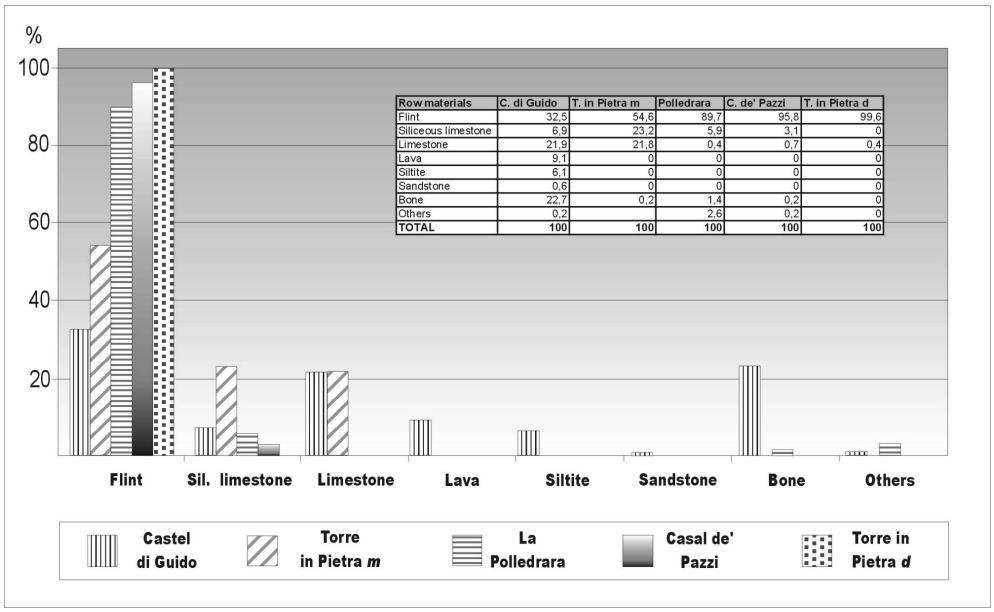
The lithic industry is currently under study and only a statistically representative sample of 451 implements is presented here (Anzidei & Gioia 1990).

3. Comparisons

Most of the statistical comparison is only feasible for four of the five archaeological assemblages quoted above. The technological and typological criteria used for Castel di Guido site differ in fact from all the others, not allowing full comparative analysis.

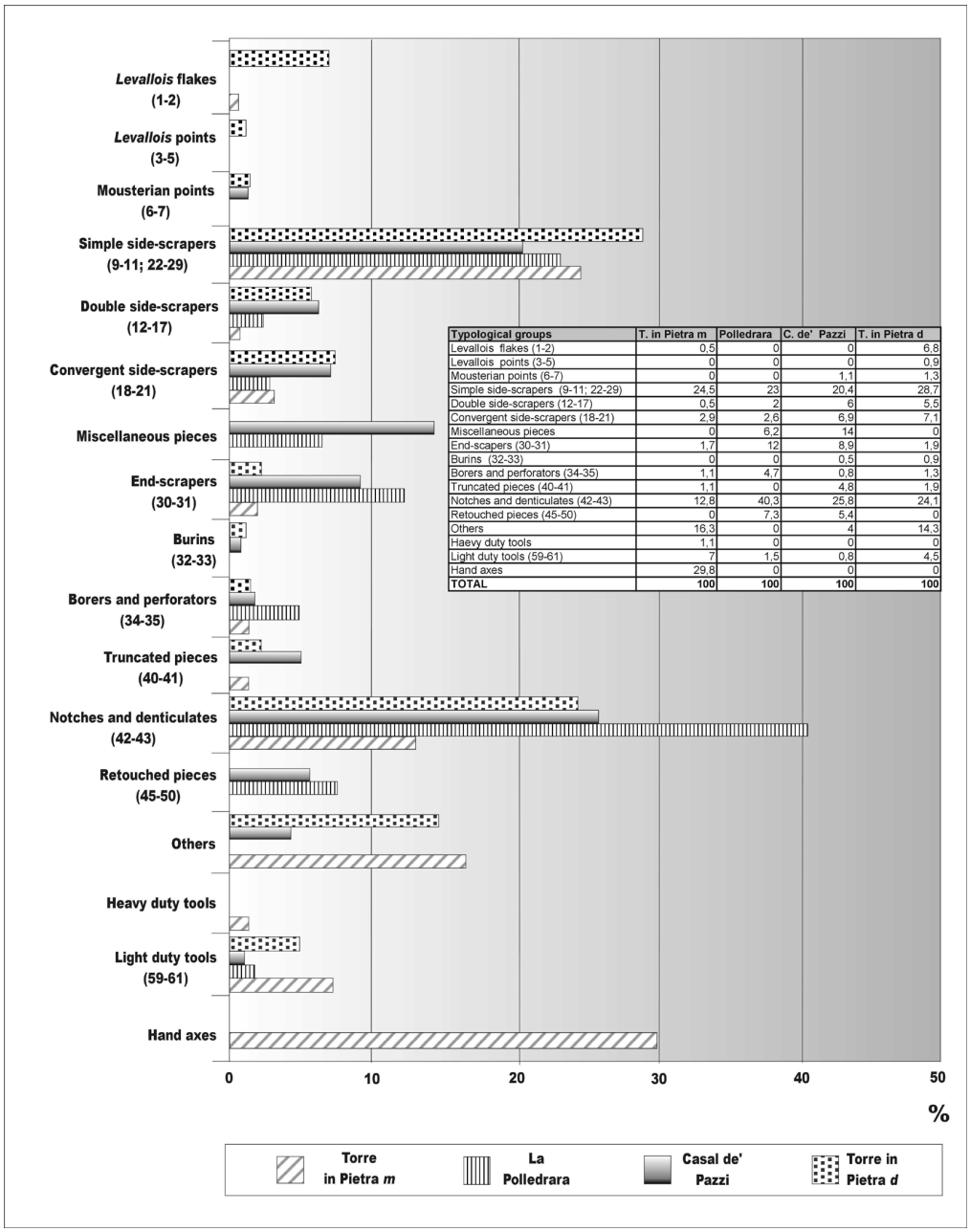
3.1 Raw materials (Fig. 2)

Small flint and silicified limestone pebbles are the most frequently used raw material. They are not easily found in a mostly volcanic depositional environment, and accordingly they were introduced on site by humans (Anzidei *et al.* 1999). Peculiar flint pebbles used to manufacture part of the tools of Casal de' Pazzi are the exception to the rule, as they have been col-



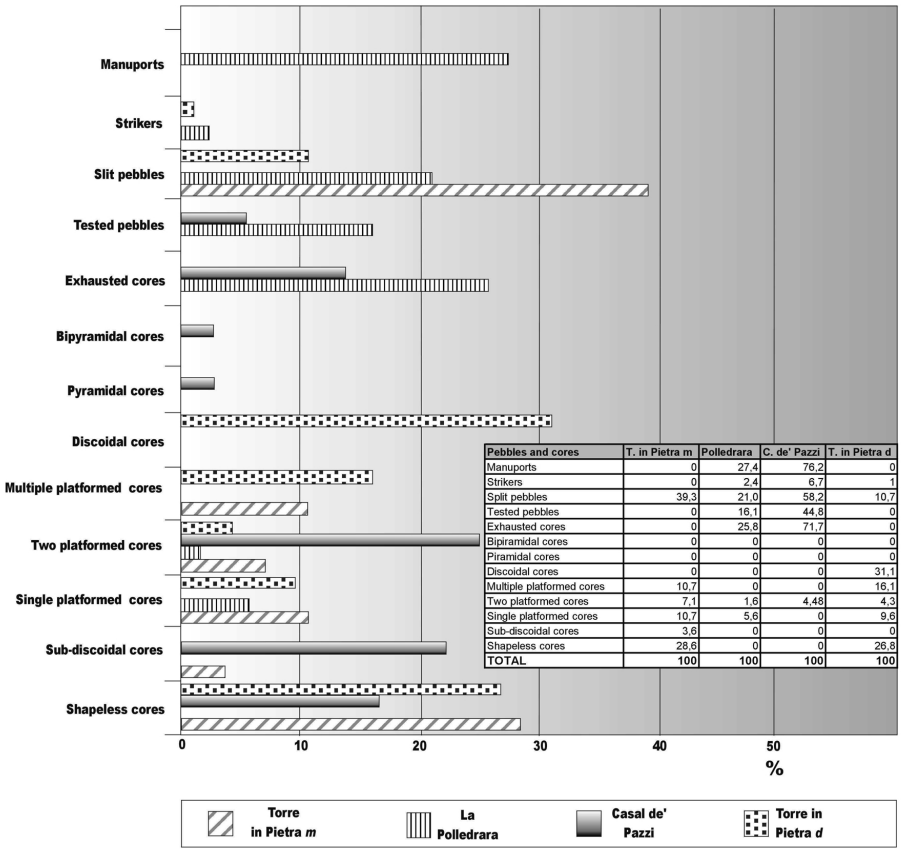
Row materials	C. di Guido	T. in Pietra m	Polledrara	C. de' Pazzi	T. in Pietra d
Flint	32,5	54,6	89,7	95,8	99,6
Siliceous limestone	6,9	23,2	5,9	3,1	0
Limestone	21,9	21,8	0,4	0,7	0,4
Lava	9,1	0	0	0	0
Siltite	6,1	0	0	0	0
Sandstone	0,6	0	0	0	0
Bone	22,7	0,2	1,4	0,2	0
Others	0,2		2,6	0,2	0
TOTAL	100	100	100	100	100

Fig.2 - Raw materials.



Typological groups	T. in Pietra m	Polledrara	C. de' Pazzi	T. in Pietra d
Levallois flakes (1-2)	0,5	0	0	6,8
Levallois points (3-5)	0	0	0	0,9
Mousterian points (6-7)	0	0	1,1	1,3
Simple side-scrapers (9-11; 22-29)	24,5	23	20,4	28,7
Double side-scrapers (12-17)	0,5	2	6	5,5
Convergent side-scrapers (18-21)	2,9	2,6	6,9	7,1
Miscellaneous pieces	0	6,2	14	0
End-scapers (30-31)	1,7	12	8,9	1,9
Burins (32-33)	0	0	0,5	0,9
Borers and perforators (34-35)	1,1	4,7	0,8	1,3
Truncated pieces (40-41)	1,1	0	4,8	1,9
Notches and denticulates (42-43)	12,8	40,3	25,8	24,1
Retouched pieces (45-50)	0	7,3	5,4	0
Others	16,3	0	4	14,3
Haevy duty tools	1,1	0	0	0
Light duty tools (59-61)	7	1,5	0,8	4,5
Hand axes	29,8	0	0	0
TOTAL	100	100	100	100

Fig.3 - Typological groups.



Pebbles and cores	T. in Pietra m	Polledrara	C. de' Pazzi	T. in Pietra d
Manuports	0	27,4	76,2	0
Strikers	0	2,4	6,7	1
Split pebbles	39,3	21,0	58,2	10,7
Tested pebbles	0	16,1	44,8	0
Exhausted cores	0	25,8	71,7	0
Bipiramidal cores	0	0	0	0
Piramidal cores	0	0	0	0
Discoidal cores	0	0	0	31,1
Multiple platformed cores	10,7	0	0	16,1
Two platformed cores	7,1	1,6	4,48	4,3
Single platformed cores	10,7	5,6	0	9,6
Sub-discoidal cores	3,6	0	0	0
Shapeless cores	28,6	0	0	26,8
TOTAL	100	100	100	100

Fig.4 - Cores.

lected from the alluvial deposits present on the site. Pebble utilisation led to a widespread use of the bipolar flaking technique (Cancellieri *et al.* 2001). Larger tools such as handaxes were mostly obtained using other raw materials beside flint: limestone cobbles and even large fragments of elephant bone diaphysis. At Torre in Pietra *m*, the only assemblage for which such detailed information is available, limestone cobbles are used in 76,4% of instances, flint cobbles in 15,6% of instances and siliceous limestone cobbles in just 7,8% of instances. Both Torre in Pietra *m* and Castel di Guido suggest that the same raw materials used for handaxes also led to the production of flake tools. The source of the limestone and siliceous limestone cobbles has not yet been found.

3.2 Typology

F. Bordes (1961) typology was used for the lithic tools, and various scraper types have been further grouped (Fig. 3). The evidence relative to cores is presented in Fig. 4.

Tab.1 - Bone tools.

Bone tools	C. di Guido	T. in Pietra *m*	Polledrara	C. de' Pazzi	T. in Pietra *d*
Hand axes	99	0	0	0	0
Scrapers	11	0	2	0	0
Others	263	1	5	1	0
TOTAL	**373**	**1**	**7**	**1**	**0**

It should be noted that there are very few bone tools except at Castel di Guido (Tab. 1). Handaxes, most notably, which have also been reported in the earlier Acheulean site of Fontana Ranuccio, less than 50 km South of Rome (Biddittu & Segre 1982), are only found at this site. Another specimen was discovered at Malagrotta, a nearby minor site (Cassoli *et al.* 1982). Most of the bone tools of Castel di Guido, however, are scarcely elaborated items.

4. Conclusions

In spite of their varying chronological position and environmental setting (De Rita & Zarlenga 2001; Follieri & Magri 2001), the sites are all characterised by water activity and hydraulic disturbance. Lakes, rivers, ephemeral streams characterised the environment, and while partially destroying the evidence, also facilitated their preservation (Arnoldus-Huyzendveld *et al.* 2001). This also resulted in a good preservation of faunal remains, always including a fair amount of *Elephas (Palaeoloxodon) antiquus* bone.

Lithic assemblages show great variety, even within the same isotope stage. As far as typology is concerned, simple scrapers and notches/denticulates make the majority of tools in all sites. The remaining lithic assemblage varies from site to site. Both Castel di Guido and Torre in Pietra *m* include a substantial number of handaxes (many being bone handaxes at Castel di Guido), which are not found at La Polledrara. At the latter site there are fair numbers of borers, perforators and end-scrapers, while both notches and denticulates might be, at least in part, pseudo-tools resulting from water transport and deposition. A good number of two-platformed cores, as well as discoidal cores, are found at Torre in Pietra level *d*, which also stands out for the evidence of *Levallois* prepared-core technique. Putting aside the lack of any *Levallois* technique, the record of Casal de' Pazzi is quite similar to that of Torre in Pietra *d*. There is, furthermore, a substantial number of sub-discoidal cores and of two-platformed cores at Casal de' Pazzi. At this site, the *demi-Quina* retouch is rather frequent, as opposed to the rarer *Quina* retouch.

The typological diversification and technological standardisation of the later sites (OIS 7) is in parallel with increasing specialisation in the choice of raw materials, which is highly diversified in the earlier (OIS 9) sites and quite exclusive in the more recent ones. The need to manufacture large tools probably also played a role in the OIS 9 assemblages, as cobbles of various lithology were searched for. It should be underlined that on top of chronological distance among sites, any variability of the lithic industry is also the result of activity diversification, raw material availability and interaction with the natural environment.

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* Present address:
Dipartimento di Scienze dell'Antichità - Università di Roma "La Sapienza", Roma, Italy