

PALAEOLITHIC ITALY

ADVANCED STUDIES ON EARLY HUMAN ADAPTATIONS IN
THE APENNINE PENINSULA

edited by
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Emanuela Cristiani**



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Re-colonising the Southern Alpine fringe

Diachronic data on the use of sheltered space in the Late Epigravettian site of Riparo Tagliente (Verona, Italy)

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Abstract

This paper focuses on the use of space by Late Epigravettian groups in the Italian peninsula through the analysis of data from the site of Riparo Tagliente, which has yielded the earliest evidence of re-occupation of the Southern Alpine fringe after the end of the LGM. Previous works had underlined the presence of a persistent pattern in the differential use of the outer area of the site – mostly characterized by secondary refuse accumulations – compared to the sheltered area- dedicated to domestic activities undertaken around hearths. Here a “site-structural” approach has been applied to the abundant evidence of the sheltered area, where an articulated stratigraphic series documenting the first occupation phases in the site – disturbed at the top by an artificial “cut” carried out in historical times – was excavated starting from the late ‘70s of the last century. Radiocarbon dating of this series indicates a chronological span between 17,219 and 15,940 years cal BP and locates these occupations in the first part of the Late Glacial (GS-2.1a).

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Four phases have thus been recognized, which have then been grouped into two main macro-phases, each of which includes thick habitation soils, hearth-pits and cumulative features (formed by the amassing of different categories of residues). A large sunken “dwelling structural complex” was also identified and attributed to the most recent macro-phase. The two macro-phases record an important change in the organisation of domestic space over time, testified by the displacement of hearth-pits, the different intensity in their use and the variations in the frequencies of the typologies of lithic artefacts. Such modifications could be related to the different social identity of the groups that occupied the site over time or to changes in the duration and/or aims of the occupations possibly connected to settlement dynamics on a wider scale.

Keywords: Lessini Mountains, rock-shelter, spatial organisation, palimpsests, dwelling structures.

1. Introduction

Studies focused on intra-site spatial organisation are of crucial importance in archaeology, as they contribute to improving our understanding of the social and economic organization of human groups. Another value is recognized in their capacity to be a mirror of the symbolic perception of spaces by past communities. Nonetheless, for the Palaeolithic and Mesolithic periods, our knowledge on this aspect remains rather weak and, since the time of Leroi-Gourhan and Brézillon's (1966, 1972) first works at the famous Magdalenian site of Pincevent, in most cases limited to open-air settlements (for instance: Adouze 1987; Adouze and Enloe 1997; Cavulli 2008; Martinez-Moreno and Mora 2011; Pigeot 2004; Visentin and Fontana 2016). In contrast, cave and rock-shelters, which in several areas represent the majority of known deposits, have only rarely been explored from this viewpoint, with case-studies possibly more frequently applied to Middle than to Upper Palaeolithic contexts in search for similarities and divergences of behaviours between *Homo neanderthalensis* and Anatomically Modern Humans (Mellars 1995; Galanidou 1997a; Vaquero and Pastò 2001; Ontanon 2003; Utrilla *et al.* 2003). As previously observed, this emphasis on open-air sites seems mostly to be related to the assumption that the identification of the so-called “*structures latentes*” (“an organisation of the findings – which is detectable – in an indirect way and rarely on the field”) in opposition to “*structures évidentes*” (“a meaningful assemblage of remains that represent something – which is – directly interpretable”) (Leroi-Gourhan 1984: 266) is strictly dependent on the presence of contexts created by the synchronic deposition of materials, a condition that happens more frequently at open-air locations. By contrast, caves and rock-shelters are more often characterized by repeated occupations determining the deposition of layers corresponding to palimpsests derived from multiple and superimposed settlement phases and frequently featuring a high degree of taphonomic disturbance. This allows us to assume, as far as intra-site spatial aspects are concerned, that we have a better knowledge of single occupied short-term camps than of settlements occupied either repeatedly, and therefore comprising an unknown number of settlement episodes, or for longer periods of time.

By the way, long ago scholars started to explore and discuss the potentiality of cave and rock-shelters for the reconstruction of prehistoric groups' settlement dynamics.

After F. Bordes' reflections (1975) on the notion of "*sol d'habitat*" in the late 1980s Taborin (1987) proposed a distinction between "palimpsest of activities" and "palimpsest of occupations", where only the former can compromise the possibility to obtain data on the spatial use of settlement areas. In the following years, while Meignen (1993) assumed that analysing patterns of activities in caves and rock-shelters is a false problem since the spatial constraints imposed by the dimensions and disposal of such sites enforce broadly similar patterns in the use of space across time, Galanidou (1997a, 1997b, 1998, 2000) approached the problem by applying a methodology based on the study of overall spatial patterns offered by the association of "evident" ("hearth and other habitation features") and "latent" structures ("robust patterns in the distribution of cultural materials") (Galanidou 1997b, 275). Namely, this author defined such an approach as "site-structural", opposing it to the "reconstructionist" one based on the identification of activity areas in "high-resolution" deposits which, however, may also be subjected to problems of interpretation (Galanidou 1997b, 275). From a methodological viewpoint, parameters such as the type and arrangement of habitation features in a camp, the patterns of refuse disposal, the spacing of activities and the rules about re-using single features, are considered as basic elements for the identification of "redundant patterns" to be compared through time and space. Based on the assumption derived from the ethnographic literature that "each culture has its own set of rules and meanings regarding space" (Galanidou 1998, 5) the dissimilarities observed in the dimension of time are considered to reflect the different social identity of the groups, while those observed at a regional scale are supposed to mirror both the specific function of sites and the social composition of occupying parties. Lately, Bailey and Galanidou (2009, 236), supporting the idea that palimpsests rather than being seen as a problem "should be accepted for what they are", have further explored the issue of re-using pre-existing remains and stressed the importance of the symbolic value of the organisation of space among human communities.

In this paper we will focus on the use of space by Late Palaeolithic groups in the Italian peninsula through the analysis of data from the Late Epigravettian sequence of Riparo Tagliente, which represents one of the main rock-shelter deposits of the Alpine region. Thanks to extensive investigations carried out in the Northern sector of this site, which corresponds in its whole to less than half of the total occupied surface of the site, we have been able to apply a "site-structural" analysis. Particularly the sheltered area is examined in detail, while data from the outer zone is considered for comparison. Riparo Tagliente is the first site so far documented for which we have an evidence of settlement in the south-eastern Alpine region after the end of the LGM. Therefore, analysis of the organisation of domestic space in relation to the activities carried out by Late Epigravettian groups, has a particular interest even for its contribution to the reconstruction of the modalities of re-colonisation of this area, interfacing with results obtained from other studies applied to this site and in general to the whole region (see also Bertola *et al.* 2018). Furthermore, this site allows a diachronic survey of the organisation of space, given the presence of a stratigraphic sequence spanning some thousands of years.

Riparo Tagliente has been the object of studies focused on the structure of space since the late 1970s, when extensive excavations led to the identification of well-preserved dwelling structures (Guerreschi 1983; Bartolomei *et al.* 1984; Peretto *et al.*

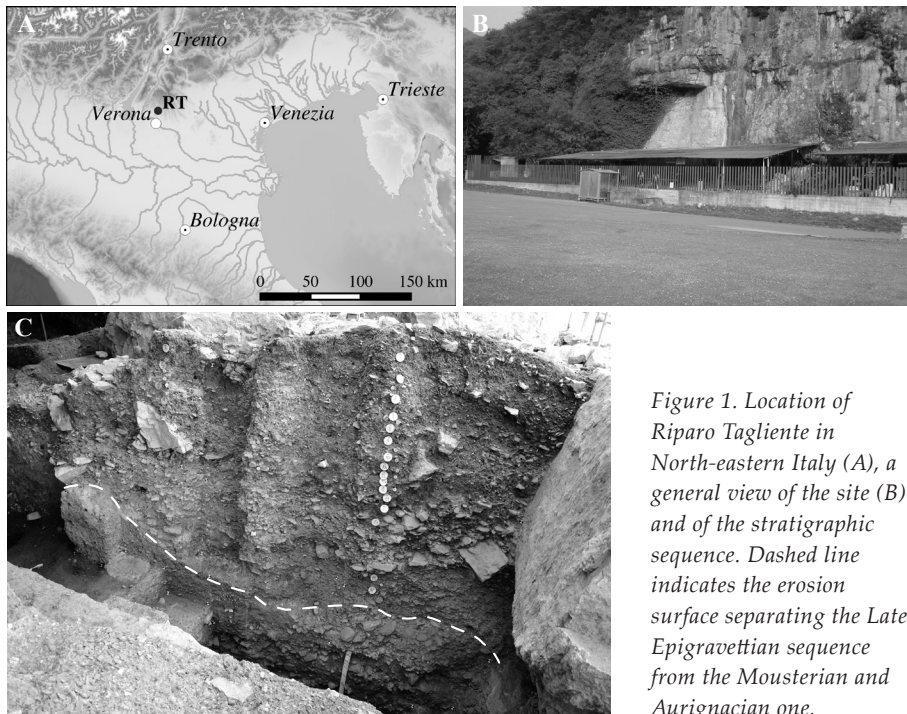


Figure 1. Location of Riparo Tagliente in North-eastern Italy (A), a general view of the site (B) and of the stratigraphic sequence. Dashed line indicates the erosion surface separating the Late Epigravettian sequence from the Mousterian and Aurignacian one.

2004). Nevertheless such studies remained substantially descriptive and did not consider the diachronic dimension of these occupations.

Our study followed two main steps respectively consisting in: a) reconstructing the different phases of occupations by identifying and analysing the record collected over around 30 years of investigations; b) comparing data on the organisation of space in the different phases, in relation to the available radiometric dates, in order to define patterns of continuity and discontinuity over time. Lastly, since no other evidence is currently available in the same region for the time span examined, which could allow locating Riparo Tagliente in the larger-scale settlement system, some preliminary comparisons are attempted with sites attributed to more recent phases of the Late Epigravettian, located in different areas of the Italian peninsula.

2. The Epigravettian occupation of Riparo Tagliente

Riparo Tagliente (Stallavena di Grezzana, Verona) is located on the left slope of Valpantena, one of the main valleys of the Lessini pre-Alpine complex.

The wide rock-shelter opens at the base of Monte Tregnago under a bank of oolitic limestones at an altitude of 250 m a.s.l. After its discovery in 1958 by Francesco Tagliente, archaeological investigations were carried out by Museo Civico di Storia Naturale of Verona from 1962 to 1964. These were resumed in 1967 by the University of Ferrara and are still ongoing. Until the mid-seventies, research focused on the excavation of a long trench running orthogonally to the rock wall and of a smaller trench located in the most internal area (southern sector). The latter led to the identification of a Mousterian sequence and of a late Epigravettian burial, while the first one brought



Figure 2. Panoramic view of the Northern sector with the transversal trench.

to light a stratigraphic sequence about 4.60 metres thick (Bartolomei *et al.* 1974, 1982, 1984; Bertola *et al.* 2007; Gazzoni *et al.* 2013). This sequence can be divided into two main units separated by an alluvial erosion surface: the lower one is attributed to the early and middle Würm and contains Mousterian and Aurignacian assemblages, while the upper one dates back to the Late Glacial and is culturally associated with the Late Epigravettian. At the end of the 1970s, fieldworks in the Late Epigravettian series were extended to the whole Northern sector of the site, over a total surface of around 45 sqm, with the aim of acquiring spatial data on the occupation of the site.

The Late Epigravettian series shows an irregular thickness being thinner and more compact in the area protected by the overhang of the shelter and thicker in the external one. Here the river erosive surface forms a slope which is covered by a sequence of deeply anthropized layers. In this outer zone deposits are constituted by a loess matrix mixed to a coarse breccia that appears denser in the lowermost levels (layers 18-15) and decreases in the uppermost ones. Starting from level 14, pollen analyses indicate the transition from a steppe environment with cold and arid climate conditions to a more temperate one, characterized by wooded grassland with conifers and deciduous trees. Taking into account the rich faunal assemblage in the lower part of the deposit (17-14), the prevailing species are represented by the ibex and the marmot. From layer 13 up to layer 5, temperate species increase, particularly red deer, which becomes dominant starting from layers 12 to 10. A similar situation is recorded by the malacofaunal and microfaunal assemblages (Bartolomei *et al.* 1982, 1984; Fontana *et al.* 2009; Berto *et al.* 2018). In the inner area only the bottom portion of the sequence is preserved, due to removal of the upper one during the Medieval age. This thinner sequence corresponds roughly to layers 13 to 15/18 in the outer zone but a more precise correlation is under elaboration.

Considering the whole northern sector, a constant opposition in the use of the sheltered and outer area of the site was observed (Peretto *et al.* 2004; Fontana *et al.* 2009). Whereas the first was dedicated to domestic and manufacturing activities that were carried out around hearth-places, the second one was devoted to the accumulation of debris of different categories, especially chert wastes within and around some large limestone boulders just outside the sheltered area and bone remains associated to chert knapping waste in the outermost zone. Such accumulations – containing very little sediment – seem the result of both cleaning practises of the internal zone (secondary refuse areas) (Fontana *et al.* 2008; Liagre 2005) and short-term tasks carried out on-site (short knapping sequences and occasional butchering of parts of the animal carcasses etc.) (Cremona and Fontana 2007; Cilli *et al.* 2000; Fontana *et al.* 2009). In this work we will attempt to define the different phases of occupation documented in the sheltered area and to analyse their spatial patterns and variability through time.

3. Methodology

The reconstruction of the articulated stratigraphic sequence in the area protected by the overhang of the shelter has implied a long and complex work of revision of past field documentation starting from the late '70s of last century. Since that time, the system of Stratigraphic Units (hereafter just units or SU) (Harris 1979) was adopted, but the Harris matrix was not compiled during the excavation campaigns and the phasing process was not carried out. Although stratigraphic profiles at regular distances of one meter and stratigraphic unit plans were drawn, and the Stratigraphic Unit forms redacted, the reconstruction of the stratigraphic sequence revealed to be a problematic task as it was done *a posteriori*. All of the plans and profiles were digitalised into a GIS system (QGIS, <http://www.qgis.org>). When the plans of the SUs were missing (or incomplete), the limits of the SUs were reconstructed on the base of the presence/absence of artefacts with respect to the reference grid system.

The identified SUs were classified into three main categories:

- “habitation soils” or occupation layers representing the result of repeated occupations and long-lasting processes that determined the formation of palimpsests in connection to reduced natural deposition and intense anthropic activity;
- “sunken” dwelling features, along with their diversified sedimentological fillings: hearth-pits that were mostly filled with ashy sediments and characterized by the presence of burned elements (mostly pebbles, faunal remains and chert artefacts, charcoal fragments being extremely rare), some small depressions interpreted as post-holes on the base of their shape and dimensions and one large depression interpreted as the base of a hut (SU 13a);
- “cumulative features” composed of different materials, usually with one prevailing category (chert debris, pebbles, ashes, etc.) and reflecting rather rapid processes of discharge (dumping).

Through the analysis of the whole field documentation the limits of the different layers were defined along with their respective stratigraphical relations and the phases of occupation reconstructed by associating the different "habitation soils" to the respective negative and positive ("cumulative") features.

4. Results

4.1. Reconstruction of settlement phases in the sheltered area

The digitalisation of the topographic documentation and its cross checking with the information contained in the SU forms (concerning the stratigraphic relationships among the different SUs) allowed the identification of four occupation phases, each one including several stratigraphic units. These were ordered from the most ancient one (Fig. 3-6). The internal area is delimited by a series of limestone boulders fallen just outside the drip-line. The chronology of this event is uncertain (the excavation is still ongoing) although it is thought to shortly precede the deposition of the first Epigravettian layers (phase I).

The sheltered area is characterized by thick and homogeneous occupation layers ("habitation soils") interrupted by sunken features, mostly hearths-pits. Cumulative features, on the other hand, are mostly found in the transitional zone between the inner and the outer area.

The first and second phases share one thick habitation soil (SU 13a beta) and one large fireplace (SU 250). The most ancient Epigravettian layers of the inner stratigraphic series, which lie directly on the Mousterian sequence, belong to **phase 1** (Fig. 3). These correspond to occupation layers SUs 13a beta, 302, 303, 304 and 307 and hearths-pits SUs 250, 264, 266 e 310 and their fillings. SU 250 is an "*en cuvette*" hearth – reaching a depth of 20 cm – excavated in the Mousterian layers and reused repeatedly over time. It presents an irregular shape due to continuous filling and reuse. Its matrix was almost exclusively composed of ash and silt and contained some clasts and pebbles deeply altered by fire. Hearths corresponding to SUs 264 and 266 are to be considered as one single entity. Their content was similar to SU 250. These two structures and SU 310 have been so far only partially identified and excavated. Hearth-pit SU 250 appears partially covered by a habitation soil named SU 302: this indicates that only the central part of SU 250 remained in use during the deposition of SU 302. SU 13a beta (variable thickness 4-20 cm), SU 303 and 307 were similar in composition, being composed of a reddish silty-clayey matrix, somewhat rich in clasts, and characterized by the presence of spots of dark grey ashy sediment. They are considered as part of the same habitation soil. SUs 302 and 304, both composed of light grayish silty sediments and containing a percentage of ash and horizontally disposed clasts, are still under investigation and represent parts of another occupation soil. The presence of distinct habitation soils, one overlying the other, could indicate the occurrence of relatively long periods of abandonment of the site between the different occupations.

During **phase 2** the formation of SU 13a beta in the innermost area of the shelter continues, indicating a persistency of occupation (Fig. 4). Meanwhile, hearth SU 250 is partially covered by a new soil (SU 301, *i.e.* silty-clay matrix of a reddish colour containing clasts and with grey spots of sediments rich in ash) which develops above SUs

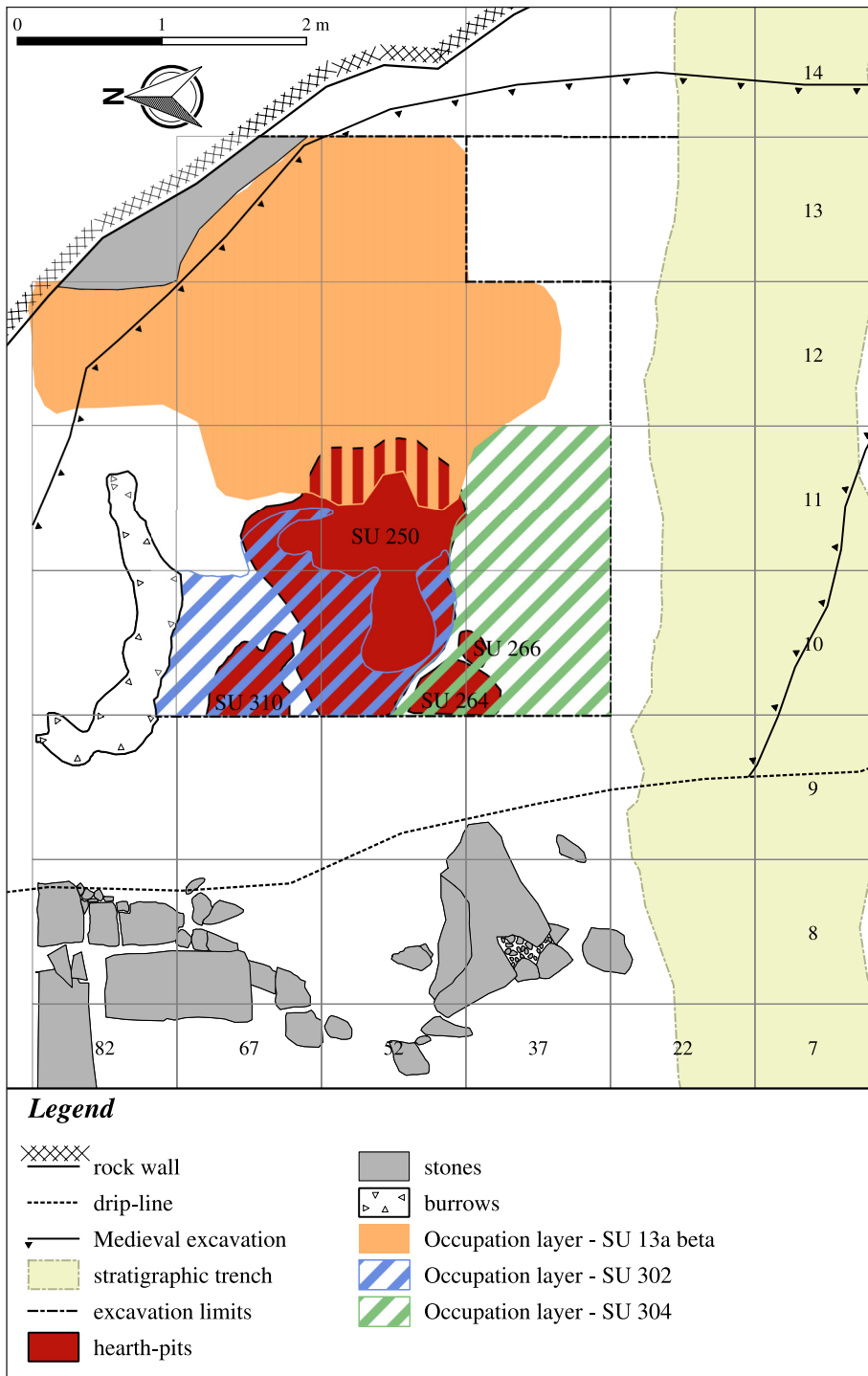


Figure 3. Map of the stratigraphic units identified for phase 1.

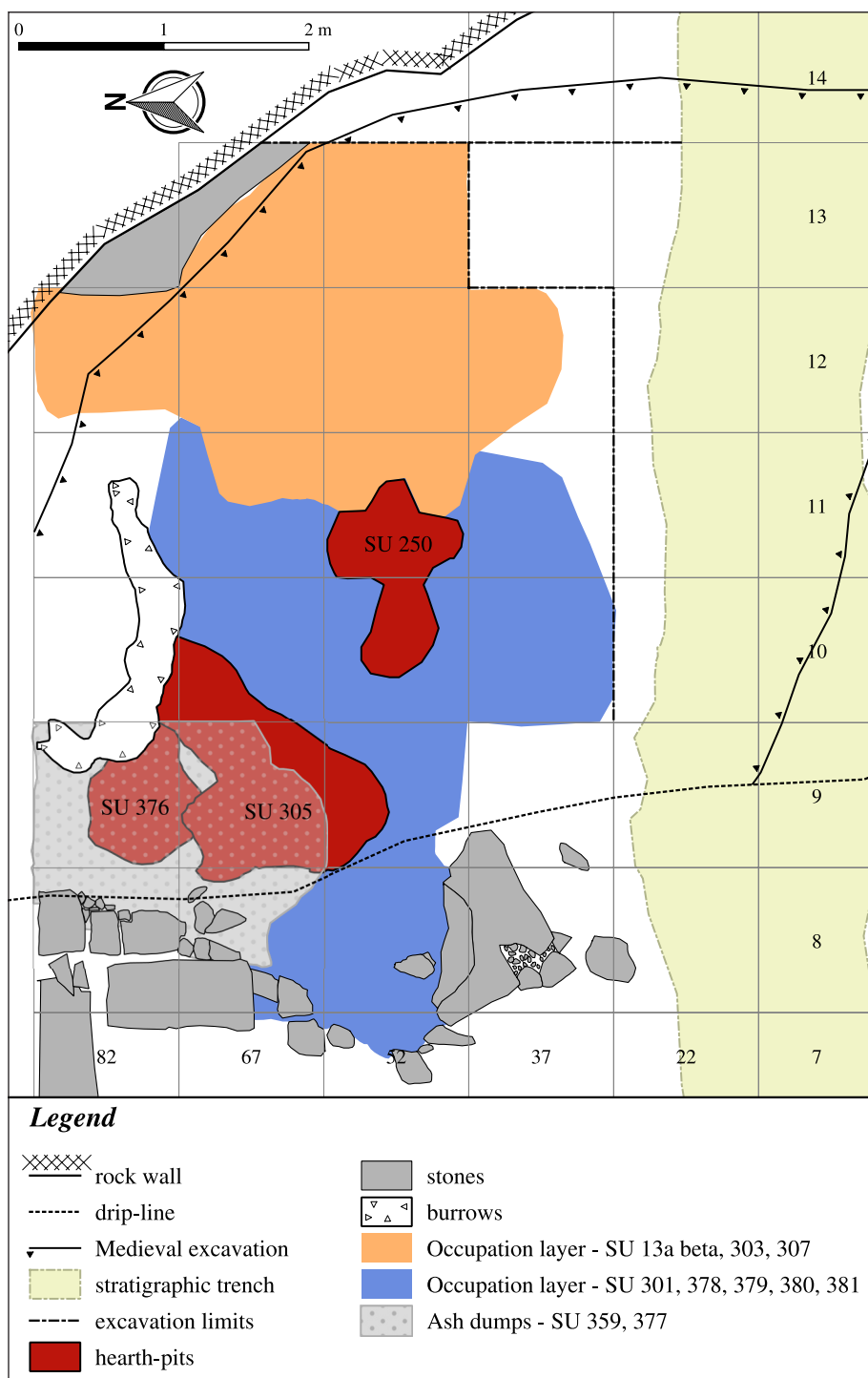


Figure 4. Map of the stratigraphic units identified for phase 2.

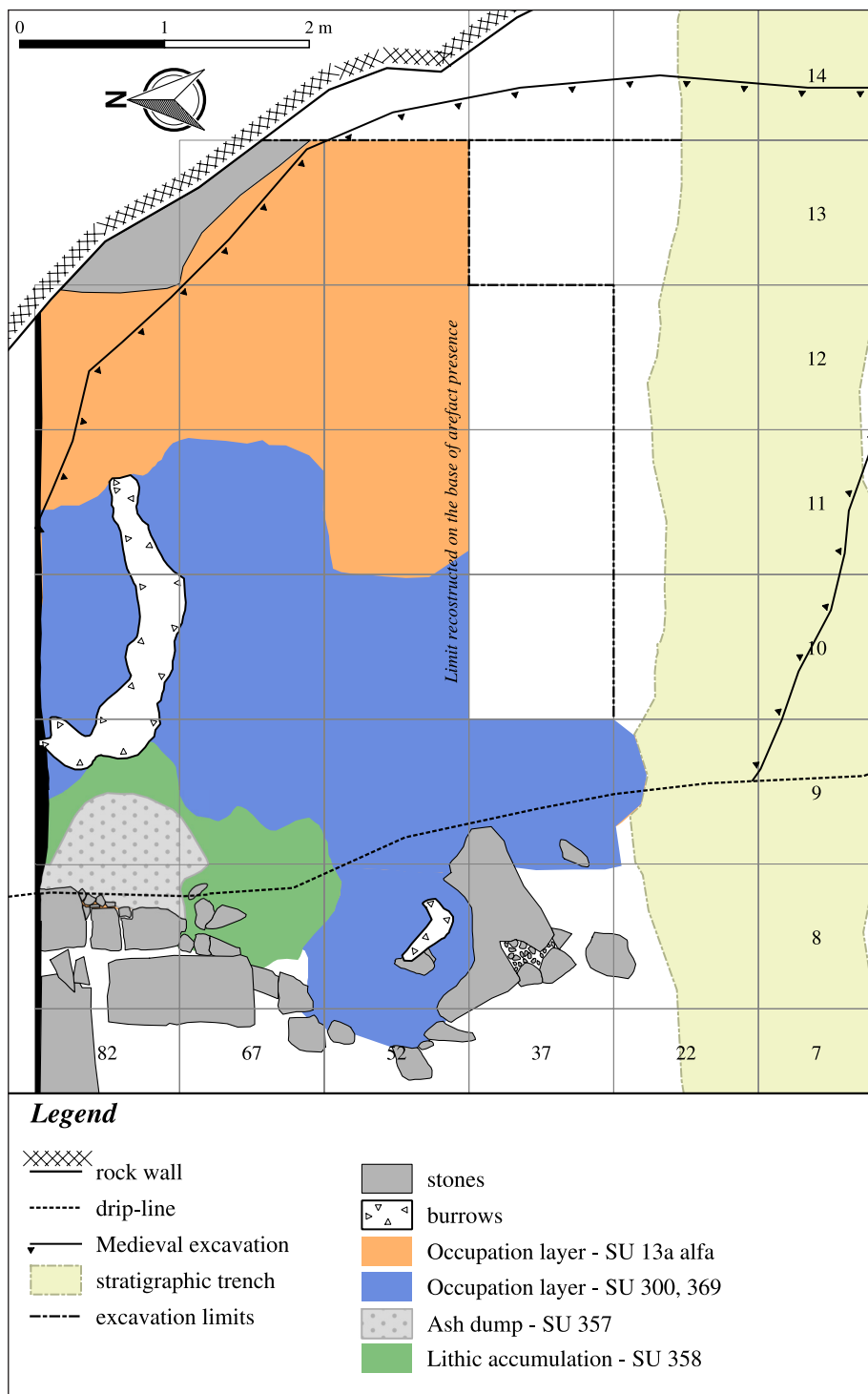


Figure 5. Map of the stratigraphic units identified for phase 3.

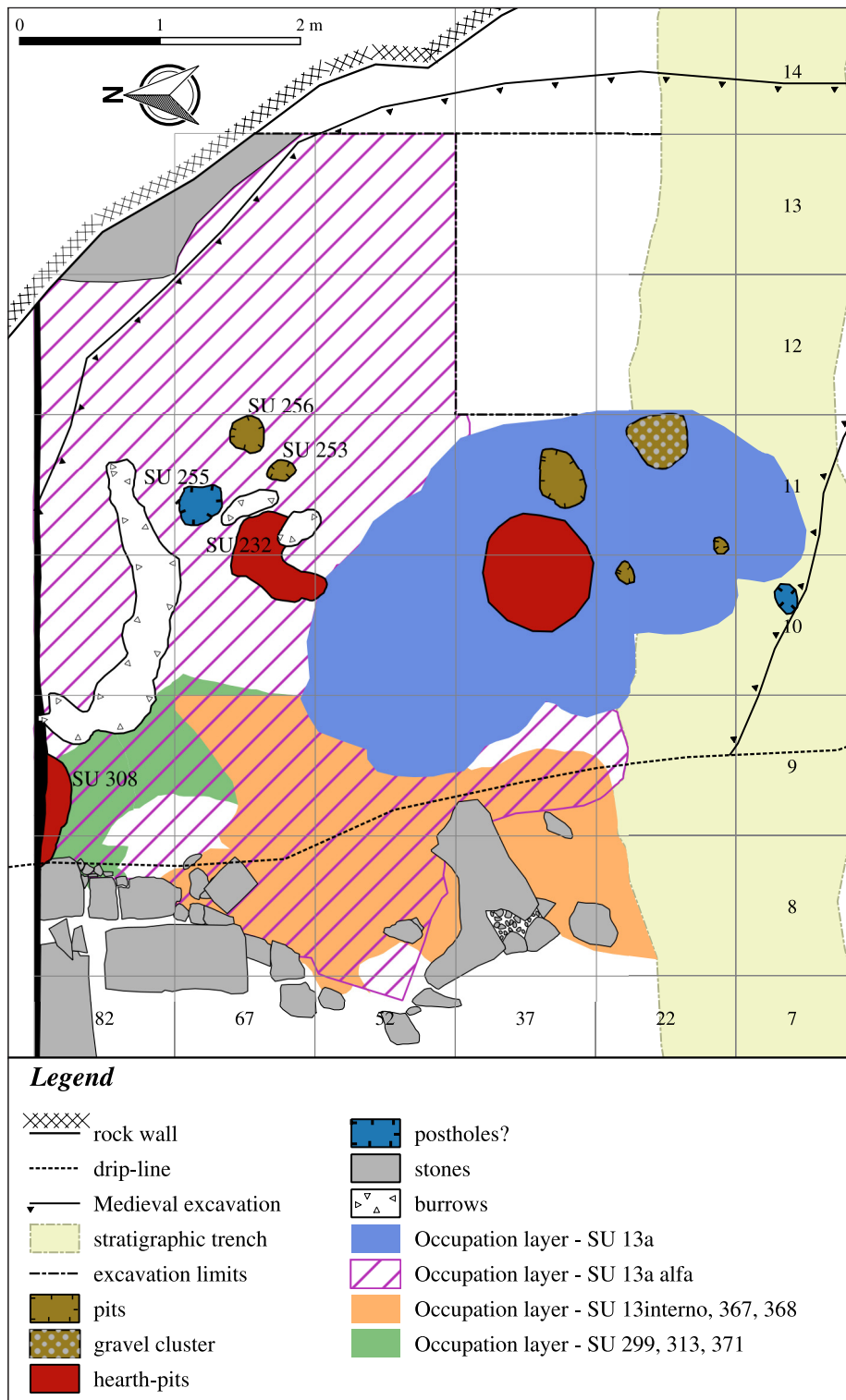


Figure 6. Map of the stratigraphic units identified for phase 4.

302 and 304. Two further combustion structures were in function during this phase (SUs 376 and 305 which are currently under excavation). Both are shallow depressions filled with a fine sediment rich in ashes and including the presence of clasts, sometimes altered by fire. These two structures are covered by two heaps of ashes dumped next to the collapsed boulders (SUs 359 and 377). Between the drip-line and the collapsed blocks other portions of habitation soils (SUs 378, 379, 380, 381) which can be considered as parts of SU 301, were identified. The fabric in these layers is rather chaotic and the deposition of calcite is important in correspondence to the drip-line.

Phases 3 and 4 share another thick (10 to 20 cm) occupation layer (SU 13a alfa) and display a persistence of occupation from one to the other. In **phase 3** a new occupation layer named SU 300 (which includes SU 369) develops in the outwards portion of the sheltered area (Fig. 5). It is a compact, reddish-grey silty layer rich in ashes and clasts. At the same time SU 13a alfa starts to grow in the innermost zone. It is composed of a compact, greyish-brown, silty matrix, with local variations due to the presence of ashes and containing a very rich archaeological record. Following the deposition of SU 300 along the drip-line zone and against the collapsed boulders, two new layers develop (SUs 357 and 358). They are respectively represented by an ash dump with stones and an accumulation of lithic wastes in a scarce silty matrix of an orangish-brown colour with some bone remains and stones.

During **phase 4** the formation of SU 13a alfa continues, extending over most of the sheltered area for a total surface of 18 m² and reaching 15-20 cm of thickness (Fig. 6). Two different series of layers precede its formation. The former is represented by SUs 299, 313 and 371, three thin layers – 2 to 4 cm thick – composed of a loose silty sediment rich in ashes, which are associated to SU 308, a hearth partially emerging from the Northern section; the latter by SUs 13 “interno”, 367 and 368, all layers dominated by a silty-ashy matrix with colours varying from brownish grey and reddish grey. Moreover SU 13a alfa is interrupted by a series of small depressions (SUs 232, 253, 255, 256): one has been interpreted as a small hearth (SU 232), while for SU 255 the hypothesis of a post-hole has been advanced; two others (SUs 253 and 256) have an unknown origin. The last layer attributed to this phase is SU 13a, a few metres-wide hollow, delimited by an escarpment with a scalloped shape excavated into SU 13a alfa that contained an incoherent filling mostly composed of a dark greyish silty matrix (with the presence of lighter reddish spots) and rare clasts. It included a hearth-pit, sub-circular in shape, with pebbles at the bottom and showing evident traces of heating, and a heap of small pebbles. A small depression pit located at its external limit was interpreted as a post-hole (Bartolomei *et al.* 1984; Guerreschi 1983). Such association of features was inferred to correspond to “a dwelling structural complex”. It also represents the last event recorded inside the rock-shelter, partially cut at the top by a digging carried out in historical times. As said before, such activity has led to the destruction of the uppermost part of the Epigravettian sequence in this sector.

4.2. Definition of the macro-phases and their archaeological content

In this work the study of the spatial distribution of archaeological remains in the different phases, which is still in progress due to the high quantity of recovered findings, will not be presented. However, some data on the frequency of the major categories of ar-

Represented species	Macro-phase 1	Macro-phase 2
<i>Capra ibex</i>	44 37,9%	363 35,9%
<i>Capreolus capreolus</i>	23 19,8%	96 9,5%
<i>Cervus elaphus</i>	19 16,4%	187 18,5%
<i>Marmota marmota</i>	30 25,9%	365 36,1%
Total	116 100%	1011 100%

Table 1. Riparo Tagliente, Northern sector, Epigravettian series – Distribution of the main faunal species (NR) in the two macro-phases identified in the sheltered area.

Composition of the lithic assemblage	Macro-phase 1	Macro-phase 2
blanks	8,983 4.28%	19,806 15.78%
retouched blanks	403 0.19%	2,120 1.69%
cores	66 0.03%	256 0.2 %
bladelets < 2 cm	1,722 0.82%	1,299 1.03%
flakes < 3 cm	2,531 1.21%	1,113 0.89%
thermally altered p.	53,853 25.68%	33,059 26.33%
débris < 1 cm	106,058 50.57%	42,669 33.99%
débris > 1 cm	36,312 17.22%	25,220 20.09%
Totale	209,928 100%	125,542 100%

Table 2. Riparo Tagliente, Northern sector, Epigravettian series – Composition of lithic assemblages in the two macro-phases identified in the sheltered area.

archaeological items recovered are here reported. Although not being definitive, they offer an idea of the richness of these layers and of the relative quantities of remains. As the two main occupation layers – 13a alfa and 13a beta – are shared respectively by the first two and the second two phases, these were grouped into two macro-phases (macro-phase 1 which includes phases 1 and 2 and macro-phase 2 with phases 3 and 4).

All of the area was characterized by the presence of considerable amounts of different categories of finds. The most represented categories (macro-faunal remains, lithic assemblages and ochre residues) show a marked difference between the two macro-phases, with a higher density in the second macro-phase. The distribution of the main faunal species, according to the number of determined remains, indicates a dominance of open environments (ibex and marmot) over wooded ones (roe deer and red deer) (Tab. 1). This distribution is in accordance with the faunal composition of the most ancient Epigravettian layers of the stratigraphic trench (Bartolomei et al 1982; Rocci Ris 2006). The analysis of seasonality shows an occupation spanning from the beginning of the spring season to the end of autumn (Rocci Ris 2006).

The lithic assemblages are extremely abundant, totalling over 200,000 items for Macro-phase 1 and over 120,000 for Macro-phase 2 (Tab. 2), although it should be underlined that the counting of undetermined pieces belonging to macro-phase 2 is still in progress and therefore under-estimated (Fontana *et al.* 2015). Raw materials employed are almost totally composed of cherts outcropping in the Lessini area, although the presence of some items (mostly retouched tools but also debitage by-products and

cores) obtained from cherts of the Umbria-Marches Apennine area, has recently been identified (Bertola *et al.* 2018). The presence of cores and of considerable quantities of by-products and debris indicates that knapping was carried out on-site. The high number of retouched blanks, including formal tools and armatures, attests that both domestic activities and the preparation and replacement of armatures on the shafts were undertaken in this area.

Ochre is represented by a very large number of residues with prevailing dimensions lower than 20 mm, amounting to a total of almost 10,000 fragments in Macro-phase 1 and over 15,000 in Macro-phase 2, mostly characterized by angular edges. There is a clear dominance of red samples obtained from the calcination of yellow types, which were in great part collected from geological deposits of the Lessini area, within a distance of approximately 20 km from the archaeological site (Fontana *et al.* 2009; Cavallo *et al.* 2017a, 2017b; Sardelli 2015).

Besides these dominating categories of finds in this inner area, also a rich collection of tools from hard animal materials, as well as several ornamental elements made from marine shells and red deer atrophic teeth, were recovered. These items, such as chert retouched tools and armatures, only occasionally are present in the outer area. This marked difference clearly defines a different pattern in the use of the two zones.

4.3. Chronology of settlement phases

Seven radiocarbon dates were carried out at the CEDAD of Lecce, the Centre de Datation par le RadioCarbone de l'Université Lyon 1 and Oxford Radiocarbon Accelerator Unit some of which are unpublished while others have recently been published (Tab. 3) (Fontana *et al.* 2015; Soubrier *et al.* 2016). These dates are compared to previous measurements from the trench area, the so-called "Officine litiche" (layers 10a, c, e) and the burial (Tab. 4). The six new dates were performed on samples coming from the outer area of the site (SUs 13 *trincea*, 419 and 352) and the inner one (SUs 13a, 13a alpha, 300 and 13a beta) respectively. As far as the inner series is concerned, dating of US 13a (16438-15941 cal BP) is the youngest in accordance with the stratigraphical reconstruction. Dating of SUs 13a alfa (17219-16687 cal BP) and 300 (17160-16555 cal BP) are older and overlap significantly (although they have different standard deviations), which confirms the reconstruction of macro-phase 2, suggesting that the two SUs deposited during the same period. According to these dates an important temporal gap seems to separate the deposition of SUs 13a alfa and 300 from that of SU 13a. This would imply that SUs 13a alfa and SU 13a belong to different phases of occupation. By the way, so far these have been considered as part of the same phase (phase 4, *i.e.* macro-phase 2), since we cannot exclude that SU 13a alpha continued to form also at the time of the deposition of SU 13a. Such reconstruction should be confirmed or denied by further dating. Unfortunately the dating of SU 13a beta has given a result older than 45000 BP, therefore attributable to the Mousterian occupation. This is not surprising, as Mousterian layers directly underlie layer 13a beta and some Mousterian lithic artefacts were found in this layer. Their presence is mostly due to the excavation activity by Epigravettian groups (*e.g.* the digging of hearth-pits) more than to natural post-depositional processes. Therefore, so far, we do not have any elements to verify the chronological relationship between macro-phases 1 and 2. By the way in their whole the radiocarbon dates obtained from the layers of macro-phase 2

S.U.	Q.	Lab/sample	BP	Cal BP	Cal BC	Sampled material
419	Ext. area Q. 80/8	Lyon-10034 (SacA 32399)	12.430±70	14966-14175	13016-12225	Coxal bone, <i>Cervus elaphus</i>
352*	Ext. area Q. 53/3	OxA-29834	13.600±60	16638-16179	14688-14229	Bone, <i>Bison</i> cladex
13 trincea	Ext. area Q. 37/8	Lyon-10033 (SacA 32398)	13.250±80	16186-15684	14236-13734	Metacarpal bone, <i>Capra ibex</i>
13a	Int. area Q. 39/7	Lyon-10031 (SacA 32396)	13.450±70	16438-15941	14488-13991	Metatarsal bone, <i>Cervus elaphus</i>
300	Int. area Q. 54/3	Lyon-10030 (SacA32395)	13.920±80	17160-16555	15210-14605	Femur, <i>Capra ibex</i>
13a alpha**	Int. area Q. 72/5	LT4441A (Cedad)	13.986±60	17219-16687	15269-14737	Bone, <i>Cervus elaphus</i>
13abeta**	Int. area Q. 57/4	Lyon-10032 (SacA 32397)	> 45.000	-----	-----	Tibia, <i>Cervus elaphus</i>

Table 3. Riparo Tagliente, Northern sector, Epigravettian series – Recently performed radiocarbon dates (Calibration 2sigma; OxCal 4.2.3) of layers from the internal (sheltered) and external area (**Fontana et al. 2015; *Soubrier et al. 2016).

S.U.	Q.	Lab/sample	BP	Cal BP	Cal BC	Sampled material
10-8	trench	R-371	12.040±170	14535-13472	12585-11522	charcoal
10a (OL111)	NS – Ext. area	OxA-3530	12.650±160	15537-14243	13587-12293	Bone: <i>Cervus elaphus</i>
10c (OL 2)	NS – Ext. area	OxA-3531	13.070±170	16147-15176	14197-13226	Bone: <i>Cervus elaphus</i>
Burial	SS – Int. area	OxA-0672	13.190±90	16149-15532	14199-13582	Human bone
10e (OL 3)	NS – Ext. area	OxA-3532	13.270±170	16426-15371	14476-13421	Bone: <i>Cervus elaphus</i>
14	trench	R-604	12.000±400	15271-13095	13321-11145	charcoal
15-16	trench	R-605	13.330±160	16537-15548	14587-13598	charcoal
15-16	trench	R-605a	13.430±180	16761-15660	14811-13710	charcoal

Table 4. Riparo Tagliente, Northern sector, Epigravettian series – Elderly performed radiocarbon dates (Calibration 2 sigma; OxCal 4.2.3) from the trench area, the burial (Southern sector) and Northern sector, outer area.

confirm that this inner sequence deposited during the first occupation period in the site, corresponding to the latest part of the Ancient Dryas (GS2.1a) (Rasmussen *et al.* 2014). Lastly, the dates available for the external area attest, on one hand, a close chronology to the sequence of the inner area (SUs 352 and 13 trincea) and, on the other hand (SU 419), a more recent age, which corresponds to the beginning of the Lateglacial interstadial occupation phase, not attested inwards.

5. Discussion

The study of the spatial organisation in the sheltered area of Riparo Tagliente allowed the identification of four main phases of occupation, which were grouped into two main macro-phases, each of which including a series of thick occupation layers, hearth-pits and cumulative features (formed by the amassing of different categories of residues) (Fig. 7).

The earliest macro-phase (the field investigation of which is still in progress) is characterized by the presence of some occupation soils and hearth-pits, one of which attests several phases of reuse through time. A wide ash accumulation layer is located in correspondence to the drip-line. The second macro-phase differs in the disposition of hearth-pits and occupation soils. Two of the three attested hearth-pits, are smaller than those of macro-phase 1 and do not show any evidence of reuse over time, while the latter has been only partially explored. Accumulation layers (dumps of ashes



Figure 7. Picture taken during fieldworks showing the “dwelling structure complex” named SU 13a delimited by an escarpment (the left side) (phase 4) and the hearth-pit named SU 250 (at the centre) (phases 1 and 2).

and lithics), on the other hand, are still located in correspondence with the drip-line. Additionally, a large sunken “dwelling structural complex” was attributed to this phase. Similar structures are very rare in the Palaeolithic archaeological record, especially as regards cave and rock-shelters, although frequently attested by ethnographic accounts, where such artificial depressions are referred to as “domestic units”, where single groups sleep around hearths (Galanidou 2000: 250, 265). According to available radiocarbon dating, it is possible that this feature corresponds to an even later occupation phase, although further chronological data are needed in order to confirm this hypothesis.

To summarize, the two macro-phases record an important change in the organisation of domestic space testified by the displacement of hearth-pits and by the different intensity in their use. Actually, the high presence of ashes in the sediments composing the second macro-phase allows the inference that combustion structures did not have a minor role with respect to the previous phase, but were probably located elsewhere. Occupation layers, as attested by the archaeological findings, correspond to multi-purpose areas. In both macro-phases, activities appear to be clustered around the hearths and include flaking, preparation and repairing of arrows and ochre processing, as well as other domestic activities. We expect that ongoing functional studies on the lithic assemblages will enable us to better define such activities and their possible connections to dwelling structures. On the other hand, when comparing the inner to the outer area, a persisting difference in the pattern of use is attested, the former being dedicated to domestic activities and the latter to the discard of wastes and specialised, short-term processing activities (Fontana *et al.* 2008, 2009; Peretto *et al.* 2004).

The possibility to draw comparisons with other Late Epigravettian sites in the Italian peninsula is rather limited, due to the low number of deposits explored over sufficiently wide surfaces and with published data. For most of these sites, data on the diachronic organisation are not available, and, at the same time, spatial details for all of them are limited to the areas protected by the overhang of the shelter. The main evidence comes from three sites respectively situated in Northern (Riparo Dalmeri), Central (Grotta Continenza) and Southern Italy (Grotta del Romito). The site of Riparo Dalmeri is the closest one, being located on the Asiago Plateau at an altitude of 1,240 m a.s.l., but its occupation belongs to a later Epigravettian period than that attested by the sequence of Riparo Tagliente. Two main occupation layers are documented, which attest the use of the same area of the shelter for a few hundred years during the Allerød interstadial. The occupation is preceded by a phase of preparation, which includes the ritual disposition on the soil of ochre painted slabs with animal and anthropomorphic representations, along with stone alignments, pits, hearths and post-holes. Although an exhaustive report on this site is not available yet, authors support a “semi-permanent” occupation of the site, with the retrieval and reuse of the same area at different times (Dalmeri *et al.* 2002). At Grotta Continenza (Peretto *et al.* 2004), located around the ancient Fucino basin, in the central Apennines (Abruzzo), the Epigravettian layers are characterized by several burning pits of oval or circular shape which are filled or lined with stones and delimited by flint knapping areas, or by zones with burnt soil remains and accumulation of food waste (mostly fish remains). So far, spatial analyses carried out on one of these layers (layer 32) allowed the identification of two different areas: the inner one, facing the hearth, was devoted to the preparation and consumption of food, while the outer one shows several elements linked to flint knapping. Lastly, Riparo Romito, located in Northern Calabria, on the Southern Apennines, seems to represent only one part of the inhabited area of the site, which probably continued inside the homonymous cave (Martini *et al.* 2012). Underneath the sheltered area a series of pits, filled with artefacts of different categories and containing some “exceptional” items, were identified and given a ritual explanation.

Data from the three sites allow carrying out only some general considerations with respect to the evidence brought to light at Riparo Tagliente. On one hand, the repeated location of hearths in areas protected by the rock-shelter overhangs and their central role as catalysts of domestic activities appear as common features to all situations, as also observed from ethnographic studies and other geographic contexts of Palaeo-Mesolithic hunter-gatherers (*e.g.* Dalmeri *et al.* 2002, Galanidou 1997b, 2000, Vaquero and Pasto 2001); on the other, each considered site shares some specific aspects with Riparo Tagliente, *i.e.* the occurrence of possible post-holes is only attested at Dalmeri and Tagliente which could indicate the presence of mobile structures (tents? huts?) in these sites while a similar pattern in the location of knapping debris – which were scattered in an area far away from hearths – is a common feature with Grotta Continenza. Lastly another aspect is the connection of the domestic areas of these sites to elements that reflect a symbolic dimension. From this viewpoint there is no evidence of “ritual structures” at Riparo Tagliente similar to those brought to light at Riparo Dalmeri and Grotta Romito, but the presence, in the inner area, of several

objects that refer to a ritual sphere, such as engraved pebbles and bones with figurative representations of animals and geometric lines, which were in most cases found out of context, has been highlighted.

6. Conclusions

This study has focused on the organisation of space during the Late Epigravettian occupation of Riparo Tagliente. Despite the very high density of the findings, the extensive exploration of the northern sector, over a surface of around 45 sqm including both the sheltered and external area, allowed the structural organisation of the site to be investigated and recognized. Previous works had underlined the presence of a persistent pattern in the differential use of the outer area of the shelter, characterized by secondary refuse accumulations (lithic waste products, chert cores, bone remains) and, to a lesser extent, by short-term practises carried out on-site with respect to the sheltered area dedicated to domestic activities undertaken around hearths (Fontana *et al.* 2009).

In this paper we have focused on the diachronic structure of space in the inner area, which has led to highlight a main transformation through time (differences between macro-phase 1 and macro-phase 2), especially concerning the arrangement of hearth-pits and dwelling-structures. Evidence for this change is supported also by the composition of the lithic assemblages of retouched artefacts (Fontana *et al.* 2015) that could reflect a different organisation of the activities, although this aspect still awaits to be better investigated in the future through functional analyses.

We are thus induced to reflect on the reasons that may have brought about such modifications. Actually, the evidence recovered in the sheltered area attests an intense occupation of Riparo Tagliente since the first Late Epigravettian settlement phase, with an emphasis on processing of the rich lithic, mineral and biological resources offered by the Lessini area. Moreover, the variety and abundance of finds in all the layers indicates an excellent knowledge of this territory, which was exploited from the valley-bottoms to the top of the plateau (i.e. ibex hunting on the valley slopes and chert nodules collection within the highland soil deposits) and including the surrounding valleys (i.e. ochre extraction from the area of Ponte di Veja along the ridge connecting Valpantena to Valpolicella) (Bertola *et al.* 2007; Bietti *et al.* 2004; Cavallo *et al.* 2017a, 2017b; Cusinato *et al.* 2003; Fontana *et al.* 2009). Such occupations occurred on a seasonal basis, especially during the period of the year between early spring and late autumn, by groups whose mobility remains unknown. Nonetheless, the presence of few artefacts and cores manufactured on cherts of the Northern Adriatic Apennines (Umbria-Marche basin) among the wide quantity of items and discarded elements obtained on local raw materials, seems to imply the persistence of contacts with this area over time with no apparent and substantial difference between the two macro-phases (Bertola *et al.* 2018).

We must therefore conclude that available data do not allow the support of any definite hypothesis for the interpretation of the patterns highlighted, namely the consistent transformations of the structural organisation of the site between the two macro-phases identified. This could depend, either on the different social identity of the

groups that occupied the site overtime, or on changes in the duration and/or the aim of occupations in relation to settlement dynamics on a wider scale.

Lastly, this study constitutes clear evidence that caves and rock-shelters, besides being important archives for the diachronic definition of past cultural changes, also yield a great potentiality for understanding the use of domestic spaces, thus bringing a substantial contribution to the reconstruction of economic, social and symbolic behaviours of prehistoric groups.

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ADVANCED STUDIES ON EARLY HUMAN ADAPTATIONS IN
THE APENNINE PENINSULA

The picture of the Palaeolithic adaptations in the Italian Peninsula has always been coarse-grained compared to various well-researched regional hotspots in central and western Europe, as a result of historical research bias preventing the application of new research methodologies. Nonetheless, discoveries regarding Neanderthal extinction and behavioural complexity, the dispersal of Anatomically Modern Humans as well as the origin and diffusion of modern technologies and symbolic behaviour in Europe have brought Italy into focus as an ideal region for understanding the evolutionary development of various hominin species that inhabited the continent in the Late Pleistocene. In particular the dynamics of the earliest human peopling of Europe, the reasons and timing of Neanderthals demise and how environmental factors affected human prehistoric behaviour, rates of technological innovation and connectivity of hunter-gatherer groups in Europe.

The edited volume “Palaeolithic Italy” aims to contribute to our better understanding of the previous, still open, research questions. This will be achieved by presenting the latest advances in Palaeolithic research in Italy due to the application of a variety of modern analytical methods and cutting-edge techniques when studying numerous collections of materials from both old and new excavations as well as the latest results of field research in the country. The volume is intended for the international academia, representing a key reference for all archaeologists and readers interested in Early Prehistory of the Mediterranean region.

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