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Landscape Processes, Taphonomy and the Reconstruction of Tomb Architecture and Mortuary Practices at Protohistoric Crustumerium (Rome)

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Introduction

This paper takes into account all factors that affected the preservation of tombs and their inventories in the burial grounds of ancient Crustumerium, a Latin settlement 13 km north of Rome, inhabited between the 9th and 5th c. BC[1] (Fig. 1A). Its aim is to highlight the combined effect of two main processes;

a) the severe erosion of the topsoil and the underlying soft volcanic bedrock caused by centuries of ploughing that has profoundly affected the preservation of tomb architecture, i.e. landscape processes;

b) post-depositional processes affecting organic materials (wood, textiles, human bone) and inorganic materials (pottery, metal) in the tombs as a result of flooding, collapse and the acidity of the soil, i.e. taphonomy.

The burial grounds at Crustumerium are characterized by different tomb types that over time were affected by these processes in different ways. Preservation of both organic and inorganic materials depended primarily on whether the funerary space was filled with soil immediately after burial had taken place, as in the case of Iron Age trench tombs, or was left empty of soil, as in the case of chamber tombs. In addition, we found that, due to local variations in the quality of the local bedrock, there were considerable differences in the degree of preservation among tombs of the same type. Recording and understanding this range of factors affecting the preservation conditions within tombs is fundamental for the reconstruction of Crustumerium's original tomb architecture, tomb inventories and the eventual interpretation of the mortuary practices at the site.

The settlement of Crustumerium and the burial grounds surrounding it, are located on a complex of dissected low hills next to the Tiber river plain at 90 to 120 m above sea level. The hills consist of a thick series of pyroclastic volcanic rocks, largely originating from the Sabatini volcanoes, that overlie prevolcanic fluvial deposits[2]. The volcanic rocks range from well-consolidated tuffs, mostly ignimbrites, formed by glowing avalanches or pyroclastic flows to loose ash fall deposits. In the Crustumerium area, the latter type of deposits prevail over tuffs, due to Crustumerium's rather distal position relative to the volcanic regions of the Monti Sabatini and Alban Hills. The porous tuff rock weathers easily, giving rise to the development of the typically reddish brown top soils found at Crustumerium and in its surroundings. After the settlement's abandonment around 500 BC, these soils were subject to substantial erosion due to two main cycles of intensive ploughing. One occurred during the Roman period, from the fifth century BC to the fifth century AD; the other is linked to the post-First World War period when heavy machinery was used to deep-plough the soils, resulting in subsoil disruption and massive surface transport. Our knowledge of landscape and archaeology is the result of multidisciplinary research conducted since 2001 by Italian, Dutch, Finnish and German researchers. Such research was accelerated by an extensive collaboration between

1 See for a general introduction, Crustumerium 2016. According to the ancient sources, Crustumerium was from its very start under the influence of Rome until it was conquered by the Romans around 500 BC after which its lands were added to the Roman territory to form the first tribus rustica around 495 BC. After this date the settlement was abandoned.

2 On the geology of Crustumerium, see Sevink et al. 2020.

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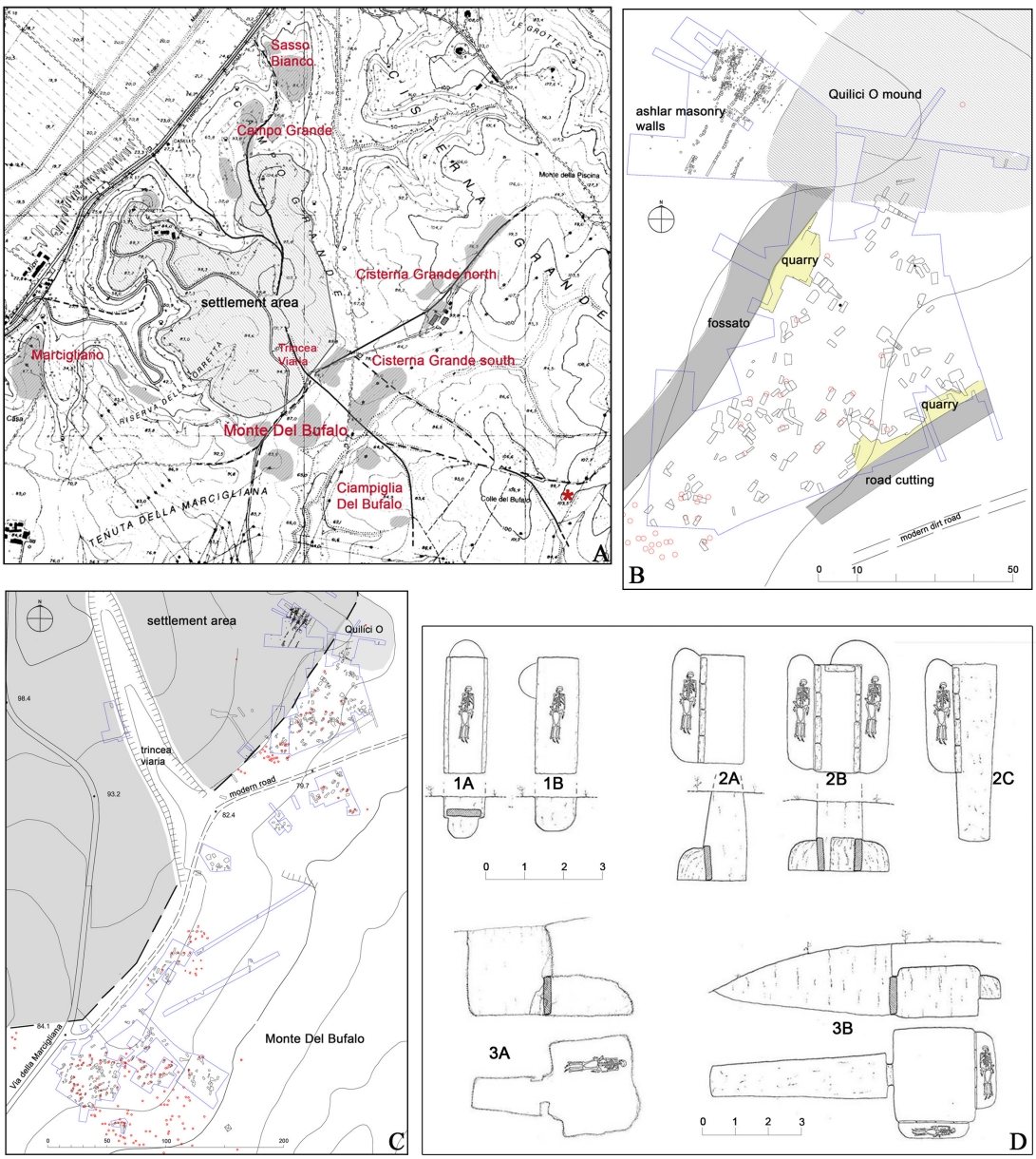

Fig. 1 – A) Crustumerium: distribution of the burial grounds around the settlement area; B) Map of the Monte Del Bufalo burial ground; the red dots indicate the robbers' pits; C) Map of the North-Eastern district of the Monte Del Bufalo burial area and the settlement's infrastructural works; D) Orientalizing architectural tomb types documented at Crustumerium: trench tombs with an axial (1A) or lateral (1B) niche; loculus tombs with a shaft (2A-B) or a corridor (2C) entrance; chamber tombs with a shaft (3A) or dromos (3B) entrance.

the Soprintendenza Archeologica di Roma and the Groningen Institute of Archaeology, within the People and the State research project[3].In the latter project, the effects of landscape changes were studied on the landscape scale covering the settlement, the surrounding burial grounds and the rural landscape, but in a general way. In the framework of the present paper, we concentrate in greater detail on the burial grounds of Monte Del Bufalo. Here, ca. 400 tombs, partly robbed and partly intact, have been documented since the first formal excavation in 1987. The tombs cover Latial periods IIB2 to the end of the Archaic period. In the Early Iron Age, the Monte Del Bufalo cemetery contained simple trench tombs dug only shallowly into the bedrock. In the Orientalizing period, more architecturally elaborate, and at times very deep tombs occur, either with a niche for the grave goods or with a loculus holding the deceased as well as the grave goods. These tombs were accessible through a deep rectangular shaft. Around 630 BC, chamber tombs were introduced that remained in use throughout the Archaic period[4]. In the next two paragraphs, we first comment on the effects of landscape erosion on the funerary landscape, discuss the differential preservation of the tomb types mentioned, and look at natural post-depositional processes active within the tombs. After that we will discuss what can be said about treatment of the body based on osteological observations, objects and the funerary space, despite the adverse natural conditions for their preservation. Finally, we will look into evidence for human-induced post-depositional changes in tombs and for post-funerary mortuary practices.

Landscape erosion and the reconstruction of the burial ground

Erosion on account of agricultural activities has substantially changed the morphology of the funerary landscape of the Monte Del Bufalo burial ground. The overall effect is evident from plough scratches in the bedrock directly below the plough soil and particularly from the exposure of the lower parts of originally much deeper tombs. Based on our observations, we estimate that the tuff bedrock in some places may have been lowered by up to 2 m. Plough erosion will therefore have erased all above ground tomb architecture that remained in the landscape after Crustumerium's abandonment, like earthen mounds and grave markers. It will also have erased paths and fences that once marked the boundaries of the burial ground and the tomb clusters of family groups within them. From our recent excavations of a huge artificial mound present in the Monte Del Bufalo burial ground, erected around 500 BC (for its location see Fig. 1B), we know that small mounds, in Italian 'tumuletti', existed. The huge mound has uniquely preserved part of the original funerary landscape showing how individual Early Iron Age tombs were protected by small heaps of soil overlapping each other (tumuletti), and how tombs were marked by heaps of selected stones, or were fenced. The use of proper grave markers made of tuff is documented from the Early Iron Age by scattered or reused exemplars: several of these have been found in the fills or closing systems of graves in the Monte Del Bufalo burial ground. How the Monte Del Bufalo burial ground may have been spatially articulated can be gleaned from the burial grounds at nearby Fidenae offering a good parallel from a contemporary cemetery[5].

At Crustumerium, the distribution of tombs, shown on the overview map, highlights empty strips of soil in between clusters of tombs (Fig. 1B–C). In the case these empty strips

3 See Attema – Bronkhorst 2020. The inhabited area was systematically surveyed and investigated with geophysical methods and by trial trenches. This showed that features only survive when cut in the bedrock well out of reach of the plough or if covered by colluvium, accumulated in valleys or at the foot of the slopes. Examples of preserved negative features are the broad and deep fossato defending the Southern side of the settlement, the main access road going up the urban plateau on two opposite sides and a number of V shaped ditches that were part of the drainage system of the settlement, and quarries. Direct evidence of buildings inside the settlement area has rarely been encountered even though domestic pottery and roof-tiles abound.

4 For a recent overview see Belelli Marchesini 2020.

5 The evidence consists of three aligned trench tombs from the Orientalizing period included in a circle of tuff chunks (di Gennaro 2006, 231). For an overview of the delimitation of pre-Roman tombs and burial areas in Italy, see Della Fina 2015.

acommodated paths and trees, all traces thereof will have been lost. The alignment of tombs and the distribution of tomb clusters in delimited burial areas does, however, suggest that a division of the burial ground into lots was implemented already at an early stage. There are two reasons why we can assume that the small groups of Orientalizing and Archaic tombs that we have documented were fenced. Direct evidence is formed by the presence of slightly curvilinear slabs found in the fillings of later tombs. These slabs were originally placed upright and embedded in the soil. They would have lined a family's funerary property[6]. Such properties would have grown overtime. To groups of initially two to three early tombs, others were added, often cut at different depths. Eventually, chamber tombs, potentially accommodating several generations, were added, filling up the area of a family's property that, being a restricted space in between other clusters, could become fully occupied and used.

While the physical traces of the more subtle infrastructural elements can only be reconstructed hypothetically, we have good archaeological evidence for the presence of major contemporary infrastructural works in the burial ground cut deeply into the bedrock. Geophysical prospections and excavations brought the course of the defensive ditch (fossato) of the settlement to light, that formed the boundary between the settlement and the burial grounds, as well as roads linked to the settlement's main access road (Fig. 1A). Excavations in 2013 produced evidence for the presence of a hollow road, dividing the Monte Del Bufalo burial ground in two large districts that were subdivided into smaller areas, as described above (Fig. 1B) [7].

Factors accounting for differences in the preservation of tomb types at Crustumerium

In addition to plough erosion, illicit excavation is another factor in the degree of preservation of tombs at Crustumerium (Figs. 1C, 2A). The combined effect has had consequences for half of the tombs, with erosion responsible for about one-fifth of the cases. Erosion especially affects the Early Iron Age tombs as they are rather superficial trench tombs (Fig. 2B). The small number of them, so far 28 in total, is partly the consequence of these adverse circumstances. Many of the tombs have been ploughed out. However, we must also keep in mind that not all members of the community were entitled to a formal burial in this early period of the burial ground. For the subsequent Orientalizing period, the effect of erosion on the preservation of the tombs is variable due to the different depths to which tombs may be preserved. In the case of the shallower Orientalizing trench tombs, the niche for the pottery may be exposed while the closing system and pottery itself may be ploughed out. In the case of loculus tombs, erosion may have completely removed the ceiling of the loculus (Fig. 2C) and damaged its closing slabs. Damage by erosion and illicit excavation may result in misunderstandings about tomb architecture and chronology[8].

The floors of some Orientalizing tombs were found very near the bedrock surface, only just preserving human skeletal remains and grave gifts, while others were very deep, up to 4 m below the surface. We do, however, acknowledge the fact that differences in depths of the tombs in the Orientalizing period may also reflect the fact that tombs were originally dug to different depths. This is often attributed to variable investments in labour expenditure[9], since tomb architecture was a way to express wealth and social power. We think, however, that pragmat-

6 Such slabs may have been used for encircling the burial area as well as for supporting a tumulus.

7 Noorda – Attema 2020, 77–82.

8 This is the case with interpretations of robbed loculus tombs, that may appear as a couple of parallel trench tombs divided by a dry masonry wall; on the other hand, in case of the loss of the niche for the pottery, trench tombs may be considered late examples of tombs lacking a grave inventory.

9 For the estimation of energy expenditure in the digging of loculus and chamber tombs, see Willemsen 2014, 163–167.

Fig. 2 – Effects of ploughing and illicit excavation on the preservation of tombs: A) Filling of a robber's pit (black spot) cut through the trench tomb MDB 268; B) The ploughed out Early Iron Age male tomb MDB 339; C) The male loculus tomb MDB 377, once provided with a ceiling, but eroded to the level of the deposition.

ic considerations may also have played a role. The first consideration is the variable quality of the bedrock caused by the possible stratification of several inclined layers of different hardness. This stratification can change from one place of the burial area to the other over quite small distances. Gravediggers would excavate down until they cut through a hard and compact layer that could serve as a safe ceiling while carving the underground loculi or chambers in the softer layers below. A second consideration that would have played a role was an efficient exploitation of the spatially limited burial areas, prompting gravediggers to cut tombs at different depths to avoid mutual damage, as for instance in the case of elaborate loculus and chamber tombs. These digging principles provided the necessary stability to the underground and the above ground funerary environment and thus are essentially safety measures. Differential preservation of tombs was also dictated by landscape morphology, since plough erosion may have levelled originally undulating terrain. This explains why we may come across very deeply and very shallowly preserved tombs of the same typology at only a short distance from each other. Finally we note how erosion of the bedrock may provoke the collapse of the ceiling of chamber tombs, filling up the funerary space in areas where the bedrock on top becomes too thin to withstand the weight of agricultural machinery.

Natural post-depositional changes in tombs/funerary contexts of the different periods

In this section we look at post-depositional processes affecting the preservation of the human remains and artefacts in the tombs at Crustumerium. The friability of the volcanic rock and the acidity of the soil are the main causes for the poor preservation of the human skeletal remains, the organic materials, such as wood and textiles, and the metal and ceramic artefacts. We will discuss the adverse effects for the prevailing tomb types of the Early Iron Age, the Orientalizing period and the Archaic period respectively. For each period, we give a description of the tomb type and present examples of post-depositional changes.

Early Iron Age tombs are shallow trenches of small dimensions, sometimes roughly cut into the topsoil and only slightly deepened into the bedrock. Depositions are accompanied by no more than five to six pottery shapes that are found along and on top of the skeletons. The poor preservation of the body and the preservation of these tombs in most cases makes it difficult to arrive at a full reconstruction of the original burial context. Sometimes we find alignments of small tuff chunks on the sides and on top of the deposition, suggesting intentional filling of the trench and delimitation of the deposition within the grave. In general, traces of organic remains are rarely preserved and the main information about the treatment of the body and the tomb structures must derive from osteological analysis.

Tomb MDB339 is an example of a badly eroded trench belonging to a man aged 25–35 years and buried with a dagger and a spearhead (Fig. 2B). Pottery items had been almost completely ploughed out. The skeleton is incomplete and is not articulated, but its transverse compression suggests that the body most probably had been wrapped in a sudarium. The spread out position of the bones indicates that decomposition happened in an empty space, so the body had not been covered with earth. Additionally, there are no traces of a wooden container. In this case, we may assume that the trench had been protected with wooden boards and covered up with a heap of soil or tuff chunks, based on the evidence from other cemeteries in Latium.

Orientalizing tombs have a more complex architectural layout compared to the Early Iron Age tombs and the natural erosion of the bedrock plays an important role in the preservation of funerary contexts. We discern two types: loculus tombs and trench tombs.

Loculus tombs consist of a shaft and a lateral loculus, or sometimes two loculi in lateral position (Fig. 1D: 2A–B). It is an architectural model adopted from the Etruscan and Faliscan areas. The loculus houses both the deposition and the grave inventory and is carefully closed off from the shaft by means of upright slabs or blocks (Fig. 2C) that lean against the vertical wall of the shaft. The corpse and artefacts in

Fig. 3 – A) Loculus tomb MDB 349 with partially preserved ceiling housing a male deposition once inside a tree-trunk; B) Example of a loculus tomb eroded to the level of the closing slabs; cracks in the bedrock indicate a collapsed ceiling; C–D) Closing system and deposition of the Orientalizing trench tomb MDB 365, provided with a niche for the pottery.

Fig. 4 – A) Interior of chamber tomb MDB 321 with a collapsed ceiling causing the displacement of the human bones as well as of the rooftiles that originally closed the lateral loculi; B) Detail of a deposition from the same tomb.

this open space undergo the combined effects of flooding, which causes displacement of the artefacts from their original position, and the formation of clay deposits embedding them. As with niches, the flaking and progressive collapse of the ceiling of a loculus (Fig. 3B) affects the stability of the closing system and allows substantial infiltration of soil from the shaft.

As a rule, the shafts were probably completely filled after the burial, since this tomb model is usually meant for individual depositions. There are a few examples of tombs where shafts have been reopened for an additional loculus on the opposite side of the shaft. In some cases we have evidence for grave markers and huge tuff chunks at the bottom of the filling that, combined with the tapering section of the walls of the shaft, suggests that some of them were left empty and were covered at ground level with wooden platforms surmounted by stones and soil. So far we have not performed specialised soil analysis to confirm such a hypothesis. The tombs were definitely marked and visible at ground level, since they rarely cut each other, even when closely packed. In some cases shafts appear to have been partially reopened and used as trenches for subsequent depositions of members of the same family. Human skeletal remains are very poorly preserved and often only a thin black layer survives, suggesting that the bodies were placed on a wooden bier or buried inside a tree-trunk (Figs. 2C and 3A); clear evidence of tree-trunks and lids is however exceptional. The use of wooden coffins was rare since only two Orientalizing tombs yielded iron nails.

In the earliest *Orientalizing trench tombs* we find that corpses often must have been buried in tree trunks and that the floors of the trenches were sometimes deepened to accommodate the deposition. The latter was protected by horizontal slabs held in place by a lateral indentation of the walls of the tomb or by tuff chunks (Figs. 1D:1A and 3C–D); in later tombs the protection of horizontal slabs is missing. Niches for the pottery are mainly carved on the short side of the trench and beyond the head of the deceased and less frequently on the long side and beside the head; they are closed off with tuff blocks or chunks, sometimes resting on the deposition itself. The cracking up and subsequent collapse of the horizontal slabs and the closing system of the niche may severely damage the skeleton. Damage to the artefacts in the niche is caused by the flaking and collapse of the ceiling, followed by infiltration of ground from the trench's filling. Throughout the Orientalizing and Archaic period a few simple trench tombs are documented in the cemetery.

In *chamber tombs* damage is mostly caused by erosion of both the ceiling and the entrance wall, causing collapses (Fig. 4A), flooding and infiltration of soil from the filling of the entrance, at Crustumerium either a shaft or (stepped) dromos. Major collapses occur when chambers are excavated below earlier tombs. Where depositions inside loculi are sometimes disturbed by the collapse of the closing system (Fig. 4B), the preservation of depositions on the floor are directly affected by post-depositional events. The corpses found in chamber tombs also appear to have been wrapped in sudaria. Scanty traces of dark soil suggest that the burials on the floor of the chamber were placed either on wooden biers, that may have been used to transport the bodies, or inside tree trunks. In the Archaic period, we have a possible example of a wooden bed supported by tuff props. Fragments of iron nails suggesting the use of coffins have been found in one tomb only.

The osteological analysis of the human remains presented below provides further insight into the conditions under which burial took place (in an open or filled space) in the various tomb types discussed. Such a discussion requires an analysis of the taphonomical processes affecting the preservation of the human bodies in the tombs of Crustumerium.

Taphonomy and human skeletal remains

The preservation of human skeletal remains at Crustumerium depends on the funerary environment and architecture of the different periods and is affected by various factors. Above, we have already discussed to some extent the circumstantial evidence for the use of sudaria

Fig. 5A

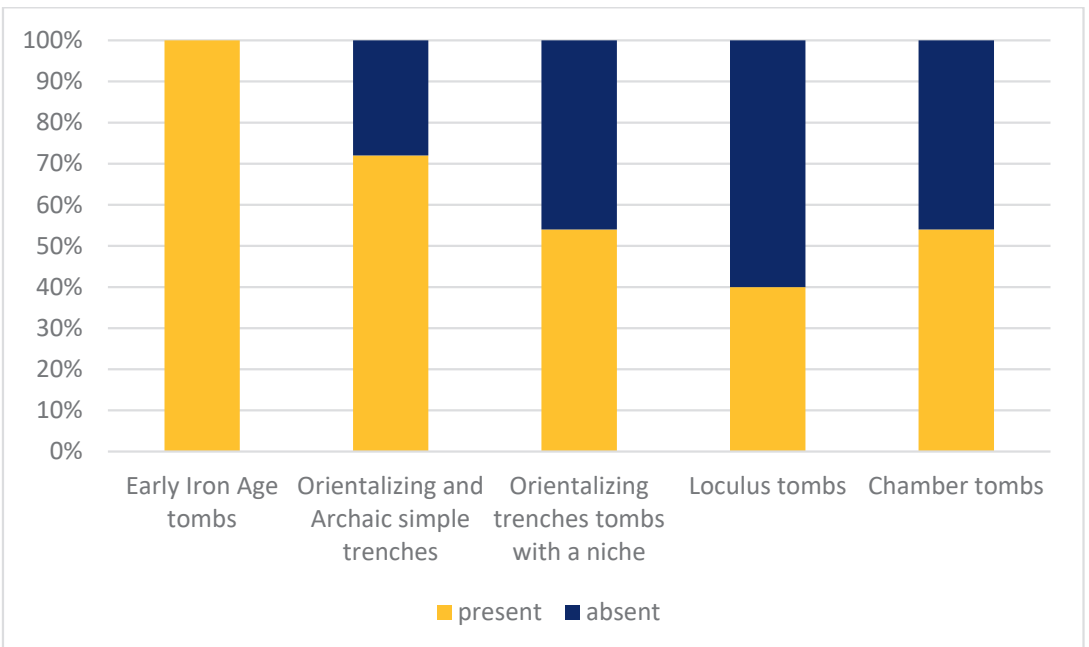

Fig. 5B

Fig. 5 – Osteological analysis: A) State of conservation of bones; B) Evidence for shrouds.

to wrap the body, and oak trunks and coffins to contain the deceased. We also mentioned the use of biers placed on the floor in the context of chamber tombs and loculi closed off by tiles. Here we go further into the topic of the treatment of the body of the Early Iron Age, Orientalizing and Archaic periods, with a focus on the osteological remains. We take into account a sample of 164 depositions for which we have comparable excavation and laboratory data. The depositions belong to 127 tombs from the North-Eastern part of the necropolis, next to the artificial mound labelled site QO (Fig. 1B). These tombs are currently being prepared for full publication. They were excavated between 2008 and 2017 and date to between Latial period III and the 6th century BC[10].

The poor preservation of the skeletal remains may be ascribed to three different types of processes; physical, chemical and biotic. Physical degradation processes acting on the bone cause micro cracking and fragmentation due to pressure exerted by sediment weight, exposure of the bone to atmospheric agents (water) and variations in temperature. The chemical damage is especially evident from the dissolution of the cortex of the bone, generally in line with the characteristics of the sediment (such as pH of the soil and drainage patterns). Lastly, biotic degradation, caused by plants, animals or humans is evident from heterogeneous traces having both physical and chemical characteristics. For example, fungi and bacteria dissolve calcium phosphates (chemical process) and at the same time produce microlesions causing erosion (physical process).

While the preservation of the skeletal remains in the tombs of Crustumerium is poor across all periods, the degree to which they are preserved is heavily influenced by the type of funerary architecture that forms the environment of the body's decomposition (i.e. filled or empty space). The classification of the state of preservation to which we refer in fig. 5A is comprised of four evaluation levels of the condition of the bones upon excavation[11]: good (intact bones, measurable without restoring), mediocre (partly deteriorated epiphysis and/or fractured bones, some of them measurable after restoring), bad (all deteriorated epiphysis and/or fractured bones, only occasionally measurable after restoring), very bad (the bones fall apart during removal).

According to the taphonomic markers recognizable on the bones, it can be concluded that the decomposition of all the depositions in the sample from the Early Iron Age to the Archaic period took place in an empty space; with the exception of six simple trench tombs[12]. Lacking any form of grave inventory, these tombs are datable between the late Orientalizing and the Archaic period (or even later) and likely pertained to individuals of low social status.

The generally very bad state of preservation of the depositions in empty space in the loculus tombs and chamber tombs (Fig. 5A) is primarily caused by the crushing and subsequent fragmentation of the human remains caused by the collapse of the ceiling of the structure and / or the exposure of the bones to natural agents, such as flooding, roots and animals.

Another factor to be considered is the presence of wooden structures (biers, but also stretchers that may have been used for transport of the body and as a support base for deposition) that, in combination with high humidity, favoured the proliferation of micro-organisms (fungi and bacteria) having negative influences on the physical-chemical composition of the bone tissue.

The presence of wooden containers, largely tree trunks, is putatively responsible for the loss of 22% of the depositions in the trenches of the Early Iron Age and the Orientalizing period: progressive wood rot would provoke the collapse of the sediment on top, causing the crushing and the fragmentation of the bones.

In the few aforementioned examples of simple trenches attributed to the most recent phas-

10 Depositions have been divided according to funerary architecture and chronology as follows: Early Iron Age trench tombs (5); Late Orientalizing and Archaic simple trench tombs (12); Orientalizing trench tombs provided with a niche for the pottery (43); loculus tombs (63); chamber tombs (40).

11 Canci –Minozzi 2015.

12 MDB tombs 253, 261, 265, 285, 315, 393.

es of the necropolis, the slightly better physical-chemical condition of the bone is due to its decomposition in a filled space: the deceased were directly covered with soil that, in spite of the latter's high acidity, did not lead to the formation of a humid environment damaging the conservation of the skeletal remains.

Despite the bad preservation of bones, it is possible to state that bodies were usually buried in a supine position. An exception is the lateral and crouched position of the male individual in Tomb MDB 265, lacking a grave inventory and probably dating to the latest phase of the preroman burial ground.

The use of bandages or shrouds to wrap the deceased (Fig. 5B), which happened to individuals of both sexes and all age classes, is recorded in all of the tombs of the Early Iron Age. This custom is also widely attested in the tombs of the Orientalizing period, although it occurs somewhat less in loculus tombs (40% of cases).

In what concerns the type and mode of deposition, all of the excavated tombs contain primary burials, according to the definition of Duday[13], which states that a deposition is primary when the burial of the corpse takes place immediately after death on the spot of the definitive deposition. Shifting and displacement of skeletons is almost always caused by natural phenomena (e.g. flooding, collapse of the structure). While for the earlier period we exclusively deal with individual burials, collective burials are documented from the second half of the 7th century BC. These not only include family tombs but also a few individual loculus tombs (three examples). Only in seven cases has human manipulation of skeletal remains been recorded, which was done to create space for new depositions[14]. So far not a single tomb seems to have been desecrated in antiquity.

Human-induced post-depositional changes in tombs and post-funerary mortuary practices

In the case of individual tombs that were closed after burial and not meant to be reopened, we do not assume intentional human induced post-depositional changes to have occurred due to manipulation of human skeletal remains or objects and/or addition and displacement of objects and skeletal remains. Indeed we have no indications for post-burial and/or ritual post-mortem practices in individual graves. In the case of the Orientalizing tombs with two lateral loculi, we must assume that the shaft had to be reopened to carve out, or get access to an already carved out, second loculus. Chamber tombs intended for multiple generations – at Crustumerium there are also single-individual chamber tombs – do have evidence for human-induced post-depositional change. In general, the funerary space is fully used by placing depositions both inside the loculi and on the floor, and we have recorded a few cases of manipulations of bones or the use of loculi for multiple depositions. Regarding the architectural layout, changes such as the addition of loculi are not easy to document because of the scant preservation of tool marks due to the erosion of the walls. One such example is the large Archaic chamber tomb MDB 378, which has a small loculus in the back. Three female depositions were placed on the floor, while the loculus accommodated the subsequent depositions of two women and two men, alternately oriented and slightly displaced to free up space for another corpse.

Finally, we make a remark on contemporary rituals and post-mortem manipulation of the funerary landscape. We expect funerary processions to have taken place from the settlement to the cemeteries during all periods discussed. During the Orientalizing period, these must have been quite ostentatious, given the fact that some tombs contain many objects, a large part of which point to practices of communal drinking (the so-called circumpotatio ritual) but do not contain intentionally broken pottery hinting to ritual funerary ceremonials. However, we have no material evidence that

13 Duday 2006.

14 MDB tombs 108, 257, 321, 378.

such practices took place around the tombs. While landscape taphonomy may play a role here, we would, if such practices were common, expect a signal in the plough soil in the form of surface ceramics or ritual pits in our open area excavations.

One major intervention in the funerary landscape, however, needs to be mentioned here. At some point in time, when chamber tombs were already common at Monte Del Bufalo, a significant part of the burial ground, just outside the then still existing defensive works, was covered up in layers of soil. These layers were first put on the overlapping 'tumuletti' of the Early Iron burials at the same time covering the entrances of later Orientalizing and Archaic tombs. The resulting artificial mound, site QO already described above (see fig. 1B), also came to include part of various phases of the defensive earthwork (agger) and the defensive ditch. This intriguing instance of the manipulation of an apparently meaningful part of Crustumerium's funerary landscape is currently under study[15]. The intentional preservation of the original funerary and defensive landscape in the past, suggests that the location had ritual and commemorative connotations for the community living at Crustumerium before the mound was transformed in what we, on account of the presence of walls in the highest archaeological stratum, believe was a defensive bulwark erected in the very last phase of the settlement's existence.

Conclusion

At Crustumerium, landscape taphonomic processes, especially due to deep-ploughing have had a serious impact on the preservation of the funerary landscape and have resulted in the almost total erasure of above ground articulation of tombs in their setting, such as mounds, fences and paths. Major access roads, however, escaped destruction since they were constructed in adapted natural depressions in the terrain. Geophysical mapping and excavation have shown that these roads, including lateral drainage ditches dug into the bedrock, are well preserved. These roads delineate the Monte Del Bufalo burial ground into districts that in themselves were articulated in clusters of tombs with intermediate empty spaces that likely accommodated paths. Tombs were indicated at ground level by mounds, stone fences and grave markers. We found that the preservation of the tomb architecture itself is variable and dependent on tomb type, location in the burial ground and the variable quality of the bedrock. In this scenario, Early Iron Age tombs and their contents are the most vulnerable. Despite adverse circumstances, such as collapse, flooding and acidity of the soil, the large sample of excavated tombs at Crustumerium supports an increasingly detailed reconstruction of the original funerary landscape, the architecture of the tombs through time, as well as the prevailing mortuary practices in relation to the treatment of the body and nature and function of the grave gifts. Regarding the human skeletal remains, we conclude on the basis of a large sample that the conditions at Crustumerium do not favour their preservation due to a combination of natural agents, which were especially active when bodies had been deposited in empty spaces. Nevertheless, the careful recording of the articulation of remains *in situ* by osteologists and the interpretation of the influence of taphonomic processes has resulted in useful observations on and reconstructions of the original position of the body, the possible shrouding or bandaging of the body and the presence of tree trunks, or wooden casings in which the body had been placed, or the presence of biers or other supports on which the body had been placed. While an understanding of the various landscape processes, taphonomy and human manipulations influencing the burial record is key to the reconstruction of the initial actions taken by the community members of Crustumerium to provide an individual with a proper burial, the study of such processes also leads to insights in the transformation of the settlement's burial grounds through time. In the final part of our paper we pointed to the erection in the Monte Del Bufalo burial ground of a huge artificial mound that appears to rep-

15 Site QO was partly excavated in the field seasons of 2014–2018.

resent such a transformation, currently under study. We may conclude this paper with a question that merits further study: how visible and significant were the remains of Crustumerium's burial grounds to the peasants belonging to the tribus clustumina who settled Crustumerium and its countryside in the Republican period after Crustumerium had been abandoned and the burial grounds were left? To what degree were the burial grounds respected?

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