

**DIFFERENTIAL BURIAL TREATMENT OF NEWBORN INFANTS FROM LATE ROMAN AGE.
CHILDREN AND DOGS DEPOSITIONS AT *PELTUINUM***

Introduction

The publication of the significant contribution “Farewell to paleodemography”¹ has marked the beginning of a long period of debate and reflection on the effective reliability of the paleodemographic estimates derived from skeletal populations of archaeological contexts. Among the major limitations of these analyses, the Authors point to the constant phenomenon of the underrepresentation of subadults skeletons. In fact, despite the reference models for pre-industrial populations foresee an infant mortality ranging from 30% up to 70%², the necropolises very rarely yield these percentages. Several casual factors are responsible for this phenomenon, such as the lower grade of mineralization of the growing skeletons³, post-depositional processes, partial excavations and recoveries of the skeletal material; but the key role is played by the cultural choices involving different funerary rituals – in terms of burial typology and location – for the infants than the general population. As stated by Lewis “the absence of infant remains from cemetery sites at different periods is probably revealing more about their status within the society, rather than their ability to *dissolve in the ground*”⁴. Thus, the very same deviations from the expected mortality pattern which appear to undermine the credibility of paleodemographic estimates, together with the recovery and in depth analysis of infants from non-normative burials, can serve as an invaluable source of evidence of past social behaviors and systems of thinking, on personhood and on social age definitions, as reflected by funerary practices⁵.

In this paper we present a new case of an atypical funerary treatment of a large number of human neonates from the Roman town of *Peltuinum* (Abruzzo, Italy). The recent excavations of the theatre⁶ have yielded numerous remains of human fetuses and newborns. The human skeletons were found associated with the remains of dogs and other domestic animals inside the shafts used to operate the stage’s curtain.

The archaeological site

The archaeological context of the deposition of infants associated with dogs is the theatre of *Peltuinum*, a Roman town of the central Apennines (*Fig. 1*). Since pre-Roman times the plateau, where the city is located, was used as a strategic resting stop for sheep moving from central Italy (*Sabina*) to North *Apulia*. The city was founded

¹ BOCQUET-APPEL, MASSET 1982.

² WEISS 1973; COALE, DEMENY 1983.

³ GUY *ET AL.* 1997.

⁴ LEWIS 2011, p. 4.

⁵ HALCROW, TAYLES 2008.

⁶ MIGLIORATI 2013.

in the middle of the First Century BC exactly with the purpose of managing and controlling transhumance revenues. This is the reason why few zones of the plateau were left undeveloped, free for flock resting; therefore we may define *Peltuinum* as a business center. Its specific origin has heavily contributed to its abandonment in the Fifth Century AD, when a violent earthquake struck the city. Public buildings started being dismantled serving as quarries of building materials for churches, forts and new small towns of the neighborhood.

Therefore, as well as the temple, the theatre was dismantled, though not completely. Throughout several centuries the events led to a division of the building into three areas of different use: 1. the northern half of the theatre was better preserved as it became the deposit of unusable debris which covered a few steps left in the lower part of the *cavea*; 2. in the XIVth century, after the complete removal of the remaining steps, a row of rooms related to the building demolition and material reuse was installed in most of the southern part of the theatre; 3. in the Middle Ages a sight fort was installed on the very southern part of the theatre to control the valley to the south of the plateau (*Fig. 2*).

The consequence is that, as to the performance area, only part of the stage and of the foundation of the stage building are left, but it's still visible the working system of the curtain, which was dropped at the beginning of the performance and lifted at the end. So the curtain was rolled up from below by means of wooden poles set inside the shafts at the foot of the stage frontage; the mechanism to move the curtain was worked from a side chamber by a winch (*Fig. 3*).

In *Peltuinum* the shafts are seven: most of them (I-IV and partially V) – in area 1 (see above) – were covered by the building debris and the archaeological layer gave materials related to the date of the earthquake (*Fig. 4*). The shaft VI was partially voided and then resealed in the XIVth for the flooring of one of the rooms of the building yard (*Fig. 5*). The shaft VII hasn't been excavated yet. All the shafts measure cm 85 x 55 and have a depth of 3 m (*Fig. 6*). As mentioned before, the excavation yielded numerous human and faunal skeletal remains, besides the theatre building materials; but the events involving the shafts have influenced their contents and stratigraphy. Moreover it's to underline that the shaft has been excavated in the Nineties of last century and we have no data about the content.

Contents of shafts II-IV have been disturbed by the weathering through the layers of earth and building materials which covered them; besides, it was very difficult to excavate inside the shafts, due to the extremely limited working room and the depth finally reached, but also because the rainwater had turned the silty ground filling the shafts into mud.

On the contrary, shaft VI was protected inside the room and this helped a better preserving of the content, at least since the XIVth century. The stratigraphy suggests the possibility of a partial excavation of the shaft during the construction of the building yard and a subsequent filling for making a flat surface to floor the room; ceramics found are majolica fragments we can date between the end of the XIIth century and the first half of the XIVth. As in the other shafts, the deeper layers contain skeletal remains of infants, dogs and other animals.

Archaeozoological analysis

The archaeozoological analysis conducted so far evidences the presence of thousands of faunal remains within the 4 shafts. All bones and teeth are attributable to domestic species. Among them, the dog is the most frequent species, with more than fifty individuals, followed by a reduced number of cattle and equids, and an even smaller quantity of pigs, sheep, goats and cats. The dog skeletal elements are in a good state of preservation. Long and short bones are mostly complete, while vertebrae and ribs are incomplete and fragmented. The number of remains (NISP) and the minimum number of elements (MNE) of the main limb long bones suggest the introduction of whole skeletons of dog into the shafts. The age-at-death profile of the dog sample reveals the presence of puppies (neonates and fetuses), few young and young adults and a large number of adults. For the adults, the comparison of bone measurements evidences the presence of dogs of different sizes (from small to large ones) (*Fig. 7*). The individuals identified are both males, recognized by the discovery of several *os penis*, and females, some of them probably pregnant, as the presence of several fetuses suggests. The data of shafts II and III will be presented here (*Tab. 1-2*), while the faunal remains from shafts IV and VI are currently under revision⁷.

TAXA	Shaft II		Shaft III	
	NISP	MNI	NISP	MNI
<i>Equus sp.</i>	4	2	4	2
<i>Bos taurus</i>	11	2	6	1
<i>Ovis/Capra</i>				
<i>Sus scrofa dom.</i>	3	1		
<i>Canis familiaris</i>	1192	18	614	9
<i>Felis catus</i>	3	1		
Unidentified	121		39	
Total	1334	24	663	12

Tab. 1. Species distribution in shafts II and III of *Peltuinum*

<i>Canis familiaris</i>	MNI	Fetus/Neonate	Young	Adult
Shaft II	24	7	3	14
Shaft III	9	1	3	5

Tab. 2. Dog age distribution in shafts II and III of *Peltuinum*

The faunal remains recovered from shaft II are 1,334. Most of them (1,192 elements; 89% of the total) are distributed in all three stratigraphic units (UOSS 856-859-

⁷ FIORE ET AL. 2013.

881). The estimate of the NISP and the MNI revealed a total of 18 dog individuals: 7 fetus/neonate, 3 young and 14 adults, among the latter there are at least 4 males. There is a clear evidence that one individual was intentionally killed: its skull shows a *perimortem* fracture on the frontal bone above the right orbit and another one on the nasal bones. Moreover, in the upper layer of the shaft (US 856), 100 bone elements (from different skeletal parts), pertaining to a single adult dog of medium size, have been recognized. This evidence suggested the deposition of this dog with a possible function of closure or guard of the content below it. The elements from other domestic animals such as cattle and equids, as well as, (but more rare) pig and cat, come only from two of the three stratigraphic units and represent about 2% of the remains, with 1-2 individuals per species.

Shaft III (US 822) yielded 663 bones/teeth. The majority of the remains (NR-number of remains-614; 92%) are attributable to dogs; while only 2% to cattle and equids. The latter represented by two skulls, a mandibular fragment and a femur. Dog bones pertain to 9 individuals: 1 neonate, 3 young and 5 adults.

On the whole, the archaeozoological analysis allowed defining a similar faunal content across the four shafts, mainly consisting of complete skeletons of dogs of different sizes and ages, and of a smaller number of other domestic *taxa*, with variable degrees of completeness. It is also important to consider that the estimated volume of the animal portions or whole bodies (together with that of the human infants) exceeds the volume calculated for each shaft. This evidence points towards the hypothesis that the depositions were not simultaneous, but a certain time elapsed between them. Ongoing studies will aim not only to a detailed analysis of the shafts IV and VI, but also to gather more evidence for the interpretation of the role of the domestic fauna in this particular funerary context and the timing and method of deposition of the various individuals.

Anthropological Analysis

The human skeletal remains consist of clusters of bones commingled by post-depositional complex dynamics. Only few skeletal portions were found in anatomical connection and relating to single individuals. The anthropological analysis was therefore aimed at estimating:

- a) minimum number of individuals within each shaft, by counting the omolateral elements;
- b) age-at-death of the identified individuals, through long bones length, size of scapula, skull and pelvis elements⁸; stages of teeth formation and eruption⁹; histomorphological analysis of teeth enamel¹⁰.

Five deciduous teeth were recovered from different individuals: 1 mandibular lateral incisor, 1 maxillary central incisor and 3 maxillary lateral incisors. Four teeth present

⁸ FAZEKAS, KOSA 1978; SCHEUER, MUSGRAVE, EVANS 1980.

⁹ ALQAHTANI 2009.

¹⁰ ZANOLLI *ET AL.* 2011; GUATELLI-STEINBERG *ET AL.* 2012.

a developmental stage of ca. 40 fetal weeks. The histological analysis has showed that their enamel does not exhibit the neonatal line. This accentuated incremental growth line, microscopically detectable on the deciduous dentition and on the first permanent molars, marks the birth of an individual and is formed within 15-20 days from this particular stressful event¹¹. The lack of the neonatal line in the 4 individuals confirms that they died during birth or immediately afterwards (*Fig.8*). The tooth of the fifth individual shows a more advanced phase in the crown formation and a marked neonatal line. The counting of the enamel incremental markers indicates that the infant died at 3 months.

The minimum number of individuals (N=85) and their age-at-death distribution by single wells are reported in Table 3. The age distribution ranges from 26 fetal weeks up to 3 years, but is mostly represented by full-term fetuses (38-40° fetal week). Postnatal infants are an exceptional finding with only three individuals, that are respectively aged 3-6 months, 18 months and 3 years. The whole series thus refers to a fairly homogeneous group of infants who died at birth.

<i>Age classes</i>	IIshaft	IIIshaft	IVshaft	VIshaft
22-28° fetal week	1	2	2	
30-34° fetal week	4	4	3	1
36-40° fetal week	9	8	9	23
Generic perinatal	5	5	2	4
Postnatal age		1	1	1
TOTAL	19	20	17	29

Tab. 3. Number and age-at-death distribution of infants in the four theater shafts of *Pelutium*

Discussion

In summary, the archaeological evidence, together with the bioarchaeological data concur in qualifying *Pelutium* as an atypical burial site, only partially comparable to other findings from the Greek and Roman world. The key features of this funerary assemblage can be summarized as follows: (1) a collective burial of very young children (mostly perinatals) outside the community's common burial field; (2) an age at death profile strongly deviating from a natural one; (3) depositions in shafts within a disused building; (4) an attritional model for the formation of the deposits, with subsequent and time-spaced stratified depositions of children and animals within the shafts; (4) a high representation of dogs, of any age class, with at least one clear evidence of intentional killing of an adult dog; (5) the presence of horses remains. The atypical burial site of *Pelutium* is represented by the theatre shafts. It's very

¹¹ ZANOLLI *ET AL.* 2011.

likely that in the landscape of a ruined city what attracted the choice was the idea of the depth and of the connection with water. Considering that the symbolic value of water as a way back to the prenatal state or ahead towards deities leads to burials in underground structures or natural environment connected to water¹², we propose as a hypothesis that the theatre shafts have been considered the most suitable place for the burial of infants of the communities dwelling in that rural area.

Can such an atypical burial rite reflect an atypical death of the infants? The high concentration of infant's graves has been generally interpreted as the result of infanticide or epidemics, even if in some contexts alternative explanations were provided¹³. The claim of infanticide is often supported by an unnatural age-at-death distribution of the sample, characterized by a tight clustering of full-term infants (38-40 weeks)¹⁴. In comparison with the more evenly distributed age profile of the infants from the Roman Imperial age necropolis of Velia¹⁵ (Campania, I-II cent. AD), *Peltuinum* actually shows a net truncation of the mortality curve after the perinatal period¹⁶ (Fig. 9). Nevertheless, the presence of at least 16 pre-term fetuses (23.2%) weakens the interpretation of infanticide. Even if there is no grounds to completely exclude this practice for all the infants recovered from the shafts, the sample is indeed more likely explained by a combination of factors including: (a) a high rate of infant mortality, which has pervasively characterized the ancient human communities; (b) the reproductive wastage phenomenon, i.e. a physiological number of natural abortions and stillbirths in the population¹⁷; (c) a potential influence of a strongly selecting cultural custom, possibly connected to the different social role attributed to the newborns in their very first days of life. Indeed in the Greek and Roman world the ceremonies that sanctioned the newborn's entry into the family and society were not immediate. From ancient authors¹⁸ we know that the naming ceremony occurred on the day of the purification; *Macrobius* states that this took place on the eighth day after birth for females and on ninth for males¹⁹. In conclusion, with just very few exceptions, the *Peltuinum* shafts burials seem to be intended only for the infants that experienced a very early *mors immatura*.

Finally, the chronology of the depositions, the progressive attritional pattern of the deaths accumulation and the homogeneous age distribution of the sample do not support the hypothesis of a simultaneous death of the children related to an epidemic or famine crisis; that occurrence would have involved, among

¹² KARL, LÖCKER 2011; LILLEHAMMER 2011.

¹³ SCHWARTZ *ET AL.* 2010; 2012.

¹⁴ SMITH, KAHILA 1992; MAYS 1993; MAYS, EYERS 2011.

¹⁵ This sample shows a mortality profile highly fitting the mortality theoretical model of COALE, DEMENY 1983. For a meaningful comparison we reported just the Velian individuals comprised from fetal to 3 years of age.

¹⁶ As fully demonstrated by GOWLAND, CHAMBERLAIN 2002, these unnatural mortality distributions can be partially explained as the effect of the bias induced by the age-at-death estimation standards.

¹⁷ DURFEE 1987.

¹⁸ FEST., *Epit.*, p. 120, s.v.; ARNOB. 3.4; SÜET., *Nero*, 6.

¹⁹ MACROB., *Sat.* 1.16.36. Clearly referring to the very high infant mortality is the decision of king Numa Pompilio about mourning days over children less than three years: none (PLUT., *Numa*, 12.2).

other things, a large number of synchronic conceptions (and births) in the ancient communities around *Pelutium*.

The high number of faunal remains, their taxa composition, together with the evidence of complete skeletons, point towards the interpretation that the animals were sacrificed for ritual purposes. The association of very young infant depositions accompanied by dogs is also well documented in the wells from *Kolonos Agoraios* in Athens (II cent. BC; CAMP 1986) and in the *Agora* of Messene (III cent. BC)²⁰. In these cases it was advanced the hypothesis that the dogs were sacrificed as a rite of purification for the precocious death of the infants²¹. A similarly strong association between dogs and children has been evidenced also in the late Roman infant cemetery of Lugnano in Teverina²², dated to the half of the Fifth Century AD, where several children burials including about 50 neonates and aborted fetuses have been recovered. These were associated with approximately a dozen of 5-6 months old dogs and more rarely young-adult and adult ones. The skeleton of the dogs had been dismembered and scattered in different levels. According to the researchers the death of the neonates occurred within a limited time span, suggesting an epidemic event. In the comparison with the penecontemporary site of Lugnano, *Pelutium* differs in the following aspects: it is not a cemetery context; the repetition of the depositions (verified in 5 out of 7 shafts); the number of children and animals involved; the selection of only domestic species; the choice of age classes of dogs and ungulates (i.e. very young individuals); the selection of the ungulate skeletal portions (skulls and limbs in anatomical connection).

In conclusion, this study has relied upon the integration of the anthropological, archaeozoological and archaeological perspectives in order to describe the characteristics of this unique mortuary ritual; at the same time it has provided new and interesting evidence on the social identity of newborns in the Roman world and as well on the chthonic role of the associated fauna.

Loretana Salvadei oversaw the first phase of analysis and interpretation of human remains, the authors remember her with affection and esteem.

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²⁰ BOURBOU, THEMELIS 2010.

²¹ CAMP 1986.

²² SOREN *ET AL.* 1995, DE GROSSI MAZZORIN, MINNITI 2006, PEDRUCCI 2014.

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DISCUSSIONI ONLINE

SUSANNA MORAW: This association of fetuses and newborns with dogs in a late antique Italian burial context is highly interesting. In the case study that I presented, from Umbria, there is a late antique malaria cemetery for fetuses and newborns, also with dogs (most of all puppies) whose presence is explained with purification rites (whatever the exact nature of these rites may have been). I am very much looking forward to this paper!

ALESSANDRA SPERDUTI: Hi Susanne, we are looking towards meeting you at the congress and having a collective discussion of our cases. We obviously know very well Lugnano in Teverina and we also agree with your idea of a "plurality of burial norms", as you state in your abs. We also would like to point out that for infants burials outside the "normative" places there is a tendency to be seduced by "extreme" interpretations of their mortality (infanticide, sacrifice, famine etc), whereas we should take into account other causes, although less suggestive.

In the case of Lignano in Teverina there are some evidence of malaria affection on aDNA analysis, recently confirm by another method (hemozoin detection).

SUSANNE MORAW: Hi Alessandra, that's great! tanti saluti from rainy Würzburg.

LUISA MIGLIORATI: Hi, Susanne, nice to meet you tomorrow. Burial context in Peltuinum seems to be unique for the moment, but for dogs and puppies as fetuses and newbornes companions. Work is still in progress and we expect suggestions from the discussion.



Fig. 1. Map of the main sheep trails in central Italy (modified by Authors from VAN WONTERGHEM 1999, fig. 2)

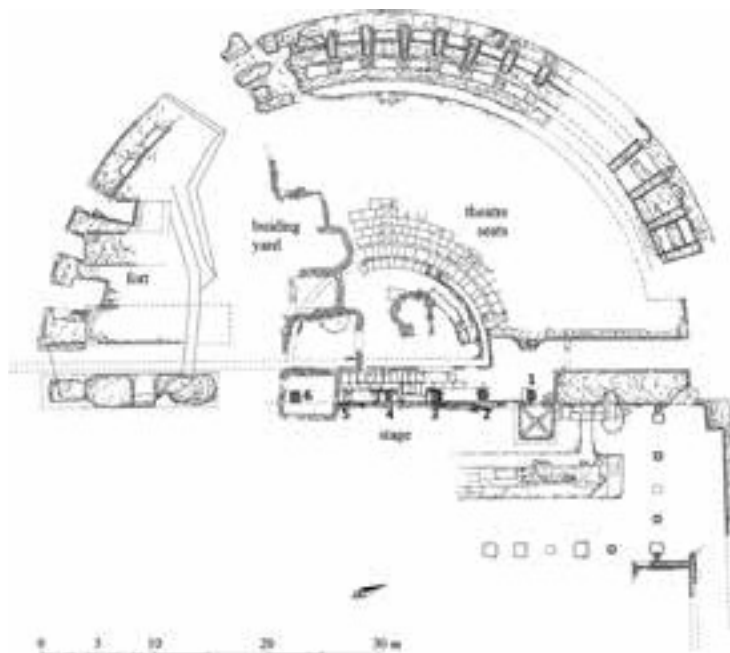


Fig. 2. The Roman theatre: general plan. 1-6: shafts (plan by D. Nepi)

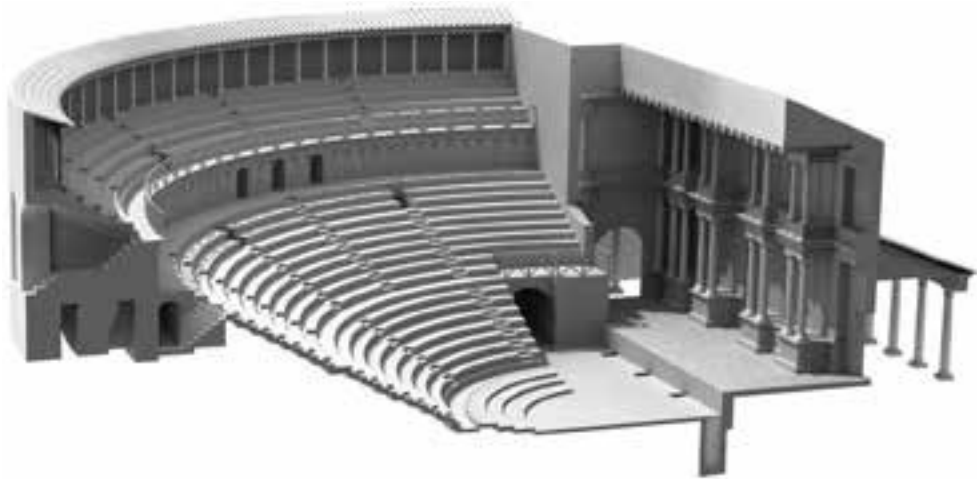


Fig. 3. The Roman theatre: axonometric section of 3d reconstruction (by D. Nepi). Note the shafts at the foot of the front stage



Fig. 4. The Roman theatre from west. White arrows indicate shafts (photo by Authors)



Fig. 5. The shaft VI inside the southern room of the building yard (photo by Authors)



Fig. 6. The shaft IV during the excavation (photo by Authors)



Fig. 7. Skulls and ulne of adult dog of different size from the shaft II (photo M. Tawfik)



Fig. 8. Thin sections of two incisors. Right: a central incisor from US 822 showing the neonatal line. Left: a lateral incisor from US 860 not showing the neonatal line (photo by Authors)

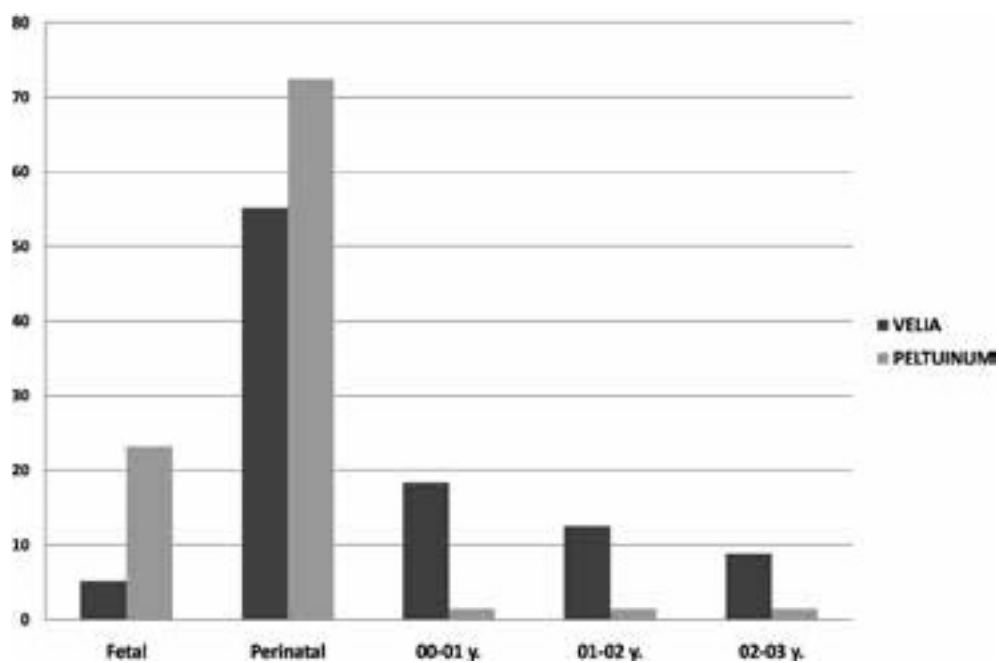


Fig. 9. Velia and *Peluinum* age at death distributions of the infants