

Same Language, Different Diet: Dynamics and Rhythms of Change in Ancient *Ilduro* (Cabrera De Mar, Barcelona) Based on Epigraphic and Faunal Evidence

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Abstract

This study uses faunal and epigraphic evidence from the valley of Cabrera de Mar in present-day Catalonia (Spain), as proxies for understanding complex processes and dynamics of cultural change between the late Iron Age and early Roman times. The

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faunal remains indicate significant dietary change, although the epigraphic evidence implies that language in contrast changed at a slower pace, as shown by the use of indigenous onomastics and the continued use of the Iberian script, coin legends included. To ensure an interdisciplinary analysis, the study also discusses change as perceptible in architectural remains, ceramics and funerary practices. Our study shows that cultural change can take place at different levels and according to different rhythms, not only on regional and settlement planes but also at neighbourhood and household scales. Finally, our results highlight the value of archaeology as a tool for studying and understanding colonial encounters.

Keywords: cultural change, diet, epigraphy, Hispania, Iberian Peninsula, language, zooarchaeology

Introduction

This study examines complex processes and dynamics of cultural change between the late Iron Age (IA) and early Roman times, using as a case study ancient *Ilduro*, the main urban core of the *Laeetani* located in the valley of Cabrera de Mar (Barcelona, Spain). The study focuses on faunal and epigraphic evidence in relation to dietary and language change, although to ensure an interdisciplinary approach architectural remains, ceramics and funerary practices are also considered.

The sociopolitical and economic organisation of IA communities in northeastern Iberia is characterised by the emergence of a hierarchy of settlements with different categories and functions (e.g., Asensio *et al.* 1998; López-Melción 2000). *Oppida*, well-fortified settlements of an urban nature located in dominant positions, were

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political and administrative centres of archaic proto-states which from the fourth century BC onwards managed well-organised territories, including rural populations who often inhabited farms and other subordinate, smaller settlements (Sanmartí 2004). This is clearly recognisable for the Iberian territory occupied by the people studied here.

Ilduro was originally located on the Burriac hill and enclosed a fortified area of 10–12 ha at its peak, with up to five distinct phases of occupation spanning the sixth to the first century BC, when it appears to have been progressively and peacefully abandoned (Zamora 2006–2007: 281-303; see Supplementary Materials 3: Sites). The original hillfort developed into a well-planned *oppidum* from ca. 325 BC and throughout the third century BC, with communal architecture, including a defensive system with a perimeter wall and towers, strongly suggesting the presence of a consolidated and centralised political power. Outside the walls, two necropolises developed during this phase: Turó dels Dos Pins, with 94 tombs (García i Roselló 1991); and Can Rodon de l'Hort, with 14 tombs (Rubió de la Serna 1888; Barberà 1968; 1969–70). These cemeteries seem to have been reserved for a certain segment of the population, mostly elites and warriors (García i Roselló 1991; 210-2011).

The late third and early second centuries BC witnessed changes in indigenous northeastern Iberia, particularly regarding territorial organisation as well as in the production and consumption patterns that developed after the Second Punic War and the arrival of Roman forces in 218 BC. Such phenomena are evident in *Ilduro*. Throughout the second and early first centuries BC, as a result of the Roman conquest *Ilduro* underwent a complex process of colonisation (Sinner 2015), and although there is a lack of archaeological and historical evidence for the first half of the second century BC, remarkable transformations are detected in the area during the second half of that century (Zamora 2006–2007).

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Urban and demographic developments occurred both at the *oppidum* and in the valley of Cabrera de Mar during this period. The remodelling of Burriac involved a range of new construction techniques and materials that originated in the Italian peninsula, such as the use of roof tiles and *opus signinum* (*cocciopesto*) floors, alongside continued use of a number of local techniques. In the words of Zamora (2006–2007: 287, translated): ‘we are witnessing what we could call the refoundation of the Iberian *oppidum* of Burriac, and not merely in terms of urbanisation’.

As part of this, a settlement with marked Italic architectural features developed at the foot of the *oppidum* during roughly the mid-second century BC. This settlement, now known to extend over 3 ha (Sinner 2015; Martín Menendez 2017) and including a number of sectors (see Supplementary Materials 3: Sites), employed similar construction techniques, mixing local and foreign elements in many of its buildings. Residential spaces of different sizes (e.g., at Can Mateu and Can Benet), workshops, warehouses and production facilities (e.g., at Can Rodon) as well as a public bath complex (García i Roselló *et al.* 2000: 36-38; Martín Menendez 2020) have all been identified, and a number of roads articulating and ordering a large part of the built-up area have also come to light. The chronology of this settlement extends to 90–80 BC (Figure 1).

>>Insert Figure 1 about here<<

The contemporary abandonment of the *oppidum* and the late Republican settlement early in the first century BC may be a direct consequence of or response to the foundation of the new city of *Iluro* (present-day Mataró), located 5 km north of *Ilduro*. Pliny (*Natural History* 3.4.22) mentions this site in his description of Hispania

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Citerior as an *oppidum civium Romanorum* (settlement of Roman citizens). The layout of the city was organised following an orthogonal plan (García i Roselló 2017), and by the middle of the first century BC it measured between 8 and 10–12 ha. This resettlement also affected the countryside and made use of pre-existing indigenous organisation and infrastructure (Sinner and Carreras 2019); it must be understood as a consequence of the involvement of the *Laeetani* in the new political and socioeconomic processes operating on a pan-Mediterranean scale (Tchernia 1986; Lintott 1993; Temin 2013).

The lack of any comments in the literary sources regarding the events that may have led to all these rapid changes in the region makes means that the study of archaeological finds and material remains in *Ilduro* is crucial to our understanding of the culture and practices of these peoples, and their evolution over the course of time.

Comentado [RB10]: Is this sentence needed? Surely archaeology is "crucial" even with literary sources, and the point is very general.

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Diet and Language as Key Markers to Study Cultural Change

Our starting point is the premise that culture alludes to shared attitudes and strongly rooted practices that occur as part of the everyday behaviour and habits—e.g., cooking, eating, and speaking—of a specific group of people. Humans have never chosen their first language; children simply learn the words and structures they hear around them on a daily basis. Similarly, in most cases, the younger individuals in a household rarely decide the food their family eats. As Todorov (1991) has suggested, rejecting our own cultural determinations is possible, but in practice and in most cases human beings tend to live within a predetermined—in many cases involuntarily—given framework, instead of breaking with it (Grimson 2010: 62-63). As such, changes in language and in food practices are key markers of cultural change and provide a proxy to understand broader social, cultural and economic processes.

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Food has both material and social significance (Murcott 1982). Like any culturally defined substance used to create and maintain social relationships, food can both solidify group membership and set groups apart (Mintz and Du Bois 2002). Numerous anthropological studies demonstrate the relationship between food, identity, social change, status and acculturation (Harris 1985; Contreras and Gracia Armaiz 2005; Hastorf 2017; Twiss 2019; Reed 2021; see also Mintz and Du Bois 2002 for a review), as well as its role in ritual and religion (Dietler 2001). As regards meat, there are also ideological implications of killing a living animal for food, and in some contexts meat is particularly associated with feasting, a form of ritual involving communal consumption that represents a way of enhancing the power that food has over a specific community, with consequent political and social implications (e.g., Hayden 1996; Dietler 2001; Esposito *et al.* 2015; Beylier *et al.* 2018). The quantity and quality of the meat may express power (e.g., McCormick 2002; Thomas 2007; Sabaté 2018; Santanach 2018), and meat consumption may be more regulated than the consumption of other foodstuffs (e.g., Harris 1985; Fessler and Navarrete 2003).

Language has also long been associated with the creation, development and maintenance of identities and cultures, and some argue that having a shared language is a fundamental part of what defines an ethnic group (Smith 1991: 20-25; Jenkins 1997: 47, 130-35). A strong connection between language and identity is well reflected by Crystal's (2000: 40) statement 'language is the primary index, or symbol, or register of identity'. However, it is risky to apply this premise to the ancient world (as noted for the Iberian Peninsula by Beltrán 2011: 26), and all too often, language and linguistic identity have been framed and presented through the lens of modern states and/or nationalist movements (Lomas 2013: 71, n. 3; see also Beltrán 2011). In the case of the

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Roman Empire, the relationship between written Latin and Roman identity was sometimes conflictual (Cooley 2002; Woolf 2002: 181-88).

Language is probably one of the most engaging aspects of the deep cultural process of change experienced in Iberia due to its integration into the Roman Empire as the province of Hispania. Within approximately two centuries, Latin replaced an important pre-Roman linguistic substratum that included several Palaeohispanic languages (Sinner and Velaza 2019, with references). This rapid change, paralleled by what had happened in Italy approximately a century earlier (Lomas 2013), contrasts with the situation in the eastern Mediterranean. There, some vernacular languages (e.g., Lydian, Luwian and Cretan) disappeared as well, but Greek retained its status as a regional *lingua franca* into the medieval period and others (e.g., Aramaic) also survived.

Given the problems presented in using language to identify and define ethnic identities, in this study we focus on the evolution of cultural practices in our case study, rather than examining whether these changes led to the creation of new identities. Following Grimson (2010: 63), we distinguish between 'networks of practices and meanings on the one hand, and categories of belonging on the other'. Practices can be traced with some certainty in the archaeological record, whereas individual and/or group feelings of being part of a collective are a much more subjective matter that is harder to document and interpret archaeologically. In this study we identify, discuss and evaluate what change took place among practices between the late Iron Age and early Roman period.

~~Bones and teeth are the only evidence that remains of the animals that were herded, traded, slaughtered and consumed in the past. Zooarchaeology is therefore an essential discipline to characterise diet and understand social and cultural changes in~~

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Comentado [RB18]: I think this is more relevant than "never fell out of use" (everyone knows it is still a living language, and we don't need to get into the Ottoman period)

Comentado [ags19R18]: OK

Comentado [RB20]: Aramaic survives in Syria so far as the eastern Mediterranean is concerned, so again not just "a longer life" but a continuing life.

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past societies (e.g., Ashby 2002; McCormick 2002; Ervynck 2004; Thomas 2007; Mata Parreño *et al.* 2010; Delgado Hervás and Ferrer Martín 2011; Luley 2014;).

Materials, Recovery and Methods

The 79 Iberian inscriptions included in this study can be dated between the fourth and first century BC and were recovered during the excavation of several archaeological sites in the valley of Cabrera de Mar (Table 1, Figure 2). The excavations were conducted by multiple archaeological teams using a wide range of archaeological methodologies developed since the 1970s, although given the focus of this paper on the epigraphic evidence and the information conveyed by the inscriptions, a detailed description of the archaeological methods employed lies outside the scope of this study. However, a description of the archaeological sites from which the inscriptions discussed here were recovered is included in Supplementary Materials 3: Sites.

>>Insert Table 1 and Figure 2 [caption needs all site names added] about here<<

The epigraphic data is used in this study to evaluate changes in the language used in *Ilduro* between the fourth and first century BC. Additionally, to evaluate change into the Imperial period (first and second centuries AD), a comparison is made with the 30 inscriptions recovered in *Iluro* and in the sanctuary of Can Modolell.

Archaeological context is key to the interpretation of faunal remains (e.g., Binford 1978; Hodder 1987; Schiffer 1987: 89-98). We consider three case studies characterised by well-contextualised food waste (zooarchaeological remains) in a good state of preservation. We also contemplate each context individually in order to assess the feasibility of comparisons between our three faunal assemblages, since

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Comentado [RB26]: This isn't correct given the reference to inscriptions "into the imperial period" mentioned in the next paragraph. Clearly, then, some of the 79 belong to the later period.

Comentado [ags27R26]: 79 are only the Iberian ones. The imperial ones should add to the 79

Comentado [RB28]: I assume these are part of the "79 inscriptions". Otherwise we need to reword the start of the section.

Comentado [ags29R28]: No they are not

Comentado [RB30]: The three specific assemblages are not introduced until the next paragraph, so better to keep it general here

Comentado [ags31R30]: OK

fragmentation and recovery of faunal remains can vary as a result of excavation methods and the formation process of the archaeological record. For the most part, all that remains of the animals that were herded, traded, slaughtered and consumed in the distant past are bones and teeth. As such, the discipline of zooarchaeology is essential for interpreting diet in past societies and how it changed. (e.g., Ashby 2002; McCormick 2002; Ervynck 2004; Thomas 2007; Mata Parreño *et al.* 2010; Delgado Hervás and Ferrer Martín 2011; Luley 2014).

The faunal remains presented here belong to two different chronological periods. The assemblages from the settlement sectors of Can Benet and Can Mateu can be dated to 80–70 BC, during the Late Republican period, while the assemblage from Can Rodon de l'Hort dates from the early Imperial period (*ca.* AD 70) (Figure 2). These three assemblages are thus especially relevant for assessing changes in food consumption and animal husbandry between the **second and first century-centuries BC** and early Imperial times in the valley of Cabrera de Mar. Additionally, further comparison with pre-Roman contexts (fourth and third centuries BC) in the valley is possible with regard to the faunal remains recovered from the storage pits at Can Rodon (Valenzuela-Lamas and Nieto-Espinet 2020) (Figure 2) and other neighbouring zooarchaeological studies.

Can Mateu

At Cat Mateu, 663 faunal remains were recovered from two overlapping stratigraphic units, SU 2839 and 2859 (Figure 3). The formation process of these units was rapid, since they reflect two consecutive dumps of refuse that were used to level the terrain to prepare the ground for a subsequent construction. This purpose and the fact that only fragmentary ceramic items or faunal materials were found suggest that the material culture recovered was in a different location **not only** from its original place of

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Comentado [ags35R34]: OK

consumption but also from its original deposition (Schiffer 1972). Sediments from the two units (*ca.* 150 l.) were floated.

>>Insert Figure 3 about here<<

Can Benet

At Can Benet, some 139 faunal remains were recovered from SU 1068, the fill of an ovoid pit (SU 1069) (Figure 4).

>>Insert Figure 4 about here<<

Winter (1976) suggested that there are a series of patterns identifiable in the archaeological record, thanks to the creation of specific types of structures that can be explained as a consequence of the normal life cycle of domestic units (on the household cluster concept, see Jongasma and Greenfield 2003). The systematic deposition of waste in pits could be considered the product of consumption activities carried out by members of the domestic unit (Alonso Martínez *et al.* 2017). While this approach may fail to consider alternative possibilities and explanations, it is useful to explain the formation of SU 1068 at Can Benet: because of its very homogenous materials, typologically and chronologically, as well a high index of whole objects, it seems plausible that the fill of the pit represents materials discarded as part of the abandonment of this neighbourhood in 80 BC and can be considered as *de facto* refuse (LaMotta and Schiffer 1999). As such, the faunal remains, unlike at Can Mateu, are a primary deposition. Sieving and flotation are however not mentioned in the

archaeological report, and the smallest remains, especially fish and bird bones, were probably partially lost during excavation.

Can Rodon de l'Hort

At Can Rodon de l'Hort, 737 faunal remains come from a single stratigraphic unit (SU 1178: Figure 5). The formation process of this unit corresponds to the reuse of refuse materials to level the terrain in order to prepare it for a later construction. Sieving was undertaken sporadically at Can Rodon, but flotation was not (Table 2). Based on all the above and in the light of taphonomic factors (Payne 1972), one should expect a higher index of fragmentation compared with Can Benet, and some of the smallest faunal remains may present a smaller ratio of recovery compared with Can Mateu.

>>Insert Figure 5 and Table 2 about here<<

Analytical Methods Applied to the Study of Faunal Remains

The remains recovered were cleaned with water and examined macroscopically to identify the species, the anatomical element, side of the body, fusion and wear stage (teeth), as well as any post-depositional alteration, butchery marks and pathologies. Bone measurements were taken in accordance with von den Driesch (1976), Payne (1969) and Davis (1996). The distinction between sheep and goats followed works by Boessneck (1969), Payne (1985), Halstead *et al.* (2002), Zeder and Pilaar (2010) and Zeder and Lapham (2010). The recording and interpretation of butchery marks was based on Vigne (1988) and Gardeisen (1997), and the quantification units used were the number of identified specimens (NISP, *sensu* Grayson 1984) and frequency of species/taxonomic groups (expressed as %NISP). The low number of remains has

allowed us to make only an approximation (through the %NMI [minimum number of individuals]) of the main age categories represented for the three main domestic species. On a more general basis, the methodological approach follows that described in Valenzuela-Lamas (2008) and Nieto-Espinet (2012).

For taphonomic reasons, in this study we approach the study of diet at the level of the neighbourhood and the settlement, rather than of the household, since we do not have assemblages recovered from a primary deposition directly associated with a specific household. This is also the case of the neighbouring sites used to establish diachronic comparison (see Figure 2, above). The comparison was based on the frequency of species/taxonomic groups (expressed in %NISP) and the kill-off patterns of the most consumed domestic species (through the NMI).

Results and Discussion

Epigraphic Evidence and Iberian Language

Most of the inscriptions recovered in the valley of Cabrera de Mar use the final variants of the Iberian signs, corresponding with the non-dual alphabet (Ferrer i Jané 2005). This was the only system in use during the second and first centuries BC (Table 3), and it was also the signary used in the coin legends of the *Ilduro* mint (Sinner 2017) and in most of the Iberian coinage produced (Ferrer i Jané 2012; Ripollès and Sinner 2019).

>>Insert Table 3 about here<<

The type of vessel on which the inscription was incised and its archaeological context can also provide valuable chronological information. All the *Ilduro* texts on black gloss ceramics (Principal and Ribera 2013), as well as Italic Dressel 1 (Beltrán

1970; Tchernia 1986) and local amphorae of Pascual 1 type (López Mullor and Martín Menendez 2008) (1.9 and 1.10; the numbers identifying each inscription correspond with those in Sinner and Ferrer i Jané 2016, 2018), can be dated to the second and first century BC. Due to the archaeological context, we also know that some of the inscriptions on grey ceramics, spindle whorls (9.1, 4.2), and those on *dolia* (1.1 and 1.19) and on the *tubulus* (flue) (7.10) used in the construction of the vaults of the Ca l'Arnau baths (9.1 and 4.2) must also stem from this same period. The only ceramics that could belong to an earlier period come from the necropolis at Can Rodon (2.1, 2.2, 2.3 2.4), Turó dels Dos Pins (3.1, 3.2), and perhaps from the Can Bartomeu storage pits (5.1, 5.2), at the transition from the third to the second century BC. The grey pottery (1.2) from the *oppidum* at Burriac uses archaic scripts (fourth and third centuries BC), but these three texts are among those of indeterminate chronology (Table 4), since it is not certain to which chronological group they belong.

>>Insert Table 4 about here<<

Looking at the function of the vessels (Table 4), most of the inscriptions were made on tablewares and, in some cases, although less commonly, on vessels used in funerary contexts. Among those used for eating and dining practices (plates, bowls, cups and jars), black gloss ceramics predominate. The longest inscriptions, however, are usually on the oxidising and grey Iberian ceramics of an older date, the text *bantorenmibaikar* (3.1) being a good example.

The position of the inscription changes depending on the type of vessel and its chronology. They are usually located on the base or the lower section of those ceramics used as tableware, and always in a position where it is difficult to see them when the

vessel is being used. Even so, in the oxidised (2.1, 3.1, 5.1, 5.2), grey (1.2, 3.2, 11.2) and handmade (1.8) Iberian ceramics, most texts are inscribed on the exterior of the vessel, which means the inscription was visible during use (Sinner and Ferrer i Jané 2016: 219). It is interesting that in at least three cases the inscriptions conforming to the aforementioned characteristics come from the necropolises of Can Rodon (2.1) and Turó dels Dos Pins (3.1, 3.2).

It is quite likely that all these factors indicate changes taking place in the Iberian territory generally, and in the valley of Cabrera de Mar valley, as a result of the colonisation process. Quantitatively, the use of writing increases during the second and first centuries BC, but the complexity of the inscriptions decreases in comparison with those from the fourth and third centuries BC, being limited for the most part to the indication of the owner's name—usually abbreviated. While the language and the alphabet used did not change, the epigraphic habit and the function of the inscriptions did evolve.

Most of the inscriptions correspond to isolated personal names (over 20) incised after firing. These are usually interpreted as the name of the owner of the vessel (e.g., *Sosian*; for a full list of personal names, see Sinner and Ferrer i Jané 2016: 215). A few of these anthroponyms could reflect Latin names written using the Iberian script, as is the case of *Bilake* (Latin FLACCVS) or *Kai* (Latin GAIVS). Both *Bilake* and *Kai*, however, could also be Iberian personal names, as Moncunill and Velaza (2011: n. 7) have suggested for the former and Untermann (1990: no. 66) for the later, as an abbreviated version of *Kaisur*.

It would be very interesting if a Latin origin for the personal names *Kai* / GAIVS and *Bilake* / FLACCVS could be confirmed. The most plausible scenario in that case would be that they were local individuals who had adopted Latin names. The use

of Latin personal names among the Iberians is well attested in the Bronze of Ascoli (89 BC), thanks to the names of the cavalrymen belonging to the *Turma Salluitana* (CIL 1.709).

The use of the Iberian script does not, though, directly prove the use of the Iberian language. Celtiberian, for example, which unlike Iberian was an Indo-European language, used both the Iberian and the Latin alphabets for writing. The use of Iberian is confirmed among the inhabitants of *Ilduro* thanks to the appearance of some specific grammatical elements and words. Morphs are some of the best indicators (e.g., *-r* in *biur̄tir*, and *mi*—Untermann 1990: 172; Ferrer i Jané 2006: annex 6). Finally, the well-known verb *egiar*, equivalent to the Latin *fecit* (Ferrer i Jané 2006: annex 14), on one of the ceramics found in the Burriac *oppidum*, is also a good indicator of the use of the Iberian language.

It could also be argued that the Iberian language was not the vernacular among the inhabitants of Cabrera de Mar, but just a vehicular one and therefore not necessarily rooted in their culture (de Hoz 2009). This notion, however, has been consistently refuted (Ferrer i Jané 2013; Ballester 2014) and does not work for our case study either. Iberian personal names are documented, and especially the fact that the Iberian language appears mostly on personal belongings in a domestic context does not correspond well to what we know of the use of vehicular languages, more oriented towards trade and commercial frameworks. Additionally, *Ilduro* is a place name that is of Iberian origin (Sinner 2017: 47-49).

During the second and first centuries BC, the Iberian language was commonly used by the inhabitants of *Ilduro*, at least in the domestic or private sphere. This seems to be a sign indicative of the predominantly Iberian ethnic composition of the population. The only Latin graffiti with a *tria nomina* incised before firing (A.VAL.A),

Comentado [RB36]: I thought worth mentioning given the similarities in name. "Celtiberian" sounds like it ought to be connected to "Iberian", when it's not.

Comentado [ags37R36]: OK

comes from an amphora production centre in Ca l'Arnau and must be dated to the second quarter of the first century BC (Sinner *et al.* 2014), a period in which the previous urban occupation of *Ilduro* had been moved to the new city of *Iluro*.

The epigraphic evidence suggests that the valley of Cabrera de Mar had more in common, linguistically speaking, with contemporary *oppida* of indigenous character like Azaila (Beltrán 1995: 189) or the *oppidum* of Ca n'Oliver (Cerdanyola del Vallès), where Iberian epigraphy predominates, than with those sites in which Latin epigraphy is abundant (e.g., *Valentia*: de Hoz *et al.* 2013; La Cabañeta: Díaz Ariño and Mínguez 2011). A good parallel is the archaeological site of La Caridad (Caminreal, Teruel) (Herce *et al.* 1991), where the existence of Italic construction techniques and architecture is documented (e.g., *Likine domus*), but where so far practically all the inscriptions published are indigenous (Vicente *et al.* 1993).

In a wider framework, the epigraphic and linguistic situation documented in *Ilduro*, also recorded in the early phases of *Iluro* (see Figure 6), is applicable as well to other important Late Republican cities that were founded in northeastern Hispania during the first quarter of the first century BC. *Baitolo* (Torra 2009) and *Ieso* (Pera 2005) are the best-documented examples and display similar epigraphic trends, in which a clear predominance of the Iberian script over Latin is attested. It is quite possible that even the elites and magistrates in these towns were also of indigenous descent. They were behind the decision to use the Iberian script in their coin legends, and the presence of indigenous individuals as part of municipal elites is documented in *Iulia Libyca* during the Augustan period (Ferrer i Jané *et al.* 2018).

In sum, in the epigraphic record we see no change from Iberian to Latin in *Ilduro* or any other site in the valley of Cabrera de Mar between the late IA and the time of its abandonment as an urban centre. However, we do see changes in the types of the

vessels inscribed, the length of the texts and in the appearance of new writing technologies documented by the use of *stylii* (Olesti 2019: 71). From the first century AD onward, however, inscriptions in Cabrera de Mar (by now the *ager* [rural territory]) and *Iluro* (the city), were dominated by Latin (Figure 6 and Supplementary Materials 1: Epigraphy).

>>Insert Figure 6 about here<<

Zooarchaeological Evidence and Meat Consumption

This study is the first attempt to track cultural change in the valley of Cabrera de Mar between the Iron Age and Roman times through analysis of faunal remains. The assemblages discussed here represent a significant step towards advancing our understanding of this area, as zooarchaeological studies are still scarce at the local level.

Table 5 and Figure 7 summarise the counts of the different taxonomic groups and their relative frequencies at the three sites studied. No fish, land snail or bird remains were recovered from Can Benet. In contrast, birds and land snails were present at Can Mateu, and even more at Can Rodon, where fish were also well attested. Game was composed of rabbit (*Oryctolagus cuniculus*) and red deer (*Cervus elaphus*). The Chi square test revealed that the differences between the three assemblages were highly significant ($p < 0.0001$, $df = 5$).

>>Insert Table 5 and Figure 7 about here<<

No sieving was carried out at Can Benet and it was only occasionally undertaken at Can Rodon, while more than 120 l of soil were floated at Can Mateu (see Table 2,

above). This probably explains the absence of land shells, fish and bird remains at Can Benet, and the presence of all the taxonomic groups at Can Mateu and Can Rodon. This may also affect the wild game (i.e., rabbit remains), but the relevance of such game at Can Rodon (9% NISP) seems genuine, as sieving was performed only occasionally, and Can Mateu displays a significantly lower presence of wild mammals. In both cases, the faunal records of Can Mateu and Can Rodon suggest a diversified use of resources. The main domesticates (cattle, sheep/goats and pigs) were the primary source of meat, but they were complemented by other species. In Can Rodon, game may be linked to the status of the site and its inhabitants, since the material culture recovered suggests a certain level of wealth.

The counts of the main domesticates (Figure 7) indicate that pigs (*Sus domesticus*) were the best represented species in the three assemblages, followed by cattle (*Bos taurus*) at Can Benet, and by sheep and goats (*Ovis aries* / *Capra hircus*) in Can Mateu and Can Rodon. This pig predominance contrasts with the NISP pattern found at neighbouring sites dating from the fourth to third century BC (Figure 8, bottom). Sheep and goats were the most frequent domestic species at most IA sites in present-day Catalonia (e.g., Valenzuela-Lamas 2008; Albizuri *et al.* 2010), and the sheep/goat predominance is well attested at several sites of the second to first century BC (Figure 8, centre). As stated above, the consumption pattern at Can Benet and Can Mateu is clearly different. These two sites in Cabrera de Mar display a pig predominance (over 40% NISP) that is found in some neighbouring assemblages dating from Imperial times (Figure 8, top), such as the urban site of *Baetulo* and the *villae* of Vilarenc (Calafell, Tarragona), Can Feu (Sant Quirze, Barcelona) and Torre Llauder (Mataró). Therefore, the ‘pig pattern’, well attested in central Italy during the first millennium BC (King 2001; de Grossi Mazzorin and Minniti 2009; Minniti 2012), is

found in *Ilduro* from the first century BC, significantly early when compared with other sites in present-day Catalonia.

>>Insert Figures 8-9 about here<<

The kill-off patterns of the main domesticates display some similar trends between Can Rodon and Can Mateu (Figure 9). At these two sites, pigs were mainly slaughtered at their optimum meat weight, followed by adult animals. At Can Mateu and Can Benet, there is also a significant consumption of young piglets (tender meat). In addition, a bone from a foetal piglet was recovered at Can Rodon, which suggests local pig breeding. The slaughter of young cattle (tender meat) is attested both at Can Rodon and Can Benet, as well as adult animals at Can Mateu and Can Benet. This is only indicative, due to the low number of ~~animals~~ individuals (combined MNI, Poplin 1973) available for this species. At all three sites, sheep and goats were mainly slaughtered at adult age, thus suggesting a greater use of products in the animals' lifetime. At Can Rodon and especially at Can Mateu, young animals, and thus tender meat, were also consumed.

The available data do not show much difference between the three sites. Both sites of Republican date (Can Mateu, Can Benet) and the levels of early Imperial times (Can Rodon) suggest that priority was given to the consumption of young animals (tender meat) and young adults (optimum meat weight). Older individuals are completely absent. The sites in *Ilduro* present some different trends in comparison with other earlier synthetic works (e.g., Colominas *et al.* 2017). In previous studies, the sheep and goat kill-off patterns showed a predominance of individuals slaughtered as juveniles, sub-adults and ~~young adults~~ on the middle IA sites, but an increase in the

Comentado [ags38]: Silvia y Ariadna, en esta seccion se han modificado individuals por animals. Es una preferencia de la revista. Supone algún problema?

Comentado [RB39]: otherwise unclear - "old-age individuals" is a subcategory of "adults"

slaughter of old-age animals in Republican times. This trend also seems to be present at Can Benet and Can Mateu, where there is a predominance of individuals slaughtered in adulthood (see Figure 9). It has not been possible, however, to confirm the trend of a greater presence of young animals in the context of Can Rodon.

The general trend in pig kill-off patterns shows a certain degree of diversity in Republican times. During early Roman times, previous works attested to differences between *villae*, where adults predominate, and cities, where juveniles and sub-adults prevail (Colominas *et al.* 2017). This diversity after the Roman conquest is clearly attested at Can Mateu (preponderance of sub-adults) and at Can Benet (preponderance of adults). The *villa* of Can Rodon presents a trend expected for an urban context, with a higher consumption of pigs slaughtered as sub-adults. In this case, no young adult animals were identified.

Comentado [RB40]: presumably, as "sub-adults" are also "young".

We do not have enough data to be able to infer the kill-off patterns of cattle. Nonetheless, the total absence of older animals and the low proportion of adults in relation to young individuals at the three sites analysed in the valley of Cabrera de Mar is noteworthy. This could reflect the urban character of the contexts studied.

Quantitative analysis of the faunal remains from *Ilduro* and other neighbouring sites in present-day Catalonia, many belonging to the *Laeetani* people, suggests that there were significant changes in meat production and consumption in this area after the Roman conquest. The IA in northeastern Spain is characterised by a high consumption of sheep and goats (e.g., Valenzuela-Lamas 2008; Nieto-Espinet *et al.* 2021; see also Figures 8, 10), mainly raised near the sites (Valenzuela-Lamas *et al.* 2016; 2018). In Imperial times, pigs and cattle became predominant on urban sites and most *villae*, but the sheep/goat predominance persisted at several sites (e.g., Colominas *et al.* 2017; Nieto-Espinet *et al.* 2021). Interestingly, Republican times seem to be a moment of

transition (see above, Figure 8, middle), where some sites display the ‘sheep/goat pattern’ characteristic of the IA (e.g., Olèrdola, Sant Boi, Can Roqueta) while others display the ‘Roman’ pattern, with higher frequencies of cattle and pig remains (e.g., Can Benet, Can Mateu). It is noteworthy that this significant change in meat diet seems to happen early in *Ilduro* compared with other neighbouring areas located inland (e.g., the Vallès depression).

>>Insert Figures 10-11 about here<<

The predominance of caprines during the fourth and third centuries BC is also attested in most assemblages from the Gulf of Lion area (Figure 10). This clearly contrasts with contemporary assemblages from Italy, where pig is the most abundant taxon (over 40% NISP). The pig predominance in north-central Italy can already be observed at some Etruscan sites of the seventh to sixth century BC (Trentacoste *et al.* 2018), and it is a constant throughout the Roman Republic and Imperial times (e.g., de Grossi Mazzorin and Minniti 2009; Minniti 2012; see also Figure 11). Interestingly, no other culture in the western Mediterranean displays such pig predominance in the zooarchaeological record (Valenzuela-Lamas 2020), and such different choices cannot be explained solely by different ecological conditions.

Ethnographic and anthropological studies reveal that dietary changes reflect both cultural and economic choices (e.g., Messer 1984, and references therein; Harris 1985; Contreras and Gracia Armaiz 2005). When we place the different profiles of the main domestic animals consumed in the Gulf of Lion in space and time (Figure 10), the significant increase in pig consumption in *Ilduro* during the second and first centuries BC stands out. It seems to differ with respect to other indigenous sites in neighbouring

areas, which continue to show profiles with higher percentages of caprines (the usual pattern for Iberian culture) and cattle (Gallic culture). It is difficult to say which factor had the higher impact in Cabrera de Mar in Republican times, but pig consumption clearly became central to local cuisine at several sites in the valley during the second and first centuries BC. This may be seen as an influence derived from central Italy, where the prevalence of pig consumption is well attested throughout the first millennium BC (e.g., de Grossi Mazzorin and Minniti 2009; Minniti 2012; Trentacoste *et al.* 2018), associated with the spread of urbanism in the area (Valenzuela-Lamas and Albarella 2017; MacKinnon 2018).

In any case, it is unlikely that this significant change in animal husbandry/meat diet responds to a sudden climatic or ecological change in the valley. As stated above, this change seems to happen earlier in *Ilduro* compared with other neighbouring areas with similar climate and ecological landscapes, and it seems to be closely linked to the adoption of cultural habits and building practices imported from Italy, including public baths, tiled houses and Italic tableware. In this sense, some anthropological studies attest that conquest, technology, trade and social differentiation are four basic factors of food changes (Barrau 1983: 241-44). Likewise, other anthropologists have added that conquest, trade, technology, demographic increase, urbanisation and social imitation (all factors present in *Ilduro*) favour mass production and the progressive trend of food towards hyper-homogenisation (Fischler 1979: 200).

Cultural Change in *Ilduro*: Integrating the Archaeological Evidence

Archaeological evidence is an important tool for understanding how contacts between different peoples might lead to cultural change. This is especially true in cases such as

ancient *Ilduro*, where intense and continuous cultural contacts between colonisers and locals are attested during the second half of the second and the early first centuries BC.

Up to now, it has been difficult to speak about cultural change in ancient *Ilduro* (Sinner 2015: 32-36). Several categories of archaeological evidence, such as architecture, building techniques and the imported pottery used on a daily basis, suggest the existence of a marked influence from Campania in the valley at different levels from at least the mid-second century BC (Stannard and Sinner 2014; Sinner 2015; Madrid i Fernández and Sinner 2019). Without the epigraphic and numismatic evidence, we would probably conclude that a substantial contingent of people from the Italic peninsula inhabited the settlements described above. However, that would be an overly hasty conclusion, since goods (and food) can be adopted faster than ideas and a foreign language.

Present-day anthropological studies demonstrate that migrant communities introduce changes in their diet while retaining their maternal language at home (e.g., Satia-Abouta *et al.* 2002, Benazizi *et al.* 2021). Similarly, indigenous communities experience changes in their daily diet while keeping their original language for generations after processes of colonisation and of strong cultural contacts and economic relationships with other groups (e.g., Sebastian and Donnelly 2013; Weerasekara *et al.* 2018). In the case of ancient *Ilduro*, the combination of architectural evidence, material culture, funerary practices and epigraphic and zooarchaeological evidence opens a fascinating scenario and enables us to gain a better image of how the culture and practices of its inhabitants, especially those of the elites, started changing shortly after the Roman conquest, following different rhythms.

Epigraphic evidence from the fourth to the first century BC suggests that Iberian was the vernacular language of the inhabitants of the valley of Cabrera de Mar at least

to the end of this period. Iberian onomastics dominate among personal names, and *Ilduro* is a place name of Iberian origin. Therefore, it is quite likely that the majority of the inhabitants of Cabrera de Mar were natives of northeastern Iberia and not of Italic origin during this period. If, as suggested, the names *Kai* and *Bilake* are the Iberian counterparts of the Latin *GAIVS* and *FLACCVS*, we may have local individuals adopting Latin names. This behaviour would match well what we see reflected in architecture and now in the diet (see below) of ancient *Ilduro*, influenced by Romano-Italic practices.

Zooarchaeological evidence—key in illuminating diet—shows that the inhabitants of the valley quickly adopted important aspects of Italic culture (consciously or not) and changed their food habits between the third century BC, for which sheep dominates, and the first century BC, when pork is much more frequent and majoritarian at Can Mateu and Can Benet (see above, Figures 7, 11). Apulian olive oil, transported in Brindisi amphorae, and principally intended for Italian consumption (Carreras *et al.* 2016), may also be an interesting marker of dietary changes that complements well the evidence presented through faunal analysis. After analysing the epigraphic evidence, the presence of Apulian olive oil in *Ilduro* could be related to changes in the diet and cooking practices of local elites, and not exclusively linked to the presence of Italic peoples and the army.

Finally, a significant change in funerary practices occurred between the fourth to third century BC and the first to second century AD (see Figure 11, above). While graves of Iberian typology and cremation rite, such those in Can Rodon and Turó dels Dos Pins, predominated in the valley during the IA, these were abandoned with the Roman arrival. This is probably one of the earliest examples of cultural change among

Comentado [RB41]: "to" rather than "and" indicates that the date is approximate.

local elites, showing a major shift in how they treated their lost ones. In *Iluro*, inhumation was the main funerary rite in the first and second centuries AD.

Consequently, the archaeological record suggests that cultural change did occur in ancient *Iluro* and significantly affected several core areas of the indigenous culture such as diet, cooking, writing and funerary practices, but all at different rhythms. Therefore, the use of the native language, even when changes in epigraphic habits and writing technologies are documented, was probably one of the more long-lasting core aspects of the indigenous culture, and it survived longer than dietary and funerary practices, also both considered core aspects in cultural identity (e.g., Alekshin *et al.* 1983; Harris 1985).

Discussion and Conclusions

Archaeology is an important tool in understanding colonial encounters. Material culture contains clues and indicators that reflect cultural changes over time as a result of intense cultural contact and exchange. Nevertheless, identifying and interpreting them can be challenging. The specialisation of archaeologists in several subdisciplines (e.g., ceramics, numismatics, fauna, epigraphy or architecture among others), together with the lack of precise contexts and the low number of studies integrating different archaeological categories, lead to our vision being, in many cases, limited if not biased.

The archaeological record from *Iluro* provides empirical evidence of gradual cultural change of IA Iberian populations during and after the conquest, which is first visible in architecture, material culture, diet and funerary practices, and lastly in language, which was probably completely replaced by the first century AD as shown by the epigraphic record.

Practices and processes of cultural change are very complex. In *Ilduro*, different temporal and territorial rhythms, in addition to affecting different spheres of society such as the economy, culture and daily life, are recorded. For this reason, we have focused especially on highlighting the importance of and need to take into account different disciplines and categories of archaeological data when analysing the processes of cultural change in the past. *Ilduro* (Cabrera de Mar) offers archaeological contexts and diversified material datasets which constitute an optimal substratum to deepen the methodological aspects and the most significant archaeological indicators for the analysis of the impact of colonial interactions on local economies and cultures.

This study has engaged a perspective that enhances slower and more diversified processes of change over time. Taking into account the possibility that in the valley of Cabrera de Mar, occupants of the Iberian *oppidum*, the Late Republican settlement, or the ‘farms’/agrarian units that populated the hills, might have had different rhythms and even responses when reacting to the same colonial situation. This can be seen, for example, in the slower adoption of pig in Burriac and Can Bartomeu in contrast with Can Benet and Can Mateu. Therefore, cultural change could take place at many different levels and degrees, not only from site to site, but at the neighbourhood and even the household/individual level.

At the same time, the diachronic analysis and integration of diverse archaeological datasets (see Figures 6, 8, 11, above) makes it possible to link the above changes and the pace at which they occurred with the particular urban and historical evolution of *Ilduro/Iluro*. The increase in pig remains, perhaps connected to an early Italic influence and urbanisation of the late IA communities in northeastern Iberia is attested since the third century BC (e.g., Valenzuela-Lamas 2008, Nieto-Espinet *et al.* 2021). During this period, pig present high numbers in the valley of Cabrera de Mar

(Can Bartomeu) (see Figure 8, above), a fact that can probably be connected with the development of Burriac into a well-planned *oppidum* and its consolidation as a centralised political power. Iberian was the native language, and cremation the main funerary rite. However, while their funerary practices shifted rapidly after the Roman conquest, it took centuries before pig and Latin became dominant in the area under study. In the second and first centuries BC, pig only formed the largest proportion (over 40% NISP) in Can Mateu and Can Benet (see Figure 8, above), two of the main residential sectors of *Ilduro*. These neighbourhoods, located near the baths and presenting stronger Italic characteristics in terms of architecture and material culture, are the result of new urban changes that took place at the foot of the Iberian *oppidum* after the Roman conquest.

During the first and second centuries AD, things changed radically in the valley of Cabrera de Mar, now the territory of the newly built city of *Iluro*, planned in a Roman manner. During Imperial times, pig fully dominated (over 60% NISP) in all the contexts and, for first time, language switched from Iberian to Latin (see Figure 11, above). These changes can be connected with a process of monumentalisation that took place in *Iluro* during the late first century BC and the early first century AD, and which entailed the redefinition of public spaces and the introduction of important public and private building programmes. These transformations of the urban landscape probably relate to the promotion of the town to the rank of *Municipium civium Romanorum* (CIL 2.4616). It was in this context of integration into the Roman political, administrative, legal and economic system—and not just in a framework of military conquest and/or cultural contacts—that, for the first time, we see no disconnection between how (and how fast) language, architecture and diet change.

The results provided in this study have highlighted the risk inherent in analysing culture, cultural change and ethnicity based on a single archaeological indicator. In this respect, the nuances and subtleties identified—the result of integrated analysis of the different archaeological datasets (epigraphic, faunal, ceramic, funerary, architectural)—have once again made visible the importance of interdisciplinary studies when dealing with the complex analysis of cultural change in archaeology. These promising results open new frameworks of collaboration and dialogue between the above disciplines that can help us to better understand colonial encounters in general, and how contacts between different peoples can lead to cultural change.

Supplementary Materials

Three supplements to this paper can be accessed online:

Supplement 1: Epigraphy [<Add URL>](#)

Supplement 2: Fauna [<Add URL>](#)

Supplement 3: Sites [<Add URL>](#)

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Classical Authors and Texts

Pliny the Elder, *Naturalis Historia*

Abbreviation

CIL:

Corpus Inscriptionum Latinarum. Berlin: Berlin-Brandenburgische Akademie der Wissenschaften. Online: <http://cil.bbaw.de/>

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The status of this item is a bit odd. It seems that it was published both as a separate document with its own title plate, but also as part of Volume 11 proper. In both versions, the pagination starts at page 667, and it is listed in the Table of Contents at the end of Volume 11. I think we should treat it as a long article within Volume 11, although it may also have been sold separately as a "Cuaderno complementario"

See here for the whole Volume 11:
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Figure Captions

- Figure 1.** Location of *Ilduro* and plan of the Late Republican settlement in Cabrera de Mar and all its sectors (after Martín Menendez 2017: fig. 8).
- Figure 2.** Topographic map of the valley of Cabrera de Mar, showing where faunal remains and inscriptions have been documented (see Supplementary Materials 3: Sites).
- Figure 3.** Plan of the Can Mateu sector, including the section with SUs 2839 and 2859, from which the faunal assemblages were recovered.
- Figure 4.** Plan of the Can Benet site in Cabrera de Mar including the location and section of the pit filled with SU1068, from which all the faunal remains at this site were recovered (after Martín Menendez 2017: fig. 7).
- Figure 5.** Plan of the archaeological remains at Can Rodon de l'Hort belonging to the Iron Age (Iberian silos and necropolis), Late Republican period (in black) and the early Imperial period (in grey) (after Martín Menendez 2017: fig. 2).
- Figure 6.** Top: number of Iberian and Latin inscriptions from each of the archaeological sites in the valley of Cabrera de Mar (*Ilduro*) and *Iluro* between the fourth and first centuries BC. Bottom: a diachronic representation of the total number of inscriptions recovered in the valley and the Roman city of *Iluro* between the fourth century BC and the second century AD (see Supplementary Materials 1: Epigraphy).
- Figure 7.** Top: relative frequencies of the main taxonomic groups recovered at Can Benet, Can Mateu and Can Rodon, based on the total number of animal

remains recovered at each site. Bottom: relative frequencies of the main domesticates at the three sites analysed.

Figure 8. Relative frequencies of the main domesticates at neighbouring sites in three core periods (fourth–third century BC; second–first century BC; first–second century AD). The numbers at the top of the charts correspond to their location in the map above.

Figure 9. Kill-off patterns of the main domesticates (cattle, caprines, pigs) at Can Benet, Can Mateu and Can Rodon, based on the minimum number of individuals (NMI). F = foetal; VY = very young; Y = young; YA = young adult; A = adult; O = old.

Figure 10. Relative frequencies of the main domesticates at sites in the Gulf of Lion and Italy (on the right) and on sites in the area of the valley of Cabrera de Mar (on the left) dating from the Iron Age to Roman times (see Supplementary Materials 2: Fauna).

Figure 11. Diachronic integration of the main datasets presented and discussed in this study. Top: percentages of faunal categories from a sample of sites in the central coastal area of Catalonia between the fourth century BC and the second century AD. Bottom: diachronic evolution of the faunal, epigraphic, funerary and architectural practices between the fourth century BC and the second century AD in the valley of Cabrera de Mar (*Ilduro*) and the city of *Iluro*.

Table 1. Iberian inscriptions recorded and faunal data from different sites in the valley of Cabrera de Mar between the fourth and first centuries BC.

N	Sites in valley of Cabrera	Materials	NISP fauna	Iberian inscriptions	>1 sign	1 sign	Ref. fauna
1	Burriac	Inscriptions	284	22	13	9	Albizuri and Colomer 1998
2	Can Rodon (necropolis)	Inscriptions		4	3	1	
3	Turó dels dos Pins (necropolis)	Inscriptions		2	2	0	
4	Can Miralles-Can Modolell	Inscriptions		2	1	0	
5	Can Bartomeu	Inscriptions and faunal remains	616	3	3	0	Valenzuela-Lamas and Nieto-Espinet 2019
6	Turó dels Oriols	Inscriptions		1	1	0	
7	Ca l'Arnau	Inscriptions		14	8	5	
8	Can Masriera	Inscriptions		3	1	2	
9	Can Rodon	Inscriptions and faunal remains	737	10	4	6	in this paper
10	Mas Català	Inscriptions		3	2	1	
11	L'Hostal	Inscriptions		4	2	2	
12	Can Pau Ferrer	Inscriptions		1	1	0	
13	Can Canal	Inscriptions		5	0	5	
14	Can Benet	Inscriptions and faunal remains	139	1	0	1	in this paper
15	Can Borràs	Inscriptions		4	1	3	
16	Can Mateu	Faunal remains	653	0	0	0	in this paper
TOTAL			2429	79	42	35	

Table 2. Summary of the nature and recovery techniques conducted at each of the three zooarchaeological assemblages.

Site/sector	Year Exc.	Chronology	Sieving	Flotation	Type of refuse
Can Mateu	2018–19	80–70 BC	Yes	Yes	Secondary
Can Benet	1999	<i>ca.</i> 80 BC	No	No	<i>De facto</i>
Can Rodon	2010-13	<i>ca.</i> AD 70	Sporadically	No	Secondary

Table 3. Iberian inscriptions documented on the different sites in the valley of Cabrera de Mar arranged chronologically (after Sinner and Ferrer i Jané 2016: 218; 2018: table 4).

Chronology	Num.	>1 sign	1 sign	Indet. marks
fourth-third century BC	6	5	1	
second-first century BC	67	34	32	1
Indeterminate	6	3	2	1
TOTAL	79	42	37	

Table 4. Inscriptions from Cabrera de Mar according to the type of object on which they were recorded (after Sinner and Ferrer i Jané 2016; 2018).

Type of vessel	n.º Inscr.	>1 sign	1 sign	Ind. marks
Black gloss pottery	59	28	30	1
Common Iberian pottery	5	5	0	
Grey Iberian pottery	5	3	2	
Amphorae	3	2	1	
Spindle whorls	2	2	0	
Dolia	2	1	1	
Indeterminate pottery	1	0	1	
<i>Tubulus</i>	1	1	0	
Lead weight	1	0	0	1
TOTAL	79	42	35	2

Table 5. Quantification in number of remains (NISP) of the different taxa identified on the sites of Can Rodon, Can Benet and Can Mateu.

Taxons	Can Mateu (80-70 BC)	Can Benet (80-70 BC)	Can Rodon (70 AD)
Cattle (<i>Bos taurus</i>)	9	26	5
Pig (<i>Sus domesticus</i>)	77	48	93
Sheep/Goat (<i>Ovis aries</i> / <i>Capra hircus</i>)	42	21	48
Mammals			
Dog (<i>Canis familiaris</i>)	2		2
Rabbit (<i>Oryctolagus cuniculus</i>)	2		20
Red deer (<i>Cervus elaphus</i>)	1		2
Bird remains	7		10
Fish remains	10		5
Big mammal	8		
Medium-sized mammal	427	30	493
Bird remains	7		10
Fish remains	10		5
Marine shells			
Bittersweet clam (<i>Glycymeris</i> sp.)	59	12	48
Mediterranean mussel (<i>Mytilus galloprovincialis</i>)	1		
Oyster (<i>Ostrea</i> sp.)			1
Mediterranean scallop (<i>Pecten jacobaeus</i>)	1	1	
Other (indet)	9	1	
Terrestrial snails	8		10
TOTAL NISP	663	139	737

Comentado [RB46]: These are not mammals