

The phenomenon of child sacrifice at Carthage and its neighboring colonial settlements has generated much scholarly discussion, but that has largely focused on the nature of the rituals, and in particular on whether the infants were actually killed or had already died of natural causes.² By contrast, what I want to investigate here is what the cult can tell us about the construction of colonial communities. After a brief discussion of the evidence for the sites and rituals involved, I will ask what brought this group of settlements together in the first place, what sort of community developed between them, and how it eventually broke down.³

TOPHET CULT

Diodorus is just one of more than thirty Greek and Roman writers who say that the Phoenicians, and especially the Carthaginians, sacrificed their children. When a god is specified, he is called Kronos in Greek, and in Latin Saturn; when the ritual is described, it involves burning in fire.⁴ In the early twentieth century, these literary accounts began to be associated with a distinctive type of sanctuary identified in some of the Levantine settlements in the western Mediterranean: open-air enclosures containing the urn burials of cremated infants and animals (usually sheep). These individual burials are often signaled with stone markers, sometimes with inscriptions that describe votive offerings to Baal Hammon (BʿL ḤMN) and his consort, Tinnit (TNT).⁵ Some of these sites have also yielded evidence for cremation on pyres, as well as altars, shrines, and other cultic installations.⁶ The first such sanctuary was recognized at Motya in 1919;⁷ in 1921, an enormous site at Carthage came to light;⁸ and about ten have now been identified altogether, dating from the eighth to the second century BCE (fig. 5.1).

The connection between these sites and the ritual phenomenon described in the literary texts has been a matter of some controversy since they were first excavated, and by the 1990s, it was standard to dismiss the accounts of child sacrifice as hostile Greco-Roman propaganda, and to interpret the sanctuaries instead as special and especially sacred burial places for still-born children and infants, with sacrifices an exception if they happened at all. This view has now, however, been abandoned by many scholars because it is contradicted by all the available literary, archaeological, and epigraphic evidence. This includes the coherent and unequivocal claims in contemporary Greek sources that the practice existed—and which, as it happens, present this custom more as curious than repulsive—and the osteological evidence from the cremated remains that the ages of the children at death



5.1 The circle of the tophet: sanctuaries established in the eighth to the second centuries BCE, including both certain and very likely sites.

are incompatible with normal patterns of infant mortality. Most important, though, is the dedication formula on the inscriptions, reproduced thousands of times in different places and periods with hardly any variation, that describes the children as thanks-offerings, proffered because a request made by the sacrificer had been granted. In a typical example, for instance, the text reads, “To Lady Tinnit, face of Baal, and Lord Baal Hammon, (that thing) that Arish, son of Bodashtart, son of Baalshillem, maker of strigils, vowed, because he [Baal Hammon] heard his [Arish’s] voice.”⁹

We do not know what (if anything) these sanctuaries were called by contemporaries, but modern scholars quickly labeled them “tophets” after the name given in the Hebrew Bible to the place in the Valley of Ben Hinnom in Jerusalem where people were said to have killed their children and “made them pass through the fire.”¹⁰ I will use the familiar term here for convenience, though it is not ideal: there is no reference to burial in the biblical passages, and the archaeological evidence from these sites—lamps, masks,

incense burners, and images of dancing figures and women with drums¹¹—suggests that a rich variety of ritual activities took place there beyond the sacrifice and cremation of infants.¹²

Tophet sanctuaries and the practices that went on there make an ideal case study of contemporary conceptions of community and identity, enabling us to go far beyond the evidence for shared fashions discussed in the previous chapter. Even if we set aside dramatic later descriptions of mass civic rites like the one with which I began, the evidence for performative rituals suggests that tophets were collective, communal institutions. Indeed, these sanctuaries seem to have served as a focus for civic identity: they were almost always established at the same time as the settlements themselves, and they were often carefully respected by later city walls.¹³ They were also large—the sanctuary at Carthage was at least three thousand square meters in size, with at least ten thousand markers and perhaps twenty thousand funerary urns deposited there over the course of its existence from the eighth to second centuries BCE.¹⁴ There is also evidence for “public works” at the Carthage tophet, suggesting that it was actively administered, whether or not it was a formal state establishment: the sanctuary was periodically resurfaced, service roads were preserved, a *favissa* (sacred refuse pit) was created to free up space for more burials, and at some point there was a large-scale extension to the west.¹⁵

The individual depositions and inscriptions support this impression. The very repetitive nature of the formulae used to describe the act of dedication suggests that a shared social and religious ideology was at stake, and although the inscriptions on the tophet markers simply record offerings made by individuals (presumably the parents), urns containing the remains of more than one infant separated by less than nine months in age suggest that these rituals were not limited to the nuclear family.¹⁶ And Greek literary accounts, for what they are worth, suggest that at least at times the rite was conducted for the good of the whole city: in addition to the account of the mass sacrifice under siege from Agathocles in 310 BCE, Diodorus says that an epidemic in the Carthaginian army during the siege of Agrigentum in 407/6 led the Carthaginian general Himilcar to supplicate the gods by sacrificing a child to Kronos “according to his people’s custom” as well as drowning a herd of cattle in the sea as an offering to Poseidon.¹⁷

Tophets, then, were sites where gods, family, civic society, ritual, sacrifice, and death all came together, and that gave them a peculiar power to represent the people who used them both as a civic community, and a larger diasporic network. Not much larger, however: although Sabatino Moscati suggested that the tophet was a distinctive component of “Punic”

settlements in the Mediterranean,¹⁸ it is obvious from a glance at the distribution map that they are not found west of Sardinia at all. Child sacrifice, or at least its monumental commemoration, was not characteristic of the “Phoenician” diaspora as a whole, nor was it a marker of Phoenician or Punic identity. The group of central Mediterranean settlements with tophets constituted only a small subset of the wider Levantine diaspora in the west. The relative scarcity of this cult means that the users of the tophets must have formed a self-conscious group: this was a rare and highly distinctive ritual choice, and we see evidence for the same basic practices at all the surviving sites, practices that identified the worshippers with each other in a way that also served to differentiate them from their neighbors—including other Levantine migrants in the western Mediterranean. How might such a phenomenon have come about?

COMMUNITY AND DIFFERENCE

The first tophets for which we have good evidence were established at Carthage, Motya, and Sulcis on Sardinia in the mid-eighth century, all at—or possibly very soon after—the founding of the settlements themselves.¹⁹ The earliest evidence for Levantine settlement on Malta also goes back to the middle of the eighth century,²⁰ and although the evidence for a tophet there—an early-nineteenth-century excavation near Mdina found sixty vases filled with very small bones, assumed by the excavators to come from children or animals, along with two inscriptions that refer to a *molk*, or offering, to Baal Hammon—can only be dated to the seventh century by the letter-forms of the dedications,²¹ we might reasonably suspect that this sanctuary also dated to the original foundation.²²

More tophets were later established in Africa at Hadrumetum (modern Sousse) along the coast from Carthage (seventh or sixth century), and in Sardinia at Tharros (seventh century), at Nora (sixth century), and at Monte Sirai (fourth century).²³ Other potential tophet sites in Sardinia have also been identified: in addition to an as yet unexcavated site with signs of combustion identified at Pani Loriga, a settlement founded in the late seventh century, a tophet may well have existed for a relatively brief period in the seventh to sixth centuries on the island of Su Cardulinu at Bithia on the south coast, where there is an area of urns containing bones and votive objects and a small Archaic altar; and there was a cremation cemetery with urns and fragmentary markers at Karales (modern Cagliari) dating from the fifth or fourth century.²⁴ Finally, a second tophet may have been

Although Kelsey (1926) assumed that most of the Carthage Tophet urns he excavated (more than 1000) contained human remains, neither he nor his successor Harden (1927) claimed that the Carthaginians engaged in rampant, sanctioned infant sacrifice. Between 1934 and 1936, Chabot and Lapeyre unearthed more than 1000 urns at the Tophet, most of which they assumed to contain the remains of either one or two human infants and/or children, or a young human and some animal remains (Lapeyre & Pellegrin 1942).

After Charles-Picard and Cintas (Charles-Picard 1945) excavated the Carthage Tophet, they gave forensic expert Richard (1961) the contents of 42 urns. Upon combining these remains with those from 138 urns from the Hadrumentum Tophet, Richard identified one or more humans in 88 urns, human and lamb in 59, and lamb in 29.

What the bones tell us

In 1976, L.E. Stager, director of the team excavating the Tophet, invited one of the authors here (Schwartz) to oversee both the on-site processing and preliminary assessment, and the subsequent detailed laboratory analysis, of the contents of 348 urns from the Carthage Tophet (dated to around the early eighth century to 146 BC) (Schwartz 1993). Using the accepted MNI approach (minimum number of individuals as reflected in the number of the same tooth or skeletal element; Hesse & Wapnish 1985), Schwartz and Houghton documented evidence of 540 humans. Yet only urns with a MNI of one or two housed sufficient skeletal material to conclude that entire individuals were represented (Schwartz *et al.* 2010). When an urn's MNI indicated three or more individuals, there was insufficient skeletal material to argue for that number of entire individuals (e.g. there could be three incompletely represented individuals, or one or two skeletally well-represented individuals and only a few elements from other individuals).

As no single criterion can accurately assess age at death—nor in determining sex (Schwartz 2007)—Schwartz and Houghton used the standard multifactorial (multimorphological/metric) approach (Fazekas & Kósa 1979; Lovejoy *et al.* 1985; Schwartz 2007). Specifically, we (Schwartz *et al.* 2010) based estimates of age at death on: the state of crown and root formation (teeth being the most frequently preserved and analysable elements); age-related changes in basisphenoids and petrosals; and measurements of petrosals, lateral occipital parts, basiocciputs, pubes and ischia, which shrink minimally, if at all, when cremated (Krogman 1949). Through numerous re-analyses, we refined the percentages of individuals in each age category.

From accepted age-estimation criteria using tooth and cranial-bone formation, we concluded that pre-/peri-/neonates together constituted $\geq 50\%$ of the sample (Schwartz *et al.* 2010). Ages based on basicranial- and pelvic-bone measurements were determined by comparison with Fazekas and Kósa's (1979) measurements of these bones in individuals of known age. We sought to avoid the criticism that cremated bones may have shrunk by incrementally increasing each linear measurement to allow for the possibility of 25% shrinkage, well beyond the shrinkage recorded for experimentally cremated human or animal remains (see references in Schwartz *et al.* 2010). Even at 25% shrinkage, each measurement classified some number of individuals as 'prenatal'.

From these ageing criteria, we concluded that 24% were prenatal, 15% peri-/neonatal, and 17% less than 1 month of age. We tested these results via neonatal line (NL) analysis.

Identifiable in enamel only at high magnification (microns), a NL presents as a distinct, morphologically homogeneous line devoid of cross striations (Figure 1). It reflects a stress-induced disruption of enamel deposition coincident with the transition from in- to ex-utero, which may not correspond to full-term birth. NLs are always present in deciduous teeth (Antoine *et al.* 2009), which begin developing by the twentieth intrauterine week (Antoine *et al.* 2009; also Ten Cate 1989). Since first permanent molar crowns (lower M₁ or upper M¹) mineralise late in the third trimester, their NLs lie closer to the dentino-enamel juncture (DEJ) (Antoine *et al.* 2009). Given the periodicity of enamel deposition and the lag between a stress and a response to it, an individual must survive around 7, or even 10–15, post-uterine days for a NL to form (Schwartz *et al.* 2010).

For NL analysis, Schwartz and Houghton sent co-authors Bondioli and Macchiarelli 50 deciduous tooth crowns from the ‘perinatal’ category (Schwartz *et al.* 2010). Twenty-six crowns lacked a NL. In the 24 crowns with NLs, enamel thickness indicated survival of at least two weeks post-NL-formation. Upon comparing NL with our morphological/metrical age estimates (M) of the same individuals, M>NL in only 10% of the sample. As M typically equalled or over-estimated NL-derived ages, we concluded that M-based age estimates were reliable (Schwartz *et al.* 2010). Taking everything into account, we concluded that: “the Carthaginian Tophet, and by extension other Tophets, were cemeteries for the remains of human prenates and infants who died from a variety of causes” (Schwartz *et al.* 2010: 10).

When our analyses consistently identified pre- and neonates, Stager demanded return of the sample, which he sent to P. Smith (Stager 2014). Subsequently, Smith, Stager and others have since dismissed our work through misrepresentation of it, and have also rejected our results and defended the ‘all-sacrifice’ theory through erroneous assumption and incorrect criteria. Given that these allegations and misinformation appeared in this journal, we present the reader with the relevant background, arguments and correct analytical information.

A refutation?

Smith *et al.* (2011: 860–61) not only mischaracterised us (Schwartz *et al.* 2010) as asserting that the Carthage Tophet was solely “a cemetery for the burial of aborted or stillborn infants”, but also criticised us for not accounting for tooth-crown and bone shrinkage, for estimating age primarily on the basis of an inappropriate combination of petrosal length and width measurements, and for using questionable long-bone measurements and NL analysis to estimate age. They also dismissed our analysis because the percentages of identified pre-/perinates were not the same in all cranial and pelvic-bone metric analyses. As most bioarchaeologists know, however, multiple criteria will not yield exactly the same estimate, but, together, they provide a more realistic approximation of age than using one criterion. Smith *et al.* (2013) subsequently reiterated these objections and defended their age estimates based on tooth-crown height corrected for purported shrinkage, which identified most individuals as one to two postnatal months of age. From this, they asserted that the

Carthage humans were alive and available for sacrifice. We address these and other ‘bones of contention’ individually.

Only sacrifice can account for individuals in the Carthage Tophet

Regardless of whether some Carthage Tophet humans were sacrificed, it does not preclude death by natural causes (Schwartz *et al.* 2012): for example, spontaneous abortion, which is common enough today for perinatologists to refer to it as ‘reproductive wastage’ (Durfee 1987). Furthermore, if we accept that sanitary conditions at Carthage were as poor as at contemporaneous Pompeii, Ostia and Rome (Scobie 1986), all Carthaginians (pregnant women included) were susceptible to cholera, dysentery, gastroenteritis, infectious hepatitis, leptospirosis, typhoid and parasitic intestinal infestations, most of which result in severe dehydration, which remains a primary cause of peri- and postnatal death (Behrman & Shiono 1997). Also relevant to considering infant mortality are: low birth weight (Behrman & Shiono 1997); severe viral infections and malaria leading to premature birth and perinatal mortality; infectious diseases (smallpox, vaccinia, listeriosis) resulting in stillbirth; and non-infectious diseases (cholestasis, hypertension, toxemia, renal disease) causing stillbirth, abortion and preterm delivery (Taylor & Pernoll 1987). As these are today major causes of peri- and postnatal death, they must have constituted natural—and probably more prevalent—elements of Carthaginian life. As Becker (2011: 24) commented in light of the high incidence of perinatal mortality in non-industrial societies and its unexpected increase in modern industrialised societies: “The last months of a pregnancy, the process of parturition, and various stresses during the months after birth provide a frightening trio of challenges that lead to [...] ‘infant mortality’”.

Bone shrinkage

Our age estimates (*pace* Smith *et al.* 2013) did not derive primarily from measurement of the petrosal bone and an inappropriate combination of its length and width. We did measure the petrosal, but we also measured other cranial and several pelvic bones, and compared each measurement *individually* to those in Fazekas and Kósa’s (1979) ageing tables. Moreover, even though these bones shrank little, if at all, when we incrementally increased our measurements to compensate for an unrealistic shrinkage of 25%, prenates were still identified. We did not measure long bones.

Tooth-crown shrinkage

Even if cremated teeth shrink, their *morphology* and *relative states of development* do not change—a fact that others have used when comparing Carthage Tophet crowns with unburned crowns (e.g. Smith *et al.* 2011, 2013; Figure 2B). Thus, the estimates we achieved using relative states of crown formation are viable (Schwartz *et al.* 2010).

Although Smith *et al.* (2013) cited Krogman (1949) as demonstrating marked heat-induced shrinkage, he actually questioned whether this occurred, as unerupted, jaw-embedded developing teeth (as most of the Carthage Tophet teeth were) are less

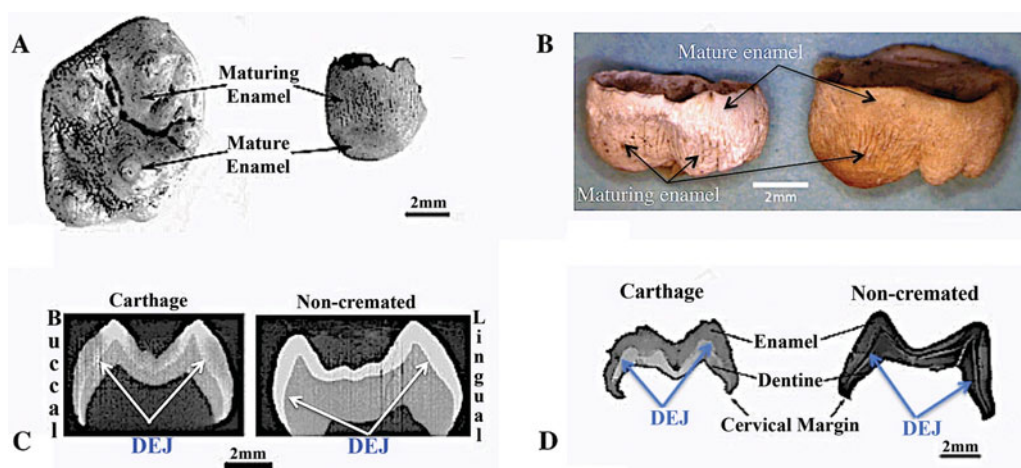


Figure 2. Shrinkage and neonatal lines. A) Developing teeth from the Carthage Tophet illustrating unaltered crown shape via continuity between mature (smooth) and maturing (uneven, due to loss of carbonate and water, not shrinkage) enamel. B) A Carthage Tophet molar (left) and an uncremated molar (right), which Smith *et al.* (2013) correctly identified as being at the same developmental age, thereby demonstrating that heat does not affect tooth morphology or relative states of development; note continuity of mature and maturing enamel on both specimens. C) Dentino-enamel junctures of Carthage Tophet and uncremated molars; Smith *et al.* misinterpreted the difference in dentino-enamel juncture clarity as indicating heat-induced elimination of the neonatal line. D) The dentino-enamel junctures of Carthage Tophet molars and uncremated molars; the dark band delineates the dentino-enamel juncture, which Smith *et al.* (2011) misidentified as a neonatal line. The 2mm scale Smith *et al.* used is insufficient to demonstrate neonatal line presence/absence. A, C & D are from Smith *et al.* (2011); B is from Smith *et al.* (2013). Black and white (B) and blue and white labelling (C, D) added by present authors.

susceptible to the effects of heat than erupted teeth, which crack and/or split (see also Krogman 1962). They also claimed (Smith *et al.* 2011, 2013) that both Shipman *et al.* (1984) and Buikstra and Swegle (1989) demonstrated heat-induced crown shrinkage. Only Shipman and colleagues cremated teeth experimentally, however, and these were erupted sheep molars, which differ from enamel-capped human teeth in having vertical plates of enamel separated by occlusally exposed fields of soft dentine. Not unexpectedly, it was not the crystalline enamel but the hydrated dentine that shrank.

Smith *et al.* (2011) compared crown heights of specimens from the Carthage Tophet with similarly formed, unburned teeth from an unidentified sample. As the Carthage crowns were 0.6mm shorter, they increased their age estimates by around four weeks. Human populations differ markedly in their tooth dimensions (Coughlin 1967; Yuen *et al.* 1997; Hanihara & Ishida 2005; Anfe *et al.* 2012), however, so any effect that heat might have on tooth size can be determined only by measuring the same teeth, pre- and post-cremation, as Deutsch and colleagues (Deutsch & Shapira 1987; Mayer *et al.* 1990; Sydney-Zax *et al.* 1991) and Soliel *et al.* (1958) did. These studies revealed that shrinkage is at best negligible—a fact that Soliel *et al.* used to identify pre- and perinates in their Carthage Tophet sample. As for Deutsch *et al.*'s studies, crown weight decreased as a result of loss of water and carbonates (see Figure 2A & B). (See also Smith *et al.* 2013 for incorrectly comparing measurements of cremated teeth from some, with uncremated teeth from other, studies as demonstration of shrinkage.)

Correcting for their inflation of ages, it is striking that Smith and colleagues' mortality distribution is virtually identical to ours when 'fetal' and 'perinatal' categories are combined (Figure S1 in online supplementary material (OSM)). This is consistent with present-day fetal/infant mortality profiles (Chalmers & Macfarlane 1980; Taylor & Pernoll 1987; Saunders & Barrans 1999): in other words, a large proportion of spontaneously aborted or stillborn fetuses (Durfee 1987), and of peri- and neonates, who are at serious risk of death during the first two postnatal weeks (Chalmers & Macfarlane 1980) (also see our NL estimates above).

Neonatal lines

Smith *et al.* (2011, 2013) claimed that heat can alter the internal structure of teeth and eliminate evidence of NLs. They also claimed that NLs may be present in permanent, but not deciduous, teeth. From these assertions, they concluded that age estimates based on NL presence/absence are unreliable.

The magnifications used by Smith *et al.* are insufficient to identify NLs: i.e. millimetres rather than microns ($1\mu = 0.001\text{mm}$). Consider their case for asserting that a NL can be present in uncremated, and absent in cremated, teeth. In their fig. 3d and 3e, they present a sectioned, uncremated M¹ that purports to show a NL and a Carthage Tophet M¹ that supposedly lacks this feature (see Figure 2C & D here). In all cases, however, Smith *et al.* illustrate the always-present DEJ, which *can* be identified at low magnification. In Figure 2C, the DEJ is better defined in the uncremated M¹ than in the Carthage Tophet M¹. In Figure 2D, the DEJ of the Carthage Tophet M¹ appears as expected (as it also does in the specimens in Figure 2C), while in the uncremated tooth, separation of dentine and enamel created a dark band that Smith *et al.* incorrectly identified as a NL. To reiterate: NLs develop not *between* enamel and dentine, but *in* enamel, and cannot be visualised in magnifications as low as millimetres.

In support of their contention that deciduous teeth may lack NLs, Smith and colleagues (2013: 1195) cite Antoine *et al.* (2009) as being able to "locate this line in only one of five teeth they examined". Antoine *et al.* (2009: 49) actually wrote that NLs can *always* be identified in deciduous crowns, which begin to form months before birth, but may be difficult to locate in the less fully developed M1 crowns of pre-, peri- and neonates because they lie close to the DEJ. This accounts for their being able to identify a NL in only one of the five permanent *molars* that they analysed (a M₁ vs 3 M₁s and 1 M¹). As we only scrutinised deciduous teeth for NLs, we stand by our results—26 of 50 crowns lacked a NL—which confirms the presence of some number of prenates.

Do other studies support the 'all-sacrifice' theory?

Richard (1961) analysed the contents of 42 urns from the Carthage Tophet together with remains from 138 urns from the Hadrumentum Tophet. From long-bone measurements representing 41 individuals, he identified 5 (12.2%) prenates (1 of 7.5 fetal months, and 4 of 8–9 fetal months), 20 (48.8%) perinates, and 16 (39%) postnates (9 of ≤ 1 month, 3 of 1–3 months, and 4 of 2–3 years). Conservatively, he suggested 1 prenat, 33 perinates and 7 postnates. Using developing teeth representing 147 humans, Richard

identified 16 prenates (10.9%), 118 perinates (80.3%) and 13 postnates (8.8%; 6 of a few months of age, 7 of 3–6 years). His conservative estimate was 13 postnates, from 2–16 prenates, and the rest as perinates. Recognising that his results were consistent with expected mortality, Richard tentatively suggested that 5% were prenatal, 75% perinatal and 20% postnatal (*pace* Smith *et al.* 2011, 2013). As 26 teeth that we classified as ‘perinatal’ lacked a NL, Richard’s perinatal category probably included prenates.

Based on a small number of bones from 16 Carthage Tophet urns, Gejvall (1949) suggested that 1 human was neonatal to 3 months of age, 7 were greater than 3 months, and 3 were 3–4 postnatal months. Given Gejvall’s small sample, his conclusions are not inconsistent with ours (*pace* Smith *et al.* 2011, 2013).

Additionally, Muller *et al.* (1952) analysed the contents of 44 Carthage Tophet urns and those of 31 urns from the Sousse Tophet. They identified humans in 32 urns, animals in 2 urns and commingled human/animal remains in 38 urns. They determined age using sphenoid development/coalescence, long-bone length, Haversian canal configuration and semicircular canal orientation: 65 individuals (around 87% of the sample) were near birth, 1 of 21 days, 2 of 30 postnatal days, and the rest of 2–3 postnatal months. Some of the 65 individuals were probably prenatal.

Recently, Xella (2009) defended the ‘all-sacrifice’ theory via his ‘new’ approach, which relied solely on classical Greek and Roman writings. Subsequently, Xella and colleagues (Xella 2010; Quinn 2011; Xella *et al.* 2013) included the interpretations of archaeologists, historians and epigraphers, which, they concluded, tell the same story: Tophets were cemeteries for sacrificed children. Smith *et al.*’s claims fit their interpretation. They (Xella *et al.* 2013) rejected our results on the grounds that analyses by Docter *et al.* (2003), Melchiorri (2010) and Ciasca *et al.* (1996) contradicted ours.

Docter *et al.* studied 6 Carthage Tophet urns. Using tooth and skeletal development, they identified 3 newborns in 1 urn, 2 newborns in each of 2 urns, 1 newborn in each of 2 urns, and one 6–9-year-old child in 1 urn. Given our results, it is probable that 3 complete individuals were not represented in that first urn, and that ‘newborn’ includes prenates.

Melchiorri analysed 72 Sulci Tophet (Sardinia) urns, and identified 52 humans, ranging in age from prenatal to 4–5 years. Of the 30 classified as neonatal, some were probably prenatal.

From the Motya Tophet, Ciasca *et al.* (1996) identified human remains in 132 urns, and comingled human and animal remains in 303 urns. They reported that the humans ranged in age from birth (the majority) to 6 months. For 112 of these individuals, they determined that 95 (84.8%) were neonates, 8 were 1 month of age, 4 were 2 months, 1 was 2–3 months, 3 were 4 months, and 1 was 6 months of age. ‘Neontatal’ undoubtedly included prenates.

Animal remains

Another defence of the ‘all-sacrifice’ theory is that as all Carthage Tophet animals must have been sacrificed, all humans must also have been sacrificed (see references in Smith *et al.* 2011, 2013; see also Xella 2010; Xella *et al.* 2013).

We identified lamb or kid alone in some urns, and lamb or kid, and infrequently bird and fish, commingled with human bones in others (Schwartz *et al.* 2010). Never, however, was there enough bone to suggest the interment of an entire animal (see Table S1 in OSM). This pattern is consistent with then contemporaneous practice: although an animal may have been killed sacrificially, only part of it (that was less desirable for eating) was burned as an offering to the gods; the rest was consumed (Detienne 1989). Given the skewed representation of animal skeletal elements, it appears that the circumstances leading to their presence in the Carthage Tophet differed from those involving humans.

Advocates of the ‘all-sacrifice’ theory also specify when this event occurred. Gejvall (1949) and Docter *et al.* (2003) thought that all lamb/kid remains from the Carthage Tophet represented spring-born neonates, and Stager (2014) extrapolated from this, and from the rare occurrence of commingled bird and human remains, to the notion of a regular springtime ritual. Our data, however, demonstrate that the low incidence of lamb/kid/bird remains, whether alone, or commingled with human bones (Table S1), cannot support the claim: *if* all humans were sacrificed, it was always in the spring. More broadly, given the number of potential natural causes of death (see above), it is unlikely that Carthaginians, whether or not interred in the Tophet, died only at certain times of the year.

Yet another justification of the ‘all-sacrifice’ theory?

As deforestation began with the founding of Carthage (van Zeist *et al.* 2001), it has been argued that nothing less profound than sacrificial cremation would warrant the use of dwindling wood resources otherwise needed for building ships and habitation (Smith *et al.* 2011, 2013). In reality, Carthage Tophet pyres typically comprised thin branches (Schwartz 1993; Docter *et al.* 2003), mostly from cultivated small trees (e.g. *Prunus*) and bushes (e.g. *Ligustrum*) (Docker *et al.* 2003). Furthermore, charcoal of the largest plant present (*Quercus*) suggests that only scraps—probably left over from large-scale construction—were used (Docker *et al.* 2003).

Conclusion

In summary, Tophets housed the remains of primarily pre-/perinates, newborns and children ≤ 5 years of age, and lay outside the city, while main cemeteries lay within city limits and typically contained humans ≥ 5 years. Only Tophet individuals were cremated and interred in urns. The disparity between urns in the presence of entire individuals, as well as often marked differences between urn contents in degree of incineration (including skeletal elements still in articulation), probably reflects differences at different times and on different occasions in acts of cremation and efforts to recover remains (Schwartz *et al.* 2010). Furthermore, cloth adhering to the internal side of a perinate’s barely burned ilium suggests that, after cooling, bones were collected and either wrapped or placed in sacks before being placed in an urn (Schwartz 1993; Figure S2 in OSM).

That Carthaginians maintained two different cemeteries is compatible with the Punic-derived, Roman-Carthaginian practice of not considering offspring as ‘persons’ until they had survived a certain number of years (Norman 2002; Stuckey 2009). Furthermore, as Becker (2011) reviews in detail from study of Cazzanello and other south Etrurian sites

(e.g. Tarquinia), the burial of prenates, perinates and even children up to five years of age in cemeteries apart from the main cemetery was apparently commonplace in Etruscan culture.

From this perspective, rather than conceiving of the Carthage Tophet as a sanctuary solely for the sacrificed, it is not unreasonable to perceive it as a cemetery for humans (with or without attendant animal sacrifices) who, having died prior to formal acceptance into society, were returned to the gods through the smoke of cremation (Stuckey 2009). Moreover, given that the Carthage Tophet and Cazzanello's children's cemetery are similar in both housing perinates and children, but only Carthage Tophet individuals were cremated, the difference between these two cemeteries is reasonably attributed to cultural differences in *burial*, not sacrificial, practice (cf. Becker 2011).

While Xella (2009, 2010; Xella *et al.* 2013) and others (e.g. Quinn (2011) defend the 'all-sacrifice' theory by giving priority to non-osteological sources—"archaeology, historical and especially epigraphic evidence" (Xella *et al.* 2013: 1206)—none can falsify osteological evidence: the teeth and bones of a prelate are the teeth and bones of a prelate. As Becker (2011: 31) cautioned in considering infant *vs* main cemeteries in Rome and Etruria: "Direct evidence suggest[s ...] that historians and others might wish to consider how the biological evidence relates to their interpretations of the written records".

Although questions remain regarding the reality and extent of Carthaginian infant sacrifice, as well as the identity of those who buried their offspring in Tophets (probably not the poor who, unable to afford formal burial, would seek other avenues for disposing of the dead; cf. Becker 2011), it seems prudent to think beyond the bizarre and inhumane, and to consider all potential aspects of daily life, in which the unspectacular and mundane are also important: Tophets were cemeteries for the very young, regardless of how they died.

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Supplementary material

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Cemetery or sacrifice? Infant burials at the Carthage Tophet

Two articles in recent issues of Antiquity have taken opposing views of the infant burials in the 'Tophet', the precinct at Carthage, sacred to the goddess Tanit, that contained funerary urns of thousands of cremated infants. The first (Smith et al. 2011) held that these must be evidence of the infant sacrifice that was so loudly condemned by Greek and Roman writers, since the infants were not perinatal, although most were under two months old at the time of death. In a rejoinder, Schwartz et al. (2012) argued that the Carthage Tophet was the place of burial for the very young regardless of the cause of death. They estimated age at death between prenatal and six months, consistent with the recorded incidence of perinatal mortality in certain societies in recent periods.

Here we close the debate with two related papers. In the first of these, Patricia Smith and her co-authors return to argue that infant sacrifice is still (in their view) the most likely interpretation of the data, based on the age distribution of the deceased. In the second, Paolo Xella and colleagues, too, are convinced that infant sacrifice took place. They step aside from the details of the cremated remains, however, to emphasise a range of other social and archaeological aspects of the Tophets in Carthage and elsewhere that are critical for understanding these sanctuaries and their rituals.

Age estimations attest to infant sacrifice at the Carthage Tophet

Patricia Smith^{1*}, Lawrence E. Stager², Joseph A. Greene² & Gal Avishai¹

Supplementary Tables S1 and S2 are published online at <http://antiquity.ac.uk/projgall/smith338/>

Introduction

The recent article on the Carthage Tophet infants by Schwartz *et al.* (2012) takes issue with our paper (Smith *et al.* 2011) that claims the Carthaginians practiced infant sacrifice. Both studies were carried out on the same sample of cremated infant remains excavated by the ASOR Punic project between 1975 and 1980 (Stager 1982). We examined the contents of 334 urns while Schwartz *et al.* (2012) examined the same sample plus an additional fourteen urns (N = 348). We differed, however, in our conclusions regarding the age distribution of the infants and the extent to which it supported or refuted claims that Tophet infants

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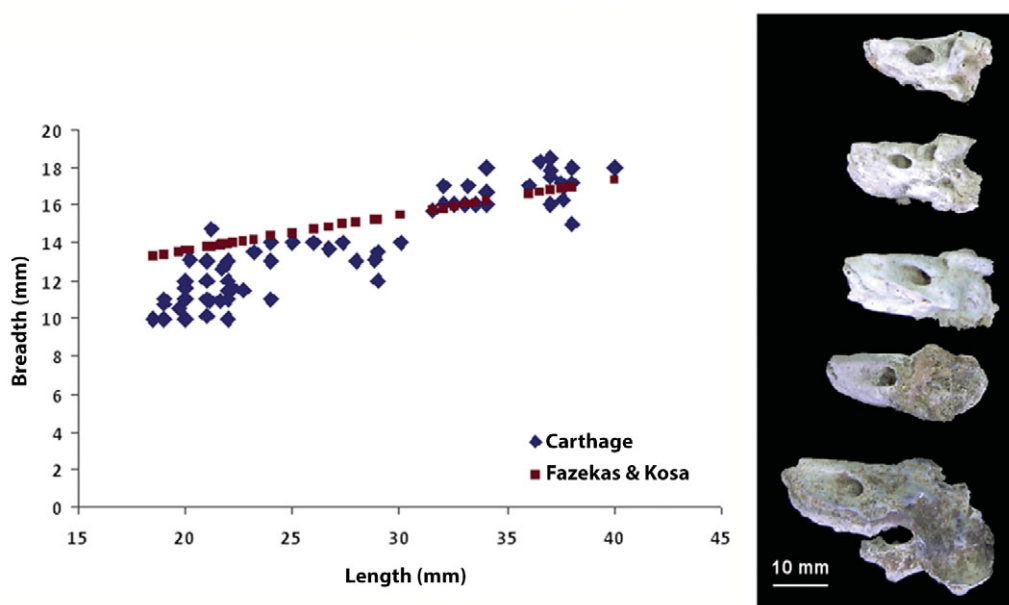


Figure 1. Scattergram showing length-breadth measurements of the cremated petrous bones from Carthage. The line of red squares shows the expected values from Fazekas and Kosa (1978). Note the wide range of variation in breadth measurements relative to length in the Carthage sample.

were sacrificed. This note explains why we think that Schwartz *et al.* (2012) erred in their age assessments and introduces additional evidence to show that the age distribution of the Tophet infants supports our contention of infant sacrifice.

We identified 1422 deciduous teeth, 74 permanent teeth and 350 petrous bones, as well as smaller numbers of other skeletal elements representing a minimum number of 372 individuals (Supplementary Tables S1 & S2; Smith *et al.* 2011). All showed evidence of incineration with colour change indicative of temperatures between 200°C (yellowish-brown) to 700°C (whitish-grey) (Bonucci & Graziani 1975; Shipman *et al.* 1984). We investigated their reliability for age estimation by comparison with non-cremated specimens of known age. We found that length to breadth proportions of non-incinerated petrous bones were highly correlated with one another (Figure 1) and with age ($R^2 = 0.833$). However, in the cremated Tophet bones these measurements were poorly correlated ($R^2 = 0.315$), reflecting uneven shrinkage of length and breadth and highlighting the unreliability of this bone for age estimation.

We found that the surface of the developing Tophet teeth was wrinkled and they had shrunk (Figure 2). Measurements taken on computerised 3D models compiled from serial micro-CT scans showed that maximum circumference in the Tophet developing molars was 18 per cent smaller than that of non-cremated teeth of similar crown height (Smith *et al.* 2011). To evaluate the effect of such shrinkage on age estimations, we compared crown height measurements reported by Soleil *et al.* (1958) for incinerated teeth with those of non-cremated forensic specimens of the same gestational age (Tables 1 & 2). We found that the incinerated teeth were 0.6mm shorter (a misprint in Smith *et al.* 2011: 862 mistakenly

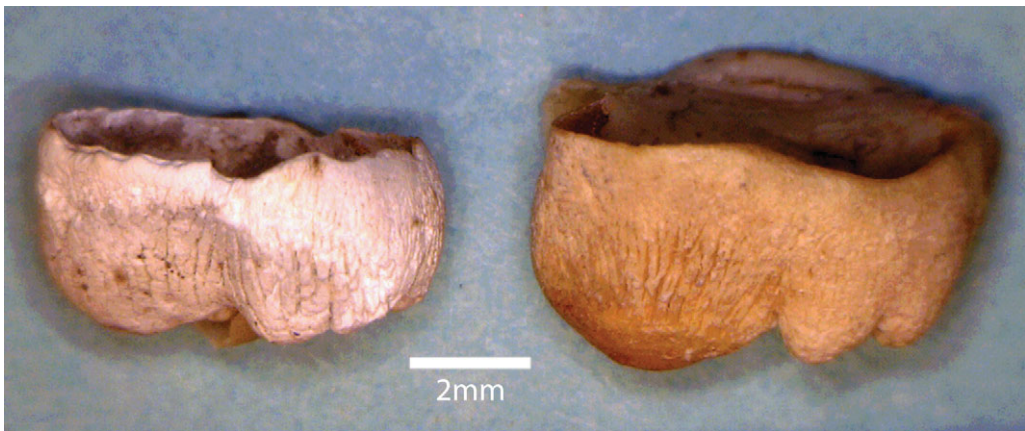


Figure 2. Photograph of a cremated tooth from the Carthage Tophet (left) compared with a non-cremated tooth (right) from an archaeological site showing differences in surface anatomy and loss of cervical enamel in the cremated specimen.

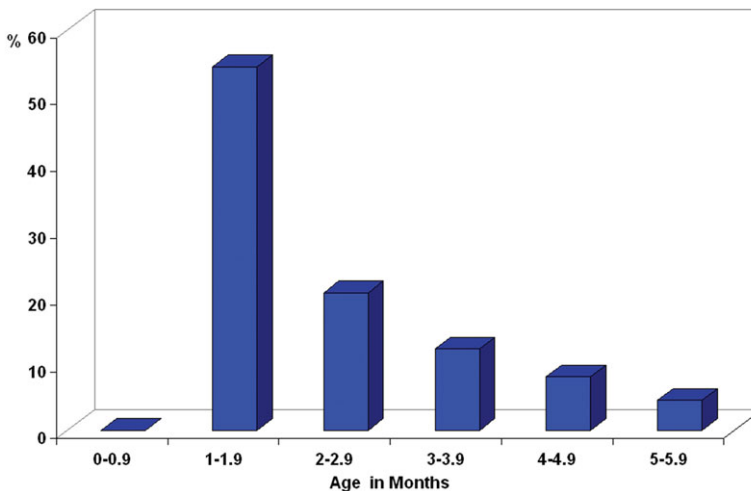


Figure 3. Frequency distribution of infant mortality derived from measurements of tooth size, after correction for shrinkage as described in text.

gave this measure as 6mm instead of 0.6mm). This represents just under six weeks' growth, assuming a daily increment of $0.15\mu\text{m}$ as reported by Deutsch *et al.* (1985) and Mahoney (2012). In order to avoid over-correction for shrinkage in different tooth types, we used a minimum correction factor of four rather than six weeks' growth in age estimations. The results are shown in Figure 3. They are consistent for all tooth types examined, with the highest frequency of infant deaths occurring between one and two months of age and dropping markedly in the following months.

Schwartz *et al.* (2010, 2012) refer to three types of age assessment: (i) bone measurements, (ii) tooth development and (iii) the location of the neonatal line. All were inaccurate because they misjudged the effects of heat-related shrinkage:

- (i) *Bones*: Schwartz *et al.* (2012) used length and/or breadth measurements of cranial and ischial bones for age estimates. They assumed that shrinkage in both dimensions was

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Table 1. Crown height in cremated and non-cremated upper deciduous teeth at different ages.

Specimens	Reference	Age	Tooth size (mm)				
			Central incisor	Lateral incisor	Canine	1 st molar	2 nd molar
Incinerated	Soleil <i>et al.</i> 1958	8 gestational months	3.1	2.2	2	2	-
Autopsy	Deutsch <i>et al.</i> 1985	8 gestational months	3.7±0.45	2.9±0.47	2.1±0.72	-	-
Incinerated	Soleil <i>et al.</i> 1958	Birth	4.8	4.2	3.3	3	1
Autopsy	Deutsch <i>et al.</i> 1985	Birth	5.2±0.43	4.2±0.36	3.1±0.48	-	-
Archaeological	Liversidge <i>et al.</i> 1993	Birth	5.4±1.04	4.5±0.82	3.4±0.94	4.0±0.38	3.1±0.55
	Cardoso 2007	Birth	5.4	5	4.2	4.2	3.4
Incinerated (includes root length)	Soleil <i>et al.</i> 1958	8 months after birth	8	6.6	5.5	5.1	5
Archaeological (includes root length)	Liversidge <i>et al.</i> 1993	8 months after birth	9.8±0.19	8.7±0.17	6.7±0.22	7±0.25	5.65±0.26
	Cardoso 2007	8 months after birth	11.1	8.8	7.4	7.9	6.2

Table 2. Data on crown height and crown formation times used to assess rates of growth in crown height.

Reference	Parameter	Tooth type				
		Central incisor	Lateral incisor	Canine	1 st molar	2 nd molar
Liversidge <i>et al.</i> 1993	Measurements (mm)	6.17±0.53	5.92±0.49	7.0±0.44	5.86±0.39	6.33±0.39
Mahoney 2012	Crown formation time (days)	388	345	474	-	-

Note: Daily rate of increase in crown height of the upper central deciduous incisor was calculated using data in this table, where an upper deciduous incisor height of 6.17mm and a crown formation rate for this tooth averaging 388 days (Mahoney 2012) is considered equal to 0.159µm increase in crown height per day (cf. 0.15µm reported by Deutsch *et al.* (1985) from a cross-sectional study of foetal teeth). The 0.6mm difference in crown height for this tooth, between cremated and non-cremated specimens of the same gestational age as shown in Table 1, means that shrinkage in this tooth was equivalent to 40 days' growth, approximating six weeks.

similar to that reported in the literature for long bone length. However, Gilchrist and Mytum (1986) have shown that the pattern of shrinkage is related to bone shape. This may explain why Fazekas and Kosa (1978: 357–71) excluded cranial bones from their standards published for age estimation of cremated remains. Our study exemplifies the errors resulting from their use (Figure 1), but they are also apparent in the data published by Schwartz *et al.* (2012: fig. 2), showing consistent differences in age distribution based on length as opposed to breadth measurements of the same bone.

- (ii) *Tooth development*: Schwartz *et al.* (2012) insisted that developing teeth are fully mineralised and do not shrink when incinerated, quoting Antoine *et al.* (2009) as their authority. Antoine *et al.* (2009: 53) do not, however, discuss this, simply noting that “the last formed friable enamel is frequently lost, contributing to under estimations [in age] of from two–five weeks”. In fact tooth enamel is only 30–60 per cent mineralised until shortly before crown completion (Deutsch & Pe’er 1982; Smith *et al.* 1989; Robinson *et al.* 1995, 1998; Chadwick & Cardew 2007). Forming teeth, with a high organic content, therefore shrink during cremation, which affects age estimations (Smith *et al.* 2011), while the highly mineralised enamel in fully formed teeth cracks and shatters at the same temperatures (Schmidt 2008).
- (iii) *Neonatal line*: further inconsistencies can be seen in the age estimates given by Schwartz *et al.* (2012: tab. 3) where age estimates based on the location of the neonatal line and skeletal age of the same individual differ in 20 out of 22 individuals. Moreover, *contra* their claims, absence of a neonatal line in some of their specimens is not in itself evidence of perinatal death. For example, Antoine *et al.* (2009) were able to locate this line in only one out of five teeth they examined from three- to four-year-old children. They reported that inability to visualise the neonatal line may result in underestimation of age by as much as 12 weeks. Since the visibility of the neonatal line depends on the light-scattering effect associated with differences in the angulation of the prisms between the neonatal line and adjacent enamel, its visibility is even further impaired in cremated teeth where heat-related changes affect the chemical and crystalline composition of the enamel (Mayer *et al.* 1990; Person *et al.* 1997; Lebon *et al.* 2008).

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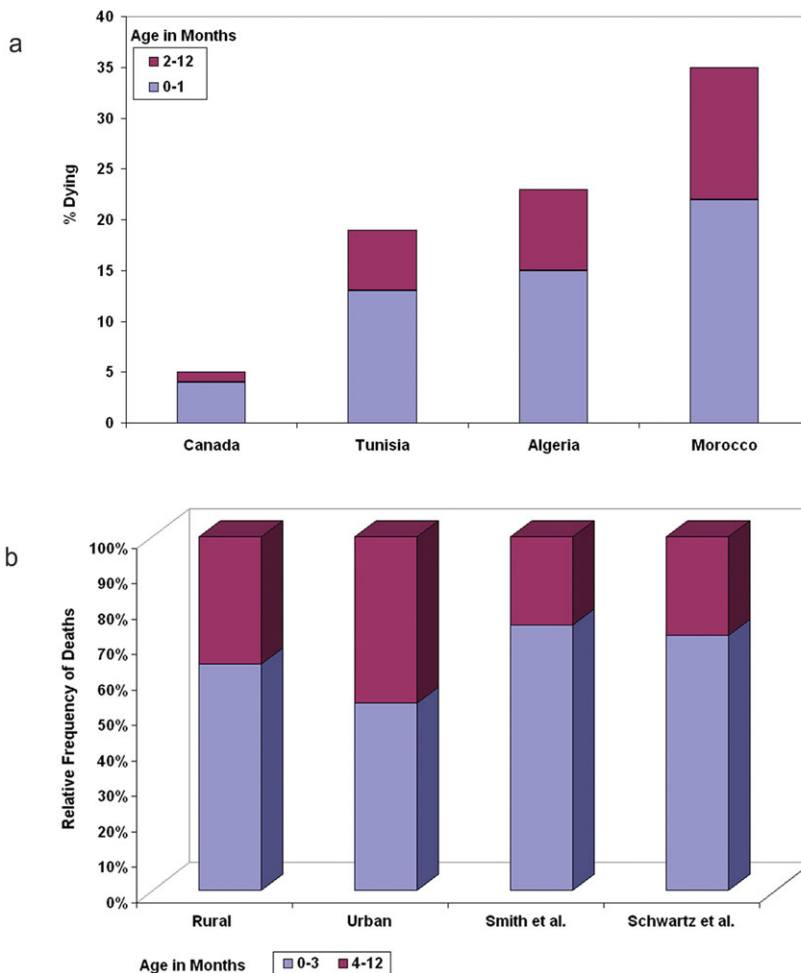


Figure 4. a) Regional differences in infant death rates. Note the increase in the relative frequency of deaths in older infants (2–12 months) in countries with higher rates of infant mortality (data from WHO 2011). The exceptionally low frequency of older infants in the Tophet samples (shown in Figure 4b) thus deviates from expected mortality rates. b) Comparison of the relative frequency of deaths in infants at Carthage (data from Smith *et al.* 2011; Schwartz *et al.* 2012) and rural and urban regions of England and Wales in 1889–91 (data from Galley & Wood 1998). Note the similarity in proportions of older and younger infants in both Tophet samples, and the difference between them and nineteenth-century England and Wales, which have markedly higher proportions of deaths in the older age group.

Infant mortality rates in the Carthage Tophet: comparison of the studies

Given the different methodologies underlying the studies by Schwartz *et al.* (2012) and Smith *et al.* (2011) it is not surprising that our age estimations differ most for the youngest infants, where growth rates are fastest, so that minor differences in length mean major differences in age estimations (Mays & Evers 2011). Our study was one of three independent investigations carried out on different samples of cremated Tophet infants (Gejvall 1949; Richard 1961;

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Smith *et al.* 2011) all of which concluded that the age distribution of the Tophet infants was evidence of sacrifice. We attribute the difference between these results and those of Schwartz *et al.* (2012) to the fact that the latter failed to evaluate the reliability of the standards they used for age estimations in cremated infants. Their dental age estimations were obviously incorrect, since they were based on a false premise—namely that forming enamel does not shrink. This means that they under-estimated the ages of all infants that were younger than two to three months of age, the time at which the first deciduous teeth (incisors) complete crown formation (Liversidge *et al.* 1993; Mahoney 2012).

Regrouping our data, as well as that of Schwartz *et al.* (2012), into three-month intervals shows a similar pattern in both, with a marked drop in the three–six month age group. This contrasts with the expected pattern for infant mortality rates in pre-industrial societies (Galley & Wood 1998), Roman Carthage (Norman 2002, 2003) or societies without medical care at the present time (WHO 2011) (Figure 4). These are more appropriate analogues than those used by Schwartz *et al.* (2012), who compared Tophet infant mortality rates to those of mid-twentieth-century England and Wales, where mortality rates are modified by access to modern medical care.

The distribution seen in the Tophet reflects selection of a specific age cohort for expensive funerary rites and interment, in contrast to the more cursory funeral rites accorded other infants and children buried in Phoenician cemeteries at Carthage (Olive 1982) or on the Levantine coast (Smith *et al.* 1990, 1993; Trelliso 2004) and runs counter to known mortuary practices in the past that paid less attention to infant death than that of older individuals (Gittings 1984; Holck 1995; Lovell 1997; Scott 1999). Moreover, even those who oppose the concept of infant sacrifice at Carthage admit that the numerous animal remains found in the Tophet, that were cremated and interred in the same fashion as the infants, were sacrificial offerings (Gras *et al.* 1991).

We propose that the aberrant age distribution found in the Tophet, which reflects selection of a specific age cohort of infants under three months old, provides unequivocal evidence of infant sacrifice at the Carthage Tophet.

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“Tophet” An Overall Interpretation

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Abstract

This study aims at offering a general interpretation of the tophet-phenomenon in the light of present knowledge. Direct as well as indirect sources are reexamined, and the hypothesis of the tophet as child-necropolis is excluded. On the contrary, it is analysed as a cult-place where newborn or very young children (and lambs and kids) were sacrificed to the gods as a consequence of a vow, made by a single, a family or a collectivity. To be sure, ritual infant killings were not the only ceremonies carried there, but archaeological evidence testifies that the very core of the rites was the child-sacrifice. As a consequence, an interpretive model is proposed, based on the vowing-dynamics: if a vow (*ndr*) was made, and the prayer was fulfilled by the gods, the promise must be kept at all costs. This interpretation matches with all our sources and can explain both the votive character of the inscriptions and the eventual (even if rare) presence of foetuses in the urns, i.e. children vowed to the gods already before the birth, and dead during the pregnancy, but carried to the tophet, sacrificed and burnt to the gods all the same.

Keywords

Tophet, child-sacrifice, Phoenicians, Carthage, vows, Old Testament.

In the course of their history, during the 1st millennium BCE, the Phoenicians and the Carthaginians left many traces of their cult-places. Both in the Levant and in the Mediterranean basin, the archaeological and epigraphic evidence, as well as the classical (Greek and Latin) sources, testify the existence of many temples and sanctuaries in the Mediterranean sites, consecrated to different divinities. In general, it deals with cult places peculiar to this culture, but not radically different from the general concept of “sacred space” which we find, e.g. in the classical world¹. A few particular open-air cremation sanctuaries, exclusive of the Phoenician and Carthaginian tradition, represent the big exception, without any parallel in other ancient cultures. According to a long academic tradition, we use to call them “tophet”.

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* This study is a revised and enlarged version of both XELLA 2012 and a conference I held at the University of Bochum (24.01.2013, at the kind invitation of prof. dr. Bärbel Morstadt). To Valentina Melchiorri I am indebted for many useful remarks and profitable critical discussions; many thanks also to Andrea Ercolani and José Ángel Zamora López for their stimulating comments. I am also grateful to those who generously shared their unpublished materials with me. Of course, I alone am responsible for the opinions expressed in this paper.

¹ See generally RAVENTOS – RIBICHINI – VERGER 2008, and particularly for Phoenician cult-places, KAMLAH 2009 and 2012.

It is well known that the word tophet² is a biblical Hebrew term, conventionally used – even if not totally arbitrarily (see *infra*) – to denote Phoenician and Carthaginian cremation child sanctuaries spread throughout central Mediterranean (Carthage and a few other sites in North-Africa, Sardinia and Sicily) from the 8th century BCE until the 2nd century AD³. As far as the most archaic period is concerned (as in the exemplary case of Carthage), they are a few Phoenician settlements, destined at the moment of their foundation to become important colonial centres. So far, archaeological evidence has not (yet?) been found in the Levant or in the Phoenician and Punic⁴ "Far West" territories (Iberian Peninsula and Morocco). As far as Malta is concerned, even if we lack direct archaeological evidence, the existence of an early tophet at Rabat seems probable, in the light of the epigraphic (two stelae with typical votive inscriptions, to be dated to the 7th cent. BCE)⁵ and osteological finds (60 urns with unidentified bones discovered two centuries ago and now lost)⁶. By far less probable is the case of Amathus, in Cyprus, where the evidence is unclear, so that it is necessary to wait for a complete and thoroughly publication of the data⁷. Finally, as for Achziv, in Israel, the presence of a tophet seems at present to be excluded⁸.

The tophets represent one of the most difficult and complicated historical-archaeological problems in the ancient Mediterranean. Since the discovery of the first sanctuaries (chronologically, Nora and Cagliari, but above all Salammbô-Carthage) more than one century ago, the functions of the tophet still remain open to debate.

The tophets preserve the cremated remains of children (generally, newly born or very young); nevertheless, they are not common necropolis⁹; in spite of the testimony

² The term is only attested in the Masoretic text and the rabbinic commentaries, and variously transliterated in the versions. Explicit mentions of it are in 2 Kings 23,10; Jer. 7,30-32; 19,3-6.11-14; Job 17,6; Isaiah 30,31-33. Nevertheless, other (more or less direct) allusions can be found elsewhere, e.g. where the Valley of Ben-Hinnom, the *bāmôt* (the so called "high places"), and the rite of "to let pass through/into fire" are mentioned (see *infra* and also other contributions in this volume, particularly by F. Stavrakopoulou).

³ In addition to the contributions published in this volume, see in general (without no claim to completeness): BONDÌ 1979; MOSCATI 1987; RIBICHINI 1987; ACQUARO 1990 and 1993; MOSCATI – RIBICHINI 1991; PICARD 1990; BROWN 1991; GROTTANELLI 1999; RIBICHINI 2000 and 2002; CIASCA 1992 and 2002; BERNARDINI 2002 e 2008; GONZÁLEZ WAGNER – RUIZ 2002; BÉNICHOU-SAFAR 2004; GUARNERI 2004; AMADASI GUZZO 2002 and 2007-2008; GARNAND 2002; BONNET 2010; MELCHIORRI 2010; QUINN 2011; XELLA 2010a and 2011; D'ANDREA – GIARDINO 2011; MACCARTY 2011; XELLA 2012; XELLA *et al.* 2013. For a synthesis of previous studies until 2005, see XELLA 2006.

⁴ I am perfectly aware of the inadequacy of such terminology, which I use here only for the sake of brevity, see PRAG 2006 and the contribution by J. C. Quinn, in this volume.

⁵ CIS I 123 (*KAI* 61A = *ICO* Malta 4) and 123 bis (*KAI* 61B = *ICO* Malta 5). In both cases, it is a *mlk*-sacrifice offered to Baal Hammon, called *mlk b 'l* in the first inscription and *mlk 'mr* in the second.

⁶ See the recent assessment by VELLA 2013.

⁷ In spite of preliminary news by KARAGEORGHIS 2000. See provisionally CHRISTOU 1998 and AGELARAKIS – KANTA – STAMPOLIDIS 1998.

⁸ Some scholars (see e.g. PRAUSNITZ 1986) have claimed the presence of a tophet, and A. Mazar too uses this term for the northern cemetery, but the data furnished by MAZAR (2001) himself prove that no cremated child remains were found there.

⁹ XELLA 2010.

of Greek and Latin writers and Biblical evidence (all clearly speaking of child-sacrifices), some scholars have still doubts about the very nature of the rituals. Besides this important aspect, the tophets pose a series of different problems concerning archaeology, epigraphy, history of religions, classical and Semitic philology, which cannot be tackled without taking into consideration the whole documentation, according to a strict methodology.

Usually, studies so far have been restricted by far too generalised an approach to the problem of the tophet, considered overall as a static entity. Instead, it is crucial to study in depth the particular features of each sanctuary in rigorous diachronic and contextual terms.

A list of the tophets founded in a chronological period, from the 8th century to the 4nd century BCE (the chronology is approximate and conventional), is as follows:

Archaic ("first generation") sanctuaries:

Carthage	800 BCE until the destruction of the city (146 BCE)
Sulci	750 BCE to 2 nd / 1 st cent. BCE
Mozia	end of the 8 th cent. to beginning of the 3 rd cent. BCE
Tharros	beginning of the 7 th cent. to 3 rd / 2 nd cent. BCE
Bitia (?)	end of the 8 th cent. to 6 th cent. BCE
Malta (?)	8 th / 7 th cent. BCE (?) ...

Other sanctuaries:

Sousse	7 th / 6 th cent. BCE to 1 st cent. AD
Nora	6 th cent. BCE to Hellenistic period
Cagliari	5 th / 4 th century BCE until –?
Monte Sirai	4 th cent. BCE (370/360) to 2 nd cent. BCE

There is a somewhat different phenomenon – nevertheless, also to be included in the phenomenology of the tophet even if with own cultural features and historical dynamics – for which there is evidence from the 4th / 3rd century BCE in North Africa (Tunisia, Algeria, Libya). It is a series of cremation child sanctuaries that arose under (direct and indirect) Carthaginian influence and continued to be active even after the fall of the Punic metropolis (146 BCE). Their existence generally ceased about the 2nd or at the beginning of the 3rd century AD. After this period, generally they became (in various ways but not systematically)¹⁰ cult-places dedicated to the god Saturnus and his bride Caelestis (Iuno Caelestis Africana), the Latin successors of the former Phoenician gods, Baal Hammon and Tinnit (Pene Baal).

Such later tophets reflect different – even if not radical – historical, religious and political realities, in many respects, unlike the most ancient sanctuaries (e.g. the rites often seem to have a collective and official character). For some of these cult-places there is direct archaeological evidence¹¹; in other cases, the presence of a tophet is

¹⁰ See the contribution by M. M. McCarty in this volume.

¹¹ See e.g. Thugga (Dougga), Henchir el-Hami, Makthar, Henchir Médeina/Althiburos, Henchir Ghayadha, Henchir Meded (Mididi), Sabratha.

supposed due to the recovered materials (votive stelae, with or without inscription, urns, altars, *unguentaria*, etc.), but it has hardly been demonstrated that *all* these cult-places are sanctuaries for child cremation¹².

This very general dichotomy already shows the necessity of taking into account the "individual" history of each sanctuary and its peculiarities, both geographical-chronological and archaeological. Nevertheless, it cannot be denied that the tophets have basic common aspects, concerning their location and characteristic finds (chiefly urns, stelae and votive inscriptions).

The location of the tophet is always and everywhere related to the urban planning of the settlement. The sanctuary is liminal to the settlement (generally, but not always, on its north side); its area is permanent, i.e. never shifted elsewhere (even if it can be extended or partially restructured). As noted above, tophets have been found in settlements destined to become important urban centres and to act as "landmarks" for other minor centres and even whole regions.

The really characteristic findings of the tophets are, first of all, urns and stelae, even if other cult objects and structures have been recovered. The urns contain the cremated bones of (chiefly very young) human beings, of animals (mostly, lambs and kids, also very young) or both mixed together; they are the basic and most ancient elements in these sanctuaries. The cineraria, protected in various ways (by stone baskets or pits), cannot be repositioned. The stelae, whether inscribed or not, are chronologically later than the urns and can be repositioned or reutilised¹³. On the surface of the tophet there are also *sacella*, altars, small or large places for incineration, other service buildings and transit areas. In addition, we have evidence of internal topographical subdivisions of the areas, even though it is impossible to formulate any precise hypothesis.

In respect of the documentation on tophet-sanctuaries, a primary distinction must be made between direct and indirect sources.

¹² See (in alphabetic order) the following (provisional) list: for Tunisia, Aïn Barchouch, Aïn Touna (Thignica), Bulla Regia, Jerba, El-Ghazaizya, El-Kef, El-Kenissia, El-Ksour, Ellès (Ululas), Henchir Bou Chebib, Henchir Drombi, Henchir el-Blida (Abitinae), Henchir Guergour (Masculula), Henchir Kasbat (Thuburbo Maius), Henchir Sidi Belkassam (Thuburnica), Kesra, Ksar Lemsa, Ksar Toual Zouamel (Vicus Maracitanus), Maghraoua, Mateur (?), Menzel Harb, Ras Boutria (Acholla), Sidi Ahmed el-Hachemi, Sidi el-Hani, Siliana, Teboursuk (Thubursicu[m] Bure), Thala, Thibar, Henchir Zian; for Algeria (see a first list in XELLA 2011), Aïn el-Kebch, Aïn Joussef, Aïn-Nechma (Thabarbusis), Arseu (Portus Magnus), Cherchel (Iol-Caesarea), El-Hofra/Constantine (Cirta Regia), Guelat Bou Sba, Gouraya/Gunugu, Guelma (Calama), Henchir Bou Atfan, Kef Bezioun (Zattara), Kef Smaar (Columnata), Khallik, Ksiba Mraou, Le Kheneg (Tiddis), Les Andalouses (Castrum Puerorum?), N'gaous (Nicivibus, near Sétif), Oujel (Uzelis), Qalaat Abi s-Siba, Dellys (Rusuccuru), Souk Arhas (Thagaste), Takembrit (Siga), Ténès, Tipasa of Mauretania, Tipasa of Numidia (Tiffech), Tirekbine; for Lybia, Labdah. In several cases, I am convinced that the evidence is insufficient to consider them as tophets, i.e. due to the lacking of cinerary urns. On the contrary, in according to the analysis of M. M. McCarty, in this volume, they are to be considered in the light of different local strategies relating to cult-and identity.

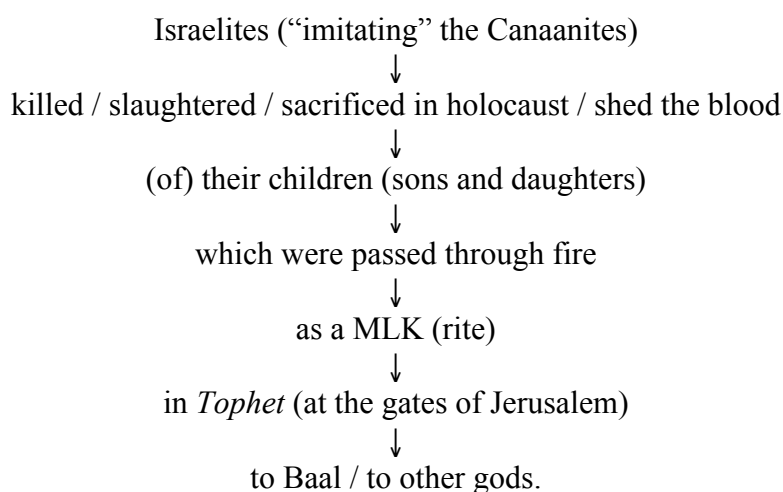
¹³ All this demonstrates that the main object of the offerings is not the stela, as has been proposed, but the cinerary urn and its contents.

The direct sources are archaeological *lato sensu* (included the data of the osteological, archaeozoological and carpological analysis)¹⁴ and epigraphic.

The indirect sources are information provided by Greek and Latin authors (about human sacrifices in the Phoenician and Punic world) and by biblical writers (on the tophet in Jerusalem and bloody rites in ancient Syria-Palestine).

Here I cannot tackle either the classical sources (which I have already collected, classified and discussed in a recent work, where I hope I have demonstrated their essential reliability)¹⁵, or the biblical evidence (which is analysed by other scholars in this volume)¹⁶.

Nevertheless, with regard to the Bible, if we collect all the relevant passages and analyse them thoroughly and synoptically, we will discover that no less than about 25 passages in the Old Testament testify more or less directly that Israelites and Canaanites (i.e. Phoenicians) sacrificed (and burned) their children (sons and daughters: the expression does not necessarily refer to firstborn) in Tophet, near Jerusalem, according to the following outline:



¹⁴ For the fundamental importance of osteological analyses, see the contribution by V. Melchiorri in this volume.

¹⁵ XELLA 2009. See also the contribution by B. Garnand in this volume.

¹⁶ See e.g. the contributions by F. Stavrakopoulou, P. Mosca and Garnand *et alii*. The problem of the relationship between the biblical tophet and the Phoenician and Punic cremation sanctuaries must be tackled much more systematically and thoroughly and, above all, on the basis of a complete and direct knowledge of the texts (which is often lacking in many studies). The most recent (and objective) monograph about this topic is STAVRAKOPOULOU 2004 (with previous literature). Some valuable contributions are found also in FINSTERBUSCH – LANGE – RÖMHELD 2007 (in particular, those by A. LANGE and M. BAUKS), and also BAUKS 2008.

Texts	Offerer(s)	Rite	Terminology	Victims	Place	Addressee(s)
Dt 12,31	Canaanites (<i>hgwym</i>)	to burn in fire	*šrp b 'š	sons and daughters	not specified	"their gods"
Dt 18,10	Canaanites (<i>hgwym</i>)	to make pass into fire	*'br b 'š	son or daughter	not specified	not specified
2K 16,3	Ahaz, king of Judah	to make pass into fire	*'br b 'š	son	(Ben Hinnom Valley: see 2Chron 28,3)	not specified
2Chron 28,3	Ahaz, king of Judah	to make pass into fire	*'br b 'š	sons	Ben Hinnom Valley	not specified
2K 17,17	Israelites	to make pass into fire	*'br b 'š	sons and daughters	not specified	(Baal ?)
2K 17,31	Sefarvaites	to burn in fire	*šrp b 'š	sons	<i>bāmôt?</i>	gods of the Sefarvaites Adrammelek and Anammelek
2K 21,6	Manasseh, king of Judah	to make pass into fire	*'br b 'š	son	(Ben Hinnom Valley: see 2Chron 33,6)	not specified
2Chron 33,6	Manasseh, king of Judah	to make pass into fire	*'br b 'š	sons	Ben Hinnom Valley	not specified
2K 23,10	Israelites (Josiah's reform)	to make pass into fire as a MLK-sacrifice	*'br b 'š lmlk	son and daughter	<i>tophet</i> , Ben Hinnom valley,	not specified
Lev 18,21	Israelites	to make pass (into fire) as a MLK-sacrifice	*'br lmlk	seed (<i>zr'</i>)	not specified	not specified
Lev 20,2-5	Israelites, foreigners	to offer in MLK-sacrifice; to prostitute himself to MLK	*ntn lmlk *znh lmlk	someone of own seed (<i>mzr'</i>)	sanctuary of Yhwh	not specified
Isa 30,33	not specified	<i>tophet</i> prepared for the MLK-sacrifice, with pyres	*'rwk tpt lmlk	not specified	<i>Tophet</i>	not specified
Isa 57,5-6	Israelites	to slaughter	*šht	children (<i>yld</i>)	Valleys	not specified
Jer 2,23	Israelites	to contaminate	*tm'	not specified	(Ben-Hinnom) valley	Baals
Jer 3,24	Israelites	abomination	*bšt	son and daughters	not specified	not specified
Jer 7,31-32	Israelites	to burn in fire	*šrp b 'š	sons and daughters	Ben Hinnom Valley, <i>tophet</i> , <i>bāmôt</i>	not specified
Jer 19,4-6	Israelites	to burn in the fire, holocausts for Baal	*šrp b 'š 'lwt lb 'l	sons	Ben Hinnom valley, <i>tophet</i> , <i>bāmôt</i>	Baal
Jer 19,11-14	Israelites	<i>tophet</i> : its function will change to a burial place	*qbr btpt	not specified	<i>tophet</i> (Jerusalem)	not specified
Jer 32,35	Israelites	to make pass (into fire) in MLK-sacrifice	*'br lmlk	sons and daughters	<i>bāmôt</i> of Baal, Ben Hinnom Valley, <i>tophet</i> , sanctuary of Yhwh	(Baal)
Ez 16,20-21	Israelites	to sacrifice as food; to slaughter and to make them pass (into fire)	*zbh l 'kl *šht + *'br	sons and daughters	(Jerusalem)	idols
Ez 16,36	Israelites	to offer blood (to idols)	*ntn dm	sons	(Jerusalem)	idols
Ez 20,26	Israelites	to make pass (into fire)	*'br	firstborns (<i>p̄tr r̄hm</i>)	(Jerusalem)	not specified
Ez 20,28-29	Israelites	to sacrifice	*zbh	not specified	<i>Bāmôt</i>	not specified
Ez 20,31	Israelites	to make pass into fire	*'br b 'š	sons	(Jerusalem)	idols
Ez 23,37-39	Israelites (metaphors for Samaria and Jerusalem)	to make pass into fire (as food for idols); to slaughter	*'br b 'š *šht	sons	(Ben-Hinnom Valley); sanctuary of Yhwh	idols
Psalms 106,34-39	Israelites	to sacrifice; to shed the blood (of)	*zbh *ngy dm	sons and daughters	-	idols
Job 17,6	Job	<i>tophet</i> : mockery before the people	whšgny lml 'mym / wtpt lpnym 'hyh	-	<i>Tophet</i>	-

Several biblical texts clearly speak – directly or indirectly – of infant killing in *Tophet*, and the picture resulting from all the information (on the basis of a rigorous textual critique) is coherent and totally indisputable. The reality of child sacrifices in the “Canaanite” and Israelite context is now accepted by most scholars; as far as the “fundamentalists” are concerned, the question to be argued is whether or not this kind of rite was related to the Yahwistic cult¹⁷.

Nevertheless, some scholars (above all, in the field of Punic studies) continue to claim that biblical texts do not speak explicitly of ritual infant killing¹⁸: this statement is simply wrong. It is necessary to consider *everything* what the Bible says about *tophet*, *mlk*, the rite of “passing through / into fire”, the Ben Hinnom valley, daughters and sons sacrificed, and the related terminology. An extremely attentive and complete reading of Biblical passages is needed, before venturing on inexact or unfounded assertions.

In fact, in the Old Testament we find the verb *šḥṭ* “to slaughter” (Isa. 30,31-33; Ez. 16, 20-21 and 23,36-39); the verb *zḥḥ* “to kill in sacrifice” or simply “to sacrifice” (Ez. 20,28-29; Ps. 106,34-39); the term “holocaust” (*wlh*) (Jer. 9,3-16), exactly the same term used for Abraham and Isaac (Gen. 22,1ff.), Mesha and his son (2Kings 3,26-27), and Jephthah and his daughter (Judg. 11,29ff.); the expression *nqy / ytn dm* “to shed / to offer the blood” (of children) (Ez. 16,36; Ps. 106,34-39), not to mention other allusions. In this case, ignorance is to blame; otherwise the alternative is intentional misunderstanding.

At any rate, if analysed comprehensively and without prejudice, both biblical and classical sources provide evidence for actual human sacrifices, where the victims are children killed and offered as a holocaust to the god Baal (Hammon), Greek Kronos, Latin Saturnus¹⁹.

Theoretically, this does not mean *a priori* that these sources could not be wrong, but it is almost paradoxical to suppose that *all* are wrong and dismiss them.

In any case, we can state that:

- a) it is impossible to interpret such evidence as not concerning ritual killings;
- b) it is incorrect to select arbitrarily and to “edulcorate” the documentation, emphasizing *ad usum delphini* some variants that are fully explicable on a historical basis²⁰, without taking into account the data as a whole, especially the most explicit²¹;

¹⁷ See note 9.

¹⁸ In addition to the articles by M. Weinfeld in his *querelle* with M. Smith (WEINFELD 1972 and 1978; SMITH 1975) see, *inter alia*, S. Moscati, “Il sacrificio dei fanciulli”, in MOSCATI 1989: 99-113: “Dal libro dei Re a quelli profetici di Isaia e Geremia si ripete l'accusa per la costumanza, riprovata dal dio di Israele, di ‘passare per il fuoco’ (questa è l'espressione esatta) fanciulli e fanciulle. Ma di una previa uccisione degli stessi, nulla mai si dice” (here 111); see also BARTOLONI 2006, 70.

¹⁹ On this god and his cult places see LEGLAY 1961-1996, 1988; XELLA 1991. Further documentation in CADOTTE 2007 and also in LANCELOTTI 2010. All this is perfectly consistent with the information provided by direct epigraphic sources, which provide evidence of a *regular cult*: they are human sacrifices, and not *sporadic* ritual killings. On this aspect and the terminology used, see XELLA 2010b.

²⁰ An illustration. Some scholars draw attention to a presumed inconsistency in the inscriptions, because since 5th cent. BCE, the Carthaginian tophet provides evidence of a second addressee of sacrifices (in addition to Baal Hammon), i.e. the goddess Tinnit; but this is a purely local phenomenon, because Baal Hammon continues to be mentioned as the supreme power and the verbs expressing the divine favour in the inscriptions (*šm* “to hear” and *brk* “to bless”) are in the 3rd m. s. It is probably a change

c) it is by far more reasonable and "economical" to elaborate an interpretive theory according to *all* our sources, instead of ignoring, or even clashing with all (or most) of them. Some scholars try to "square the circle", systematically questioning almost every source, sometimes appealing to an *argumentum ex silentio* (in the case of an ancient writer), or forgetting (more or less intentionally) that biblical Canaanites are *tout court* Phoenicians (as proved many years ago by S. Moscati, G. Garbini, myself, and others)²².

At any rate, the *conditio sine qua non* for every scientific interpretation is a sound and comprehensive knowledge of the whole documentation, both direct and indirect. It is necessary to find *the simplest reading key*, as consistent and unitary as possible, which can satisfy most (if not all) of the questions: the principle of Occam's Razor, which is still valid: *entia non sunt multiplicanda praeter necessitatem*, i.e. the simplest explanation is the most plausible until evidence is presented to prove it false.

Regarding the most relevant questions, I propose (with no claim to completeness) the following:

- Why are the tophets so limited in number and exist only in some towns?
- Why cannot we find tophets everywhere, if they are related to a *general* funerary ideology?
- Why are the inscriptions votive, and not funerary?
- Why is the number of incinerated children relatively few, in comparison to the very high rate of infant mortality at that time?
- Since it is clear that a type of selection was involved, what were its criteria?
- Why do we find both newborn babies (quite rarely, foetuses) and also children (a little) older?
- Granted that some foetuses (if any) are found in the urns, can this (in any case, quite minoritarian) be explained by an overall sacrificial theory?
- Why are animal sacrifices also made at the same time?
- Why are both animal and human bones sometimes mixed in the same urn?
- How can we explain the fact that many rites were seasonal, i.e. they are all concentrated in a few days, as proved by the fact that newborn lambs were available only once (or, possibly, twice) a year²³?
- Can we evaluate these animals as "accompanying victims" of the children, or do we have to presume some other analogies between them (e.g. both were very young, newborn in most of the cases)?

in the devotional strategy, which does not deprive the male god of authority, but makes his bride a powerful mediator: the epithet of Tinnit, *pn b' l*, "Face of Baal", expresses inferior powers, but also a privilege, i.e. her capacity to intercede between the supreme god and the humans. See recently GARBATI 2013, and his contribution in this volume.

²¹ An emblematic case is represented by the sacrificial formulae: see AMADASI GUZZO 2002, 2007-2008, and Amadasi Guzzo – Zamora in this volume.

²² See e.g. MOSCATI 1956 and 1993 (in addition to other studies); GARBINI 1983; RÖLLIG 1983; XELLA 1995.

²³ See FEDELE – FOSTER 1988 for Tharros, but this situation is common to all tophets where the bones of newborn lambs have been recovered and identified.

- Finally, how can we explain that classical and biblical texts speak about ritual killings but *none* ever formulate the “funerary hypothesis” (i.e. the *tophet* as a necropolis for – prematurely dead – infants)?

Here I set myself a double objective. First of all, to discard all unfounded hypotheses and establish the fundamental aspects about the nature, function and activity of tophet-sanctuaries; second, moving from *an absolutely sure datum*, i.e. the votive character of the inscriptions and the sacrifices, to verify whether this is the key to help us answer our questions (at least, most of them) correctly.

At all events, it must be mentioned that the problem of tophet cannot be simply reduced to the question: were human beings ritually killed or did they die naturally? The typology of the rites was surely varied, many aspects will be perhaps explained, and others will remain always enigmatic. It is beyond doubt that any overall interpretation has to take into account a series of variables (chronological, geographical, historical and sociological)²⁴. Nevertheless, it cannot be denied that a precise definition about the type of sacrifices (human, animal, bloody or not) will make an enormous contribution to our knowledge of how a tophet functioned. Moreover, decisive progress can come from analytical studies of the burial contexts, of the incinerated remains²⁵, and all cross-references that can be deduced from direct documentation.

The main points to be clarified are the following:

- 1) even if we have no possess of archaeological evidence for tophets in the Levant (see *supra*), this kind of sanctuary *must* go back to an initially Phoenician (origin and) ideology, disseminated by the first (generation(s) of) Phoenician (Tyrian?) settlers in the central Mediterranean;
- 2) for several reasons, the tophet cannot simply be an infant necropolis, reserved for prematurely and naturally dead children;
- 3) the tophet is a sacred place where one goes to fulfil a vow, either to ask the god(s) for a favour or because it has been granted.

As far as the first point is concerned, it must be remembered that the earliest tophets (i.e. Carthage, Sulci, Mozia and Tharros) were founded almost at the same time of the respective settlements (one or two generations after). As noted above, this can only mean that an ancestral ideology and a definite strategy exist, brought by the first settlers coming from Phoenicia.

As regards point two, I have examined this hypothesis in a recent study²⁶ and I found it untenable for several reasons, the details of which I cannot go into now, but can summarise as follows:

- a) Tophets are found only at some towns: if it were a general funerary ideology, we should have found such sanctuaries at practically every urban centre;

²⁴ See XELLA – QUINN – MELCHIORRI – VAN DOMMELEN 2013.

²⁵ On this subject, see the contribution by V. Melchiorri in this volume.

²⁶ XELLA 2010a.