

## “Side” matters: animal offerings at ancient Nemea

### Abstract\*

As the locus of the Nemean games, Ancient Nemea was an important Greek cult and festival center, especially during the Archaic period (6th–5th century BC). Examination of excavated faunal materials deriving from “sacred” and “secular” contexts at the site yields clues about the distribution of meat to gods (such as Zeus, the patron deity of the area), to heroes (in this case Opheltes, on whose legendary death the Nemean Games were founded), and to the mortal officials, spectators, and athletes participating in the events at Nemea. As regards “sacrificial” assemblages, most of which consisted of bone remains of burnt offerings as collected from altars and other ritual-type contexts, the data indicate a preference for sheep as the standard sacrificial animal, but show a definite preference for the hind limb sections of the left side in the case of sacrifice to the hero Opheltes, as opposed to the god Zeus. “Secular” deposits show different trends, such as the presence of unburnt bones, or the remains of wild animals and fish, taxa not typically sacrificed in Greek antiquity. Examination of zooarchaeological remains from various contexts at the site, at one level, and across other sites, at a larger level, helps develop a larger more integrated picture of animal use in ancient Greek cult practices.

### Introduction

In both modern and archaeological contexts, a divide is often drawn between seemingly opposing concepts: “sacred”/“secular”, or “ritual”/“regular”. This distinction, however, is often marked by assumptions about what consti-

tutes such assemblages or practices—assumptions, in turn, often drawn from incomplete databases of materials associated with either activity, sometimes both. This is particularly problematic in archaeology, where materials are limited, and contexts, or associations, less secure. As such, there is a pressing need to compare as many types of deposits as possible at a site to contextualize, or situate, findings from any single deposit. What originally may have been deemed “sacred” on the basis of location or in terms of unique sets of finds may in fact not be the case when broader comparisons, both within and outside the site, are drawn. We cannot hope to understand the intricacies of cultural behaviour without examining the preconceived assumptions we bring regarding “sacred” and “secular” activities, and without analyzing materials, such as animal bones, which span both ends of this behavioural spectrum. Such research is necessary to add texture to our knowledge of human nature, and, in turn, to broaden our understanding of our cultural heritage and existence.

This analysis seeks to examine this sacred/secular dichotomy using archaeological animal bones recovered from ancient Nemea, Greece. The site, located in an upland valley in the modern Greek province of Korinthia, had been inhabited sporadically since prehistoric times, but underwent significant development in the early Archaic period (first half of the 6th century BC), with the founding of the Nemean games (573 BC), events akin to the Olympics. Thereafter, games were held, biannually and presumably in the summer months, over the course of two temporal episodes in the past: (1) roughly 573 to 410 BC and, (2) ca 330 to ca 270 BC. Activity at the site between 410 and 330 BC appears minimal (no games were held), and the site declines after ca 270 BC. A renewed community focus to the site is established to some degree during the 5th and 6th centuries AD with the construction of an Early Christian basilica atop the ruins of the ancient Xenon (a lodging area for participants in the Nemean

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games). Thereafter, the site was more or less abandoned, with little settlement activity within its confines.<sup>1</sup>

Since the early 1970s, excavations at Nemea (under the direction of Dr Stephen Miller, University of California at Berkeley) unearthed finds, including animals bones, from various contexts, some deemed “ritual” or “sacrificial” (often on the basis of placement, architectural patterns, or recovered votive artifacts—not necessarily or exclusively the best indicators of “ritual” activity), and others seemingly more “secular” (often due to a lack of associated “ritual” paraphernalia). This dichotomy, which inherently carried with it an underlying “either/or” option to labeling finds—“ritual” or “non-ritual”—created problems, in that bone materials that may have factored in both aspects simultaneously, or ones that blurred the distinction between these two realms, might prove complicated to assess. Consequently, attention focused on determining the degree of correspondence among “sacrificial” and “secular” zooarchaeological deposits. How similar or different were bone materials from each, in terms of aspects such as condition, placement, amount, species and parts present, modifications, and other observable properties? Moreover, how do patterns from Nemea relate to other “ritual” and “secular” zooarchaeological assemblages recovered from contemporary archaeological sites in the Greek world? These form the questions of this current analysis.

Although animal sacrifice is a popular component of investigation into cult worship in Archaic and Classical Greece, it is also an aspect that is displaying increasing complexity and diversity with the analysis of each new sacrificial deposit. Animals were offered to a variety of ancient Greek deities and heroes, but the specific details related to each are not always clear. Through a combination of literary, epigraphic, iconographic, and archaeological evidence we are able to draft accounts pertaining to various deities and heroes. For example, pigs seem to be the chief animal sacrificed in the cult of Demeter; goats achieve importance in that of Aphrodite, while cattle often figure in sacrifices to Zeus.<sup>2</sup> Typically, animals were burnt on the altar or in a special pit, with portions of their carcasses offered to the gods or heroes.

The site of ancient Nemea provides an excellent opportunity to reconstruct aspects of cult worship in Archaic Greece, aspects that are not recorded in the current available corpus of textual, epigraphic or iconographic data. The site is associated with worship of Zeus, the patron deity of Nemea, who

received sacrifices at the altar outside his temple. Both the Temple and the Altar of Zeus (with associated charred and calcined faunal materials) were excavated at the site. Nemea is also linked with the cult of the child hero Opheltes, who, according to Greek myth, was strangled to death by a snake when his nursemaid, Hypsipyle, placed him on the ground to attend to the Seven Argive generals marching against Thebes.<sup>3</sup> Upon his death, Opheltes was given another name, Archemoros, meaning “beginning of doom”. In this guise, therefore, he had underworld connections. His death was subsequently honoured with the founding of the Nemean Games and with the erection of a shrine to him at the site. This Hero Shrine, or Heroön, is even verified in the ancient texts, its location and general plan outlined by Pausanias (2.15.3). It is a lopsided, pentagonal-shaped, unroofed enclosure that lies in the south-western section of the excavated area of the site (*Fig. 1*). It was first constructed in the early Archaic period, around the first half of the 6th century BC, and enclosed by a stone fence. Entering from the north-east corner, one would have found several altars, and the tomb of Opheltes within the Heroön.

While the ancient sources, textual and iconographic, provide some details about the myth of Opheltes,<sup>4</sup> little is known about his actual worship in a hero cult. The analysis of materials collected from within the Heroön at Nemea, therefore, provides an ideal opportunity to reconstruct these aspects and determine how ritual and sacrifice in the cult of Opheltes paralleled or contrasted with other cult practices, both locally (such as worship to Zeus, who was also honoured at Nemea), as well as within the larger domain of the ancient Greek world.<sup>5</sup>

Before venturing forward, however, it is important to address critical limitations and biases in this investigation. As with all archaeological work, the typical complications of preservation, recovery, and taphonomy must be understood, given that many materials, such as botanicals, scented oils, and so forth, might leave no archaeological traces (or at least not readily or easily detectable traces); neither might a host of behavioural indicators, such as prayers, blessings, chants, dances, and so forth. All of these components could certainly have factored in both “ritual” and “non-ritual” cultural practices of the past. Consequently, it is important to draw upon ancient textual, mythological, iconographic, anthropological, and social historical data for assistance in contextualizing the larger framework of ancient life. The inclusion of these

<sup>1</sup> See Birge *et al.* 1992 and Miller 2004 for further details about temporal periods represented at Nemea, and a larger list of publications about the site.

<sup>2</sup> Kadletz 1976 summarizes much of this information, and provides a longer discussion of the various animals offered in sacrifice to Greek and Roman deities, as recorded within the ancient Greek and Latin texts.

<sup>3</sup> Paus. 2.15.3; Apollod. *Bibl.* 3.6.4; Hyg. *Fab.* 74.

<sup>4</sup> See Simon 1979 for a broader discussion and further references.

<sup>5</sup> A volume about the Heroön excavations at Nemea, with reports on the chronology, context, stratigraphy, and finds, is currently in press (see Miller, forthcoming).

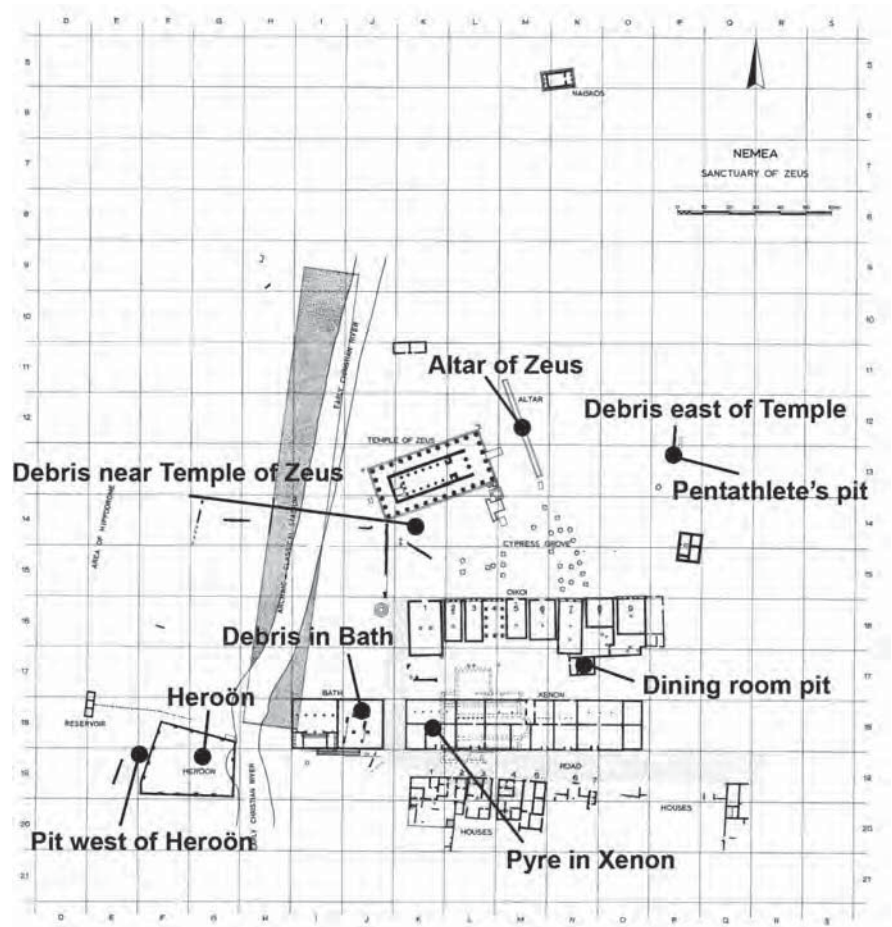


Fig. 1. Plan of Nemea, showing locations of faunal deposits excavated.

sources for this investigation of “sacred” and “secular” activities involving animals and their resources at Nemea, however, is not meant to be exhaustive, and each in turn has its own biases. Still, incorporating a larger interdisciplinary approach provides a sounder basis on which to learn more about ancient Greek ritual and secular activities involving animals, than a reliance on any single source might provide.

## Contexts, recovery, methodology and general condition of the bone material from Nemea

The Nemea bones were analyzed on two separate occasions: the Heroön deposits in July 2003 and the remaining contexts in July 2005. Materials were examined in Athens at the Malcolm H. Wiener Laboratory at the American School of Classical Studies at Athens, using the comparative faunal collec-

tions, osteological reference manuals, microscopes, and other resources available at the Laboratory. All identifiable pieces that could be recorded to element and species/taxonomic level were catalogued. Quantification of these followed several lines. First, NISP (the Number of Identified Specimens, a standard count in zooarchaeological quantification) counts were taken. Such figures took into account individual teeth within mandibles and maxillae. Thus, a mandible fragment with three teeth yields a NISP count of “4” (i.e., three teeth, plus the mandible piece itself, equals a total of “4”). Second, ribs, vertebrae, and miscellaneous long bone and cranial fragments that could not be identified securely to species were grouped according to general size categories (e.g., large=cattle-sized; medium=ovicaprid<sup>6</sup>- and pig-sized) and their numbers tallied for analysis. Finally, MNI (=Minimum

<sup>6</sup> The term “ovicaprid” encompasses both sheep and goats, and is used interchangeably with “sheep/goat” in this report. The two taxa are often grouped together in zooarchaeological analyses because of their similar osteology.

Number of Individuals) counts factored in ages groups of fetal, juvenile, sub-adult, and adult in assessing figures. Bone weights were also determined for all categories investigated. Epiphyseal fusion parameters follow Silver;<sup>7</sup> dental wear stages correspond to the schemes devised by Grant<sup>8</sup> and Payne.<sup>9</sup> Measurements follow the guidelines of von den Driesch.<sup>10</sup>

Figure 1 presents a plan of ancient Nemea, noting in particular regions where faunal material was recovered. In general, deposits throughout the site were not deeply buried; stratified collections surfaced at depths of around 50 cm below ground level in many cases. The upper layers over much of the site were disturbed by plowing in Early Christian times, but lower stratified deposits, especially those from pits and hearths, appear relatively protected from such disturbance. Bones, at least those from stratified and critical levels and deposits, were routinely collected. Moreover, these contexts were normally sieved (5 mm mesh), so recovery biases are

relatively standardized across assemblages. It is assumed that all bones available to be retrieved were in fact uncovered and examined. Still, in terms of overall mass and NISP counts, the Nemea assemblages are not particularly large, a finding that suggests that the bulk of faunal waste was probably removed from the site, or lies in areas as yet unexplored.

During excavation, several of the contexts explored were labeled as “sacrificial”, primarily on the basis of location (e.g., Altar of Zeus, pit west of Heroön). Others, however, were also given this “sacrificial” designation but with less secure spatial connections to such activities (e.g., Dining Room Pit near Xenon, pyre in Xenon, Pentathlete’s Pit, sacrificial debris in the Bath). In some cases this material was burnt, but the degree of this was not always consistent, both within and between assemblages. Table 1 provides a summary of each context (with particular reference to the faunal material recovered) as reported by the excavators.

Table 1. Location labels, dates, and contextual details for faunal deposits from Nemea.

Context	Label from excavation	Date	Details
F19:44	Pit west of Heroön	5th/6th c. BC–3rd c. BC	<ul style="list-style-type: none"> <li>excavated to decipher chronology of Heroön construction</li> <li>presumably “sacrificial” in nature, due to association with Heroön</li> </ul>
G18 & G19	Heroön	5th/6th c. BC–3rd c. BC	<ul style="list-style-type: none"> <li>pits and trenches within Heroön</li> <li>presumably “sacrificial” in nature</li> </ul>
J18:45 & 47	“Sacrificial debris” in Bath	5th c. BC	<ul style="list-style-type: none"> <li>shallow pit containing large number of bones</li> <li>designated “sacrificial” but unsure relationship of deposit to neighboring structures</li> </ul>
K14:15	Debris near Temple of Zeus	5th c. BC	<ul style="list-style-type: none"> <li>trench along south side of Temple of Zeus</li> <li>dug to probe the deeper levels of the <i>plateia</i></li> <li>labeled “sacrificial” but also clear that no sacrifices took place directly here (at least in the open trench)</li> </ul>
K18:2	Pyre in Xenon	4th c. BC	<ul style="list-style-type: none"> <li>hearth in Room 4 of Xenon</li> <li>“kitchen” area; however, no remains of chimney</li> <li>presumably not sacrificial in nature</li> </ul>
M12:24	Altar of Zeus	Late 5th or early 4th c. BC	<ul style="list-style-type: none"> <li>west side of altar, filled with small burnt bone fragments, ash, flakes of carbon and pieces of miniature votive vessels</li> <li>presumably “sacrificial” in nature, due to location and burnt nature of material</li> </ul>
N17:73	Dining Room Pit	5th c. BC	<ul style="list-style-type: none"> <li>small pit north of kiln</li> <li>generally regarded as “sacrificial” in nature (associated votive drinking vessels), although no traces of burning</li> <li>might represent “ritual dining” and have association with Xenon buildings</li> </ul>
P13:3	“Sacrificial debris” east of Temple	7th c.–3rd c. BC	<ul style="list-style-type: none"> <li>miscellaneous material from pit fill of Early Christian farming trenches and overburden</li> <li>labeled “sacrificial”, but association as such not clearly outlined</li> </ul>
P13:5	Pentathlete’s Pit	5th–3rd c. BC	<ul style="list-style-type: none"> <li>“votive” deposit in SW corner of section P13 (east of Temple of Zeus)</li> <li>pit contained burnt materials and smashed, over-turned vessels</li> </ul>

<sup>7</sup> Silver 1969.

<sup>8</sup> Grant 1982.

<sup>9</sup> Payne 1987.

<sup>10</sup> von den Driesch 1976.



Table 2. General depositional and taphonomic information for faunal contexts from Nemea.

Context	Label from excavation	General depositional, taphonomic and burning notes
F19:44	Pit west of Heroön	<ul style="list-style-type: none"> <li>• extremely fragmentary; tiny pieces (&lt;1cm); ca 100% burnt</li> <li>• relatively undisturbed material; protected from post-depositional taphonomic factors</li> </ul>
G18 & G19	Heroön	<ul style="list-style-type: none"> <li>• extremely fragmentary; tiny pieces (&lt;1cm); ca 100% burnt</li> <li>• relatively undisturbed material; protected from post-depositional taphonomic factors</li> </ul>
J18:45 & 47	“Sacrificial debris” in Bath	<ul style="list-style-type: none"> <li>• ca 1% burnt</li> <li>• poorly preserved; high incidence of erosion, mineral leaching and surface weathering through exposure; numerous split line cracks</li> <li>• some examples of carnivore gnawing</li> </ul>
K14:15	Debris near Temple of Zeus	<ul style="list-style-type: none"> <li>• extremely fragmentary; tiny pieces (&lt;1cm); ca 100% burnt</li> <li>• upper levels disturbed; lower levels of interest (boundaries gradual between layers)</li> <li>• no evidence of other post-depositional taphonomic disturbance</li> </ul>
K18:2	Pyre in Xenon	<ul style="list-style-type: none"> <li>• ca 40% burnt</li> <li>• predominantly large fragments (many &gt;5cm, or larger)</li> <li>• some evidence of surface weathering, leaching and erosion, especially on larger species of mammals</li> </ul>
M12:24	Altar of Zeus	<ul style="list-style-type: none"> <li>• extremely fragmentary; tiny pieces (&lt;1cm); ca 100% burnt</li> <li>• relatively undisturbed material; protected from post-depositional taphonomic factors</li> </ul>
N17:73	Dining Room Pit	<ul style="list-style-type: none"> <li>• 0% burnt</li> <li>• fairly good preservation; low incidence of root etching, soil staining and weathering; however, no traces of carnivore gnawing</li> </ul>
P13:3	“Sacrificial debris” east of Temple	<ul style="list-style-type: none"> <li>• 0% burnt; miscellaneous pieces</li> <li>• small deposit; poor condition; eroded and leached, with much post-excavation breakage</li> </ul>
P13:5	Pentathlete’s Pit	<ul style="list-style-type: none"> <li>• charred wood fragments; no bone recorded</li> </ul>

Although these materials derive from various contexts, temporally most cluster between the 5th–3rd centuries BC, overlapping in large measure with those bones recovered from the Heroön (6th–4th centuries BC), or more generally within the Archaic and Early Classical periods. As noted earlier, the site was the locus for the Nemean games at two temporal episodes in the past: (i) roughly 573 to 410 BC and, (ii) ca 330 to ca 270 BC; however, the distinction between the two periods is not always distinguishable in the archaeological record, especially as concerns the faunal material. For the purposes of this comparative analysis, therefore, contexts will be grouped into one broad temporal bracket and considered as one larger unit of time. Some attention will be devoted to deciphering finer temporal trends where date ranges for deposits are more restricted and secure.

The natural vegetation throughout the Nemean region is a mix of scrub and grassland in the lower valley (currently under cultivation), with more forested patches in the surrounding hills (some now given over to vine and olive planting).

The lower valley is fertile and well watered, and has been a locus for farming throughout the ages, some of which, such as that during Early Christian times, has greatly disturbed underlying ancient levels at the site. Currently, the grounds of the site are landscaped. Several cypress trees have been planted in the area to conform to root pits outlining the sacred grove of Zeus (between the Temple of Zeus and the Oikoi), as well as a single cypress tree in the southwest corner of the Heroön. The condition of the faunal material among the various contexts examined here is mixed, which suggests a range of burial, disposal, and taphonomic factors operated in each case. *Table 2* summarizes the basic taphonomic information for each context.

The degree of burning and the degree of fragmentation are two key variables to highlight when comparing assemblages from the site. *Figure 2* graphically depicts the frequency of burnt and unburnt bone recovered from individual contexts at Nemea.

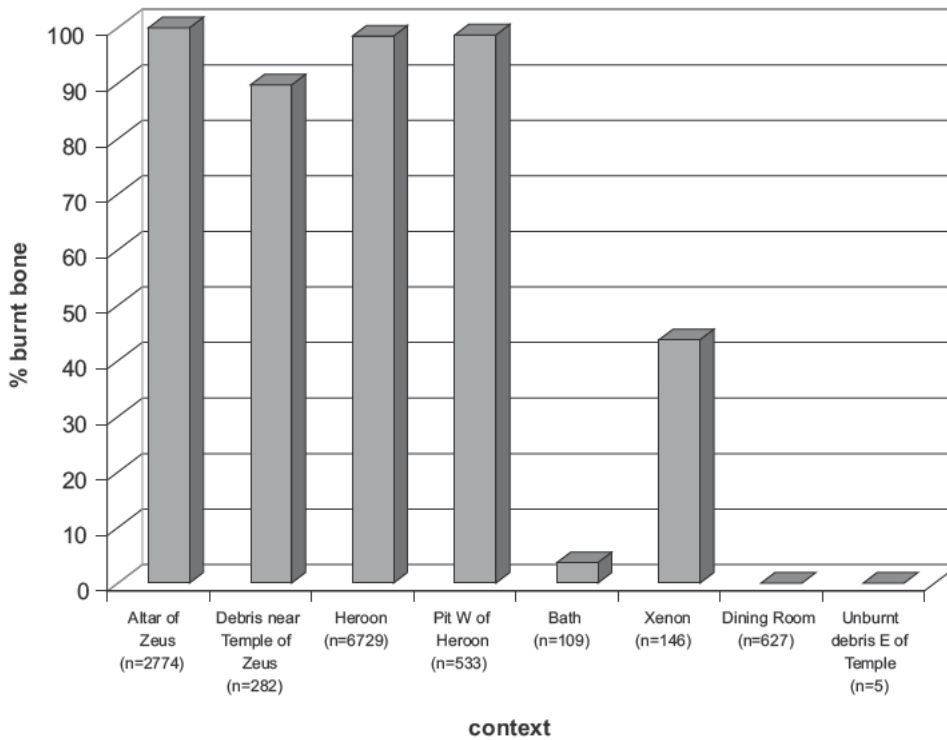


Fig. 2. Frequency of burnt bone (as fraction of total sample of bone within each context) from various contexts at Nemea.

Two distinct groups emerge from an analysis of *Figure 2*. Assemblages from the Altar of Zeus (M12:24),<sup>11</sup> its vicinity (i.e., K14:15, deposit near Temple of Zeus), and the pit west of the Heroön (F19:44) look overwhelmingly sacrificial in nature. All are comprised of tiny, charred and calcined fragments, similar in appearance to the sacrificial faunal material collected within the Heroön (G18 & 19).<sup>12</sup> The second group comprises unburnt assemblages from contexts further removed from the Temple and the Heroön (e.g., Bath, J18:45 & 47; Dining Room, N17:73). P13:3 is insignificant, faunally, since it yielded an extremely small assemblage of bones, none of which was burnt. P13:5 (Pentathlete's Pit) contained no bone materials, but did yield charred botanical and other remains. Although about 40% of the bones recovered from the Xenon (K18:2) were charred, this is not unexpected considering this context is associated with a hearth and other cooking facilities in this structure. Moreover, the nature of burning in the Xenon material was different than the Altar of Zeus and Heroön examples, in that far fewer pieces were calcined.

There is a strong similarity in the nature of the assemblages from the Altar of Zeus and the Heroön, which pro-

vide clues about their firing. Over 90% of the bones retrieved from these contexts are calcined. It appears that these were subjected to the full extent of the fire and for a period of time long enough to calcine them. Temperatures would probably have exceeded at least 400°C to produce this effect, and may have climbed upwards (but only for a short duration) to a maximum of 700–800°C judging by the presence of a number of warped and noticeably shrunken bones and the vitrified or glassy appearance of several pieces. An outdoor wood fire generally burns at 400–600°C, but requires constant addition of fuel to maintain this temperature. Wood will usually burn around 350°C.<sup>13</sup> It is unlikely that any type of accelerant, such as olive oil, was used in any great degree in this fire, but the flames could have been doused with this fuel periodically to raise the temperature. More likely, however, olive wood was chosen as the source of fuel, since it has oil in it naturally, which makes it burn longer and hotter than other woods.<sup>14</sup> Animal fat might also have acted as an accelerant, causing the fire to burn at a higher temperature and aiding in a quicker cremation of remains. The presence of small transverse heat fractures on numerous long bone fragments from the Altar of Zeus and Heroön contexts indicates that many of these bones were placed in the fire with meat and fat

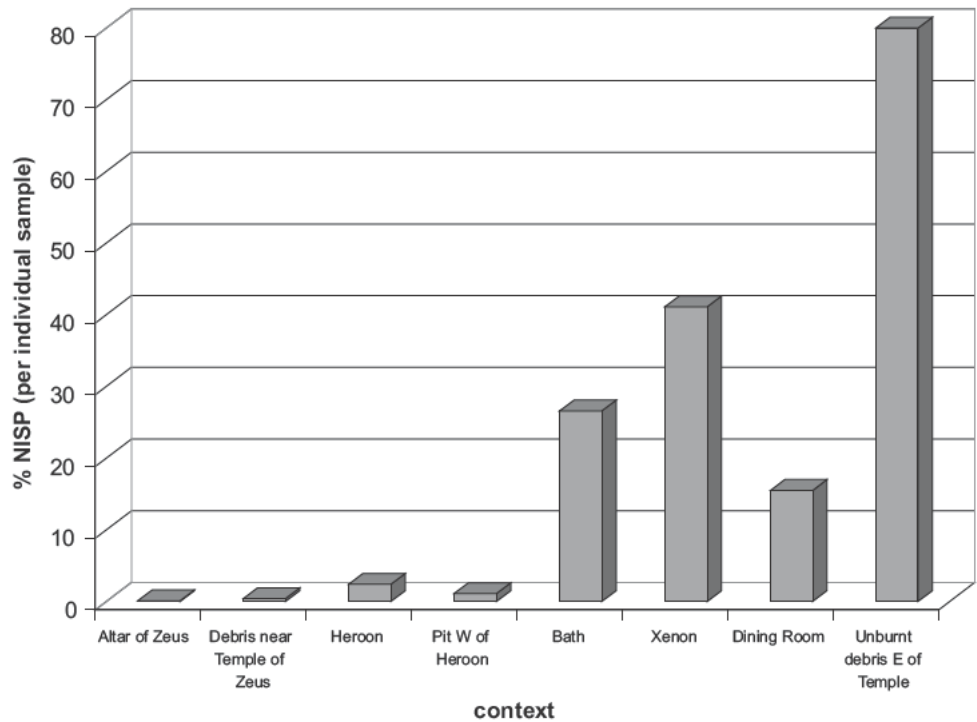
<sup>11</sup> Deposits are marked here by Grid Section Number: Pottery Lot Number.

<sup>12</sup> The Heroön materials in this case include any bones collected from all pottery lots from Grid Sections G18 and G19.

<sup>13</sup> Tylecote 1962, 25.

<sup>14</sup> Platt 1992, 10.

Fig. 3. NISP frequencies among various contexts at Nemea.



still attached, or at least with some type of covering, perhaps wrapped in the fatty *omentum*, or stomach lining.<sup>15</sup> It is impossible to tell conclusively from the recovered bone remains which of these techniques may have been used, however.

The degree of calcination would also depend on the thickness of the bone, and indeed the data support this observation. The thinnest bones, such as those from the cranium, show the highest frequency of complete calcination. Long bone fragments show a greater range of incomplete and complete calcination, with the relatively thinner examples from medium-sized mammals being more completely burnt, in contrast to those from larger-sized mammals, which more rarely achieved this state. From these observations, an estimate may be presented that the sacrificial fires of the Heroon and the Altar of Zeus at Nemea were wood fires (quite possibly olive wood), stoked periodically to maintain a constant temperature of about 400°C, and further fueled through the sacrifice of bones that were surrounded by fatty and fresh cuts of meat, as opposed to defleshed and degreased dry bones. Fresh bone itself is somewhat greasy and its addition could help accelerate the fire, but larger portions of fatty tissue would burn more readily and raise the fire temperature more effectively. The prevalence of transverse fracture lines, cracking, checking, and irregular longitudinal splitting on

the bones confirms that the bones were covered with some meat or fat, be this in their original meaty state or artificially wrapped by humans. In terms of a time frame for the fire, a suggestion may be presented that much of this occurred within the space of an hour or so. Fires maintained for much longer than this (and at the higher temperatures required) would have likely resulted in a greater frequency of calcination among the bones of larger mammals especially. This does not, however, exclude the fact that some carcass parts may have been placed within the heart of the fire, while others (perhaps the larger mammalian long bones) sat on the perimeter and were not charred to the same degree. I assume that a deliberate placement as such did not occur. In all cases, however, it seems that these were controlled, contained, smaller fires, which is what one might expect in a ritual event.

Ancient textual and iconographic sources on Greek charred sacrificial rituals do not mention boiling any sacrificial bones prior to their burning, but then again, these sources do not always provide full details of events or clear procedures that are specific to, or universal across, all sacrifices. Regardless, zooarchaeological data suggest that it is unlikely that the bones were boiled in any way (such as in a stew), prior to burning. Boiling would remove much of the collagen, fat, and grease from the bone, drying it out ultimately. Consequently, such bone would be less likely to display the pattern of transverse fracture lines and warping with irregular longitudinal splitting and curved edges, as noted among the Heroon and

<sup>15</sup> As discussed in van Straten 1995, 131.

Zeus assemblages examined from Nemea. Rather, boiled, dry bone would tend to crack and break along more parallel lines, producing more rectangular and regular pieces, which is not the case for the Nemean materials examined.

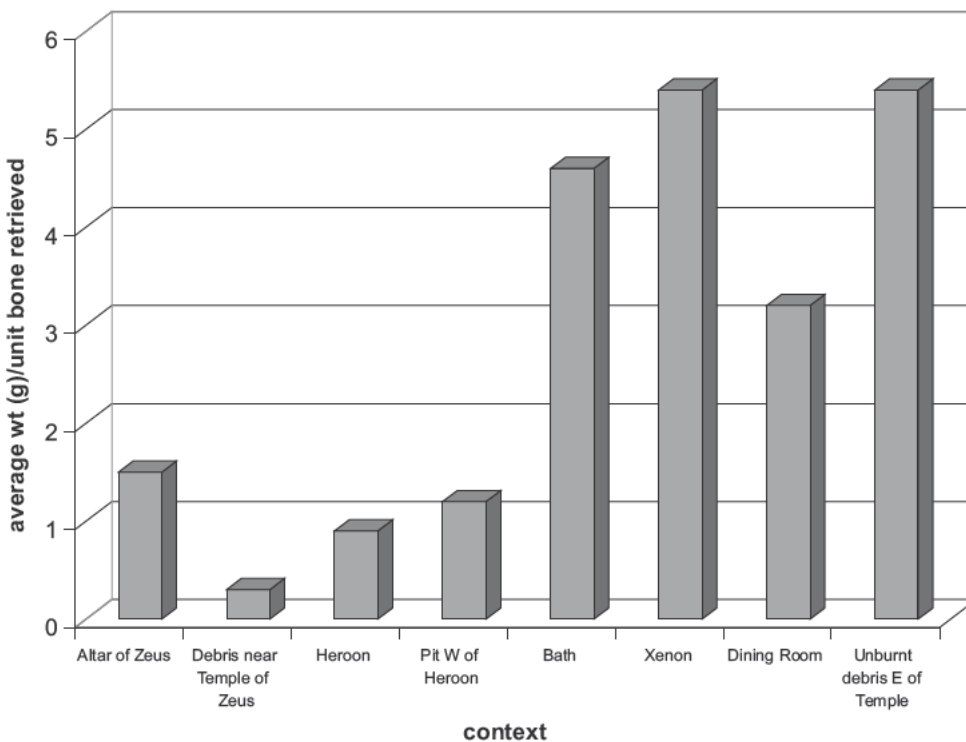
Fragment counts and weights provided another separator among faunal contexts at Nemea. Although all deposits were sieved, the Zeus and Heroön bones were highly fragmentary. As shown in *Figure 3*, generally less than 2% of the material retrieved from the Zeus and Heroön collections formed their respective NISP components, compared to larger values for other contexts. Moreover, as presented in *Figure 4*, the average weight per unit of bone for the Zeus and Heroön assemblages is at, or under, 1 gram, while corresponding values for the remaining contexts are substantially higher. The Zeus and Heroön assemblages were more fragmentary; but this was expected given they were also charred and calcined, processes that enhance bone breakage.

Although the high level of burning and concomitant fragmentary nature of the Heroön and Altar of Zeus faunal materials provides a strong argument for labeling them "sacrificial", this does not necessarily, by default, brand those unburnt or

partially-burnt assemblages retrieved from the Bath (J18: 45 & 47), Dining Room (N17:73), and Xenon (K18:2) as "non-sacrificial". If these latter groups had some sacrificial function, however, such activities were presumably not of the same magnitude or character as those associated with the Altar of Zeus or the Heroön. Nevertheless, an argument may be made that the Bath, Dining Room, Xenon, and unburnt debris E of the Temple contexts are not typical "sacrificial" assemblages, but rather more "secular" in nature, that is, relating to butchery and cooking for "regular" consumption. Such dining could have had ritual connections, however, so it is essential to associate these deposits (individually and as a group) with the Altar of Zeus and Heroön assemblages. For example, do the charred and calcined sacrificial materials (presumably the portion burnt for the god, Zeus, or the hero, Opheltes, depending on the context), represent the same skeletal elements as those from other assemblages (in which case similar parts and animals are being used), or do those portions of the skeletons that are missing from the Altar and Heroön deposits appear in the other contexts (implying a connection in the distribution of select parts, perhaps within a larger context of

ritual feasting at the site)?

To understand these connections, it is important to assess each assemblage in greater detail. *Table 3* provides a breakdown of NISP and UNID portions for the Nemean contexts examined here.<sup>16</sup>



*Fig. 4. Average weight (in grams) per unit bone retrieved among various contexts at Nemea.*

<sup>16</sup> Ribs, vertebrae, and miscellaneous long bone and cranial fragments that could not be identified securely to species/taxonomic level were grouped according to size categories (e.g., large = cattle-sized; medium = ovicaprid- and pig-sized) and counted as the "UNID" portion of the faunal assemblage.



Table 3. NISP and UNID counts across contexts at Nemea.

Context		NISP					UNID										
							Medium-sized mammal					Large-sized mammal					
		cattle	sheep/goat	pig	fowl	hare	fish	rib	long bone	cran.	vert.	other	rib	long bone	cran.	vert.	other
F19:44	Pit west of Heroön	14	11	4				148	328		1	8	10	164	5	17	1
G18 & G19	Heroön	10	103	11				12	5976	119	3	2	1	98	2		1
J18:45 & 47	“Sacrificial debris” in Bath	9	18	2					57	1	1	1	7	21			
K14:15	Debris near Temple of Zeus		1						268					13			
K18:2	Pyre in Xenon	24	26	7	2	1		5	11	4	2		13	51			
M12:24	Altar of Zeus		3					32	2392	6	7			330		4	
N17:73	Dining Room Pit	23	26	42			6	77	70	26	14	33	51	50	20	13	
P13:3	“Sacrificial debris” east of Temple		2	2										1			
P13:5	Pentathlete’s Pit – no bones																

## Heroön “sacrificial” zooarchaeological assemblages from Nemea

As concerns the Heroön, and sacrifice to Opheltes, sheep and goats appear principally, with cattle figuring periodically (Table 3 and Fig. 5). Pigs are represented as well, but in very low numbers overall. The few sheep/goat bones from the Heroön deposits that could be assigned specifically to taxon derive from sheep rather than goat. Such a preference is not surprising given that sheep were sacrificed to a number of heroes.<sup>17</sup> Goats seem not to have been sacrificed to heroes in general; there are suggestions they were not a preferred victim. For example, we hear that Herakles, in founding the cult of Hera Aigophagos at Sparta, was forced to sacrifice a goat because no other kind of animal was available to him, and that the Spartans were the only Greeks to sacrifice goats to Hera (Paus. 3.15.9). Again, although goats were sacrificed to Asklepios at Balagrai in Cyrenaica, they were not allowed at Epidauros; indeed, goats were the only animals prohibited from the sacrifices to Asklepios at Tithoria (Paus. 2.26.9).

<sup>17</sup> E.g., and most significantly, a black ram was sacrificed to Pelops at Olympia (Paus. 5.13.2). Rams are also specified for Amphiaraos at Oropos (Paus. 1.34.5), Trophonios at Lebadeia (Paus. 9.39.6), and Kalchas on Mt Drion in Italy (Strabo 6.3.9). Bulls, however, are also attested as, for example, in the cult of the hero Aristomenes at Messene (Paus. 4.32.3).

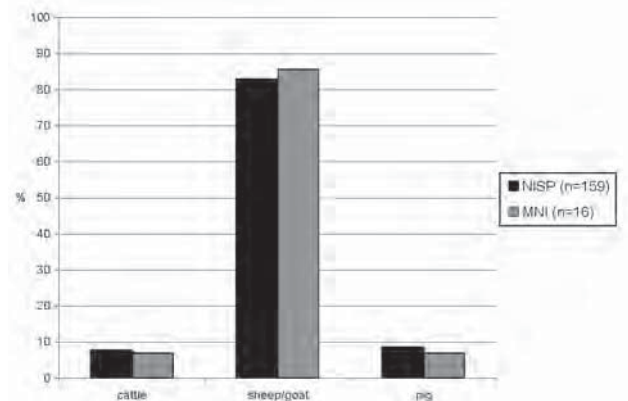


Fig. 5. Representation of taxa, by NISP and MNI counts, in combined Heroön and pit west of Heroön faunal assemblages from Nemea.

Hence, in all probability, sheep, perhaps rams, were the principal victims offered to Opheltes.

The analysis of animal parts from the Nemean Heroön assemblages shows a marked preference for the upper and middle portion of the hind limb (by MNI count: twelve tibia, seven pelvis, two femur), followed by the front limb equivalent of this (by MNI count: two humerus, four radius/ulna). Among the limb bone sections, those of the tibia predominate, representing nearly twice as many victims by MNI count than any other part of the skeleton. A smaller percentage of materials belongs to the skull. Moreover, there is a clear preference for the left side, especially among the ovi-

caprid limb fragments (*Fig. 6*). The distribution is far different for the other taxa noted (i.e., cattle and pigs), where cranial and dental elements predominate, with no marked side preference registering.

The vast collection of bone fragments from the Heroön that could not be identified to species could still be sorted by animal size and skeletal part. These numbers largely confirm the results just described. The overwhelming majority of pieces represent the long bones of medium-sized animals such as sheep/goats (*Table 3* and *Fig. 7*). Skull fragments of medium and large animals constitute roughly another 2% of the assemblage. The assemblage further includes a small percentage of long bone fragments from large animals, suggesting that cattle limbs were also sacrificed, in the Heroön, on occasion.

To what degree are these patterns real, or a factor of preservation, recovery, and taphonomic biases? After all, limb bone pieces typically do survive well. Taking taphonomic factors into account, however, still leaves some noticeable gaps and peculiarities in the faunal material.

First, as outlined above, the few remains of cattle and pig identified from the Heroön faunal deposits are nearly exclusively cranial and dental elements. Both adult and deciduous teeth, moreover, are noted from each taxon. True, teeth are highly resilient and tend to preserve well in archaeological assemblages. They are also more easily recognized, especially among fragmentary faunal assemblages. Consequently, a bias may exist favouring their identification and quantification in zooarchaeological assemblages. A few isolated metapodial bones of both taxa were noted, but no securely identified limb bone pieces of either animal comprised the NISP portion of the assemblages from the Heroön. But why are there so few postcranial cattle and pig bones, especially in light of the fact that a more complete suite of cranial and postcranial elements from the sheep/goat skeleton is noted in the Heroön assemblages? This oddity becomes even stranger given that experiments indicate a higher survival probability for denser, more durable skeletal limb bone elements, such as the distal tibia, proximal ulna, and astragalus among faunal assemblages.<sup>18</sup> It is unlikely that pig and cattle postcranial bones simply

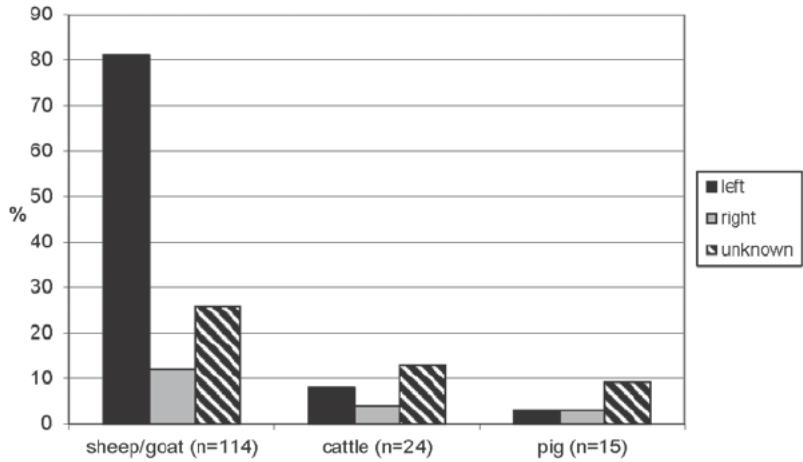


Fig. 6. Sheep/goat, cattle, and pig NISP frequencies by side, for Heroön contexts at Nemea.

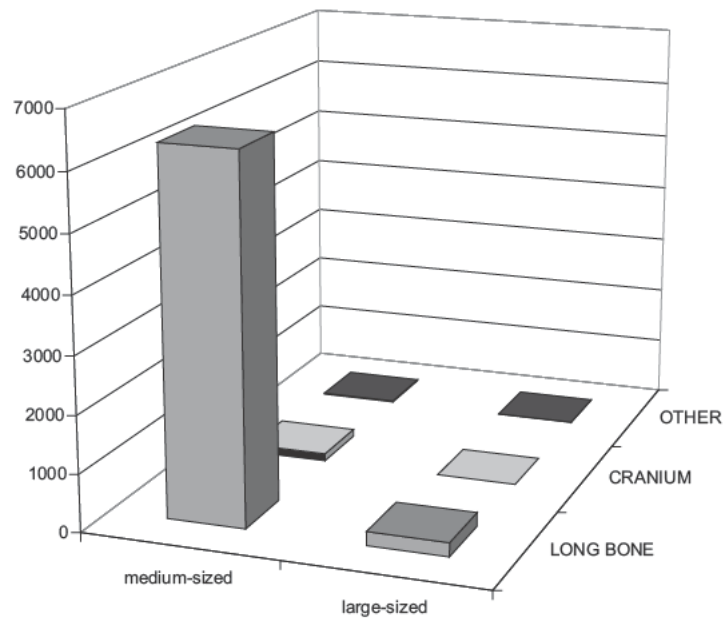


Fig. 7. Summary counts of number of specimens within various skeletal-part groups by animal size category for Heroön contexts at Nemea.

did not survive, as might occur if these derived more from young animals or if their limb bones were subjected to greater taphonomic forces separate from their cranial remains, and from the conditions that affected the sheep/goat skeletons. The assumption is that cattle and pig, at least their postcranial sections, were not commonly sacrificed and deposited in the Heroön. Sheep and goats predominated, and in their case, postcranial elements, especially the upper hind limb sec-

<sup>18</sup> Lyman 1994.

tions as discussed above, predominate over cranial and dental elements.

Another critical observation from the Heroön deposits at Nemea is that across all taxa, but most notably for sheep, there is a near absence of lower leg bones, including the very dense metapodials and phalanges. This phenomenon also has parallels in the sacrificial remains from other sites in Greece. The probable explanation is that these parts were left attached to the hide when it was removed from the animal prior to sacrifice.

More striking is the virtual absence of rib and vertebrae fragments in the Heroön deposits. These parts do routinely show up in charred sacrificial debris from other sites, so we should not attribute their absence at Nemea to their complete obliteration in the sacrificial fire. It also seems highly improbable that these parts were burnt in sacrifice and then carefully sorted and removed to another location. The conclusion remaining is that only specific parts of the animals were typically burnt within the Heroön. The primary sacrifice appears to be part of the leg of a sheep, and usually the left hind leg at that.

There has been much debate about the skeletal parts offered to Greek deities.<sup>19</sup> The findings from the Nemean Heroön rule out holocaust sacrifice, in which the entire animal is burnt, as the general mode. Gunnel Ekroth argues that up until Hellenistic times, *thysia* sacrifice, the ordinary form of sacrifice to gods in which parts of the animal victim (as opposed to the whole animal) were burnt at the altar, was more commonly practiced in hero cults than previously recognized.<sup>20</sup> Two forms of *thysia* sacrifice are generally attested in the ancient sources. The first, *meria* or *meroi*, has been argued to refer either to thigh bones (predominantly the femur, but possibly with the inclusion of part of the pelvis and/or tibia as well) or thigh sections, the distinction not always made clear.<sup>21</sup> Debate still exists as to condition of this sacrifice, be this bare, dry bones wrapped in fat, or a defleshed section of the thigh.<sup>22</sup>

The second type of *thysia* sacrifice is *osphys*, which more commonly corresponds to the tail of the animal. Generally this part consisted of a section of the sacrum and the caudal vertebrae, but it might also include parts of the lumbar vertebrae and pelvis as well, depending on the degree of separation of the tail section from the animal.<sup>23</sup>

It is clear from the faunal evidence from the Nemean Heroön contexts that *thysia*, and more specifically *meria* or *meroi* sacrifice, was more commonly practiced in the cult of Opheltes. The faunal assemblage from the Heroön is largely skewed towards long bone elements, even when taphonomic, preservation, and identification biases are weighed to account for a higher probability of retrieving and counting long bone pieces in the assemblage. Cranial, rib, and vertebral elements are grossly under-represented in the Heroön assemblage (Fig. 7), a finding which rules out any significant contribution of either the *osphys* variety of *thysia* sacrifice or any holocaustic sacrifice. Rather, the greater frequency of bones from the hind leg, especially of sheep, for the Nemean Heroön assemblage (Fig. 6), suggests that *meria* or *meroi* (as opposed to *osphys*) was the principal form of *thysia* sacrifice to Opheltes at the site. The leg bone fragments from sheep in the Nemean Heroön assemblage, moreover, resemble zooarchaeological findings from other sacrificial deposits interpreted as evidence for *thysia* (and more specifically as *meria* or *meroi*), for instance the cult of Poseidon at Isthmia, the cult of Athena at Tegea, and the cults of Apollo at Eretria, Kourion, and Halieis.<sup>24</sup> These are all gods, however. How does the Nemean Heroön material relate to worship in other hero cults of the ancient Greek world?

The Nemean Heroön zooarchaeological assemblage parallels those associated with the cults of other heroes, such as Herakles at the site of Thasos, or Anios at the site of Delos, in the preference of sheep/goat, but differs from the Herakles cult at Thasos in its reliance on sacrificing only parts of the animal to the hero, in this case mainly the left hind leg.<sup>25</sup> Herakles is associated with holocausts, or the ritual burning of the whole animal,<sup>26</sup> but this appears to be only one method within a range of sacrificial practices involving animals for him. Although greater variety of elements from the entire sheep/goat skeleton is found in the burnt assemblage of bones from Thasos (as compared to Nemea), the presence of butchery marks suggests that the meat was removed from these parts and consumed. As such, there is no direct zooarchaeological indication, in this regard, for true holocaust sacrifice to Herakles at Thasos, that is, no direct evidence that entire, unbutchered animals were burnt on the altar. Holocausts may have been the norm in the cult of Melikertes-Palaimon, as

<sup>19</sup> Key references include: Burkert 1985; Durand 1986; Jameson 1988; Detienne & Vernant 1989; van Straten 1995; Ekroth 1999; 2002; 2007; 2009; among others.

<sup>20</sup> Ekroth 1999; 2002; 2009, 126.

<sup>21</sup> Ekroth 2009, 127.

<sup>22</sup> Ekroth 2009, 128 provides further references.

<sup>23</sup> Ekroth 2009, 129.

<sup>24</sup> For zooarchaeological assemblages linked to the cult of Poseidon at Isthmia, see Gebhard & Reese 2005; for Athena's worship at Tegea, see Vila 2000; for Eretria, a cult linked to Apollo/Artemis, see Studer & Chenal-Velarde 2003; for Apollo's cult at Kourion, see Davis 1996; for sacrificial bone remains at Halieis, see Jameson 1988.

<sup>25</sup> For the Herakles faunal assemblage from Thasos, see des Courtils *et al.* 1996 and Bergquist 1998; for the Anios assemblage from Delos, see Prost 1997.

<sup>26</sup> van Straten 1995, 158.

represented in a ritual faunal assemblage linked to this hero from the site of Isthmia; however, in this case cattle appear to be the victim of choice.<sup>27</sup> Holocaust does not seem to be part of the Opheltes cult. To what degree this relates to the economic pressures of apparently wasting a full carcass is unknown. The hero Melikertes-Palaimon shares similarities with Opheltes in that the death of each as a baby was the cause of the foundation of athletic games. Each event even used the same type of wreaths at some times and presumably ran similar sporting events.<sup>28</sup> With many similarities, it may have been felt necessary to keep sacrificial rituals different between the two cults, so that each could be distinguished readily among worshippers. Consequently, cattle and holocausts seem to be the ritual of choice at Isthmia, while sheep/goat left hind legs formed the hero's feast portion at Nemea.

The preference for the left side noted among the sheep remains from the Nemean Heroön is intriguing. Although taphonomic factors certainly contributed to forming faunal assemblages at Nemea, it is unlikely that this pattern of left side predominance and skeletal part bias is solely related to preservational forces, or to recovery issues, for that matter. The preference for one side of the animal over the other has been observed in the cult of Apollo. Young sheep and goats comprise 97% of the assemblage in his cult at Kourion (Cyprus), with a strong preference for the right side elements, chiefly the tibiae, astragali, and calcanei in this sacrificial assemblage.<sup>29</sup> A similar predominance of right hind leg elements (again chiefly tibiae) from younger ovicaprids is noted in the assemblage from Halieis (Greece), also linked with Apollo.<sup>30</sup> The assemblages here both are ritually burnt, confirming their association with cult sacrifice. In these cases, the right side appears specifically chosen, but it is a god, Apollo, rather than a hero who is being honoured. Recall that Opheltes' other name was Archemoros, meaning “beginning of doom.” The choice of left side for him, therefore, may have underworld ties, distinguishing this chthonic hero cult from that of heavenly deities like Apollo. There are no other Greek parallels for left side sacrifices involving animals, although a wealth of ancient Greek philosophical comments on the di-

vine association of the right side, and mortal and underworld ties for the left side.<sup>31</sup>

Ideally, to test this hypothesis of side preference, clear and distinct assemblages of animal sacrifices to heavenly and underworld deities are required. This is challenging to observe in light of complications such as mixing of sacrificial remains, re-use of altars for various types of sacrifices, and the poor or unknown connections of sacrificial faunal debris with specific deities or entities. Compounding these troubles is the fact that side information has not always been recorded in faunal reports, although there is perhaps an expectation that it would have been reported if an obvious side preference existed.

A second bias in reconstructing patterns of side choice from zooarchaeological data is that the available pool of sacrifices to known deities currently contains no underworld representatives—all are Olympian gods; thus, reliable data only exist to test this “heavenly” half of the equation.<sup>32</sup> The Nemea left side case appears unique, at least in the Greek context, but then again the sacrifice here is not to an ancient Greek deity, *per se*, but rather a Greek hero, who, in part, has underworld affiliations.

Connecting the preference for right-sided leg elements with sacrifices to an Olympian deity seems logical. Right side normally equals positive qualities: heavenly, good, sacred, and so forth. Why this practice appears exclusively (but not always) with Apollo, and no other Olympian deity is unclear, but open to speculation. The correlation of Apollo with the sun may play some role, as this was the ultimate source of light up in the sky, but it is unknown if such a connection (be it actualized or not) underlined the need for special animal sacrifice practices to him. Perhaps, in this capacity, Apollo stands for doubly righteous qualities—both male and sun. This could contrast with his female twin sister, Artemis, who

<sup>27</sup> As noted by Gebhard & Reese 2005, of the more than 28,000 bones identified from this ritual deposit attributed as the remains of sacrifices to the hero Melikertes-Palaimon, at Isthmia (1st–3rd centuries AD levels), 98% derive from cattle, with all skeletal parts represented, suggestive of holocaust offerings.

<sup>28</sup> Gebhard & Dickie 1999, 163.

<sup>29</sup> Davis 1996.

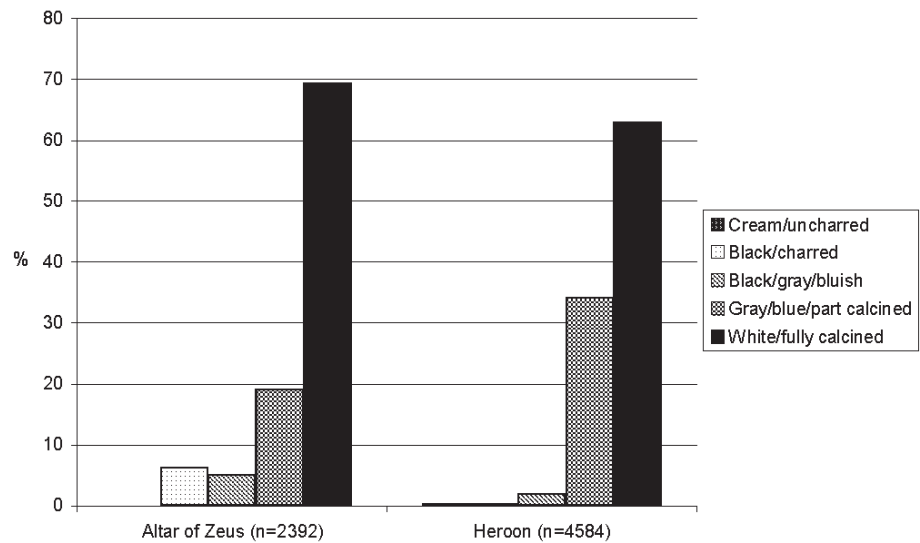
<sup>30</sup> Jameson 1988.

<sup>31</sup> Lloyd 1962. See MacKinnon 2010, for a larger discussion of the philosophy of side choice in animal sacrifice during antiquity, with a broader survey of zooarchaeological examples where side choice may be apparent as drawn from cultures outside the ancient Greek world, including Bronze and Iron Age Europe and the Near East, the Roman Empire, and Mayan civilization in Mesoamerica.

<sup>32</sup> Leguilloux 1999 provides a good summary of zooarchaeological findings across a variety of ritual sites in the ancient Greek world. A more recent listing of major findings and trends among zooarchaeological assemblages from ritual contexts in the ancient Greek world, including the Aegean and Hellenistic Italy, can be found in MacKinnon 2010, and MacKinnon, forthcoming. The current list of Greek deities, for which ties to zooarchaeological deposits at particular sites are hypothesized include: Zeus (site of Paestum), Hera (site of Samos), Poseidon (sites of Tenos and Isthmia), Athena (site of Tegea), Apollo (sites of Kourion and Halieis), Artemis (sites of Ephesos, Olympia, and Kalapodi), Apollo/Artemis (site of Eretria), Aphrodite (sites of Athenian Agora, Miletos, Tamassos, Amathonte, Gravisca, Paestum), Demeter/Persephone (Mytilene, Corinth, Knossos, Syracuse, Gravisca, Cyrene).



Fig. 8. Frequency of bones across various stages of burning for Altar of Zeus and Heroön contexts at Nemea. Medium-sized mammal portion of sample.



is associated with the moon (although she too is a “heavenly” Olympian deity and not exclusively an underworld goddess). Consequently, Apollo’s cult may have sought to distinguish his sacrifices in a different manner than most other ancient Greek deities. There is certainly room for great philosophical debate as regards this topic, but answers are elusive and not readily interpretable on the basis of currently available zooarchaeological evidence.

Priests and cult worshippers often consumed sacrificial meat during Greek rituals. Deciding who gets what was complicated. According to some scholars of Greek law, “should right legs be distinguished from left legs, they usually go to the priest; left legs may go to divinities (though they may have to settle for the bones alone).”<sup>33</sup> I am not convinced that this is the case—at least zooarchaeologically this does seem correct. If the right side was the priestly side and the left a section for the gods, then it is possible that the choice of right side elements to Apollo denotes not the godly portion, but the priest portion, stripped of meat and subsequently offered to this divinity.

### Altar of Zeus “sacrificial” zooarchaeological assemblages from Nemea

How does the Zeus sacrificial material from Nemea compare with that from the Heroön of Opheltes? This is difficult to answer, considering the paltry NISP counts from the Altar of

Zeus contexts (Table 3). Still, some observations arise. First, although no definite cattle bones were noted, the presence of burnt long bone fragments from large-sized mammals in the Zeus debris suggests that some large mammals, presumably cattle, were also sacrificed, even if sheep and goats still predominate in his cult at Nemea.<sup>34</sup> The term “Nemea” derives from *nemeo*, which means “I graze”. While flocks of sheep may initially come to mind here, cattle also graze and could equally apply. The lack of identified pig bones in the Zeus contexts may further support the “grazing” nature of Nemean Zeus. Assuming that none of the medium-sized mammalian long bone fragments from the Altar of Zeus deposits are from pig, then it appears that Nemean Zeus received exclusively ovicaprids and cattle. Although the ancient texts record cases where pigs were sacrificed to Zeus, the vast majority concerns sheep and cattle.<sup>35</sup> Zooarchaeological data add support to an argument that these two species were key sacrificial victims for Nemean Zeus. The lack of identified pig bones from the Altar of Zeus deposits contrasts with the Heroön contexts, where pigs are noted, but, it should be stressed, only in a rela-

<sup>33</sup> Lupu 2005, 222, n. 6.

<sup>34</sup> Leguilloux 1999 records 90% cattle (by NISP counts) from ritual contexts at the site of Paestum, dating to the 3rd century BC. The cattle noted were chiefly adults; all parts of the skeleton were represented. Pigs and ovicaprids each accounted for 3% of the NISP figures at this site.

<sup>35</sup> Kadletz 1976, 307–309, based on ancient written sources, lists the following number of examples in his list of animal references for Zeus: *boves*: 21; goats: three; sheep: 24; pigs: eight. While technically the terms *boves* can encompass both cattle and ovicaprids, in the majority of instances quoted by Kadletz it implies cattle. In any case, pigs only represent about 15% of the cases of sacrifice to Zeus, as extracted from the ancient texts.

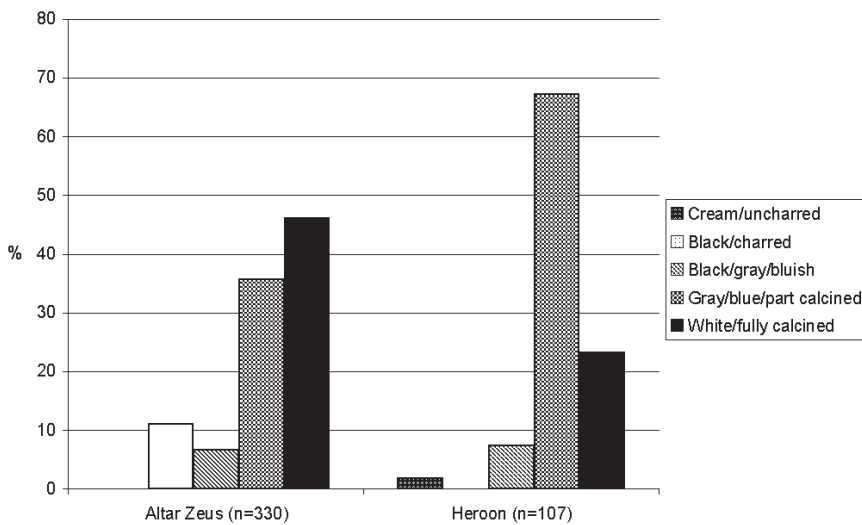


Fig. 9. Frequency of bones across various stages of burning for Altar of Zeus and Heroön contexts at Nemea. Large-sized mammal portion of sample.

tively minor role it would seem, given their low frequency values, especially when compared with sheep and goat values.

Second, it appears that fires associated with Zeus burned longer and hotter than those associated with Opheltes. As shown in Figures 8 and 9, higher frequencies of calcined bone are recorded for long bone pieces within the Altar of Zeus than among the Heroön deposits. One may surmise that this was deliberate—perhaps related to more attention for Zeus in stoking hotter, more efficient fires, or in ensuring that sacrificed materials were sufficiently burned in the process, with fewer remnant pieces filtering out to the edges of the fire where they may not have been exposed to the full force of the flames and heat.

Third, available zooarchaeological materials from the Temple and Altar of Zeus contexts at Nemea were insufficient to determine if the “missing” right side elements from the Opheltes area were offered to Zeus instead. Overall, there appears to be no side bias in the Zeus assemblage, but it should be appreciated that the NISP assemblage here is very small (less than 10).

Two clues suggest relatively more younger animals were sacrificed to Zeus than to Opheltes. First, a calcined mandible fragment from a neonatal lamb or kid was identified within the Zeus material. This suggests a holocaust, or at least the burning of a head or jaw of a young lamb or kid at a minimum. By contrast, far fewer lamb/kid bones comprise the Heroön deposits, which are dominated by the limb bones of older, mature sheep/goats, presumably from a *meria* or *meroi* sacrifice, with less evidence for holocaustic sacrifices in the Heroön.

Second, the lack of diagnostic fragments from the ends of long bones may also be a sign that fewer adult animals were sacrificed to Zeus than to Opheltes (in whose Heroön more of these ends were preserved). It is possible that the greater frequency of sub-adult and juvenile bones from the Altar of Zeus deposits combusted more easily, and consequently left little trace behind, as opposed to the Heroön material, where a higher incidence of adult animals was sacrificed.

Finally, the Altar of Zeus context is the only one from the entire site where ovicaprid caudal vertebrae were identified. Vertebral fragments were noted from other contexts, but none of these could be distinguished as definitely caudal. This is important since it implies the sacrifice of some tails (i.e., *osphys*), or at least some holocaustic sacrifices (whole animals, that is) to Zeus. Either scenario, nonetheless, correlates with sacrifice to Zeus. The offering of tail sections (*osphys*) connects with literary and iconographic data marking this as a principal anatomical piece offered to some Greek deities during burnt sacrifices.<sup>36</sup> Vertebrae, let alone those from the tail, were all but absent from the Heroön assemblages, so it appears the *osphys* was not offered to Opheltes (who instead seems to have received *meria* or *meroi*, as argued above). A holocaust sacrifice, and recall that the neonatal lamb men-

<sup>36</sup> van Straten 1995 provides illustrations of “curly bits” (which are presumably tail sections that have curled in the process of heating), as depicted on altars on a number of Greek vase paintings. Ekroth 2009, 142–144 provides further discussion about the mechanics of the tail curling, with evidence from practical experiments involving the burning of sheep and pigs’ tails.

tioned earlier was presumably one of these, also fits with Zeus, as such offerings may be argued as representing the ultimate gift to the gods. Still, while some *osphys* and *holokausta* sacrifices are linked here with Nemean Zeus, the high frequency of long bone fragments noted in the faunal assemblage from his Temple and Altar suggest that he also received a significant number of *meria* or *meroi* sacrifices. In this manner, it may be argued that some of the sacrifices made to Zeus resemble those shown for Opheltes, at least in the ritual offering and burning of thigh bones or thigh sections. Insufficient zooarchaeological data exist, however, to conclude if these were right or left side thigh sections, if indeed a side was specifically chosen in sacrifice to Zeus. There are no indications from other zooarchaeological cases across the ancient world that specific side choice is represented for Zeus.

The inclusion of *osphys* as one of the sacrificial sections offered to Zeus, and displayed in the zooarchaeological record from his Altar at Nemea, corresponds with several other examples of ritually burnt tail sections. Two such cases involve sacrifice to Aphrodite. Vertebrae, femora and patellae (nearly exclusively of sheep and goat) comprise a hugely disproportionate component of materials from the 5th to 4th centuries BC sacrificial deposit to Aphrodite Ourania in the Athenian Agora.<sup>37</sup> Similar deposits, in this case, primarily charred bits of sacra, caudal vertebrae and patellae, again overwhelmingly from ovicaprids, characterize the faunal offerings to Aphrodite at Miletos,<sup>38</sup> as well as the sacrificial deposits to an, as yet, unknown recipient in the Temple area from the site of Asea, Agios Elias.<sup>39</sup> Both the Miletos and Asea examples date roughly to the Archaic period. While the cases above provide fairly good direct evidence for *osphys*, the lack of femora, patellae, and caudal vertebrae in the zooarchaeological assemblages collected from Late Archaic ritual deposits associated with Artemis at the site of Olympia, led investigators to suggest that these elements had been removed, and likely burnt elsewhere.<sup>40</sup>

## “Secular” zooarchaeological assemblages from Nemea

What about the other assemblages? How do they connect to the Zeus and Opheltes examples? First, as indicated above (*Fig. 2*) burning was infrequent among these remaining contexts. This is especially noteworthy in the Bath assemblage

(J18:45 & 47), a deposit originally labeled as “sacrificial” on the basis of location and some ritual-related artifacts and vessels, but without any charred bone sacrificial debris it would seem. Although unburnt bone need not imply lack of sacrificial bone, zooarchaeologically, the Bath assemblage does not appear “sacrificial”. It contains a mix of cattle, ovicaprid, and pig bones, with no noticeable pattern of any age group or skeletal part represented. Rather, this Bath assemblage is rather typical of general faunal waste that might litter an area haphazardly. Conversely, while the Xenon assemblage (K18:2) does contain a sizeable fraction of charred bones, these are associated with a hearth, so burning is expected. This is not ritual, but likely cooking and roasting. In support, the examples here are not uniformly burnt, but charred more extensively at their bone-exposed articular ends, as opposed to their meat-covered diaphyseal or “middle” sections. Moreover, the Xenon assemblage is the only one across the site to record domestic fowl, an animal not normally sacrificed as a burnt offering in Greek antiquity, but certainly consumed as part of “regular” diets.

Second, while sheep and goats predominate across all assemblages at Nemea, regardless of their designation as “sacred” or “secular”, this is expected given the importance of ovicaprids in the overall economy of Greece. The other taxa, however, provide clues. For example, the presence of burnt hare bones from the Xenon deposit (K18:2) suggests it is not ritual since wild animals were not normally sacrificed.<sup>41</sup> Presumably unblemished and healthy victims were typically demanded in sacrifice—criteria that could not generally be secured with wild animals, given that most had to be hunted, and likely sustained injuries from being caught.<sup>42</sup>

The Dining Room assemblage (N17:73) is also special taxonomically in registering a relatively high proportion of juvenile pig remains (although the margin is not as wide when MNI values are compared), and in the presence of fish bones. As both were somewhat expensive food types in antiquity, their presence here suggests an elite diet. Perhaps these were meal remains from games officials or dignitaries.

A third distinguishing feature among these “secular” assemblages, is that, unlike the Heroön, no side or element preference exists; rather a general mix of left and right parts from entire skeletons is noted. Presumably more whole animals were butchered and consumed in these contexts. The distinction is further noted in *Figure 10*, which records skel-

<sup>37</sup> Reese 1989.

<sup>38</sup> Peters & von den Driesch 1992; Peters 1993.

<sup>39</sup> Vila 2000.

<sup>40</sup> Benecke 2006.

<sup>41</sup> The stag to Artemis is an exception here; see Ekroth 2007, 263–264 for further examples.

<sup>42</sup> For further comments on the desired physical and temperamental qualities of sacrificial animals see Detienne & Vernant 1989. Naiden 2007 offers serious challenge, however, to notions that sacrificial victims were “willing victims” to the altar.

Fig. 10. Frequencies of various skeletal-part categories for medium-sized mammals across contexts at Nemea.

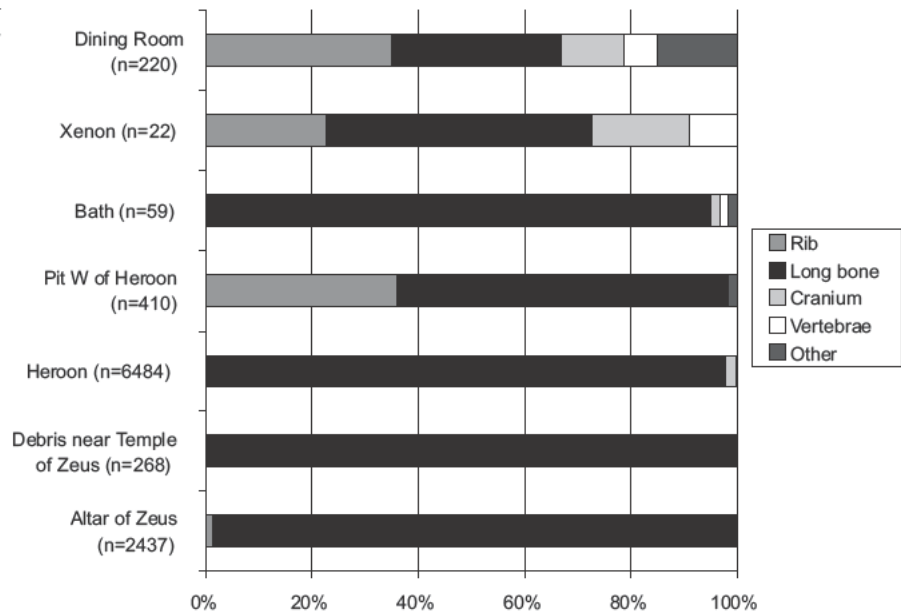
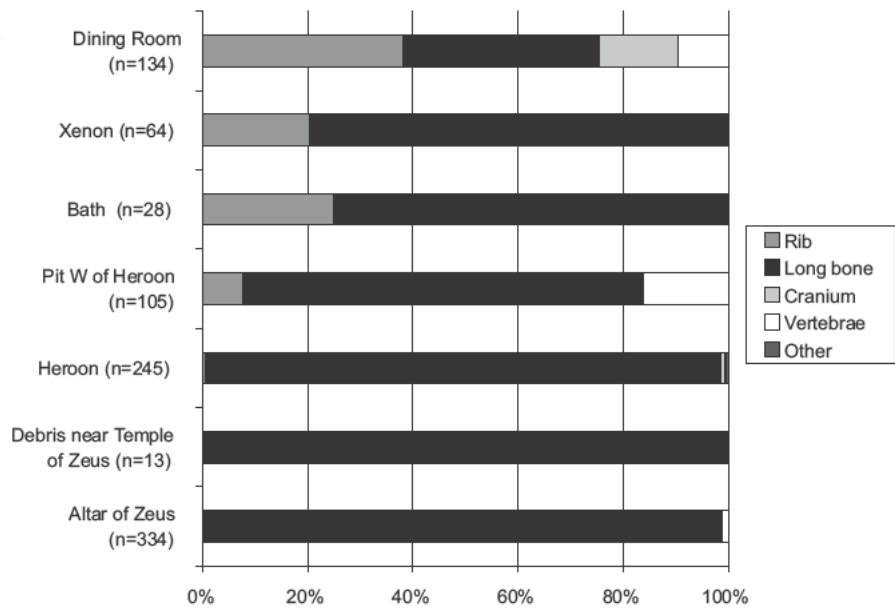


Fig. 11. Frequencies of various skeletal-part categories for large-sized mammals across contexts at Nemea.



etal part frequencies among different categories for medium-sized mammals. The Dining Room and Xenon assemblages contain significant quantities of rib, cranial, and vertebral fragments. A similar pattern is shown among figures for large-sized mammals (Fig. 11), and contrasts markedly with values for “sacrificial” contexts. It is possible that those “missing” ribs and vertebrae from the “sacrificial” assemblages are contained

in these “secular” deposits. While the proportions displayed, especially those for vertebrae, do not appear significant enough to argue strongly this connection, the possibility still exists. Sacrificial victims at Nemea could have been butchered and distributed as part of a ritual feast, with only select parts (notably the thigh/limb bones, i.e., *meria* or *meroi* sacrifice) offered for burning, either to Zeus or Opheltes. If such were



the case, however, then a greater reassessment of the apparent secular/sacred dichotomy is necessary.<sup>43</sup> Some see the whole context of meat consumption among the ancient Greeks as ritualized in some fashion. It has been argued that meat was rare in their diet, and not normally consumed outside a sacrificial context. This opinion seems a bit drastic, however, and presents complications for explaining those anomalies such as the fish and hare bones from the Dining Room and Xenon deposits. While probably not sacrificial, remains here could be associated with ritual feasting, itself a concept that spans the divide between sacred and secular.

## Conclusions

In closing, a return to the title of this article, and an explanation therein, is appropriate. “Side matters” in part is a pun on an English expression “size matters”, which argues that “bigger is better”. In the case of Nemea, “side” does seem to matter: literally, if one attributes importance to left versus right sides of the body; but also figuratively if one considers opposing sides or concepts, such as divine versus mortal or heroic, heavenly versus chthonian, and sacred versus secular. I admit I have come full circle in this attempt to decipher some of these concepts from faunal assemblages from Nemea, and do not have all the answers. The burnt materials associated with the Heroön and the Altar of Zeus generally show a preference for skeletal part sacrifices (largely, *meria* or *meroi* sacrifices, i.e., thigh bone or thigh section sacrifices) for both Opheltes and Zeus. Ritual dining is connected to hero worship,<sup>44</sup> so it is not surprising that only parts of sacrificial animals appear to have been burnt in offerings to Opheltes at Nemea. In fact, in terms of alimentary sacrifice many heroes did not differ markedly from gods in terms of what animals and what portions of them were offered.<sup>45</sup> Nevertheless, a few differences distinguish the Heroön and Zeus ritual faunal assemblages from Nemea. Relatively more cattle limbs, holocaust-style young lambs, and sheep tails (*osphys*) were sacrificed at the Altar of Zeus, where the combustion of material appears more pronounced. The preference for left-sided elements in the Heroön is unique among Greek sacrificial assemblages, and presumably may relate to the association of Opheltes, in his guise as Archemoros, as an underworld figure—heroic,

but not godly. Gods may have had their specific requests when it came to sacrificial animals, and this in turn may have helped worshippers easily to distinguish cults. Hero cults likely did not have such universal standards, and thus worshippers may have aimed to make these different from the rest, but still within practical limits. Sheep (and goats) were plentiful and relatively inexpensive in Greece, and largely predominated among references in ancient sacrificial calendars;<sup>46</sup> thus, choosing them as the necessary victim for Opheltes may not have been an option for the worshippers. Picking the left side of the animal to burn as the hero’s portion was under the worshippers’ control, and, based on available zooarchaeological evidence, sets them apart from other sacrificial practices.

The remaining “secular” faunal deposits from Nemea, as collected from contexts in the Bath, Xenon, and Dining Room, in particular, may show some connection with the sacrificial debris in that skeletal parts “missing” from the sacrificial assemblages (such as ribs and vertebrae) are variously represented in these other deposits. However, the situation is complicated in that it seems unlikely that all the animals consumed at Nemea initiated as ritual offerings, even if not all were burnt in sacrifice, but consumed in feasting rituals. The presence of hare and fish suggests “secular” as opposed to “sacred” meat eating, on some occasions, but ushers in new questions about just where to draw the line between the two seemingly opposing concepts. Gunnel Ekroth sets an important trend along this path in suggesting: “We should rather be looking for the degrees of sacredness imbued in different kinds of meat and situations where meat was handled in order to distinguish a hierarchy of meat that depended on the species, where the animals were killed and how, but also where the meat was eaten.”<sup>47</sup> This analysis of “sacred” and “secular” faunal assemblages from Nemea provides a step forward along this path, but until a larger pool of zooarchaeological data can be synthesized, especially as regards materials from “secular” contexts across a wider array of Greek sites, specific conclusions will remain murky. Zooarchaeology has a critical role to play adding clarity to this picture, through the examination of new finds emerging through continued excavation, as well as more detailed, critical, and interdisciplinary assessments, and re-assessments, of previously excavated faunal materials.

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<sup>43</sup> See Ekroth 2007 for preliminary work on the distinction between “sacred” and “secular” meat offerings in ancient Greece.

<sup>44</sup> Ekroth 1999, 146–156.

<sup>45</sup> Ekroth 2002, 303–310 and 341.

<sup>46</sup> van Straten 2005, 172–186.

<sup>47</sup> Ekroth 2007, 269.

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