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CONTENTS

ZOOARCHAEOLOGY AND SOCIAL IDENTITY IN BRONZE AGE AND IRON AGE ISRAEL: A RESEARCH FRAMEWORK

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ABSTRACT

The Bronze Age and Iron Age of Israel are a unique setting for the study of ancient societies. A wealth of archaeological data, combined with important texts, provide an ideal testing-ground for zooarchaeological research methodologies and hypotheses regarding a wide range of social and cultural practices in the everyday lives of ancient peoples. In this paper we present some of the assumptions and premises that guide an ongoing project aimed at the zooarchaeological evidence for societal complexity and identity in this chronological and geographical range, and illustrate them with preliminary observations.*

KEYWORDS

ancient Near East, Bronze Age, Iron Age, Israel, status, identity, ritual, Tel Rehov, zooarchaeology

INTRODUCTION

Faunal remains from archaeological sites provide direct evidence for ancient foodways, including the faunal spectrum utilised in antiquity, butchery practices, and herd maintenance strategies.[1] While these lines of investigation proved important and informative, our ultimate goal in the zooarchaeological investigation of early states and societies is the reconstruction of social systems and the identification of social actors.[2] We see food taboos,[3] access to certain animal resources,[4] and butchery practices that are affected by ritual formalities[5] as means to understanding identity.

Even though it is widely agreed that faunal remains contain important information relevant to questions of status, ethnicity and economic organisation, numerous methodological and interpretive obstacles must be surmounted along the way leading from excavation to credible conclusions in this range. The subject of this paper is to explicate the research

* We would like to thank Amihai Mazar, director of the Tel Rehov excavations on behalf of the Hebrew University of Jerusalem and Nava Panitz-Cohen, field supervisor of Area C, for their long-lasting assistance in zooarchaeological research at the site; the excavations and research in Tel Rehov are supported by Mr. John Camp from Minnesota, USA. The study is supported by the Israel Science Foundation (Grant 52/10) and a Rothschild Yad-Hanadiv postdoctoral fellowship. We would also like to thank Reuven Yeshurun and Lior Weissbrod for their comments on the manuscript, although we take full responsibility for the views expressed within.

1 *E.g.* Payne 1973; Hesse and Wapnish 1985.
2 Crabtree 1990; deFrance 2009.
3 Finkelstein 1996; Hesse and Wapnish 1997.
4 Ervynck *et al.* 2003.
5 Davis 2008.

premises and methods that are the baseline of an ongoing long-term project targeting social identity in Bronze Age and Iron Age Israel from a zooarchaeological point of view. These premises could be useful to air out some of the often-implicit views that are the basis of our choice of research variables, scale and interpretations. Following the presentation of the main zooarchaeological criteria that can be used to reconstruct social identity, we discuss the question of the level of contextual aggregation at which such issues can be tackled. It should be clear whether we expect solid zooarchaeological evidence for social identity at the household level, entire strata or any contextual aggregate in-between. The criteria are then illustrated by zooarchaeological examples from the Bronze and Iron Age of Israel.

Archaeologically, Israel comprises one of the world's most intensively studied regions. Archaeological evidence in conjunction with information from ancient texts (*e.g.* the Hebrew Bible, el-Amarna archive, Merneptah's 'Victory Stele') demonstrate the existence of a particularly complex cultural mosaic during the Middle Bronze, Late Bronze and Iron Ages (20th–6th centuries BC), which comprised diverse groups such as Egyptians, Canaanites, Israelites and Sea Peoples (for sites mentioned in the text see **Fig. 1**). These periods also saw the rise and collapse of Bronze Age city-states and the emergence of national territorial kingdoms during the Iron Age and with them the appearance of ethnic groups like the Israelites.[6]

The paper is organised into three levels, which are used to explore issues of social identity. First we make some tentative, coarse inter-site comparisons with published bone assemblages from urban and rural sites. Following that we conduct an intra-site comparison and present a case-study for body-part preference that can be related to ethnic identity. Finally, we focus on specific contextual aggregation of faunal remains to discuss the question of social identity. The different scale of analysis enables us to illuminate specific social phenomena that are encoded in the zooarchaeological record.

Seeking Social Identity in Bones

The current state of historic zooarchaeological research in Israel distinguishes two vectors of social identity: status[7] and ethnicity.[8] Intra-site social status differentiation among elites, administration and commoners is expected to manifest in, and also stem from, the ability to harness human resources and valuable goods.[9] Status can be detected archaeologically by the presence of assemblages rich in prestige goods, or by monumental architecture.[10] In the context of Bronze and Iron Age Israel, the zooarchaeological corollary to status is the geographic and temporal distributions of rare and exotic imported and wild game food species[11] and meat-rich cuts of young adult livestock animals.[12]

[6] See Mazar 1990, for a detailed account of major archaeological research.
[7] *E.g.* Marom *et al.* 2009
[8] Hesse 1986; Lev-Tov 1999; Bar-Oz *et al.* 2007
[9] Crabtree 1990; Ervynck *et al.* 2003.
[10] Trigger 1990.
[11] van der Veen 2003.
[12] Schulz and Gust 1983; Schmitt and Lupo 2008.

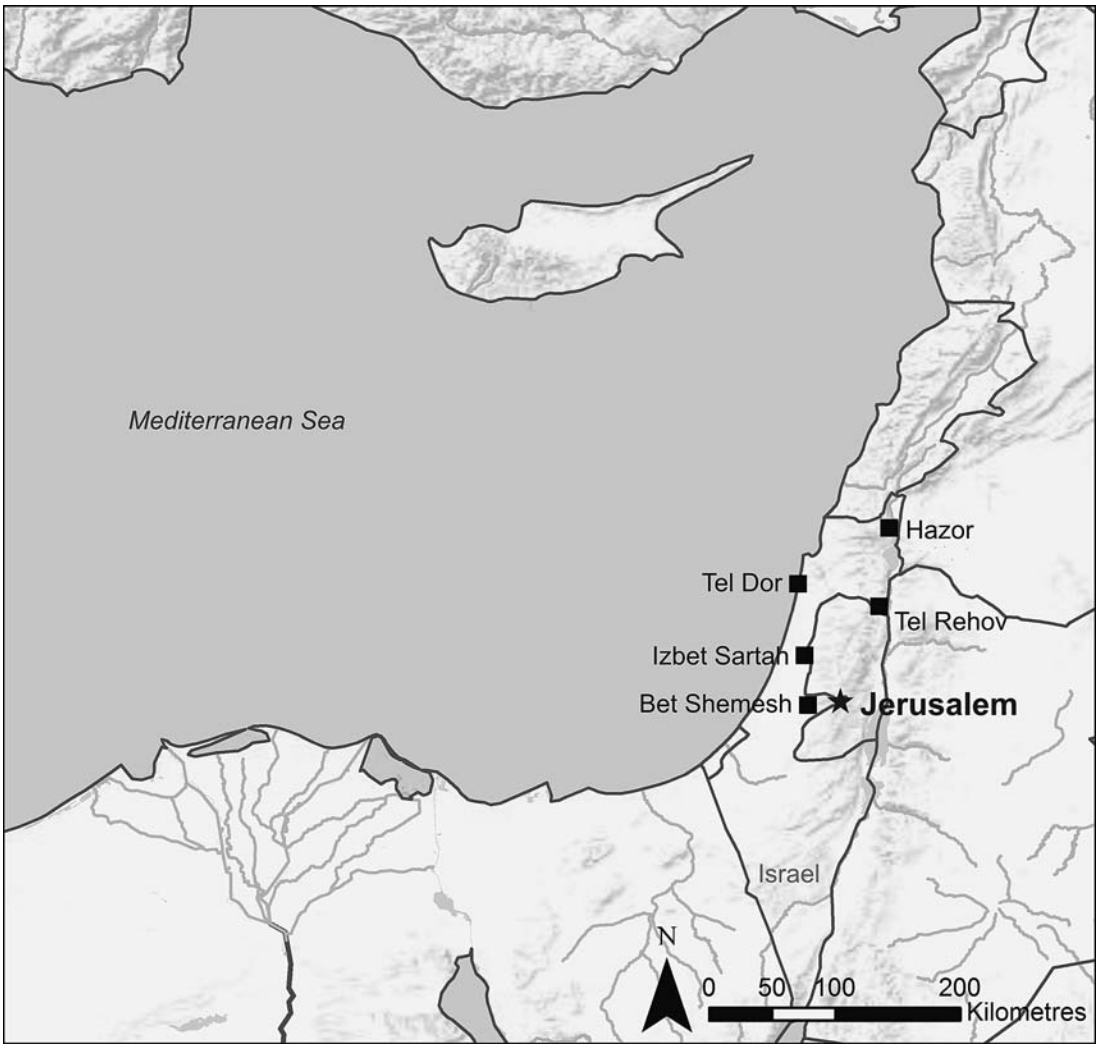

Fig. 1. Location map for sites mentioned in the text.

Ethnic identity has so far been discussed in the Iron Age of ancient Israel in the context of pig avoidance. The discussion revolves around two observations: the arrival of the Philistines to the southern Coastal Plain territories in ancient Israel (Philistia) at the Iron Age IA was accompanied by a sudden rise in the frequency of pigs;[13] whereas the contemporary settlements appearing in the central hill country (Judea) were nearly devoid of pigs.[14] These two observations suggest that pig avoidance was characteristic of Israelite ethnicity from its conception, and that the presence or absence of pig remains from archaeological sites of the period may indicate the ethnic affiliation of the inhabitants.[15] This seems a very plausible explanation that was generally embraced. However, it should be noted that the utility of the

[13] Hesse 1986, 1990; Lev-Tov 2000.
[14] Finkelstein 1996.
[15] Finkelstein 1996.

pigs as ethnic markers in the Iron Age is currently limited to the boundary area between Judea and the Philistia in the Iron Age I and II (12th to 6th centuries BC), where pig taboo is a likely variable affecting taxonomic composition of faunal assemblages.[16] The situation in other regions and periods in ancient Israel is more complex, as the effect of additional political and environmental factors complicates trends in pig exploitation patterns.[17]

Variability in butchering patterns between sites might provide further insights to cultural/ethnic codes concerning animal slaughter and meat preparation. Biblical law (Leviticus 7: 26–27) prohibits the consumption of blood, a taboo that goes together with slaughtering animals by slitting their throats, and hence we would expect to find in Israelite-populated sites hyoid bones with cut marks, rather than evidence for axe or cleaver blows to the first vertebrae behind the head, which is another common method of slaughter. Another area of the body in which ethnically-related butchery practices might be seen is the hind leg, as it is permitted to eat this portion of the animal only once the sciatic nerve[18] has been removed (Genesis 32: 33). Thus cut marks along the posterior aspect of the femur can be considered evidence of such a practice.

Furthermore, ethnographic studies suggest that carcass dismemberment methods and practices may vary between ethnic groups.[19] There is currently no widely-accepted theory regarding the source of variation observed in butchery methods, and therefore the study of butchering practices that is based on analysis of distribution and abundance of cut marks on bones as an indicator of ethnicity must be done in a heuristic way. By that we mean that through superimposing particular patterns of butchery marks on a map of sites of known ethnic affiliations, we could find informative correlations that would help to infer the ethnic status of residents living in sites for which there are no written sources pertaining to ethnicity.

Another link between animal foods and social identity in ancient Near Eastern urban contexts is access to large game. The role of hunting and the attitudes it aroused have changed throughout history,[20] but in the early state societies of the ancient Near East it was a cognate of feasting in the enactment of power relations.[21] Hunting of large game was an occupation of aristocracy,[22] requiring special skills and equipment. Warlike abilities can be flaunted in a hunt, as well as costly gear. Political relations can be acted out and reasserted: Who is invited to the hunt, and who excluded? Who will ride armed by the king? Who not? Royal hunting forays also provided an opportunity to show domination and ownership of the countryside.[23] Stone reliefs in Egypt, Assyria, and the Neo-Hittite kingdoms portray many hunting feats.[24] The very use of such propaganda points towards the exclusionary

[16] Tamar 2009; Tamar *et al.* in press.
[17] Reviewed in Hesse and Wapnish 1997, 1998; see also Zeder 1998.
[18] Hebrew *gid ha'nasheh*.
[19] See discussion and references in Maltby 1985; Lymann 1995.
[20] Cartmill 1993.
[21] Allsen 2006.
[22] Firmage 1992.
[23] Allsen 2006.
[24] *E.g.* Luschan 1902.

nature of hunting: It defined and thus was probably restricted to elites. The zooarchaeological consequence of this is that assemblages containing high frequencies of large game animal remains (**Table 1**) are likely to be the result of elite consumption.

Common Name	Latin Name	Habitat
Mesopotamian fallow deer	*Dama mesopotamica*	Mixed woodland and open grassland
Red deer	*Cervus elaphus*	Mixed woodland and open grassland
Wild boar	*Sus scrofa*	Mixed woodland and riparian habitats
Mountain gazelle	*Gazella gazella*	Grassland and open savannah
Lion	*Panthera* sp.	Grassland and open savannah
Leopard	*Panthera pardus*	Mixed woodland and open grassland
Brown bear	*Ursus arctos*	Woodland
Nile perch	*Latus niloticus*	Nile – Egypt
Nile catfish	*Bagrus*	Nile – Egypt

Table 1. List of wild species suggested as affiliated with elite consumption in urban Bronze and Iron Ages sites.

Another aspect of meat consumption in the social and cultural practices in the everyday lives of ancient peoples is strongly tied to the ceremonial sphere and peoples' beliefs. Much of the consumption of meat in antiquity was entwined with ritual.[25] Slaughter was rarely conducted in the profane sphere;[26] meat was consumed in the company of a deity, and part of the slaughtered animal was allocated to the divine being and its officiators.[27] Ritual slaughter accompanied by a feast was a formal event, with binding and traditional rules of conduct that determined which social actors are entitled to get certain meat-portions.[28] There is textual evidence that the forelimb was considered a part often given over to deities and their officiators in the West Semitic cultural sphere.[29] Asymmetry in the proportion of right versus left limb bones is present in some archaeological assemblages,[30] and is a phenomenon that cannot be explained by any taphonomic process. On the contrary, this may well reflect the pattern created by regular donation of a right limb portion as sacrifice. A left-side dominated assemblage could indicate an accumulation of bones created by consumers who routinely sacrificed; a right-side dominated assemblage would indicate a context created by cult officials.

Thus, the social process standing at the basis of identity is exclusionary, and it is evidence for exclusionary practices that we seek in the zooarchaeological record. **Figure 2** provides a scheme of this part of the research design.

[25] Serpell 2005.
[26] Berquist 1993.
[27] Robertson-Smith 1956, p. 234, 241; West 1997, p. 40.
[28] Lev-Tov and McGeough 2007.
[29] *E.g.* Fleming 2000, pp. 269–271.
[30] Tel Qiri, Davis 2008; Lachish Fossae Temple III, Croft 2004, p. 2315; Shiloh VII, Hellwing *et al.* 1993, p. 313; Tel Rehov, Marom in press b; Zincirli Höyük, Marom in prep.; Tel Dan, Greer 2011.

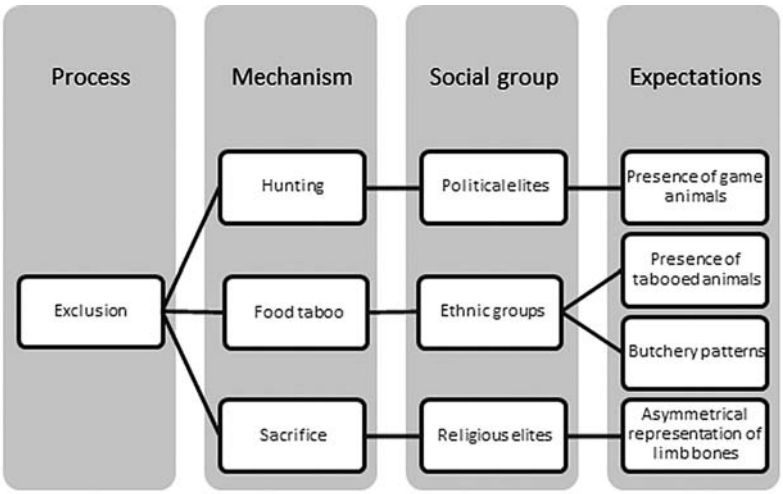

Fig. 2. Suggested connection between exclusionary mechanisms, social identities and zooarchaeological corollaries.

Exclusionary processes work at the level of social agents, but are embedded in systemic realities of economy, politics, geography and climate.[31] The equifinal impact of the many variables involved in the systemic context on zooarchaeological assemblages could be great. A prime example can be found in the "pig debate": their presence or lack thereof can easily be attributed to geographic/environmental, political and economic causes rather than ethnic ones.[32] While zooarchaeology can be informative in regard to mode of production and intensity of agricultural practices[33] and environment,[34] we are entirely dependent on historical and contextual archaeological data to provide most systemic context. For example, knowledge on whether a site was integrated in a state organisation or was an independent city-state cannot be inferred from the zooarchaeological record. Zooarchaeology is good at telling differences of status, and small scale economic organisation; however, for understanding broad political contexts and processes, external feedback is mandatory.

An important issue that needs to be addressed is the archaeological scale at which social phenomena manifest in the zooarchaeological record. What would be the optimal scale of contextual aggregation needed to discuss questions of social identity? Is it an architectural unit, a single stratum, or an amalgamation of strata into chronological phases?

A higher resolution is always desirable, but there are serious grounds of doubt that even a "clean" floor assemblage from a house floor reflects accurately the consumption behaviour that took place in that context over time. We assume that building floors were routinely swept of large debris when in use since Neolithic times.[35] Although we take for granted that

[31] Zeder 1991.
[32] *Sensu* Hesse and Wapnish 1998 "Pig Principles"; see also Hesse and Wapnish 1998 and Zeder 1998.
[33] Payne 1973; Redding 1981.
[34] Cruz-Uribe 1988; Piper and O'Connor 2001.
[35] Marom and Zuckerman 2011 and references therein; Hardy-Smith and Edwards 2004; Sapir-Hen *et al.* in press; but see Wilson 1996.

some bones may have found their way into nooks and crannies in functioning houses, these were likely to be few, small, and often unidentifiable to skeletal element or taxon. It is only in the last days of a building's existence, or in a post-abandonment phase, that we can expect accumulation of garbage on living floors that would yield a large sample of identifiable bones, usually bigger specimens that would be obtrusive during the permanent occupational phase of a building's life cycle.[36] This secondary accumulation of larger, and therefore more identifiable, bones would likely dampen the signal of fewer, smaller bones in primary deposition.

In view of that, the minimal unit that is useful for analysis in Bronze and Iron Age Israel is deposits in streets and open spaces inside the settlement. These contexts would reflect with greater accuracy the time-averaged daily consumption activities of nearby functioning architectural spaces, given their typically larger sample sizes and their lower appeal to human and non-human squatters in the post-abandonment phases of a site. Post-abandonment use of architectural remains that provide some shelter would be more likely. Street accumulations form when people live their daily lives inside houses, since household floors are necessarily swept out to the street; they cease their intensive build-up when no one bothers to sweep the floors — which coincides with the breakdown of social order. In some cases, intra-mural contexts can be considered better preserved if sealed under a destruction layer. However, this assumes destruction to be immediate, Pompeii-like, rather than a longer process of siege, conquest, plunder and final destruction.

Table 2 illustrates levels of aggregation of contextual units typically required to carry out different zooarchaeological analyses. The values presented in the table are estimations based on the extensive database of faunal remains from Tel Rehov.[37]

Only from the aggregation level of a typical "house", which includes two or more rooms with no obvious open courtyards, are we able to recover a large enough sample to consider deriving valid measures of taxonomic diversity. NISP-based skeletal element abundance profiles can usually be constructed for a house-aggregate. Such an analysis does not allow discernment of the precise distribution of elements, which should be based on minimal units (MNE, MAU) to avoid biases caused by differential fragmentation.[38] Such NISP-based skeletal element abundance profiles are useful mainly for intra-site contextual comparisons.

A typical street, courtyard or large empty space in or between buildings usually holds a large enough sample of identified bones to carry out a meaningful analysis of taxonomic diversity, a comparative skeletal element abundance profile, and retrieve some coarse-grained demographic (age and sex) data. A large street deposit or a stratum exposed over a fair-sized excavation area (local phase) should be amenable for the derivation of most types of zooarchaeological data. A stratum exposed over several excavation areas would be the minimal contextual aggregate for a thorough comparison of taxonomic, demographic, and skeletal element abundance patterns (**Table 3**).[39]

[36] LaMotta and Schiffer 1999.

[37] Tamar *et al.* in press; Marom submitted. Note that this table is meant to illustrate what, in our subjective experience, is a typical sample size for different aggregation units, and provide some rule of thumb for the field archaeologist as to what could be expected in terms of sample size from such units. Exceptionally rich indoor contexts are not rare occurrences.

[38] Lyman 2008.

[39] LaMotta and Schiffer 1999.

Level of Aggregation Units	Typical NISP Values	Typical Maximum MNE Values	Species Diversity	Skeletal Element Abundance, NISP	Skeletal Element Abundance, MNE	Age-at-Death and Sex Ratio
Single room	20	1-2	No	No	No	No
House	100	5	Sometimes	Sometimes	No	No
Large courtyard or street	300	10	Often	Yes	Sometimes	Sometimes
Excavation area, local phase	500	30	Yes	Yes	Yes	Often
Stratum	1000+	40+	Yes	Yes	Yes	Yes

Table 2. Generalised estimates of sample sizes of different contextual aggregation levels in Bronze and Iron Age tel sites and the feasibility of different zooarchaeological analyses. Estimates are based on Tel Rehov and are considered typical of Bronze and Iron Age tel sites in Israel.

Preliminary Observations

Some preliminary observations on selected faunal assemblages from the Bronze and Iron Ages of Israel can be used to illustrate briefly the pragmatics of the design explained above. Game animals are, on average, more numerous in urban sites (*e.g.* 3.3 per cent on average for the Iron I of Tel Dor,[40] and the Iron II at Rehov[41] and Hazor[42]) than on rural sites (1.3 per cent on average for Iron I Khirbat al-Mudayna al-A'liya[43] and Izbet Sartah[44]), an observation which is encouraging in ascribing increased hunting activities to political rather than subsistence activities. The same urban sites are also marked, at least in the Iron Age, by the presence of imported taxa, such as the Nile perch. This contrasts them with rural sites, where no non-local taxa were found.

Pigs are almost absent from urban contexts. Iron Age assemblages have very low frequencies of pigs, and in Tel Dor (Iron I, with an Aegean ethnic component) and Tel Rehov (possibly Canaanite ethnic affiliation) suids were identified as wild boar *Sus scrofa* rather than domestic pig, *Sus scrofa domesticus*. Considering this background, the ascription of ethnic identity based on low frequencies of pigs should be taken with a grain of salt, since

[40] Raban-Gerstel *et al.* 2008.
[41] Tamar *et al.* in press.
[42] Marom in press a.
[43] Lev-Tov *et al.* 2011.
[44] Hellwing and Adjeman 1986.

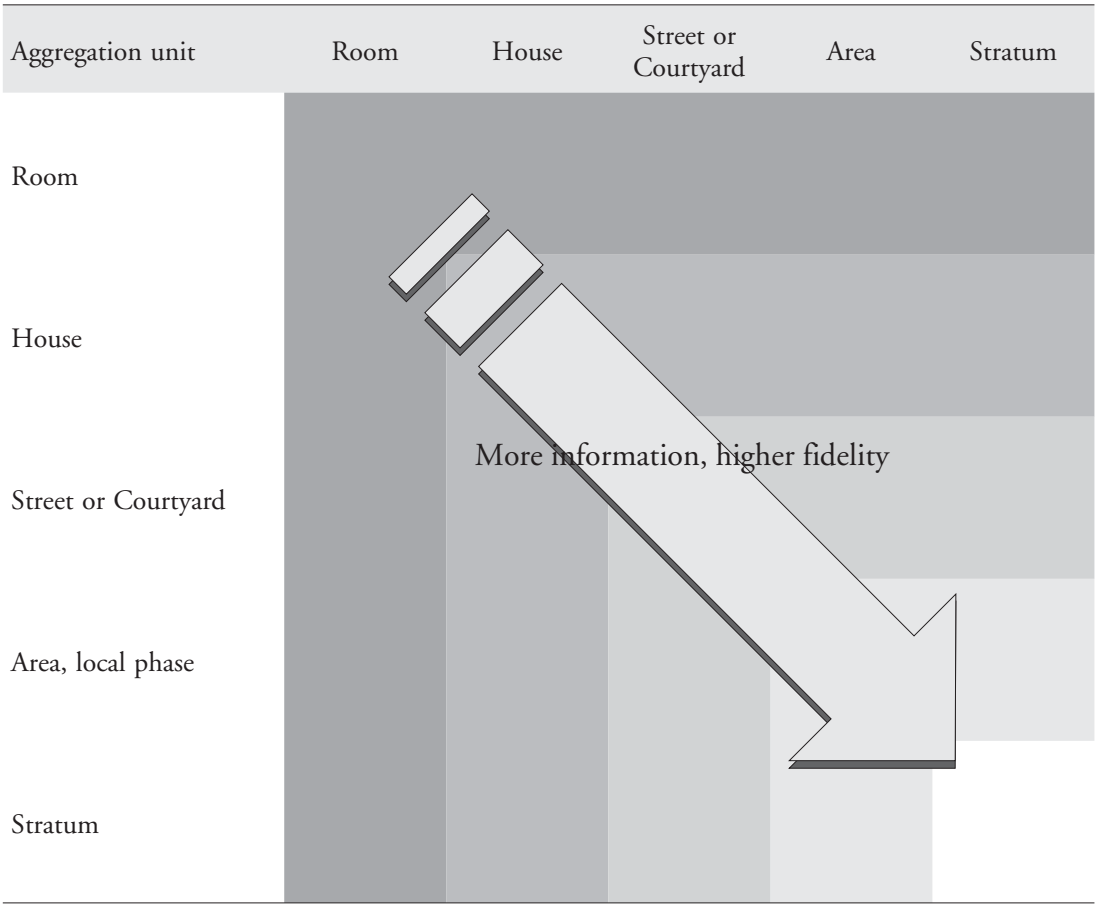

Table 3. Levels of contextual aggregation and their relations to possible levels of zooarchaeological intra-site comparison. ▬ = sample size too small for meaningful analysis; ▬ = sample size sometimes sufficient to discuss diversity and construct a NISP-based SEA profile; ▬ = sample size sometimes sufficient to construct a MNE-based SEA profile, and collect basic age-at-death data; ▬ = sample size sufficient to construct MNE-based SEA profiles and often discuss age-at-death and sex ratio data; ▬ = sample size usually sufficient to carry out the full scope of basic zooarchaeological analyses.

	Area D Late Bronze		Area A Iron I		Area C Iron IIa	
	Left	Right	Left	Right	Left	Right
Forelimb	22	21	**14**	**3**	50	67
Hind limb	**13**	**4**	7	7	49	56
Upper forelimb[1]	14	15	4	1	23	35
Upper hind limb[2]	4	0	2	4	19	20
Lower forelimb[3]	8	6	**10**	**2**	27	32
Lower hind limb[4]	9	4	5	3	30	36

[1] scapula, humerus; [2] femur; [3] radius, metacarpus; [4] tibia, metatarsus

Table 4. Frequencies of left and right limb portions from Tel Rehov as numbers of identified specimens (NISP). Values in bold indicate statistically significant differences in the representation of left and right elements (see text).

low frequencies can represent the abundance of wild boar as game animals or the inclination to take them.

Comparison of large game animal frequencies, presence or absence of imported fauna and presence of suids can be conducted on an inter-site or intra-site scale. Some analyses are better observed on the intra-site scale. One such phenomenon concerns ritual and sacrifice. Sacrificial activities usually take place in well-defined spaces.[45] A zooarchaeological study of ritual may examine contexts where ritual slaughter took place[46] or capitalise on the imprint ritual is suggested to have left in the skeletal element abundance data in the residences of ritual participants. We present here data from Tel Rehov as an example. Table 4 lists the counts of left and right limb bones from different excavation areas. The animal bones from Areas A (Iron I), D (Late Bronze) and Area C (Iron IIa) generally reflect accumulations of domestic refuse. The observed pattern shows a statistically significant asymmetry in limb bones. In Area A the left forelimbs are overrepresented (χ^2=7.11, P=0.01) while in Area D the left hind limbs are better represented (χ^2=4.06, P=0.03). In contrast, the Area C assemblage is dominated by right limb portions, both fore- and hind, although the result is not statistically significant (χ^2=2.59, P=0.10). Importantly, the excavations in Area C yielded large numbers of cult objects and paraphernalia[47] that could support the cultic role of some of its inhabitants. However, the three non-contemporary samples still do not necessarily reflect parts of a single ritual system.

The difference in the limb (fore- or hind) in which asymmetry is observed could also provide clues to the ethnic identity of the site inhabitants. In the Israelite/Canaanite cultic milieu right forelimbs seem to have been considered the portion that was allocated to priests,[48] while in the Aegean/Anatolian spheres the thigh was often sacrificed,[49] a practice probably shared with the Luwians.[50] Taken with extreme caution, we suggest that the preference for fore- *versus* hind limb sacrifice holds the key to the investigation of intra-site ethnic diversity — a prospect that we intend to explore further in the future.

Summary and Conclusions

The widespread agreement on the utility of food remains as proxies to social identity, combined with established multivariate inter- and intra-site zooarchaeological analyses, place zooarchaeological research at the forefront of long-standing issues of status, ritual and ethnicity in Bronze and Iron Age Israel. The exact expectations derived from the "bones and identity" premise should be further explored through a systematic and comprehensive research agenda. Such a large-scale project will prompt us to evaluate explicitly the way we view the interaction between the zooarchaeology and social identity.

[45] Berquist 1993.

[46] See, for example, Hazor, Lev-Tov and McGeough 2007; Dan, Greer 2011; Tell al-U'mayri, London 2011; Tel Haror, Klenck 2002.

[47] Mazar and Panitz-Cohen 2008.

[48] For example, Tel Qiri, Davis 2008; Lachish Temple, Croft 2004.

[49] See Iliad 1: 460–463; Burkert 1983, p. 6, 9, 18; West 1997; Davis 2008 for an archaeological example.

[50] *Cf.* ritual of Zarpiya of Kizzuwatna; Collins 1997.

To conclude, we tentatively point out three main directions for the investigation of social identity using zooarchaeological tools, which should be applied while monitoring the background of systemic data on environment, political structure and economy. These directions are status, ethnos, and ritual role. In terms of status, two main criteria can be ascribed to elites: engagement in hunting of large game[51] and consumption of imported foods.[52] Another criterion often cited in the literature is the dominance of consumption versus butchery waste. This criterion has more to do with systemic consideration of the economic standing of a site as a production or consumption site;[53] and it often neglects the rule of slaughter and discard of butchery waste in sacrificial settings.[54] Such discard would create concentrations of butchery waste in contexts that are not necessarily connected with low-status populace.

The presence of imported taxa, especially Nilotic fish, seems to mark urban populations. The same is true for large-game hunting. Whereas some subsistence hunting of deer, gazelles and wild boar occurred in rural sites throughout the Bronze and Iron Ages, the frequencies of large game are more than twice as high on average in urban sites. This observation encourages us in thinking that hunting occurs more often as a device of politics and power than of subsistence.

The ritual sphere can be studied through the remains of *in-situ* sacrificial deposits or through the imprint left in domestic quarters to ritual partitioning of animal carcasses. There are ample textual sources mentioning such practices,[55] and some good zooarchaeological evidence for the occurrence of such patterns in Bronze and Iron Age sites in the southern Levant and the Aegean (see above). Of special interest is an uneven left to right side limb elements, which cannot be the result of any known taphonomic process. Our basic research premise is that a higher than expected frequency of left-sided elements in residential areas marks the presence of donors, *i.e.* people who are not cult officials. On the contrary, higher than expected representation of right-side elements would indicate consumption by cult personnel. Further intra-site investigations would hopefully uncover differences between contexts that may be telling in regard to heterogeneity in urban communities of the Levant.

Israel boasts a unique setting in terms of the numerous excavated Bronze and Iron Age archaeological sites in a small area. The copious amounts of high-resolution data from this socially and politically complex region, illuminated by good historical coverage, are ideal for the examination of zooarchaeological methodologies and hypotheses in these ranges.

[51] Allsen 2006.
[52] van der Veen 2003.
[53] Zeder 1991.
[54] Tel Haror, Klenck 2002; Hazor, Lev-Tov and McGeough 2007.
[55] See Greer 2011.

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