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Bodies of Information: Human-Animal Entanglement at Çatalhöyük and Cis-Baikal as Seen Through Zooarchaeology

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Abstract
Zooarchaeology—the study of the human past through animal remains—has often been said to demonstrate that animals have had a variety of tangible roles in relation to human individuals and cultures throughout time: from sources of food to implements of labour. In contrast, intangible aspects of the human-animal relationship have been generally unrecognized and only recently appreciated within (zoo)archaeological discourse. Through exploratory case studies of research at the sites of Çatalhöyük and Cis-Baikal, it is suggested here that new modes of reflecting upon human-animal bonds are necessary in order to better understand the multifarious meanings and uses of faunal remains from archaeological contexts. Syntheses of human behaviour and belief in relation to non-human animals should incorporate emic cultural understandings, which may be discovered through the devices of ethnographic survey and ethnoarchaeology. Animals are thusly appraised as more than mere sources of subsistence, or tools of transport. A social zooarchaeology, focusing on the intimate affinities between humans and animals, can provide alternative insights into the lived experiences of human cultures.

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In other words, the purpose of this paper is to explore the ways in which the practice of zooarchaeology has developed and changed over time, correlating these transformations with progress in theory in the wider field of archaeology. It is an effort to tackle zooarchaeology specifically and bioarchaeology more generally from a theoretical standpoint. The paper incorporates theoretical concepts related to materiality, entanglement, and agency, which appear to be gaining ground in archaeological discourse. These ideas are explored through the context of the aforementioned archaeological sites and the interpretations related to the data from these sites that have been proposed through time. Overall, this paper attempts to clarify and bring to light some of the issues related to current conceptualizations of theory in zooarchaeological practice.

Keywords
materiality, entanglement, zooarchaeology, bioarchaeology, theory, processualism, postprocessualism

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Introduction
Animals have always played roles in the lives of humans, serving physical and social needs, providing nourishment, transportation, and companionship. In archaeology, they have traditionally been considered as functional and symbolic objects through which human behaviour may be expressed, and more recently as individual subjects having agency (Hodder 2012). Zooarchaeology provides important avenues to understanding the human-animal relationship over time, as it concerns how animals have been treated and used, and what they have meant to different peoples. I argue that a more socially inclined zooarchaeology allows for exceptional insight into aspects of animal-use that have largely been invisible in disciplinary discourse. A 'social zooarchaeology' moves beyond simply interpreting the material markings of subsistence; it considers animals from the perspectives of the particular peoples with which they came into contact, allowing for the reconstruction of multidimensional relationships between humans and non-human animals.

I briefly outline the history of zooarchaeology and then explore how different theoretical positions have brought awareness to the various roles of animals in human history. In particular, I emphasize the intangible qualities of animals and their remains, and survey ways in which the application of postprocessual thought can be productive in exploring these qualities. I examine how animals have been entangled in human affairs. My goal is to deconstruct the conventional dichotomy between human and non-human animals, and to probe the output of research in this area. To this end, case studies from the sites of Çatalhöyük and Cis-Baikal are presented and then compared.

A Brief History of Zooarchaeology
Faunal analysis has a relatively long history within archaeological studies, at least since the early nineteenth century (Grayson 1973:432; Trigger 2006:10). However, early practitioners of zooarchaeology were often not specialists, a consequence of a still nascent archaeology. The nineteenth-century Danish zoologist Japetus Steenstrup was among the first scholars to study taphonomic processes affecting bone, in his carnivore bone-chewing experiments (Bartosiewicz 2003:26; Trigger 2006:10,131–133).[1] Ludwig Rütimeyer, a Swiss researcher, was the first to publish a zooarchaeological study with an explicit research design in 1861 (Bartosiewicz 2003:26). Scholars such as Steenstrup and Rütimeyer were not specialists, but naturalists, as they studied a range of areas from anatomy and biology to paleontology and zoology (Trigger 2006:10). Still, they were recognized as fathers of the "zoologico-archaeologist" species, as John Lubbock observed (Reitz and Wing 2008:2).

In the years that followed, zooarchaeological practice became increasingly more common as an exercise in itself. Methods also became more systematic: it became standard to report species lists for archaeological sites in the late nineteenth century (Stewart 2002:149). Nonetheless, there continued to be an overall lack in the integration of faunal analyses within archaeology until the mid-twentieth century (Hill 2013). Many emerging intellectuals accepted the need for a more scientific, methodical, systemic, 'processual' archaeology; descriptions and chronologies were said to be insufficient ends for the discipline. An understanding of the

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mechanics of culture and society was found to be lacking, yet certainly within reach of the archaeologist (see Binford 1962).[2] It was then that the potential power of faunal materials to be truly informative of the human past began to be realized—animal bones could become more than references for estimating the ages of sites: they could be used to explore human behaviour (see Binford 1981). Later, the pitfalls of a narrow focus on 'culture process' were criticized,[3] prompting reactions which called for a renewed perspective on archaeological practice, culminating in the promotion of a critical 'postprocessualism' (see Hodder 1985).

In the 1990s, budding out of post-modern undertones from decades earlier, there was a push towards a zooarchaeology focused on social and extrasomatic aspects of human-animal interactions, under the heading of "social zooarchaeology" (Hill 2013:117; Russell 2012). A social zooarchaeology aims to transcend orthodox epistemology by considering animals as active agents inside and outside of human culture. It challenges human-animal dichotomies (Hill 2013:118–120) in the furtherance of appreciating ontologies of cultures and the individuals within cultures uncommon to the 'Western' world and those that have been historically marginalized, especially those of Indigenous peoples (Losey 2010:29; Losey *et al.* 2013a:67). This goal is achieved through the careful contextual analysis of animal remains, considering their social and cultural milieu, and the operationalization of the human-animal relationship.

Theory and Zooarchaeological Practice

In order to demonstrate how theory has been or is being applied to zooarchaeology at archaeological sites, the two main heuristic categories or approaches of archaeological thought—processualism and postprocessualism—are summarized. I paint a broad image of processualism and postprocessualism, considering them more as temporal trends rather than strict styles of theory. While processualism and postprocessualism are generalized for the sake of discussion, their highlighted aspects are illustrative of the methods and concerns present in zooarchaeological practice.

Processualism: The Stress of Process

The processual movement undoubtedly led to the greater integration of faunal analyses in archaeological research. With an intensified focus on the environment and the ecology in which cultures have engaged, a processual approach promoted a greater attention to the fauna and flora of different climatic zones or regions. The progenitor of the processual perspective, Lewis Binford, involved himself in studies of hunter-gatherer lifeways, with particular concern for their subsistence on fauna (Binford 1978). There was a drive to develop descriptive models of human behaviour, the deposition of animal remains into archaeological contexts, and indices to measure and compare faunal assemblages (see Binford 1981). The systematic process of food economies is often highlighted in processual literature: from acquiring animal resources to processing, to discard and ultimate inclusion into the archaeological record (Binford 1978:13). As the aim of archaeology is to identify human activity, a common goal in the processual sphere is to distinguish between signatures of cultural and natural modification to animal remains (see Schiffer 1983).[4]

In the processual era, analytical tools and formal theoretical models to link the static past to the dynamic present were advanced and endorsed. Many thinkers tested and recognized the power of analogy informed by ethnoarchaeology and actualistic study as a means to associate the past with the present. Binford (1981) named this method of creating analogues for viable archaeological

inference "middle-range theory", adopting it from the concept of sociologist Robert Merton (25). Ever since its introduction into archaeological theory, middle-range theory has been an invaluable interpretive instrument, but it has not been immune to criticism (Forslund 2004; Kosso 1991).[5]

Postprocessualism: Changes in Perspective

Despite the developments and modes of practice that processualism brought to faunal studies, and zooarchaeology proper—including the focus on empirical methodologies—there were dimensions of the archaeological record that were unexplainable through processual theory, such as variations in cultural practices that appeared to contradict what could objectively be called rational choice. While questions of cultural process were posed, the motives and purposes behind particular social behaviours were largely undefined. A shift in emphasis from an etic "objective" perspective toward an empathetic emic "subjective" approach in ethnographic practice, and renewed appreciation of the complexity of cultural traditions, among other considerations, promised a more attentive archaeology. Where earlier ethnoarchaeological work of processual perspective related to fauna generally focuses on material concerns such as subsistence (see Binford 1978), later postprocessual practice accentuates spiritual and social elements by considering the intangible, culturally specific, socially defined relationships between humans and non-human animals (Hill 2013; Nomokonova *et al.* 2013).[6]

Just as Binford had defined and demonstrated processual practice, Ian Hodder spearheaded postprocessual philosophy, pivoting the concerns of archaeology into a deep thicket of theory and leaving a divot, forever changing archaeology, once again. Hodder (1985) clarified his concept of postprocessualism as a "departure from and a questioning of many of the assumptions of the "new archaeology" [that is, processualism]" (13). Basic to Hodder's concept—what may be more appropriately labelled 'interpretive archaeology'—is the importance of what he terms "reflexivity, contextuality, interactivity, [and] multivocality" as measures of method (Hodder 1997:7). Related to this is the notion of subjectivity, which cannot be ignored as a feature of archaeological practice, and which postprocessualism purports to expose. Postprocessualists practice hermeneutics—that is the analysis of latent meaning—as an inferential instrument (Hodder 1985:7). It should be noted that postprocessual concepts did not replace those of the processual position; rather, postprocessualism has animated those aspects of archaeology which were declared dead, unconscious, unknowable or irrelevant under processualism or culture-history.[7]

Case Studies: Zooarchaeology in Practice and Theory

To explore the ways in which animals have been considered in archaeology, I discuss two case studies at length: Çatalhöyük, and Cis-Baikal. These examples provide an opportunity to reflect on different *modi operandi* used by researchers to explain the human-animal relationship, ranging from the economic to the emblematic, among other considerations. Notwithstanding variations in perspective and content, the case studies share scopes that involve clarifying the broader social and spiritual expressions of human behaviour, besides basic considerations of subsistence. In each case, the researchers carefully consider the complexities of cultural behaviour and belief, and attempt to place the meanings of animals within particular cultural systems.

Çatalhöyük: Cats, Cattle, and Other Creatures – The Cultic and the Conventional

The Neolithic site of Çatalhöyük,

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Turkey, serves as an intricate illustration of intimate associations between humans and animals. Archaeological investigations at Çatalhöyük began under James Mellaart in the 1960s with the original intention of filling in gaps in the chronology of the Anatolian region (Balter 2005:61; Mellaart 1962:41). Taking a culture-historical approach, he interpreted clear divisions between sanctified and domestic spaces within the community based on perceived differential furnishings of animal bodies within architectural foundations (Balter 2005:110). Mellaart (1962) further proposed, with clear conviction, the cultic deification of animals, particularly the bull (51). Ian Hodder, three decades later, has challenged Mellaart's analyses and interpretations, most notably criticizing his "Goddess Cult" theory. Hodder has continually emphasized the interpretative nature of archaeological method and practice, and the utmost importance of carefully contextualizing data. Below, I juxtapose the approaches taken by Mellaart and Hodder with respect to the significance of faunal remains at the site.

Since the first unearthing of auroch horn cores and bones at the site, Mellaart (1962) interpreted the existence of a "hunting or bull cult" (51,57). At the same time, he inferred the presence of "a Neolithic pantheon" (Mellaart 1963a:32) of human-like goddesses, based on the discovery of brilliant frescoes and figurines depicting an arresting array of human and non-human animals, which amplified his hypotheses. Mellaart suggested with strong conviction that the buildings which contained these objects were ritual shrines dedicated to deities, particular animals, or the act of hunting (see Mellaart 1963a; Mellaart 1966:178–191). The rooms contained, after all, numerous enigmatic things—boar mandibles and horned bull heads encapsulated in plastered walls, clay models of animals and apparently birthing women, some flanked by animals, and

beehive designs (Mellaart 1963a:32–38). In several instances of the artistic representations, presumed goddesses are interpreted as giving birth to bulls or other animals (Mellaart 1963b:79).

Animals were thus seen as intermediaries between the worldly and the otherworldly. An abundance of human burials below the floors of buildings—many disarticulated, and several frescoes apparently depicting vultures and headless human bodies was suggestive of the excarnation of the dead by scavenger fowl (Balter 2005:29; Mellaart 1962:51–52). The skulls of vultures, plastered into the forms of what are inferred as women's breasts, were suggested to symbolize the contradictions between life and death (Mellaart 1963b:80). Mellaart (1962) suggested that clay animal figurines were fetishes through which hunting magic was performed (57).

While animals appear to have featured heavily in the abstract symbology of Çatalhöyük culture, Mellaart (1962) states that they were also part and parcel of the Neolithic economy (56). Their remains clearly served as a variety of functional implements, with bones used as awls, punches, spoons, scrapers, and shovels to clean hearths (Mellaart 1962:55–56). Wild animals were objects of hunting, from wary cattle to the predatory leopard (Mellaart 1962:55–56). Çatalhöyük was also deemed a local centre of cattle domestication (Perkins 1969). Mellaart says much less, however, about the quotidian, economic importance of animals, offering more in the way of mystical notions.

Not until the last decade of the twentieth century were many of Mellaart's interpretations re-examined. Ian Hodder and company have re-interpreted the material of, and at, Çatalhöyük, and questioned several of Mellaart's presumptions, employing more

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conscientious excavation techniques and applying "postprocessual" methodology towards explanation (Hodder 1997). Recent zooarchaeological research at Çatalhöyük has involved, among others, faunal specialists Nerissa Russell and Louise Martin whose work has concentrated on identifying indicators of animal domestication (Martin and Meskell 2012; Russell and Düring 2006; Russell and Meece 2005), and Katheryn Twiss who has focused more on the intangible qualities of culture such as ideology and symbolism (Twiss 2006; Twiss and Russell 2009). Exemplifying the postprocessual principle of contextuality, Hodder promotes continuing cross-specialization collaboration among his team members and facilitates site visits so that analysts acquire the necessary contextual knowledge of artifacts, thus allowing them to develop informed inferences as to archaeological significance (Balter 2005:123; Hodder 1997). This practice has generated hypotheses such as that of a ritual transformation dance, in which participants may have assumed the appearance and actions of the crane (*Grus grus*) by wearing its wings and imitating its dancing, drawn from a single set of crane remains (Russell and McGowan 2002:452–454). Although this interpretation is imaginative and may not be entirely evident from the remains, the authors construct a narrative around the possible use of the crane wing coming to their conclusion through a consideration of crane dances elsewhere in the human past, the symbolic and representational art of Çatalhöyük, and the specific context of the find (Russell and McGowan 2002:451–453).

Re-analysis of animal representations and remains by Hodder's team represents an operationally unconventional archaeology and suggests a somewhat different reality at Çatalhöyük than what Mellaart had imagined. Mellaart's concept of a comprehensive "Goddess Cult" as a dynamic force in Çatalhöyük society is undermined by the finding of a predominance of zoomorphic rather than anthropomorphic figurines (Nakamura and Meskell 2009; Martin and Meskell 2012:401). What Mellaart identified as a rendering of women's breasts has been debunked as faunal remains concealed "at abandonment [of buildings] or the end of their use life" (Russell and Meece 2005:220).[8] The practice of excarnation by vultures originally suggested by Mellaart (1962:51–52) is unsupported by present osteological studies, and a reanalysis of plastered horned bull heads proposes their presence as hunting trophies or tangible reminders of significant social events marked by feasts (Russell and Meece 2005:227,230). The distinction between ritual and domestic spaces constructed by Mellaart has also been called into question after the application of statistical analyses (Balter 2005:110). Further, the claim by Mellaart's faunal analyst (Perkins 1969) that Çatalhöyük was a locus of local cattle domestication has been rejected following further zooarchaeological analyses which indicate that caches of cattle remains were composed of wild individuals (Russell and Düring 2006:74; Russell, Martin, and Buitenhuis 2005). This reevaluation is rooted in the rule that domestication results in reduced body size and tends toward a mortality profile that favours young individuals (Russell, Martin, and Buitenhuis 2005:102). The mortality profile represented by a new sample of faunal remains from the site did not fit the test for domestication and suggests that the cattle had been subjects of hunting rather than herding (Russell, Martin, and Buitenhuis 2005).

While symbolism and apparent ritual practice are evidently important characteristics of Çatalhöyük culture, Hodder and colleagues make a point to probe the everyday lives of the site's inhabitants,

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exploring how social practice is enmeshed within domestic space. Homes are said to have been places conducive to social interaction and self-domestication, or the civilization of a culture (Hodder and Cessford 2004:20). These processes were facilitated through ritual feasting on animals (Hodder and Cessford 2004:32) that may have served to solidify social relations. Although inclusions of animal parts in building architecture may be construed as symbolic and exceptional, such symbolism is not mutually exclusive to quotidian concerns, and may be a reflection or manifestation of "social memory" (Hodder and Cessford 2004).[9] For residents of Çatalhöyük, activities surrounding food required daily, dynamic social interactions involving acquiring, processing and consuming animals (Atalay and Hastorf 2006). Greater attention is also given to the functional aspects of items: for instance, animal scapulae are interpreted as utilitarian items in the iterative construction and reconstruction of buildings (Russell and Meece 2005:221).

Cis-Baikal: Spirit, Pneuma, or Theory of Mind

In the Baikal region of Siberia, recent research has revealed intimate associations between past and present peoples and canids (Losey *et al.* 2011, 2013b), bears (Losey *et al.* 2013a), seals (Nomokonova *et al.* 2013), and other animals (Nomokonova *et al.* 2010). This relational connection has also been extended to inanimate, abiotic features of the environment, including, but not limited to, bodies of water, like Lake Baikal (Nomokonova *et al.* 2013:269). Understanding that many Indigenous societies throughout the world held, and presently hold, animistic beliefs (see Losey *et al.* 2011:175) appears to explain the archaeological evidence. Through the lens of animism, all of nature is potentially imbued with spirit or consciousness (Losey 2010:18). It is only through embracing the complexity

and diversity of cultural ontologies that more insightful interpretation can result from the study of faunal remains, beyond the scope of mere subsistence or materialistic terms (see Zimmerman Holt 1996).

At Cis-Baikal, Robert Losey and colleagues have investigated complex associations between humans and animals, past and present.[10] There are abundant examples of superimposed and intermingled human and animal burials, such as at the site of Shamanka with canids (Losey *et al.* 2011) and bears (Losey *et al.* 2013a). These intentional animal burials speak to the social and ideological values of the Cis-Baikal cultures. In many cases, some animals appear to have been considered persons, equal in status to human persons due to their special burial treatment. Taking into account present local Indigenous ontologies or ways of knowing, explanations for the intentional burial practices and close encounters are elucidated. The unusual mortuary practices reflect the high esteem with which certain classes of, or individual, animals were held.[11]

At the Shamanka cemetery, bear and human bodies are commonly associated within the context of graves (Losey *et al.* 2013a). Numerous traces on bear crania suggest that these animals may have been ritually eaten (Losey *et al.* 2013a:92). In several cases, bear bacula, or penis bones, directly accompany buried humans as if these served as pendants, physical reminders of their relation to bears. Losey *et al.* (2013b) explain that in many societies bears were incorporated into myths of ancestry and were treated as individual persons (93).

Through a combination of ethnographic interviews of local Baikal seal hunters (Nomokonova *et al.* 2013) and zooarchaeological analyses of the Baikal seal and other fauna (Nomokonova *et al.* 2010), further aspects of human-animal

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entanglement are explored. Ethnographies reveal how hunters relate to the sea and the seal, which are interconnected; hunters indicate the respect with which they interact with the environment, not only as resources but also as if these things were sentient persons (Nomokonova *et al.* 2013:269–278). Traditions of meat-sharing, ceremony, and engaging in customary behaviour to ensure favourable relations with animal and other spirits, and the practice of scapulamancy to assess the likelihood of a successful hunt (Nomokonova *et al.* 2013:269–272,277) illustrate the intricacies and nuances of the epistemological and ontological structures that the Cis-Baikal peoples have maintained.

The importance of natural resources to the peoples of the area and the very tangible relationship that they have with their surrounding ecology cannot be overstressed, and suggests an engrained attitude toward resource management. The natural reservoir of Lake Baikal is a central source of seals (Nomokonova *et al.* 2010, 2013). Seal hunters would only take from the lake what they required to feed themselves (Nomokonova *et al.* 2013:271). Numerous seal hunters have been recorded in ethnographic accounts as returning portions of caught seals to the lake to ensure a continuing supply, believing that the animals' bodies would regenerate (Nomokonova *et al.* 2013:272) following animistic principles.

Lake Baikal is also abundant in fish. Fishing has been an important activity in the Baikal region as indicated by stable isotope studies on human remains from the early Holocene which reveal clear signatures of sustenance on fish; at the same time, the tests indicate inter-temporal, inter-spatial, and inter-personal variability in the particular species incorporated into the diet (Losey, Nomokonova, and White 2012:131–132). In the case of fish, Losey and colleagues (Losey, Nomokonova, and Goriunova 2008; Losey,

Nomokonova, and White 2012) focus on clarifying the nature of subsistence, rather than probing the social dynamics which drove the fishing economy. This is markedly different from other work at Cis-Baikal discussed above (Nomokonova *et al.* 2010, 2013), as well as elsewhere, which considers the conceptual schemes that govern social behaviour, including animal resource acquisition.[12]

The work at Cis-Baikal represents a melding of postprocessual and processual approaches to understanding the zooarchaeology of the region. Scientific tools including isotopic analysis have been used to explore the diets of humans and animals (see Losey, Nomokonova, and White 2012; Losey *et al.* 2011, 2013b). The results imply that particular animals were especially significant to humans in the area on spiritual and social levels, in addition to the economic. People entered into close relationships with certain animals—for instance, the highly similar diets between humans and several dogs attests to this, as indicated by stable isotope values of osteological remains (Losey *et al.* 2011:186). Careful recovery and scientific study of animal (Nomokonova *et al.* 2010:157) and human remains serves as the basis for subsequent interpretation—links are then made between ethnographical and ethnoarchaeological evidence and the static material record to produce narratives of enduring bonds between humans and animals.

Recapitulating Zooarchaeology in Theory, and Theory in Zooarchaeology

The meanings of animals and animal bodies from archaeological contexts cannot be understood in isolation. Explaining animal-use in the past requires the use of analogy informed by such tools as ethnography and ethnoarchaeology.[13] The often perceived conflict between processual and postprocessual approaches should also be reconsidered. It may be productive to situate

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human-animal relationships in terms of the postprocessual concepts of materiality, entanglement and agency which consider the deeper meanings of things and their associations.

Processual and Postprocessual Methodologies in Conflict?

All forms of zooarchaeological practice are vitally targeted toward a greater understanding of the human past through the study of animal remains. Specialists operating under processual or postprocessual frameworks are not diametrically opposed to each other (VanPool and VanPool 1999), but rather have parallel interests.[14] In any case, the actual practice between "processual" and "postprocessual" faunal specialists differs according to their objectives of study and, sometimes, their methods. Processual practices emphasize economic and functional interpretations, as that is what science can ostensibly test; on the other hand, postprocessual practices emphasize the intimate characteristics of the human condition which weave between the operations of society—including the social and the symbolic—many aspects of which are not amenable to systematic analysis and the hypothetico-deductive method (see VanPool and VanPool 1999:38).

While postprocessual practices emphasize things that are not easily measurable, it is not necessarily less scientific than, or even opposed to, processualism (VanPool and VanPool 1999). At Çatalhöyük, Hodder and colleagues maintain thoroughness in documenting the yields of archaeological fieldwork, with comprehensive field reports (see Russell 2005). While postprocessual archaeologies have been criticized for an assumed lack of grounding in science, VanPool and VanPool (1999) deliver a compelling counterargument, going so far as to suggest that postprocessualism may actually be more scientific (39–48).

Regardless of the implicit distinctions between these heuristic models, it is important to note that postprocessual practices rely on bodies of data often derived from processual practice, and it has been stated that science is essential to an interpretive method (Marciniak 1999:314). The two models may even be seen as non-conflicting as they focus on different themes which are equally valuable.

Analogies remain vital devices to interpret meaning from the static remnants of the past. Zooarchaeologists commonly and often unconsciously form relational analogies between known living and lived animals and unknown archaeological specimens (Gifford-Gonzalez 1991:224–226); reflecting on middle-range theory, such analogies have been clarified by actualistic study (see Binford 1981:27). The New Archaeology, or what became processualism, suggested the possibility of definitively describing cultural behaviour, yet the uniqueness of cultures, individuals, and their ontologies escape the interpretive powers of a processual scheme. The significance of ideas and items is thus relative, as Hodder (2012) explains in his manifesto on materiality, *Entangled*. Driver (1997:81, cited in Russell 2012:395) notes that middle-range theory is necessary and must be developed for specific contexts in order to be effective. This means focusing on cultural behaviour at a particularistic level.

Materiality, Entanglement and Agency: Joining Immaterial to Material Bodies

The concept of human-thing entanglement provides a useful lens to resituate the human-animal relationships demonstrated at Çatalhöyük and Cis-Baikal. Hodder (2012) explains that humans depend on things, as things depend on humans, for their livelihoods (17). Humans define themselves in relation to things, and define things to make sense of their worlds. Things include animals and animal bodies, by virtue

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of their material qualities (Hodder 2012:7). Relationships between humans and things or species persist because of the resonant power of materiality, which prompts entanglement. Importantly, each entanglement is a product of unique circumstances (Hodder 2012:106) which can only be understood in their particular context.

In countless situations, humans and animals share domains of existence that influence the process of entanglement. It is apparent that animal bodies are analogous to those of humans: we share many anatomical features, including the tissues which make up our organs, and we move in similar ways.[15] Many animals also share environments and resources with humans, circumstances which can be conducive to social bonding or cultural traditions, as at Lake Baikal. Mutualism is a key feature, although not a prerequisite, in the formation and maintenance of human-animal relationships, where both species benefit from each other's interaction, such as in the case of canids. Such commonalities influence cultural myth-making and cosmological constructions featuring relationships between humans and animals weaved together in narratives (Losey *et al.* 2013:93b). These narratives become solidified within extrasomatic artistic representations, and likewise embody materialities of being (see Martin and Meskell 2012; Nomokonova *et al.* 2013:273–277).

Following death, animals do not cease to be active agents in society; they continue to lubricate or otherwise influence social interactions. Activities surrounding the acquisition, processing, and consumption of animals may be the most easily visible and tangible traces of animal use, yet such observations only access superficial aspects of the human-animal relationship. Animal bodies not only nourish the human body but also the cultural body. At Çatalhöyük, the intangible nature of ideology is incorporated into the public display of animal bodies,

particularly wild cattle crania, within buildings. The imposing forms may have reinforced memories tied to social feasts and ceremonies (Russell and Meece 2005:230). Here, analogues can also be drawn between the treatment of spiritually significant animal bodies and human bodies as crania from both species were coated in plaster, again solidifying social memory (Hodder 2012:135), and tying together the different species. This is an implicit expression of relational ontology, in which animals and humans share associations.

The Indigenous peoples of Baikal seemingly consent to a social contract with the local fauna and ecology. They informally construct and recognize codes of conduct, in which some actions are prescribed while others are prohibited. For instance, the Baikal people commonly conduct cleansing ceremonies prior to hunting, and those who are not considered clean are not to touch hunting equipment, for the sake of maintaining working relationships with the Lake and its seals (Nomokonova *et al.* 2013:269–270). To retain good fortune, hunters do not take more than they need and share their catch with others in the community (Nomokonova *et al.* 2013:271). Similarly, there are taboos surrounding eating certain parts of animals, such as the brains of bears (Losey *et al.* 2013a:90).

Animal remains also have life histories (Hill 2013:126), may be believed to contain spirits (Nomokonova *et al.* 2013:227), and so may receive continuing human care (Hodder 2012:68–70) or command a sense of reverence. For example, special mortuary practices for canids and bears in Cis-Baikal (Losey *et al.* 2013a:67) appear to support the appreciation of a belief that spirits remain present within deceased bodies, a concept that is common to Indigenous animistic societies. Bear crania were often curated and are said to have

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protected a bear hunter's household, but would be buried after the hunter's death (Losey *et al.* 2013a:90) because of the tremendous power of the remains.

Alternatives to Orthodox Approaches of Interpretation

Losey *et al.* (2013b:67) note that analyses of archaeological fauna have been generally "interpreted from implicitly 'modern western' perspectives… where animals are mindless food items, sources of tool materials, passive commodities, and status symbols", as in Binford's (1978) processualist studies with the northern Nunamiut peoples. A conversant zooarchaeology, while appreciating considerations of utility and economics, needs to endeavour to construct a more anthropological discourse empathetic to cultural diversity. This requires incorporating the spirits of societies and individuals, that is, emic worldviews, into the interpretive frameworks that inform inquiry. Through careful and appropriately applied analogy, the perspectives of present-day peoples may be transposed onto the past. Objective reason is a misnomer when attempting to understand the social behaviours of individuals outside one's own culture. In order to understand the residues of cultural activities, one needs to understand the rationales behind such actions; for this reason, inclusion and acceptance of alternative worldviews provides vitality to the perceived statics of archaeology, and the relations between humans and animals. At the same time, a scientific approach need not be abandoned (VanPool and VanPool 1999).

There have been calls for a zooarchaeology that is more concerned with social aspects of the past (see Marciniak 1999). Manifestos of social zooarchaeology have been formulated, which criticize a reliance on orthodox ontologies that favour 'Western' epistemology, and propose the recognition of 'zoontologies'—that is,

knowledge systems that consider animals as significant agents in the world—as invaluable sources of insight (see Overton and Hamilakis 2013). Alternative models that challenge Westernized distinctions between humans and animals are needed to further critical interpretation. Recently, attempts have been made to construct biographical portraits, or narratives, of faunal remains, with attention to taphonomic and depositional histories (see Hambleton 2013:480). Frameworks have also been developed with the goal of constructing more robust inferences from such remains (see Orton 2012), and a substantive text has been written on the social perspective (Russell 2012). Traditional archaeological schemas do not adequately appreciate the complex reciprocal relationships formed between humans and animals. Recent developments in theory and method have dissolved the historical boundaries between general archaeological practice and faunal studies. These advances reflect the progressive nature of archaeology predicted by David Clarke (1973).

Conclusions

Zooarchaeological study contributes invaluable insight into the nature of human-animal relationships. Appreciating the diverse ontologies that define this relationship, and forming appropriate connections between static remnants and dynamic demonstrations of social behaviours and systems via analogy, informed inference may be made in the field of zooarchaeology. Processual and postprocessual approaches in zooarchaeology are not diametrically opposed, nor does one necessarily produce more valuable information than the other; both theoretical approaches have different methods and motives, but at the nexus where they meet, fuller understanding of the human past, as well as that of the animal, can be provided.

Humans and animals become entangled for a variety of reasons, and these

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entanglements sometimes persist for long periods of time (Hodder 2012). At both Çatalhöyük and Cis-Baikal, the formation and continuation of customs revolving around relationships with animal bodies reinforced entanglement at material and immaterial levels. Bodies of animals can contain bodies of knowledge that are informative of social behaviour and belief, but the specificity of their meanings is only recognizable when their intimate contextual circumstances are taken into account. Although animals have undeniably been essential to the operations of human economies, they have also been entwined in cultural ideologies. Animals should not be seen simply as objects acted upon by humans in a one-way interaction, but as subjects that have a share in shaping the interspecies relationship. To reiterate, the thoughtful integration of Indigenous and other alternative perspectives in zooarchaeology along with the careful consideration of context can only clarify the significance of the traces that remain.

Notes

1. Steenstrup was also notably one of the first to investigate shell midden deposits, collaborating with Jens Worsaae who had demonstrated a scientific basis for the classificatory Three-Age system proposed by Christian Thomsen.

2. In his seminal article Archaeology as Anthropology, Lewis Binford (1962) cogently demonstrated the then untapped explanatory power of archaeology.

3. Not to mention the criticisms of 'systems' theories, which opponents suggested fell short of explaining the changing relationships between things, but rather only depicted static schematics of the cultural interface.

4. Natural modification includes any changes to the surfaces or structures of artifacts or ecofacts that are not caused by a human agent; in other words, natural denotes effects of the environment, which includes non-human animals.

5. Middle-range theory has been variably described by different theorists as limited, unoriginal, or unsuited to explaining cultural processes—much criticism was driven by general disagreement between processual and postprocessual adherents (Forslund 2004:222–229). For instance, Ian Hodder contended that the scientific configuration of middle-range theory is indifferent to the idiosyncrasies of cultural belief and praxis and assumes a one-to-one correspondence between past and present meanings of material culture (Forslund 2004:226–229; Kosso 1991:624–625). However, Peter Kosso (1991:625–627) dispels this claim and finds compromise between Binford's middle-range theory and Hodder's contextual approach, stating that middle-range theory is essentially hermeneutic.

6. The turning from purely empirical and economic-based theories of zooarchaeology towards ones that are also socially-considerate may be conceptualized as shedding mere subsistence for a wholesome feast, withdrawing from the consumption of economical but plain hardtack to the satisfaction of a full-bodied, richly flavoured layer cake. In another way, an economic perspective may be seen to envision animals as 'body parts' or mere materials, whereas a social perspective appreciates animals as 'bodies whole' that may be recognized as relational beings or 'persons' and active participants in the events of the everyday and of a culture's continuing history.

7. Culture-history originated as an earlier theoretical framework that emphasizes distinctions between cultures based on their

material remains and was the mode of archaeology until the arrival of processualism

8. However, Gifford-Gonzalez (2007) revitalized the initial reading of Mellaart in her gendered interpretation of the human-animal relationship at Çatalhöyük.

9. A recent quantitative evaluation has raised doubt regarding the often proposed hypothesis that Çatalhöyük society and domestic residence was structured by corporate kin-group (Carleton, Conolly, and Collard 2013).

10. The work is part of the broader Baikal-Hokkaido Archaeology Project.

11. Parallels may be drawn with the indigenous Ainu of Japan who recognize powerful qualities in bears, identifying them with deities and treating their remains with particular reverence or, contrarily, with disdain if a human had been directly harmed by them (Losey et al. 2013a:90–92).

12. In an exploration of the use of fishing structures in the Pacific Northwest Coast, Losey (2010) quite clearly illustrates the importance of incorporating indigenous ontological concepts, including animism, into archaeology. He explains that the placement of fish traps was negotiated to maintain amiable social relations with fish.

13. The fruitful connection between ethnoarchaeology and zooarchaeology is underscored in the valuable recent volume *Ethnozooarchaeology* edited by Albarella and Trentacoste (2011).

14. Hegmon (2003) characterises the issue of theoretical difference in a novel way, proposing the nominative term 'processual-plus' to describe the preferred theoretical approach of many archaeologists in practice.

15. Humans are, after all, animals, though we may often attempt to dissociate ourselves from the environment, or 'the other' for a variety of (self-serving) reasons. We are different products of the same evolutionary processes.

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