[Comment on] Riding, Ruling, and Resistance: Equestrianism and Political Authority in the Hungarian Bronze Age

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This is an exciting and very welcome contribution that takes a new look at the emergence and impact of domestic horse husbandry and use for transportation in Bronze Age Europe. Kanne's case study considers the tell societies of the Hungarian Bronze Age, and captures a key transformative sequence for human-horse relationships in European prehistory. The strength of this work lies in the combination of Kanne's theoretical approach, in particular how equestrianism can proceed as an emergent phenomenon, and the detailed and multi-stranded diachronic review of evidence.

The article builds on scholarship around the mutuality of multi-species relationships to investigate how equestrianism transforms humans and animals reciprocally, further re-balancing understanding of human-animal relationships in terms of the processes shaping these hybrid communities (e.g. Bogaard et al in press; Stépanoff and Vigne 2018). Kanne's model frames the horses themselves as intimately involved in the processes of social change, rather than as just objects passively used by human communities. The paper makes an important contribution in how it theorizes the agency of domestic horses in socio-economic transitions and also in enabling the evidence from horses themselves to substantively contribute.

Kanne brings together a range of targeted datasets providing different insights on human-horse relationships through time. The sequence moves from a situation where horses are absent in the Late Neolithic, to horses appearing across a range of sites by the Late Copper Age, with notably high proportions at a number of Early Bronze Age Bell Beaker sites. It is not, however, until the transition between the Early and Middle Bronze Ages that there is direct evidence for domestic horses in the data presented, and it is from this point that domestic horses have been typically assumed as contributing to sociopolitical changes. It is in the Early Bronze Age where further data would be useful for testing Kanne's model and unpicking the trajectories of human-horse relationships that lead into the Middle Bronze Age.

In a few other areas, further data would be useful to add greater context. Kanne presents data on the spatial patterns of the index of horse remains relative to those of cattle (HRC). This provides a useful measure of relative importance of the horse, and one that also reduces the effects of differential preservation and recovery on intra-site studies enabling comparisons to be effectively drawn. Supporting Kanne's argument, it is clear that horses are relatively common in their representation across a broad range of sites (Figures 3 and 4), rather than being a particularly restricted resource. It would, however, be interesting to know a little more beyond the HRC quantitative data on horse remains. For example, are there sites or areas where horses are absent from excavated assemblages? This might allow assessment of other factors underpinning the differences in distributions seen between the Early and Middle Bronze Ages. Also, assessment of the presence/absence of horse against the recovered assemblage sizes, can allow a comparative measure of how 'common' horses were through time periods (Bendrey et al. 2013), based on the principle that more common animals occur in relatively small assemblages and rarer taxa typically only in larger ones (Lyman 1995).

The strontium isotope ratio data (Figure 6) provides indications of some mobility of horses. Kanne highlights the clear evidence for movement of horses in the Middle Bronze Age. That only two values presented for the Early Bronze Age, both of which are within the local range estimate, do not really allow firm conclusions on movement of horses in this period. It would also be useful to know more on the age and sex of the individuals sampled, including which teeth were selected to understand

what this might mean in terms of mapping these data onto the chronology of the horses' lifecycles (Hoppe et al. 2004).

Given the evidence collated, Kanne is justifiably cautious in labelling the status of the horses in Copper Age and Early Bronze Age Hungary as 'suspected to be domesticated', compared to the Middle Bronze Age horses as 'accepted as domesticated'. The evidence presented identifies domestic horses, and the practice of horse riding, as being present in the Middle Bronze Age, with the Early Bronze Age a period that needs continued investigation to further test the model proposed. In demonstrating that horse riding was not restricted to elites or males, Kanne presents a picture of individual empowerment enabled by horses, rather than elite, centralised, dominance, allowing her to challenge traditional narratives of the role of horses in the formation of the European Bronze Age. She also deftly unpicks the assumptions that underpin the argument that these tell societies were ruled by chariot driving warriors. Ultimately, Kanne successfully re-examines the question of how political authority is negotiated and makes a robust case that research should move away from solely assigning horses with centralized political dominance.

References

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