and not meant for the stabling of livestock. Remnants of activities pertain *only* to the sunken-floor area, whereas the western ground-level floor may have contained storage for leaf fodder, hay and heather. The function of these sunken-floor spaces has been much discussed, but it is only with the latest contributions that living space has been identified as the most probable explanation (Sarauw 2006). Simonsen makes a case for turf-built walls as an integral part of a building tradition for sunken-floor houses, as well as numerous other observations not previously made. The best-preserved fossil floors show a subdivision of domestic space, which tallies with well-ordered daily routines in a small-scale peasant economy with long-term continuity; i.e. a robust tradition maintained by a number of in-house activities. Heating through scorched stones is preferred to open hearths, which are rare or non-existent. Handling of manifold cereals, amongst other things, relates to large-scale beer-brewing taking place in floor pits. Weeds, hazelnuts and heather sprigs formed part of the diet and economy.

The large amounts of pottery at Resengaard form the scaffold of a pot-based chronology, which can now be applied more widely. Uniquely at Resengaard, pot assemblages can be tied to individual longhouses, allowing for the recognition of a sequence of houses replacing each other in time. One might have wished for better integration of the ceramic chronology with the well-established sequence of flint dagger types, radiocarbon dates and the introduction of a copper-based metallurgy. The latter was apparently a late occurrence in this region, datable to just prior to the closure of the two-aisled longhouse tradition around 1500 BC (ignoring scant evidence for Bell Beaker-derived production of copper and gold items). By comparison, metallurgy was well established around 2000 BC in eastern Denmark and Scania, where the social structure appears to have been markedly different in a number of ways (Vandkilde 2017). In addition, multivariate statistics would have provided quantitative data on developments over time. Nonetheless, the typo-chronology moves this research well beyond the state of the art.

Short- or long-range movements of Bronze Age farmsteads within restricted areas are very often assumed, but Simonsen is the first to document and detail such a system of rotation. At Resengaard, few longhouses could have existed at the same time. In all probability it was, as Simonsen argues, one and the same household that reproduced itself over 12 generations on the hill in this densely inhabited landscape. The continuity of the Resengaard farmstead—probably in some sort of a systematic alternation with fields and grazing areas—was a widespread model for dwelling in this landscape. This implies that abandoned houses decayed and became part of an integrated and coherent socio-economic system that included strategies for rubbish disposal, agriculture and livestock. This makes me wonder what kind of kinship system facilitated the maintenance of such a single farmstead, which must have been socially and biologically interlinked with others in the vicinity. The book does not seek to clarify reasons for the onset of the two-aisled sunken-floor tradition, nor how it may have responded to the overriding phases of metallurgical implementation, such as those around *c*. 2000 BC and again between 1600 and 1500 BC when the Nordic Bronze Age had its final breakthrough. Perhaps the interruption of centuries-long habitation on Resengaard hill and elsewhere, and with the onset of an entirely new housing tradition—the three-aisled longhouse—should be considered in this light? One can always wish for more, and great results merit new research questions.

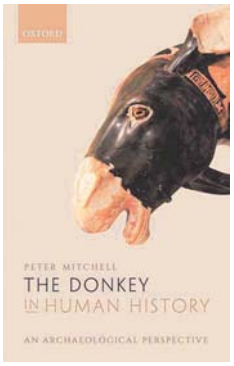
References

Sarauw, T. 2006. *Bejsebakken. Late Neolithic houses and settlement structure* (Nordiske Fortidsminder C.4). Copenhagen: Det Kongelige Nordiske Oldskriftsselskab.

Vandkilde, H. 2017. *The metal hoard from Pile in Scania, Sweden. Place, things, time, metals, and worlds around 2000 BCE*. Aarhus: The Swedish History Museum & Aarhus University Press. https://doi.org/10.2307/j.ctv62hgr5

Helle Vandkilde
Department of Archaeology and Heritage Studies, Aarhus University, Denmark
(Email: farkhv@cas.au.dk)

Peter Mitchell. *The donkey in human history: an archaeological perspective*. 2018. Oxford: Oxford University Press; 978-0-198-74923-3 £65.



Peter Mitchell's compact book offers a practical and informative introduction to the largely unsung but widespread presence of the working donkey (and mule) in human history. This should herald a new strand of publications encouraging archaeologists, anthropologists and historians towards greater working-animal-mindedness in investigations of relevant eras and regions. Mitchell deliberately aligns himself with the growing body of thought focusing on animals in human life—the "animal turn" (p. 4). He refers to the process of "mutual domestication" (p. 3), although his scope excludes significant implications for new human activity such as the production of fodder, and the complex economic processes of sharing working animals among the community.

The author organises his analysis of published material chrono-geographically, beginning in the donkeys' native habitat in north-eastern Africa, moving into Egypt and then shifting north to trace their adoption and use in the ancient Near East, the Classical world, Europe and colonial expansions therefrom. Amid these analyses, the chapter on medieval and pre-modern periods is entitled (from Braudel) 'The triumph of the mule', although mules appear in earlier chapters and continue throughout, while the donkey remains sturdily present.

The origins of this branch of the *Equus* family are described early on, and Mitchell follows Haskel Greenfield in naming the wild (*E. africanus*) and domesticated (*E. asinus*) animals separately, although clear evidence has emerged of long-term gene flow between the two. From earliest to modern times (uniquely among livestock species), selective breeding has been rare in the 'domestication' of donkeys, with deliberately permeable boundaries between wild and domesticated donkey populations. Mitchell is at home with Egyptian material, and expands in detail on the transport role and symbolic value of the donkey there. He then follows the limited archaeological clues of donkey presence to the west and south, tracing them briefly as far as Kenya and Tanzania. He closes the subject with his somewhat controversial argument, which has been aired in earlier published work (Mitchell 2017), that the lack of donkey expansion (but not cattle) into much of sub-Saharan Africa before recent times can largely be ascribed to barriers formed by regions infected with trypanosomiasis. There is certainly more to be written, from modern development studies and other resources, on the growing role of the working donkey in many sub-Saharan regions today, enlarging on Mitchell's suggestion that the donkey, associated as it is throughout history with the lowly and disenfranchised (notably women to this day (p. 232 and Goulder (2016: 76–79)), can provide an "entry point" (p. 3) into understanding such lives.

The author opens the extensive subject of the working donkey in the ancient Near East with an overview of claims for its early presence (although debate remains as to the existence of wild donkeys in the region, and the zooarchaeological picture is blurred by common finds of the related *Equus hemionus*). He makes a cogent and passionate argument for the key role of the donkey in underpinning many of the social and economic transformations evident in this region in the fourth and third millennia BC, continuing with accounts of the large-scale donkey-caravan trade in the southern Levant and as recorded in the later archives from Kültepe, Mari and Ugarit. He makes an excursion (self-admittedly brief) farther into Asia, then returns to the Near East to discuss the production and ceremonial usage of hemione-donkey hybrids, including an account of the phenomenon of apparent sacred burials of both these and donkeys—although he does not refer to Zarins's comprehensive 2014 work on equids in the third millennium BC.

Mitchell repeats his argument for the central importance in human history of working donkeys, and mules ("mostly" male (p. 131)), although females were common at this period, in relation to Classical and later times, with a wider variety of evidence at his disposal, including far more written sources. He returns to Asia to record the ubiquity of donkeys and mules alongside camels in the great caravan routes to China, going on to describe colonial introductions into the Americas, southern Africa and Australia, through which donkeys and mules were actively imported and bred in these new regions.

Mitchell's work deliberately fills a gap rather than offering specialist or unpublished material. His strong

academic basis being in African prehistory means that much of the discussion takes place largely outside his home-zone, but in recent years he has demonstrated his growing interest in the presence of animals in the human world, leading to work on dogs, horses and now donkeys. He suggests, rightly in this reviewer's opinion, that up to now, works on the history of the donkey are either in need of updating, focus overly on the horse or "engage little with the archaeological record" (p. 9). He argues that his archaeology-oriented approach incorporates the physical traces of donkeys, their "osteobiography" (p. 237), into a historical and anthropological examination of the subject, shedding a sidelight on potentially agenda-ridden histories and depictions, and providing longer-period tracking. In practice, he acknowledges (p. 173) his unenviable task due to the unrepresentative nature of zooarchaeological remains, for as is the case in many cultures, donkeys are not commonly eaten and so do not feature in settlement food-middens. He admits to drawing heavily on non-archaeological data (p. 7), and in ancient Mesopotamia in particular, he necessarily relies on cuneiform texts to a significant extent.

Mitchell intersperses his text with a range of clearly drawn maps, and numerous photographs, mainly greyscale except for a section of 32 colour plates. The latter's frequent sourcing from Wikimedia Commons or Flickr simplifies the 'permissions' process, but does at times result in somewhat generic illustrations that contribute little to the work. A minor quibble in an otherwise nicely edited work: on page 27 the Latin tag should refer to "peperit" and not "piperit". These are, however, minor weaknesses in an otherwise useful case for the study of the donkey, which merits wide readership.

References

Goulder, J. 2016. Fair exchange: utilisation of working animals (and women) in ancient Mesopotamia and modern Africa. *Anthropology of the Middle East* 11: 66–84. https://doi.org/10.3167/ame.2016.110107

Mitchell, P. 2017. Why the donkey did not go south: disease as a constraint on the spread of *Equus asinus* into southern Africa. *African Archaeological Review* 34: 21–41. https://doi.org/10.1007/s10437-017-9245-3

Zarins, J. 2014. *The domestication of equidae in third-millennium BCE Mesopotamia*. Bethesda (MD): CDL.

Jill Goulder
Institute of Archaeology,
University College London, UK
(Email: jill@jgoulder.com)

Alicia R. Ventresca Miller & Cheryl A. Makarewicz (ed.). *Isotopic investigations of pastoralism in prehistory* (Themes in Contemporary Archaeology 4). 2018. Abingdon: Routledge; 978-1-138-30858-9 £105.

This volume ranges from Anatolia and the Caucasus to East Africa and covers stable isotope analysis of oxygen ($\delta^{18}O$), carbon ($\delta^{13}C$), nitrogen ($\delta^{15}N$), and strontium ($^{87}Sr/^{86}Sr$) ratios in pursuit of identifying and characterising pastoralist lifestyles through time. Fourth in the 'Themes in Contemporary Archaeology' series produced by the European Association of Archaeologists, it is a solid contribution to the bookshelves of anyone interested in learning more about ways of reconstructing past seasonal mobility.

Throughout each of the 10 chapters, multi-scalar approaches are employed to address a diverse range of research questions. It is a well-balanced volume, with some chapters more extensively reviewing relevant literature, model-building using modern data or presenting archaeological case studies. It should prove a useful reference volume for the libraries of those working in related research areas. The book itself is of high-quality production, with clear figures and comprehensive bibliographies. Perhaps one of the few criticisms is that the volume is not longer!

In the first chapter, the editors (Ventresca Miller and Makarewicz) offer a broad overview of isotopic approaches to pastoralism in prehistory. They start by defining pastoralism as it is understood in archaeology, as a pivotal mode of food production. Due to the sparse zooarchaeological and archaeobotanical records associated with pastoralism, interpretation of