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Feeding Stonehenge: cuisine and consumption at the Late Neolithic site of Durrington Walls

Oliver E. Craig[a], Lisa-Marie Shillito[a,b], Umberto Albarella[c], Sarah Viner-Daniels[c], Ben Chan[c,d], Ros Cleal[e], Robert Ixer[f], Mandy Jay[g], Pete Marshall[h]., Ellen Simmons[c], Elizabeth Wright[c] and Mike Parker Pearson[f]

[a]BioArCh, Department of Archaeology, University of York, Heslington, York YO10 5DD, UK.

[b] School of History, Classics and Archaeology, University of Edinburgh, UK

[c]Department of Archaeology, University of Sheffield, UK

[d] Laboratory for Artefact Studies, Faculty of Archaeology, Leiden University, The Netherlands

[e] Alexander Keiller Museum, Avebury, Wiltshire, UK

[f] Institute of Archaeology, University College London, London, UK

[g] Max Planck Institute for Evolutionary Anthropology, Department of Human Evolution, Deutscher Platz 6, 04103 Leipzig, Germany

[h] English Heritage, 1 Waterhouse Square, 138-142 Holborn, London, UK

Introduction

Henges are distinctive monuments of the Late Neolithic in Britain, defined as ditched enclosures in which a bank is constructed outside the ditch. The largest is Durrington Walls (Fig. 1), a 17ha monument near Stonehenge. Excavations at Durringon Walls from 1966 to 1968 revealed the remains of two timber circles, the Northern and Southern Circles, within the henge enclosure (Wainwright and Longworth, 1971). More recent excavations (2004-2007) have identified a settlement that pre-dates the henge by a few decades and is concurrent with the main construction phase of Stonehenge (Parker Pearson et al., 2007, Parker Pearson, 2007, Thomas, 2007). Middens and pits, with substantial quantities of animal bones, broken Grooved Ware ceramics and other food-related debris, accumulated quickly since the settlement has an estimated start of 2535-2475 cal BC (95% probability) and a use of 0-55 years (95% probability). In the broadest sense, this new evidence confirms that Durrington Walls was a place of feasting (Richards and Thomas, 1984, Albarella and Serjeantson, 2002). However, the non-uniform deposition of food remains and cooking apparatus within and between houses, between domestic and public spaces, and between middens and pits prompts a more detailed investigation of how foods were prepared and consumed.

Here we aim to investigate culinary activities at Durrington Walls by conducting detailed analysis of food remains and pottery contents at a fine contextual resolution. This information is required to understand the role of the site in the Stonehenge monumental landscape and more broadly, to expand our limited knowledge of Late Neolithic consumption practices, including more specific elucidation of different feasting activities (Dietler and Hayden, 2010). By investigating how different foodstuffs were prepared, consumed and deposited, we may also come closer to understanding how foods were valued and perceived in Neolithic Britain. Such information is missing from debates regarding the social and economic significance of foodstuffs during this period, which instead have tended to rank foods either in terms of their calorific or nominal prestige value.

Site context and background

Durrington Walls and Woodhenge lie 2.8km northeast of Stonehenge. Dense occupation layers have been detected beneath the west, east and south arms of Durrington Walls' henge bank (Farrer, 1918, Stone et al., 1954, Parker Pearson, 2012), indicative of the large extent of the pre-henge settlement. Beneath the henge's east entrance were the remains of seven house floors (Parker Pearson et al., 2007; Fig. 1B). These houses were small and square (ca. 5.25m x 5.25m) with rounded corners. Remains of two house floors were found within the Western Enclosures (Thomas, 2007) and ~~,~~ five small mini-henges within the henge interior; the two excavated mini-henges each contained a house within a circular palisade. Neither house was any larger than those beneath the east entrance. Beside the Southern Circle there is a D-shaped building (ca.11m x 13m; not shown) originally interpreted as a fenced midden (Wainwright and Longworth, 1971). It was plaster-floored but lacked a hearth, and has been reinterpreted as a meeting-house or public building.

The dates for the Durrington Walls settlement, Woodhenge, the Southern Circle's first phase, and its avenue are similar to those for Stonehenge's main stage (Stage 2) of construction (when the sarsen circle and trilithons were erected), starting 2*760*–2510 cal BC and ending 2470–2300 cal BC at 95% probability (Darvill et al., 2012). This supports the hypothesis that Stonehenge and Durrington Walls were built as a single complex, linked by avenues via a short stretch of the River Avon (Parker Pearson and Ramilisonina, 1998). There was a dichotomy in their use: Durrington Walls has no burials other than a single cremation at Woodhenge (and four loose human bones), but Stonehenge has 63 excavated cremation burials, out of a likely 120 or more (Parker Pearson et al., 2009). Furthermore, Durrington Walls was a place of inhabitation and feasting, but Stonehenge was not; it has produced just 11 sherds of Grooved Ware and a limited amount of animal bones (Cleal et al., 1995; 350, 437). Durrington Walls is most likely the village of the builders of Stonehenge Stage 2.

The use of ceramic vessels

Large assemblages of Grooved Ware were recovered from Durrington Walls in 1966-1967 (5,861 sherds; Wainwright and Longworth, 1971) and 2004-2007 (6,697 sherds). They derive from many hundreds of vessels of different sizes, made from a limited range of clays. Most are likely to have been made locally but some contain fossil shell deriving from Kimmeridge Clay sources over 20km away. Molecular and isotopic analyses of lipids are widely used to investigate pottery use (Evershed, 2008). Previous lipid analysis of British Late Neolithic ceramics have already shown that Grooved

Ware was more closely associated with processing porcine products than other types of British Neolithic pottery (Mukherjee et al., 2008) but intra-site variation in the use and deposition of pottery has not so far been considered. Here, 317 Grooved Ware sherds from a range of contexts at Durrington Walls were sampled for lipid analysis. Care was taken to avoid repeated sampling of the same pots by considering the form, decoration and fabric of individual sherds selected for analysis. Lipids were extracted using a similar protocol to previous studies of pottery from Durrington Walls (Mukherjee et al., 2008) and analysed by gas chromatography (GC), GC-mass spectrometry (GC-MS) and GC-combustion-isotope ratio-MS (GC-C-IRMS). Full details of the extraction procedure and analytical methods are provided in the supplementary methods.

Classification of lipids

Analysis by GC and GC-MS confirmed that 151 sherds (48%) contained interpretable amounts of lipids (<5μg g^{-1}) with a mean lipid content of 341μg g^{-1} and a maximum of 9.8 mg g^{-1}. In all cases, the lipid profiles were dominated by fatty acids of mid-chain length ($C_{16:0}$, $C_{18:0}$) typical of degraded animal fats, although trace amounts of degraded vegetable waxes were detected in a small number of sherds (Supplementary table 1). Tri- , Di- and Mono- acylglycerides with distributions typical of terrestrial animal fats were also detected as well as long-chain ketones (C_{31}, C_{33}, C_{35}) from the transformation of fatty acids through the exposure to heat (Raven et al., 1997). To further distinguish these animal fats, GC-C-IRMS was carried out to determine the $\delta^{13}C$ values of $C_{16:0}$ and $C_{18:0}$ fatty acids in extracts from 122 sherds. These GC-C-IRMS data are combined with those (n=20) previously reported (Mukherjee et al., 2008) and summarised in Figure 2. The difference in $\delta^{13}C$ values for $C_{16:0}$ and $C_{18:0}$ fatty acids ($\Delta^{13}C$) from each vessel is shown against the approximate range for modern porcine, ruminant carcass and dairy fats obtained from animals reared in southern England (Copley et al., 2003). Together these comprise the largest data set of pottery use at a single site.

The GC-C-IRMS data show a large variation in the $\Delta^{13}C$ (Fig. 2), which relates to the different origins of the fats present in the pottery. The lower $\Delta^{13}C$ (i.e. < -3‰) are typical of ruminant dairy fats and some wild ruminant carcass fat (Craig et al., 2012) although, given the near absence of deer in the faunal assemblage, the latter can probably be ruled out. The higher values (i.e. > -1‰) are more typical of porcine carcass fats, which would seem the most likely source given the abundance of pig remains found at the site. ~~Overall,~~However, ~~however~~ the dominance of pigs in the faunal assemblage (Fig. 3) is not reflected in the ~~the~~ pottery use. Only 27% of the analysed sherds have $\Delta^{13}C$ values which fall within the range for modern porcine fats (Fig. 2). Rather ruminant products were preferentially processed in pottery, even accounting for relative differences in carcass weights.

However, such simple assignations mask the complex process of mixing as well as any potential isotopic differences between modern and ancient values. It is worth noting that the large number of sherds (n = 72) with $\Delta^{13}C$ values consistent with modern ruminant carcass fats could theoretically be produced by mixing pork and dairy fats, taking into consideration variation in fatty acid concentration and $\delta^{13}C$. However, if this were the case we would expect a consistently high number of vessels with $\Delta^{13}C$ values that fall between ruminant carcass and dairy fat ranges, which is not observed (Fig. 2). Rather, pots used for mixing dairy products and meat, either together or sequentially, are under-represented as demonstrated by the trough in the frequency distribution (Fig. 2) between dairy and carcass fats. At the very minimum, it seems that some care was taken in manipulating dairy foods. There is less evidence of any separation of beef or pork in the Durrington Wall's Grooved Ware assemblage.

Spatial variation in the use of pottery

The spatial distribution of food residues within the Durrington Walls settlement was, to a large extent, patterned according to architecture and activities. For example, the distribution of $\Delta^{13}C$ values of lipids from pottery deposited in pit features (n=16) and the large midden (n=58) located around the houses, and those within the various features associated with the Southern Circle (n=22) are significantly different (Kruskall-Wallis Test, H= 12.9, P = 0.002; Fig. 2). Of the 16 sherds that were analysed from 10 separate pit features, 11 sherds have high $\Delta^{13}C$ values consistent with pork fat while only one sherd was used to process dairy products (Fig. 3). In contrast, the majority (12/22) of sherds from contexts associated with the Southern Circle have values consistent with dairy fats. Pots from within the D-shaped structure to the north-east of the Southern Circle, now interpreted as a meeting hall, and the open area next to it in front of the entrance to the Southern Circle, were almost entirely used for dairy. These areas ~~can be considered a~~were significant public spaces and are also associated with a slightly higher relative proportion of cattle bone (Fig. 3). The residues on pottery from the large midden deposit (context 593) were more variable. Across the midden, discrete accumulations of pottery, flint and animal bone associated with different houses are evident (Chan, 2009) but there is little evidence for differences in the use of pottery between these separate deposits.

Variation in the use of pottery by vessel dimensions

Overall, there was a positive correlation between thickness and rim diameter (r = 0.52, n = 237, p = 0.<001) confirming that larger ~~pots~~ vessels tend to be thicker. Sizes of pots varied according to what they were used for. There were significant differences in the distribution of vessel thicknesses between pots used predominantly to prepare ruminant carcass, porcine and dairy products (Kruskal-Wallis H=13.5, n=137, p = 0.001). Pots with porcine products were on average 2-3mm thicker than those used for dairy which equates to ca. 8-10cm wider rims. Pots used predominantly to process ruminant carcass fats were of intermediate size. Correspondence between vessel thickness (size) and use is not surprising but it suggests that Grooved Ware pottery was deliberately produced ~~,~~ or ~~perhaps~~ selected ~~,~~ for distinct culinary uses. This may be because dairy products required different preparation methods to meat, involving more careful manipulation of small quantities for consumption by a limited number of people. In contrast, larger bucket sized vessels could be envisaged for processing the huge amounts of surplus carcass products produced after pigs or cows were slaughtered for larger scale consumption events.

Pots deposited in pits (n=343) tend to be thicker than those deposited in the large midden (n= 2004) and on house floors (n = 979) and the distribution of pot thickness is significantly different between these contexts (Kruskal-Wallis, H=47, p =<0.001). This finding is consistent with the idea that larger pots were preferentially used for processing porcine products and that these were more commonly deposited in pits, although a three-way association between pottery use, vessel size and depositional context cannot be directly inferred due to the potential for co-variance.

The preparation and consumption of animals

In common with other Late Neolithic assemblages in southern Britain, the Durrington Walls material is dominated by the remains of pigs and, to a lesser extent, cattle. The remains of other domesticates, for instance dog and sheep, as well as wild animals, make up a very small proportion of the assemblage. The very large density of animal bones from the site, along with the way the carcasses were treated led to the interpretation of the accumulated material as mainly feasting debris (Albarella and Serjeantson, 2002).

Faunal remains from the 2004-2007 excavations were analysed using a heavily modified version of the method described by ~~(~~Davis~~,~~ (1992); see supplementary methods. For both pigs and cattle, the skeletal element distribution is such that either live animals or complete carcasses were brought to the site, the former being much more likely for obvious logistic reasons. The presence of all parts of the cattle and pig skeleton makes it unlikely that joints of meat were brought to Durrington Walls. Parts of the body that carry more meat are well represented across the site. In addition, the near absence of neonatal bones of either species, despite ~~extensive~~ 10mm sieving of the whole deposit, suggests that Durrington Walls was not a producer site, i.e. it is unlikely that the animals consumed on site were born and raised there. Strontium isotope analyses have shown that cattle deposited during the use of the site had a wide range of origins, with evidence for links with the west of Britain perhaps including Cornwall, Wales and northern Britain (Viner et al., 2010).

Both pig and cattle bones showed evidence of butchery in the form of cutting or chopping. Butchery marks were not observed very frequently (ca. 4% of countable specimens), but these are probably under-estimated due to the widespread poor preservation of the bone surface. Evidence of cooking, in the form of burnt or singed bones was also encountered; ca. 7% of countable specimens in the settlement area, and ca. 5% at the Southern Circle. Burnt specimens were found in a variety of different context types, with some individual contexts containing high levels of heavily burnt and calcined material, much of which could not be identified.

A number of distinctive carcass processing patterns were observed in the material from the 1966-68 excavations. A common pattern of butchery on cattle bones occurred on the mid-shaft portion of the major long bones (humerus, radius, tibia, femur and metapodials), which were frequently burnt and chopped, presumably to extract the bone marrow (Albarella and Serjeantson, 2002). In pigs, burning patterns suggest roasting of meat on the bone, evidenced by burning on specific parts of certain elements (the distal astragalus, distal humerus, calcaneum and proximal radius). These patterns, first observed in the earlier study, were confirmed in the more recent analysis, indicating that they -were ~~pattern was~~ widespread, rather than confined to specific contexts. The consumption of meat, then, was a major activity at the site, resulting in the discard of animal remains on a very large scale. This is also proven by the low frequency of gnawing marks, indicating prompt burial, and the numerous bones found in articulation, suggestive of primary deposition. Clearly substantial refuse of meat consumed on site ~~was~~ accumulated in a relatively short time.

The faunal remains, in particular those of pigs, have also provided useful information about the seasonality of feasting activities. Based on mandibular and maxillary tooth eruption and wear on pig teeth, animals could have been killed on site year round, but there was a substantial peak in the number of pigs that were killed during the late autumn and winter (Wright et al., 2014~~in press~~). The evidence from tooth wear varies between different context types; most noticeably the pigs deposited in midden contexts (especially those in context 593) were consistently killed before one year old, whilst those deposited in pits were more commonly killed during their second year. The pigs deposited in the midden were therefore killed before reaching their maximum meat weight, and provide the best evidence of autumn/winter slaughtering. They represent the clearest evidence of feasting-like consumption.

Evidence for plant foods

Evidence for the consumption of plant foods at Durrington Walls is generally sparse. A systematic sampling strategy was employed across the site for the recovery of charred plant material; see supplementary methods. The most abundant and widespread class of charred plant material was hazel nutshell (Corylus avellana) but even this was only found at significant density in two of the house floor deposits. Also at generally low densities were the basal culm internodes of onion couch grass (Arrhenatherum elatius var. bulbosum). Other charred plant remains included crab apple seeds and endocarp fragments (Malus sylvestris), a sloe fruit stone (Prunus spinosa), indeterminate Rosaceae pericarp fragments, a tuber of lesser celandine (Ficaria verna) and indeterminate tuber or rhizome fragments.

The absence of any charred wheat and barley grains dated to this period or of quern stones suggests that there was no processing of cereals, a situation inferred for Britain as a whole by this stage of the third millennium cal BC (Stevens and Fuller, 2012). Yet we should not discount Durrington Walls' unusual status as a short-term, consumption-dedicated gathering site when considering its paucity of plant foods vis a vis animal products. We cannot be sure that finished or semi-processed cereal products such as flour, bread or beer were not introduced to the site. Clean processed cereal grain may also have been present but not preserved, as clean grain is unlikely to come into contact with fire (Jones, 2000, Jones and Rowley-Conwy, 2007, Stevens, 2007). Plant foods such as fruits and tubers are also less likely to have come into contact with fire during processing and may therefore be somewhat underrepresented.

Formatted: Normal

Stable isotope evidence for diet

Unfortunately, our broader understanding of the habitual diets during this period is hampered by the paucity of human stable isotope values due to the rarity of non-crematory burial deposits. Just three fragments of loose human bone and a tooth were recovered from 3rd millennium BC contexts at Durrington Walls and may be not directly derived from the inhabitants of the site. Nevertheless, isotope analysis of this small sample shows that the humans were ca. 3-5‰ enriched in ^{15}N compared to herbivores and pigs from the site (Table 1), consistent with the regular consumption of ruminant milk and ruminant and porcine meat. However, without knowing the isotope values of cereal grains or other plant foods that were available, it is difficult to assess the relative dietary contribution of animal and plant products and therefore whether the range of foods encountered at Durrington Walls were consumed on a regular basis.

The significance of culinary and consumption practices at Durrington Walls

On one level, consumption practices at Durrington Walls broadly reflect the Late Neolithic economy and its technologies of food production but, on another, they derive from culinary appreciations and preferences that are likely to have conveyed symbolic meanings, related to perceptions of the value of foodstuffs or food combinations, and of how these were prepared and consumed (Pearson Parker, 2003, Saul et al., ~~in press~~2014). In broad-brush terms, culinary practices at Durrington Walls correspond to one pole of Goody's (1982) binary characterisation of cuisine; whereas class-based societies employ a differentiated 'haute cuisine' of complex and multiple gradations in courses, dishes and vessel forms, Neolithic Britain was nearer the other end of this scale in terms of its relative lack of such categorical distinctions. Nevertheless, a close analysis of food remains and associated material culture at Durrington Walls has revealed more internal variability than might be expected.

The selection, proportions and combinations of foodstuffs at Durrington Walls were different from what might be expected to have constituted everyday eating in the British Neolithic. The settlement has many characteristics of a feasting site: discard of masses of animal bones, many of which had not been fully processed for their nutrition; winter seasonal culling of animals, particularly pigs; and an emphasis on animal over plant foods. The scale and nature of feasting at Durrington Walls was, however, quite variable. The evidence from pit deposits is similar to other Late Neolithic sites (Rowley-Conwy and Owen, 2011, Serjeantson, 2006) and consistent with small-scale feasts in keeping with expectations for societies with undifferentiated cuisines (Goody, 1982). Many pits were dug into house floors on abandonment of the house, suggesting a closing ritual in which the remains of 'meals' were buried as the house went out of use. Pig products were the main feature of these meals, with the animals culled in their second year, in keeping with normal patterns for meat exploitation.

In contrast, the large numbers of animals that were promptly disposed in the middens that filled the space between the houses are in keeping with larger-scale, less frequent feasts, that probably occurred in the winter. Notably, the pigs in the middens were killed at a younger age than those deposited in other contexts, including pits, often before reaching their maximum meat weight, indicative of careful planning for overt public consumption. Compared to the pits, the middens contained higher numbers of sherds from pots in which ruminant products - presumably beef and cows' milk - had been cooked, the latter suggestive of additional activities during the summer or storage of fermented dairy products for winter feasts. There is little else to identify feasting activities, such as exotic foodstuffs or feasting paraphernalia, notwithstanding the larger pots and hearths. Feasting seems to have been characterised by quantity, in this case of meat, rather than variety.

The two main methods of cooking, at least evident from the archaeology, were cooking in pots and roasting. While boiling or roasting in pots is most likely to have been undertaken on indoor hearths, barbeque-style roasting was most likely conducted outside. A 4m x 1m hearth located immediately outside the midwinter solstice sunrise-oriented entrance of the Southern Circle (Wainwright and Longworth, 1971; Fig. 12) could be one such roasting installation. Cooking duties were probably not distributed equally throughout all dwellings. While some houses were associated with pottery dumps, others were not. Within the East Entrance area, House 851 had only a small number of sherds in its midden in contrast to neighbouring houses 547 and 1360.

The concentration of vessel sherds with dairy product residues outside the Southern Circle raises an interesting question about why this foodstuff might be associated with public monumental space. Dairying had been widespread in Britain since the start of the fourth millennium cal BC (Copley et al., 2003), so milk, butter and cheese are unlikely to have been novelty foods. Although, ~~However,~~ the extent of lactose intolerance in Late Neolithic British populations is unknown, ~~. –~~ f~~F~~resh milk could have been perceived as a food on the margins of edibility, consumable only by a select few, or requiring highly skilled transformation into low-lactose yogurts and cheeses. Such careful control is evident in the choice of smaller vessels for milk, mirroring evidence from the earlier Neolithic in Northern Germany (Saul et al., ~~in press~~2014) and Late Bronze Age in Britain (Copley et al., 2005).

Given the role of milk in so many cultures around the world as a symbol of purity and as a symbolic link between spiritual and earthly nourishment (Vernon, 2000,693-694), it is perhaps no great surprise that such remains were deposited in front of this great timber circle. Whether they constituted offerings as opposed to merely discarded pots is uncertain, though sherd sizes were larger on average from this part of the Southern Circle than from the settlement area.

Wider implications

Durrington Walls settlement, as the likely residence for the builders of Stonehenge Stage 2, offers remarkable insights into the resourcing and organisation of Stonehenge's construction. The evidence for feasting accords well with accounts of feasting and voluntary labour mobilisation for megalith building in many different parts of the world (e.g. Layard, 1942, Hoskins, 1986). It does not fit expectations of a slave-based society in which labour was forced and coerced. The fact that animals were brought on the hoof to Durrington Walls from many different and distant parts of Britain (Viner et al., 2010) further reinforces the notion of voluntary participation.

Whilst it is often tempting to think of the building of Stonehenge as a prehistoric version of a 'free festival' of the sort held at the monument in the 1970s-1980s, the evidence for food-sharing and activity-zoning implies a degree of organisation perhaps not expected. Whilst little overt hierarchy is visible in house size or shape, there were differences between houses in terms of their location within the settlement and their relationship to culinary activity. In addition, distinctions between public and private, monumental and domestic appear to have been enforced. Differences in what was cooked and served in what sizes of ceramic vessels also signify shared understandings of culinary and cultural categorisation amongst a diverse group of people that probably numbered several thousands. Also, culinary practices enabled large-scale outdoor sharing of feasts together with small-scale indoor household consumption at intermediary levels too. Whilst the integrity of households and smaller groups was maintained at one level, the sharing of foods across the community promoted unity amongst communities gathered from far and wide across Britain.

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Figure 1: A. Plan of Durrington Walls and Woodhenge, showing areas excavated (red). B. Plan of the east entrance of Durrington Walls (Trench 1) showing the distribution of the middens (green discs) and pits in the area of the houses. The green discs represent the density of worked flint in individual metre squares split into eight size classes varying in density from 1-20 flints m^{-2} to 210-296 flints m^{-2}. Houses are numbered with hearths shown (shaded).

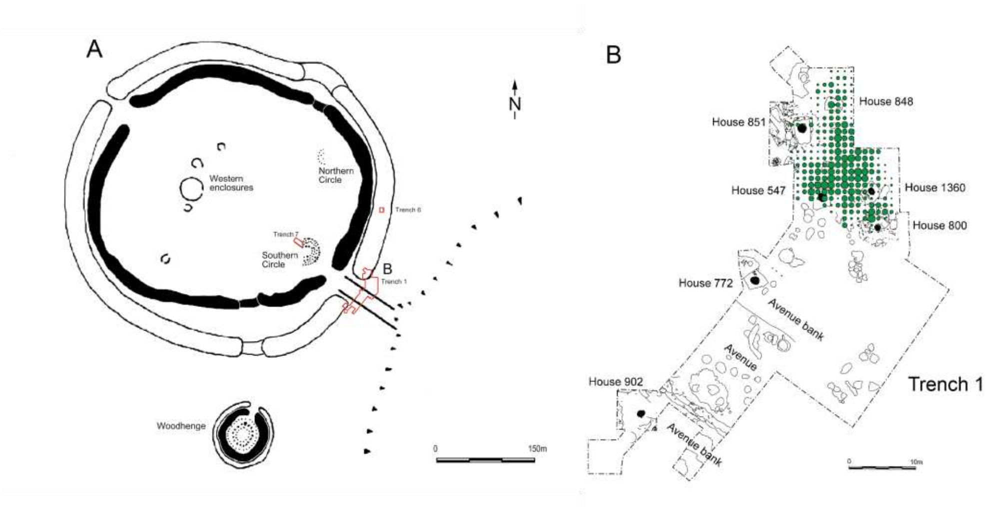

Figure 2: Overall distribution of vessel contents from Durrington Walls according to their $\Delta^{13}C$ values.

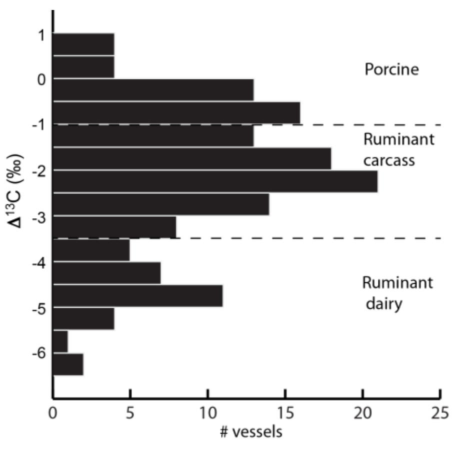

Figure 3: Variation in the use of pottery by context as determined from lipid residues. Inset: Pie chart showing the proportion of cattle (grey) vs pig (black) bone specimens. Isotopic characteristics of fatty acids extracted from individual vessels are plotted against the ranges (median, max, min) in $\Delta^{13}C$ from authentic reference fats.

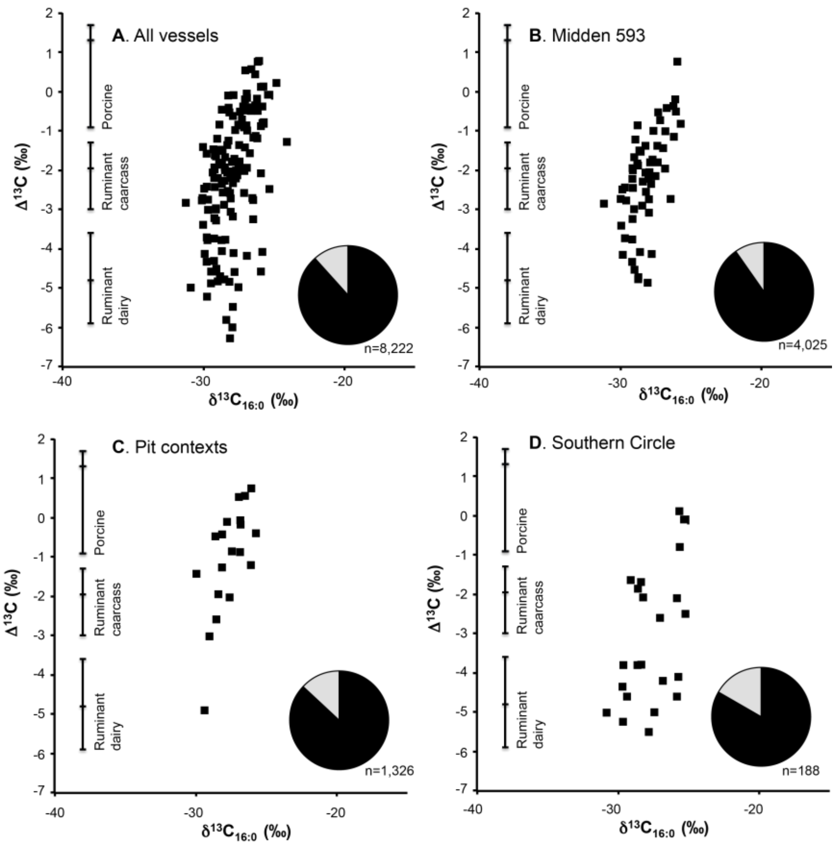

Table 1: Stable isotope data and radiocarbon dates. All human stable isotope data have been specifically obtained for palaeodietary reconstruction purposes and were analysed at the Max Planck Institute for Evolutionary Anthropology, Leipzig, except for those marked*, which were analysed at Oxford University. All animal stable isotope data have been specifically obtained for palaeodietary reconstruction purposes and were analysed at the University of Bradford. Inter laboratory comparisons between these Bradford data and the human data analysed in Leipzig have been undertaken and they are considered comparable

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Sample ID	δ^{13}C (‰)	δ^{15}N (‰)	Radiocarbon laboratory number	Calibrated date (95% confidence)	Notes
S-EVA 3626	-21.4	11.3	OxA-V-2232-41	2620 - 2470 cal BC	Durrington Walls, human bone, male mandible, battered and toothless from (1034) the fill of pit (1033)
S-EVA 3636	-22.1	9.8	OxA-V-2232-42	2630 - 2470 cal BC	Durrington Walls, human bone, female occipital? from [641] the artificial road surface of rammed, broken flint containing animal bones, pottery, burnt flint and lithic artefacts.
S-EVA 12429	-21.9	10.4	SUERC-34614	2620 - 2460 cal BC	Durrington Walls, human tooth root from the buried soil (585) which formed above the avenue roadway
S-EVA 7249	-21.6	10.8	OxA-14800	2860 - 2500 cal BC	Durrington Walls, human femur from (109) the fill of pit (178)
S-EVA 3639	-21.8	9.9	OxA-V-2232-46	2890 - 2630 cal BC	Stonehenge, skull sub-adult or adult WA 1560 from ditch fill, [1560], C25
S-EVA 3641	-21.9	10.4	OxA-V-2232-47	2880 - 2570 cal BC	Stonehenge, skull older mature adult or older adult ,WA 2589, from ditch fill, [2589], C28
S-EVA 8429	-21.1	9.8	Not dated		Possibly Neolithic skull sample, from long barrow near Stonehenge
Find 1349	*-21.8	*11.2	OxA-21961	3360 - 3100 cal BC	Amesbury 42 Long Barrow, Find 1349, humerus
	-23.4 ± 0.3	5.7 ± 0.6			Durrington Walls cattle, average, n=78
	-23.4 ± 0.5	5.4 ± 0.5			Stonehenge cattle, average, n=7
	-23.3 ±	6.0 ±			West Kennet cattle, average, n=20

	0.6	0.5			
	-21.0 ± 0.5	6.7 ± 0.7			Durrington Walls pigs, average, n=47
	-21.0	5.3			Stonehenge pig, n=1
	-21.5 ± 0.6	6.0 ± 0.8			West Kennet pigs, average, n=67
	-24.1	6.1			Durrington Walls sheep, n=1
	-24.2 ± 0.4	5.7 ± 0.6			West Kennet caprinesovicaprids, n=4