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GUESS WHO'S COMING TO DINNER

FEASTING RITUALS IN THE PREHISTORIC SOCIETIES OF EUROPE AND THE NEAR EAST

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FEEDING STONEHENGE: FEASTING IN LATE NEOLITHIC BRITAIN

Mike Parker Pearson, Joshua Pollard, Colin Richards, Julian Thomas, Kate Welham, Umberto Albarella, Ben Chan, Peter Marshall and Sarah Viner

Questions about the construction of Stonehenge often concentrate on engineering issues of how the stones were moved and how they were erected. There has been relatively little thought about how the builders were provisioned: were they slaves or free, were women and children involved as well as men, were they drawn from a wide catchment, and where did they live during construction? Whilst there has been some consideration of the economy to support Stonehenge on the basis of environmental reconstruction (Allen 1997), it is only recently that such issues could be addressed directly through archaeological evidence.

Excavations at Stonehenge during the 20th century have produced only a small assemblage of food remains, even though almost half of the monument has been excavated (Fig. 5.1) (Cleal *et al.* 1995). During the 1920s, the excavators retained

Figure 5.1. Stonehenge viewed from the north (photograph by Adam Stanford of Aerial-Cam Ltd.).

only the larger animal bones, discarding many of the smaller fragments; the 1,000 bones that have been counted in the most recent faunal assessment are also only a proportion of those examined after excavation since only the interesting ones were kept (Serjeantson 1995). None the less, there were probably never any large quantities of animal bone. Most derive from the fills of Stonehenge's encircling ditch, associated with the first stage of construction in 3000–2920 cal BC at 95% probability (Fig. 5.2), and with its later in-filling (Serjeantson 1995). These are mostly bones of cattle and, to a lesser extent, pig. There are very few bones from contexts contemporary with Stonehenge's second main stage, the erection of the lintelled sarsen circle and trilithons in the period 2640–2470 cal BC (Fig. 5.3). Most of the ceramics found at Stonehenge date to after these two constructional stages and include over 200 sherds of Bell Beaker pottery along with Bronze Age and Iron Age sherds (Cleal 1995, 353).

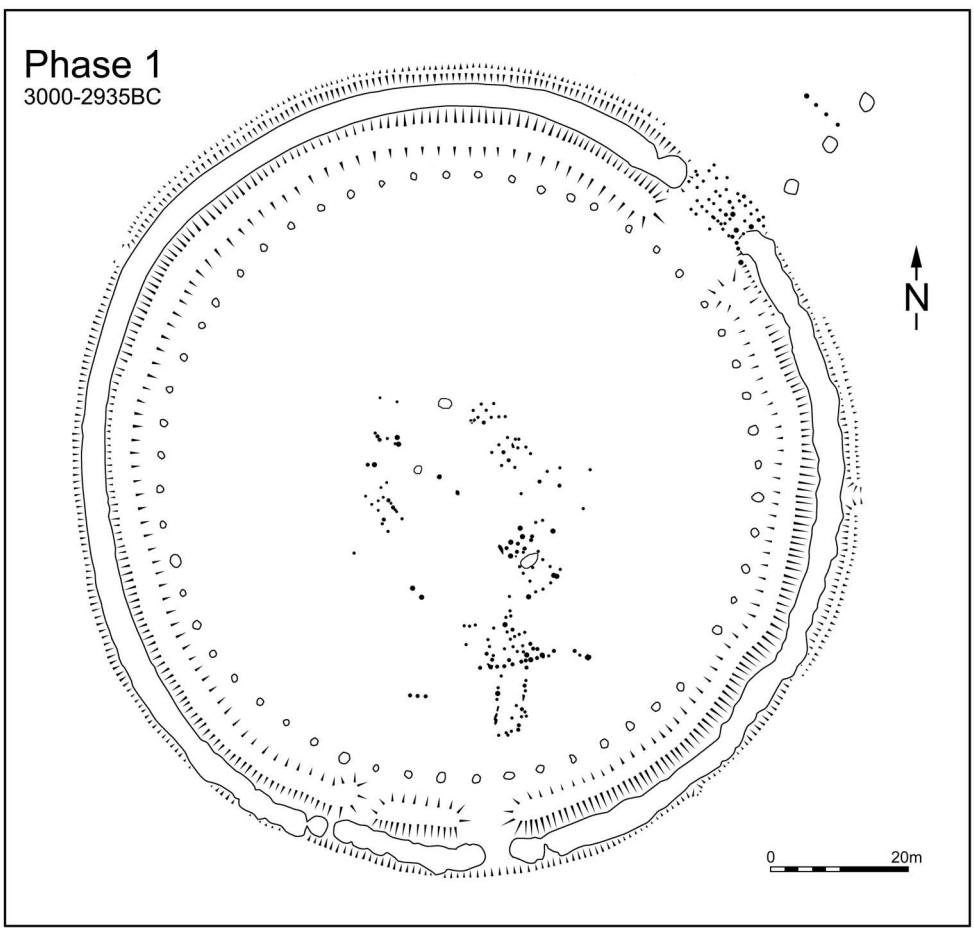

Figure 5.2. Phase 1 at Stonehenge (drawn by Irene Deluis).

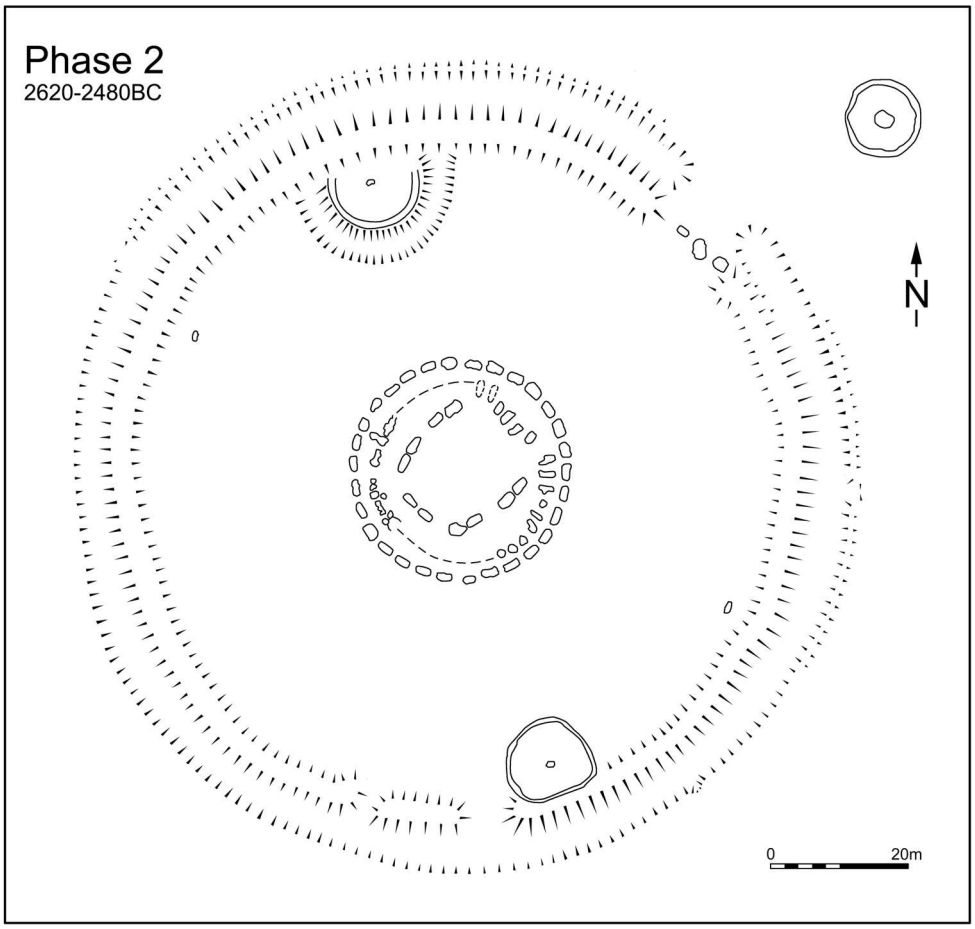

Figure 5.3. Phase 2 at Stonehenge (drawn by Irene Deluis).

The only ceramics thought to be contemporary with Stonehenge's construction are 11 Grooved Ware sherds from the ditch.

It is clear that this small assemblage of sherds and animal bones – even those thrown away by past archaeologists – cannot have met the culinary and nutritional requirements of Stonehenge's builders. Archaeological excavations around the immediate environs of Stonehenge (Fig. 5.4) have demonstrated that there is a similar dearth of occupation debris from the early-mid third millennium BC, both to the south and east of the monument along the line of the modern A303 road (Leivers and Moore 2008) and also to the west and north (Parker Pearson *et al.* 2008). Where potential settlement remains have been found on King Barrow Ridge to the east, these have been found to date to the late fourth-early third millennia BC (Richards 1990). It is possible that builders of Stonehenge's first stage might have lived in this area but there is no trace of mid-third millennium activity.

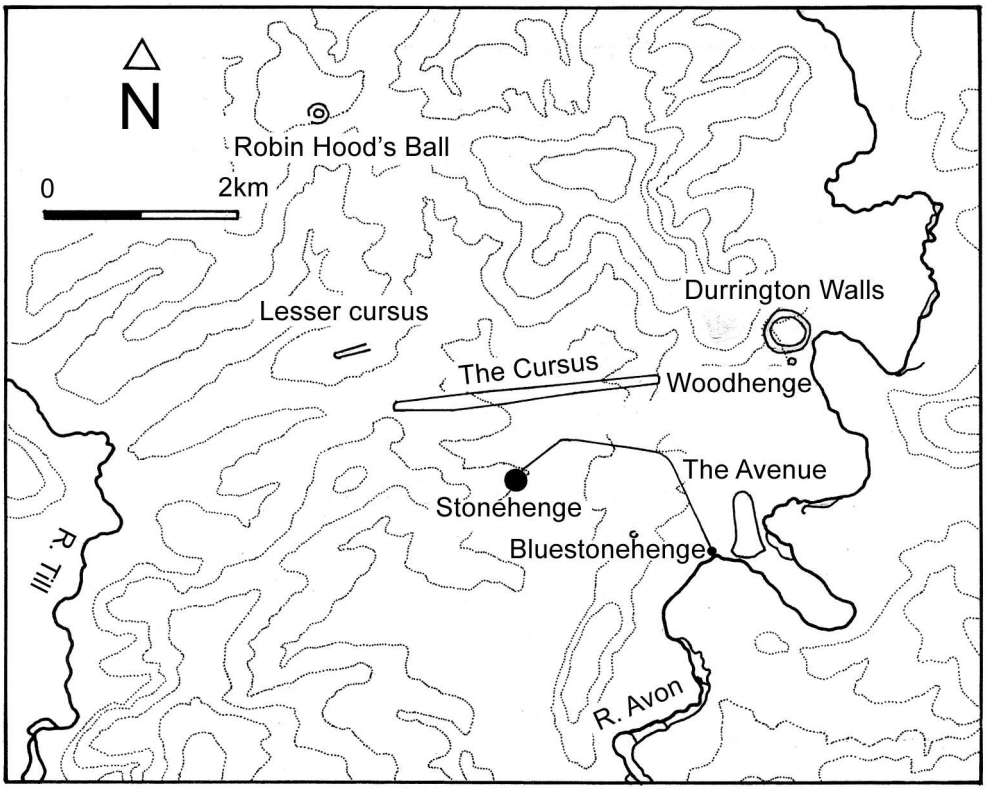

Figure 5.4. The environs of Stonehenge (drawn by Irene Deluis).

Even though densities of surface lithic scatters are considerable in the environs of Stonehenge (Richards 1990) and higher than most other landscapes in southern Britain (Chan 2003; forthcoming), the worked flints derive from at least two millennia of occupation and agriculture. Furthermore, the density of worked flint from the occupation surfaces at Durrington Walls is over twice that of the densest surface scatters within the Stonehenge environs and eight times that of the average surface scatter density in the area.

Durrington Walls: a large Neolithic settlement close to Stonehenge

Durrington Walls is Britain's largest henge enclosure (17 ha), lying 3km northeast of Stonehenge in a dry valley perched above the west bank of the River Avon (Fig. 5.5). Previous excavations (Farrer 1918; Stone *et al.* 1954; Wainwright with Longworth 1971) demonstrated the considerable quantities of animal bones, Grooved Ware pottery and other occupation debris at this large site, within half an hour's walk of Stonehenge. The 1966–1968 excavations revealed the remains of two timber circles, the Northern Circle

and the very large Southern Circle (Fig 5.6) (Wainwright with Longworth 1971). A third timber circle, Woodhenge lies immediately outside the blocked south entrance to the henge enclosure (Cunnington 1929).

Excavations in 2004–2007 at Durrington Walls by the Stonehenge Riverside Project have revealed the remains of a large Neolithic settlement, much of it protected beneath

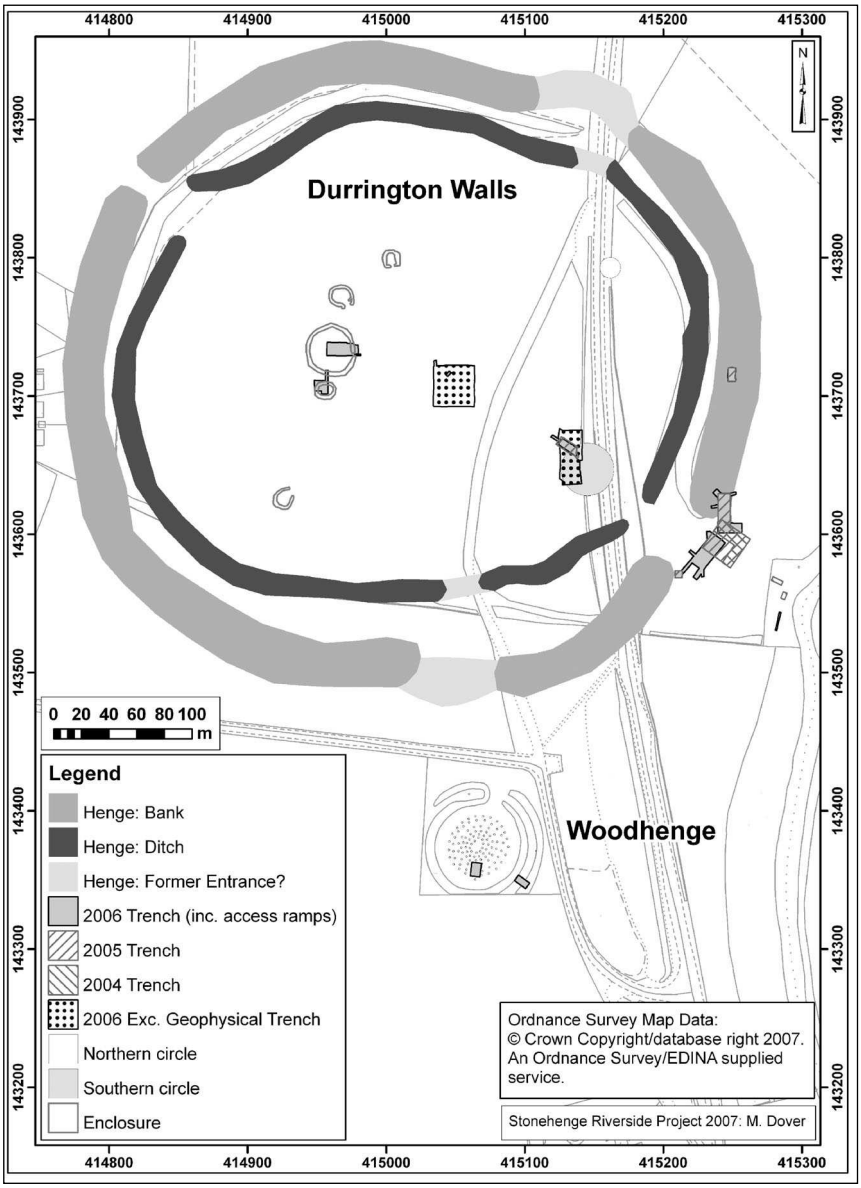

Figure 5.5. Plan of Durrington Walls and Woodhenge (drawn by Mark Dover).

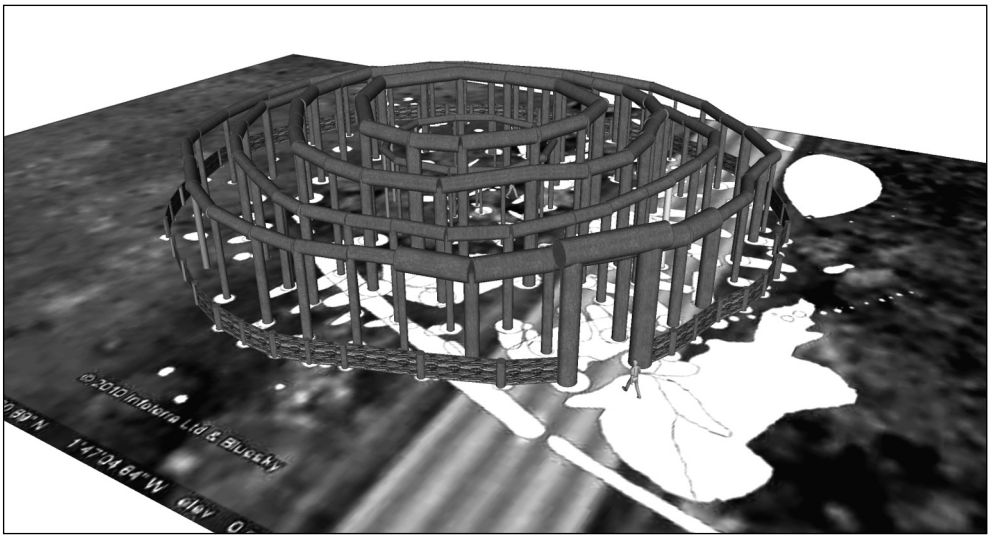

Figure 5.6. Isometric reconstruction of the Southern Circle at Durrington Walls, viewed from the south (produced by Lawrence Shaw).

the banks of the henge enclosure (Parker Pearson 2007; Parker Pearson *et al*. 2007). The Southern Circle appears to have formed the focus of this settlement. A layer of rammed flint outside its entrance, excavated in 1967, is likely to have formed the northeast end of a wide, ceremonial avenue whose course towards the river was detected during excavations in 2005–2006.

Thick layers of Late Neolithic occupation debris detected under the banks of the henge enclosure indicate that the settlement extended another 100m west of the Western Enclosures, 200m south and north of them and 300m east of them. Thus the outer bank of the henge enclosure preserves the outer edges of this large settlement to the height of the ancient ground surface.

The houses at Durrington Walls

About 200m west of the Southern Circle, higher up the dry valley, lie the remains of five small, circular enclosures, known as the Western Enclosures. The largest of these is about 40m in diameter, its ground surface terraced into the hillside, with an east-facing entrance. Excavations in 2006 revealed that a square house had been positioned at its centre, surrounded by a circular palisade whose east-facing entrance looked out towards the enclosure's entrance past a pair of holes for large wooden posts (Fig. 5.7) (Thomas 2007). One of the four smaller enclosures was also excavated, revealing another house set within a circular palisade in its interior. These two house floors were preserved only where the burnt bases of their central hearths had hardened enough to resist erosion. Otherwise, the houses were detectable by the small stakeholes along

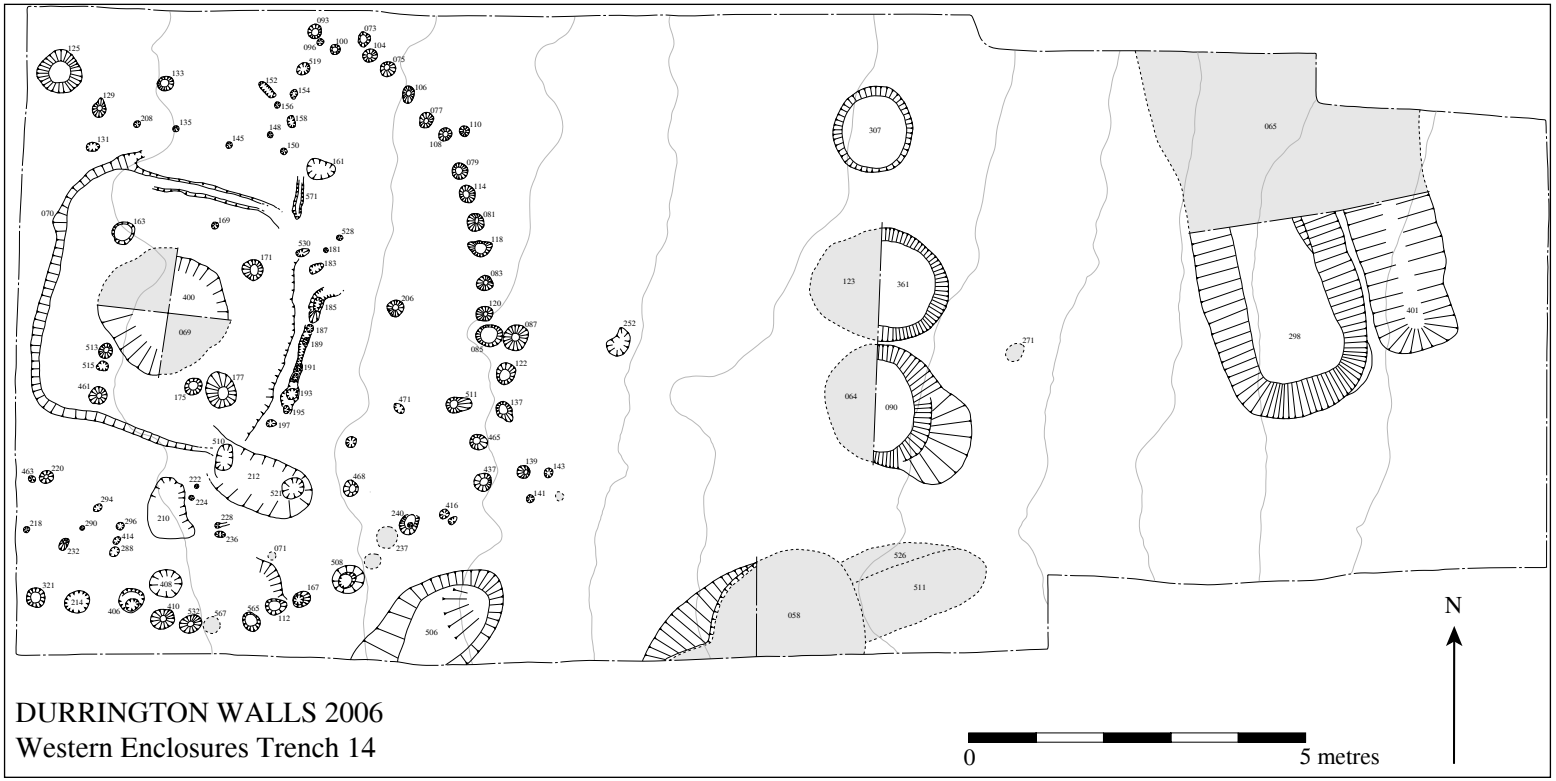

Figure 5.7. The house within the large western enclosure within Durrington Walls; the square house plan is at the left end of the trench (drawn by Julian Thomas).

their wall lines, by the outlines of the eroded floor edges, and by the remains of beam slots for internal wooden furnishings. Each house was just over 5m square and had a square arrangement of four postholes around the central hearth.

Although this western central part of the settlement had been heavily scoured by erosion, the various cut features were largely devoid of settlement refuse, suggesting that this area was either kept clean or had not been the focus of domestic activity. Since the hearths within each house had clearly been used, this raised two possibilities: either the inhabitants of each house had not discarded their food waste here (the food being consumed elsewhere or its waste being taken away) or these were uninhabited shrines whose fires were attended but not used for cooking. The dominating position of these houses reinforces the notion that they were of social and/or religious importance.

East of the Southern Circle, excavations in 2004–2007 uncovered the preserved floors of seven square houses (Fig. 5.8). Five of these were terraced into the hillside on the north side of the ceremonial avenue, and the other two were sat upon the low chalk banks on either side of the avenue (Fig. 5.9). These latter two houses were unlikely to have been domestic dwellings because they were open on one side (the side facing southwest towards the midwinter sunrise). Whilst they possessed central hearths, they remained open to the elements. Perhaps they acted as indoor gathering spaces for small groups watching processions or activities along the avenue towards the river.

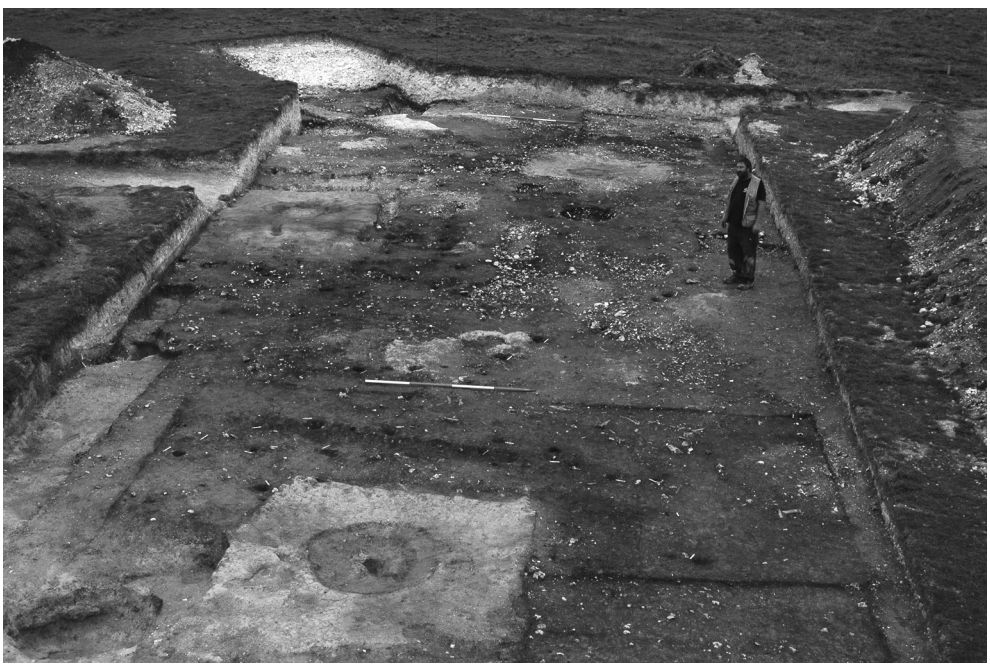

Figure 5.8. Durrington Walls; Houses 849, 851 and 547 viewed from the north (photograph by Bob Nunn).

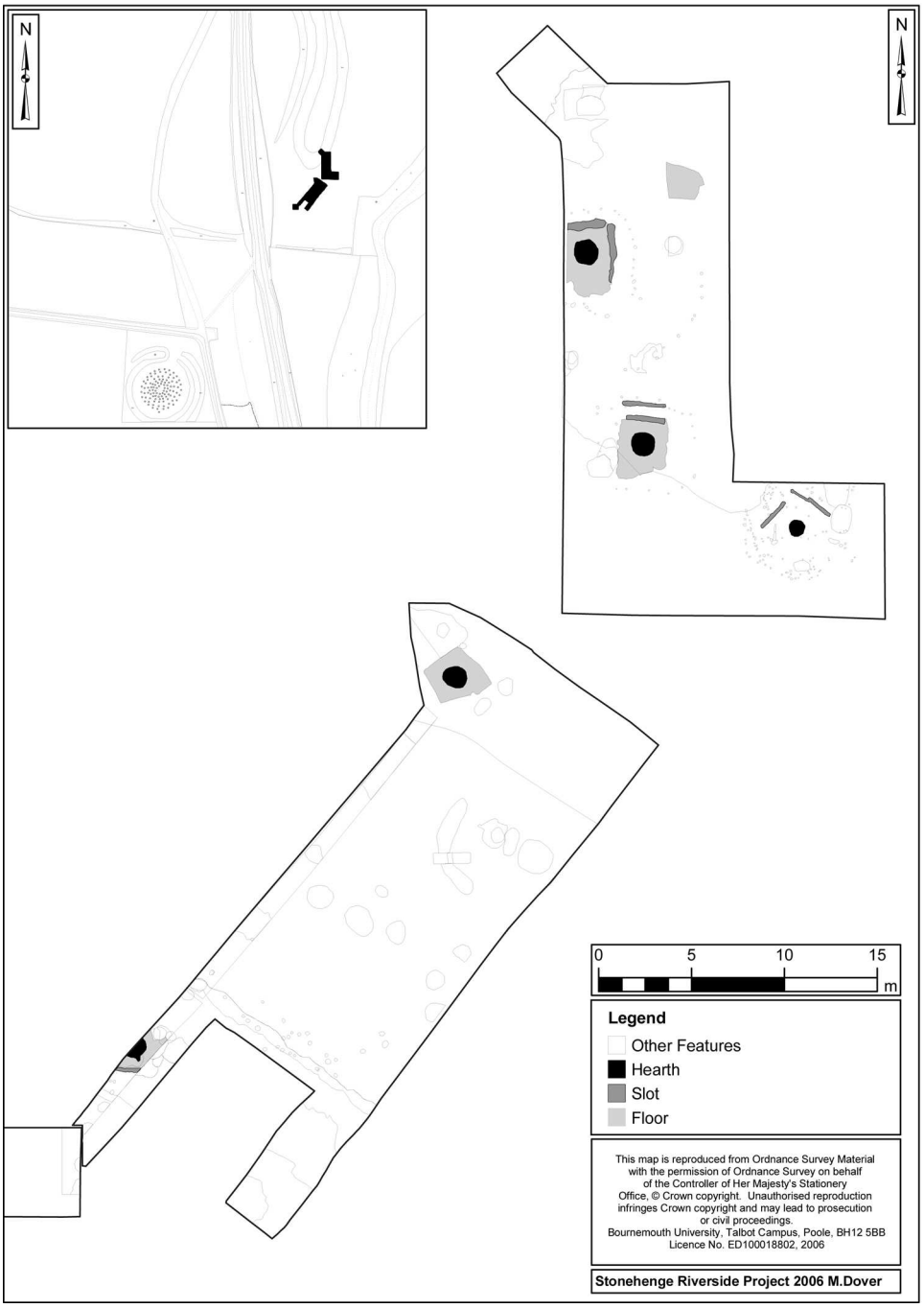

Figure 5.9. Durrington Walls; houses in the eastern part of the site, including part of the avenue (drawn by Mark Dover).

The five houses north of the avenue were of different sizes. The largest was of similar size to the two within the Western Enclosures and was the most solidly built. Its wall survived as a square setting of stakeholes, forming a house with rounded corners. Pieces of daub and the remains of a puddled chalk matrix along the outer face of the wall on its west side provide evidence for a wattle, daub and chalk plaster wall.

The doorway of this house was positioned on its south side, giving entry onto a chalk plaster floor with a slightly sunken, flat-bottomed, oval fire pit at its centre (Fig. 5.10). The floor's edges had been formed by timber beams whose impressions remained in the edges of the plaster floor as well as forming slots into the ground beneath. On the north side, opposite the doorway, the beam slot had held vertical posts at its ends and centre. On the east and west sides, the beam slots were at a greater distance from the wall than on the north side and enclosed long, rectangular spaces against each wall. There were two small, square beam slot settings in the southeast and southwest corners.

Comparison of this house with the stone furniture surviving in contemporary stone-built houses of Orkney at settlements such as Skara Brae (Childe 1931) provides the key to understanding the forms of the now-vanished wooden furniture in this house. In fact, this dwelling is identical in plan, interior layout and size to House 7 at Skara Brae. We can confidently interpret the furniture on the north wall as a 'dresser' (a storage unit of two shelves, one above the other), the east and west structures as a pair of box beds, the southeast box as a kitchen storage unit (here the floor was covered with small pieces of broken sherds), and the southwest box as a storage unit for placing items of clothing and tools when entering the house.

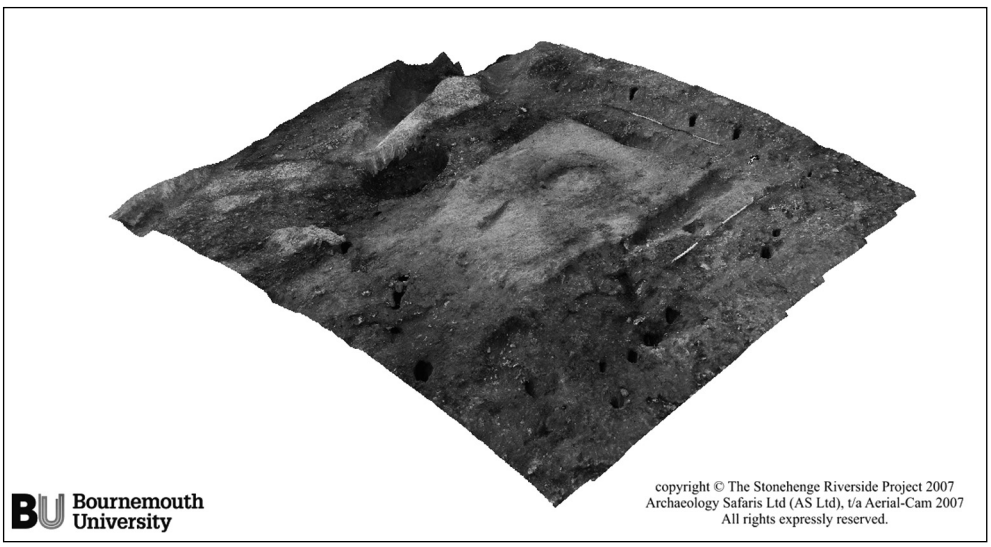

Figure 5.10. Laser scan image of House 851, draped with a vertical photograph (image produced by Mark Dover from laser scan by Kate Welham and photograph by Adam Stanford).

About 5m east of this house lay a smaller one, about 2m × 3m. Its doorway was probably on the south side. Although the wall had not been marked by stakeholes, the decayed remains of cob walling lay all around. A small, informal central hearth was the only internal feature. This house is best interpreted as an outhouse or ancillary building on the basis of its floor deposits and lack of internal features. Both houses were separated from the other dwellings by a fence line of postholes and probably formed a single domestic unit. Once again, Skara Brae offers a close parallel, with House 6 being precisely the same shape and size; it is positioned next to House 7 and the two are separated at Skara Brae from the other houses, in this case by a long corridor rather than a fence.

On the south side of the fence, three small dwellings were excavated. Two were sat on an artificial terrace formed of turf which had probably been stripped from higher up the hillside. The third lay immediately below this terrace, cut into the chalk bedrock. All had central oval hearths and beam slots for beds but not dressers. The lower house's floor was directly on the chalk bedrock whilst the other two had chalk plaster floors.

The plaster for the house floors was formed of soliflucted chalk, created during the last Ice Age in periglacial conditions in which the silt product of weathered chalk filled voids in the solid chalk bedrock. Each house was associated with a cluster of inter-cutting extraction pits from which this clay-like weathering product had been dug out to be mixed for the plaster for floors and presumably walls. Each house had up to about 12 of these inter-cutting pits in its vicinity, suggesting that these represented the number of construction episodes (building followed by episodes of repair) for each house. This evidence could be compared with the results of soil micromorphological analysis of separate plastering episodes for each house floor. The largest house's floor had been plastered seven times.

Dating of the Durrington Walls village

Radiocarbon dates for the settlement are statistically indistinguishable from the two dates (2655–2485 cal BC and 2850–2400 cal BC, combined as 2620–2480 cal BC at 92% probability) for erection of the sarsen circle and trilithons at Stonehenge. In addition, the stratigraphy of the Durrington settlement, subsequently covered by the bank of the henge enclosure, offers the potential for Bayesian statistical modelling of radiocarbon dates in known stratigraphic relationships to each other. In this way, the probability ranges of the dates for the settlement can be refined to within decades.

To ensure that dated materials were fresh when they entered their stratigraphic layer, only articulated animal bones, antler picks and carbonised branches were selected for dating. The resulting statistical model dates the settlement as beginning in 2525–2470 cal BC and ending in 2480–2440 cal BC (both at 95% probability). The Southern Circle and avenue were constructed in 2490–2460 cal BC and 2505–2465 cal BC respectively, and the ditch and bank of the henge enclosure were made during the period 2485–2455 cal BC (all at 95% probability).

The radiocarbon modelling indicates that the settlement was in use for a period of probably less than half a century. Just how much less is difficult to say, but the evidence of floor re-plastering and plaster-extraction pits hints at a period of as little as 7–12 years (if re-plastering was performed annually).

Between the abandonment of the village and the construction of the henge bank and ditch, a line of ramped postholes was dug on the east side of the settlement. These were presumably constructed to form a perimeter but the holes were never filled with posts, instead being backfilled with clean chalk and domestic refuse.

Activity at Durrington Walls continued, perhaps on and off, for a further 200 years or more. Once the posts of the Southern Circle had decayed – a period of perhaps up to 170 years – pits were dug into the tops of its postholes and were filled with structured deposits of pottery, animal bones, artefacts and worked flint (Richards and Thomas 1984; Thomas 2007). The avenue remained in use, with a turf line eventually forming at some point towards the end of the third millennium BC.

The lack of precision from the two relevant radiocarbon dates at Stonehenge (2620–2480 cal BC) makes it impossible to be sure that the sarsens were put up at the same time as the Durrington Walls settlement was occupied (2525–2470 cal BC to 2480–2440 cal BC). For the foreseeable future, we must content ourselves with the knowledge only that it is possible that the two events were contemporary. We cannot prove that Durrington Walls was occupied by Stonehenge's builders; we know only that the two events occurred within the same two centuries. Only when Stonehenge's sarsen phase can be dated with greater precision will we be able to better judge the likelihood of the two events being contemporary. For the moment, it remains a distinct possibility.

The size of the Durrington Walls settlement

Evidence for Grooved Ware settlement has been found beneath north, south, east and west banks of the henge enclosure as well as within its interior at the Western Enclosures. Thus it is very likely that the area covered and enclosed by the henge bank formed one large village. Whether it was as densely settled within its interior as around its edges cannot be demonstrated, especially because erosion has been severe within the interior where remains of house floors survive only poorly if at all.

The density of houses in the area excavated in 2004–2007 on the east side is of the order of one house per 120sq m. If it applies to the rest of the projected area of settlement, we might expect a further 300 houses to remain well preserved beneath the henge banks. If the interior was filled, then there could have been as many as 1000 buildings – for domestic, ancillary and special purposes.

The small sizes of the dwellings limit the numbers of inhabitants in each house. With just two beds, we might expect the inhabitants to consist of no more than 4 or 5 persons. From analysis of comparable dwellings in Neolithic Orkney, Richards (2004) has concluded that these might contain nuclear families of parents and children. The

identical forms of the Durrington Walls houses raises the possibility that they were similarly built for and used by families. If so, we can envisage the notion that Stonehenge was built by work teams which included women and children as well as men.

Thus we might be looking at a total of around 4000 men, women and children living at Durrington Walls. Corroboration for this figure comes from estimates of the size of work force required to build the henge ditch and bank of Durrington Walls. The magnetometry survey of the entire henge (David and Payne 1997; Payne 2003) reveals that the ditch was dug out in a series of conjoining segments, each about 40m long. This is particularly clear on the monument's east side.

This segmental method of ditch digging is well known from causewayed enclosures and long barrow ditches of the 4th millennium BC in Britain and is generally interpreted as the effect of gang-digging in which separate groups of labourers dig different stretches of ditch, sometimes – but not always – breaking though into the adjacent length of ditch at either end. We can expect around 20 such gang-dug segments.

To estimate the number of workers in each segment, we have an interesting deposit at the bottom of the one length of ditch dug out on the south side of Durrington Walls when the henge was constructed (Wainwright with Longworth 1971; a length of the ditch on the northern side was also dug out but this can now be interpreted as a later blocking of a north entrance for the henge enclosure). On the floor of the south ditch, Wainwright encountered a deposit of 57 antler picks, evidently discarded on completion of the herculean task of digging down 5.5m and across 10m through solid chalk.

If the number of picks indicates the number of pick workers, we can estimate that many more were required to help dig out the chalk, carry it by basket out of the ditch and onto the bank, and also to provide the food and other infrastructural support. Digging with an antler pick probably required one person, possibly helped by a second person in the deeper seams of chalk. Thus 114 diggers would have needed a similarly large removal team to shift the rubble and provide logistical support. If 150–200 people were engaged in digging each segment of ditch, then there could have been as many as 4,000 at work on the entire circumference.

Of course, a smaller number could have constructed the enclosure if segments were dug at different times, the same group sequentially digging different segments. With this possibility in mind, we excavated a length of bank in 2005–2006 where two segments joined. The inter-stratification of the two adjacent bank segments demonstrated that both were dug at the same time, although one segment was begun shortly before the other.

Feasting activities at Durrington Walls

Although the faunal remains are still being analysed, the preliminary results shed light on the practice of feasting, the seasonality of feasts, and the provisioning of the feasts.
The areas between the five houses on the north side of the Durrington Walls avenue were filled with domestic debris. Other 'middens' were also identified in 2004–2007

further north beneath the henge bank and on the south side of the avenue. Wainwright identified a posthole-enclosed terrace immediately northeast of the Southern Circle as a midden (Wainwright with Longworth 1971) but this can now be reinterpreted as a large building which later filled with midden debris.

These midden deposits consist of black organic soil with ash, burnt flint, worked flints, animal bones and potsherds. They formed in public areas in front of and beside the Southern Circle and beside the avenue, as well as in the 'private' spaces around houses. In the latter cases, they accumulated to greatest height on property boundaries such as the fence line which divided the large house and its ancillary building from the three other houses down slope (Fig. 5.11) (Chan 2009).

There are about 80,000 animal bones from the areas excavated in 2004–2007. Preliminary analysis by Umberto Albarella and Sarah Viner indicates that most are the bones of pigs and cattle in a ratio of 10:1 (see also Albarella and Serjeantson 2002 on re-analysis of the 1966–68 faunal assemblage). All the animals were domesticates except for a very few bones of aurochs (*Bos primigenius*), red deer (*Cervus elaphus*) and roe deer (*Capreolus capreolus*). The large quantities of animal bones indicate that considerable numbers of livestock were slaughtered and consumed on this short-lived settlement.

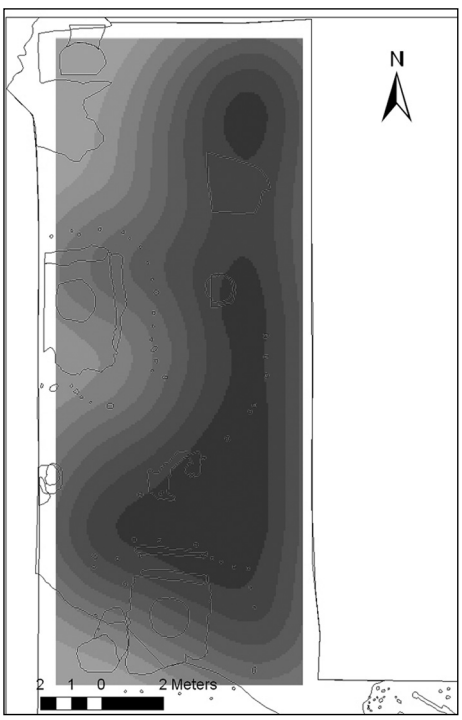

Figure 5.11. Density of animal bones on the ground surface between houses; note how the highest density is in the area of the fenceline between houses (produced by Ben Chan).

The condition of the animal bones, as well as their quantity, provides a good indication of the nature of their consumption. Several hundred pig and cattle bones were recovered still in articulation. As well as providing high-quality radiocarbon samples for dating their contexts of deposition, they also show that meat was plentiful enough for bones to be discarded without extracting the maximum nutritional value out of each of them. As a whole, the lack of fragmentation within the faunal assemblage is remarkable. Whilst some long bones have been split to extract their marrow, the general completeness of the bones is more than would be encountered on an all-year round settlement.

Albarella's re-analysis of the animal bones from the 1967 excavations and his preliminary analysis of those from the 2004–2008 excavations show that certain

practices were employed for killing and cooking the pigs (Albarella and Serjeantson 2002). Firstly, a small number of pig bones had impact injuries from projectile points, in most cases containing the broken-off tips of flint arrowheads. Whilst the pigs could have been shot at point blank range, the wide variety of bones with these injuries – from ribs to forelimb bones – hints at the possibility of some animals being shot from a distance, perhaps in some blood sport prior to cooking.

Secondly, pigs' limb bones were often burnt in well-defined and predictable anatomical areas. This is indicative of roasting and a regular butchery pattern. Whether the animals were roasted whole on spits or were cut into slabs of meat is difficult to say, but it is certainly possible to roast pigs attached to wooden spits with organic bindings. Immediately outside the entrance to the Southern Circle, Wainwright uncovered the remains of a 5m-long hearth which may have been one of the locations where whole animals were roasted.

Thirdly, the pigs could be aged according to manibular wear stages (Albarella and Serjeantson 2002). The 1967 assemblage demonstrated that a significant number were culled at mandibular wear stages 8–12, when the pigs were around 9–10 months old (Albarella and Payne 2005). Working on the assumption that pigs farrowed in spring, Albarella interprets this as a midwinter cull pattern. On-going analysis of the 2004–2007 assemblage has confirmed this seasonal spike as well as identifying a second, less marked period of culling in summer. This evidence for summertime activity is supported by the large proportion of lipid residues deriving from dairy products found in the pots excavated in 1967 (Mukherjee 2004); highest milk yields would have been obtained in the summer months rather than wintertime.

Anna Mukherjee's study of lipids from Grooved Ware and Beaker pots found in the 1967 excavations revealed that, out of 29 that had surviving remains of identifiable lipids, most had contained dairy products, while the remainder were split between ruminant and pork fats (Mukherjee 2004; Mukherjee *et al.* 2008). Since sheep were rare in the faunal assemblage at Durrington Walls, it is likely that the ruminant flesh cooked in the pots was beef.

The spatial distribution of these pots with different food products was not random; most with dairy product residues were concentrated in the public area in front of the Southern Circle (close to the 5m-long hearth) and in the midden of the filled-in building to its northeast. There may also be a relationship between ceramic vessel size and contents. Residues of dairy products were found in either the smallest pots (under 22cm diameter) or in larger vessels (30–35cm diameter). Ruminant fat residues were recovered only from pots of intermediate size (22–30cm diameter), though residues of pork fat were found in vessels of all sizes. Further analysis of lipid residues should establish the reliability of these preliminary observations.

A new project, 'Feeding Stonehenge', is now investigating the provisioning of Stonehenge, Durrington Walls and the other henge enclosures of Wessex. A pilot study of strontium isotope values in the molar tooth enamel from 12 of the cattle mandibles from Durrington Walls has demonstrated that the majority of animals in that sample

had been raised at least 50km away (Viner *et al*. 2010). Whilst two were raised on the chalklands of Wessex, the remainder had been brought in from areas beyond. Two had come from areas of igneous rock, either in Wales or southwest England. The variable life histories that could be reconstructed from analysis of successive tooth slices showed that each animal had a different 'pathway', suggestive of their derivation from many different herds.

During the 2004–2007 excavations, sieving of all excavated deposits provided a representative sample of all bones of large mammals. The complete absence of neonatal bones of pigs and cattle from the assemblage must thus represent a genuine phenomenon. Since neonatal animal bones are frequent finds on all-year round farmsteads of prehistoric and later period settlements, their absence confirms that Durrington Walls was mostly a 'consumer' site, importing its animal flesh probably 'on the hoof', rather than raising the animals from birth.

Conclusion

The definition of feasting from archaeological remains is always going to be difficult except in circumstances such as those at Durrington Walls. Here, the sheer scale of the quantities of debris, the integrity of the archaeological deposits, the evidence for waste during consumption, the short time scale of occupation, and the evidence for seasonality of consumption all contribute to the conclusion that large numbers of people gathered here during the Late Neolithic to engage in communal feasting.

One purpose for feasting may have been to gather for celebrations at the newly completed Stonehenge and its wooden counterparts of Woodhenge and the Southern Circle. Alternatively, if the occupants of Durrington Walls were indeed the builders of Stonehenge, as seems most plausible, then the offer of feasting must have been part of the reason why large numbers of people were co-opted into large-scale mobilization for monument building. This would suggest that many, if not most, worked on Stonehenge not as slaves or serfs but as individuals bringing their own food supplies and perhaps also receiving hospitality from those orchestrating the project. Such reciprocal exchange relationships centred on feasting are a common feature of megalith building around the world today, albeit on smaller scales.

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