

The Stonehenge Riverside Project 2007

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The 2007 season was the largest yet with over 270 people working during the four weeks in August and September on seven different sites as well as on outreach, geophysical survey, flotation and finds processing. Students came from Sheffield, Manchester, Bristol, Bournemouth and Cardiff Universities as well as from University College Dublin, Leiden University in the Netherlands and Kalmar University in Sweden. Over 4000 visitors, the vast majority of them local, received guided tours from National Trust volunteers and project staff, and the re-enactments, craft activities and flint knapping demonstrations at the two Open Weekends were very well attended.

Archaeological excavations were carried out at the east, west and south entrances to Durrington Walls, along the ridge south of Woodhenge, at the Cuckoo Stone, at the west end of the Stonehenge Greater Cursus, and within the relict river channel of the River Avon adjacent to Durrington Walls. Geophysical surveys were finally completed at Durrington Walls and were carried out around the Cuckoo Stone and south of Woodhenge, at the east end of the Greater Cursus, the southwest end of the Stonehenge palisade, the area immediately in front of Stonehenge and at the 'elbow' of the Stonehenge avenue. Geological study of the Welsh bluestone chippings from south of the Greater Cursus has shed new light on their sources in South Wales.

New dates for the people buried at Stonehenge

Reappraisal of previously collected material from Stonehenge continued in 2007-2008 with the submission of 8 samples of human bone for radiocarbon determination. Despite an extensive dating programme in 1994, none of the cremation burials or loose human remains from Stonehenge has been dated until now. Three of the five unburnt human bones submitted dated to the Middle Bronze Age, Iron Age and late Roman period – all considerably later than the main period of Stonehenge's use. However, the remaining five samples date to the third millennium BC.

The earliest date was for the cremation burial of an adult from the lower fill of Aubrey Hole 32. Its date of 3030-2880 BC (at 95% probability) provides a *terminus ante quem* for the Aubrey Holes, hitherto undated, which can now be placed most likely as part of the monument's initial construction (3015-2935 BC). The cremation burial thus dates to the earliest use of the monument. A cremation burial of a young or mature adult from the middle fill of the Stonehenge ditch (layer 3898 on the ditch's north side) dates to 2930-2870 BC, shortly after construction. Human skull fragments from the northern ditch fill (1560 in layer 3639) and from the eastern ditch fill (2589 from layer 3641) date to 2890-2630 BC and 2880-2570 BC respectively. Both of these fall largely within the period before the great sarsen stones were erected.

Stonehenge's ditch was re-cut (partly dug out) during the period 2560-2140 BC and the third cremation burial – that of a 25 year-old woman – was placed in this new

ditch on the ditch's northern side (in layer 3893). Its date of 2570-2340 BC (at 95% probability) places her death within or after the period when the sarsens were erected.

Archaeologists have considered that Stonehenge was used as a burial ground only for a short part of its use (i.e. in the 28th and 27th centuries BC). The new dates refute this theory and support the notion that Stonehenge was a cemetery from around its inception until the period of the sarsens (2655-2485 BC). The three dated cremation burials span a period of about 500 years from Stonehenge's beginnings to after the sarsen circle and trilithons were erected. The remaining 49 cremation burials excavated from Stonehenge were re-buried in 1935. Half of these came from the Aubrey Holes and half from the ditch. Of those from the ditch, most were buried in its upper fills and are likely to date to the same period as the cremation of the 25 year-old woman.

The implications of these new dates are considerable.

1. Stonehenge was a place of burial from beginning to end during its use in the 3rd millennium BC. The cremation burial dating to Stonehenge's sarsen phase is probably just one of many from this later period of the monument's use and demonstrates that it was still very much a 'domain of the dead' when the sarsen circle and trilithons were erected.
2. Stonehenge was the biggest cemetery of its time, larger than 14 other comparable cemeteries known elsewhere in Britain from the 3rd millennium BC.
3. The long span of dates indicates that this was a cemetery which grew over many centuries; the estimated total of up to 240 dead – men, women and children – buried at Stonehenge were interred over a period of around 500 years. If people were buried here at an average rate of around one person every two years then they were drawn from a very small and select living population. We can thus rule out the validity of any historical evidence from Geoffrey of Monmouth in the 12th century AD, that Stonehenge commemorated casualties of a battle. Rather, the people buried here were interred over centuries, possibly because of their special status as members of an elite dynasty of rulers.

Durrington Walls houses

A total of ten Late Neolithic houses have now been excavated at Durrington Walls since 2005. Seven of these are from the east entrance of the henge enclosure and all appear to pre-date the construction of the henge ditch and bank. This summer we completed the excavation of four of these at the East Entrance, three to the north of the avenue running from the River Avon to the Southern Circle (the large timber circle first investigated in 1967), and one sitting on the south bank of this avenue. North of the avenue there was a group of five houses terraced into the valley side. The uppermost of these was a large house and its smaller ancillary building, both separated from the other three houses by a fence. Rubbish, particularly burnt and worked flint, appears to have been thrown against the fence from both sides, allowing us to identify midden waste to specific households.

In 2007 we completed excavation of the most solidly built house (House 851) and of two of the houses east of its fence line. House 851's west side was remarkable in having the base of its chalk cobb wall still surviving. It was spread up to a metre across but was probably 0.7m wide originally, and formed the base of a wall set outside the stakeholes which supported a superstructure of wattle and daub. Cobb is a

traditional building material made from crushed, conglomerated chalk and this is the earliest evidence for its use. This is also the first time that the wall of a Neolithic house has been found anywhere in England (examples are known from Orkney off the north coast of Scotland). House 851 was almost square (interior dimensions 4.8m N-S x 5.2m E-W) and had its doorway at the west end of the south wall.

The central hearth was oval, set into a square plaster floor surrounded by beam slots which formerly supported wooden furniture in the form of beds along the east and west sides, a storage unit or dresser along the north side and smaller storage units in the southeast and southwest corners. The only other house to have been built with a cobb wall was the small ancillary building. All the others possessed simple wattle and daub or wattle walls.

The two houses east of the fence (House 800 and House 1360 to its north) were also square (about 5m x 5m) but were less well constructed. House 800 had two different phases, first with its walls aligned on the cardinal points and its entrance to the south and then with its corners facing towards the cardinal points and its entrance to the southeast. This second phase cut through the southern edge of House 1360 to its north, which appears to have been contemporary with the first phase of House 800. House 1360 had its corners facing towards the cardinal points and its entrance at the south end of the northwest side. Slots for two box beds were found along the southwest and northeast sides, and the hearth was tended by someone sitting on the northeast side.

Of the two houses on opposite banks of the avenue, the northern one (772) was excavated in 2005-2006. The house on the south bank (902) was located in 2006 but fully excavated in 2007. It was of very different form to those in the northern group and most similar to House 772. House 902 was built in two phases, both of which had a central entrance on the east side. Its walls were only set into the ground as lines of stakeholes in its western half. Some of these were angled to form interior buttresses to support the west wall. The walls bowed out, indicating that the house was originally D-shaped with the flat side to the east. The absence of stakeholes for the walls at the front of the house is matched by the plan of House 772, and suggests that these two houses were open on their east sides, looking down the avenue towards the river.

The extent of the Durrington Walls settlement

House 902 and the large midden to its southwest indicate that settlement activity was particularly dense beneath the southeast bank of the henge. The basal deposit of bank fill dumped on top of these layers (deriving from the topsoil dug from the henge ditch) was also packed with occupation debris and wall plaster, indicating that houses had also stood where the henge ditch was later dug.

Three evaluation trenches dug around the eastern edge of the henge bank showed that the occupation surface of this settlement, detected in Trenches 1, 5 and 6, continued around to the north, preserved beneath the henge bank. However, long-term ploughing since the Iron Age has removed all trace of this occupation east of the henge bank except for the deeper cut features such as pits.

Similar occupation layers, rich in pottery, bones, burnt deposits and other finds, were detected beneath the henge bank on the north side in 1951, on the south side in 1968 and on the west side in 1917.

The Late Neolithic settlement at Durrington Walls can now be envisaged as a large circular village of many hundreds of houses, set around an open area or arena which was occupied by the Southern Circle, itself surrounded by an arc of special buildings which included a timber circle (the Northern Circle, excavated in 1967) and two houses which were set within timber palisades and ditched enclosures which appear to have been kept clean (excavated in 2006). This settlement, with a circumference of almost a mile, would have been the largest village known in northwest Europe. If the density of houses from the 2004-2007 excavations (one house per 120sq m) is representative of their packing around the settlement then we might expect over 300 houses to survive beneath the henge banks.

Preliminary results from environmental analyses suggest that this was a seasonal settlement. The absence of carbonised grain or quern stones and the lack of bones from neonatal pigs and cattle, together with the evidence for culling of pigs in the midwinter period, suggest that people journeyed here with their pre-prepared foodstuffs and animals only at certain times of the year.

The south and west entrances to Durrington Walls

The south entrance of the henge enclosure appears to have been blocked, thereby severing the route to Woodhenge. We were unable to recover any dating evidence for this event and this part of the henge bank had been heavily damaged by Iron Age and later ploughing so that only the 'ghost' of the bank survived as an unweathered pediment of natural chalk. Amongst a variety of pits and postholes within our trench into the bank, there was a setting of small postholes that may have formed the walls of a small square house about 4m x 4m, with its walls facing the cardinal points. There was no trace of a surviving floor or hearth but a small pit within its interior contained sherds of Beaker pottery.

A 56m-long trench was dug 20m west of the henge enclosure's west entrance. There was no surviving buried soil, indicating that later ploughing had destroyed such layers beyond the edge of the henge bank despite the build-up of colluvium on this side of the monument. Amongst the tree holes and debris from the WW1 camp to the west, the only prehistoric features were an Iron Age ditch and two Neolithic pits. There was no indication of a monumental entranceway or approach to the henge from this west side. The low density of Neolithic features indicates that the village probably did not extend this far from the henge bank.

The palaeochannel within the River Avon at Durrington Walls

Two small trenches were dug by machine into the palaeochannel. One of these was 30m east of the end of the Durrington Walls avenue. At the base of its 1.5m deep sequence, pieces of burnt hazel sat upon the channel bottom. These were covered by a sequence of peat-rich alluvial layers which contained no artefacts other than two struck flints. The second trench was about 200m south of the first and was slightly

wetter. It was 1.6m deep and its lower deposits were composed of peat, turning higher up to peat mixed with alluvium. This second sequence probably results from accumulation within a Neolithic reed swamp of slow-moving water into which sediments were deposited from the Later Bronze Age or Iron Age onwards when the river's environs were heavily cultivated.

The timber monuments south of Woodhenge

Two large trenches were excavated here, the northern one to investigate a parchmark feature southeast of Durrington 70 round barrow, and the southern one to re-examine the Late Neolithic timber building beneath Durrington 68 round barrow. This structure had been excavated in 1928 and yielded Grooved Ware and animal bone as well as a single cremation burial from one of its two entrance pits.

The Durrington 68 structure was a square setting of four large postholes 1.6m deep, surrounded by a sub-rectangular palisade whose entrance at the southeast end was marked by two 1m-deep pits. Re-excavation in 2007 demonstrated that these pits were later than the palisade and may have served as 'closing deposits' similar to those found within each of the houses excavated at Durrington Walls. It is unlikely that this structure ever had a roof. The postholes of the palisade (holding posts likely to be 2m high) and of the four-poster (with posts likely to be 9m or higher) were too close together for this to be feasible. Preliminary observations of this building's orientation demonstrate that it was aligned on the midwinter solstice sunrise.

The Durrington 70 structure was a rectangular setting of six postholes. Of the two eastern postholes, one contained single sherds of Beaker and Peterborough Ware pottery and the other contained a small piece of burnt daub with its surface still surviving. The post pipes were visible within each of the building's postholes and these appear to have been left to rot *in situ*. The building faced east but not to any direction of likely calendrical significance.

South of Durrington 68 there was the smallest of the three Late Neolithic post buildings. This was a four-poster, with each side broadly aligned on the cardinal points. Its posts had been robbed out.

Further south, a double ring ditch containing a Beaker burial (excavated in 1928) was surrounded by an unevenly spaced circle of large pits which intersected with the outer ring ditch. Several of these were excavated on the ditch's north side and were found to have largely sterile fills. Where stratigraphic relationships survived between them and the outer ring ditch, they predated its digging. The pit on the east side contained a post pipe and there was a human tooth from its upper fill. Whilst this pit circle pre-dates the Beaker funerary monument, we cannot say whether it was shortly before or long before except that sufficient time elapsed for the pits to have silted up.

Later finds included a small Roman inhumation cemetery (including a decapitated burial) within Durrington 67 and a Middle Bronze Age dog burial within the upper silts of the ring ditch of Durrington 68.

The Grooved Ware pottery, flint tools and wood ash from pits beneath 'Woodlands' (Stone 1926) indicate that Late Neolithic activity continued further south along this

chalk ridge beneath the modern houses and gardens of Countess Road. The timber structures – far bigger than ordinary houses – formed a line of ceremonial structures overlooking the River Avon immediately downstream from the Durrington avenue and no doubt any platforms on top of them would have provided dramatic views of the riverside.

The Cuckoo Stone

About 500m west of Woodhenge is the Cuckoo Stone, a squat sarsen boulder which lies on its side. A large trench was excavated around it to reveal the hole, immediately to its west, in which the stone originally sat. The shape of the hole closely matches that of the stone when recumbent and, as with the nearby Bulford standing stone excavated in 2005, it seems most likely that the Cuckoo Stone lay in this position as a natural feature before it was set on end as a standing stone.

Before the Cuckoo Stone was erected, it was removed from the solution hollow which had formed beneath it. A posthole was then dug into the base of the solution hollow. Finally, the stone was set vertically within the hole, replacing the wooden post. Unfortunately there was no dating evidence for this construction sequence but prehistoric features in its close vicinity suggest that this happened before 2000 BC.

West of the Cuckoo Stone there were two Neolithic pits. The most westerly contained pottery, animal bones and struck flints dating to the fourth millennium BC. The other contained antlers and animal bones and probably dates to the third millennium BC.

Around 2000 BC the Cuckoo Stone became a focus for burial; to its south there was a north-south line of three urned cremation burials consisting of an inverted Enlarged Food Vessel and two upright Collared Urns.

The Cuckoo Stone was later the focus for Roman pits and a rectangular Roman building with a slightly sunken floor. Pottery in these features and 15 Roman coins from the ploughsoil date this activity to the third and fourth centuries AD. The building, southwest of the Cuckoo Stone, was supported by north-south lines of postholes along its east and west sides and was most probably a small rural shrine.

The Cuckoo Stone compares well with the Tor Stone at Bulford, about a mile east of the River Avon. In 2005 excavations demonstrated that this stone was similarly associated with an Early Bronze Age cremation burial – in this case a double Food Vessel burial. It too had been raised from its natural recumbent position which was visible as a solution hollow.

The Stonehenge Greater Cursus

Five trenches were dug into the ditch and interior of the west end of this enigmatic 3km-long x 100m-150m wide monument which runs east-west to the north of Stonehenge and southwest of Durrington Walls. The two trenches within the cursus's interior were positioned to investigate geophysical anomalies but there were no archaeological features in them. This confirms the results from earlier excavations

that the cursus interior was essentially a clean space set apart from the Neolithic activity areas to its north and south.

The cursus ditch is 1.6m deep along its west terminal and a 10m-long excavation trench towards its south side revealed a broken-off tine from an antler pick lying on the base of the ditch. This was deposited very soon after the ditch was dug and dates the cursus's construction to 3630-3375 BC.

A further clue to the cursus's date is provided by a sherd from a lugged bowl of Windmill Hill style, dating to the mid-late 4th millennium BC, which was found in the topsoil of the trench excavated into the north ditch. This trench was positioned here to investigate the relationship of the cursus to a NNW-SSE cross-ditch. Unfortunately the cross-ditch did not extend as far as the cursus ditch but excavation of its terminal produced Middle and Later Bronze Age pottery from two recut ditches within its fill. The lowest fill of the ditch is not dated. The north ditch of the cursus was U-profiled and only 1m deep. The 5m-long section investigated appears to be slightly off-line and probably formed one of many short segments which joined up to form the 3km-long ditch. The ditch was cut into by a small pit or hollow after it had silted up.

A 10m-long stretch of cursus ditch was excavated along its south side, immediately adjacent to the excavation in 1947 (Stone 1947) when a bluestone chipping (of sandstone) was recovered from its fill. That excavation had also produced an antler from what appeared to be an embayment on the ditch's south side. The radiocarbon date of this antler places it within the period of Stonehenge's sarsen erection and the settlement at Durrington Walls. In 2007 we were able to show that the embayment was a later feature, cut into the filled-in, U-shaped cursus ditch. We also located another pit about 9m east of it. These and the pit into the north side of the cursus suggest that the monument's ditches were dug into in the mid-third millennium BC, many centuries after its construction. Later on, probably in the Early-Middle Bronze Age around 2000-1500 BC, this southern section of ditch was dug out to form a V-shaped ditch which filled with decalcified loessic soil. The origin of this sediment is not known but it may have derived from wind erosion off surrounding land where the grass cover was broken for the first time, either in stripping turf for building round barrows or in plough cultivation.

The excavations of 2007 not only provide a date for the cursus's construction but also provide evidence for its changing significance in the fourth and third millennia BC. The depth of its west terminal ditch, compared to the shallow north and south ditches, indicates that its east-west axis was the significant direction, corroborated by the monument's alignment at this end on Beacon Hill to the east. In the mid-third millennium that emphasis shifted to a north-south distinction as the north and south ditches were re-dug first as small pits, and later a V-shaped recut was dug along part of its southern side. The pit line, dated by the 1947 antler, may have served to redefine the cursus as a boundary separating the Stonehenge area from the Durrington Walls area.

New light on the bluestones

In 1947 J.F.S. Stone found a group of bluestone chippings just to the south of his trench into the Greater Cursus' south ditch. Petrological re-examination by Dr Rob Ixer has revealed that these are indeed South Welsh bluestones of rhyolite, calcareous

ash and tuff and that the stone from the cursus ditch can be matched with one of the bluestone sandstones from Stonehenge. No Preseli dolerites were present in this surface scatter. One of the rhyolite chippings probably derives from Stone 48 at Stonehenge, though whether it was detached before or after its erection at Stonehenge has not been established.

Re-examination of petrological slides of the sandstone from the cursus ditch and the sandstone Altar Stone from within Stonehenge by Dr Rob Ixer and Dr Peter Turner has revealed that these come not from the Milford Haven area of South Wales, as previously thought, but probably from further east and inland in the Brecon Beacons. This may have a significant impact on the hypothesis that the bluestones were brought south from Preseli to Milford Haven, where other non-dolerite bluestones were picked up, and then were rafted along the coast to the Severn Estuary. Instead, it may be more likely that all the stones were dragged overland eastwards past the Brecon Beacons to a crossing point over the Severn and then taken southwards to Wessex.

Geophysical surveys

The main aim of geophysical survey in 2007 was to complete the large-scale coverage of Durrington Walls and its environs, and to prospect over new areas planned for excavation in 2008.

Resistivity survey was finally completed at Durrington Walls, thereby providing a comprehensive coverage by magnetometry and resistivity across the entirety of this large monument and its surrounds. Although resistivity survey outside the west entrance failed to identify the henge bank with any clarity, when taken together with the topographic survey of the surviving earthwork, it could be seen that the henge bank did not extend as far to the west as has previously been thought. Unfortunately the quantities of ironwork in the soil in this area (used as a WW1 army camp) prevented magnetometry being of any use.

Magnetometry and resistivity were carried out in 2007 prior to excavations around the Cuckoo Stone and south of Woodhenge, as well as at the west end of the Greater Cursus. Although the results provided little further information prior to excavation than was known from parchmark and topographic survey, they confirmed the accuracy of the parchmark survey at the Cuckoo Stone and south of Woodhenge.

In preparation for excavations in 2008, magnetometry and resistivity surveys were carried out at the east end of the Greater Cursus, the southwest end of the Stonehenge palisade, the area immediately in front of Stonehenge and at the 'elbow' of the Stonehenge avenue. The surveys at the southwest end of the Stonehenge palisade were complemented by trials of Chris Gaffney's prototype magnetometer cart. These were very successful and revealed, among other features, a complex of pit-like anomalies to the north of the palisade.

Prof Mike Parker Pearson, Dr Josh Pollard, Dr Colin Richards, Prof Julian Thomas, Prof Chris Tilley & Dr Kate Welham, on behalf of the Stonehenge Riverside Project