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The Structural History of Stonehenge

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Introduction

STONEHENGE, ENGLAND'S BEST-KNOWN PREHISTORIC MONUMENT, was first mentioned in the twelfth century and first illustrated in the fourteenth century. It has been the subject of antiquarian study since the seventeenth century but the factual basis with which to underpin deliberation on its date, development and demise results entirely from a series of excavations conducted in the twentieth century. Although it is known that earlier a number of people had dug at Stonehenge (Chippindale 1983, 117), neither records nor finds survive, so their efforts contribute even less to the understanding of this complex and sophisticated structure than the endeavours of Colt Hoare, Cunnington, and the like, contributed to our knowledge of the surrounding monuments.

The recorded excavations of the twentieth century began in 1901 when, at the behest of the site's owner, Lord Antrobus, Professor William Gowland excavated at the base of the tallest stone (No. 56) so that it could be re-erected. Once the monument had been given to the nation (by Cecil Chubb in 1918), the Office of Works sought to make it safe for visitors by securing more stones in concrete foundations. Between 1919 and 1926, Colonel William Hawley excavated nearly half the monument in advance of this restoration and before non-essential work was halted, being (unfairly) thought to be unproductive. The lack of a detailed publication of the results of Hawley's work and a number of unresolved questions concerning the site's structural history prompted a third series of excavations under the supervision of Professor Richard Atkinson, Professor Stuart Piggott and Dr John Stone. Although this campaign, which started in 1950, was initially small in scale, it grew as further questions were asked of the monument, new discoveries were made, and a decision was taken to re-erect the stones which were known to have fallen in recent history. It continued, intermittently, until 1964. Subsequently, further small-scale work near the periphery of the site has added important new evidence, in particular the work of Professor John Evans on the ditch in 1978, and Mike Pitts adjacent to the Heel Stone in 1979–80.

Throughout this period, a number of excavations have taken place on the Avenue,

the delineated route between the river Avon and Stonehenge, so that its form and relationship to the circle could be established.

Unfortunately, until recently, detail of the observations and finds made during most of the pre-1978 excavations had not been made accessible to archaeologists, despite the overwhelming importance of this unique monument. Although Atkinson (1956, 1979) had published his own lucid explanation of the monument, the evidence from excavations was not presented to substantiate his ideas. However, in 1987, English Heritage sponsored Wessex Archaeology to create a comprehensive archive of excavation records and, in 1993, commissioned an analysis and the publication of a report based on this evidence.

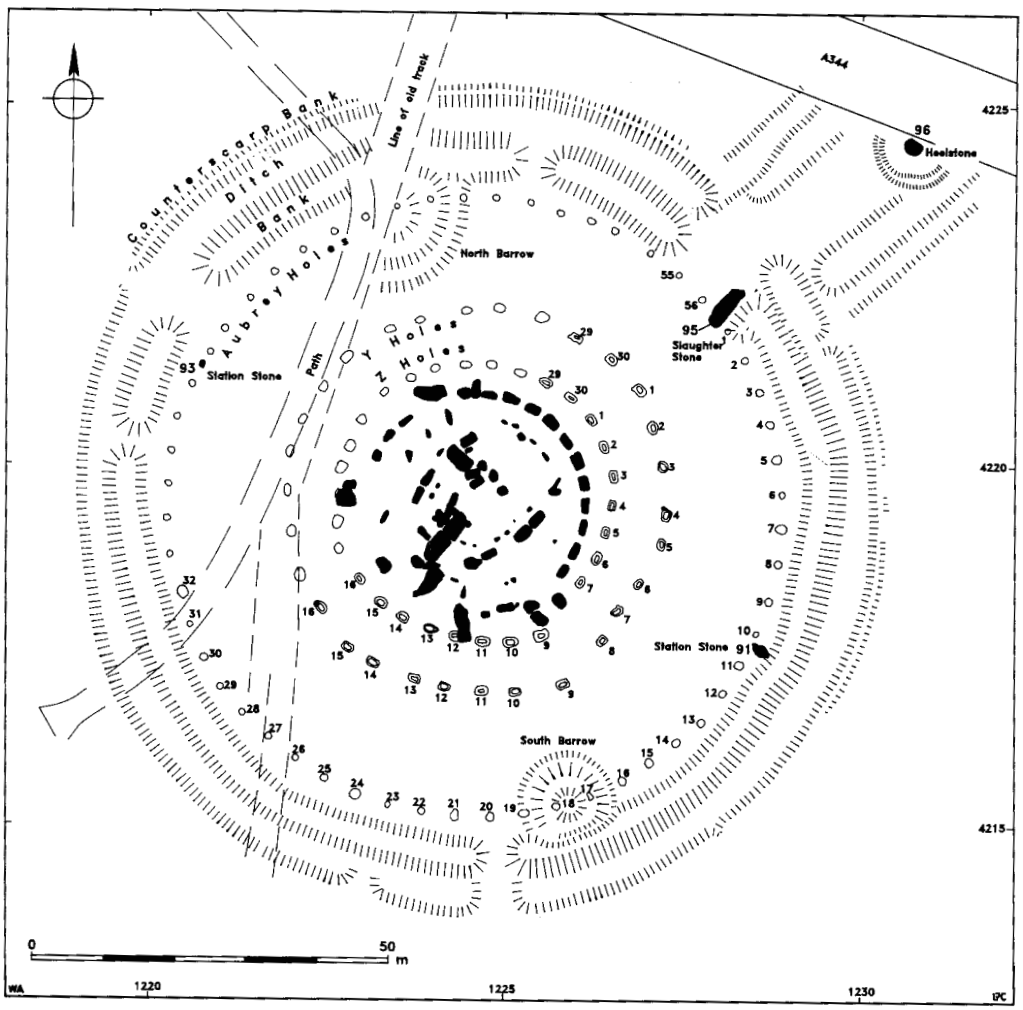

Figure 1. The major components of Stonehenge (after Cleal *et al.* 1995, fig. 13).

The results have already been published (Cleal, Walker and Montague 1995), but such is the magnitude of the report that this account can only be a *précis* of it.

Despite the achievements of the report's team, the nature of the surviving records and, indeed, of the monument itself, leave uncertainties in the conclusions: some accounts have been lost, many finds were not retained, certain records cannot be reconciled and in notable instances, no descriptions were made at the time of excavation. Because of the concentric nature of Stonehenge (Fig. 1), stratigraphical sequences built up at the centre cannot be related directly to those at the periphery. Nonetheless, new analysis aided by a large suite of radiocarbon dates (Bayliss, this volume) has enabled a new phasing of the monument to be defined.

Since the pioneering work of Stukeley in the early eighteenth century, archaeologists have appreciated that Stonehenge is merely one component of a wider landscape burgeoning with other prehistoric monuments (Fig. 2). The long history of investigation of these sites has provided a rich source of information, both archaeological and environmental, which enables us to consider how Stonehenge, during its various phases of elaboration, related to its neighbouring monuments.

Excavations on the site of the nearby visitor car park and access underpass, as well as recent geophysical surveys (David and Payne, this volume), illustrate the potential of the area to contain surprising remains of many periods even in close proximity to Stonehenge.

Importantly, the Stonehenge Environs Project commissioned from Wessex Archaeology by English Heritage, and directed by Julian Richards (1990) between 1980 and 1984, has provided a wealth of information, not only from other earthwork structures but from the land between. This research continues and evaluation fieldwork in advance of possible alternative locations for a visitor centre and for roads has provided considerable new evidence. Combining the plethora of data from the surrounding landscape, with the newly available record from Stonehenge, has enabled the authors of the latest Stonehenge volume to consider the monument in a much better-known, wider context.

Before Stonehenge

The landscape which was later to contain Stonehenge bore witness to both environmental change and monument construction during the millennia before the construction of the stone circle.

The oldest available holocene records suggest that, at that time, the local vegetation probably comprised an open hazel and pine boreal woodland, possibly with denser deciduous cover in the river valleys and a patchwork of natural open areas on the drier upland (Allen, this volume). The evidence for the exploitation of this vegetational 'coarse mosaic' by Mesolithic people is sparse, although a few characteristic flint (and chert) artefacts were recorded by the Stonehenge Environs Project (Richards 1990, 263) or had previously

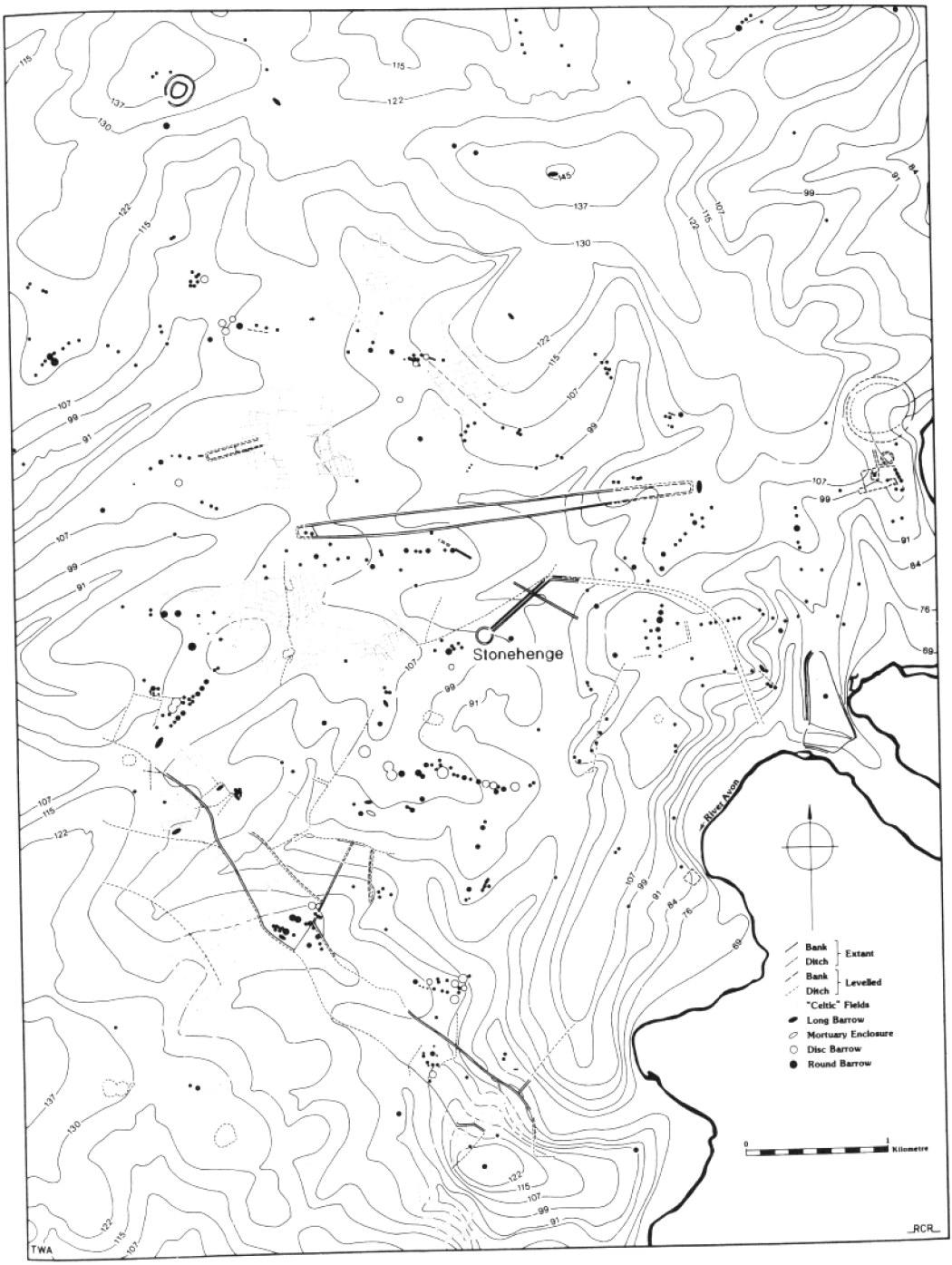

Figure 2. Prehistoric monuments close to Stonehenge (after Richards 1990, fig. 3).

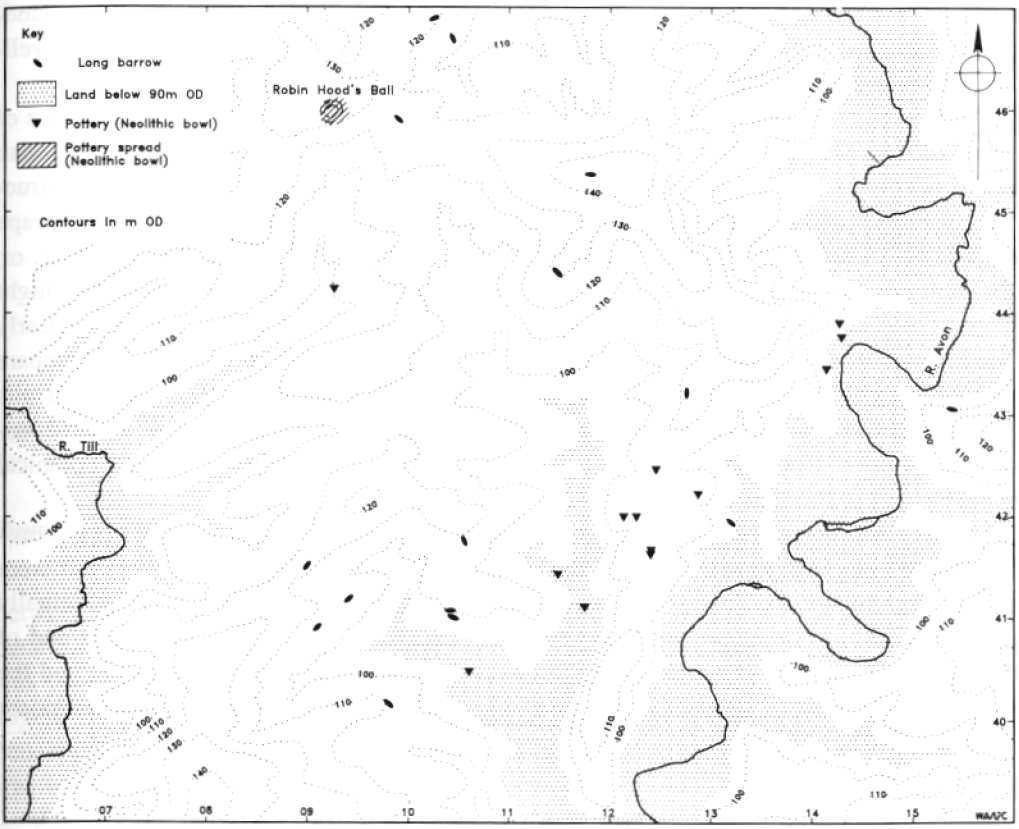

Figure 3. Early Neolithic sites in the Stonehenge area (after Cleal *et al.* 1995, fig. 33).

been reported (Wymer 1977, 263). Subsequent re-examination of some of these artefacts suggests that several of them are later in date (J. Gardiner, pers. comm.) and, in consequence, the Mesolithic evidence is even more sporadic than one might hope. Nonetheless, within the area which now forms the visitors' car park, four pits were dug, at least three of which held substantial pine posts (Allen, this volume). Dated to the late ninth or early eighth millennium BC (Bayliss, this volume), such constructional activity is extremely rare in British prehistory and it is difficult to imagine what continuity of tradition, if any, can link the erection of these Early Mesolithic posts with the much later sites close by.

A number of radiocarbon dates relating to sites within proximity of Stonehenge span the fourth millennium BC. Although these sites represent considerable activity prior to the initiation of Stonehenge, a hiatus in the archaeological and environmental record currently exists between the eighth and fourth millennia during which the vegetational cover was dramatically altered. The flint tranchet axes recovered from the area are the sole witness to what must have been a concerted policy, started in the Later Mesolithic

to clear woodland, because by the time Stonehenge was started, the surrounding landscape already contained degraded rendzina soils (Richards 1990, 108) supporting a well-established open grassland, probably maintained by grazing animals.

The earliest traces of Neolithic activity, identified most easily from the occurrence of plain pottery, are recognised from isolated individual, or small clusters of pits, but also from collections of lithic artefacts. The meagre evidence suggests that prior to the construction of earthen monuments, domestic activities occurred whose signature in the landscape is difficult to detect, yet is recurrently of a similar nature. As elsewhere in Wiltshire, or, for example, in Dorset (Woodward 1991, 133) pits with no cohesive pattern which might suggest regular structures are found in a variety of locations, some pre-dating Early Neolithic monuments, for example at Robin Hood's Ball (Thomas 1964, 8–10; compare with Windmill Hill (Whittle 1990, 27) or Maiden Castle (Sharples 1991, 49)). Other pits such as the Coneybury 'Anomaly' encapsulate evidence for 'both mobile and more sedentary economies' (Richards 1990, 263) through a wide range of animal bones, botanical remains, and associated artefacts.

Communal monuments including long barrows (e.g. Netheravon Bake), enclosures (Normanton and the Lesser Cursus) and a causewayed camp (Robin Hood's Ball) were created throughout the fourth millennium, possibly in a series of recognised 'habitually used' areas across the downland between the rivers Avon and Till, so that by the end of the fourth millennium, the area already contained a concentration of monuments, and the landscape had been recognisably patterned to serve the varied daily and spiritual purposes of its users (Fig. 3).

Phase 1

The first monument created at the Stonehenge site comprised the enclosure ditch, visible today as the shallow circular depression some 110 m in diameter, surrounding the later stones (Fig. 4). This ditch was dug as a series of inter-connecting segments, 28 of which can be distinguished in the south-eastern half of the circuit excavated by Hawley (a further three were excavated in the northern part). They were irregular both in plan and form, varying in depth between 1.2 m and 2.3 m below ground level and with a maximum width of 4.3 m. Three intentional breaks, or entrances, into the enclosure can be noted: the widest gap, probably originally about 13 m wide exists in the north-east, while a narrower causeway, originally about 5 m wide between Segments 17 and 18 exists in the south, and a probable third, originally perhaps 4 m wide between Segments 21 and 23, later rendered void by the digging of a 0.9 m wide pit across it (designated Segment 22).

The chalk rubble derived from the ditch was mainly cast *inwards* so as to form a bank between 5 m and 6 m wide. Atkinson (1979, 25) had calculated that although the bank is today much reduced by truncation, erosion, compaction and solution, it was possibly 1.9 m high when first constructed, thus effectively forming a visual barrier

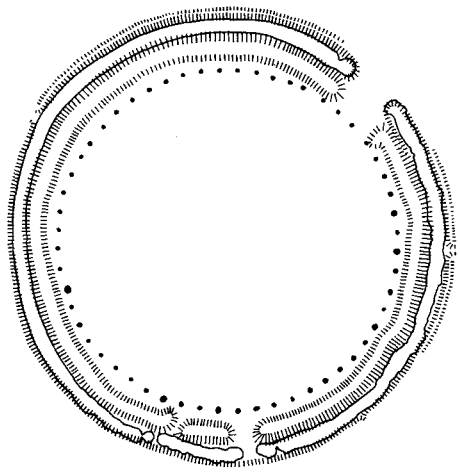

Figure 4. Stonehenge Phase 1.

between the inside and outside of the enclosure. Little can be said of the structure of the bank because it has only been examined in three places and on each occasion its remnant was poorly preserved, normally only about 0.5 m of chalk rubble surviving. However, augering suggests that, in the western part of the monument at least, a buried soil survives beneath it, which contains pollen indicative of the grassland within which the monument was built (Allen, this volume).

Outside the ditch, traces of a counterscarp bank can be seen, especially in the north. Thin layers of chalk rubble and flint nodules, the surviving remnant of this feature, have been observed both during augering and in the two places it has been sectioned, but without further evidence it is difficult to place it in the sequence of construction of the earthworks. Although the counterscarp bank may derive from a later modification of the ditch (such as the breaking down of undug chalk 'ridges' between ditch segments, or partial emptying of primary fill), it is probably an early, if not primary feature of the enclosure.

The digging of the ditch is now unequivocally dated by radiocarbon dates to about 3000 BC (Bayliss, this volume). These dates are based on material left on the floor of the ditch, which included antlers and bone, but considerable quantities of flint debitage (little of which was retained after excavation by Hawley) and occasional chalk objects were also left. Concentrations of such finds have been identified at the ditch terminals either side of the entrances. Here the finds include an ox skull and cattle jaws, from which radiocarbon dates, statistically significantly earlier than other dates from the base of the ditch, have been obtained. These dates imply that ancient material occurred in these deposits possibly indicating a special significance of this 'curated' material, or of its location adjacent to the entrances, in some form of 'structured deposition'.

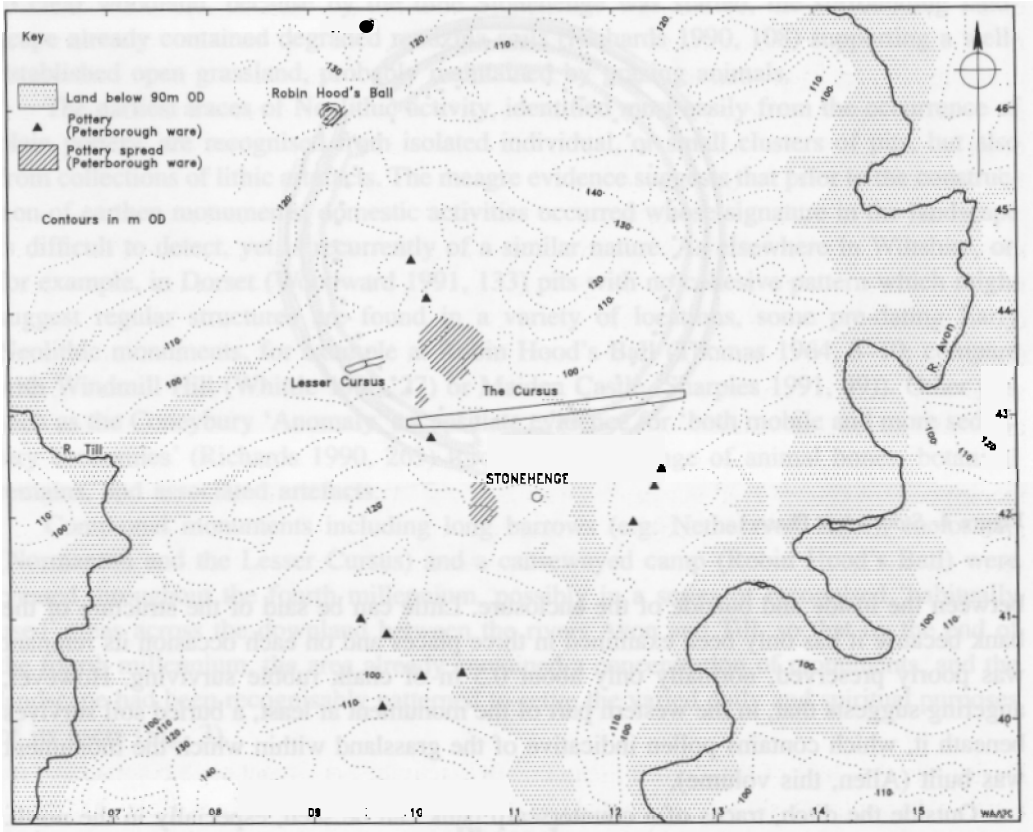

Figure 5. Middle Neolithic sites in the Stonehenge area (after Cleal *et al.* 1995, fig. 35).

The earliest soil deposit on the base of the ditch was a thin layer of 'foot-trampled mud' which soon became covered by a primary chalk rubble resulting from the weathering of the ditch sides, and a dark layer, representing a weak soil formation (Evans 1984, 10) and anthropogenic activity, formed once the weathered ditch profile had become more stable.

The internal tail of the bank was marked by a ring of 56 circular pits, each on average 1 m in diameter and 0.9 m deep, set between 4.5 m and 4.8 m centre to centre and describing a circle 87 m in diameter, or nearly 5 m within the median line of the ditch. Thirty-four of these 'Aubrey Holes' have been examined during the twentieth-century excavations.

The recorded fill of the Aubrey Holes is so varied as to make conclusive statements about their original purpose difficult. However, the weight of evidence both from Stonehenge and by analogy with other Neolithic monuments, favours the interpretation that they originally held stout timber posts which were subsequently deliberately removed

either by extraction or by burning. The dearth of distinctive artefacts from the primary fill of the Aubrey Holes and lack of direct stratigraphic relationships with other elements of the monument mean that their place in the structural sequence has not been confirmed. Nonetheless, their symmetry which shares the same centre as the enclosure, and the date of their secondary use (below) strongly support the notion of a primary function in the first phase of activity at Stonehenge.

At the start of the third millennium BC the newly-created enclosure was not the only sign of Middle Neolithic activity within the landscape (Fig. 5). The Lesser Cursus had been modified and the enigmatic longer Cursus had probably been created. Discoveries of Peterborough Ware pottery on ridges and elevated areas on most sides of Stonehenge (King Barrow Ridge, Wilsford Down, and Stonehenge Down) are evidence of activity albeit that the exact nature of this activity cannot be ascertained due to the lack of finds and closely-associated structures.

The Stonehenge enclosure itself cannot be classified comfortably as a henge monument, nor as a causewayed enclosure although both in proportion and date it is comparable to late examples of the latter (e.g. Flagstones; Smith *et al.* 1997). It is perhaps best seen simply as an example of the variant forms of circular enclosure current at the time.

Phase 2

During the first half of the third millennium BC, activities at Stonehenge commenced in a rather destructive fashion. As noted above, the posts set into the Aubrey Holes had been removed and now parts of the bank may have been cast back into the ditch in a number of places. Elsewhere the ditch silted naturally, the distinction between backfill and silt obviously being evident, as Hawley related for Segment 1: 'The rubble layer was still present.... but under it, instead of silt, there was clean white chalk....' Clean chalk backfill was not restricted to the segments either side of the entrance, but was clearly present in at least three other segments and clearly deliberate backfilling of the ditch occurred soon after the primary ditch fill had formed. In two places (Segments 7 and 17) the silts contained sherds of Grooved Ware: elsewhere it appears to have been cut into from time to time to place deposits including cremation burials which were also cut into the previously-refilled Aubrey Holes. Eight of these cremation burials were accompanied by bone pins, antler, bone, chalk or ceramic objects. It may also be that many of the other cremation burials found cut into the back of the bank or in the interior also belong with this activity. In all 52 cremations were reported, such a significant number that the site during this phase might be regarded as a cremation cemetery.

Attributed to Phase 2 are a large number of post-holes, forming a rectilinear arrangement at the main entrance, probably a transverse line beyond that entrance, a concentration in the centre, and a 'passageway' in the south (Fig. 6). The majority of these have

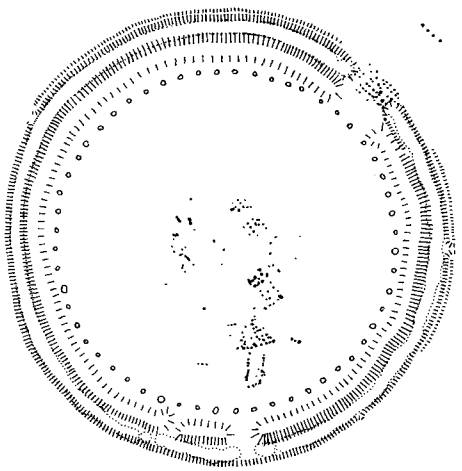

Figure 6. Stonehenge Phase 2.

no stratigraphic relationship with other elements of the monument, but where such exist, the post-holes are almost invariably the earliest. Dating is made more problematic by the absence of finds or radiocarbon determinations from their fills, but the very absence of stone chips resulting from the working of structural stones helps to confirm the view that they precede the presence of any of the stones.

It is possible to discern several elements to the array of 55 post-holes at the entrance, namely, at least six transverse rows, at least nine radial rows and a diagonal row of slightly larger posts. The smallest post-hole was 20 cm in diameter and only 10 cm deep while the largest was 63 cm in diameter and 66 cm deep. A few post-holes were juxtaposed but the majority were spaced roughly 1–1.5 m apart. Various interpretations have been offered for these settings, some suggesting a gateway building while others prefer to see them as defining passageways demarcated by free-standing posts.

Some 16 m beyond the outermost row of entrance posts stood another line of posts, four of which were excavated in 1923. These were set at 2 m intervals and varied in diameter from 58 cm to 71 cm and in depth from 46 cm to 83 cm. The full length of this row may not have been defined because its projection lies beyond the limits of excavation.

Between the narrower, southern, entrance and the centre of the enclosure Hawley recorded more than 80 post-holes, some arranged in rough rows, possibly forming a short 'facade' and a 'passageway' of two parallel rows with furrowing of the chalk between. These are not as regular as the rows at the main entrance and the form of structure or superstructure they may once have supported must remain conjectural.

A further 113 post-holes have been recorded within the interior area, but any regular

pattern is impossible to reconstruct due to the limits of excavation and the subsequent digging of stone-holes.

To this evidence of timber structures within the enclosure must be added consideration of the palisade discovered in 1967 during the construction of the modern pedestrian underpass beneath the A344 some 75 m north-west of the enclosure earthwork. The palisade appears to have been constructed of contiguous timber posts *c*.0.4 m in diameter set in a V-shaped trench *c*.1.4 m deep and 2 m wide at the surface of the chalk. Unfortunately, no dating evidence was recovered from the excavated length although the upper part of the ditch contained soil layers cut by a crouched inhumation of Iron Age date. The palisade trench can be traced on aerial photographs from Stonehenge Down in the south-west to near the Cursus in the north. It has twice been sectioned in Stonehenge Bottom with inconclusive results. Whatever its precise date, it must have formed a formidable barrier, and if it is of Late Neolithic date, it transforms our view of the setting of Stonehenge, a large barrier separating it from the domain to the north-west.

Phase 2 is perhaps the most difficult in the structural sequence in which to see cohesion. The cremation cemetery lacks radiocarbon dates but is best dated by analogy with sites such as Dorchester-on-Thames (Whittle *et al.* 1992). Similarly the post-holes contain no datable objects, but their arrangements are best compared to timber structures within henge monuments such as Durrington Walls (Gibson 1994), and the palisade beyond the monument to those at West Kennett (Whittle 1991).

Mathematical modelling of the available radiocarbon dates indicates that the secondary fills of the ditch took between 400 and 730 years to develop, the period constrained by the dates of the formation of the dark soil above the primary chalk rubble fill and of a Beaker-style grave of Phase 3 cut into it. These dates suggest placing Phase 2 between 2900 and 2400 BC or within the Late Neolithic when Grooved Ware was the dominant ceramic, and henge monuments are the best known example of communally-constructed monuments.

Locally, the largest monument in the landscape was Durrington Walls, 3 km north-east of Stonehenge. The intervening chalk ridge (King Barrow Ridge) continued to be a focus of activity as not only the discovery of Grooved Ware pottery and other artefacts shows, but also as the construction of the now plough-levelled Coneybury Henge, 1 km east of Stonehenge attests (Fig. 7). One senses, however, that the currently-available archaeological evidence for this phase is restricted and as research continues, spatial gaps will be filled by the traces of complex structures (as at West Kennett; Whittle 1993, fig. 8), smaller structures (as at Coniger Hill, Dorchester; Smith *et al.* 1997), or further nebulous pits.

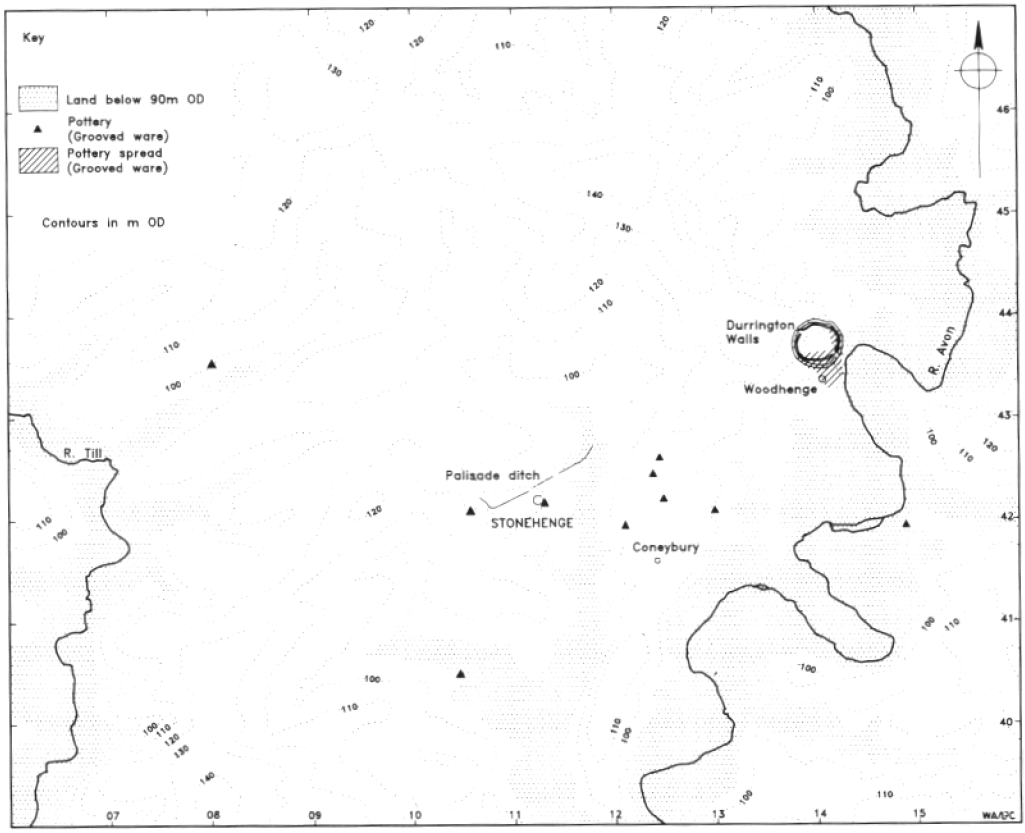

Figure 7. Late Neolithic sites in the area (after Cleal *et al.* 1995, fig. 57).

Phase 3

If Phase 1 sees the construction of the earthwork enclosure and Phase 2 the timber structures, Phase 3 embraces all the stone structures albeit that the central elements (assigned Sub-Phases 3i-v) are difficult to equate chronologically with stones at the periphery (Sub-Phases 3a-c) (Fig. 8). Both within the interior and at the periphery (*viz.* around the Heel Stone) some stratigraphic relationships exist to demonstrate localised sequences but nowhere can either synchroneity or a full diachronic sequence be demonstrated. Nonetheless, as earlier authors have attempted, as a result of the re-appraisal of the surviving excavation records a more or less contiguous succession of modifications can be postulated.

Sub-Phase 3i

The earliest stone monument comprises a setting whose form is incompletely known, but is recognised in the dumbbell-shaped stone-holes (the Q and R Holes) dug to hold pairs

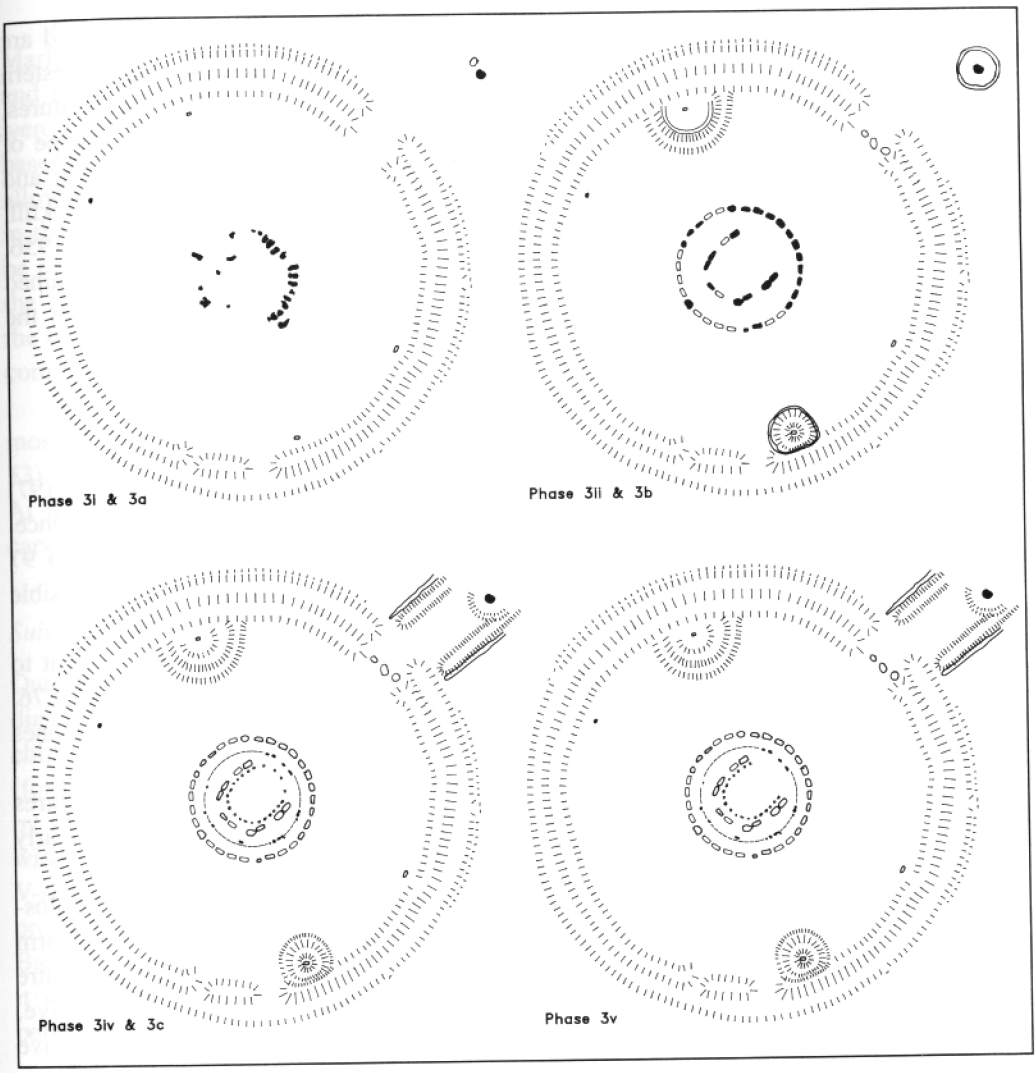

Figure 8. Stonehenge Phases 3i-v (after Cleal *et al.* 1995, figs 256–7).

of 'bluestones'. Analysis has demonstrated that the 'bluestones' which remain at Stonehenge are derived from at least ten different sources within the same restricted area of South Wales, at or near Mynydd Preseli (Thorpe *et al.* 1991). In the absence of any convincing evidence for a west to east glaciation beyond the Bristol Channel (Green, this volume), it must be concluded that the stones were transported by people from South Wales to Wiltshire.

This first stone monument appears not to have been circular or symmetrical, but lying

just within the north-eastern half of the circuit of the later stone circle is a flattened arc of some 16 chalk-filled features. No similar array of pits was located in the south-western half of the monument, although on stratigraphic grounds five or six further features, including one crescentic in plan, may be attributed to the setting. The size and shape of the Q and R Holes varies but, for example, Q/R Hole 5 is typically *c.*2 m long and slightly more than 0.5 m deep; atypically, it contained two Beaker sherds in its backfill, whereas the others are almost devoid of finds. According to the excavator (Atkinson 1956, 58), stone impressions were visible on the bottom of each pit, some of which retained minute chips of the 'bluestones'. Stratigraphically, the Q-R Holes are earlier than the 'bluestone' and sarsen circles currently standing.

Sub-Phase 3a

In the localised stratigraphic sequence outside the main entrance, a large stone-hole (97) 1.75 m across and 1 m deep, excavated by Pitts in 1979 is the earliest in the sequence. The sarsen Heel Stone stands 2 m to the south and may have formed a partner to 97 standing obliquely across the axis of symmetry of the monument. Alternatively, it is possible to suggest that the Heel Stone is the later re-positioned Stone 97 (in Sub-Phase 3b).

Just within the main entrance, the recumbent sarsen Slaughter Stone lies adjacent to two large stone-holes (D and E) and may itself cover a further stone-hole (Long 1876, 56, 85). Hence it appears that there may have been a facade of as many as three stones enhancing the entrance previously constrained by the timber structure.

In the general area between the Heel Stone and the entrance are a number of features including a further possible stone-hole (B). It therefore remains possible that at an early stage some form of stone alignment may have marked the approach to Stonehenge.

Four more sarsen stones known as the Station Stones formerly stood within the enclosure just within the bank and roughly on the line of the earlier Aubrey Holes. They form an approximate rectangle whose long side is at right angles to a line between the centre of the enclosure and the entrance. Only two of these small stones (Nos 91 and 93) survive, although the sockets for the other two (Nos 92 and 94) have been located. No finds have been recovered to help attribute the Station Stones to a precise position in the monument's sequence.

Sub-Phase 3ii

Thirty dressed stones set upright to form a Sarsen Circle were linked by horizontal lintels with carefully-worked joints. This Circle surrounded five free-standing sarsen Trilithons, each with two uprights and a lintel, set in a horseshoe plan which lay symmetrically about an axis which passed the Heel Stone. Jointly these spectacular edifices once formed the most sophisticated prehistoric monument in northern Europe. Much of this structure remains as the most dominant feature of Stonehenge today.

The stones of the Sarsen Circle, which had probably been brought from the Marlborough Downs some 30 km to the north were set in chalk-cut pits up to 3 m across and 1.5 m deep, 18 of which have been investigated in some form. Similarly, the Trilithons were set in deep pits: with the exception of one Trilithon (with uprights 51 and 52), the bases of all have been investigated. The depth of the stone-holes was extremely variable, allowance being made for the variable lengths of the stones and the requirement, especially in the case of the Circle, for raising the tops to a level which would enable the lintels to be perfectly horizontal. Hence, at one extreme, that for Stone 58 was cut barely 1 m into the chalk while at the other extreme, that for Stone 56 was more than 2.1 m deep from the current surface. Archaeological finds from these stone-holes are extremely restricted, comprising only worked chalk, stone and antler.

At least eight of the sarsen stones are thought to have prehistoric carvings. Those most clearly visible (on the outer faces of Stones 3 and 4 and the inner face of Stone 53) are representations of unhafted axe blades, probably indigenous flanged bronze axes. At least one carving (on Stone 53) represents a dagger. It seems most likely that these carvings were added after the erection of the stones.

Sub-Phase 3b

Outside the entrance the Heel Stone was surrounded by a roughly circular ditch 10 m in diameter, about 1.1 m wide and 1.2 m deep. The fill of the ditch includes 'bluestone' chips and, hence, was probably forming when the internal orthostats were being reworked (for their settings in Sub-Phase 3iii or iv). Two of the Station Stones are also surrounded by circular features: Stone 94 by a ditch probably about 10–12 m in diameter, *c.*1.1 m wide and 0.9 m deep with an external bank, and the former Stone 92, by an irregular V-shaped ditch *c.*11 m in diameter, 0.5 m wide and 0.4 m deep, the quarried material probably having been thrown inwards. These features, the 'North Barrow' and 'South Barrow', respectively, clearly post-date the main enclosure bank and Aubrey Holes and it would not seem unreasonable to suggest contemporaneity in the additions to all three peripheral stones.

The flexed skeleton of a young man apparently killed by arrows and accompanied by Beaker-style grave goods was discovered in the ditch by Evans (1984) in 1978. Within the fill of the grave were fragments of 'bluestone'. This grave is important in providing a point of transition from Phase 2, identified with the clean secondary fill of the ditch, and Phase 3 when the stones were clearly present on the site. The ditch obviously remained to demarcate a central area and was not yet fully silted because the uppermost fills contain broken fragments of 'bluestone'. The fact that similar fragments also occur in the grave fill indicates, like the Heel Stone ditch, that it is contemporary with or later than the scattering of 'bluestone' fragments during the working of the orthostats. Five radiocarbon dates from the skeleton suggest an age of 2400–2140 cal BC.

Sub-Phase 3iii

A series of features has been identified in the west sector of the monument which are stratigraphically earlier than the final setting of the 'bluestones' (below). They are devoid of finds and do not appear to form a coherent pattern and, indeed, may not all be precisely contemporary. Nonetheless, they may form part of a setting not obvious elsewhere in the site which included several of the 'bluestones' reworked to form at least two trilithons. It has long been noted that the final 'bluestone' settings re-use two lintels (Stones 36 and 150), three uprights with reduced tenons (Stones 67, 69 and 70), and two stones with a lateral tongue (Stone 66) or groove (Stone 68) but the intended position of these, if, as presumed, was at Stonehenge, has not been resolved. However, it would seem reasonable to suggest that the technically-similar trilithons of sarsen and 'bluestone' stood together.

Sub-Phases 3iv and 3v

These sub-phases comprise a reorganisation of the 'bluestones'. It is suggested that contemporaneously they were re-erected as a continuous circle between the Sarsen Circle and the Trilithons (possibly the original number of stones being supplemented by additional stones), and as an oval of 23 'bluestones' within the Trilithon horseshoe. Subsequently (Sub-Phase 3v), at least four of these 'bluestones' were removed so that a horseshoe matching the Trilithon setting was created. Within the oval/horseshoe there may also have been individual or paired stones. One of these, the Altar Stone, currently lies prone beneath the collapsed central Trilithon. This may have had a pair, while a further stone stood at the other end of the oval.

Originally, there may have been more than 70 'bluestones' in the circle. Many stood in individual sockets, but in some areas, there appears to have been economy of effort and a more continuous trench to hold several adjacent stones was dug. Typically, the base of the 'bluestone' was between 1 m and 1.5 m below the current ground level.

Sub-Phase 3c

The latest element identifiable stratigraphically at the entrance is the construction of the Avenue, its banks overlying post-holes and the Heel Stone Ditch, the fill of which contained 'bluestone' chips. At its junction with the earlier enclosure, the external ditches are 21.5 m from centre to centre with low banks on their internal edges, but by the time the Avenue reaches the river Avon, some 2.8 km distant, it is 34.5 m across. Only the straight 530 m-long section between Stonehenge and Stonehenge Bottom and a short stretch after its bend in the dry valley are now visible although its course was recorded by Stukeley in the eighteenth century and re-discovered through aerial photography by Crawford in 1921.

There has been a total of twenty investigations of the Avenue between 1919 and 1980.

Seven of these have produced finds including pottery, animal bone and antler, the latter being used to produce six radiocarbon dates which demonstrate broad contemporaneity with Phase 3.

Sub-Phase 3vi

Two concentric circles of pits were identified by Hawley outside the stone circle. The inner circle of Z Holes, each 1 m deep and *c.*1.75 m by 1.5 m, lay approximately 3.7 m beyond the Sarsen Circle while the matching ring of 30 Y Holes, each 0.9 m deep and 1.7 m by 1.0 m, lay 11 m from the stones. Seventeen Z Holes and 19 Y Holes have been excavated, at least two of the former being shown to cut stone-holes of the Sarsen Circle.

With the exception of a small stack of antlers in Y Hole 30, there are few finds from the primary fills of these pits, although they appear to have remained open for some considerable time, allowing objects of a wide date range to accumulate in them. It is possible that this final discernible phase of structural activity at Stonehenge was activated with the intention of a further modification to the stone settings, and judging from the scale of the pits, to receive 'bluestones'. However, it appears that this was never realised.

The chronology and duration of the various phases of the stone settings throughout Phase 3 are difficult to resolve because of the small quantities of archaeological finds recovered. In consequence, little suitable material is available for radiocarbon dating. However, 16 new determinations for the monument and two for the Avenue have been obtained (Bayliss, this volume) with the result that certain events can be placed in a sequence on the basis of these dates: *viz.*

Sarsen Circle	(sub-phase 3ii)	2850–2480 cal BC
Entrance Stone-hole E	(3a)	2480–2200 cal BC
Burial in the ditch	(3a)	2400–2140 cal BC
Sarsen Trilithons	(3ii)	2440–2100 cal BC
'bluestone' Circle	(3v)	2280–2030 cal BC
'bluestone' Horseshoe	(3v)	2270–1930 cal BC
Z Holes	(3vi)	2030–1750 cal BC
Y Holes	(3vi)	1640–1520 cal BC

The dates from the Avenue are not precise but confirm that it was constructed during Phase 3.

Nevertheless, practicality would suggest variations to this sequence: for example, that the Sarsen Trilithons were erected at least before the full circuit of the Sarsen Circle was completed.

The duration of Phase 3 appears to have been long, and while Stonehenge may represent continuity of site use despite its modification, contemporary material culture and monumentality changed considerably. The early structures of Phase 3 may have been contemporary with Woodhenge and the end of the Neolithic traditions it represented, but Grooved Ware was replaced by Beakers and round barrows became the dominant funerary

monument. Metalwork was introduced and joined grave goods in some of Britain's most fancy Early Bronze Age barrow cemeteries.

The results of the Stonehenge Environs Project suggest areas of secular activity to the west (on Stonehenge Down, near Fargo Plantation and near Winterbourne Stoke Crossroads), while a discerning review of grave goods from the round barrows which crowd both near and far horizons demonstrates a gradual encroachment of ritual activity on the monument (Fig. 9). For example, the Beaker burials towards the western end of the Cursus Barrows are not as obvious as the mainly Wessex Culture burials of the more prominent, eastern end, and on Normanton Down, the prominent, skylined cemetery is also mainly Wessex Culture, with the Beaker barrow, Wilsford G1 not noticeably sited (Cleal *et al.* 1995, 490).

Wherever buried soils have been examined beneath Early Bronze Age monuments in the vicinity, they invariably attest short grazed, well-established grassland (Allen, this

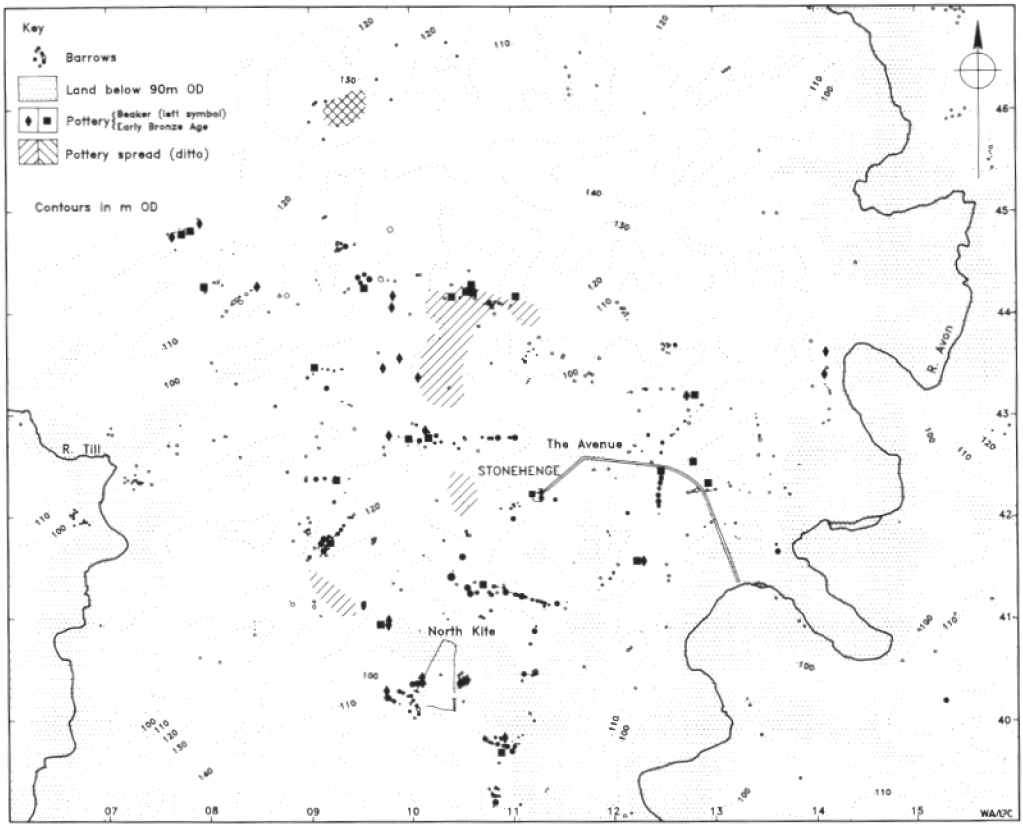

Figure 9. Early Bronze Age sites in the Stonehenge area (after Cleal *et al.* 1995, fig. 78).

volume). However, the wider archaeological record implies that arable farming and the production of grain must have been practised, presumably in unenclosed fields, within the vicinity, albeit that this has not been located. Formalised field systems may not yet have been established, but enclosure had commenced as the Wilsford North Kite shows.

The final structural activity at Stonehenge appears to have been the digging of the Y and Z Holes. Thereafter, the monument was undoubtedly visited, but there is little evidence that it played an important role. During the Middle Bronze Age, settlements were established to the west (Fargo Wood) and formalised field systems laid out, covering earlier monuments (the Cursus) and incorporating others (Cursus Barrows) (Fig. 10). The outlook from Stonehenge was irrevocably altered, so that secular activity now fell within the gaze of the sporadic visitors to Stonehenge, although doubtless the monument itself continued to be held in some esteem guaranteeing its survival to the present day (Fig. 11).

Figure 10. Later Bronze Age sites in the Stonehenge area (after Cleal *et al.* 1995, fig. 187).

Figure 11. General view of Stonehenge in 1994 from the east (Photo: E.A. Wakefield).

Retrospect

The outline of the structural history of Stonehenge and its contemporary landscapes given above results from an analysis of the available records from all twentieth-century excavations at the site, a new suite of reliable radiocarbon dates and the results of both excavations and fieldwork in the surrounding area. Our understanding of the subtleties of the complex sequences of prehistoric events within the World Heritage Site continues to develop as each new piece of evidence becomes available. It is, therefore, not surprising that our perception of the evolution of Stonehenge and its setting is somewhat different now than even a decade ago.

The principal differences between the newly-published phasing of the constructional sequence at Stonehenge and that proposed by Atkinson (1979) are:

- the conclusion that (in Phase 1) the Aubrey Holes probably held timber posts

- the recognition that in places the deliberate backfilling of the enclosure ditch occurred very early in the sequence, soon after the primary fill had formed
- a greater emphasis on the importance of the timber structures especially within the centre of the monuments (Phase 2)
- the partial backfilling and secondary fill of the ditch (during Phase 2) precedes the introduction of the 'bluestones' (Phase 3), the chips previously attributed to this fill being recognised as inclusions in an intrusive Beaker-style burial
- the demonstration that the Avenue belongs in its entirety with Phase 3, following the introduction of 'bluestones' and that its construction is largely unrelated to earlier episodes of backfilling at the entrance
- the recognition of three orthostats within the entrance during Phase 3. (Not, as Atkinson suggested, two stones in Phase 1)
- the identification of 'bluestone' settings on the west side of the central area (Phase 3iii) pre-dating the later central 'bluestone' setting
- the rejection of an intermediary 'bluestone' oval (Atkinson's IIIb) which was removed and replaced on the same line by the existing horseshoe (Phase IIIc). Instead, suggesting the interpretation of these stone-holes as part of a central 'bluestone' oval (Phase 3iv) and the subsequent removal of the four widely spaced stones in the north-east to leave a horseshoe (Phase 3v)
- the demonstration that a number of sarsen stones were decorated after they had been erected
- the Y and Z Holes are unrelated to the intermediary 'bluestone' oval (IIIb) and are in places the final, uncompleted modification.

The picture (Fig. 12) is not static, however, and new evidence continues to be gleaned whenever the opportunity presents itself; for example, from the evaluation of potential roadlines or construction sites. Doubtless as investigations continue in pursuit of the research aim of fully understanding human activity within this restricted but significant part of Britain, the complexion of the picture will gradually change.

Acknowledgements

This short paper is only a summary and cannot accurately reflect the strenuous and dedicated work undertaken by a team of researchers at Wessex Archaeology. The publication of the major report in 1995 was achieved under the project management of Dr Julie Gardiner, the monitoring of Sue Davies, and the writing skills of Dr Ros Cleal, Karen Walker, Rebecca Montague, Dr Michael Allen, as well as Julie Gardiner herself, supported by Linda Coleman, Elaine Wakefield, Phil Harding, and Jackie McKinley, amongst others. Wessex Archaeology's work could not have been completed without the full financial support of English Heritage and other major contributions, primarily through the Ancient Monuments Laboratory. Every possible assistance was offered by Salisbury and South Wiltshire Museum as well as other holders of archival material. My deepest gratitude

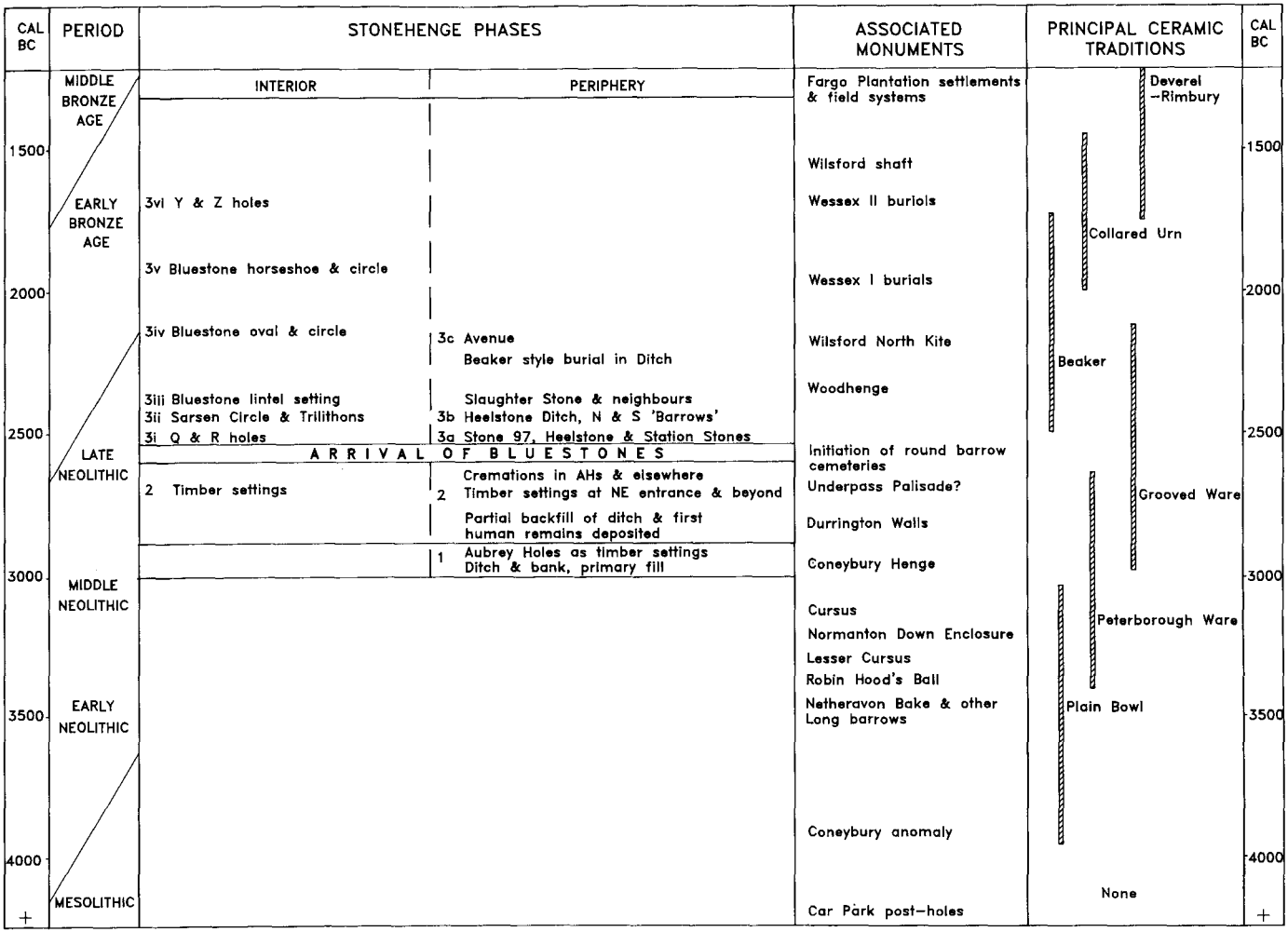

Figure 12. Correlation of phases of structural activity at the periphery and in the interior of Stonehenge with the generalised date of associated monuments in the landscape and the principal ceramic traditions represented in the archaeological record.

goes to all those involved in the project, not least Professor Geoffrey Wainwright, who made sure it all happened.

Though his health was failing, the late Professor Richard Atkinson never lost interest in Stonehenge. I am grateful to him for sharing some of his thoughts on the subject. Similarly, the late Professor Stuart Piggott's memory of his involvement with Stonehenge has been of the greatest interest.

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Abstracts

COLIN RENFREW

Setting the Scene: Stonehenge in the round

The special nature of Stonehenge as a complex monument constructed by mere barbarians is stressed, and long-standing traditions of diffusionist explanation reviewed. The alternative is to situate Stonehenge in the local constructional traditions of Neolithic stone monuments, of circular public enclosures, and of complex wooden ('megaxylic') structures. The role of such a monument as the focus for memory—for shared oral traditions of narrative—is emphasised.

Monuments orchestrate human movement, including dance. Drawing on the work of the contemporary sculptor Richard Long, linear and circular actions and physical markers are seen as indicators of human presence and activity, while Egyptian obelisks and Breton menhirs, through their striking verticality, are assertive of life and again of human action.

Stonehenge, the Avenue and the Stonehenge Cursus utilise all these general principles and derive much of their power from the masterly simplicity of their use.

ANDREW J. LAWSON

The structural history of Stonehenge

A review of all available evidence from the twentieth-century excavations at Stonehenge, linked to a new suite of radiocarbon dates, has enabled the publication of a revised phasing of the monument. By placing the results of this research alongside the evidence from monuments and open areas in the surrounding landscape which have been examined previously, an understanding can be created of how Stonehenge articulated with its various neighbours through time. It is now certain that throughout its history, Stonehenge was only one element of a well-used landscape, the early use of which can be glimpsed from rare Mesolithic features or Early Neolithic monuments. Three phases in the structural history of Stonehenge can be discerned, each successive phase being more complex than its predecessor. During the Middle Neolithic, the major feature of the Phase 1 monument was earthen. In Phase 2, during the Late Neolithic, timber structures were set up, while Phase 3 encompassed a series of stone settings which have stood from the Early Bronze Age to the present day.