

A303 Amesbury to Berwick Down

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6.3 Environmental Statement Appendices

Appendix 6.1 Annex 6 Influences of the monuments and landscape of the Stonehenge part of the World Heritage Site on architects, historians and archaeologists

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

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HIA Annex 6 –

Influences on architects, historians and archaeologists

Introduction

Desk-based research has been undertaken into Attribute of OUV 7, The Influence of the remains of the Neolithic and Bronze Age funerary and ceremonial monuments, and their landscape setting on architects, historians and archaeologists. This aspect has been researched for the HIA in order to identify which Asset Groups, isolated sites and discrete assets convey this attribute of OUV.

This is one of the key attributes of OUV identified in the 2015 Management Plan (Simmonds & Thomas 2015). The 2015 Management Plan explains this attribute in more detail, as follows:

‘The influence of the remains of Neolithic and Bronze Age funerary and ceremonial monuments and their landscape settings on architects, artists, historians, archaeologists and others is an attribute of OUV. For example, Stonehenge has been depicted in a number of key views by artists of the British Romantic Movement of the 18th and 19th centuries.

The WHS has been pivotal in the development of archaeology from early antiquarian investigations by Aubrey and Stukeley in the late 17th and early 18th centuries. Both the Avebury and Stonehenge parts of the WHS have continued since then as an important focus for evolving archaeological practice and techniques.’ (Simmonds & Thomas 2015, 34).

Classical and medieval accounts

The Greek historian Hecataeus of Abdera in c.330 BC wrote briefly of ancient sanctuaries and temples in the land of the Hyperboreans, the place from which the north wind blew, tentatively identified as Britain and Ireland. It is telling though that later Classical writers whose works covered Britain such as Caesar (51 BC), Strabo (AD 20), Pliny (AD 77) and Tacitus (AD 97), never made reference to Stonehenge (Darvill 2006, 32–35).

The first specific written account of Stonehenge was by Henry of Huntingdon (c. 1088–c.1157) in 1130, an archdeacon at Lincoln who was commissioned to write a history of England. He prefaced the history proper with a short account of Britain’s four wonders including Stonehenge or ‘Stanenges, where stones of wonderful size have been erected after the manner of doorways...’ (Darvill 2006, 36; Souden 1997, 140).

Geoffrey of Monmouth’s (c.1095–c.1155) *History of the Kings of Britain*, written around 1136, recounted the story of how Stonehenge was commissioned by the British king Aurelius Ambrosius to commemorate a treacherous Saxon massacre of British nobles ‘at the Cloister of Ambrius’ (Amesbury). When the carpenters and masons failed to build a suitable memorial, Merlin advised the king to bring over a setting of stones known as ‘the Giants’ Round’ which was located on Mount Killaraus in Ireland. The king’s brother, Utherpendragon, took ten to fifteen thousand men to Ireland to bring back the stones, defeated an Irish army, but failed to dislodge the stones. Merlin then took it upon himself to take down the stones and have them carried to the ships, where a good wind took them back to England. When Aurelius

and Utherpendragon passed away, they were buried within the circle, the latter's son Arthur going on to become king of the Britons (Parker Pearson 2015, 65; Souden 1997, 140; Thorpe 1966, 195–212). Judging from Geoffrey's detailed account of successive rulers and their reigns, it can be calculated that Ambrosius was crowned in AD 480, and that Stonehenge would therefore have been erected in about AD 485 (Chippindale 2004, 24). Scholars at the time were dubious about Geoffrey's history – William of Newburgh (c.1136–c.1198) opened that the victories of Geoffrey's Arthur were at odds with well-known 6th-century histories compiled by the likes of the Venerable Bede who had not mentioned Stonehenge or Arthur at all (Chippindale 2004, 24).

Still, the Stonehenge fable was to remain in medieval works: two 14th-century manuscripts provide the earliest known depictions of Stonehenge and one of the rare instances that prehistoric monuments were depicted during the Middle Ages. One depicts Merlin placing a lintel on top of a pair of standing stones, completing a trilithon, much to the amazement of onlookers, while the other, a squared version of Stonehenge, decorates a historical calendrical table (Chippindale 2004, 23, figs 14 & 15; Darvill 2006, 36). Another small illustration of Stonehenge is in the *Scala Mundi*, a manuscript written in c.1441 which is kept in Douai in France (Parker Pearson 2015, 125). Later medieval chroniclers such as Gerald of Wales (c.1146–c.1223) and Alexander Neckham (1157–1217) retold the Merlin story, and the legend was to survive into early modern times with William Caxton's *Chronicle of England* translated from a French 14th-century version and published in 1480 (Chippindale 2004, 24–25; Darvill 2006, 37). The story was again criticised by scholars at the time, notably in 1534 by the scholar Polydore Vergil of Urbino (c.1470–1555), who complained that Geoffrey had extolled the British 'above the noblesse of Romains and Macedoians, enhauncinge them with moste impudent lyeing' (Chippindale 2004, 25).

The early modern era

Stonehenge was still to remain in the popular imagination – Edmund Spenser (1552/3–1599), one of the chief literary figures in Elizabethan England, included the story in his chief work *The Faerie Queene* (Book 2, canto X, stanzas 66–67) – Aurelius, triumphant over the Saxons: '...peaceably did rayne, Till that through poyson stopped was his breath; So now entombed lyes at Stoneheng by the heath' (Smith and De Selincourt 1970, 125).

16th century printer, barrister and author John Rastell (c.1475 –1536) attempted to solve the question why Stonehenge was built with non-local stone. He observed that the stones were of no recognisable building stone in an area where the underlying geology was chalk with flint nodules, but 'so hard that no yryn tole wyll cut them without great bysynes' (Chippindale 2004, 27–28).

Antiquarian and topographer William Camden (1551 – 1623) first published *Britannia*, a topographical and historical survey, in 1586. It mentioned Stonehenge, and in the 1600 edition he described the site as 'a huge and monstrous piece of worke' and that 'men's bones have many times been digged up here ... Ashes and pieces of burnt bone here frequently found' (Parker Pearson 2015, 126). A few years later, John Leland (c.1503 – 1552), in his *De Antiquitate Britannica*, attempted to tease fact away from legend in relation to Stonehenge, noting that 'almost everything that is related about the bringing of these stones from Ireland is fictional'. Instead, he believed that Merlin brought these stones from some quarry in the locality. Leland

reckoned that it would have been beyond the ability of the Romans to move such large stones all the way from Ireland to Amesbury, since the River Avon was a good twenty miles [c.32km] away (Chippindale 2004, 29).

The first accurate description of Stonehenge was by Lucas de Heere (1534 – 1584), a Flemish artist and writer who wrote *Corte Beschryvinghe van England, Scotland, ende Irland* between 1573 and 1575, a guide-book to these islands encompassing British institutions, manners, customs, costume and history (Chippindale 2004, 33; de Heere 1573–5, f.36r). De Heere's description began with the story of Merlin and a watercolour of Stonehenge 'as I myself have drawn them on the spot'. The stones were described as being arranged like a gallows: 'they stand two by two, each couple having one stone across...which stone has two mortises catching two stone tenons of the two upright stones'. The stones were arrayed in three ranks, 'the largest of which comprises about three hundred feet compass'. De Heere also noted the presence of the many barrows in the area, along with a large hillfort which he regarded as having been built by the Romans (Chippindale 2004, 33). The watercolour of Stonehenge was not without inaccuracies, but did depict the main elements of Stonehenge: the outer sarsen circle, three trilithons of the sarsen horseshoe and four bluestones of the inner horseshoe, all surrounded by a circular ditch. In the foreground, two barrows with their mounds and enclosing ring ditches were included. In the background, on the horizon, lay the earthworks of the hillfort (known today as Vespasian's Camp) (Chippindale 2004, 34, fig. 21; Darvill 2006, 38, fig. 7; Parker Pearson 2015, 126, fig. 5.6).

Antiquarian, writer and politician William Lambarde (1536 – 1601) in the 1580s sought a more rational explanation of Stonehenge, rejecting the fables and 'suche like Toyes, whearwith Galfrid [Geoffrey] and many others have brought good Hystories into vile Contempt, and themselves the Wryters woorthely into Derision'. He regarded the stones as hanging 'with no more Wonder than one Post of a House hangeth above another, seinge that all the Stones are let one in another by a Mortece and Tenant, as Carpenters call them'. Lambarde astutely identified the origin of the stones: 'theare is within the same Shyre great Stoare of Stone of the same Kinde, namely, above Marlborow, from whence I thinke they weare chosen by the Greatness, for other Difference eyther in Matter or Fashion I see none' (Lambarde 1730, 314–5).

Stonehenge certainly attracted the attention of many, including British monarchs – James I (1566 – 1625) was much intrigued by what he saw at Stonehenge during a visit in 1620. George Villiers, 1st Duke of Buckingham, his host at Wilton House near Salisbury, offered the then owner, one Robert Newdyk, 'any rate' if he would sell Stonehenge but 'he would not accept it'. James' curiosity remained unabated and the Duke did arrange to have a hole excavated in the middle of Stonehenge to allow for the site's secrets to be revealed (Chippindale 2004, 47; Darvill 2006, 39; Long 1876, 237). When John Aubrey (1626 – 1697), the king's antiquary, saw the site years later, the hole was still evident, describing it as the size of two saw pits placed together. Aubrey recounted that stags horns, bull horns, arrow heads, and some pieces of rusted armour had been recovered from the dig (Chippindale 2004, 47; Darvill 2006, 39). Around the same time a so-called altar stone was 'found in the middle of the Area' and brought to St James' in Westminster for courtiers to admire (Chippindale 2004, 47–48).

This excavation intrigued James I so much that he commissioned an expert study on Stonehenge. This job fell to Inigo Jones (1573 – 1652), the neo-classical architect, theatre designer and Surveyor of the King's Works, who was given 'his Majesty's Commands to produce, out of my own Practice in Architecture, and Experience in Antiquities Abroad, what possibly I could discover' about the site (Chippindale 2004, 48). Most of the work was done after the king's death in 1625, mostly during visits to Wiltshire between 1633 and Jones' own death in 1652 (Darvill 2006, 39). Following his death, the most prominent English architect of his time had left only 'some few indigested Notes', which his assistant John Webb (1611 – 1672) 'moulded off and cast into a rude Forme' as a book in 1655 entitled *The Most Notable Antiquity of Great Britain, Vulgarly Called Stone-heng, on Salisbury Plain. Restored*. This was the first book on Stonehenge and probably the first book to be published anywhere on a single prehistoric monument (Chippindale 2004, 48; Webb 1655, preface). The original notes by Jones have not survived, so it is not clear as to how much is by Jones and how much is by Webb, but this matters little as Webb was mentored by Jones and built in a similar style (Chippindale 2004, 48). Stonehenge reflected the geometric proportion that Jones had seen in classical monuments in Italy earlier in his career: 'who cast their eies upon this Antiquity, and examine the same with judgment, must be enforced to confesse it erected by people, grand masters in the Art of building, and liberall Sciences...' (Chippindale 2004, 57; Webb 1655, 8). Inigo Jones believed that Stonehenge was built by the Romans, identifying in the site's layout the geometrical arrangement of four equilateral triangles, paralleling a Vitruvian plan of a Roman theatre with the same geometrical controls. The book contained a plan and elevations of what Jones considered to be the original appearance of Stonehenge (Chippindale 2004, 57–59, pls 32–35; Darvill 2006, 40, fig. 8; Souden 1997, 142–143).

The writer and physician to Charles II, Dr Walter Charleton (1619–1707), disagreed with Jones' attribution of Stonehenge to the Romans and wrote the following work in 1663 *Chorea Gigantum: Or, The Most Famous Antiquity of Great Britain, Vulgarly Called Stone-Heng, Standing on Salisbury-Plain, Restored to the Danes* (Chippindale, 294, fn 29). As the title of the work suggests, Charleton argued that Stonehenge was built by the Danes as late as the 9th century AD, to serve as a coronation place for their kings. This theory was based on analogies with megalithic structures in that Scandinavian country (Chippindale 2004, 61; Darvill 2006, 39–41). In 1665, Webb countered with a *Vindication* of his mentor's work (Chippindale 2004, 62). Writers at the time clearly were unable to conceive of a Britain before written history, hence the only possible builders of Stonehenge could only have been the Romans, Saxons and Danish (with the Normans being omitted as they were considered to be too recent) (Chippindale 2004, 62). The only alternative was to abandon the known settlers of Britain and to focus attention further afield on more exotic peoples. Aylett Sammes (?1636–?1679) in his *Britannia Antiqua Illustrata* of 1676 claimed that the Phoenicians may have been responsible for the erection of Stonehenge, sailing around Spain to discover Britain, led by 'some say Hercules, others by Himilco' (Chippindale 2004, 64–65).

The writer and gardener John Evelyn (1620–1706) visited the site on the 22 July 1654 recording that: '...we passd over that goodly plaine or rather Sea of Carpet, which I think for evenesse, extent Verdure, innumerable flocks, to be one of the most delightfull prospects in nature and put me in mind of the pleasant lives of the Shepherds we reade of in Romances & truer stories: Now we were arriv'd at Stone-

henge, Indeede a stupendous Monument, how so many, & huge pillars of stone should have ben brought together ... & so exceeding hard, that all my strength with an hammer, could not breake a fragment: which duritie I impute to their so long exposure: To number them exactly is very difficult, in such variety of postures they lie & confusion...' (De Beer 1955, 115–116). Diarist Samuel Pepys (1633 – 1703) found the stones at Stonehenge '...as prodigious as any tales I ever heard of them, and worth going this journey to see. God knows what their use was. They are hard to tell, but yet may be told' (Parker Pearson 2015, 1; Latham and Matthews 1976, 229–230).

Antiquary, philosopher and writer John Aubrey (1626 – 1697) drew a plan of Stonehenge in 1666 for Charles II (1630 – 1685), with dotted lines marking the Avenue, along with the Heel Stone to one side. By the entrance causeway there were three stones where now there is only one (the Slaughter Stone). The central setting of five trilithons was depicted as a horseshoe (albeit with two more trilithons roughed in to complete a spurious circle). Just inside the bank, marked with 'c's were the two Station Stones, and marked with 'b's were five additional cavities, which following excavation centuries later in 1920, turning out to be the 'Aubrey Holes', prehistoric pits which were regularly arranged around the inside of the circular enclosure and ditch (Chippindale 2004, 69; Darvill 2006, 39; Richards 1991, 32). Aubrey deduced that Stonehenge was related to other stone circles in places like Pembrokeshire, north-east Scotland and Ireland where the Romans, Saxons and Danes had penetrated scarcely, their distribution suggesting that these stone circles were the temples of the native British instead (Chippindale 2004, 69–70).

The eighteenth century

A generation later, the Lincolnshire antiquarian, William Stukeley (1687–1765) worked each summer in Avebury and Stonehenge during the years 1721–1724, surveying, measuring and drawing monuments (Chippindale 2004, 75). The word 'trilithon' was conjured up by him from the Greek for 'three stones' to describe what he saw (Chippindale 2004, 14). Stukeley also dug at Stonehenge, and spotted the Avenue running from the entrance past the Heel Stone and beyond 'where abouts the sun arises, when the days are longest', and also discovered what he called the Cursus, a pair of ditches about 350 feet apart which ran for about 2 miles. To the antiquarian it appeared to be a running track for the ancients competing in 'games, feats, exercises and sports' (Chippindale 2004, 76; Richards 1991, 32). Between 1722 and 1723, Stukeley and Lord Pembroke of Wilton House dug into a number of barrows, the 'artificial ornaments of this vast and open plain' that were set 'upon elevated ground, and in sight of the temple' (Chippindale 2004, 76; Richards 1991, 32). Their excavations revealed the makeup of the barrow mounds as well as the nature of the burials contained within.

Stukeley eventually brought out two books based on his fieldwork, *Stonehenge, a temple restor'd to the British Druids in 1740* and *Abury: a Temple of the British Druids* in 1743 (Boyd Haycock 2017; Chippindale 2004, 81, 86; Darvill 2006, 41), which contained allusions of Druidical design behind these great monuments – the latter more so, with Phoenicians and true Christians gathered in mystical serpentine temples to await the coming of the Messiah (Chippindale 2004, 92; Richards 1991, 33). As the Romantic image of the Druid took hold – the gardens of various country houses were embellished with Stonehenges as alternatives to mock ruins and grottoes – in places like The Quinta in Shropshire, Park Place near Henley in

Berkshire, and Swinton Hall near Masham in North Yorkshire (Chippindale 2004, 88). Stukeley's work came to define people's understanding of Stonehenge, with every aspect of ancient Britain now being construed as somehow Druidic; consequently nothing better was written about the site for the remainder of the 18th century (Boyd Haycock 2017; Chippindale 2004, 91–92).

John Wood the Elder (1704–1754), the architect responsible for the neo-classical terraces and crescents of Bath, also dabbled with Stonehenge. On Michaelmas Day in 1740, prepared with survey equipment to make a plan, Wood visited Stonehenge (Wood 1747, 33–34). Wood's Circus at Bath was inspired by Inigo Jones' plan of Stonehenge with three entrances through the bank at equal intervals, an unusual example of Georgian grandeur inspired by prehistoric precedent (Chippindale 2004, 93, figs 63–64; Souden 1997, 142–43). Following his prejudices as a neo-classical architect, Wood looked for Stonehenge's origins in the classical world; he came to the conclusion that it was founded in 100 BC by a King Bladud as a Druidical college (Chippindale 2004, 94).

The nineteenth century

The antiquarian most closely associated with Stonehenge and the surrounding area was William Cunnington (1754–1810), a wool merchant from Heytesbury on the western edge of the Salisbury Plain. He was quite prodigious in his excavations of barrows – by 1801 he had opened up 24 barrows, and at Stonehenge had dug with 'a large stick' under a fallen sarsen (Darvill 2006, 43; Richards 1991, 33). Cunnington enjoyed the patronage of Henry Penruddocke Wyndham, M.P. for Wiltshire (1736–1819), Rev. William Coxe (1748–1828), historian and Rector of Stourton in Wiltshire, and Sir Richard Colt Hoare (1758–1838) (Richards 1991, 33). In 1802 Cunnington dug again at Stonehenge: '...particularly at the front of the Altar, where I dug to the depth of 5 feet or more & found charred Wood, Animal Bones, & Pottery, of the latter there were several pieces similar to the rude Urns found in the Barrows – also some pieces of Roman pottery' (Chippindale 2004, 117). The first reference to the use of a trowel on an archaeological site is in a letter from Cunnington to Hoare, describing excavator John Parker using one in the excavation of Bush Barrow (Everill 2009).

Over time, Cunnington opened more than 600 Wiltshire barrows, including nearly 200 examples in the vicinity of Stonehenge – only those planted with trees or under tillage were spared. Two or three barrows could be dug in a day, if they were not too substantial in size. Several barrows close to Stonehenge contained chippings of both sarsens and bluestones which were not weathered, leading Colt Hoare to conclude that the stone pieces were lying scattered about the area before the erection of the barrows under which they have been found, and therefore suggesting that Stonehenge itself was pre-Roman. Stukeley had come to this conclusion eighty years before, but Colt Hoare and Cunnington were not to progress the idea much further than that (Chippindale 2004, 121–22).

The antiquary Thomas Lemau (1751–1826) from Bath, was an expert on Roman roads, and was more interested in theory and finding patterns, and as such provided a counterbalance to Colt Hoare's zeal for digging. He pondered on whether the two different types of stones apparent at Stonehenge might in fact represent circles of two different ages (Chippindale 2004, 119 & 124). Colt Hoare agreed, observing that 'if not true, is well imagined'. In 1810 Cunnington dug at Stonehenge again to confirm his earlier observation that the Slaughter Stone had originally stood upright –

it was to be his last field trip before his death later that year (Chippindale 2004, 124). Another associate of Cunnington was Philip Crocker, a draughtsman and surveyor, who produced a working map of Stonehenge and the surrounding area, with the various barrows drawn and numbered along with the Cursus, all superimposed on the local topography and road system (Chippindale 2004, 125, fig. 101). A version of this was published in 1812 in Colt Hoare's first volume of *The Ancient History of Wiltshire* (Richards 1991, 14, fig. 2).

In 1822 Henry Browne installed himself at Stonehenge as resident 'Lecturer on Ancient and Modern History'. He was not employed by the then site's owner, the Marquis of Queensbury, but was allowed to call himself the official guide, earning a living from tips gathered from visitors. Sir Edmund Antrobus, 2nd Baronet (1792–1870) purchased the monument in 1824. Browne believed that Stonehenge was the last surviving building from before Noah's flood – indeed, the battered south-western side showed that the flood engulfed from the monument from the south-west (Chippindale 2004, 143 & 146). A spin-off from of Browne's work as a guide was the making of miniature cork models of Stonehenge. The models came in pairs, one representing the monument as it now stood, and another depicting the monument as it looked originally, together selling for 7 guineas (Chippindale 2004, 146).

Thankfully, the last person allowed to go digging at Stonehenge on a whim was a Captain Beamish from Devonport who in c.1839 excavated a six foot [c.1.8m] deep hole in front of the altar, over an area 8 feet square [c.2.4m²], and found nothing more than rabbit bones. This was done 'in order to satisfy a society in Sweden there was no internment in the centre of Stonehenge' (Chippindale 2004, 161). The obstinacy of one owner, Sir Edmund Antrobus, 3rd Baronet (1818–1899), was to protect Stonehenge from further unnecessary interference for the remainder of the 19th century, including from any proposed restoration efforts (Chippindale 2004, 161).

In 1818, Danish antiquary Christian Jürgen Thomsen (1788–1865), came up with the three-age division of the prehistoric past into periods when stone, bronze and iron were successively used. This was taken up by Sir John Lubbock in his *Prehistoric Times* (1865) which by using the evidence from Colt Hoare's barrow excavations, showed that the barrows and Stonehenge itself were pre-Roman in date and in fact belonged 'to a more ancient period than even our most imaginative antiquaries have yet ventured to suggest', back beyond the Bronze Age (Chippindale 2004, 126; Darvill 2006, 44–45). The new date for Stonehenge was resisted in some quarters – how could Bronze Age barbarians erect such an impressive monument? Good scholars like John Thurnam, an expert on the Bronze Age and barrow burials, and Sir Daniel Wilson (1816–1892), the Scottish/Canadian antiquary who introduced the word 'prehistoric' into usage, resisted this new dating (Chippindale 2004, 128). Architectural historian James Fergusson (1808–1886) and archaeologist Hodder Westropp (1820–1884) believed that Stonehenge was built by the Celts in a failed attempt to imitate in the Roman manner, dating from the time of the Roman withdrawal when the native tribes were fighting amongst each other (Chippindale 2004, 128–29).

John Thurnam (1810 –1873) was a medical superintendent at the Devises Asylum with an interest in the skeletons, and especially the skulls, of ancient Britons. Any skeletons that Cunnington had come across in his excavations of the barrows were left unmolested, and with Colt Hoare's *The Ancient History of Wiltshire* as his guide,

Thurnam quarried the barrows for these skeletons in the mid-19th century. He found that the skulls could be grouped into two classes depending on the barrow in which they were interred. Those from the long barrows were dolichocephalic, with their skulls long in relation to their width; those from the round barrows were brachycephalic, tending to be more round in shape. The long barrows, with multiple inhumations, long skulls, few grave goods and no metal items, belonged to a Stone Age; whereas the round barrows, with single inhumations or cremations, round skulls, burial goods sometimes in bronze, were later in date belonging to the Bronze Age. And as long barrows were situated around Stonehenge equally with round barrows, Thurnam suggested that the stone circle's location showed it to be a Bronze Age temple on a site originally used as a burial ground for the elite of the Stone Age (Chippindale 2004, 129; Darvill 2006, 44–45).

Antiquarians looked beyond Britain's shores to stone structures comparable in design and size to the Stonehenge trilithons. One place was the pre-classical Greek citadel at Mycenae where one entrance, called the Postern Gate, was built of three single stones: two vertical jambs and a single lintel across. In the Tripoli region of Libya, free standing trilithons of megalithic blocks were found, reviving the notion that Stonehenge was founded by the Phoenicians. On subsequent investigation, the Libyan trilithons were found to be the frames of olive presses from the Roman era and nothing to do with ritual activity whatsoever (Myres 1897–99, 280–93).

During the 1870s, the archaeologist and Egyptologist Sir William Matthew Flinders Petrie (1853–1942) measured Stonehenge, attempting to ascertain the unit of length adopted by the site's builders as part of a larger study into thirty to forty sites across Britain and France. At Stonehenge, Flinders Petrie found that Stukeley's 'Druidical cubit' failed, but that there were apparent dimensions of 40, 50, 80 and 100 Roman feet (Chippindale 2004, 137). A subsequent survey by Petrie found two units of measurement at work in the laying out of Stonehenge – a measure of about 224.8 inches, about ten of the known Phoenician units of 22.51 inches for the earthworks and the Station Stones, while the stone circles followed the Roman foot of 11.68 inches (Chippindale 2004, 137). While this system of measurement had no basis, the numbering system applied to the stones by Petrie is still used today (Parker Pearson 2015, 128).

Petrie was also interested in Stonehenge astronomy – he saw the first glimpse of the sun as seen over the Heel Stone from between the uprights of the great trilithon as being significant. From this, he calculated a date of AD 730 for Stonehenge's construction which fitted his Roman foot as well as his notion that the site was the burial ground of English kings after the Roman withdrawal (Chippindale 2004, 137, 139–140). A second effort was made to date Stonehenge by the astronomer Sir Norman Lockyer (1836–1920) at the close of the 19th century. Through using orientations and alignments he arrived at a date of about 1680 BC, but his flawed approach discouraged other archaeologists from working on the astronomical significance of Stonehenge until the mid-20th century (Lockyer 1906, 67).

The twentieth century

In 1882, the Ancient Monuments Protection Act introduced by Sir John Lubbock, 1st Baron Avebury (1834–1913) was passed. Stonehenge was listed in a schedule of 26 English monuments that the legislation was expected to protect. General Augustus Henry Lane-Fox Pitt Rivers (1827–1900), Dorset landowner and a noted antiquarian, was appointed as first Inspector of Ancient Monuments, and he attempted to bring

the monument under state ownership. However the owner, Sir Edmund Antrobus, 3rd Baronet (1818–1899) and later his son and namesake, 4th Baronet (1848–1915) could not be coerced into passing the monument over to the Crown, Stonehenge was to remain in private hands (Chippindale 2004, 160). It was purchased at auction by local businessman Cecil Chubb in 1915, who gave the monument to the nation in 1918.

During a storm in December 1900, strong winds blew down stone 22, a sarsen upright on the west side of the outer circle. This was the first recorded stone fall since 1797 (Chippindale 2004, 164). This occurrence aroused concerns for the future preservation of Stonehenge. The state's advisory committee approved an effort to pull upright the leaning stone no. 56, the sole standing upright of a great trilithon – its lean had increased over the years to an angle of 60 degrees, and threatened the safety also of bluestone no. 68, which it was pushing over (Chippindale 2004, 166–167). This restoration work was carried out in the autumn of 1901 under the direction of Detmar Jellings Blow (186 –1939), a Wiltshire architect, and mining engineer and 'father of Japanese archaeology' Professor William Gowland (1842 –1922), nominated by the Society of Antiquaries as the supervising archaeologist (Chippindale 2004, 167). Through his meticulous work, Gowland was able to show how the stone-holes had been dug, and how the sarsens had been trimmed, shaped and erected, and he made a reasonable estimate as to the age of the site at around 1800 BC, during the latter part of the Neolithic, given the lack of metal found during the course of his excavation except for a tiny green copper stain on a sarsen block seven feet down (Chippindale 2004, 167–169; Richards 1991, 35). For Gowland, there was no exotic, foreign origin for Stonehenge, '...its plan and execution alike can be ascribed to none other than our rude forefathers, the men of the Neolithic or, it may be, of the early bronze age' (Chippindale 2004, 172; Souden 1997, 25).

But at the same time that archaeology was now beginning to reveal something of Stonehenge's true origins away from the Druids of the classical world, modern would-be Druids entered the scene. The Ancient Order of Druids was established in 1871 as a secret society but whose aims were 'convivial, fraternal, and philanthropic' (Chippindale 2004, 172). The Grand Lodge visited Stonehenge for the first time in August 1905 for a mass initiation of 650 to 700 members. Another Druidical group called (in pseudo Irish or Scottish) An Druidh Uileach Braithreachas, otherwise known as the Church of the Universal Bond, had been celebrating religious rites for a number of years (Chippindale 2004, 174). During the 1920s, an effort by the Office of Works to control access saw opposition from the Druidic community led by Dr George MacGregor-Reid (c.1862–1946), Chief Druid of the Church of the Universal Bond (Chippindale 2004, 190). The Druids claimed that the rediscovered Aubrey Holes were Druidical and regarded the excavation of the cremations as 'but the sacrilegious handling of the ashes of our recently deceased members' (Chippindale 2004, 190).

After the First World War, an assessment was made of Stonehenge and a restoration programme was organised by the Office of Works, who turned to the Society of Antiquaries for advice. Work began in November 1919 focusing on the stones that were leaning the most in the outer circle. The task of excavation in advance of these conservation works fell not to Gowland, who had since retired, but to a colleague, Lieutenant-Colonel William Hawley (1851–1941) (Chippindale 2004, 179–180). Hawley also started to investigate the surrounding ditch, the Slaughter

Stone and a number of the holes identified in Aubrey's *Monumenta Britannica* (Chippindale 2004, 181; Richards 1991, 35). For 1921, the Office of Works planned to re-erect the stones which had fallen in 1797 and in 1900, but funding was problematic, and as no stone was in actual danger, the restoration was suspended (Chippindale 2004, 181–182). Hawley continued to excavate at Stonehenge on behalf of the Society of Antiquaries, often working on his own, clearing the south-eastern half of the interior of Stonehenge for a number of seasons, running from 1921 to 1926 (Chippindale 2004, 182–83; Richards 1991, 35–36). While under-resourced and using a questionable field methodology, Hawley located two more rings of holes, besides the Aubrey Holes. These rings were called the 'Y' and 'Z' holes, and were regarded as possibly Iron Age in date; the Aubrey Holes were presumed to be Neolithic and the main stone circles to be Bronze Age in origin (Chippindale 2004, 183; Souden 1997, 25).

As early as 1868, Sir Andrew Crombie Ramsay (1814–1891) was the first geologist to point out the similarity of some of Stonehenge's bluestones to the igneous rocks to be found in Pembrokeshire (Darvill 2006, 45). In 1923, Dr Herbert Henry Thomas (1876–1935) of the Geological Survey of Great Britain identified the provenance of the bluestones, tracking their origins to a deposit of igneous rock in the Preseli Mountains in the northern part of that Welsh county. The three main varieties of Stonehenge bluestone – spotted dolerite, rhyolite and volcanic ash were matched exactly by outcrops (Thomas 1923, 239–260).

In 1921, aerial photographs taken in the vicinity of Stonehenge revealed the full extent of the Avenue. O.G.S Crawford (1886–1957), archaeological officer of the Ordnance Survey, observed a pair of thin parallel lines running across the countryside between Stonehenge and Amesbury when trawling through old negatives in 1923. They had been traced by Stukeley as far east as the gap between the Old and New King Barrows at which point they disappeared under the ploughland. The aerial photographs now showed that the Avenue swung from there southwards to finish close to the bank of the River Avon at West Amesbury (Crawford 1924, 57–59). Aerial photography in 1925 also revealed another site 3km north-east of Stonehenge. This was enclosed with a wide round ditch with a single causeway on the north-east side, on the inside of which were a number of closely set rings of postholes. The new site appeared so much like a Stonehenge made of wood that it was soon given the name of Woodhenge (Chippindale 2004, 188; Richards 1991, 38).

Archaeologist Stuart Piggott (1910–1996), in an article published in 1938, identified 99 rich 'Wessex' burials of Early Bronze Age date, mostly on the chalklands of Wiltshire and Dorset. These burials appeared to indicate a wealthy Bronze Society led by an aristocracy who enjoyed trade links across Europe: amber from the Baltic, gold from Ireland, bronze work from Brittany and southern Germany, and faience from further afield in Egypt (Piggott 1938, 52–106). Piggott was struck by the chronological and material affinities between this Wessex culture and ancient Mycenae, and went to link the Wessex burials with the Mediterranean culture, an idea which was to grow into a view of Stonehenge as a creation under the same influence (Chippindale 2004, 199).

After the Second World War, research on Stonehenge also began afresh. In 1947, Dr John Frederick Smerdon Stone (1891?–1957), a Wiltshire-based archaeologist investigated a section cut across the Cursus near the wood of Fargo Plantation

(Chippindale 2004, 201). During the 1950s burial mounds were often at risk of being destroyed by ploughing, and between 1958 and 1961 Patricia Christie excavated many of these threatened barrows in south Wiltshire for the Ministry of Works, including one group on Earl's Farm Down, near Amesbury. Six barrows there were excavated, including G71, which proved to be the best example of a single barrow that over time captured the changes of burial rite, ceramic tradition and external form in the area.

The Hawley legacy at Stonehenge also needed to be sorted out, and it was agreed that Richard Atkinson (1920–1994) (of the Ashmolean Museum), Stone and Piggott would collaborate together to produce a full report on Hawley's work, as well as excavate where necessary to clarify uncertainties. They commenced with the Aubrey Holes; with two more investigated on top of the 32 already excavated by Hawley, leaving the last 22 intact for archaeologists in the future (Chippindale 2004, 201; Richards 1991, 36). It was confirmed that the Aubrey Holes were Late Neolithic ritual pits, deliberately refilled, and usually containing cremated human remains. A sample of charcoal from one of the two pits was sent to Professor Willard Libby (1908–1980) at the University of Chicago, who applied his newly developed technique of radiocarbon dating to it. The figure provided was 1848 ± 275 BC, the first absolute dating for Stonehenge (though uncalibrated), which fitted into the conventional chronology at the time for the Neolithic in England which ran from 2000 to 1500 BC (Atkinson et al. 1952, 19–20). In 1953, a photographic survey of the stones revealed carvings of axes of Middle Bronze Age type and a dagger of exotic appearance with supposed parallels in Mycenae itself (Chippindale 2004, 202–3). The result of the post excavation research, coupled with fresh limited excavation and survey, was published by Atkinson in a book simply called *Stonehenge* (1956) in which three phases of Stonehenge's development was detailed – further work has altered details, and calibrated radiocarbon dating has refined the dating, but the essential framework of Atkinson's scheme still stands today (Chippindale 2004, 204).

While Atkinson updated his book in 1979, he never got around to publishing his full results in any detail, and it was only in 1995 that the results of all of the 20th century excavations were finally brought together and published by Rosamund Cleal, Karen Walker and Rebecca Montague of the Trust for Wessex Archaeology. This work, entitled *Stonehenge in its Landscape: twentieth-century excavations* (Cleal, Montague and Walker 1995), was accompanied by a new programme of radiocarbon dating that proved definitively that the main stone settlements of Stonehenge were Late Neolithic in date (Parker Pearson 2015, 130; Souden 1997, 25).

During the late 20th century, archaeologists also began to focus on the landscape surrounding Stonehenge. In 1979 the Royal Commission on Historical Monuments published the results of their survey of the area around Stonehenge, detailing the hundreds of prehistoric monuments to be found in its vicinity (RCHME 1979). In 1990, Julian Richards published the full results of the Stonehenge Environs Project, which revealed that the area around Stonehenge with its numerous barrows and other prehistoric monuments was not solely a ritual, funerary landscape, but one which people also lived in (Parker Pearson 2015, 130; Richards 1991, 38–47).

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