# A Research Framework for the Stonehenge, Avebury and Associated Sites World Heritage Site

## Avebury Resource Assessment

compiled and edited by Matt Leivers and Andrew B. Powell

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with contributions by by Martyn Barber, Mark Bowden, Rosamund J. Cleal, Nikki Cook, Mark Corney, Paul Cripps, Andrew David, Bob Davis, David Dawson, Bruce Eagles, Jane Ellis-Schön, A. P. Fitzpatrick, Abigail George, Frances Healy, Katie Hinds, David Hinton, Ronald Hutton, Mandy Jay, Matt Leivers, Michael Lewis, Rebecca Montague, Janet Montgomery, David Mullin, Joshua Pollard, Melanie Pomeroy-Kellinger, Andrew B. Powell, Andrew Reynolds, Clive Ruggles, Julie Scott-Jackson, Sarah Simmonds, Nicola Snashall, Chris J. Stevens, Anne Upson, Bryn Walters and Sarah F. Wyles

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*Front cover*
Avebury – the Z stones in the southern Inner Circle (Steve Marshall)

*Back cover*
Upper – looking west from the Sanctuary on Overton Hill towards the West Kennet Long Barrow and the southern part of the World Heritage Site (Erica Gittins)
Middle – the West Kennet Avenue (Steve Marshall)
Bottom – the Valley of Stones in Clatford Bottom (Steve Marshall)

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# Foreword

In 1986 Stonehenge, Avebury and Associated Sites was one of the small group of seven sites which were the first in the UK to be inscribed on the UNESCO World Heritage List. I am therefore delighted to see the publication of the first joint Stonehenge and Avebury Research Framework on the 30th Anniversary of its inscription as a World Heritage Site.

Stonehenge and Avebury were inscribed as one World Heritage Site for their Outstanding Universal Value. The Site is recognised by UNESCO as a masterpiece of human creative genius that demonstrates the technological and engineering skills of a long lost Neolithic and Bronze Age culture. The World Heritage Site extends far beyond the iconic henges at Avebury and Stonehenge to encompass their surrounding landscapes, each containing an unusually dense concentration of exceptionally well-preserved prehistoric monuments. Both landscapes have a research potential that is internationally recognised. Over the last 30 years, great advances have been made in our understanding of the World Heritage Site as well as its protection and enhancement.

The UNESCO Operational Guidelines for the Implementation of the World Heritage Convention advise States Parties to make resources available to encourage and undertake research. They recognise that knowledge and understanding are fundamental to the identification, management, and monitoring of World Heritage properties. The publication of this first joint Research Framework is an important step in fulfilling this ambition.

Historic England has been eager to produce a single Research Framework covering the whole World Heritage Site in line with UNESCO's recommendation to take a unified approach to managing serial Sites. In doing so, the World Heritage Site partners have built on the success of the earlier *Avebury Research Agenda* and *Stonehenge Research Framework*.

This new joint Framework is the result of committed and effective partnership working. The document is a true collaboration; the work of individual researchers, university academics, national and local authority staff, museum curators and private sector heritage professionals. The wider community has also had the opportunity to influence the questions being investigated through public consultation undertaken as part of the document's development.

This Research Framework will be available to universities and research organisations as well as the wider community. There is much here that will help to inspire and direct future research into these remarkable and unparalleled landscapes over the next 30 years and beyond.

*Duncan Wilson*
*Chief Executive, Historic England*

# Abstract

The Stonehenge, Avebury and Associated Sites World Heritage Site comprises two areas of Wessex chalkland some 40 km apart, connected by their distinctive complexes of Neolithic and Bronze Age sites. Both areas have played a central role in the understanding of Britain's prehistoric past and are among the most iconic and widely-recognised prehistoric landscapes in the world. Their international significance was recognised by their inscription on UNESCO's World Heritage List in 1986, and it is particularly apt that this new Research Framework should mark the 30th anniversary of the World Heritage Site's creation.

These volumes represent the first step towards the production of a fully integrated Research Framework for the Site. The first volume consists of an update to the Resource Assessment for the Stonehenge area, which extends the scope of the original version (Darvill 2005) to 2012. The second contains a new Resource Assessment for the Avebury area which incorporates the 2008 boundary changes. Both of these volumes explicitly expand the focus of the earlier Resource Assessments from archaeology to the wider historic environment. The third volume is a Research Agenda and Strategy for the whole World Heritage Site. The rationale for the form this Framework takes is complex, and is laid out in the Introduction, but it is envisaged as an intermediate stage between the separate documents that were originally produced (AAHRG 2001; Darvill 2005) and a single integrated assessment, agenda and strategy.

The new Framework is the result of consultation across the research community in its broadest definition. Authors were invited to produce resource assessments and technical summaries; workshops and meetings guided the initial drafts of the Research Agenda; the Avebury and Stonehenge Archaeological and Historical Research Group (ASAHRG) provided criticism of both. Drafts of texts were presented for public consultation and comment via the internet. The Research Strategy was formulated based on their content, and the whole circulated for further comment. In consequence, the new Research Framework offers a guide that reflects the priorities and encompasses the views of the widest possible community. It is in every sense a collaborative document, produced by and for the constituency of researchers working within the World Heritage Site.

These documents are intended to guide and inform future research activities in the historic environment and, in turn, its management and interpretation. The intention is that they will be underpinned by data-management systems that can be actively maintained as project-specific tools into the future. This new Framework, therefore, fulfils a number of objectives. It provides revisions (redrafting and updating) of the existing Avebury and Stonehenge resource assessments; it starts the process of harmonising and integrating the earlier separate research documents with the production for the first time of a single, combined research agenda and strategy for the whole World Heritage Site; and it develops a method to facilitate future review and revision. In future, this task will be undertaken by ASAHRG, which replaces the Avebury Archaeological and Historical Research Group to promote and disseminate historical and archaeological research in the World Heritage Site as a whole.

*Recent Research in the Stonehenge Landscape 2005–2012* consists of summaries of development-prompted research and problem-orientated research, followed by a section looking at recently changed and changing aspects of research: dating, long-distance connections, landscape structure, and the relevance of other monuments. *The Avebury Resource Assessment* provides both cross-period assessments of the resource based on a number of specific research methods which have been used to develop our understanding of the archaeology in the Avebury area, and a series of period-based assessments, from the Palaeolithic to the modern period. The *Research Agenda* articulates the significant gaps in our understanding, by posing some of the outstanding questions in a form that is relevant to a number of chronological periods and major thematic subjects of relevance to the unique character of the World Heritage Site. The *Research Strategy* sets out a framework of principles under which research should be carried out in the World Heritage Site, and identifies practical means by which such programmes of investigation can be facilitated, co-ordinated, resourced, sustained and communicated, and by which the Research Framework as a whole can be reviewed and updated.

The continuing nature of archaeological research inevitably means that many discoveries – some of considerable significance – were made during the period of the writing of these volumes. In order to bring the years of work which have gone into these documents to fruition, a line had to be drawn. That the Research Framework is not absolutely up-to-date is not a failing, but rather an indication of the need for a planned approach to investigation in an area which still, after centuries of investigation, has not given up all of its secrets.

# Abrégé

Le site classé au patrimoine mondial de Stonehenge, Avebury et sites associés comprend deux zones crayeuses, distantes de quelques 40 km, unies par leurs complexes particuliers de sites du néolithique et de l'âge du bronze. Ces deux zones ont joué un rôle central dans la compréhension du passé préhistorique de la Grande-Bretagne et se situent parmi les paysages préhistoriques les plus symboliques et les mieux connus du monde. Leur importance internationale fut reconnue par leur inscription sur la liste des sites classés au patrimoine mondial de l'UNESCO en 1986, et il est particulièrement approprié que ce nouveau cadre de recherches vienne marquer le trentième anniversaire de la création de ce site patrimonial. Ces volumes constituent le premier pas vers la production d'un cadre de recherches entièrement intégré pour ce site. Le premier volume consiste en une mise à jour de l'évaluation des ressources de la zone de Stonehenge, qui allonge la portée de la version originale (Davill 2005) jusqu'en 2012. Le second contient une nouvelle évaluation des ressources pour la zone d'Avebury qui incorpore les changements de limites de 2008. Ces deux volumes agrandissent explicitement le point central de l'évaluation précédente, de l'archéologie à l'environnement historique, plus étendu. Le troisième volume consiste en un programme et une stratégie de recherches pour l'ensemble du site classé au patrimoine mondial. La logique derrière la forme que prend ce cadre est complexe et est expliquée dans ses grandes lignes dans l'introduction, mais on l'envisage comme un stade intermédiaire entre les documents séparés qui furent produits originellement (AAHRG 2001; Darvill 2005) et une évaluation intégrée unique, programme et stratégie.

Le nouveau cadre est le résultat d'une consultation de toute la communauté des chercheurs au sens le plus large du terme.

Des auteurs furent invités à produire des évaluations des ressources et des résumés techniques, des ateliers et des réunions orientèrent les ébauches initiales du programme de recherches, le Groupe de Recherches Archéologiques et Historiques d'Avebury et de Stonehenge (ASAHRG) fournit un bilan critique des deux. Des ébauches des textes furent soumises à une consultation publique et à des commentaires via l'internet. La stratégie de recherche fut élaborée sur la base de leur contenu et on fit circuler le tout pour davantage de commentaires. Par conséquent le nouveau cadre de recherches offre un guide qui reflète les priorités et englobe les idées de la plus large communauté possible. C'est un document collaboratif dans tous les sens du terme, produit par, et pour, les membres du collège de chercheurs travaillant dans le site classé au patrimoine mondial.

Ces documents sont destinés à guider et inspirer les futures activités de recherches dans cet environnement historique et, le moment venu, sa gestion et son interprétation. L'intention est qu'il sera étayé par des systèmes de gestion de données qui peuvent être activement conservés dans l'avenir comme outils spécifiques à une mission. Ce nouveau cadre satisfait donc à un certain nombre d'objectifs. Il apporte des révisions (nouvelle rédaction et mise à jour) des évaluations existantes des ressources d'Avebury et de Stonehenge; il met en marche le procédé d'harmonisation et d'intégration des précédents documents de recherches séparés avec pour la première fois la production d'un programme unique de recherches et d'une stratégie combinée pour l'ensemble du site classé au patrimoine mondial, et il développe une méthode pour faciliter les prochaines revues et révisions. Dans l'avenir cette tâche sera entreprise par ASAHRG, qui remplace le Groupe de Recherches Archéologiques et Historiques d'Avebury pour la promotion et dissémination de la recherche historique et archéologique dans l'ensemble du site classé.

*Récentes recherches dans le paysage de Stonehenge 2005–2012* consiste en résumés de recherches suite à des projets de construction et de recherches liées à un problème, suivis d'une section examinant les aspects récemments changés ou changeants de la recherche: datation, relations lointaines, structure du paysage, et rapport avec d'autres monuments. *L'évaluation des ressources d'Avebury* fournit à la fois des évaluations de la ressource à travers le temps reposant sur des méthodes de recherche spécifiques qui ont été utilisées pour développer notre compréhension de l'archéologie dans la région d'Avebury, et une série d'évaluations, concentrée sur une période, du paléolothique à la période moderne.

*Le programme de recherches* expose les importantes lacunes dans notre compréhension en posant certaines des questions en suspens sous une forme qui est appropriée à certaines périodes chronologiques et

des sujets thématiques majeurs appropriés au caractère unique du site. *La stratégie de recherche* met en place un cadre de principes en fonction desquels la recherche devrait être entreprise dans le site classé, et identifie des moyens pratiques grâce auxquels de tels programmes d'investigation peuvent être facilités, coordonnés, financés, soutenus et communiqués et par lesquels le cadre de recherche dans son ensemble peut être revu et mis à jour.

La nature continue de la recherche archéologique signifie qu' inévitablement de nombreuses découvertes, certaines extrèmement importantes, eurent lieu pendant la période où on écrivait ces volumes. De manière à ce que les années de travaux qui sont passées dans ces documents portent leur fruit, il nous a fallu tirer un trait. Que le cadre de recherches ne soit pas parfaitement à jour n'est pas un échec, mais plutôt une indication du besoin d'une approche planifiée des recherches dans une zone qui, encore maintenant, après des siècles d'investigation, n'a pas révélé tous ses secrets.

*Traduction: Annie Pritchard*

# Zusammenfassung

Die Weltkulturerbestätte Stonehenge, Avebury and Associated Sites (Stonehenge, Avebury und zugehörige Fundstellen) besteht aus zwei 40 km voneinander entfernten Kreidelandschaften in der Region Wessex, die beide durch einzigartige Komplexe neolithischer und bronzezeitlicher Fundstellen gekennzeichnet sind. Beide Gebiete sind von zentraler Bedeutung für unser Verständnis der britischen Vorgeschichte und gehören weltweit zu den prähistorischen Landschaften mit dem höchsten Wiedererkennungswert und Symbolcharakter. Ihre internationale Bedeutung verhalf ihnen 1986 zum Eintrag in die Liste der UNESCO Welterbestätten, und es ist daher mehr als angemessen, dass dieses neue Rahmenkonzept für die Forschung zum 30. Jahrestag der Eintragung erscheint. Die vorliegenden Bände sind ein erster Schritt für die Festlegung eines ganzheitlichen Rahmenprogramms für die weitere Erforschung dieser Fundstellen. Der erste Band besteht aus einer Aktualisierung der ersten Version einer Bestandsaufnahme und Potentialseinschätzung für die Region um Stonehenge (Darvill 2005), wobei der abgedeckte Zeitraum bis auf 2012 erweitert wird. Der zweite Band beinhaltet eine neue Bestandsaufnahme und Einschätzung für die Region um Avebury, mit Berücksichtigung der Verschiebungen der Grundstücksgrenzen im Jahr 2008. Beide Bände sind explizit darauf angelegt, den Fokus der früheren Bestandsaufnahmen von einer rein archäologischen Perspektive auf die historische Landschaft als Ganzes zu erweitern. Der dritte Band enthält die Forschungsagenda und -strategie für die gesamte Welterbestätte. Die Gründe für die Form dieses Rahmenkonzeptes sind komplex und werden in der Einleitung beschrieben. Es ist beabsichtigt, dass das vorliegende Werk einen Zwischenschritt zwischen den zuerst angefertigten Einzeldokumenten (AAHRG 2011; Darvill 2005) und der angestrebten ganzheitlichen Bestandsaufnahme, Agenda und Strategie darstellt.

Das neue Rahmenkonzept ist das Ergebnis von Rücksprachen mit einer so inklusiv wie möglich definierten Forschungsgemeinschaft. Die einzelnen Autoren sollten Bestandsaufnahmen und fachliche Zusammenfassungen liefern; zu ersten Fassung der Forschungsagenda fanden begleitende Workshops und Treffen statt; der Avebury and Stonehenge Archaeological and Historical Research Group (ASAHRG) kommentierte beides kritisch. Erstfassungen der Texte wurden im Internet zugänglich gemacht, um Kommentare und Vorschläge der breiteren Öffentlichkeit einzuholen. Auf deren Grundlage wurde dann eine Forschungsstrategie ausformuliert und noch einmal zirkuliert, um weitere Kommentare zu ermöglichen. Somit bietet das neue Rahmenkonzept einen Leitfaden, der die Prioritäten und Ansichten der größtmöglichen Anzahl an Interessierten umfasst. Es handelt sich um ein in jedem Sinne kollaboratives Dokument, das von und für die in der Welterbestätte tätige Forschungsgemeinschaft erstellt wurde.

Die Dokumente sollen zukünftige Forschungsvorhaben in der historischen Landschaft, sowie deren Management und Interpretation begleiten und unterfüttern. Es ist geplant, dies durch Datenverwaltungssysteme zu unterfüttern, die zukünftig als projektspezifische Tools aktiv gepflegt werden können. Das neue Rahmenkonzept erfüllt daher mehrere Ziele. Es bietet eine Neubearbeitung (Neuentwürfe und Aktualisierungen) der existierenden Bestandsaufnahmen für Stonehenge und Avebury; es beginnt den Prozess, die bereits vorhandenen älteren Forschungsdokumente zu integrieren und mit der erstmaligen Schaffung einer einheitlichen, ganzheitlichen Forschungsagenda und -strategie für die gesamte Welterbestätte zu harmonisieren; und es entwickelt eine Methode, die zukünftige Prüfungen und Überarbeitungen ermöglicht. Diese Aufgabe wird in Zukunft von ASAHRG wahrgenommen. Sie ersetzen damit den Avebury Archaeological and Historical Research Group und werden historische und archäologische Forschungen in der Welterbestätte insgesamt fördern und veröffentlichen.

*Neue Untersuchungen in der Landschaft um Stonehenge 2005–2012* besteht aus Zusammenfassungen von baubegleitenden oder problemorientierten Forschungsvorhaben, gefolgt von einem Abschnitt zu kürzlich veränderten oder sich verändernden Aspekten der Forschung: Datierung, Fernkontakte, Landschaftsstruktur und die Bedeutung anderer Monumente. Neben periodenspezifischen Abschnitten, vom Paläolithikum bis in die Moderne, bietet die *Bestandsaufnahme Avebury* diachron angelegte Einschätzungen des Potentials der archäologischen Ressource, gestützt auf eine Reihe von Forschungsmethoden, die unser Verständnis der Archäologie von Avebury vertieft haben. Die *Forschungsagenda* legt die erheblichen, noch bestehenden Wissenslücken dar. Hierbei werden einige der noch unbeantworteten Fragen in einer Art und Weise formuliert, die ihre

Relevanz für mehrere der chronologischen Perioden und Themenbereiche darlegt, welche für den einzigartigen Charakter der Welterbestätte von Bedeutung sind. Die *Forschungsstrategie* definiert ein Gerüst aus Prinzipien, nach denen sich weitere Forschungen in der Welterbestätte richten sollten und identifiziert praktische Wege, mittels derer solche Untersuchungsprogramme ermöglicht, koordiniert, finanziert, aufrechterhalten und kommuniziert werden sollen, sowie die Bestandsaufnahme selbst überprüft und aktualisiert werden kann.

Archäologische Forschung ist von Natur aus kontinuierlich. Es ist somit unvermeidbar, dass viele Entdeckungen – einige davon von erheblicher Tragweite – während des Schreibens der vorliegenden Bände gemacht wurden. Um die vielen Jahre Arbeit, die in diesen Dokumenten stecken, zu einem fruchtbaren Abschluss zu bringen, musste dennoch eine Grenze gezogen werden. Dass das Rahmenkonzept nicht absolut aktuell ist, ist jedoch keine Schwäche, sondern zeigt eher, wie wichtig ein gut durchgeplanter Ansatz für weitere Untersuchungen in einer Region ist, die selbst nach jahrhundertelanger Erforschung noch nicht alle ihre Geheimnisse preisgegeben hat.

*Übersetzung: Daniela Hofmann*

# Introduction

*by Matt Leivers, Andrew B. Powell, Melanie Pomeroy-Kellinger and Sarah Simmonds*

The *Stonehenge, Avebury and Associated Sites World Heritage Site* comprises two areas of Wessex chalkland, 40 km apart, surrounding Stonehenge and Avebury (Fig. 1), that are renowned for their distinctive complexes of Neolithic and Bronze Age sites. These sites have played a central role in the understanding of Britain's prehistoric past and – together with their surrounding landscapes – have international significance, as recognised by the inscription of the World Heritage Site in 1986 on UNESCO's World Heritage List for its *Outstanding Universal Value*.

Over the centuries, research into these sites and the landscapes they occupy has taken many forms and reached many and diverse conclusions: about the people who used them and about how, when and why they were constructed. Some of that research contributed to the degrading of the archaeological remains and it is the awareness that this finite resource needs to be effectively conserved which makes a framework for the facilitation and direction of sustainable research central to the management of the World Heritage Site (UNESCO 1972, Article 5).

## Management Plans and Research Frameworks

UNESCO stresses the need for 'serial' World Heritage Sites comprising more than one area (such as Stonehenge and Avebury) to have 'a management system or mechanisms for ensuring the co-ordinated management of the separate components' (UNESCO 2013, para. 114). Although arguments have been advanced for the separation of Stonehenge and Avebury into separate World Heritage Sites, this possibility was ruled out in December 2007 when the Government announced that there would be no re-nomination of the World Heritage Site. The individual management plans – the *Stonehenge World Heritage Site Management Plan 2009* (Young *et al.* 2009), and the *Avebury World Heritage Site Management Plan* (Pomeroy-Kellinger 2005) – have recently been replaced by a joint management plan for the whole World Heritage Site (*Stonehenge and Avebury World Heritage Site Management Plan*: Simmonds and Thomas 2015).

The two areas were also the subjects of separate research frameworks – *Archaeological Research Agenda for the Avebury World Heritage Site* (Avebury Archaeological and Historical Research Group 2001) and *Stonehenge World Heritage Site: An Archaeological Research Framework* (Darvill 2005).

The Avebury Research Agenda, published in 2001, was highly influential, being the first such document produced for any World Heritage Site. It was produced by the Avebury Archaeological and Historical Research Group (AAHRG), a group of professional curators, academics and freelance researchers who met to encourage, co-ordinate and disseminate research in the Avebury part of the World Heritage Site. A chronological and thematic approach was adopted in compiling the document, which consisted of individually-authored papers written by period and subject specialists.

The Stonehenge Research Framework, published four years later, was a significantly different document, reflecting the rapidly evolving thinking about the role, format and content of archaeological research frameworks. It, too, was based on the contributions of individual specialists, but it was compiled and edited by a single hand giving it a greater consistency of style and content; it also benefited from the availability of considerably greater resources for mapping and illustration.

Both research frameworks followed the tripartite structure recommended in *Frameworks For Our Past* (Olivier 1996), a strategic review of research policies undertaken for English Heritage. Each comprised a period-based *resource assessment* describing the current state of knowledge about the archaeological resource in their respective areas, a *research agenda* pointing out areas of research which could help fill gaps in that knowledge, and a *research strategy* formulating proposals and priorities for carrying out such research. Despite their shared overall structure, the organisation and presentation of these three main sections differed considerably between the two documents. Nonetheless, both shared a strong emphasis on archaeology rather than the wider historic environment.

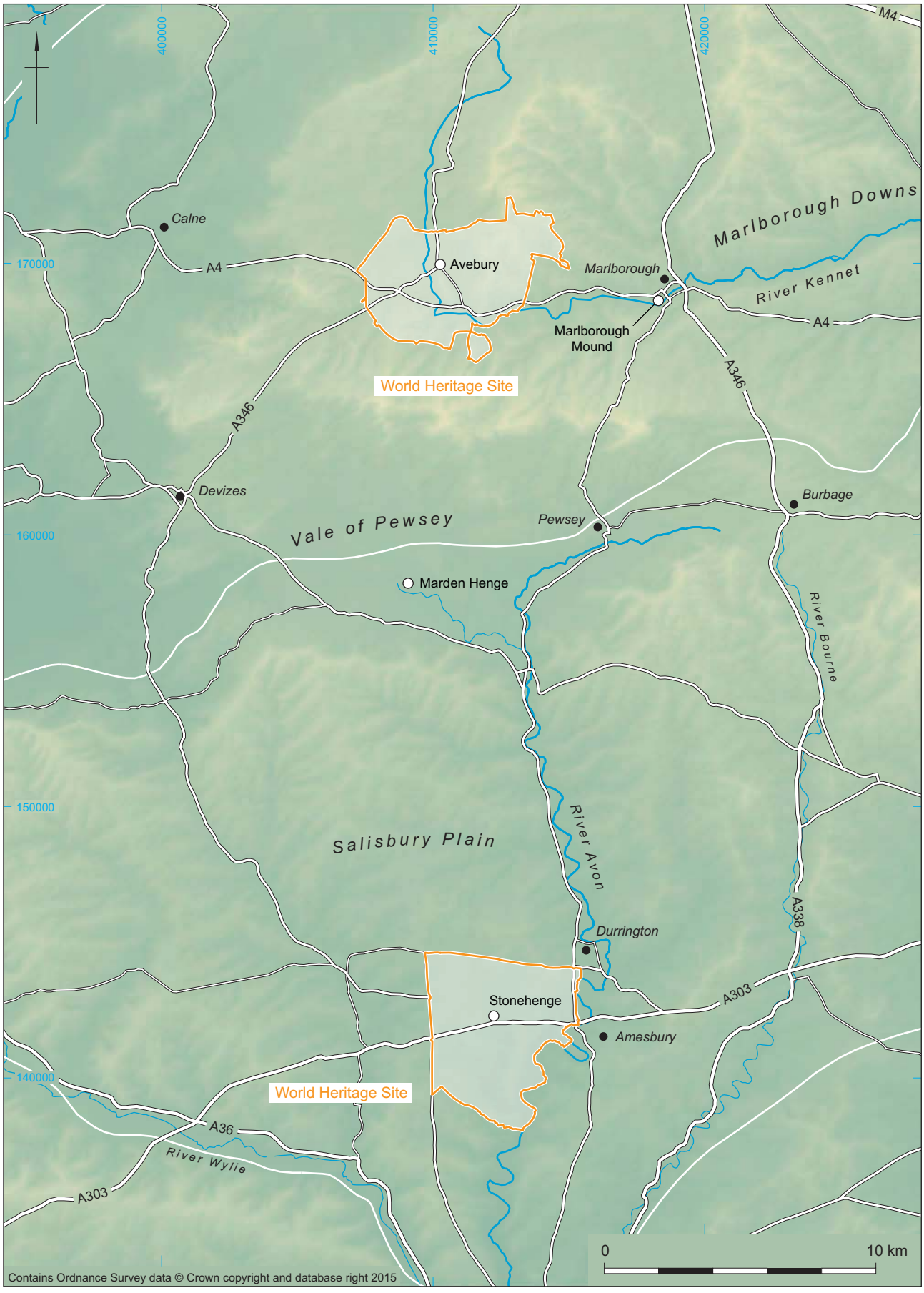



*Figure 1 The WHS boundaries*

## Review of the Existing Frameworks

*by Melanie Pomeroy-Kellinger*

Research frameworks are temporary documents, providing a point-in-time view of the state of knowledge, priorities and strategies for research as envisaged at their compilation. In the introduction to the original Avebury agenda it was stated that the document would be updated on a regular basis as research was conducted and new discoveries made, and as research priorities evolved (AAHRG 2001, 4). Similarly, the need for reflexivity and revision was made explicit in the Stonehenge framework (Darvill 2005, 32) which was anticipated as being a statement of research issues and priorities for approximately a decade (*ibid.*, 4).

Attempting to assess the relative success or failure of archaeological research frameworks is quite a challenging task. There are no agreed criteria for such an analysis, or a consensus on their value. There is a range of indicators which could be measured, such as how many research projects were undertaken, how many research questions were addressed, or how many new sites have been added to the Historic Environment Record (HER), but none of these are meaningful in isolation. In many ways it is easier to focus on what would constitute failure. In the case of the earlier documents for Avebury (AAHRG 2001) and Stonehenge (Darvill 2005), failure would mean that the documents were ignored and not used, which clearly has not been the case. The fact that there is presently a consensus that they need to be revised (and that funding has been obtained to undertake this process) can be seen as indicating a level of success.

The aims of both of the earlier documents were clearly set out (Avebury, section 1.3; Stonehenge section 1), and were similar: to actively encourage research into all periods, to improve understanding, to better inform other researchers, and to allow informed management to take place. Looking at the wide range of research and management projects undertaken since 2001 across both parts of the World Heritage Site, there is a good indication that many of these earlier aims have been addressed. There have been at least 10 major archaeological projects, and many other smaller ones, including the Silbury Hill project, SPACES, Negotiating Avebury, and others. These include both academic research and development-led projects, and both intrusive and non-intrusive fieldwork, and their results are outlined in the various sections of this document. It is apparent that the research frameworks have been referred to in fieldwork project designs, and indeed in bids for funding.

To what extent these projects would have been undertaken anyway, without the existence of the research frameworks, is difficult to assess; this was a subject of lively debate during a Research Agenda Workshop held in Devizes in June 2011. What is clear, however, is the large number of new discoveries, leading to the development of new theories and interpretations, which have resulted from these projects. In many ways they have led to a wider focus on the prehistoric landscapes surrounding the two iconic stone circles. With the media attention that has come with some of the discoveries, there is now a greater public appreciation of the complexity and significance of these landscapes. While many of these fieldwork projects have been published, it is anticipated that in the next few years a wealth of new information will become available.

Despite this, we know that the landscapes of Stonehenge and Avebury have not yet given up all of their secrets. However, what has been discovered in the last 10 years will help us to ask more detailed and complex questions in the future, and within the aims and objectives of this new, combined research framework. The discussions, debate and communication within the archaeological community resulting from the publication of the earlier documents and this revised version, will continue to be hugely beneficial to our understanding and management of these internationally significant landscapes.

## Recent Research

Since 2001 major research has been undertaken in both parts of the World Heritage Site. This included survey, excavation and synthesis at Avebury and its surrounding monuments (Fig. 2), by a team from the Universities of Bristol, Leicester and Southampton (the Longstones and Negotiating Avebury projects) which had notable results, such as the discovery of the Beckhampton Avenue (Gillings *et al.* 2008). At Silbury Hill, English Heritage undertook conservation, repair and excavation, and the Romano-British settlement was examined. The on-going Between the Monuments Project (a collaborative effort by the Universities of Southampton and Leicester and the National Trust) has been investigating the character of human settlement in the Avebury landscape during the 4th to mid-2nd millennia cal BC, and its relationship to changing environmental and social conditions.

At Stonehenge (Fig. 3) excavation was carried out in 2008 by the SPACES Project, while several well-known prehistoric monuments close to Stonehenge were investigated by the Stonehenge Riverside Project, which also discovered the West Amesbury Henge at the end of the Stonehenge Avenue on the bank of the River Avon as well as investigating Aubrey Hole 7 within Stonehenge itself. The Stonehenge

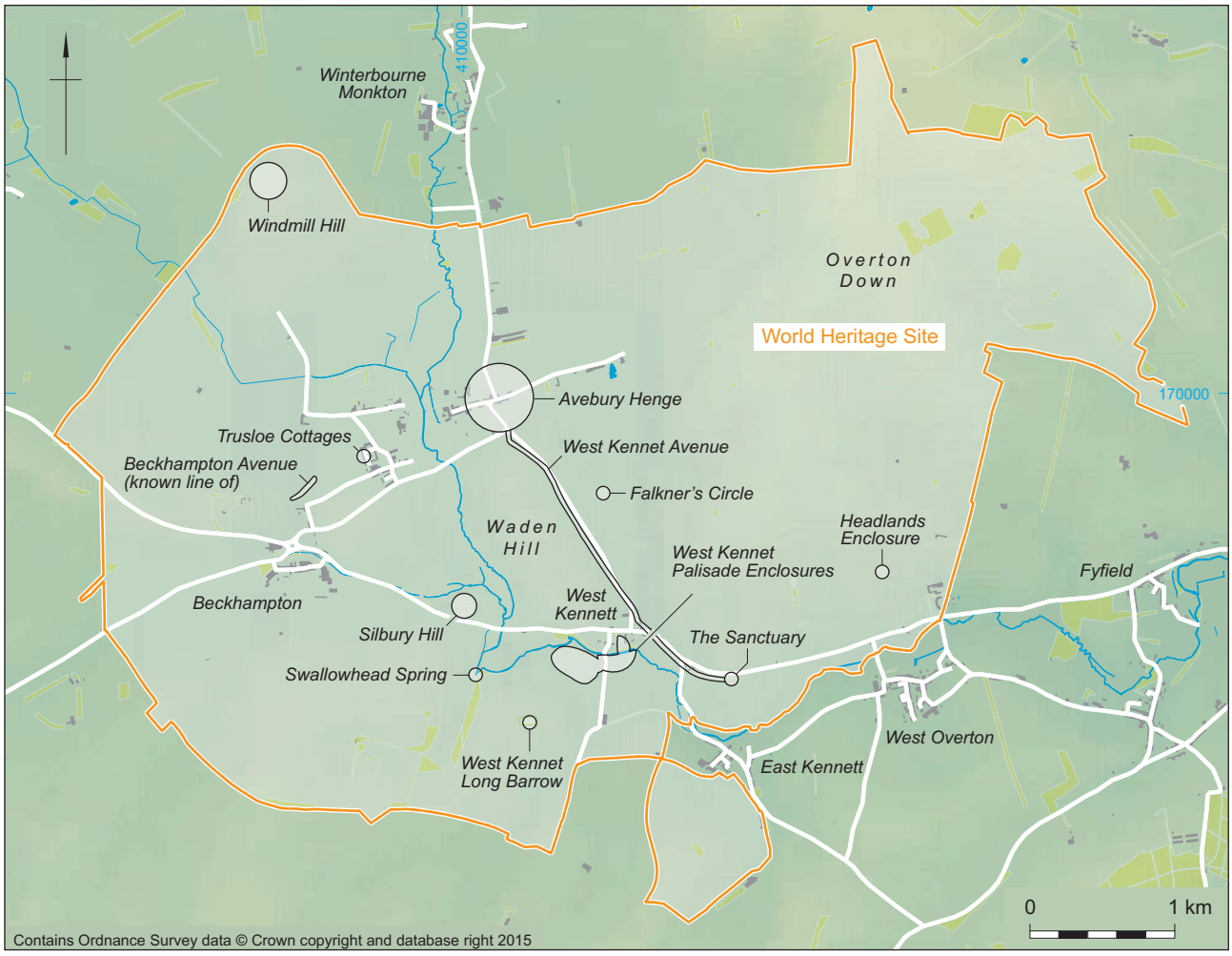



*Figure 2 The Avebury WHS: places mentioned in the text*

World Heritage Site Landscape Project (English Heritage) involved non-invasive survey of the Stonehenge environs alongside documentary and archive research (Field *et al.* 2014a and b; Bowden *et al.* 2015). The Stonehenge Hidden Landscapes project (by the Ludwig Boltzmann Institute, Birmingham University and international partners) has produced digital mapping of the Stonehenge landscape, revealing a wealth of previously-unknown sites via remote sensing and geophysical survey (Baldwin 2010; Gaffney *et al.* 2012).

Work on museum collections includes the Early Bronze Age Grave Goods Project by Birmingham University, and the Beaker People Project by the Universities of Sheffield, Durham and Bradford. Chronological modelling of the Stonehenge sequence has been revised (Marshall *et al.* 2012). Parch-marks observed during the dry summer of 2013 revealed the locations of missing sarsens 17–20 (Banton *et al.* 2014).

Practice-based research includes the publication of the surveys for the Highways Agency in advance of the proposed A303 road improvements (Leivers and Moore 2008), and further work associated with the new Stonehenge Visitor Centre, including the closure of the A344 and excavations on the line of the Avenue beneath it (Wessex Archaeology 2015).

The landscape of the entire World Heritage Site and its wider environs has now been mapped twice as part of the National Mapping Programme (NMP): in 1997–8 from all accessible aerial photographs, while in 2010–11 that mapping was further enhanced via the analysis of more recent reconnaissance photographs and of lidar data (Crutchley 2002; Bewley *et al.* 2005; Barber 2016, Avebury Resource Assessment).

## The New Research Framework

*by Sarah Simmonds*

The path to the production of the Stonehenge and Avebury Research Framework has been a complex one. During the period of review and update of the Avebury Research Agenda (AAHRG 2001), which began in 2008, a number of key changes occurred in the management context. These led to the decision to

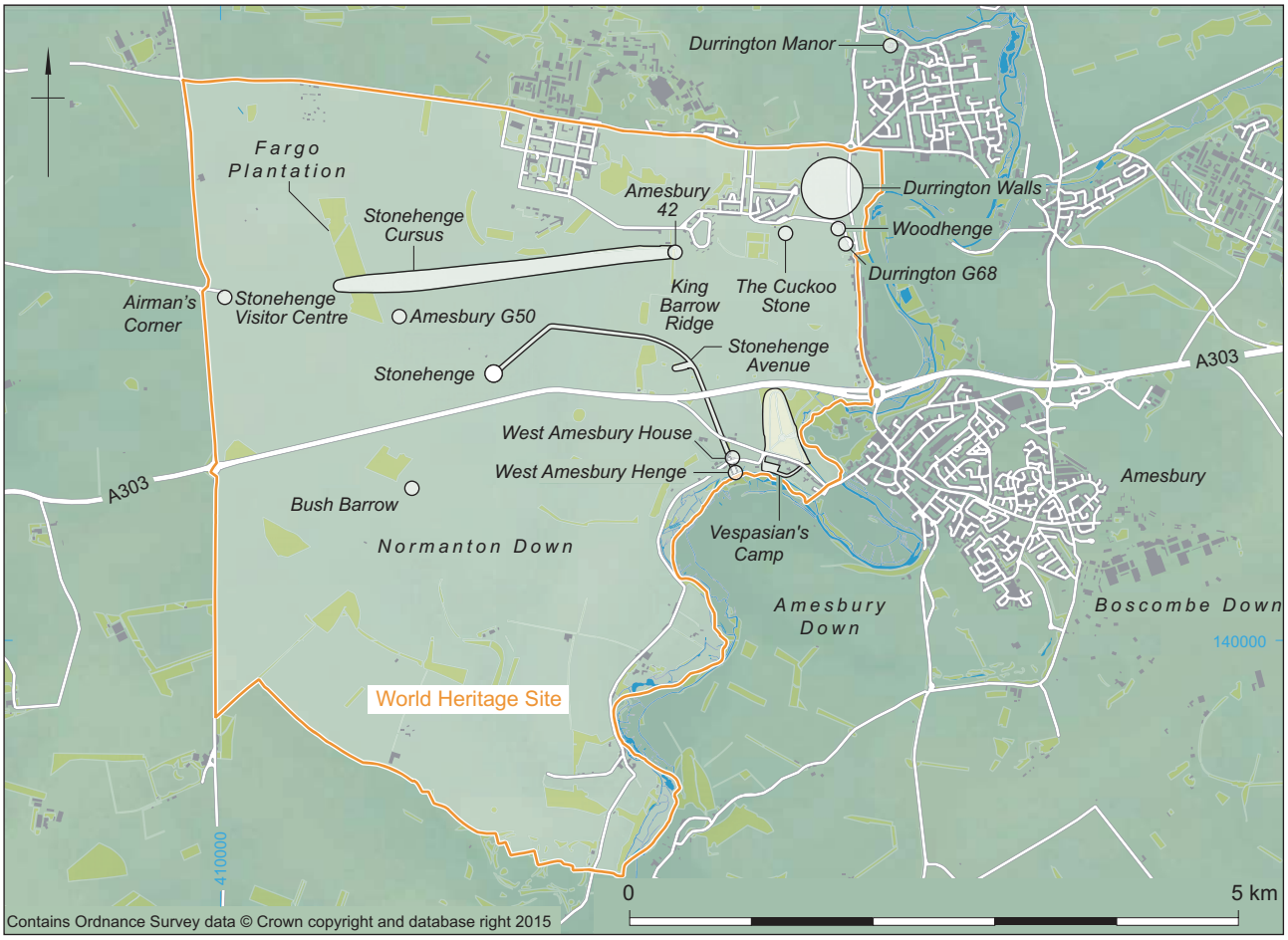



*Figure 3 The Stonehenge WHS: places mentioned in the text*

combining the Avebury document with the more recently-produced Stonehenge Research Framework (Darvill 2005) in order to create a joint Stonehenge and Avebury Research Framework. The decision to produce a three-volume framework was influenced by a number of factors, particularly the challenge of combining two very differently-produced resource assessments. This continuing difference in approach to the two halves of the World Heritage Site was in part a result of the funding criteria in place during the development of the joint framework.

A fundamental change in the management context was triggered by the governance review of the World Heritage Site in 2012. The review recommended a more joined-up approach to the management of the two halves of the World Heritage Site, and this had a significant influence on the decision to produce the first joint World Heritage Site Management Plan for Stonehenge and Avebury, published in 2015 (Simmons and Thomas 2015). Reflecting the move to closer working across the World Heritage Site the Avebury Archaeological and Historical Research Group (AAHRG) was expanded in 2014 to include Stonehenge and become the Avebury and Stonehenge Archaeological and Historical Research Group (ASAHRG). The decision to produce a joint research framework for Stonehenge and Avebury is part of this movement towards a more integrated approach to the single World Heritage Site.

Funding criteria for the production of research frameworks over this period also influenced the three part publication format. The process of updating the Avebury Research Agenda began in 2008 following a period of peer review and an online survey circulated widely among the academic community. A project outline was submitted to English Heritage on behalf of AAHRG based on the needs identified in the review and Wessex Archaeology was contracted to put together a detailed project design. Funding was agreed for new graphics and mapping and project management.

No funding was available for the production of the new Resource Assessment, which consequently led to this section again being produced by individuals on a voluntary basis. This approach provided the engagement of the academic community and in-kind contribution required by funders. An editorial committee made up of members of AAHRG was


*Plate 1 The original Avebury Research Agenda (left), Stonehenge Research Framework (centre) and current Management Plan (right)*

established at the end of 2009. The process of inviting contributors to update the resource assessment began in 2010.

The decision to produce a joint research framework for Stonehenge and Avebury – although very much in line with its recommendations – did in fact precede the outcomes of the World Heritage Site governance review. In mid-2010, revised English Heritage funding criteria meant that support was no longer available for updates to existing research frameworks and it appeared that the update of the Avebury Research Agenda could no longer be supported. The idea of producing a combined Stonehenge and Avebury Framework was suggested. In addition to producing a consistent approach to the single World Heritage Site this would also constitute a new publication that would be eligible for funding. Funding was secured for the production of a new joint agenda and strategy but it was decided that the resource assessments for the two halves would still be considered updates. The Avebury Resource Assessment therefore maintained the approach of securing updates from individual contributors, while a brief update of the relatively recent Stonehenge Framework would be produced by the single author (Tim Darvill) who had produced the 2005 Stonehenge Research Framework (Pl. 1). This approach was agreed by AAHRG who recognised both the necessity and the challenge of combining the two very different formats of resource assessment in a single joint framework.

Following completion of the Framework the project board decided to publish the Stonehenge and Avebury Research Framework in three parts to reflect the very different approach to production of the two resource assessments. The joint agenda and strategy section has been published as the third part of the Framework.

## Aims and Objectives

The new Framework is intended to cover the whole World Heritage Site, revising and updating the earlier documents. It is the result of consultation across the research community (in its broadest definition) and is intended to guide and inform future research activities in the historic environment and, in turn, its management and interpretation. The intention is that it will be underpinned by data-management systems that can be actively maintained as project-specific tools into the future. This new framework, therefore, fulfils a number of objectives:

- it provides revisions (redrafting and updating) of the existing Avebury and Stonehenge resource assessments, incorporating the 2008 boundary changes to the World Heritage Site, and explicitly expanding the focus from archaeology to the wider historic environment;
- it starts the process of harmonising and integrating the earlier separate research documents with the production for the first time of a single, combined research agenda and strategy for the whole World Heritage Site; and
- it develops a method to facilitate future review and revision. In future, this task will be undertaken by the Avebury and Stonehenge Archaeological and Historical Research Group (ASAHRG), which replaces AAHRG to promote and disseminate historical and archaeological research in the World Heritage Site as a whole.

*Plate 2 Excavations at the Wilsford Henge, Marden, during University of Reading's Field School, 2015 (© University of Reading)*

## Consultation

Since the revised framework was first proposed, various forms of consultation have been undertaken as to its form and content. Named authors were invited to produce resource assessments and technical summaries; workshops and meetings guided the initial drafts of the Research Agenda; ASAHRG provided criticism of both. Drafts of these sections were presented for public consultation and comment via the internet, prior to further revision and comment by ASAHRG and Historic England. Following their finalisation, the Research Strategy was formulated based on their content, and the whole circulated for further comment. The entire process was guided by a Project Board.

In consequence, the new Research Framework offers a guide that reflects the priorities and encompasses the views of the widest possible community. It is in every sense a collaborative document, produced by and for the constituency of researchers working within the World Heritage Site.

## Geographical Scope

One problem raised by the 'serial' nature of the World Heritage Site, comprising two relatively small areas of landscape separated by a distance of some 40 km, is that of determining the appropriate geographical scope for its research framework (Fig. 1). The boundaries of the two areas are largely arbitrary, although the development in them of notable complexes of monuments does distinguish them from much of the intervening (and surrounding) landscape. Nonetheless, the density of archaeological sites and monuments more widely across Salisbury Plain, the Vale of Pewsey (Pl. 2) and the downland around Avebury does mean that research into the World Heritage Site cannot be undertaken in isolation. Indeed, the presence of a henge at Marden of comparable size to those at Avebury and Durrington Walls (and approximately midway between them, Pl. 3), and of a mound at Marlborough comparable to Silbury Hill, as well as other monument complexes at a greater distance, such as in the Thames Valley and on Cranborne Chase, indicates that many of the questions which can be asked about the World Heritage Site can only be answered if consideration is given to a much wider area.

However, the World Heritage Site lies within, and close to the eastern edge of, the area covered by the South West Archaeological Research Framework (SWARF, Webster 2008), which is bordered to the east by that covered by the Solent Thames Research

*Plate 3 AMOS electromagnetic survey at in the West Kennet Avenue, Avebury, July 2013 (Photograph by Timothy Darvill. Copyright Reserved: BU, DAI and Sensys)*

Framework (STRF, Hey and Hind 2014). Together these two frameworks cover all the Wessex chalkland, which defines the wider landscape occupied by the World Heritage Site. Although they encompass much larger areas than the present research framework, they articulate many of the broader research issues, of all periods, which are also of general relevance to the World Heritage Site. They also cover some specific issues relating to the Stonehenge and Avebury monumental landscapes, and the other monument complexes in their respective regions.

For these reasons, it has not been considered necessary to impose another arbitrarily defined 'study area' around the two areas of the World Heritage Site. Instead, this research framework keeps a close focus on the World Heritage Site, while recognising variable wider contexts as appropriate.

## Structure

Although the new Research Framework covers the whole of the World Heritage Site, only its agenda and strategy sections have been fully integrated. Because the levels of revision considered appropriate for the two resource assessments differed so markedly, their integration was not considered possible at this stage. This framework therefore comprises a number of component parts.

### *Resource Assessment*

Not only is there at present no overall resource assessment for the whole of the World Heritage Site, there also remain significant differences in the organisation and presentation of the current resource assessments for the Avebury and Stonehenge areas, as brought together here.

**Stonehenge**

The 2005 resource assessment remains current, but it is supplemented by an update on research undertaken since then, *Recent Research in the Stonehenge Landscape 2005–2012*, by the same author. This consists of summaries of development-prompted research and problem-orientated research, followed by a section looking at recently changed and changing aspects of research: dating, long-distance connections, landscape structure, and the relevance of other monuments.

This update is available on-line via http://www.stonehengeandaveburywhs.org/management-of-whs/stonehenge-avebury-research-framework.

**Avebury**

The Avebury Resource Assessment has, for the most part, been completely re-written and expanded, and the new version replaces that contained in the 2001 document. As with the original Avebury Resource Assessment, individual authors provided papers on a voluntary basis, and not all conformed to the same template. In consequence, two (Romano-British and mid–late Saxon) are updates similar to that produced for Stonehenge, rather than full reassessments. In those instances, the original 2001 assessments have been included here for the sake of completeness. Most of the resource assessments were produced in 2011 and 2012, except for the sections covering environmental archaeology, GIS, the Iron Age, and modern Avebury, which date from 2013, the post-medieval and modern resource assessment, which dates from 2014, and the assessment of built heritage, which dates to 2015.

The resource assessment is split into two parts. The first, *Methods of Research*, provides cross-period assessments of the resource based on a number of specific research methods, old and new, which have been used to develop our understanding of the archaeology in the Avebury area. Descriptions of some of these methods, and in some cases assessments of the resource as revealed by them, were provided in *Part 5: Methods and Techniques* of the 2001 framework, as well as in a chapter on *Palaeo-Environmental Evidence* at the end of the original resource assessment.

The second part, *Period-Based Assessments*, represents to a large extent the complete replacement of the 2001 resource assessment. It now includes, however, papers on the *Post-Medieval* period, *Built Heritage*, and *Modern Avebury*, as well as separating the Middle and Late Bronze Age.

## *Research Agenda and Research Strategy*

The new Research Agenda and Strategy cover for the first time both parts of the World Heritage Site. In the tripartite structure recommended by Olivier (1996), as followed by the earlier Avebury and Stonehenge frameworks, these two sections appear to have quite distinct roles, the agenda describing the gaps in our knowledge and the strategy proposing ways of filling those gaps. There is, however, a degree of overlap between them, since some research questions cannot be realistically addressed until others have been answered. Finding answers to some questions, therefore, becomes part of the strategy for answering other questions.

There have been a number of guiding principles in the compiling of the agenda and strategy. First, an attempt had been made to make the document recognisable, as far as possible, as a progression from the two earlier versions, despite their evident differences in approach, combining both thematic and period-based components. Secondly, consideration has been given to the need for it to be in a form suitable for future combined revision. Thirdly, as the agenda is intended to be a working document of use to a wide range of audiences, the objective has been to give it a relatively straightforward and transparent structure; what it may lack in theoretical and philosophical sophistication, it is hoped that it gains in clarity and usability.

## *Research Agenda*

The purpose of the agenda is to articulate the significant gaps in our understanding, by posing some of the outstanding questions in a form that is relevant to a number of chronological periods and major thematic subjects of relevance to the unique character of the World Heritage Site. The first part of the agenda outlines the themes which underlie the period-based questions described in the second. These questions are those generated during the process of workshops, consultation and comment outlined above.

## *Research Strategy*

There were significant differences in the structure and content of the two previous strategies. The *Research Strategies* in the original Avebury agenda comprised largely specific methodologies for answering specific questions, while the *Research Strategy* in the Stonehenge document consisted more of an overarching plan, made up of a series of objectives under a number of broad thematic headings.

The new research strategy has a number of aims:

- to set out a framework of principles under which research should be carried out in the World Heritage Site; and
- to identify practical means by which such programmes of investigation can be facilitated, co-ordinated, resourced, sustained and communicated, and by which the research framework can be reviewed and updated.

After considerable discussion, it remained of particular concern to the Project Board and authors that the Research Strategy was not prescriptive. Consequently, it is a deliberate move away from a document which prioritises particular pieces of research, instead offering guidance designed to encourage innovative research which exceeds the requirements of 'best practice'.

## The New Research Framework's Components

Although the individual parts of this present Research Framework document collectively cover the whole of the World Heritage Site, it remains an intermediate stage in the production of a fully integrated framework, and is on its own a necessarily incomplete document. It needs to be read in conjunction with the 2005 Stonehenge framework particularly and, to a lesser degree, with the 2001 Avebury agenda. Although some elements of the original Avebury agenda have been completely re-written, the cumulative nature of archaeological research and the re-iterative nature of research frameworks mean that these superseded components still have a degree of currency and value. All relevant components of the past and present frameworks, therefore, will be accessible online at a single location on the Stonehenge, Avebury and Associated Sites World Heritage Site website (http://www.stonehengeandaveburywhs.org/management-of-whs/stonehenge-avebury-research-framework/).

The new *Stonehenge, Avebury and Associated Sites World Heritage Site Research Framework* comprises the following main component parts:

- **Resource Assessment**
  Avebury Resource Assessment (Leivers and Powell 2016)
  Stonehenge Resource Assessment (Section 2: Darvill 2005)
  Stonehenge Update (on-line)
  Avebury Resource Assessment (Part 1: AAHRG 2001)

- **Research Agenda**
  Stonehenge and Avebury Research Agenda
  Avebury Research Agenda (Part 2: AAHRG 2001)
  Stonehenge Research Agenda (Section 3: Darvill 2005)

- **Research Strategy**
  Stonehenge and Avebury Research Strategy
  Avebury Research Strategy (Part 3: AAHRG 2001)
  Stonehenge Research Strategy (Section 4: Darvill 2005)

## Radiocarbon Dates

Calibrated date ranges were calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v4.1 (Bronk Ramsey 1995; 1998; 2009) and the INTCAL09 dataset (Reimer *et al.* 2009). Ranges are rounded out to the nearest 10 years.

## Lifespan

The lifecycle of this document is likely to be between five and ten years, parallel to the *Stonehenge and Avebury World Heritage Site Management Plan*, and depending on the pace of research in the World Heritage Site. The progress of research will be monitored by ASAHRG, who will determine when a further revision is necessary. The next version of the Research Framework should fully integrate both parts of the World Heritage Site into a single document.

# Part 1:
# Methods of Research

## Introduction

This section provides an assessment of the wide range of methods, old and new, which have been used to develop our understanding of the archaeology of the WHS. It corresponds broadly, therefore, to 'Part 5: Methods and Techniques' of the previous Avebury Research Agenda (AAHRG 2001). It includes methods of non-intrusive survey; intrusive archaeological fieldwork; historic and documentary research; and forms of scientific analysis, as well outlining the range of other resources which enable and support research in the World Heritage Site.

## Geophysical Survey

*by Andrew David*

### *Introduction*

Geophysical survey is defined here as the ground-based and non-intrusive use of geophysical methods to locate and characterise archaeological features and deposits. Such methods are often supported by other techniques of geoarchaeological site investigation, such as augering and magnetic susceptibility survey. Much less commonly, the mapping of spatial patterns of chemical traces in the soil, as in phosphate survey, can also help characterise former land use.

The Avebury area continues to attract the application of geophysical techniques. Since this activity was last assessed (David 2005), work has continued on an episodic basis in response both to specific research projects, and conservation needs. Recent surveys have focused in particular on Silbury Hill and its environs, as well as on locations associated with the wider megalithic landscape. Techniques of choice remain magnetometry and earth resistance, with some additional use of ground penetrating radar.

### *Background*

The Avebury WHS is underlain by chalk. Over the higher ground there are thin cultivated soils with, in places, an intermediate capping of Clay-with-flints. Valley bottoms are infilled with superficial deposits of varying depths, including solifluction deposits, colluvium and alluvium (Evans *et al.*1993).

The geophysical potential of such substrates can be very high. Chalkland soils, in particular, often have a magnetic susceptibility (MS) that is well suited to magnetometer survey (eg, on Windmill Hill, MS values range between 20–135 x $10^{-8}$ $m^3$/kg). However, most archaeological features will become difficult to detect at soil depths exceeding a metre in the valley bottoms (Clark 1996). MS values tend to be lower in these areas too (eg, 4–30 x $10^{-8}$ $m^3$/kg in the Winterbourne Valley: GSB 1992a).

The history of geophysical survey (see Pl. 3) in the Avebury area goes back at least to 1959, increasing in tempo and coverage from 1975 onwards. Overviews of the results and an indication of the potential of the technology have been published previously (David 2001; 2005). Together with aerial remote sensing and investigative earthwork survey, geophysics is part of a powerful combination of field techniques in use in the WHS and has demonstrated that major advances in detection and subsequent conservation are possible.

The chalkland geology of Avebury favours the application of magnetometer survey in particular, for the location of negative features such as pits and ditches, as well as previously heated features, and the results are effectively demonstrated at sites of Neolithic to medieval age. Earth resistance methods have been used more sparingly but have been of proven worth for the location of megalithic burials and destruction sites, as well as helping define earthworks and structures up to the post-medieval period. Ground penetrating radar had been used more sparingly still, and experimentally, to help define buried megaliths and megalithic structures. The further potential of this 3D methodology, including its use on the sites of buildings, and of more sensitive and mobile magnetometer arrays, has been a feature of more recent work.

### *Assessment of Current Geophysical Survey Coverage*

Table 1 brings the listing of geophysical surveys in the Avebury Area up to date (2011). Grey literature reports on much of the more recent work are

*Table 1 Geophysical surveys in the Avebury Area up to 2011*

| Location | NGR | Date | By whom | Type | Reference |
|---|---|---|---|---|---|
| Avebury Henge | SU 1025 7000 | 1975–96 | AML | Mag, Res, EM | Ucko *et al.* 1991; Bewley *et al.* 1996 |
| Avebury Henge | SU 1040 6995 | 2003 | NT | Res | Unpubl., Papworth 2004 |
| Avebury Henge, The Cove | SU 1023 6999 | 1998 | Aperio Ltd | GPR | Dodds and Eddies 1998 |
| Avebury Henge, outside E entrance | SU 1050 7010 | 1990 | AML | Res | Ucko *et al.* 1991 |
| Avebury Henge; SW Sector | SU102 698 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005 |
| Avebury Manor | SU 099 700 | 1991 | A. Bartlett | Mag, Res | Unpubl. NT archive |
| Avebury Manor Park (DMV): field north of Manor Parkland | SU 099 701 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005; Unpubl. NT archive |
| Avebury (Old School House) | SU103700 | 2010 | EH | GPR | Unpubl. |
| Avebury (Old School House) | SU103700 | 2010 | Talits | Res | Gunter and Roberts 2010 |
| Avebury Car Park | SU 0995 6968 | 1984 | AML | Mag | Unpubl., David 1984 |
| Avebury Trusloe: Manor Farm Paddock (Beckhampton Avenue) | SU 0950 6970 | 2005 | Longstones Project (Bristol University: J. Gunter and V. Roberts) | Res | Gunter and Roberts 2005 Gillings *et al.* 2008 |
| Avebury Trusloe: Longstones Field (Beckhampton Avenue) | SU 0859 6881 | 2003(?) | Longstones Project | Res | Gillings *et al.* 2008 |
| Beckhampton Avenue, Longstones Field | SU 090 693 | 1975–00 | AML | Mag, Res, GPR | Ucko *et al.* 1991; David 1999; 2000; 2008a |
| Beckhampton Avenue: Long Barrow Field | SU 087 691 | 2002 | EH | Res, Mag | David 2008b |
| Beckhampton Avenue: Beckhampton Field | SU 0926 6963 | 2001 | Longstones Project | Res | Gillings *et al.* 2002; 2008 |
| Beckhampton barrow cemetery (Area A) | SU 092 690 | 1993 | GSB Prospection | Mag, MS | Powell *et al.* 1996 |
| Foot of Avebury Down | SU115704 | 2007 | Talits | Res | Gunter and Roberts 2007 |
| Devizes Road | SU 083 688 | 2002 | Longstones Project | Res | Unpubl. |
| Avebury barrows G24, G25, G25a, Overton Hill | | 1989 | Cardiff University | Mag | Unpubl., Hamilton 1997 |
| Avebury barrow G29a, Overton Hill | SU 116 689 | 1997 | Cardiff University | Mag | Unpubl., Hamilton 1997 |
| | | 1998 | | Mag | Unpubl., Hamilton and Dennis 1998 |
| Avebury barrow G21 | SU 110 692 | 1997 | Cardiff University | Mag | Unpubl. |
| North Farm, West Overton barrow G16 | SU 132 686 | 1998 | Cardiff University | Mag, Res | Unpubl., Hamilton *et al.* 1998 |
| Overton Hill barrow G1 | SU 1189 6797 | 2009 | NT and Talits | Mag, Res | Unpubl., Papworth, 2010 |
| Hackpen, Overton Hill | SU 11415 69010 | 2005 | J. Gunter and V. Roberts | Mag, Res | Unpubl., Snashall 2007 |
| West Kennet Avenue | SU 101 686 | 1990 | AML | Mag, Res | Ucko *et al.* 1991 |
| West Kennet Avenue | SU 108 690 | 1997–8 | Cambridge University | GPR, Res | Unpubl. |
| South Street Long Barrow | SU 0902 6928 | 1996, 2000 | A. J. Clark; EH | Mag | Ashbee *et al.* 1979; Martin 2001a |
| Horslip Long Barrow | SU 0860 7052 | 2000 | EH | Mag | Martin 2001a |
| Adam's Grave | SU 112 634 | 1997–8 | Cambridge University | GPR | Unpubl. |
| Easton Down Long Barrow | SU 063 661 | 1991 | Cardiff University | Mag | Whittle *et al.* 1993, 200; Cardiff University archive |
| Millbarrow | SU 094 722 | 1989 | Cardiff University | Mag | Whittle 1994 |

| | | | | | |
|---|---|---|---|---|---|
| West Kennet Long Barrow | SU 104 677 | 1991, 2001 | AML, CfA | Mag, Res, EM | Unpubl., Martin 2001b |
| West Kennet Enclosures | SU 109 681 | 1989 | Cardiff University | Mag | Unpubl. |
| West Kennet Enclosures | SU 109 681 | 1991–2 | Cambridge University | Mag | Unpubl. |
| West Kennet Enclosures (north meadow) | SU 113 683 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005 |
| Silbury Hill | SU 1001 6853 | 1959 | F. R. McKim | Res | McKim 1959 |
| Silbury Hill (Ditch) | SU 100 685 | 1968 | UCSWM | Seismic | Whittle 1997a |
| Silbury Hill | SU 1001 6853 | 2001–2 | Skanska | Seismic | Unpubl. |
| Silbury Hill | SU 1001 6853 | 2001 | EH | Res, Mag, GPR | Linford and Martin 2001; Linford 2001 |
| Silbury Hill environs | SU 104 683 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005 |
| Silbury Hill environs | | 2005–8 | EH | Mag, Res | Linford *et al.* 2007; 2009 |
| Silbury/Waden | | 1997 | Cardiff University | Mag | Unpubl. |
| Silbury/Waden | | 1993 | GSB Prospection | Mag, MS | Powell *et al.* 1996 |
| Other foul sewer line sites | | 1993 | GSB Prospection | Mag, MS | Powell *et al.* 1996 |
| Waden Hill | | 1998 | Cardiff University | Mag | Unpubl. |
| Waden Hill (N end) | SU 1034 6931 | 2006 | NT (J. Gunter and V. Roberts) | Mag, Res | Gunter *et al.* 2006 |
| Falkner's Circle | SU 1098 6931 | 2002–3 | EH | Mag, Res | Martin 2004; 2008 |
| The Sanctuary | SU 118 680 | 1999 | Cambridge University | Mag | Unpubl. |
| The Sanctuary café | SU 118 681 | 1998 | Cardiff University | Mag | Unpubl. |
| Winterbourne Bassett stone circle | SU 6035 7550 | 1998 | AML | Mag, Res | David *et al.* 2003 |
| Windmill Hill | SU 087 714 | 1988–93 | AML | Mag | Whittle *et al.* 1999 |
| | | 1988, 1993 | Cardiff University | Mag, MS | Unpubl., Banham 1995 |
| Headlands Enclosure, West Overton | SU 1285 6882 | 1999 | Cardiff University | Mag | Pollard and Reynolds 2002, fig. 59 |
| | | 2003 | EH | Mag | Linford 2004 |
| Knoll Down | | 2004 | J. Currivan | ?? | Currivan 2004 |
| Overton Hill, 'causewayed enclosure' | SU 114 684 | 1989 | Cardiff University | Mag | Unpubl. |
| Wroughton Copse (Fyfield Down) | SU 138 707 | ? | ? | Mag, Res | Fowler 2000a, 34, 46 |
| Site X/XI (Overton Down) | SU 132 703 | ? | ? | Mag, Res | Fowler 2000a, 34, 46 |
| Piggledene | SU 139 691 | 2008 | EH | Mag | Linford 2008 |
| Oldbury Hillfort | SU 049 693 | 1996 | AML | Mag | Payne *et al.* 2006, 123–7 |
| Compton Bassett | | 1996–8 | Cardiff University | Mag | Unpubl. |
| Yatesbury | SU 071 699 | 1993 | Cardiff University | Mag, Res | Pollard and Reynolds 2002, fig. 65 |
| | SU 605 715 | 1996 | | | |
| | SU 074 707 | 1996–8 | | | |
| Wansdyke | | 1970–? | A. J. Clark | Mag, Res | Unpubl. |
| Delling Valley | SU 132 714 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005 |
| Sloe Copse; Shelving Stones long barrow? | SU 096 704 | 2005 | J. Gunter and V. Roberts | Res | Gunter and Roberts 2005 |
| Bridgemead, High Street, Avebury | SU 09839 69878 | 2010 | Talits | Res | Unpubl. (part of ongoing watching brief) |
| West Kennett Farm orchard | SU112 383 | 2010 | Talits | Res | Unpubl. |

AML – Ancient Monuments Laboratory; EH – English Heritage; EM – Electromagnetic; GPR – Ground Penetrating Radar; Mag – Magnetometry; MS – Magnetic susceptibility; NT – National Trust; Res – Resistivity

available, listed in the bibliography, although at the time of writing (2011) it has not been possible to assess all the results from the smaller surveys. The most consequential results are summarised below.

Within and around Avebury itself the Ancient Monuments Laboratory (AML) have been conducting surveys intermittently since 1975. This has been largely in response to calls for further information about the archaeology of the main monument complex, the enclosures on Windmill Hill and the West Kennet long barrow. In the last two decades surveys have also been undertaken by others, for instance the magnetometer surveys by Cardiff University over parts of the West Kennet palisade enclosures, Overton Down and elsewhere and GPR surveys by Cambridge University over buried monoliths on the course of the West Kennet Avenue. Development-driven surveys include those by Geophysical Surveys of Bradford (GSB) along the course of the Kennet Valley Foul Sewer (GSB 1992a, 1992b; Powell *et al.* 1996). Also, the National Trust has commissioned surveys on its property, for instance within the grounds of Avebury Manor (Bartlett 1991).

**Avebury henge**

Earth resistance surveys have now been undertaken of parts of the south-west, south-east and north-east quadrants (Gunter and Roberts 2005; Papworth 2004). These surveys, especially in the eastern half of the henge have confirmed the existence of the stone settings of the main circle and extant earthworks; no other certainly prehistoric elements have been identified although various additional and more speculative features, of various possible dates, have been tentatively indicated. Potential boundary features are summarised in Gillings *et al.* (2008, fig. 8.9).

**Beckhampton Avenue**

Accounts of various small surveys undertaken between 2002–5 in support of the Longstones Project have been published (Gillings *et al.* 2008). The ability of earth resistance survey to detect some former stone settings, already evidenced by earlier surveys near the Longstones, was confirmed again following excavation of a high resistance anomaly that proved to be a stone burial north-west of Trusloe Cottages (*ibid.*, 103–9). However, it is worth cautioning that this and other similar surveys also often return ambiguous or negative results concerning the presence/absence of stone settings.

As elsewhere, earth resistance surveys in the Beckhampton area have detected evidence of former cultivation practice, most probably of medieval or more recent origin.

**Falkner's Circle**

Both magnetometer and earth resistance surveys over this putative former stone circle produced results difficult to interpret with confidence, even with the presence of a surviving monolith as a guide (Martin 2008). Excavation revealed that the surveys had detected a stone destruction pit and, less convincingly, three pits interpreted as possible stone-holes. Such results emphasise the great difficulty to be encountered in recognising former megalithic settings, a problem exacerbated manyfold if the location of the former site is not well known, and complicated by the presence of naturally occurring sarsen material.

**Ring ditches and barrows**

Magnetometer, and especially earth resistance surveys over ring ditches continue to be successful, as demonstrated over the barrow cemetery on the northern end of Waden Hill (Gunter *et al.* 2006). The earth resistance data here incidentally located two long concentric curvilinear anomalies which, although speculated to be either natural or resulting from flint extraction, would benefit from further investigation.

An earth resistance survey over a surviving bowl barrow and its environs south-east of the Sanctuary on Overton Hill was successful and identified additional features of interest including the probable site of a barrow excavated by Stukeley (Papworth 2010).

**West Kennet Palisade Enclosures**

Earth resistance survey of the uneven meadow field between the River Kennet and the known but incomplete circuits of Palisade Enclosure 2 and parts of Enclosure 1 was undertaken in 2005 (Gunter and Roberts 2005, 44–55). This field is traversed by two substantial buried oil pipes, but the surveys at least hint at other alignments that might correspond with extensions to the enclosure circuits. The picture is further complicated though by the effects of later earthworks, water management features and possible migration of the river channel. The resistance response is mostly rather diffuse and identification of possible arcs and alignments can only be cautious without further evaluation.

**Headlands Enclosure**

The excellent response to magnetometer survey that can usually be expected of Iron Age occupation sites is exemplified by the caesium magnetometer coverage of the Headlands Enclosure at West Overton (Linford 2004; Fowler 2000a). Together with aerial photography, this survey has accurately located a potentially multi-phased circular enclosure with entrances and a mass of internal pits, external linear features and possible timber structures.

**Silbury Hill and Environs**

The Silbury Hill Conservation Project was the stimulus for much geophysical survey effort, including 3D seismic and electrical resistance tomography, ground penetrating radar and magnetic survey, to try to determine the subsurface character and condition of the mound; however, the results of all these endeavours were of mixed value compared with the results obtained from a number of bore holes.

More positively, the survey effort was extended to encompass the entire surroundings of the mound as part of a multidisciplinary project to provide a firmer archaeological and historical context for the Hill. The input that this entailed represents the largest and most concerted of the geophysical surveys so far undertaken inside the Avebury WHS boundary (Linford *et al.* 2009). The coverage included the low-lying meadow fields around the monument, and extended south of the A4 to include the meadows between the Hill and the Swallowhead Spring and the adjacent slopes of the field to the west of the Winterbourne.

All these areas were surveyed with an array of caesium magnetometer sensors with some outstanding results. Most notably, the slopes to the east of the Winterbourne and south of the Hill were found to be the site of an extensive rectilinear network of ditches, enclosures, route-ways and other features including at least three buildings; subsequent field evaluation has confirmed the likelihood that all these features represent Roman settlement. GPR survey has clarified the definition of the buildings (see Fig. 17).

The magnetic response in the meadows around the Hill was muted in places by valley alluvium but the sensitivity of the magnetometers was such that evidence of further buried ditches was detected to the north and east, suggesting that the Neolithic mound was the focus of very extensive later settlement; enclosures on the slightly higher ground to the east of the foot of the Hill also hint at possible ritual precincts or sanctuaries.

Earth resistance survey was deployed on a smaller scale over a number of locations to either side of the A4; a further possible building was located close to the Winterbourne near the foot of Waden Hill, and elsewhere the technique was responsive to geomorphology and to more superficial and probably more recent earthworks and landscape features. A particularly enigmatic pattern of high resistance anomalies encircling slightly higher ground in the meadows south and north of the A4 was later confirmed to be the probable response to elaborate post-medieval water management features.

### *Conclusions*

The summaries above will give a flavour of the geophysical survey activity that has taken place in recent years in the Avebury area. It is far from exhaustive, and a number of smaller and possibly less conclusive surveys (see Table 1) have been omitted. It remains to re-emphasise that geophysical survey needs to be an active and critical element of on-going and future research in the WHS. Archaeological features of a wide variety of types and chronology are often very responsive to geophysical methods and the recent work continues to demonstrate that, apart from refining current knowledge, major new discoveries can still be made. Geophysical surveys in isolation are less fulfilling than when they are embedded in multidisciplinary projects that take full advantage of integrated remote sensing technologies, surface survey, documentary research and subsequent validation in the field.

## Aerial Archaeology

*by Martyn Barber*

### *Introduction*

Aerial survey involves a variety of techniques and technologies largely concentrated around flight, image production, interpretation and transcription. Aerial archaeology is a specialised form of aerial survey which is generally but not solely focused on prospection for and analysis of archaeological remains through airborne reconnaissance and survey. Although increasingly utilising emerging and non-photographic technologies such as lidar, aerial archaeology is most commonly associated with systematic procedures for interpretation and transcription from aerial photographs.

### *What is Aerial Archaeology?*

Although aerial archaeology is commonly associated with the airborne camera, most effort occurs on the ground, indoors, utilising imagery that is years or even decades old. Instead of the individual, carefully framed oblique views of sites that tend to appear in publications, aerial archaeology is characterised by the analysis of sequences of photographs – sequences across space (the automated, overlapping vertical cover captured by survey cameras); and sequences across time (photographs of the same site or area taken at irregular intervals over periods of years or decades). Above all, aerial archaeology is concerned with attention to detail – the exercise of trained judgement within a framework of systematic procedures allowing practitioners to build narratives from an accumulation of fragments.

Aerial archaeology draws mainly on two different kinds of aerial photograph – the angled or *oblique*

view, and the *vertical* view. Obliques are generally taken with hand-held cameras, and this kind of observer-directed photography has characterised archaeological aerial reconnaissance since the 1930s. Verticals are generally taken with automated cameras fixed in position within the aircraft, the lens pointing straight down at the ground. This mechanised approach to aerial photography has characterised aerial survey since the later 19th century. Although rarely taken for archaeological purposes, such photographs nonetheless incidentally capture much of archaeological or historic interest.

The significance of the overlap, particularly with automated survey images, needs stressing. Originally, ensuring an overlap enabled individual photographs to be pieced together into a larger mosaic, but during the inter-war years the significance of the overlap was enhanced as the value of stereoscopic viewing for aerial survey became more widely accepted within military and cartographic circles. Viewing the overlapping portions of sequential images through a stereoscope provides the illusion of a three-dimensional view – and it is important to stress that it is an illusion. The three-dimensional image perceived by someone looking through a stereoscope has no external reality – it does not exist outside the mind of the observer. However, the ability to recognise that particular features possess height or depth relative to their surroundings is clearly important to an air photo interpreter.

Although aerial archaeology is particularly associated with prospection for cropmarks, and to a lesser extent soilmarks and earthworks, anyone familiar with recent mapping projects will realise that this is an oversimplification, albeit perhaps true of aerial archaeology in previous decades. Cropmarks are, of course, the result of buried archaeological features affecting the growth of vegetation above them, a phenomenon most marked in cereals but which can occur across a range of arable crops. A significant factor – but by no means the only one – is the moisture content of the soil, with cropmarks more likely to appear in vegetation growing over archaeological sites on the more freely-draining chalks and gravels than the moisture-retaining clays. Soilmarks are traces of archaeological sites visible in bare ploughsoil, the action of the plough exposing differences in colour and texture between archaeological features and the surrounding soil. Earthworks are the features that tend to benefit the most from the three-dimensional view, although their visibility on aerial photographs is often highlighted or enhanced by the shadows they cast, the optimum time for earthwork photography being when the sun is low in the sky.

As the focus of aerial archaeology has broadened from a primary concern with cropmarks – and in particular prehistoric cropmarks – to encompass all periods from the Neolithic through to the later 20th century, so a far wider range of features is now mapped, with considerable effort put into identifying and mapping structures that post-date the introduction of aerial survey to archaeology. For features dating from the 20th century – for example, structures associated with the Second World War such as hangars, decoys, PoW camps etc., this means mapping them not from photographs of their currently extant remains but from photographs taken while they were in use.

## *Aerial Archaeology and Avebury*

The earliest known aerial photographs taken within the WHS are now nearly a century old, and sites from the area feature in pioneering works of aerial archaeology. The area continues to attract attention, both as part of English Heritage's annual reconnaissance programme and from individual flyers and photographers. Aerial photography in the Avebury area has a history dating back at least as far as the First World War – certainly some photographs of places now within the bounds of the WHS were taken from aeroplanes based at one of the two training aerodromes at Yatesbury, which were active between 1916 and 1919. Unlike Stonehenge, however, there is no indication of any pre-First World War balloon photography, either military or civilian, occurring in the vicinity.

The first aerial photography undertaken in the Avebury area with archaeological aims in mind occurred during flights undertaken in the summer of 1924 for O. G. S. Crawford and Alexander Keiller's *Wessex From the Air* monograph, published in 1928. A landmark volume in the history of aerial archaeology, this probably represented the first civilian use of an aircraft for archaeological purposes in this country, although Crawford and Keiller's approach was not 'aerial survey' in the modern sense. Nor did it resemble the practices Crawford had learnt on the Western Front a few years earlier.

*Wessex From the Air* featured several sites in the Avebury area – field systems on Overton Down, for example, and various earthworks on Cherhill Down, while additional sites were listed as either photographed, or seen but not photographed. Most noteworthy was a sequence of three large plates showing Avebury, Avebury Trusloe and Beckhampton, taken in the hope of resolving the 'problem' of the Beckhampton Avenue. As Crawford noted, William Stukeley's various plans of this Avenue were inconsistent in their detail, and there was the added problem that Stukeley had been '… bitten by a theory; he believed that Avebury was

*Plate 4 Vertical view of Avebury taken by the RAF on 2 September 1929, a few years before Alexander Keiller set to work on the henge and village. (© Historic England Archive, Crawford Collection)*

designed in the plan of a snake…'. Crawford hoped that aerial photographs might 'help clear up the matter… Unfortunately, they leave it where it was. There are no signs on any of them of stone-holes.'

Subsequently, aerial survey in general and aerial archaeology in particular has followed a similar pattern to that observed elsewhere. Between the wars, archaeologists such as Crawford were largely reliant on the RAF for aerial photographs (Pl. 4), these generally being taken during training exercises. Crawford took a particularly pro-active role, collecting negatives and prints during visits to RAF bases as well as offering suggestions about where to fly. Included among the photographs he collected during this period is the earliest known trace of the West Kennet palisade enclosures as a cropmark, although the significance of the photograph was not recognised until the 1990s. Civilian aerial photography did not really get underway until after the Second War, supplemented initially by J. K. St Joseph's annual flying programme under the auspices of the Cambridge University Committee for Aerial Photography (CUCAP, and more recently the Unit for Landscape Modelling) and from the later 1960s by the Royal Commission on the Historical Monuments of England's (RCHME) (and since 1999 English Heritage's) annual reconnaissance programme. Since the mid-1960s, the National Record of the Historic Environment has also built up a substantial library of aerial photographs, drawing particularly on comprehensive vertical cover of the country undertaken by the RAF (from the mid-1940s), the Ordnance Survey and other organisations.

Archaeological survey focused on the Avebury area, drawing on these and other sources of aerial photographs, has over the last 20 years or so comprised a series of relatively small-scale interpretative mapping projects concentrated on particular sites or areas (eg, Bewley *et al.* 1996; Corney 1997a; Fowler 2000a; Barber 2003); with the 1997–8 mapping of the WHS as a whole (see below) providing a broader interpretative framework for these smaller projects, as well as an opportunity to update their results from new, or newly available, aerial photographs.

## *Avebury and the National Mapping Programme*

The landscape of the entire WHS and its wider environs has in recent years been mapped twice as part of the National Mapping Programme (NMP) – once (1997–8) from all accessible aerial photographs,


*Figure 4 Part of the area mapped from aerial photographs in 1999, with some updates from subsequent reconnaissance photography and lidar. The base map is derived from the Ordnance Survey 1:10,000 mapping (© Historic England and © 2016 NextPerspectives). This plan is reproduced from Leary* et al. *2013*

and more recently (2010–11) that mapping has been further enhanced via the analysis of more recent reconnaissance photographs and of lidar data (Fig. 4). The point about examining all accessible aerial photographs is worth stressing – features of interest are seldom visible with the same degree of clarity on every occasion that a photograph is taken, while in many cases factors such as lighting conditions, angle of view, altitude, scale of photography, vegetation cover and so on can seriously affect the visibility of archaeological features, or even render them completely invisible. In addition, of course, cropmarks will only develop under certain conditions, and even when those conditions seem ideal, there is no guarantee that any part of a particular site will be visible, let alone in its entirety, hence the need for access to all available aerial photographs. There simply is no such thing as a representative sample of aerial photographs. Omitting particular photographs or collections of photographs from a survey project runs the risk of significant detail being missed. At the same time, the absence of any trace of an archaeological feature at a particular location on aerial photographs does not mean that there is nothing there.

The National Mapping Programme follows a particular methodology, aiming to map all archaeological and historic features within a particular project area, using particular mapping conventions, to a specified standard and scale. That methodology has developed considerably since the days of the first pilot projects in the 1980s, and even since the initial Avebury World Heritage Site Mapping Project (AWHSMP) in the late 1990s. The AWHSMP was undertaken at the point when manual transcription methods were giving way to digital techniques, meaning that initially at least, parts of the project area were mapped by hand onto permatrace while others involved computerised rectification of photographs via AERIAL, a rectification package developed at the University of Bradford, with the actual mapping undertaken in AutoCAD. Aerial Survey within English Heritage currently continues to use the latest versions of each of these software packages.

The scope of NMP projects has developed too, particularly in terms of what to map and what not to map. The increasing amount of attention paid to detail from more recent periods has been mentioned in terms of 20th-century military remains, but additional site categories such as medieval and post-medieval agriculture (water meadows, ridge and furrow, etc.) and industry (chalk extraction, for example) feature on the mapping. The issue with exclusions is more complex, especially where it relates to things like field

boundaries that are no longer extant but which feature on early editions of the Ordnance Survey mapping. The use of lidar (see below) presents particular challenges in such instances.

The end-product of NMP projects such as the AWHSMP is not simply the map, digital or otherwise. The map merely shows the location, distribution and spatial extent of features identified on aerial photographs by those undertaking the survey. Nor is the map simply a product of 'tracing off' the archaeological features from those photographs. Instead, everything that appears is the result of a series of choices made by the interpreter, guided by training, experience and the scope and methodology of the project; the systematic procedures for analysis and mapping perhaps obscuring the degree of subjectivity inherent in the process. Decisions as to what is archaeological and what is not are seldom clear-cut, and research incorporating or based on the results of NMP need to engage not just with the map, but with the individual database records (held by the NRHE and the relevant HER) for each site or group of sites, the project report, and the photographs themselves.

It is also important to remember that, whatever the scale of the project, the map, report and database records can never be regarded as the final word. Photographs are open to renewed analysis and interpretation; new detail – especially for cropmark sites – can and will appear, either on newly-taken reconnaissance photographs or newly-accessible historic images; new detail can also be revealed through new or different imaging technologies such as multi-spectral satellite imaging or lidar; and so on. Also, the interpretations arising from a particular survey project are themselves always amenable to reinterpretation, not just in the light of newly available remotely-sensed data, but also in the wake of, say, geophysical survey or excavation. Although these techniques are often treated as sequential, with each successive step adding more information about a site, their results can also prove invaluable in re-analysis of the aerial survey data. An obvious example in the Avebury landscape is the West Kennet palisade complex, where information about the soil and sub-soil conditions published in the excavation report (Whittle 1997a) was invaluable in helping to decide which cropmark features were more likely to be archaeological and which were not.

## *Avebury and Lidar*

Aerial archaeology is often presented as a prospecting technique whose history is essentially about the continuing development of ever more technologically advanced methods for capturing images of the earth's surface from altitude. Consequently a technique like lidar – Light Detection And Ranging – introduced relatively recently to archaeology, although its origins lie prior to the Second World War, is sometimes perceived as being inherently superior to, and potentially a replacement for, more traditional camera-based remote-sensing. This perception misrepresents both aerial photography and lidar.

Lidar differs considerably from aerial photographic survey in many key respects. It is not a photographic technology, although it is often presented as though it were. Airborne lidar measures the distances travelled by pulses of light, recording the time each pulse takes to reflect back to the aircraft, in the process capturing variations and undulations in the earth's surface and anything upon it, including buildings and vegetation. A pulsed laser beam, scanning the ground from side to side as the aircraft passes overhead, can send down 100,000 or more pulses per second, allowing for the subsequent creation of a high resolution three-dimensional model of the ground surface.

Although there is overlap between what has been captured using lidar and what can be gleaned from aerial photographs, there are important differences which serve to underline their complementary nature. Essentially a measuring tool, lidar excels at identifying the slight or faint earthworks traces that are difficult to see on aerial photographs, even with a stereoscope. The visibility of such traces can be enhanced by exaggerating the vertical scale when viewing the digital ground model. However, as a measuring tool, lidar cannot see anything that lacks height or depth relative to its surroundings, and is unlikely to identify any feature whose height or depth is below the resolution of the lidar survey. Lidar also lacks the historic dimension, producing instead a digital simulation of the surface as it was at the time that the lidar survey was undertaken. It also requires analysis of aerial photographs to aid interpretation.

Lidar is recognised for its ability, given the right conditions, to 'see' into wooded areas. So long as neither canopy nor ground vegetation are too dense at the time of the survey, a proportion of the laser pulses will reach the ground beneath the trees. There will be gaps, of course, but a three-dimensional ground model can usually be created from those last returns, and has in a number of cases revealed earthworks of archaeological interest beyond the reach of traditional forms of remote sensing. This particular aspect of lidar has not yet been tested for the Avebury WHS or its wider environs – a planned analysis of the West Woods lidar data had to be postponed due to time constraints – although slightly further afield, Savernake Forest has yielded impressive results (Lennon and Crow 2009).

*Plate 5 March 2010 oblique view of the newly-recognised probable long barrow. Located* c. *500 metres south-east of Avebury's southern entrance, the soilmarks representing the barrow ditches can also be seen on Google Earth imagery (© Historic England Archive)*

Within the area of the AWHSMP, lidar's principal contribution has been the recognition of low, spread earthworks difficult to identify from aerial photographs and equally difficult to survey on the ground. This has led to some infilling of detail within known later prehistoric field systems, for example, as noted above, aerial photography requires shadows cast in low sunlight to enable the slighter earthworks to be rendered visible, successful 'shadow' photography being best undertaken early in the morning, or in the evening. Within lidar, the virtual sun can be persuaded to shine from any angle or direction (or indeed, from more than one of each), enhancing the visibility of earthworks not casting shadows at those times.

The lidar survey has also indicated cases where sites previously mapped as cropmarks do in fact possess slight earthwork survival, although there are many more cropmark sites which have not registered on the lidar survey. The West Kennet palisaded complex, for example, has so far proved invisible to lidar, while the recently recognised long barrow (Pl. 5) a short distance south-east of Avebury, photographed during English Heritage aerial reconnaissance in March 2010 (and equally visible on Google Earth) is equally absent from the lidar ground model. Although some potential sites of later prehistoric and Roman date have been picked out from the lidar, the majority of the 'new' features are broadly of post-medieval date, some of them likely to be quite recent. At the time of writing, comparison of the lidar with the full range of available historic mapping has not been undertaken: it may prove possible to offer more precise interpretation of many of these 'new' earthworks. These relatively recent features have been mapped because they are visible on the lidar Digital Surface Model (DSM) as surface anomalies that require identification and interpretation, something that is seldom possible from the DSM alone. Their presence on the lidar mapping but not on the original AWHSMP mapping does not mean that they were not seen or are not visible on aerial photographs – in a number of cases checked so far, they are clearly visible – merely that at the time of the AWHSMP, such features fell outside the scope of what was considered to be of archaeological interest. In effect, the use of lidar, particularly at the higher resolution available for the Avebury area (0.5 m), reinforces the kind of engagement with more recent landscape features that had already been developing within aerial archaeology in recent years.

## Analytical Landscape Survey and Investigation

*by Mark Bowden*

### *Introduction*

Analytical landscape survey and investigation, incorporating analytical earthwork survey, is the primary means of recording and analysing upstanding archaeological features, sites and landscapes. It starts from the premise that the landscape is a unique


*Figure 5 Places mentioned in the text*

document recording the lives of past generations – 'the richest historical document we possess', in the words of Prof. W. G. Hoskins (1955, 14). Analytical survey gives information on the form, condition and relative chronology of features. It can also give information about function but rarely about absolute chronology. Crucially, analytical landscape survey is non-period specific, viewing the totality of the historic landscape to interpret its development throughout all periods of human occupation or use. Current standard works on analytical landscape survey include Bowden (1999, especially chapters 4 and 5), Muir (1999), Brown (1987, chapters 3 and 4) and Bettess (1984). Analytical landscape survey is complementary to all the other non-intrusive investigation techniques described here, and to environmental archaeology and excavation. Analytical survey can be seen as a three-stage process (though the stages may be concurrent, cyclical or reflexive): observation, measurement and interpretation. The measurement stage has benefitted greatly in recent years from the development of electronic survey equipment, notably total station theodolites (TST) (English Heritage 2011a) and especially Differential Global Positioning by Satellite (GPS) (English Heritage 2003); the developing technologies of terrestrial laser scanning (English Heritage 2011b) and lidar (English Heritage 2010) are also coming on stream. However, none of these hi-tech surveying applications substitutes for the inquisitive mind or the observational and interpretative skills and the experience of the archaeologist, often aided by more traditional equipment (English Heritage 2002). It is worth stressing that the approach advocated here is self-confidently subjective and interpretive, eschewing the objective but bland and mechanistic approaches often advocated for recording field monuments.

## *The Products of Survey*

The principal product of such analytical survey is a plan that depicts relative time depth as well as accurate spatial information. Traditionally this has been achieved through the medium of the conventional hachured plan and though this is not a perfect solution no better system has yet been found. Rapid 3-dimensional recording through GPS and lidar does, however, offer the opportunity of equivalent means of depiction through the generation of slope models; the potential of this technology has yet to be fully explored. The plan is always accompanied by a report which forms an extended caption, describing and interpreting the depicted features. Appropriate products for different levels of survey are outlined in English Heritage 2007.

### *Previous Work*

The Avebury area has been one of the cradles of earthwork analysis and landscape archaeology (Fig. 5). In the mid-16th century John Leland described the area: 'Kenet risithe northe northe west [of Marlborough] at Selberi Hille botom, where by hathe be camps and sepultures of men of warre, as at Aibyri a myle of, and in dyvers placis of the playne' (Toulmin Smith 1964, 81); but John Aubrey in the 17th century and William Stukeley in the 18th century were the real pioneers (Welfare 1989, 17–20; Stukeley 1743). They were followed by the Revd A. C. Smith, who compiled the first inventory of the archaeological monuments of the area in the 19th century (1885). O. G. S. Crawford, one of the foremost figures in 20th-century landscape archaeology, gained his earliest appreciation of the historic landscape on these downs (1955, 30).

Most upstanding monuments within the current Avebury WHS boundary have been subject to large-scale detailed survey by English Heritage and the former Royal Commission on the Historical Monuments of England within recent years and a number of sites in the region immediately surrounding the WHS have also been surveyed. These surveys are usefully summarised in a group of papers delivered at a conference held at the University of Bath in Swindon in 2002 (Bowden 2005; Brown 2005; Field *et al.* 2005; McOmish *et al.* 2005; Smith 2005). Additional publications of surveys carried out before 2002 include the Marlborough Mound (Field 2000; Field *et al.* 2001) and Silbury Hill (Field 2002; Field and Leary 2010). Oldbury (Bowden 2004; Bowden *et al.* 2005), East Kennet long barrow (Westlake 2005) and settlement remains at Shaw (English and Brown 2009) have been surveyed subsequently. Survey of Oldbury in 2004 emphasised the dominance of its regular east-facing façade and confirmed that it owes much of its form to pre-existing linear ditches. Oldbury, though it is clearly visible from many locations within the WHS, lies well outside the WHS boundary, emphasising just how small the WHS is. Also outside the WHS is Tan Hill, with its complex of linear ditches; while many hillforts may be described as 'unfinished', Tan Hill (see Kirkham 2005, 154, fig. 14.2) is arguably a candidate for a new class of 'hardly begun' hillforts.

### *Recent Work*

A survey using lidar alongside conventional aerial photography has revealed a number of previously unrecorded enclosures and other features in Savernake Forest (Lennon and Crow 2009); many of these are quite possibly of Iron Age date. Though this is well to the east of the WHS it is relevant to the confirmation of the existence of a Late Iron Age complex, or possible 'oppidum', around Forest Hill (Corney 1989, 123). One of these enclosures, near Luton Lye Cottages, appears to be overlain by the Roman road. Another, on Church Walk, was surveyed in 2007 in order to test the metrical accuracy and interpretation of the features as mapped from the lidar plot (English Heritage 2010, 32–3). The Church Walk complex consists of a sub-oval enclosure, almost certainly of late prehistoric date, and a conjoined elongated enclosure, which could be contemporary but which is probably of later, but unknown, date. The latter enclosure has been disturbed by quarrying, notably by what is probably a claypit belonging to a documented 18th-century brick maker (G. Bathe pers. comm.). A series of undated hollow-ways runs along the south side of the enclosures and seems to have partly re-used the enclosure ditch. Study of lidar for the WHS itself has now also been undertaken.

## Surface Artefact Collection

*by Nicola Snashall with Rosamund J. Cleal*

Surface artefact collection has been undertaken within the Avebury landscape for over a century. It is an indispensable fieldwork technique that allows us to both identify and characterise locales of past human activity on a landscape scale. Within the WHS it has been most frequently associated with the recovery of lithic scatters through both structured and unstructured fieldwalking. These comprise perhaps our most durable and extensive resource for investigating questions surrounding residence and landscape inhabitation in the Neolithic and Bronze Age.

A summary of material recovered as the result of formal and informal fieldwalking in the Avebury area is given below.

### *Early Collectors*

**J. W. Brooke**
Collection in Wiltshire Museum, including some material from Avebury (Cunnington and Goddard 1934, 8).

**W. Browne**
Largely Windmill Hill; Collection in Wiltshire Museum (Cunnington and Goddard 1934, 6).

**H. G. O. Kendall**
Large quantities of flint were collected from the Avebury region in the early part of this century by the Revd H. G. O. Kendall, rector of Winterbourne

Bassett. Kendall noted concentrations of flint on Windmill Hill, and also on Hackpen Hill, and published widely on these. The site identified as the Foot of Avebury Down has recently been relocated and material recovered from the site by Kendall is currently under analysis as part of the Between the Monuments Project (Pollard *et al.* 2011). Kendall's collections and some notes are held in the Alexander Keiller Museum, Avebury, having been bought from him and from his widow by Alexander Keiller.

**A. D. Passmore**
A. D. Passmore also collected large numbers of flints in the Avebury environs, and his notes allow the approximate find-spots of concentrations of struck flint artefacts to be located, as did the notes made by Kendall. His collection is held in the Ashmolean Museum, Oxford.

## *Late 20th and Early 21st Century*

**R. Holgate and J. Thomas**
The results of a fieldwalking survey in the Avebury environs, and a consideration of Kendall's and Passmore's collections was published in interim form by Holgate in 1987. The lack of information about the field conditions encountered, methodology employed and negative observations made by Kendall and Passmore led Holgate and Thomas to survey areas of Avebury in an attempt to map more precisely the distribution of artefacts across the landscape. The shift in settlements from the upper slopes of the Downs in the Early Neolithic towards the lower valley slopes in the later Neolithic was surmised from the survey material. Their work also concluded that the flint scatters, recognised by Kendall and Passmore and encountered during the recent survey on the south-east slope of Windmill Hill and north-east of Avebury were mainly later Neolithic in date and contained a variety of implements, whereas those to the south of Avebury were probably Bronze Age in date and contained few implements. A detailed chronometric and spatial analysis of the material collected by Holgate and Thomas is being undertaken as part of the Between the Monuments Project (Pollard *et al.* 2011). Both the finds and paper archive are held by the Alexander Keiller Museum.

**University of Wales (Cardiff)**
An area south of the Windmill Hill causewayed enclosure was subjected to systematic surface collection in 1992, associated with test pit and geophysical surveys. This work demonstrated both earlier Neolithic and later Neolithic activity and is fully published (Whittle *et al.* 2000). Whittle *et al.* estimated the southern slopes scatter may have originally contained over 80,000 implements (2000, 151). With over 500 transverse arrowheads recorded from early surface collection, a good proportion of these must relate to episodes of Late Neolithic occupation (Holgate 1988, 242).

**The National Trust**
Three episodes of fieldwalking were undertaken between 1990–1995 by the National Trust on land prior to it being put down to permanent pasture. The three areas comprise the field to the east of the Sanctuary and 8.5 ha around Seven Barrows; the field to the south and west of the Sanctuary and the south part of Avebury Down and the north part of Overton Hill, to the west of the Ridgeway; and the southern part of Waden Hill and part of the West Kennet Avenue. The paper archive and the finds for these projects are held by the Alexander Keiller Museum in Avebury.

**Chippenham College**
Several episodes of collecting were carried out in the early 1990s by Chippenham College Practical Archaeology Group. Apart from short notes of the work in the yearly archaeological review in *Wiltshire Archaeological and Natural History Magazine* (*WANHM*) there appears to be no record of this work. Some of the finds have been deposited in the Alexander Keiller Museum but in the absence of full records they are generally locatable only to field.

**Wessex Archaeology**
In the 2000s Wessex Archaeology undertook a number of fieldwalking surveys within the Avebury environs (Pl. 6) ahead of areas being put down to pasture. The output from these surveys is available as grey literature reports.

**A. George**
Surface collection was undertaken across the field to the south of the A4 opposite Silbury Hill, extending around Swallowhead, as a part of PhD research during 2011. The material, which includes flintwork, is currently under analysis.

## *Non-Fieldwalked Surface Material*

The recovery of surface artefacts is not confined to those recovered by fieldwalking or casual individual finds. It sometimes relates to materials brought to attention by burrowing animal activity. Within recent years when artefacts have been brought to the surface by mole activity the National Trust has recovered and recorded the data mapped to location. In 2006 pottery and lithics were recovered from the spoil of a badger sett at Hackpen on Overton Hill (Snashall

*Plate 6 Fieldwalking at Silbury Hill (© Wessex Archaeology)*

2007). This together with ceramics discovered as the result of rabbit burrowing in the 1930s at the same location (Piggott 1937) comprises finds from what appears to have been a significant earlier Neolithic locale buried beneath colluvium that would otherwise have been unlikely to have come to light. The recovery and recording of surface artefacts retrieved as a result of burrowing animal activity can offer opportunities that would not otherwise present themselves and which should not be eschewed simply because of their necessarily ad hoc nature.

Likewise in a landscape dominated by the monumental presence of the Neolithic and Bronze Age we should not ignore the role to be played by the recovery of surface material from the Iron Age and later periods. The fieldwalked assemblages recovered from Waden Hill and by Abby George south of the A4 opposite Silbury both provide evidence of the extensive nature of Roman activity in this area, and the all but total absence of Iron Age material from fieldwalked assemblages is in itself remarkable.

## *Lithic Scatters*

The first iteration of the Avebury Research Agenda was written following a peak of interest in the methodology connected with the collection and interpretation of fieldwalked material, and in particular lithic scatters, in the mid-1980s and early 1990s (Gaffney and Tingle 1989; Haselgrove *et al.* 1985; Schofield 1991; Shennan 1985). The focus was on survey methodology, quantification and identifying the constraints that taphonomic processes placed on our ability to interpret fieldwalked assemblages (Boisimer 1997).

Within the broader archaeological community lithic scatters remain a little understood and consequently underused resource (Bond 2011). Recent research has adopted a more positive approach and has demonstrated that the analysis of scatters can provide more nuanced interpretation, capable not only of identifying presence and absence but of characterising landscape inhabitation at specific locations at particular times (Edmonds *et al.* 1999; Snashall 2002; Chan 2004; Bond 2006; Bayer 2011). English Heritage's guidance on managing lithic scatters understandably focused on quantification and site identification, but it nevertheless pointed the way to their potential in more subtle characterisation of occupation (English Heritage 2000).

Julie Gardiner has highlighted the role that older, informally recovered surface material can play in characterising landscape inhabitation (Gardiner 1984; 1987). More recently research has demonstrated that systematically recovered surface material, collected using a wide variety of field methodologies, can be successfully combined with evidence from older informally recovered museum assemblages and excavated material to produce narratives that go well beyond the sum of their individual parts (Snashall 2002).

The information garnered from surface artefact assemblages, whether extant material from early collectors or the product of systematic fieldwalking, can be greatly enhanced by being set alongside evidence from test-pitting, environmental sampling and targeted excavation. But the most critical factor in the successful use of surface collected artefacts is the application of field methodologies and analytical techniques designed to maximise

the information from the available resource. This requires a flexible approach to project design and the use of field methodologies that do not privilege inter-site quantification at the cost of intra-site characterisation.

When a reflexive approach is adopted surface artefact assemblages have the potential to provide information about past inhabitation and residential practice that is not recoverable from any other source. And even that most intransigent of fieldwalked material – lithic scatters – can be employed successfully to construct narratives that explore contingent histories of place within the Avebury landscape.

*Plate 7 Experimental earthwork, Overton Down, 1966 (© Wiltshire Museum)*

## Environmental Archaeology

*by Chris J. Stevens and Sarah F. Wyles*

### *Introduction*

The area around Avebury has seen a long history of environmental study, with many early studies being conducted alongside excavations of prehistoric sites from the beginning of the 20th century. This section outlines this work, separating out those studies that inform upon environmental reconstruction and past land use from those that pertain to economy. With respect to the former, the very nature of the largely calcareous Cretaceous Chalk geology and the environmental preservation it affords mean that this environmental investigation is dominated by molluscan studies. Waterlogged remains, in the strictest sense, are absent from the area and none are recorded for the area within the environmental archaeology bibliography by Hall (2008), while pollen is also very poorly preserved (Crabtree 1996; see also Allen 2001).

Much of the pioneering work in the region was conducted by John Evans and Geoffrey Dimbleby in the 1960s and 1970s on molluscan and pollen sequences respectively, alongside sedimentological work (see Table 2). Since this work, both Mike Allen and Paul Davies in particular have continued both the molluscan and sedimentological work (see Table 2; Allen 2000a; 2001; 2005; Allen and Scaife 2007; Davies 2008; Davies and Wolski 2001).

Given the nature and importance of the monuments within the Avebury area, it is perhaps unsurprising that the Neolithic has received much of the main focus of environmental reconstruction. Many of the earlier studies were incorporated into a landscape reconstruction for the Mesolithic to later Neolithic by R. W. Smith (1984) which has been more recently reviewed and updated by David Wheatley (in Gillings *et al.* 2008, 170–200)

Regarding the information that environmental data sheds on past economies, the calcareous deposits afford good animal bone preservation, alongside that of charred plant remains and wood charcoal. However, while studies of animal bone have a long history in the region, wood charcoal and charred plant remains are less well covered, although earlier studies have produced numerous charcoal identifications. Mineralised remains are potentially abundant within a group of sites with extensive middens spanning the later Bronze Age to Iron Age (see Tubb 2011a; Carruthers 2000; 2010; Lawson 2000; McOmish *et al.* 2010), but to date have only been recovered from Late Iron Age features in Devizes (Pelling 2002; Carruthers 2002).

The region also provided the location for important experimental work into geomorphological, pedological and taphonomic processes (Pl. 7) and their effect on archaeological and palaeo-environmental material. These were largely carried out at Overton Down just to the east of Avebury (Bell *et al.* 1996).

A full list of environmental work is outlined within Table 2. The following summarises this environmental work by period: references and site names are given where appropriate, but readers are directed to Table 2 for a more detailed breakdown of the work for any specific site or period.

### *The Late Glacial to Mesolithic Environment*

The earliest studies covering this period are summarised within the work at Avebury, North Farm, West Overton (Evans *et al.* 1985; Evans *et al.* 1988), and Cherhill (Evans and Smith 1983), alongside a consideration of early periglacial deposits by Evans (1968; 1969). However, it is probable that other sequences in the area may also cover or contain assemblages that are at least in part derived from this period (eg, Dimbleby and Evans 1974).

*Table 2 List of sites with environmental evidence, with represented periods and the range of environmental work*

| Site name | Summary | Reference | LGl Meso | Neo | Bkr/ EBA | MBA /LBA | IA | RB | Sax/ Med | Environmental work | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| All Cannings Cross | LBA/EIA midden site | Cunnington 1923<br>McCulloch 1998 | – | – | – | X | X | – | – | A<br>M<br>C, Cp<br>Cp | Jackson 1923, 43–50<br>Henginbothom 1923<br>Cunnington 1923, 52<br>Jones, G. E. M. ?in prep? |
| Avebury (Pit 6) 85 | Pit/tree-throw hole | Evans *et al.* 1988 | X | X | – | – | – | – | X | M | Evans *et al.* 1988 |
| Avebury Bank (Great Barn) Site 82 | Tree-throw hole/buried soil beneath bank | Evans *et al.* 1985 | ?X | ?X | – | – | – | – | – | M<br>A<br>S | Evans *et al.* 1985<br>Evans *et al.* 1985; O'Connor 1976<br>Keeley 1985 |
| Avebury Bank (including School) | Tree-throw hole/buried soil beneath bank | Evans 1969; 1972, 268–9 | X | X? | – | – | – | – | – | O | O'Connor 1976; Evans 1969; 1972 |
| Avebury Ditch | Main henge ditch at Avebury | Gray 1935 | – | X | X | ? | – | X | – | C<br>A<br>M | Maby 1935<br>Newton and Jackson 1935<br>Kennard 1935 |
| Avebury G55 Round barrow/pit | Round barrow – Beaker pottery | Smith 1965a | – | – | X | ? | – | X | – | M<br>A | Evans 1965<br>Pater 1965 |
| Avebury Henge | Calcareous buried soils | Dimbleby and Evans 1974 | – | X | – | – | – | – | – | P, M | Dimbleby and Evans 1974 |
| Avebury Pipeline | Several sites | Powell *et al.* 1996 | X | X | X | X | – | X | X | | See Butler's Field, Pound Field, Stukeley, Waden/Winterborne, Beckhampton 4 |
| Avebury Rough Leaze 2007 | Post/stakeholes, tree-throw holes on east of henge bank | Pollard *et al.* 2012 | X | X | – | – | – | – | – | S, M, A | Pollard *et al.* 2012 |
| Avebury Trusloe, alluvium | Alluvial deposits near Silbury hill in Winterbourne | Evans *et al.* 1993, see Campbell and Marshall 2013 | – | X | X | X | – | – | – | S, M | Evans *et al.* 1993 |
| Beckhampton Road long barrow | Long barrow | Evans 1968;<br>Ashbee *et al.* 1979 | – | X | – | – | – | – | – | A<br>P<br>M<br>P, M | Carter with Higgs 1979<br>Dimbleby 1979b<br>Evans 1968; 1979a<br>Dimbleby and Evans 1974 |
| Beckhampton barrow 4 | EBA round barrow | Powell *et al.* 1996 | – | – | X | ?X | – | ?X | X | M | Wyles and Allen 1996a |
| Bishops Cannings Down | Middle/Late Bronze Age settlement | Gingell 1992 | – | – | – | X | – | – | – | A | Maltby 1992 |
| Brickley Lane, Devizes | Predominately IA settlement | Poore *et al.* 2002 | – | – | – | – | X | X | X | Cp, Mp<br>A | Pelling 2002<br>Charles 2002 |
| Burderop Down | Hollow, buried soil under disc-barrow BA settlement | Gingell 1992 | – | – | X | LBA | – | – | – | Cp<br>A<br>M | Carruthers 1992<br>Maltby 1992; 1986<br>Allen 1992 |
| Butler's Field, Avebury | Alluvial sequence nr medieval settlement | Mount 1991; 1996<br>Evans *et al.* 1993 | – | – | – | – | X? | X | X | Cp<br>M | Scaife 1996a<br>Mount 1996 |
| Cherhill 67/Cherhill tufa/long barrow nr Calne | Oliver Field – occupation scatters | Evans and Smith 1983; Evans 1968; Evans *et al.* 1978 | X | X | X | – | – | – | X | M<br>A<br>S, M | Evans 1983<br>Grigson 1983; O'Connor 1983<br>Evans *et al.* 1978 |
| Dean Bottom | Beaker pit, MLBA settlement | Gingell 1992 | – | – | X | X | – | – | – | M<br>Cp<br>A | Allen 1992<br>Carruthers 1992<br>Maltby 1992 |
| Down Farm, Pewsey | Bronze Age barrow ?Beaker | Vatcher 1960 | – | – | X | – | – | – | X | C<br>A<br>S | Western 1960<br>Dorrell and Cornwall 1960a;<br>Dorrell and Cornwall 1960b |
| East Chisenbury | LBA/EIA midden site | McOmish *et al.* 2010 | – | – | – | LBA | EIA | – | – | S<br>Cp+min | Macphail 2010<br>Carruthers 2010 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | A | Serjeantson *et al.* 2010 |
| East Kennett | Medieval ditch | Powell *et al.* 1996 | – | – | – | – | – | – | X | Cp | Scaife 1996b |
| Easton Down, long barrow | Long barrow, buried soil, tree-throw hole | Whittle *et al.* 1993 | – | X | X | X | – | – | – | M | Rouse and Evans 1993 |
| | | | | | | | | | | Cp | Fairbairn 1993 |
| | | | | | | | | | | C | Cartwright 1993 |
| | | | | | | | | | | S | Macphail 1993 |
| | | | | | | | | | | A | Rouse 1993; Noddle 1993 |
| Fyfield Down FL 1, 2–5 | Field lynchet, with tree-throw hole and buried soil and ditch | Bowen and Fowler 1962; Evans 1972; Fowler 1967; Fowler and Evans 1967; Fowler 2000a | – | ?X | ?X | ?X | X | X | – | S, M | Evans 1972, 317–19 |
| Hemp Knoll round barrow/pit | Beaker dated round barrow and buried soil | Robertson MacKay 1980 | – | X | X | – | – | – | – | M | Evans 1980 |
| | | | | | | | | | | S | Keeley 1979; 1980 |
| | | | | | | | | | | A | Grigson 1979; 1980 |
| Horslip (Windmill Hill) long barrow | Long barrow | Ashbee *et al.* 1979 | – | X | – | – | – | – | – | P | Dimbleby 1979a |
| | | | | | | | | | | M | Evans 1979a |
| | | | | | | | | | | P, M | Dimbleby and Evans 1974 |
| | | | | | | | | | | A | Higham with Higgs 1979 |
| Knap Hill | Causewayed enclosure buried soil from bank and ditch fills | Connah 1965; Dimbleby and Evans 1974 | – | X | – | – | – | – | – | M | Sparks 1965 |
| | | | | | | | | | | P | Dimbleby 1965a; 1965b |
| | | | | | | | | | | C | Dimbleby 1965c |
| | | | | | | | | | | A | Anon. 1965a |
| | | | | | | | | | | P, M | Dimbleby and Evans 1974 |
| Longstones Field, Avebury | Late Neolithic enclosure ditch | Gillings *et al.* 2008 | – | X | – | – | – | X | – | A | Coward 2008, 30–9, 234–5 |
| | | | | | | | | | | Cp | Young 2008 |
| | | | | | | | | | | M | Mount *et al.* 2008 |
| | | | | | | | | | | S-(micro) | Lewis 2008 |
| Manton Down, long barrow, Preshute | Long barrow chambered tomb | Barker 1985 | – | X | – | – | – | – | – | A | Ox-skull recorded from Atkinson's 1955 excavations. See Barker 1985 |
| Marden Henge | Late Neolithic enclosure | Evans 1971a | – | X | – | – | – | – | – | A | Harcourt 1969; 1971a; Worley 2013; 2011e; |
| | | | | | | | | | | M | Evans 1971a |
| Marlborough 4927 | It is suspected this site is Burderop Down | Maltby 1986 | – | – | – | ?X | – | – | – | A | Maltby 1986 |
| Marlborough Mound | | Leary *et al.* 2013a | – | X | – | – | – | – | X | | |
| Millbarrow long barrow | Long barrow postholes pits ditch | Whittle 1994 | – | X | – | – | – | – | – | M | Harris and Evans 1994 |
| | | | | | | | | | | S | Macphail 1994 |
| | | | | | | | | | | A | Noddle 1994 |
| Milton Lilbourne barrows | Early Bronze Age barrows | Ashbee 1986 | – | – | X | – | – | – | – | A | Grigson 1986; Meddens 1986 |
| | | | | | | | | | | M | Ellis 1985; 1986 |
| New Park Street, Devizes | Pit 19th century | Russell 1993 | – | – | – | – | – | – | X | A | Jones 1993 – records pig bones |
| North Farm (West Overton) 85 | | Evans *et al.* 1993 | X | – | – | – | – | – | – | M | Evans 1993 |
| Overton Down G6a pit | Neolithic pit with Peterborough ware. | Smith and Simpson 1964 | – | X | – | – | – | – | – | M | Cain 1964 |
| | | | | | | | | | | A | Smith and Simpson 1964, 82; assemblages are small. |
| Overton Down OD X/XI FW63 | LBA/EIA settlement, animals includes OD X Piggledean Bottom | Fowler 2000a, 203–4, 208 | – | – | – | X | X | – | – | A | Noddle 2000a |
| | | | | | | | | | | M | Wyles 2000a |
| | | | | | | | | | | C | Gale 2000a |
| Overton Down OD XII; FW64 | Late Romano-British settlement | Fowler 2000a, 204–5 | – | – | – | – | – | X | – | A | Noddle 2000b |
| | | | | | | | | | | Ms | Wyles 2000b |

*Table 2 Continued*

| Site name | Summary | Reference | LGl Meso | Neo | Bkr/ EBA | MBA /LBA | IA | RB | Sax/ Med | Environmental work | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | C | Gale 2000b |
| Overton Experimental Earthworks | Non-archaeological experimental earthworks | Bell *et al.* 1996 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | A | Armour-Chelu and Andrews 1996 |
| | | | | | | | | | | M | Bell and Johnson 1996 |
| | | | | | | | | | | S | Crowther 1996; Crowther *et al.* 1996 |
| | | | | | | | | | | P | Crabtree 1996 |
| | | | | | | | | | | Cp | Carruthers and Straker 1996 |
| Overton Hill (Barrow) | Barrow excavations | Smith and Simpson 1966 | – | X? | X? | – | – | – | – | | Residual deposits, Rosenfeld 1966 |
| | | | | | | | | | | C, CPR? | Cornwall 1966 |
| Pewsey Hill Farm | Enclosure dark earth | Thompson 1971 | – | – | – | – | X | – | – | A | Harcourt 1971b |
| Potterne | Later Bronze Age to Early Iron Age midden site | Lawson 2000 | – | – | – | – | – | – | – | Mp | Carruthers 1986; 2000; Scaife 2000 |
| | | | | | | | | | | Cp | Straker 1985; 2000; Carruthers and Straker 2000 |
| | | | | | | | | | | C | Straker 2000 |
| | | | | | | | | | | S | Macphail 2000 |
| | | | | | | | | | | A | Locker 2000; Coy 1983, Madgwick *et al.* 2012b |
| Pound Field round barrow | Early Bronze Age barrow | Powell *et al.* 1996 | – | – | X | – | – | – | – | C | Gale 1996 |
| | | | | | | | | | | M | Wyles and Allen 1996 |
| Raddun Wroughton Mead/Copse, Fyfield Down | medieval farm | Fowler 2000a, 205–8 | – | – | – | – | – | – | X | C | Gale 2000c |
| | | | | | | | | | | A | Noddle 2000c |
| | | | | | | | | | | Cp | Allen 2000b |
| Red Shore bell barrow | Early Bronze Age barrow | Green 1973 | – | – | X | – | – | – | – | S | Green 1973 |
| | | | | | | | | | | P | Green 1973 (very brief report) |
| Rockley Down, barrows /enclosure, Marlborough | Enclosed settlement and barrow cemetery | Gingell 1992 | – | – | ? | LBA | – | – | – | Cp | Godwin 1984, 404; Gingell 1992 |
| Roughridge Hill, Bishops Cannings | Bronze Age barrows, Early Neolithic pits | Anon. 1965b; Evans 1972 | – | X | ?X | ?X | – | ?X | – | C, Cp | Clapham 1988 |
| | | | | | | | | | | A | Maltby unpublished |
| | | | | | | | | | | M | Evans 1987 |
| Silbury Hill (mound) | Late Neolithic/Beaker earthwork | Whittle 1997a, 1–52; Leary *et al.* 2013b; Robinson and Dimbleby 1997; Robinson *et al.* 2004 | – | – | – | – | – | – | – | *Wp | Robinson *et al.* 2004; Campbell forth. a and d; |
| | | | | | | | | | | I | Robinson 1997; Robinson *et al.* 2004; Robinson *et al.* 2012 |
| | | | | | | | | | | P | Dimbleby 1997; Robinson *et al.* 2004; Robinson *et al.* 2012 |
| | | | | | | | | | | M | Evans 1972; 1997 |
| | | | | | | | | | | S | Canti 2009; 2011; Robinson *et al.* 2004 |
| | | | | | | | | | | A | Gardner 1997; Worley 2011a; 2011b; forthcoming a–c |
| | | | | | | | | | | *mosses | Williams 1975; 1976; 1997; Hall 2012 |
| Silbury Hill (Romano-British settlement) | Romano-British settlement to south of Silbury Hill | Crosby and Hembrey 2013 | – | – | – | – | – | X | X | Cp | Pelling 2013 |
| | | | | | | | | | | A | Baker 2013; Gardner 1987; Campbell *et al.* 2013 |
| | | | | | | | | | | M | |
| South Street long barrow | Early Neolithic long barrow | Dimbleby and Evans 1974; Ashbee *et al.* 1979 | – | X | X | – | – | X | – | P | Dimbleby 1979b |
| | | | | | | | | | | P, M | Dimbleby and Evans 1974 |
| | | | | | | | | | | M | Evans 1979c |
| | | | | | | | | | | C | Sheldon 1979 |
| | | | | | | | | | | A | Ashbee *et al.* 1979 |
| The 'Stukeley' barrow, Waden Hill | Early Bronze Age barrow | Evans 1968b; Powell *et al.* 1996 | – | – | X | ?X | – | ?X | X | M | Wyles and Allen 1996a |
| The Sanctuary Henge, Overton Hill | Henge | Cunnington 1931; Pitts 2001 | – | X | – | – | – | – | – | A | Rouse 2001 |
| Upper Kennet Valley 83–4 | Various prehistoric sequences | Evans *et al.* 1993 | X | X | X | X | – | – | – | M | Evans 1993 |
| | | | | | | | | | | O | Griffiths and Mount 1993 |
| | | | | | | | | | | S | Limbrey 1993 |
| | | | | | | | | | | C | Fitt 1993 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Various sites | List of 'Black earth' sites | Tubb 2011b | – | – | – | X | X | – | – | n/a | |
| Various sites | Summary of plant identifications from various sites | Grose and Sandell 1964 | – | X | X | X | X | – | – | P, C, Cp | Grose and Sandell 1964 |
| Waden Hill, | Periglacial sequence | Evans 1968 | X | – | – | – | – | – | – | M | Evans 1968 |
| Waden Hill/Winterbourne colluvium | sedimentary sequence | Powell *et al.* 1996 | X | – | – | – | – | X | X | M | Allen 1996 |
| Waden Hill/Winterbourne Roman site | Romano-British settlement to east of Silbury Hill | Powell *et al.* 1996 | – | – | – | – | – | X | X | A | Iles 1996a |
| | | | | | | | | | | Cp | Scaife 1996b |
| | | | | | | | | | | M | Wyles and Allen 1996b |
| Wansdyke excavations 1966–70 | Excavations of the Wansdyke (ditch and bank) Saxon earthwork | Green 1971 | – | – | – | – | – | – | X | M | Evans 1971b (very poor) |
| | | | | | | | | | | P | Dimbleby 1971 |
| Wayside Farm, Devizes | Late Iron Age to Early Romano-British settlement | Valentin and Robinson 2002 | – | – | – | – | X | X | – | Cp, Mp | Carruthers 2002 |
| | | | | | | | | | | A | Ingrem 2002 mainly LRB |
| | | | | | | | | | | S | Valentin and Robinson 2002, 159–60 LRB midden |
| West Kennett Farm | Late Neolithic enclosure/medieval ditches | Wessex Archaeology 1989 | – | X | – | – | – | – | X | A, Cp, M | Allen and Carruthers 1989 (assessment) |
| West Kennet long barrow | | Piggott 1962<br>Evans 1972; 263–4 | – | – | – | – | – | – | – | M | Evans 1972 |
| West Kennet Palisade Enclosure | | Whittle 1997a | – | – | – | – | – | – | – | C | Cartwright 1997 |
| | | | | | | | | | | Cp | Fairbairn 1997 |
| | | | | | | | | | | A | Edwards and Horne 1997 |
| West Kennet Stone Avenue (pit) | Middle Neolithic pit | Allen and Davis 2009 | – | X | – | – | – | – | – | M | Allen 2009 |
| | | | | | | | | | | A | Grimm 2009 |
| | | | | | | | | | | Cp | Stevens 2009 |
| West Overton alluvium/ colluvium | | Evans *et al.* 1993 | – | – | – | – | – | – | – | – | – |
| West Overton G6b barrow | Beaker barrow | Smith and Simpson 1966 | – | – | X | – | – | – | – | S | Rosenfeld 1966 |
| | | | | | | | | | | A | Smith and Simpson 1966 (ref to animal bones) |
| Windmill Hill | Causewayed enclosure | Smith 1965b; Whittle *et al.* 1999; Whittle *et al.* 2000 | – | X | X | – | – | – | – | S | Macphail 1999 |
| | | | | | | | | | | M | Evans 1965; 1972; Fishpool 1999 |
| | | | | | | | | | | Cp | Fairbairn 1999; 2000 |
| | | | | | | | | | | C | Cartwright 1999 |
| | | | | | | | | | | P | Dimbleby 1965b; Walker 1999 |
| | | | | | | | | | | A | Jope and Grigson 1965; Grigson 1999; Rouse and Rowland 1999; Rowland 1999; Davies 2000 |
| Winterbourne burial | | Evans 1966 | – | – | – | – | – | X | – | M | – |

A – Animal bone; C – Charcoal; Cp – Charred plants; I – Insects; M – Mollusca; Ms – Marine shell; O – Ostracods; P – Pollen; Mp – Mineralised plants; S – Soils/Sediments,
Wp – Waterlogged plants *at Silbury Hill these are preserved by anoxic conditions not waterlogging

The results of these molluscan studies indicate low species diversity for the earliest Late Glacial period (Allerød/Bølling) deposits, but generally open wet disturbed habitats within deposits from the valley floor (also seen by Allen 1996).

More stable conditions are seen in Early Post-Glacial to Mesolithic deposits, although shifting streams upon the valley floor can produce assemblages characteristic of disturbance. A change to woodland is recorded within a number of these sequences (*cf.* Evans *et al.* 1988), broadly dated to the Early to Late Mesolithic transition. At Cherhill this transition probably relates to the establishment of woodland carr upon the floodplain (Evans and Smith 1983), sealed by Late Mesolithic tufa deposits *c.* 6410–5840 cal BC.

A palaeochannel just to the south of Silbury indicated the presence of sediments of late 9th to early 8th millennium cal BC (Crosby and Hembury 2013; Campbell *et al.* 2013). Several of these studies have yielded small numbers of animal bone which indicate the presence of wild boar and aurochs in the 8th millennium cal BC (see Evans *et al.* 1988). Charcoal identifications and pollen sequences spanning the Mesolithic to the south of the study region indicate a change from birch, through pine-hazel to hazel, oak and elm woodland (see Scaife 1995; 2004; Gale 1995; Leivers *et al.* 2008; Allen and Scaife 2007). However, such sequences are as yet unavailable for the core study area.

## *Early Neolithic*

### Environment

Molluscan studies from soils preserved under many of the monuments testify to a predominately open wooded environment existing prior to clearance for their construction. Examples include Windmill Hill (Evans 1972, 242–8; Fishpool 1999), Knap Hill (Sparks 1965), West Kennet (Evans 1972, 263–4), under the bank at Avebury (*cf.* Evans 1972, 268–74; Evans *et al.* 1985), at Rough Leaze, Avebury (Pollard *et al.* 2012) and Easton Down (Rouse and Evans 1993; Whittle *et al.* 1993).

However, most demonstrate grassland and/or cultivation immediately preceding the construction of the monuments themselves: for example the ard marks seen at South Street (Ashbee *et al.* 1979); while at Easton Down sediments and molluscan evidence suggested cultivation followed by a short period of open grassland prior to the long-barrow's construction (Whittle *et al.* 1993; Davies 2008, 71). A reassessment of the molluscan evidence further indicates that both monuments were probably constructed close to woodland edge based on recolonisation rates of molluscs (Davies 2008; Davies and Wolski 2001; Whittle *et al.* 1993; Evans 1990).

The assemblage from Horslip barrow (Ashbee *et al.* 1979, 275–8) suggested open grassland with relatively little woodland, but possibly some arable. However, it was probable that secondary woodland had regenerated in the area by the time of the barrow's construction, with hazel recorded from the pollen samples taken from the buried soil under the barrow (Dimbleby 1979a). At Beckhampton it appeared that the barrow was constructed in an area cleared of woodland possibly several hundred years earlier (Evans 1972, 248–51; Ashbee *et al.* 1979), although, the dating of these events should be regarded with some caution.

Assemblages from pits under the barrows at Roughridge Hill showed some variation with woodland scrub evident but also with some patches of long grassland (Evans 1972; 1987).

The pollen sequences from the outer bank at Windmill Hill, in contrast to the molluscan assemblages, reflect a relatively open environment (Dimbleby 1965a) with low counts of alder, birch, pine, oak, lime and elm, and slightly higher counts of hazel. However, the differential survival of pollen means that such results are very insecure (see Walker 1999).

Charcoal assemblages from Windmill Hill indicate woodland dominated by oak and hazel, with frequent hawthorn, ash, probable sloe, and occasional birch and yew (Cartwright 1999). Dimbleby (1965a; Dimbleby and Evans 1974) noted a similar assemblage along with evidence for broom/gorse. A similar range of species was identified from the Neolithic pits at Roughridge Hill (Clapham in prep.) along with beech. Beech has traditionally thought to have been introduced into Britain in the Bronze Age or later (*cf.* Giesecke *et al.* 2007), but beech charcoal dated to 3660–3370 cal BC (Beta-218163: 4790±50 BP) (Graham and Graham 2009) confirms its Neolithic status and an earlier presence as a minor component of the natural Late Mesolithic woodland of southern England has been suggested by Grant *et al.* (2009).

Work at sites in the valley bottoms, for example at Winterbourne and Upper Kennet (Evans *et al.* 1988; 1993; see Davies 2008, 116) indicates open grassland in the earlier Neolithic with little to no flooding or alluviation.

### Economic evidence

Cattle dominated the assemblages at Windmill Hill and Knap Hill with lesser numbers of pig and sheep/goat, although both are still reasonably well represented at the former site (Grigson 1999), but less so, particularly pig, at the latter (Anon. 1965a).

Although at Avebury a bone of aurochs from a post-hole fill straddled the Mesolithic to Early Neolithic transition 4060–3960 cal BC (Pollard *et al.* 2012), wild aurochs are generally rare on Early Neolithic sites compared with domestic cattle. A study by Grigson (1999) at Windmill Hill indicated that, while wild aurochs was undoubtedly present, the majority of remains were more likely from domestic animals. A similar result was also seen for pig, with only a few possible contenders for wild boar.

The predominance of elder female animals at Windmill Hill indicated that cattle were perhaps exploited for milk and blood (Grigson 1999, 228–9). Since this study, residue analysis of pottery from Windmill Hill has shown at least the former to be present (Copley *et al.* 2003).

While aurochs and possibly wild boar are present, albeit in low numbers, red and roe deer bones and antlers are common from Early Neolithic sites, including Windmill Hill and several of the long barrows. Other wild animals include fox, wild cat, hedgehog, badger and hare. Dogs were relatively frequent at Windmill Hill as seen from skeletal remains, coprolites and the high number of dog-gnawed bones (Grigson 1999, 230–1).

Early Neolithic pits under the Hemp Knoll barrow also had a predominance of cattle, with reasonable numbers of sheep/goat, but low numbers of pig. Red and roe deer were also present (Grigson 1979; 1980). Pits under the Roughridge Hill barrows showed good representation of cattle, sheep/goat and pig, along with occasional deer (Maltby in prep.).

The small bone assemblages from Horslip (Higham with Higgs 1979) and South Street long barrows (Ashbee *et al.* 1979, 267–8) had roughly equal numbers of cattle, sheep/goat and pig, with a small amount of evidence for red deer. However, at Beckhampton Road long barrow the small assemblage was dominated by cattle and pig, but no sheep/goat was present (Carter with Higgs 1979).

While horse has occasionally been identified from Early Neolithic contexts there is reason to doubt their authenticity (see Grigson 1999, 211). This is discussed further below, but reviews of the data provide no conclusive evidence for their occurrence here within the Neolithic (Kaagan 2000; Bendry 2010; Serjeantson 2011).

Prior to flotation the earliest evidence for cereal agriculture came in the form of cereal impressions within pottery (Pl. 8) (Helbaek 1952; Jessen and Helbaek 1944). From Windmill Hill these included identifications of einkorn, emmer wheat and naked and hulled barley, along with seeds of crab apple and flax. Charred remains from Windmill Hill produced a similar list of species, although flax and apple were not recorded (Fairbairn 1999, 154; 2000, 169). Additions included tubers of lesser celandine and

*Plate 8 Barley grain impressions (highlighted in red) on a Beaker from Larkhill Camp (© Wessex Archaeology)*

pignut, shells of hazelnuts and fruit stones of sloe. Despite extensive sampling, cereals were rarely recovered in great number from the enclosure ditches (Fairbairn 1999), but were better represented within the Early Neolithic pits (Fairbairn 2000, table 13). It is also notable that cereal chaff while well represented within pottery impressions is almost absent within the charred remains (compare Helbaek 1952, 224–5 with Fairbairn 1999, tables 58–71).

Charred fragments of hazelnut shells were identified from Early Neolithic pits under the barrows at Hemp Knoll (Keeley 1980) and Roughridge Hill (Clapham 1988; in prep.) as well as pits from Windmill Hill (Fairbairn 2000, table 13). However, they are almost absent from the enclosure ditches at Windmill Hill (Fairbairn 1999), which might indicate either some difference in the disposal of such remains, or potentially that such differences might relate to chronological or seasonal variation in subsistence practices.

## *Middle to Late Neolithic*

### Environment

Whittle (1993, 35) sees an increase in scrub and woodland in the Avebury area in the Middle Neolithic coinciding with a decline in monument construction. This period also coincides with that defined by

*Plate 9 Excavations in Longstones Field, 2000 (© Longstones Project)*

Stevens and Fuller (2012) as one of population collapse combined with the abandonment of cereals, beginning *c.* 3350 cal BC and lasting around one millennium until *c.* 2300 cal BC.

The molluscan assemblages from the later long barrow ditch fills at Easton Down (Whittle *et al.* 1993), South Street (Evans 1990; Ashbee *et al.* 1979), Millbarrow (Harris and Evans 1994; Whittle 1994), and Beckhampton Road (Whittle *et al.* 1993) all indicate the establishment of woodland following relatively short phases of open grassland (Evans 1990; Davies 2008, 71–3, 80; Davies and Wolksi 2001). Similar evidence is also seen for Knap Hill (Sparks 1965) and Cherhill (Evans and Smith 1983).

Three sites do, however, indicate some clearance. Open country dry grassland species dominated an assemblage from a pit near Avebury, but species of ancient woodland imply the grassland had not long been established prior to woodland clearance *c.* 3090–2910 cal BC (Allen 2009). Assemblages from Longstones Field also demonstrate that the Longstones enclosure was constructed, *c.* 2660–2460 cal BC, in short grassland cleared of woodland some time before then, although woodland was probably nearby (Mount *et al.* 2008; Gillings *et al.* 2008, 191; Lewis 2008). At Avebury henge, the assemblages showed the monument was constructed, *c.* 2580–2470 cal BC (see Healy, below), within a dry grassland landscape with little indication of forest regeneration (Evans 1972, 268–74; Evans *et al.* 1985). Taken together, the evidence suggests the immediate landscape of Avebury itself had perhaps been cleared some 400 to 500 years prior to the monuments' construction, during a period in which other sites in the study area had seen some woodland regeneration.

Charcoal assemblages from Longstones Field (Pl. 9) contained no evidence for large woodland taxa, eg, oak, ash or elm but rather, scrub and secondary woodland species: hazel, birch, buckthorn, broom/gorse and Pomoidaeae (hawthorn, apple, whitebeam etc.). As Gale (2008) suggests, this might indicate an open landscape or, given the timber required for the West Kennet palisade enclosures a few centuries later (see below; *cf.* Whittle 1997a, 154), one in which there was an extreme bias in the selection of wood species for fuel. However, there may be some cause to question whether all this material is Late Neolithic or whether some or even all might be potentially intrusive (see below).

The charcoal assemblage from the West Kennet palisade enclosures was dominated by timbers used in the construction of the enclosures and therefore cannot be used in a 'normal conventional palaeo-environmental reconstruction' (Cartwright 1997). Oak dominated the assemblages, with lesser quantities of hazel, ash, hawthorn and sloe/cherry etc. (*Prunus* type) and occasional willow/poplar, field maple, alder, beech and elder. The very construction of the two enclosures requiring a potential estimated

11.3 hectares of oak woodland (Whittle 1997a, 154) alone might imply substantial remaining forested areas in the region during this period.

The unique preservation conditions seen at Silbury Hill provide an unprecedented insight into the final Neolithic environment. Environmental work on the mound comprises three main phases: the first conducted alongside the 1968–70 excavations (eg, Atkinson 1970; Evans 1972; Williams 1976); followed by the full publication and re-examination of this material (Whittle 1997a); and more recently the work undertaken as part of the conservation of the mound from 2000–2008 (Leary *et al.* 2013b). The most recent dating of the monument suggests a start date for construction *c.* 2490–2450 cal BC, with the final phases dated to *c.* 2400–2260 cal BC (Marshall *et al.* 2013; see Healy, below). The siting of the monument close to the Swallowhead springs, the potential source of the River Kennet, may be of some significance (Leary 2010; Whitehead and Edmunds 2012).

The organic plant and insect remains have not been preserved through waterlogging, but rather through the sheer weight and size of the mound creating anoxic conditions, possibly an almost complete absence of oxygen through the sealing of lower deposits. The range of material examined included the turves themselves, macroscopic plant remains, mosses, insects, pollen and molluscs (Campbell 2013).

The possibility that the turves were brought from different parts of the landscape means that the environmental material may not be reflective of the direct environment around the mound itself (Leary and Field 2011; Leary *et al.* 2013b; *cf.* van Nest *et al.* 2001). The turves are dominated by evidence for grassland although residual remains show that these grasslands may have not been long established (Campbell and Robinson 2013). A study of the mosses associated with the turves indicated a species range typical of chalk grassland under moderate grazing (Williams 1976). Insect remains from the old land surface beneath Silbury Hill comprised entirely species of grassland and species associated with animal dung (Robinson 1997; Campbell 2013). Seeds, however, were generally poorly preserved in many of the turves, but included many species of grassland, and some suggesting floodplain environments (Campbell 2013; Campbell and Robinson 2013).

The soil that made up one of the small gravel and organic mounds which underlie the several phases of chalk mound resulting in the structure seen today did indicate that it had come from a probably secondary woodland environment, with evidence for yew, oak, hazel, crab-apple, sloe, hawthorn and bramble. The insect fauna from this same mini-mound also contained woodland species including a nut weevil and the wood boring beetle (Campbell 2013).

**Economic evidence**

As noted by Grigson (1999) for Windmill Hill, a decline in the representation of sheep/goat in the later Neolithic sites is a strong possibility, but still one which requires further work. Such a decline can be noted for several sites where both Early and Late Neolithic deposits are available. These include: Windmill Hill where pigs increased but cattle were still dominant (Grigson 1999); Horslip long barrow with pigs well represented and few sheep/goat (Higham with Higgs 1979); and South Street where cattle predominated, with no pig and only a single part of a young sheep/goat (Ashbee *et al.* 1979, 267–8).

The assemblages from both of the West Kennet palisade enclosures were dominated by pig, with cattle still well represented, but very little sheep/goat (Edwards and Horne 1997). Other animals represented included several bones of red and roe deer, although these were more poorly represented than even sheep/goat. Other finds included dog and a probably intrusive bone of cat.

The estimated number of animals suggested conspicuous slaughter and consumption, consistent with feasting on a large scale (Edwards and Horne 1997). Butchery marks were seen to be relatively infrequent, for example in comparison with the Early Neolithic site at Windmill Hill (Grigson 1999), perhaps also a result of special treatment.

With respect to other sites, Silbury Hill contexts included cattle, pig, sheep/goat, dog and red deer as well as badger, polecat, hare and frog (Campbell 2013; Worley 2011a and b; Gardner 1987, 46–52). It might be noted that bone identified as beaver has since been re-identified as badger (Worley 2011c), although this species was identified from a Late Neolithic context at the West Kennet palisade enclosures (Edwards and Horne 1997, 123). A later Neolithic pit in the West Kennet Avenue produced three cattle bones, but no other animal bone (Grimm 2009).

Animal bone from the Late Neolithic ditched enclosure at Longstones Field contained mainly domesticated pig and cattle, with fewer sheep/goat, although these are still reasonably well represented, and red deer (Coward 2008, 31–9).

As Leary *et al.* (2013b) state, there is little indication for the cultivation of cereals around Avebury during the Neolithic and that which is present largely relates to the Early Neolithic (see above). As such the area is in keeping with the general picture outlined by Stevens and Fuller (2012; see above) for England in the Middle to Late Neolithic (3300–2300 cal BC). For example, charred cereal

*Plate 10 Barrows at Milton Lilbourne, 1958 (© Wiltshire Museum)*

remains were reasonably well represented in the Early Neolithic contexts from Windmill Hill (Fairbairn 1999; 2000, table 13) but are rare in the later Neolithic pits which produced more hazelnut fragments as well as possibly edible tubers of water plantain or arrowhead (Fairbairn 2000, table 14).

At the West Kennet palisade enclosures cereal remains, while present, were in extremely low densities, with many thought potentially intrusive (Fairbairn 1997, 135–6). Notably these include many free-threshing wheat grains (*Triticum aestivum/turgidum* type), a species which, while present in Neolithic England (Carruthers 2012), is generally rare in the period. However, it should also be noted that hazelnut shell fragments were also poorly represented, which may either reflect short-lived occupation and/or a lack of perhaps more domestic/settlement type subsistence activities on the site (Fairbairn 1997, 138).

Charred hazelnut shells were occasionally recovered from the earlier phases of construction at Silbury Hill, but were in very low quantity (Campbell 2013). However, they were recovered in greater numbers from the pit within the West Kennet Avenue where cereal remains were absent (Stevens 2009).

A small charred assemblage from Longstones Field did include barley grains, hazelnut shell fragments and a few weed seeds including, unusually, corncockle. Corncockle is generally regarded as a Roman introduction (Godwin 1984; Preston *et al.* 2004) and would tend to support the suggestion by Young (2008) that some if not all of the material may be intrusive (see also Pelling 2013 and Lewis 2008, 79 who highlights the possibility that a metal nail may be present in a thin section from the upper primary fill).

Stevens and Fuller (2012) highlight the danger of intrusive cereal grains and a good example is provided by the barley grains from Stone II at Avebury radiocarbon dated to the late 15th to mid-17th century AD (Gillings *et al.* 2008, 165–6).

## *Beaker/Early Bronze Age*

**Environment**

The environmental evidence generally points to an increase in cultivation for the region, within at least the Beaker period, starting *c.* 2400–2300 cal BC. However, in many cases the evidence comprises possible ploughsoils containing beaker pottery (see Gillings *et al.* 2008, 196) rather than more direct evidence in the form of cereal grains themselves.

The criss-cross ard cultivation marks cutting the barrow at South Street were associated with Early Beaker pottery (Ashbee *et al.* 1979; see also Evans 1990; Davies 2008, 80), suggesting a date *c.* 2400–2200 cal BC and over-lain by a turf-line with Early Bronze Age pottery. Whilst the use of the ard implies that cereal cultivation was locally practised during this period, the molluscan evidence was interpreted as evidence for the use of the ard in clearance but not cultivation *per se* (Evans 1972, 364–5). Similarly, at Easton Down there is evidence for clearance of regenerated secondary woodland within the earlier Beaker period *c.* 2480–2140 cal BC, possibly followed by cultivation and then grassland (Whittle *et al.* 1993; Davies 2008, 71–3).

At Hemp Knoll, Evans (1980) suggested the soils underlying the barrow were cultivated prior to its construction, *c.* 2400–2200 cal BC (see Healy, below). Of some interest is the variation within the spot samples from the turves in the mound itself, with some dominated by woodland fauna and others grassland. Evans (1980, 173) attributes this to variation over the surface of the mound but, in light

of the material within Silbury Hill, it does raise the possibility that turves from a range of different habitats might also have been used within individual burial mounds (*cf.* van Nest *et al.* 2001).

The evidence for Beaker period cultivation at Avebury G55 is less conclusive (*cf.* Smith 1965a; Evans 1965; *contra* Gillings *et al.* 2008, 197) and the molluscan report suggests that woodland persisted until the late Beaker period, followed by clearance prior to the barrow's construction then a period of grassland, followed by at least some localised scrub. At Milton Lilbourne (Pl. 10) evidence also suggested woodland prior to the barrow's construction (Ellis 1986).

Further evidence for the persistence of woodland within the area comes from Dean Bottom, where woodland was seen as locally present up to the digging of a pit *c.* 2470–1920 cal BC, and that scrub and long herbaceous grassland persisted during the formation of a subsequent midden (Allen 1992). Likewise the molluscan assemblage from under the Burderop Down disc barrow indicated an established open landscape, but with woodland in close proximity to the barrow during the primary infilling of the ditch (Allen 1992).

Similarly the assemblages from the barrows on Roughridge Hill, indicate a long established dry open grassland, with some evidence for woodland in close proximity during the initial infilling of the ditch of at least one barrow (Evans 1968; 1972, 335–7; 1987).

Assemblages from under Pound Barrow, Beckhampton 4 and 'Stukeley' barrow, indicated short-grazed grassland, but with some shade element indicative of scrub; secondary fills indicated a rapid colonisation by long grassland species, again with possibly some scrub (Wyles and Allen 1996a).

Only limited charcoal assemblages are available for this period. That from Easton Down suggests a greater dominance of scrub species, such as sloe and hawthorn, apple and whitebeam (Pomoideae type), along with ash (Cartwright 1993); while charcoal from under Pound Barrow included oak, hazel and Pomoideae (Gale 1996).

**Economic evidence**

Whilst animal bone data are reasonably well represented for the earlier Bronze Age period, charred plant data are generally lacking, possibly a reflection that much of the material for this period comes from barrows.

Sheep/goat bones predominated in the Beaker pit at Dean Bottom, but cattle were well represented (Maltby 1992). The assemblages from the barrows at Roughridge Hill (Maltby in prep.), Milton Lilbourne (Grigson 1986), Hemp Knoll (Grigson 1980) and Avebury G55 (Pater 1965) all also produced assemblages of predominately cattle, with sheep/goat. At all these sites, pig formed a very small component, bar Milton Lilbourne where it was quite well represented in some assemblages. All produced evidence for roe and red deer and occasionally dog. Significantly, horse was present at Hemp Knoll, Milton Lilbourne and Avebury G55 along with aurochs from the last.

The timing and speed of the reintroduction of horse is at present uncertain (Bendrey 2010). Several potential early dates have proved to be from intrusive bones (Serjeantson 2011, 39). The earliest date for the region (and in Britain in general) comes from just to the south of the study area, at Durrington Walls, where a date of 1430–1130 cal BC (OxA-6653: 3045±50) was obtained (Kaagan 2000, 343).

Probably relatively uncommon in southern England in the Neolithic, aurochs had become extremely rare by the Early Bronze Age (Serjeantson 2011, 44) and are likely to have been extinct in the region by the later Bronze Age. Some of the last recorded finds include dated Early Bronze Age material to the south of the study area at Snail Down and Durrington Down round barrow (Jewell 1963; Grigson 1978; Serjeantson 2011, 51).

At Dean Bottom a possible grain storage pit (pit 23), dated to 2470–1920 cal BC (BM-1669R: 3750±100 BP), produced scant evidence for cereals, apart from five cereal grains, together with a fragment of hazelnut shell (Carruthers 1992; Gingell 1992, 27). The evidence is perhaps not conclusive of cereal agriculture in the Beaker period for the site, but it does at least provide a tentative indication.

Clapham (in prep.) identified from mound G61 at Roughridge Hill many tubers of false oat grass, along with fragments of hazelnut shells from the base of the mound (although these may be residual from Early Neolithic activity). A pit (pit 2) just outside burial mound G62a is thought broadly date to this period, although the exact dating for this feature is unclear. The feature did however produce a reasonable number of charred hulled barley grains (Clapham in prep.).

The environmental evidence would seem to support probable cultivation during the Beaker period, and while direct evidence in the form of dated cereals is as yet absent from the study region, such evidence is available for sites lying to the south (see Stevens and Fuller 2012, online table 1).

This pattern fits well with the national pattern from mainland England where Stevens and Fuller (2012) identify two periods in which cereal cultivation and/or population appears to have revived on a national level in England, the first more or less concurrent with the appearance of Beaker pottery dating from *c.* 2300–2000 cal BC, the second within the Middle Bronze Age from *c.* 1600–1500 cal BC.

*Plate 11 Aerial view of celtic fields on Fyfield Down, Fyfield (© Wiltshire Museum)*

## *Middle to Late Bronze Age*

**Environment**

The general impression of the Middle to Late Bronze Age is one of dramatic landscape change in which the landscape was opened up to increasingly dense settlement (eg, McOmish 2005; Gillings *et al.* 2008). The environmental evidence for this period is relatively slight when compared with that outside the study area (eg, Leivers and Stevens 2008; Straker 2000a; 2000b), but still provides support for significant economic and landscape change during this period.

It is during this period that the area sees the laying out of many field systems, representing a fundamental (re-)organisation of the landscape. Field systems of this date include those on Rockley Down (Gingell 1992), Manton Down (Fowler 2000a, 76–7), Overton Down (*ibid.*, 82–7) and Fyfield Down (Pl. 11) (*ibid.*, 118).

Molluscan assemblages from Easton Down show a clear indication of cultivation during the later Bronze Age (see Whittle *et al.* 1993; Davies 2008, 73), as potentially do those from the upper fills of the barrow ditch at Hemp Knoll, although the layer is undated (see Evans 1980; Robertson-Mackay 1980). At Avebury G55 an assemblage from a cremation pit indicates open grassland with possibly some arable (Evans 1965).

A Middle Bronze Age assemblage from Dean Bottom indicated an open dry grazed grassland followed by longer, less managed grassland after the site's abandonment (Allen 1992). The upper ditch of the barrow examined on Burderop Down also demonstrated open long grassland, with some scrubland, probably limited to the barrow itself which was situated in a wider more managed downland environment (*ibid.*).

Re-dating of the West Overton Formation, previously associated with the construction of Silbury Hill (Evans *et al.* 1993), indicates a more probable Middle Bronze Age date for the onset of this period of alluviation, and hence more likely to be associated with the agricultural expansion seen at this time than with the construction of earlier monuments (Campbell *et al.* 2013; Campbell and Marshall 2013).

Charred tubers of onion couch grass have been recovered from a Late Bronze Age ditch at Rockley Down (Godwin 1984, 404), and Allison and Godwin (1949) also record grains of six-row naked barley from this same context. Charred remains of onion couch grass are commonplace in later Bronze Age assemblages, usually associated with cremations, owing to their use as tinder after the clearance of vegetation within areas of long grassland with low levels of grazing to create a firebreak (see Robinson 1988; Stevens 2008).

**Economic Evidence**
A large bone assemblage from Bishops Cannings had a number of examples of articulated remains of sheep/goat, although cattle were still predominant, and pig less well represented (Maltby 1992). The lower levels of the midden at Potterne probably date to this period and show cattle and sheep/goat in similar quantities (Locker 2000). At Dean Bottom, Rockley Down and Burderop Down the assemblages were somewhat different in that sheep/goat predominated over cattle, with pig again poorly represented (Maltby 1992). Horse remains were present on all of these sites suggesting it was a fairly well established domesticate by this time (Maltby 1992). Bones of red deer (and in one case roe deer) were also present on three of these sites, albeit in very low quantities, suggesting continued hunting of wild animals in this period.

A reasonably large deposit of clean carbonised grain, mainly of six-row hulled barley, was recovered from the Middle Bronze Age settlement at Dean Bottom (Carruthers 1992), while the later Bronze Age settlement at Burderop Down produced a very few remains with only barley identified (Maltby 1992).

Charred plant remains in Wiltshire are fairly scarce for this period. However, just outside the region the basal samples from the midden at Potterne produced evidence for six-row hulled barley along with both emmer and spelt (Straker 2000a), in keeping with the region in general (Leivers and Stevens 2008).

## *Late Bronze/Early Iron Age to Late Iron Age*

**Environment**
There are very few environmental studies from the Iron Age period within the study region (*cf.* Fitzpatrick, below) and for this reason both Potterne (Lawson 2000) and East Chisenbury (McOmish *et al.* 2010) to the south of the study area are included.

The earlier part of this period sees the further laying out and modification of field systems. For example, Fowler (2000a, 71) has attributed those on Totterdown to the Late Bronze Age/Early Iron Age, with Early Iron Age field systems replacing those of the Late Bronze Age on Overton Down. Molluscan evidence from the settlement on Overton Down showed it had been sited in established long grassland, with evidence of later animal trampling and grazing (Wyles 2000a). While the assemblages showed no signs of arable activity, ard marks were present, possibly dating to the settlement's abandonment (Fowler 2000b).

Although the landscape appears to have been very open, charcoal from this site included oak sapwood, along with hazel, ash and Pomoideae (Gale 2000a), as well as field maple and sloe. Charcoal was not well represented in the East Chisenbury midden but that at Potterne had a similar range of species (Straker 2000b). It is probable that such wood was collected from small surviving stands or copses of scrub or scrub/woodland.

**Economic evidence**
The assemblages from the Middle to Late Iron Age settlement at Devizes (Charles 2002) and the Early Iron Age settlement at West Overton (Noddle 2000a) were dominated by sheep and cattle, the former being slightly more frequent on both sites, along with pig and some horse. Pig appears proportionally better represented within both assemblages than seen for the later Bronze Age sites described above. As common on Iron Age sites, several of the pits at West Overton contained skulls or skull fragments of cattle and in one case horse. As well as dog, unusually this site produced very early evidence for cat, often thought to be a Romano-British introduction.

In recent years extensive midden-type deposits have been discovered at locations including All Cannings Cross, Potterne, East Chisenbury, Westbury and Stanton St Bernard, which seem to represent a chronologically and functionally discrete phenomenon in later prehistoric society. Despite some detailed analyses, they are still relatively poorly understood in terms of formation processes and function. These deposits are generally very extensive; for example at East Chisenbury, the deposits were found to be up to 2.7 m deep, covering several hectares and with a remaining estimated volume of up to 50,000 cubic metres; Potterne was of a similar size. They all appear to be Late Bronze Age/Early Iron Age in date and composed of dark, seemingly highly organic deposits which are extremely rich in artefacts. On some sites extensive disturbance throughout deposition is indicated – eg, Potterne (Macphail 2000) and Stanton St Bernard (Norcott 2006) – whereas at East Chisenbury exceptional preservation was recorded, leading the excavators to conclude that careful deposition of material originating elsewhere was indicated (McOmish *et al.* 2010). The relatively tiny areas excavated – especially in the case of East Chisenbury (*c.* 0.01%) – do not permit firm conclusions about whole sites to be drawn as yet; however there seems to be little doubt that relatively intensive animal husbandry played a significant role in their function.

In contrast to Potterne, where it is argued that the midden comprised largely cattle dung, at East Chisenbury it was suggested from phytholith studies that sheep/goat dung might be the primary source of material (Macphail 2010). The animal bone from this site also demonstrated a predominance of sheep/goat with fewer numbers of cattle and pig. This compares

*Plate 12 Spelt wheat and hulled barley grains (© Wessex Archaeology)*

very well with the Potterne data where a predominance of sheep/goat was seen in the later upper levels (Locker 2000). Also in contrast to Overton Down where wild animals were absent, there is evidence from these midden sites for deer, fox and a number of birds including goose, duck, blackbird, eagle, buzzard, crow and raven (Serjeantson *et al.* 2010; Locker 2000). As common at Iron Age sites, fish bones were almost totally absent with just two eel bones from Potterne and none from East Chisenbury.

Charred plant remains from the East Chisenbury midden were less well represented than at Potterne (see Carruthers 2010; Straker 2000a) and it is probable that a higher proportion of the midden at East Chisenbury is unburned compared with Potterne (Macphail 2010). The species represented included free-threshing wheat, spelt wheat, and six-row hulled barley (Pl. 12) (Carruthers 2010). At Potterne charred remains from the upper deposits included emmer, spelt, hulled barley and flax. However, emmer was less well represented within the later midden deposits (see Straker 2000a, fig. 24).

The (calcium phosphate) mineralised remains from both sites largely comprised common arable weeds, potentially growing on the midden itself, although elder was present, along with flax, bramble, apple/pear, sloe and bramble which all suggest some input of domestic waste into the middens (Carruthers 2000; 2010).

The charred and mineralised assemblages from Middle to Late Iron Age settlement at Devizes (Pelling 2002; Carruthers 2002) would seem to confirm the trend towards spelt wheat, with no emmer present. The mineralised remains were dominated by mustard from a Late Iron Age pit, potentially representing a cultivated *Brassica* crop (Pelling 2002). The author has also identified large numbers of black mustard seeds from Late Iron Age features at Ham Hill and potentially this crop can be associated with its use as mustard and with changes in cuisine and culinary practises in this period (Stevens 2007).

## *Romano-British*

**Environment**

This period possibly sees further agricultural expansion, and it is notable that many of the upper fills of barrow ditches with mollusc assemblages indicative of cultivation potentially date to this phase. Examples include Avebury G55 (Evans 1965), South Street long barrow (Ashbee *et al.* 1979) and possibly Roughridge Hill (Evans 1972, 335–7; 1987). Much of the sequence in the Winterbourne Valley is believed to date to this period and showed an open floodplain with possible pasture and cultivation of the slopes (Allen 1996). A further largely undated sequence from Butler's Field (Mount 1991; 1996), of Romano-British to later medieval date, indicates an area of damp floodplain grassland with seasonal flooding at the base, with the transition to the drying out of the floodplain and the development of a more terrestrial fauna.

Hazel, ash, blackthorn/cherry, oak, elm, maple and elder charcoal were identified from Silbury Hill and the late Romano-British settlement at West Overton Site XII (Gale 1996; 2000b). In both cases the wood appears to have been gathered from open scrubland with light woodland and/or isolated copses. It might be noted that Pelling (2013) also found bracken and heather within the plant macrofossils which might further suggest the exploitation of cleared areas of former forest upon the Clay-with-flints.

**Economic evidence**

Animal bones from the settlements to the south and east of Silbury Hill along with those of late Romano-British date at West Overton were dominated by cattle and sheep. Silbury had only rare deposits of pig (Iles 1996a; Baker 2013; Noddle 2000b), but it was better represented at West Overton. A small assemblage of animal bone from Longstones Field was dominated by sheep/goat (Coward 2008, 234–5), with smaller numbers of cattle, and a few finds of pig. Similar results were seen from Devizes (Charles 2002) although the assemblage was poorly preserved and hence sheep/goat are probably under represented.

The settlement at Silbury also produced evidence for goose and chicken, while fish bones were less common but did include common eel. A number of

oyster shells were present at West Overton (Wyles 2000b), but no remains of fish were recovered. As with most British sites, fish bones are largely absent from later prehistoric contexts in the region, but become commoner in the Romano-British period. Bones of deer were present in low amounts from both sites (Baker 2013; Noddle 2000b). Late Romano-British deposits from Devizes indicated a dominance of cattle, with relatively few sheep/goat and pig, although this may be a preservation/recovery issue (Ingrem 2002).

Charred plant remains were recovered from the settlements adjacent to Silbury Hill (Pelling 2013; Scaife 1996a). In common with many sites in the British Isles they provided good evidence for the cultivation of spelt wheat with some hulled barley, but little indication of emmer wheat. The more recent excavations also produced evidence for malting and brewing, a common occurrence for Roman roadside settlements (Pelling 2013). As with many such sites, the site is located near natural springs, which no doubt provided a source of water for brewing as well as potentially a sacred place for possible pilgrims. Indeed, as noted above, the very siting of Silbury Hill may be related to this factor.


*Plate 13 Environmental analysis (© Wessex Archaeology)*

## *Saxon to Medieval*

**Environment**

Molluscan evidence suggests a mixture of open environments during this period with a mid-8th- to late 9th-century AD alluvial deposit in the valley bottom near Silbury Hill, indicating wet flooded pasture environments (Campbell *et al.* 2013) together with areas of grazed grassland and probable cultivation as indicated by assemblages from 'Stukeley', Beckhampton Barrow 4 and Butler's Field (Wyles and Allen 1996a; 1996b).

Increased colluviation in the medieval/post medieval sequence from the Winterbourne Valley probably reflects larger areas coming under the plough (Allen 1996). Alluviation also increased in the valley bottom towards the end of the 13th century AD, perhaps related to increasing population levels and expanding cultivation around this time (Campbell *et al.* 2013).

Charcoal from the settlement at Raddun, Fyfield Down, comprised hazel, ash, Pomoideae, buckthorn/cherry etc., oak, elder and elm. Oak, while present was less well represented than hazel (Gale 2000c).

**Economic evidence**

The Saxon bone assemblage recovered from Devizes indicated a predominance of cattle with little sheep, although this may be a product of poor preservation (Charles 2002). The 12th–13th-century settlement at Raddun Wroughton, Fyfield Down, in contrast produced large numbers of sheep and goat, probably of a larger size than in the Romano-British period (Noddle 2000c). Cattle were less well represented than in earlier periods, together with smaller numbers of pig. Dog and horse are recorded, along with hare, and there is a good representation of fowl, including chicken, duck, goose and partridge. While fish were present, these all appear to be from later 17th-century contexts.

At Butler's Field a small assemblage of animal bone was studied from medieval pits and ditches (Iles 1996b) but produced only single bones of cattle and sheep/goat. Fish remains were also recovered and included three bones of herring.

A number of charred fragments of hazelnut shell were recovered from the site at Raddun Wroughton, Fyfield Down (Allen 2000b). Scaife (1996b; 1996c) also examined a charred assemblage from medieval ditches at Butler's Field and East Kennett which had very low levels of abraded grains of free-threshing wheat in the former and grains of free-threshing wheat and barley in the latter. Grains of oats were also present but, along with larger seeds of black bindweed, vetch/wild pea and cleavers, may be weed seeds. As such the assemblage indicates the typical change for the period across Britain where hulled wheat, predominately spelt, is replaced by free-threshing varieties.

## Scientific Dating

*by Frances Healy*

### *Introduction*

Absolute dating in the Avebury area goes back to early in the history of radiocarbon dating, with measurements of samples from Windmill Hill (BM-73 to -75; Barker and Mackey 1961). It is now possible to trace almost 300 radiocarbon dates (see Table 5a), with much smaller numbers of thermoluminescence (TL) and optically stimulated luminescence (OSL) dates (see Table 5b), as well as some dendrochronological analyses (see Table 5c) from the WHS and the wider area reviewed in this volume. The large number might suggest that scientific dating has been well-served. Quantity, however, does not mean quality, let alone even coverage.

The radiocarbon dates fall into two groups:

- series measured on stringently selected samples, in order to provide suitable material for Bayesian statistical modelling (from Windmill Hill, Knap Hill, the West Kennet long barrow and Silbury Hill); and
- dates obtained more-or-less opportunistically and reactively in order to answer questions which have arisen in the course of particular projects (all the rest).

It is worth summarising the criteria by which samples have been selected for the first group, not least because they provide a yardstick by which to assess the second (Bayliss *et al.* 2011).

If an absolute date is to provide the age of a sample's context, as well as of the sample itself, the sample must be contemporary with, or at least close in age to, that context. Such samples include, in roughly descending order of reliability:

- bones found in articulation. These samples would have been still connected by soft tissue when buried and hence from recently dead individuals;
- bones identified as articulating during analysis, especially if a single individual is well represented. These may have been articulated in the ground or have only been slightly disturbed before burial;
- bones with refitting unfused epiphyses identified during analysis, for the reasons given above;
- carbonised residues adhering to the interior of groups of sherds from a single pot. These are probably the remains of charred food (rather than firewood) and a well-represented pot has a good chance of being in the place where it was originally discarded;
- antler tools discarded on ditch bases, thought to be functionally related to their original excavation;
- single fragments of short-lived charred plant remains functionally related to the context from which they were recovered (eg, charcoal from a hearth or cremation pyre, or the outer sapwood rings of charred posts); and
- Single fragments of short-lived charred plant remains from coherent dumps of charred material: inferred on the basis of their coherence and fragility to be primary disposal events (eg, charred grain from a substantial deposit in a pit).

Short-lived plant material and single fragments are important because samples of long-lived material, such as charcoal from mature oak, can easily be older than their contexts and because a bulk sample of any material can include fragments of various ages, giving a result that is the mean of all and the age of none.

A glance at Table 5a is enough to show that many, although by no means all, of the radiocarbon dates are of limited value, having been measured on unidentified bulk charcoal samples or disarticulated bone, such that, cautiously, they can be seen only as *termini post quos* for their contexts – dates after which those contexts would have formed. There is the further problem of possible inaccuracy, especially among dates measured decades ago before the series of formal international inter-comparison exercises which began in the 1980s (Rozanski *et al.* 1992).

### *Mesolithic*

There are few absolute dates. Two radiocarbon measurements in the second half of the 8th millennium cal BC from fluvial deposits in the Kennet Valley at West Overton (Table 5a: OxA-1044 -1047) were unassociated with traces of human activity, although there is a small quantity of Mesolithic lithics from an intermediate layer (Evans *et al.* 1993, 163–71). Also, since both were measured on disarticulated animal bones, they could be *termini post quos* for the formations in which they were found and for the open-country environment of OxA-1047 and the shaded swamp environment of OxA-1044. In Avebury, human activity must be reflected by 12 fragments of burnt flint from the base of a palaeosol in the Winterbourne Valley in Butler's Field (*ibid.*, fig. 9). These formed the sample for a TL date spanning most of the 7th millennium BC and some of the 6th (Table 5b). It is unclear, however, if the flints were all of the same age, especially as multiperiod material can accumulate at the base of a soil and as there were both Mesolithic and Neolithic artefacts from this soil in adjacent cuttings (*ibid.*, 151–3).

At Cherhill, a radiocarbon date in the later 7th or earlier 6th millennium cal BC (Table 5a: BM-447)

was obtained for charcoal from a circumscribed concentration in a soil lens which, although sandwiched in tufa, coalesced nearby with a soil covered by the tufa, on and in which was a Late Mesolithic occupation spread of lithics, animal bone and charcoal (Evans and Smith 1983, 50–2). The relation of the sample to the occupation is probable, rather than certain and, even if the relation were certain, the unidentified bulk charcoal sample would provide only a *terminus post quem*. Cherhill, however, exemplifies the kind of site where dating would be worth undertaking to as high a level of precision as possible: a Mesolithic living surface, with bone preservation and an informative environmental record, stratified below successive later occupations. The valleys of the area, large and small, may offer other such opportunities.

## *Neolithic and Bronze Age*

Here, while there are many *termini post quos*, an increasing number of samples have been selected by the criteria summarised above, and there have been modelling exercises for the West Kennet long barrow (Bayliss *et al.* 2007a), for Windmill Hill and Knap Hill in the context of the Early Neolithic of the surrounding area (Whittle *et al.* 2011, ch. 3), and, most recently, for Silbury Hill (Marshall *et al.* 2013).

The Bayesian approach to the interpretation of archaeological chronologies is described in detail elsewhere (eg, Bayliss and Bronk Ramsey 2004; Bayliss *et al.* 2011). It is based on the principle that, although the calibrated age ranges of radiocarbon measurements accurately estimate the calendar ages of the samples themselves, it is the dates of archaeological events associated with those samples that are important. Bayesian techniques can provide estimates of the dates of such events by combining absolute dating evidence, such as radiocarbon dates, with relative dating evidence, such as stratigraphic relationships between radiocarbon samples, at the same time constraining the scatter inherent in radiocarbon measurements. It is also possible to calculate distributions for the dates of events that have not been dated directly, such as the beginning and end of a continuous phase of activity (which is represented by several radiocarbon results), and for the durations of phases of activity or hiatuses between such phases, moving beyond individual dates. The resulting 'posterior density estimates', whether for individual measurements or estimated parameters, are not absolute. They are interpretative, and will change as additional data become available or as the existing data are modelled from different perspectives. By convention, they are expressed in *italics*.

Models are presented here for the fairly small series for dates from the Avebury henge and stone settings, the Longstones enclosure, and West Kennett Farm. Their results are summarised in Figure 9 and Table 3. The provisional construction dates quoted here are derived from the overall model shown in Figure 9, rather than from the site-specific models shown in Figures 6–8.

### The Avebury henge and stone settings

There are no dates for samples definitely from below or in the relatively small primary bank recorded in sections in the south of the circuit, and presumably extending around its whole circumference (Pitts and Whittle 1992, fig. 1; Pollard and Cleal 2004, 124–5). The relation to it of Peterborough Ware found on the old land surface (Piggott 1935; Smith 1965b, 224) is uncertain. The model offered here therefore applies to the earthwork visible today rather than to its first stage (Fig. 6).

Dates from the old land surface beneath the earthwork comprise one for an unidentified bulk charcoal sample from a wide area covered partly by the primary bank and partly by the final one (Pitts and Whittle 1992, fig. 2: HAR-10063), one for a bulk animal bone sample from an area beneath the interface of the two banks (*ibid.*, fig. 3: HAR-10325), and a third for a bulk charcoal sample from beneath the final bank, well clear of the primary bank (*ibid.*, fig. 2: HAR-10500). All are modelled as *termini post quos* for the final earthwork. An antler pick (Fig. 6: *Gray 136*) from the ditch base would have been placed there before any silt had accumulated and would probably have been used to dig the ditch. Three replicate measurements have been made on it (Table 5a: HAR-10502, OxA-12555 -12556; Pollard and Cleal 2004, 121). These are statistically inconsistent, HAR-10502 being older than the other two dates. Since the other two are consistent, their weighted mean (Ward and Wilson 1978) is included in the model (Fig. 6: *Gray 136*), and HAR-10502 is excluded. The weighted mean is in turn statistically consistent with OxA-12557, measured on another antler pick from low in the chalk rubble fill which would have accumulated quickly. The two are therefore modelled as forming part of a single phase. If HAR-10326 indeed came from the revetment of the bank (Pitts and Whittle 1992, fig. 3), it too should be close in age to construction although, because of uncertainty as to its context, this relationship is not incorporated in the model. Higher up the sequence, a bulk charcoal sample from the secondary fills provides a *terminus post quem* for a burial (Fig. 6: *HAR-10064*).

In the main circle, a bulk charcoal sample and a sample of disarticulated pig bone provide *termini post quos* for the erection of two stones (Fig. 6:

*Table 3 Parameters shown in Figure 9, in order of appearance*

Particulars of individual radiocarbon measurements are to be found in Table 5a. The simple calibrated date ranges given for those measurements shown in the Table 5a differ from the posterior density estimates shown here because the posterior density estimates are constrained by the model shown in Figure 9.

| **Parameter** | **Posterior density estimate cal BC 95% probability** | **Posterior density estimate cal BC 68% probability** | **Parent model** |
|---|---|---|---|
| *Dig_WH_inner* | *3685–3635* | *3665–3645* | Whittle *et al.* 2011, fig. 3.9 |
| *Dig_WH_outer* | *3685–3610* | *3670–3535* | Whittle *et al.* 2011, fig. 3.11 |
| *Start_West_Kennet_Primary* | *3665–3630 (80%)*<br>*3565–3540 (15%)* | *3655–3635* | Bayliss *et al.* 2007a, fig. 6 |
| *Dig_WH_middle* | *3655–3605* | *3640–3620* | Whittle *et al.* 2011, fig. 3.10 |
| *BM-493* (Cherhill) | *3670–3330 (93%)*<br>*3220–3190 (1%)*<br>*3160–3130 (1%)* | *3640–3560 (21%)*<br>*3540–3490 (15%)*<br>*3470–3370 (32%)* | – |
| *Build_Knap_Hill* | *3625–3580 (7% )*<br>*3530–3375 (88% )* | *3515–3440(46%)*<br>*3425–3390 (225%)* | Whittle *et al.* 2011, fig. 3.9 |
| *Build_Easton_Down* | *3590–3340* | *3470–3375* | Whittle *et al.* 2011, fig. 3.31 |
| *Build_South_Street* | *3530–3105* | *3490–3300 (56%)*<br>*3250–3195 (12%)* | Whittle *et al.* 2011, fig. 3.31 |
| *Build_Millbarrow* | *3435–3125* | *3380–3275 (45%)*<br>*3265–3195 (23%)* | Whittle *et al.* 2011, fig. 3.30 |
| *Beckhampton_Road_antler* | *3345–3210 (41%)*<br>*3190–3155 (4%)*<br>*3130–2900 (50%)* | *3335–3235 (35%)*<br>*3100–3040 (18%)*<br>*3035–2970 (15%)* | Whittle *et al.* 2011, fig. 3.31<br>(there simply '*antler*') |
| *BM-2675* (First ditch of West Overton G19) | *3100–2880* | *3020–2900* | – |
| *GrA-25550* (OD V recut at Windmill Hill) | *3030–2870* | *3010–2990 (8%)*<br>*2940–2880 (60%)* | – |
| *Longstones_Beta-140988* | *2660–2460* | *2590–2560 (8%)*<br>*2550–2470 (60%)* | Fig. 7 |
| *Dig_Avebury_ditch* | *2580–2470* | *2530–2485* | Fig. 6 |
| *Silbury_start* | *2490–2450* | *2480–2460* | Marshall *et al.* 2013 model B |
| *End_ Silbury_Hill* | *2430–2405 (5%)*<br>*2400–2260 (90%)* | *2385–2350 (23%)*<br>*2320–2270 (45%)* | Marshall *et al.* 2013 model B |
| *OxA-V-2271-34* (Hemp Knoll primary burial) | *2460–2410 (8%)*<br>*2380–2200 (87%)* | *2350–2270 (40%)*<br>*2260–2210 (28%)* | – |
| *SUERC-34082* (Tpq for Marlborough Mound) | *2340–2130* | *2290–2160* | – |
| *build_palisade_enclosures* | *2340–2130* | *2290–2190 (63%)*<br>*2165–2150 (5%)* | Fig. 8 |
| *HAR-10064* (charcoal beneath burial in Avebury ditch) | *2340–1880 (95%)* | *2200–1970* | Fig. 6 |
| *OxA-V-2228-40* (Roundway G8 burial) | *2270–2260 (2%)*<br>*2210–2030 (93%)* | *2200–2130 (43%)*<br>*2090–2050 (25%)* | – |
| *OxA-V-2228-46* (West Overton, flat burial 1B) | *2210–2030* | *2200–2170 (10%)*<br>*2150–2120 (16%)*<br>*2100–2040 (42%)* | – |
| *Windmill Hill B198* | *2200–2170 (5%)*<br>*2150–2020 (89%)*<br>*2000–1980 (1%)* | *2140–2030* | – |
| *BM-2677* (disarticulated burial in West Overton G19) | *2200–1920* | *2140–1970* | – |
| *BM-2678* (articulated burial in West Overton G19) | *1320–1010 (94%)* | *1270–1100* | – |
| *SUERC-26203* (West Overton G1 burial) | *2010–2000 (2%)*<br>*1980–1770 (93%)* | *1950–1870 (52%)*<br>*1850–1820 (10%)*<br>*1800–1780 (6%)* | – |
| *BM-2679* (charcoal from cremation deposit at West Overton G19) | *2130–2080 (3%)*<br>*2060–1620 (92%)* | *1970–1730 (67%)*<br>*1710–1700 (1%)* | – |
| *BM-2680* (charcoal from cremation deposit at West Overton G19) | *2010–2000 (1%)*<br>*1980–1420 (94%)* | *1880–1840 (5%)*<br>*1820–1800 (3%)*<br>*1780–1520 (60%)* | – |
| *BM-2684* (charcoal from cremation deposit at West Overton G19) | *1530–1300* | *1500–1390* | – |
| *BM-2683* (charcoal from cremation deposit at West Overton G19) | *1530–1190* | *1460–1290* | – |
| *BM-2681* (charcoal from cremation deposit at West Overton G19) | *1450–1110* | *1400–1210* | – |
| *OxA-1348* (charcoal from cremation deposit in Kennet Valley at West Overton) | *1440–1110* | *1390–1210* | – |

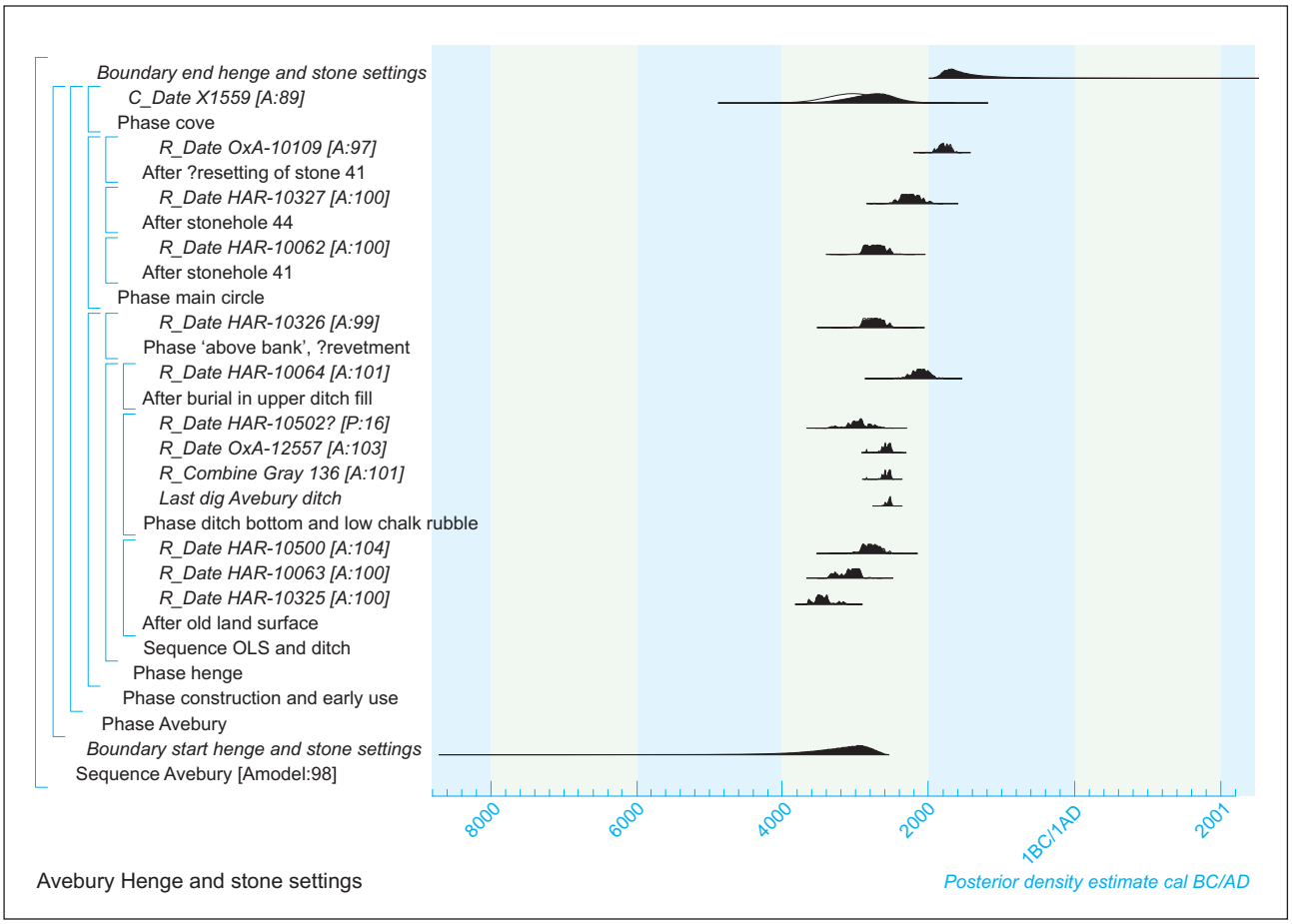



*Figure 6 Chronological model for the Avebury henge and stone settings*

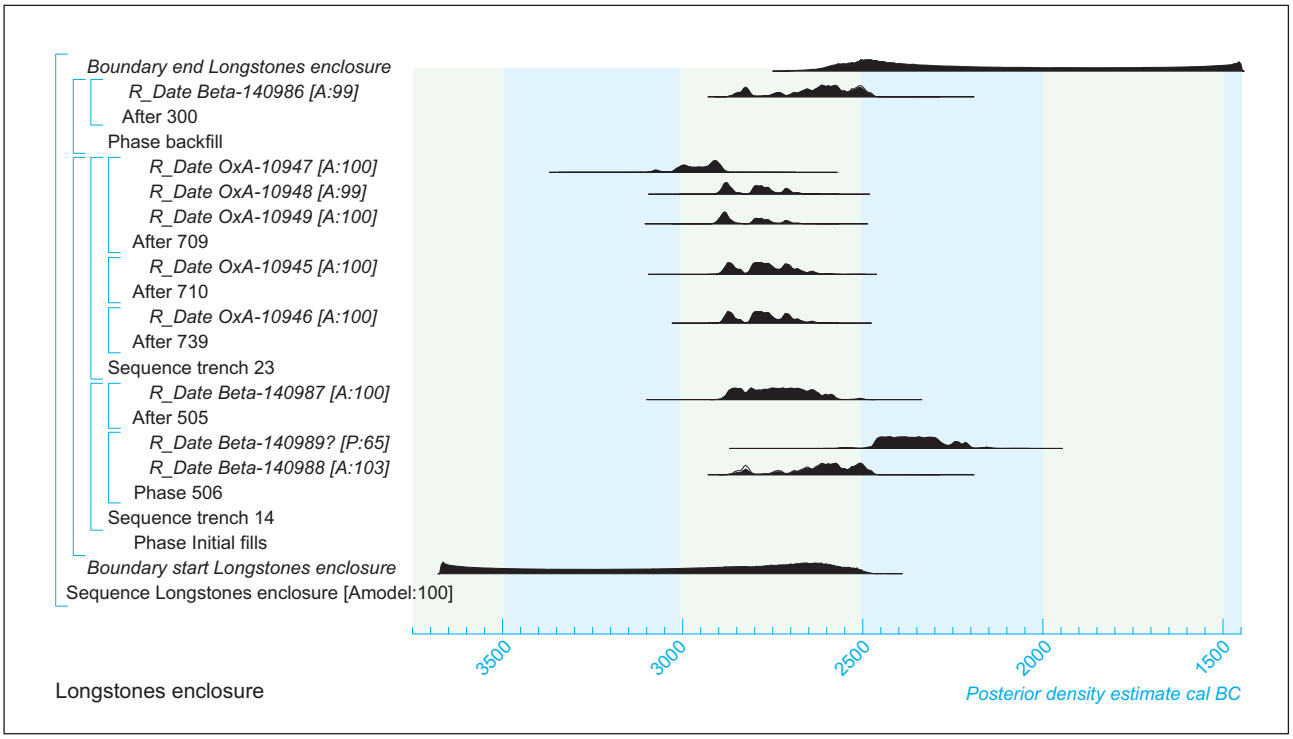



*Figure 7 Chronological model for the Longstones enclosure*

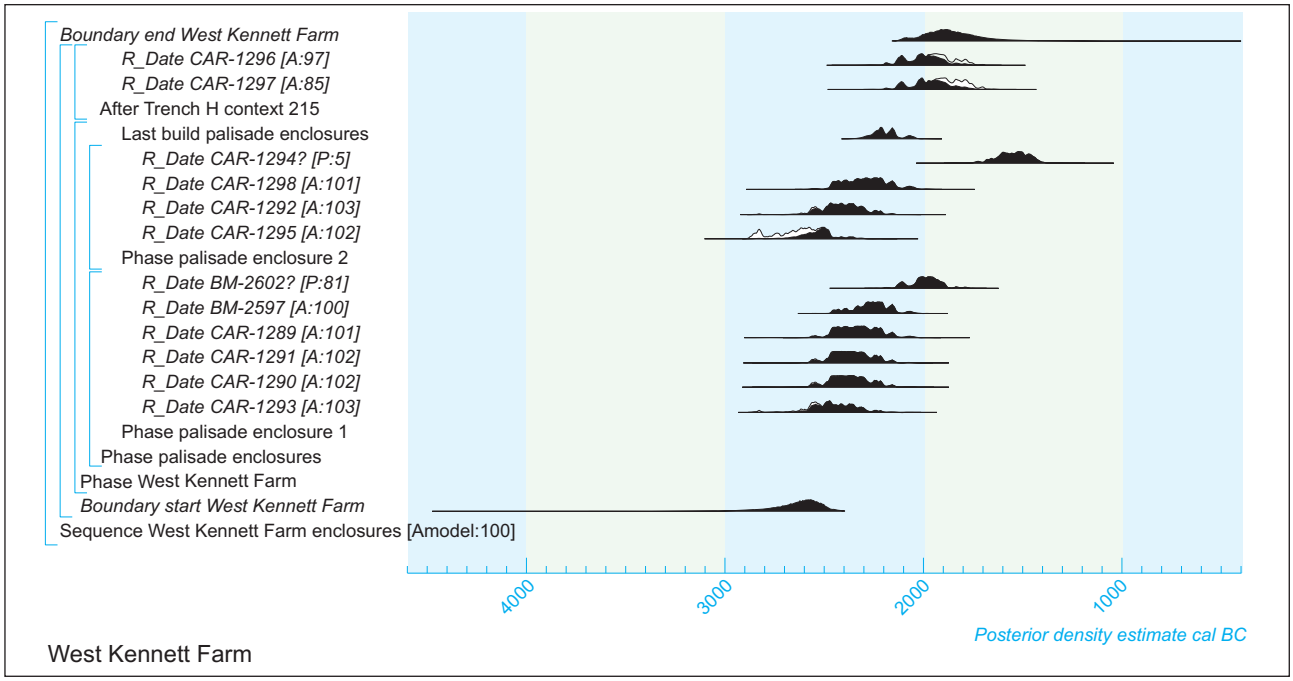



*Figure 8 Chronological model for the West Kennett Farm palisade enclosures*

*HAR-10062, -10327*). A *terminus post quem* for what is persuasively argued to be the resetting of a third stone (Pollard and Cleal 2004, 121–4) is provided by a measurement on a human skull fragment from the basal packing (Fig. 6: *OxA-10109*).

The only date for the cove is an OSL measurement for quartz grains from the clay packing of stone II (Fig. 6: X1559). When incorporated in the model, this is in overall agreement with the other measurements. It is, however, unconfirmed by any other dating evidence and its large standard deviation provides a great deal of latitude. There are further grounds for caution in that OSL dates for archaeological feature fills, as opposed to naturally deposited sediments, have an uneven track record of accuracy. This is exemplified by dates so early as to call for special pleading for two cursus monuments at Eynesbury, Cambridgeshire (Allen *et al.* 2004) and by results from the Stanwell cursus at Heathrow which collectively span thousands of years (Healy *et al.* 2010). The authors themselves express some reservations about the complete reliability of the Avebury estimate (Rhodes and Schwenninger 2008).

On the available evidence, the construction date of the present earthwork is estimated as *2580–2470 cal BC (95% probability)*, probably *2530–2485 cal BC (68% probability;* Fig. 9: *dig_ Avebury_ditch)*.

**The Longstones enclosure**

The problem here is that the enclosure ditch was so clean that suitable samples were confined to an articulated pig foot from the ditch floor in a terminal (Fig. 7: *Beta-140988*). The remaining eight dates were measured on disarticulated bone and antler fragments. These are all modelled as *termini post quos*, except for Beta-140989, which is excluded as an outlier because it is statistically inconsistent with and later than the articulated sample from the same context. *Beta-140988* itself thus provides the best estimate for a construction date of *2660–2460 cal BC (95% probability)*, probably of *2590–2560 cal BC (8% probability)* or *2550–2470 cal BC (60% probability;* Fig. 9: *Longstones_Beta-140988)*.

**West Kennett Farm**

The existing dates were measured on disarticulated samples, at least some of them bulked. The contexts of the samples, most of which were packed into the postpipes and bedding trenches of the palisade enclosures, mean that they are *termini post quos* for construction. Nine of the eleven dates from the two enclosures are statistically consistent, so that they could have derived from a single event, the exceptions being two later measurements (Fig. 8: BM-2602, CAR-1294). BM-2602 was measured on an antler fragment in the edge of the upper part of a postpipe, so that the sample may have derived from post-construction activity at the site. It is therefore excluded from the model. The sample for CAR-1294, on the other hand, came from the core of a postpipe. Its date of 1740–1410 cal BC (95% confidence) is, however, not only statistically inconsistent with nine of the eleven other dates from the palisade enclosures, it is also in poor agreement with the model and too late for the Grooved Ware associated with the structures. It is therefore also excluded.

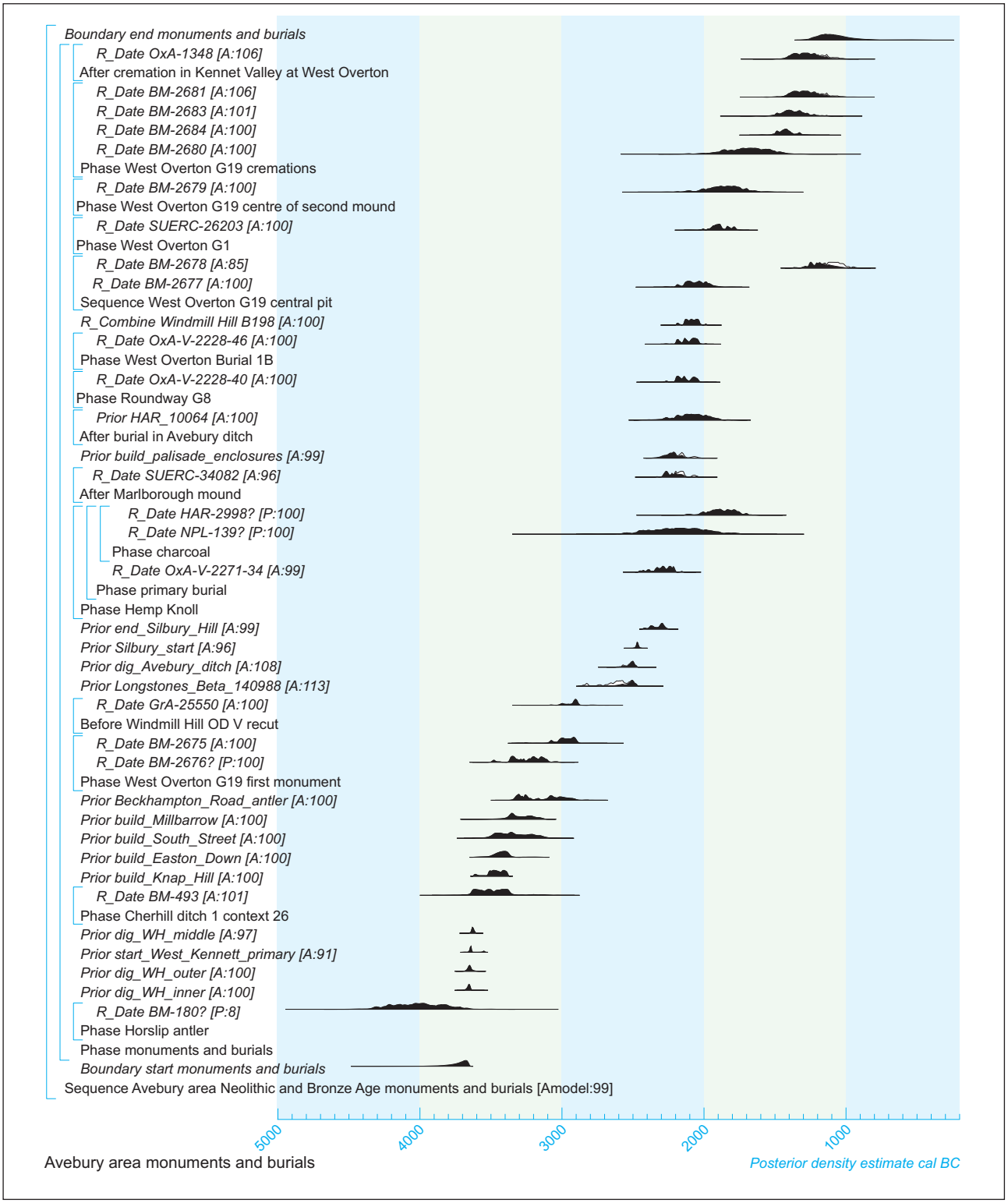



*Figure 9 Selected parameters relating to Neolithic and Bronze Age monuments and burials in the Avebury area, listed in Table 3*

Cautiously, a construction date of *2340–2130 cal BC (95% probability)*, probably of *2290– 2190 cal BC (63% probability)* or of *2165–2150 cal BC (5% probability;* Fig. 9: *build_palisade_enclosures)* is estimated, based on the latest of the dates once BM-2602 and CAR-1294 are excluded.

The remaining two dates (Fig. 8: *CAR-1296, -1297)* are themselves statistically consistent, but later than the consistent series from the enclosures. Both are from context 215, which bore no stratigraphic relation to the enclosures and, from its description (a midden-like deposit of animal bone with Grooved

Ware on a chalk floor – Whittle 1997a, 12, 76, fig. 43) may have been a partly exposed example of the kind of structure more recently excavated at Durrington Walls.

## *Overview*

### Monuments and burials

The 4th millennium cal BC has recently received most attention, so that it is possible to revise the chronological scheme of Whittle (1993), which was followed in the previous resource assessment (Cleal and Montague 2001). Figure 9 and Table 3 show some of the results from the dating programmes for the West Kennet long barrow (Bayliss *et al.* 2007a) and the circuits of Windmill Hill (Whittle *et al.* 2011, 61–97). The precision of these estimates contrasts with the imprecision of the surrounding estimates. In the case of Knap Hill, this is because the small scale of the excavation did not provide enough samples to constrain the scatter (Whittle *et al.* 2011, 97–102). In the case of the other long barrows, where only the pre-existing dates could be modelled, imprecision resulted both from low numbers of measurements, from the fact that several could be modelled only as *termini post quos*, and from their wide standard deviations (Whittle *et al.* 2011, 104–8).

The sequence is perhaps surprising. The inner and the exceptionally large outer circuit of the Windmill Hill causewayed enclosure are the earliest dated monumental constructions, followed by the West Kennet long barrow, then by the middle circuit of Windmill Hill, within the space of at most 75 years (*ibid.*, fig. 3.16: *period construction*). After this followed the smaller, simpler causewayed enclosure on Knap Hill and the other local long barrows (*ibid.*, fig. 3.32), as well as, on the evidence of a single radiocarbon date, an ill-understood sinuous, irregular ditch containing formally placed deposits at Cherhill (Fig. 9: *BM-493*). From this perspective, the single late 5th/early 4th millennium cal BC date for an antler pick from the base of a ditch of the Horslip long barrow is probably inaccurate (Fig. 9: *BM-180?*). The same may, of course, be true of the surprisingly late dating of an antler from beneath the Beckhampton Road long barrow (Fig. 9 and Table 3: *Beckhampton_Road_antler*).

More precise dating can re-write stories other than sequential ones. An unexpected disjuncture in the sequence of radiocarbon dates through segment V of the outer ditch at Windmill Hill combines with an exceptionally low quantity of chalk rubble fill to point to a recut extending close to the ditch base before *3030–2870 cal BC (95% probability;* Fig. 9 and Table 3: *GrA-35550*). It is from this level upwards that Peterborough Ware occurs in the segment (Smith 1965b, 11–12, fig. 4), and the recut could correspond to the expansion of the bank, seen in a more heterogeneous, unbedded structure to the rear than the front (covering, among other features, the grave of a mature male (Whittle *et al.* 1999, 79–81) who was probably interred *behind* the original bank rather than on its site before its construction), and the creation of a new entrance at the north end of the segment, where a vestigial bank runs across the present causeway (McOmish 1999, 14, fig. 15). This could reflect the creation of a new approach to the enclosure, oriented to the increasingly frequented south-facing slope of the hill and Kennet Valley (Whittle *et al.* 2011, 96–97). Correspondingly, an infant burial higher up in the same segment, long thought to be Neolithic (Smith 1965b, 9), dates to *2200–2170 cal BC (5% probability)* or *2150–2020 cal BC (89% probability)* or *2000–1980 cal BC (1% probability;* Fig. 9 and Table 3: *Windmill Hill B198)*. By the time of this late 4th/early 3rd millennium cal BC reorientation the extended, intermittent infilling of the chambers of the West Kennet long barrow was under way, continuing into the second half of the 3rd millennium cal BC (Bayliss *et al.* 2007a, fig. 6).

One of the first new monuments to be built closer to the river at the start of the 3rd millennium cal BC may have been a ring ditch on the site of what was to become round barrow West Overton G19 (Swanton 1988). Two antlers from the ditch base have been dated, with statistically inconsistent results (Table 5a: BM-2675, -2676). The more recent of the two probably reflects the date of the monument: *3100–2880 cal BC (95% probability;* Fig. 9 and Table 3: *BM-2675)*. Large-scale constructions came later. The precision of estimates for Silbury Hill, with a start date of *2490–2450 cal BC (95% probability)*; probably of *2480–2460 cal BC (68% probability;* Fig. 9 and Table 3: *Silbury_start;* Marshall *et al.* 2013*)*, makes comparison with the other dating evidence difficult, as with the West Kennet long barrow and the other long barrows.

Figure 9 brings together the construction and end dates from the preferred model of Marshall *et al.* for Silbury with the very imperfect estimates arrived at here for the Avebury henge, the Longstones enclosure and the West Kennett Farm palisade enclosures. Also included is the latest of four dates from two cores through the Marlborough Mound (Table 5a: SUERC-34082 to -34085). This is chosen for modelling as a *terminus post quem* for construction because the coring exercise delivered scattered charcoal fragments which could already have been of some age when the earth or turf in which they were incorporated was built into the monument. It indicates a construction date after *2340–2130 cal BC (95% probability)*, probably of *2290–2160 cal BC (68% probability;* Fig. 9 and Table 3: *SUERC-34082)*.

*Table 4 Late Neolithic monuments and the Hemp Knoll primary burial*
The cells show the % probability that the event in the first column is earlier than each event in the subsequent columns, derived from the model shown in Figure 9. It is, for example, 97% probable that *Longstones_Beta_140988* pre-dates *Silbury_start*

| **Parameter** | *Longstones_ Beta_140988* | *dig_Avebury_ditch* | *Silbury_start* | *end_Silbury_Hill* | *OxA-V-2271-34* | *SUERC-34082* | *build_palisade_enclosures* |
|---|---|---|---|---|---|---|---|
| *Longstones_Beta_140988* | – | *62%* | *97%* | *99%* | *99%* | *99%* | *100%* |
| *dig_Avebury_ditch* | *38%* | – | *99%* | *99%* | *100%* | *100%* | *100%* |
| *Silbury_start* | *3%* | *1%* | – | *100%* | *99%* | *99%* | *100%* |
| *end_Silbury_Hill* | *0%* | *0%* | *0%* | – | *66%* | *95%* | *94%* |
| *OxA-V-2271-34* (Hemp Knoll primary burial) | *0%* | *0%* | *0%* | *34%* | – | *81%* | *81%* |
| *SUERC-34082* (Tpq for Marlborough Mound) | *0%* | *0%* | *0%* | *5%* | *19%* | – | *50%* |
| *build_palisade_ enclosures* | *0%* | *0%* | *0%* | *6%* | *19%* | *50%* | – |

As Pitts points out (2011d, 6–7), however, the most recent date is for the least deep sample, so that it is conceivable that the cores went through successive stages of construction.

Table 4 attempts to sequence these disparate estimates for 3rd millennium cal BC monuments. Their overall span of *220–500 years (95% probability)*, probably *270–410 years (68% probability)* is undoubtedly widened by the imprecision of some of the estimates. Present evidence suggests that the Longstones enclosure was probably the first to be built, followed by the Avebury henge, followed by Silbury Hill. The West Kennett Farm palisade enclosures and the Marlborough Mound seem to have been built after the completion of Silbury Hill. Not only are most of the present estimates built on inadequate foundations, there is no absolute dating at all for the Sanctuary, the Longstones Cove, the West Kennet and Beckhampton Avenues, Falkner's Circle and other certain or possible small stone circles. As Gillings *et al.* point out (2008, 119), the east end of the Beckhampton Avenue should post-date or be contemporary with the Avebury henge and its west end, together with the Longstones Cove, should post-date the Longstones enclosure and pre-date a Beaker burial against one stone of the cove. The West Kennet Avenue should similarly post-date or be contemporary with the Avebury henge and pre-date Beaker burials. Its south-east end should be contemporary with or later than the outer stone ring of the Sanctuary. Falkner's Circle remains dated only by a very small amount of possibly associated Grooved Ware (*ibid.*, 149).

Table 4 not only shows the sequence of some of the Late Neolithic monuments, it shows that the man buried in the primary grave of the Hemp Knoll round barrow, some 4 km south-west of the Avebury henge, in *2460–2410 cal BC (8% probability)* or *2380–2200 cal BC (87% probability;* Fig. 9 and Table 3: *OxA-V-2271-34)*, probably died before the Marlborough Mound and the West Kennett Farm palisade enclosures were built (81% probable in both cases, *if* the date estimates for the two monuments are correct). In other words, the innovative and exotic tradition of Beaker burial may have been established locally during the construction of monuments rooted firmly in insular tradition. Articulated skeletons from other burials of the late third and the second millennia cal BC have been dated, an advance on the situation documented by Cleal (2005). They include sig-nificant grave groups, the contents and associations of which have wider repercussions, from Roundway G8, dated to *2270–2260 cal BC (2% probability)* or *2210–2030 cal BC (93% probability;* Fig. 9 and Table 3: *OxA-V-2228-40)* and from West Overton G1, dated to *2020–2000 cal BC (2% probability)* or *1980–1770 cal BC (93% probability;* Fig. 9 and Table 3: *SUERC-26203)*.

Other dates for human remains are also informative. An articulating skull and mandible, probably from one of an ill-understood group of burials in graves under sarsens at Winterbourne Monkton (Hillier 1854; Grinsell 1957, 126; Cleal 2005, 132) date from the first half of the 3rd millennium cal BC, a time when inhumations are rare (Table 5a: OxA-V-2228-41). This is excluded from the model shown in Figure 9 because there is some

*Table 5a Radiocarbon dates from the Avebury WHS and the surrounding area, in alphabetical order of site*

The calibrated date ranges were calculated by the maximum intercept method (Stuiver and Reimer 1986), using the program OxCal v4.1 (Bronk Ramsey 1995; 1998; 2009) and the INTCAL09 dataset (Reimer et al. 2009). Note: Tpq – *terminus post quem*

| Lab. No. | BP | Material | Context | $\delta^{13}C$ (‰) | Calibrated (95% confidence), BC unless otherwise stated | Comment |
|---|---|---|---|---|---|---|
| **Avebury henge and stone settings** | | | | | | |
| HAR-10063 | 4380±80 | Undated remainder classed as Pomoideae (0.09 g) and unidentified (0.45 g) by Rowena Gale 1997 (English Heritage files) | Old land surface under henge bank in SE quadrant (cutting X), spanning areas under first and second banks (Pitts and Whittle 1992, fig. 3) | -26.7 | 3350–2880 | Tpq for bank, although the Pomoideae identification means the whole sample might have been of short-life material |
| HAR-10325 | 4640±70 | 'Find nos GBA 82+61 to GBA 82+63' on submission form indicates that this was a bulk sample | Trench 2, L2. Old land surface under a bank of henge in NW, in area of interface between first and second banks on site of Great Barn (Evans *et al.* 1985, figs 1-2; Pitts and Whittle 1992, fig. 3) | -24.8 | 3640–3120 | Tpq for bank |
| HAR-10500 | 4190±90 | Recorded as *Crataegus* sp., *Aesculus* sp. and *Corylus* charcoal (this may not have been the composition of the actual sample because it is precisely the description of all of Gray's charcoal from beneath bank (1935, 160), and '*Aesculus*' (the genus to which horse chestnut belongs) does not figure in modern charcoal identifications | Old land surface under second henge bank in cutting X (Pitts and Whittle 1992, fig. 3) | -26.2 | 3010–2490 | Tpq for bank |
| HAR-10502 | 4300±90 | Shed red deer antler pick (Gray 136) | Base of ditch in Gray's cutting I, in SW sector (Gray 1935, pl. XXXVI: fig. 1; Pitts and Whittle 1992, fig. 3; Pollard and Cleal 2004) | -27.3 | 3320–2630 | Statistically inconsistent with OxA-12555, -12556 (T'=8.1; T'(5%)=6.0; ν=2), excluded from model shown in Fig. 9 |
| OxA-12556 | 4043±34 | Replicate of HAR-10502 | Base of ditch in Gray's cutting I, in SW sector (Gray 1935, pl. XXXVI: fig. 1; Pitts and Whittle 1992, fig. 3; Pollard and Cleal 2004) | -23.0 | 2630–2470 for weighted mean | Should be contemporary with construction. Statistically consistent with OxA-12555 ( T'=0.0; T'(5%)=3.8; ν=1) |
| OxA-12555 | 4036±34 | Replicate of HAR-10502 | Base of ditch in Gray's cutting I, in SW sector (Gray 1935, pl. XXXVI: fig. 1; Pitts and Whittle 1992, fig. 3; Pollard and Cleal 2004) | -23.3 | | Should be contemporary with construction. Statistically consistent with OxA-12556 ( T'=0.0; T'(5%)=3.8; ν=1) |
| OxA-12557 | 4038±34 | Shed red deer antler pick | Low in primary chalk rubble fill in E terminal flanking S entrance, in Gray's cutting IX (Gray 1935, pl. XLIII: fig. 3, pl. XLIV; Pollard and Cleal 2004) | -22.2 | 2840–2470 | Should be close in age to construction. Statistically consistent with OxA-12555+OxA-1256 (T'=0.0; T'(5%)=3.8; ν=1) |
| HAR-10064 | 3690±80 | Undated remainder identified as *Taxus* sp (0.06g), unidentified (0.23 g) by Rowena Gale 1997 (English Heritage files) | Cutting IX. Deposit of burnt material beneath 'dwarf' burial (actually a woman) in secondary fill of ditch, c. 2 m below modern surface, in terminal E of S entrance (Gray 1935, 145-46, pl. XLIII: fig. 1; Pitts and Whittle 1992, fig. 3). Sherds of grog-tempered coarse ware at same level (Cleal 2005, 119) | -25.4 | 2300–1880 | Tpq for burial |
| HAR-10326 | 4160±90 | Antler pick | In bank make-up, above possible revetment trench (Pitts and Whittle 1992, fig. 3) | -24.5 | 2920–2470 | Probably contemporary with construction |
| HAR-10061 | 2430±70 | Unidentified bulk charcoal sample | Stakeholes on edge of stonehole 8 of main stone circle in SW quadrant | -25.8 | 790–380 | Tpq for erection of stone |
| HAR-10062 | 4130±90 | Rowena Gale found undated remainder contained insufficient material to identify, 1997 (English Heritage files) | Bottom of stonehole 41 of main stone circle in NW quadrant (Pitts and Whittle 1992, fig. 3) | -27.5 | 2910–2470 | Tpq for erection of stone |

| | | | | | | |
|---|---|---|---|---|---|---|
| OxA-10109 | 3535±50 | 1 of 3 fragments of human skull, 2 conjoining | Basal packing of stonehole 41, probably with small bone or antler tube and 2 joining probably Beaker base sherds fallen; perhaps reflecting re-setting or replacement of fallen stone (Smith 1965b, 204; Pollard and Cleal 2004) | -21.3 | 2030–1740 | Tpq for probable resetting of stone (Pollard and Cleal 2004) – skull fragments could have come from already long dead individual |
| HAR-10327 | 3870±90 | Pig bone | Bottom of stonehole 44 of main stone circle in NW quadrant (Pitts and Whittle 1992, fig. 3) | -21.5 | 2580–2040 | Tpq for erection of stone |
| HAR-9696 | 2080±110 | Unidentified bulk charcoal sample | Ash layer in stonehole 44 of main stone circle in NW quadrant (Pitts and Whittle 1992) | -28.2 | 400 cal BC–cal AD 140 | Tpq for later activity |
| OxA-12937 | 339±27 | Charred *Hordeum vulgare* grain | As X1559 (Table 5b) | -23.7 | cal AD 1450–1650 | Statistically consistent with OxA-12897, -12898, -12935, -12936 (T'=1.7; T'(5%)=9.5; ν=4). May have entered stonehole after cracking of clay in dry weather |
| OxA-12936 | 330±27 | Charred *Hordeum vulgare* grain | As X1559 (Table 5b) | -22.8 | cal AD 1460–1650 | As OxA-12937 |
| OxA-12898 | 312±27 | Charred *Hordeum vulgare* grain | F6, stonehole of stone 2 in the cove, context 021, subangular chalk rubble in brown silty clay, apparently pushed into pit after stone in place (Gillings *et al.* 2008, 156–65, fig. 4.6) | -22.4 | cal AD 1480–1650 | As OxA-12937 |
| OxA-12935 | 306±27 | Charred *Hordeum vulgare* grain | As OxA-12898 | -27.2 | cal AD 1480–1650 | As OxA-12937 |
| OxA-12897 | 296±27 | Charred *Hordeum vulgare* grain | As OxA-12898 | -24.8 | cal AD 1490–1660 | As OxA-12937 |
| **Avebury school site** | | | | | | |
| HAR-1696 | 1200±80 | Described a 'carbonised grain and pit filling'. Other material from pit identified as *Triticum aestivo-compactum* and ? 6-row barley, with various weed seeds (Jordan *et al.* 1994, 7). Harwell noted no grain during pre-treatment which suggests sample may have been of charcoal | Pit containing grain in association with occupation debris, 3 m outside henge bank on SW side, cut through rainwash from bank and covered by further rainwash (Jordan *et al.* 1994, 7) | -23.8 | cal AD 650–1020 | Harwell comment: no grain apparent during pretreatment (Jordan *et al.* 1994, 7). Probably Tpq for pit, possibly its actual date |
| **Beckhampton Avenue** | | | | | | |
| Beta-140991 | 810±40 | Split cattle tibia | F26, burial pit of stone L6. Inserted in fissure running through sarsen (Gillings *et al.* 2008, 79-80, 263-64, 278–9) | | cal AD 1150–1280 | May reflect early medieval concern with stone, or later manipulation of already old bone |
| Beta-140990 | 240±40 | Chopped cattle rib | F26, burial pit of stone L6. In clean chalk backfill of pit (Gillings *et al.* 2008, 79–80, 263–4, 278–9) | | cal AD 1520–1960 | Tpq for burial of stone |
| **Beckhampton Road long barrow** | | | | | | |
| NPL-138 | 5200±160 | *Quercus robur* charcoal. Charred fragments at least 3 in (75 mm) in diameter | Charcoal patch 15 ft x 4–5 ft (4.5 m x 1–1.5 m), burnt *in situ* or still hot when deposited, forming a continuous layer 2 inches (50 mm) beneath the buried surface and cut by stakes of axial fence of barrow (Ashbee *et al.* 1979, 244–5, figs 15, 16, 21) | | 4360–3650 | Tpq for burning and for construction of barrow |
| BM-506a | 4257±90 | Red deer. Antler pick. Replicate of BM-506b. Measured before humic extraction | The lower of 2 antler picks found one above the other on the buried surface (Ashbee *et al.* 1979, 245, fig. 16) | | 3330–2880 for weighted mean | Statistically consistent with BM-506b (T'=2.7; T'(5%)=3.8; ν= 1). Immediate tpq for construction of barrow |
| BM-506b | 4467±90 | Replicate of BM-506a. Measured after humic extraction | As BM-506a | | | As BM-506a |
| **Bishops Cannings Down** | | | | | | |
| Six dates for charcoal from postpipes of houses A and B (BM-1713 to -1717; Gingell 1992, 7–14, 159), found to be in error. No corrections could be issued (Bowman *et al.* 1990) | | | | | | |

*Table 5a Continued*

| Lab. No. | BP | Material | Context | $\delta^{13}C$ (‰) | Calibrated (95% confidence), BC unless otherwise stated | Comment |
|---|---|---|---|---|---|---|
| **Butler's Field (Winterbourne Valley at Avebury)** | | | | | | |
| CAR-1092 | 880±70 | *Corylus* charcoal | Cutting E. Bedding trench in layer 5, medieval settlement with pits, trenches, ditches, charcoal, pottery, animal bone, daub (Evans *et al.* 1993, 153–4, figs 5, 8) | | cal AD 1010–1280 | Should be close to date of structure |
| OxA-1051 | 850±80 | Charred *Triticum aestivum compactum* grains | Cutting E. Layer 7, a prehistoric palaeosol containing Mesolithic and Early Neolithic artefacts (Evans *et al.* 1993, 151–3, figs 5, 8) | | cal AD 1020–1290 | Derived from overlying layer via worm holes |
| OxA-1218 | 740±80 | Caprine tibia | Cutting J. Layer 5, medieval settlement with pits, trenches, ditches, charcoal, pottery, animal bone, daub (Evans *et al.* 1993, 153–4, figs 5, 8) | | cal AD 1150–1400 | Tpq for context |
| OxA-1220 | 1160±80 | Cattle tibia | Cutting J. Layer 5, medieval settlement with pits, trenches, ditches, charcoal, pottery, animal bone, daub (Evans *et al.* 1993, 153–4, figs 5, 8) | | cal AD 660–1030 | Tpq for context |
| OxA-1052 | 720±70 | Charred *Triticum* indet. Grain | Cutting J. Layer 7, a prehistoric palaeosol containing Mesolithic and Early Neolithic artefacts (Evans *et al.* 1993, 151–3, figs 5, 8) | | cal AD 1180–1400 | Derived from overlying layer via worm holes |
| OxA-1053 | 760±80 | Charred *Triticum* indet. Grains | Cutting J. Layer 7, a prehistoric palaeosol containing Mesolithic and Early Neolithic artefacts (Evans *et al*. 1993, 151–3, figs 5, 8) | | cal AD 1050–1400 | Derived from overlying layer via worm holes |
| OxA-1219 | 900±70 | Roe deer antler | Cutting J. Pit G in layer 5, medieval settlement with pits, trenches, ditches, charcoal, pottery, animal bone, daub (Evans *et al.* 1993, 153–4, figs 5, 8) | | cal AD 990–1270 | Tpq for context |
| OxA-1221 | 3800±160 | Human femur | Transect I. Low in layer 6, the West Overton Formation, a weakly humic calcareous loam formed by overbank alluviation in grassland (Evans *et al.* 1993, 147, figs 5, 6) | | 2840–1770 | A reminder that not all individuals of this period received formal burial |
| **Cherhill** | | | | | | |
| BM-447 | 7230±140 | Unidentified bulk charcoal sample | Localised charcoal concentration in soil lens within and near base of tufa, coalescing with palaeosol on slightly higher, drier area. Palaeosol contained Late Mesolithic industry (Evans and Smith 1983, 50, fig. 6) | | 6420–5840 | Probably tpq for Mesolithic occupation |
| BM-493 | 4715±90 | Charred *Corylus* timber | Ditch I, context 26. Upper part of initial fill of irregular, sinuous hollow containing a human bone, bones of cattle, caprine, pig, struck flint (including leaf arrowheads), plain Neolithic Bowl pottery (Evans and Smith 1983, 52–8, 111–12, fig. 10) | | 3660–3340 | Since *Corylus* is short-lived, timber should be more-or-less contemporary with context |
| **Dean Bottom** | | | | | | |
| BM-1668R | 3910±100 | Unidentified bulk charcoal sample | Pit 23, context 18. Middle fill of pit containing sherds of numerous tall mid-carinated Beakers (W/MR), bone and antler artefacts, struck flint, animal bone. Stratified above BM-1669R (Gingell 1992, fig. 15) | -23.6 | 2840–2060 | Tpq for context. Original measurement found to be in error, correction issued (Bowman *et al.* 1990) |
| BM-1669R | 3750±100 | Unidentified bulk charcoal sample | Pit 23, context 19. Basal fill of it containing sherds of numerous tall mid-carinated Beakers (W/MR), bone and antler artefacts, struck flint, animal bone. Stratified below BM-1668R (Gingell 1992, fig. 15) | -24.2 | 2480–1890 | As BM-1668R |
| **Devizes Castle** | | | | | | |
| BM-2150R | 750±100 | Cellulose from sample consisting of c. 65 annual rings from oak corbel | Perhaps one of a number of detached corbels held in Devizes castle, others of which were dated by dendrochronology. See Table 5c | -22.1 | cal AD 1030–1410 | Tpq for corbel, since no sapwood rings present |
| **Easton Down long barrow** | | | | | | |
| 4 radiocarbon dates (Whittle *et al.* 1993; Whittle *et al.* 2011, 105, 107, fig. 3.31) | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Falkner's Circle** | | | | | | |
| Wk-17356 | 2283±35 | Carbonised weed seeds | F1 with burnt sarsen and some charcoal (Gillings *et al.* 2008, 149, fig. 3.18) | | 410–210 | Probably contemporary with pit |
| Beta-176551 | 380±60 | Roundwood charcoal | F7, context 733. Pit with burnt and fractured sarsen and charcoal cutting stonehole F9 (Gillings *et al.* 2008, 314, 336, fig. 3.18) | | cal AD 1420–1650 | Statistically consistent with Beta-176547, -176548, -176549, -176550 (T'=8.8; T'(5%)=9.5; ν=4). Probably contemporary with stone breakage |
| Beta-176550 | 280±50 | Roundwood charcoal | As Beta-176551 | | cal AD 1460–1950 | As Beta-176551 |
| Beta-176548 | 260±80 | Roundwood charcoal | F6, context 728. Pit with burnt and fractured sarsen, some burnt *in situ*, primary burning layers (Gillings *et al.* 2008, 313-14, 336) | | cal AD 1440–1960 | As Beta-176551 |
| Beta-176549 | 210±60 | Roundwood charcoal | As Beta-176548 | | cal AD 1520–1960 | As Beta-176551 |
| Beta-176547 | 140±60 | Roundwood charcoal | As Beta-176548 | | cal AD 1640–1960 | As Beta-176551 |
| **Hemp Knoll round barrow** | | | | | | |
| OxA-V-2271-34 | 3834±29 | Human, from articulated skeleton of 35- to 45-year-old ?male | Central primary burial with short-necked (W/MR) Beaker, stone bracer, bone belt ring. Head and articulated feet of ox within grave but outside coffin, apparently still attached to hide when buried (Robertson-Mackay 1980) | -20.7 | 2460–2150 | Date for burial |
| BM-1585 | 3760±60 | Aurochs cow scapula, disarticulated | Ditch 1, layer 15, NW quadrant. From eroded chalk capping of barrow in ditch surrounding mound (Robertson-Mackay 1980) | -21.3 | 2410–1980 | Tpq for context |
| NPL-139 | 3750±140 | Bulk sample of large pieces of oak charcoal | From possible 3-sided structure around NW end of coffin, at bottom of primary grave (Robertson-Mackay 1980, 140, 147) | | 2580–1770 | Excluded from model shown in Fig. 9 because in poor agreement with OxA-V-2271-34, measured on articulated skeleton from grave. Could disparity reflect later insertion of structure dated by NPL-139 and HAR-2998 into end of grave? |
| HAR-2998 | 3540±70 | As NPL-139 | As NPL-139 | -25.6 | 2120–1690 | As NPL-139 |
| HAR-2997 | 4580±80 | Bulk sample of disarticulated animal bone (cattle, caprine and red deer; Jordan *et al.* 1994, 77) | Pit 1. One of 5 pits beneath an Early Bronze Age round barrow (Robertson-Mackay 1980, 125–38) | -22.6 | 3630–3020 | Tpq for pit |
| **Horslip long barrow** | | | | | | |
| BM-180 | 5190±150 | Antler pick | E butt of E ditch, on base, covered by chalk rubble fill (Ashbee *et al.* 1979, 214, fig. 4, pl. 30b) | | 4350–3650 | Could be contemporary with construction, but excluded from model because in poor agreement with it |
| **Kennet Valley at West Overton** | | | | | | |
| OxA-1047 | 8390±80 | Aurochs 2nd phalanx | Cutting C. Layer 8d, tufa gravel at base of sequence (Evans *et al.* 1993, 163, figs 20, 28) | | 7590–7190 | Tpq for context |
| OxA-1044 | 8260±80 | Wild boar tusk | Cutting D. In North Farm Formation, in channel at side of flood plain, at 150 cm in molluscan series WO-V, base of humic silt loam 8b (Evans *et al.* 1993, 163, figs 20–2) | | 7520–7060 | Tpq for context |
| OxA-1348 | 3020±70 | *Quercus* and *Fraxinus* charcoal | Cutting DF. With cremation deposit of single adult, probably female in early 20s, in MBA pot, in pit dug into Avebury Soil (Evans *et al.* 1993, 167, figs 20, 31, 32) | | 1440–1040 | Tpq for burial |
| OxA-1222 | 4040±60 | Aurochs radius | Cutting DN. Layer 7 (Avebury Soil), with pottery including Beaker (Evans *et al.* 1993, 163, figs 20–4) | | 2870–2460 | Tpq for context |
| OxA-1223 | 3320±60 | *Prunus spinosa* charcoal | Cutting DN. North Farm Formation at base of sequence (Evans *et al.* 1993, fig. 22) | | 1750–1450 | Considered intrusive by authors (Evans *et al.* 1993). Later than samples from overlying layers |

*Table 5a Continued*

| Lab. No. | BP | Material | Context | $\delta^{13}C$ (‰) | Calibrated (95% confidence), BC unless otherwise stated | Comment |
|---|---|---|---|---|---|---|
| OxA-1045 | 2980±100 | Top of cattle skull with horn cores | Cutting P. On surface of Avebury Soil (layer 7), beneath layer 6d, beneath heap of sarsens (Evans *et al.* 1993, 163, figs 20, 25, 27) | | 1450–910 | Tpq for context. Probably a placed deposit |
| OxA-1046 | 2500±70 | Horse skull, more or less complete and in good condition | Cutting P. Layer 6b, towards top of sequence (Evans *et al.* 1993, 163, figs 20, 25) | | 810–400 | Tpq for context, perhaps a placed deposit |
| OxA-986 | 4200±160 | *Prunus* and *Quercus* charcoal | Cutting P. Charcoal horizon, probably from scrub burning, at interface of 6 k and 6j, in West Overton Formation (Evans *et al.* 1993, 163, figs 20, 25) | | 3340–2340 | Given as 4200±160 BP on ORAU website and in published datelist, as 3860±70 BP by Evans *et al.* (1993, 146). Tpq for burning episode |
| OxA-1048 | 3260±60 | *Prunus* charcoal | Cutting P. Charcoal horizon, probably from scrub burning, in layer 6h, above 6j (Evans *et al.* 1993, 163, figs 20, 25) | | 1690–1410 | Should date burning episode |
| **Knap Hill causewayed enclosure**<br>8 radiocarbon dates (Whittle *et al.* 2011, 97–102) | | | | | | |
| **Longstones Cove** | | | | | | |
| OxA-10950 | 1828±31 | Caprine bone | Stonehole F81 context 870 (Gillings *et al.* 2008, 88–90, 230–7) | -21.6 | cal AD 80–260 | Statistically consistent with OxA-10951 (T'=1.8; T'(5%)=3.8; ν=1) |
| OxA-10951 | 1764±36 | Caprine bone | Stonehole F81 context 870 (Gillings *et al.* 2008, 88–90, 230–7) | -21.5 | cal AD 130–390 | Statistically consistent with OxA-10950 (T'=1.8; T'(5%)=3.8; ν=1) |
| OxA-11112 | 1491±38 | Caprine bone | Stonehole F81 context 866 (Gillings *et al.* 2008, 88–90, 230–37) | -21.1 | cal AD 430–650 | Statistically consistent with OxA-11602 (T'=2.9; T'(5%)=3.8; ν=1) |
| OxA-11602 | 1405±33 | Caprine bone | Stonehole F81 context 866 (Gillings *et al.* 2008, 88–90, 230–7) | -20.7 | cal AD 590–670 | Statistically consistent with OxA-11112 (T'=2.9; T'(5%)=3.8; ν=1) |
| **Longstones Enclosure** | | | | | | |
| OxA-10947 | 4320±45 | Single caprine bone | Trench 23, context 709, chalk rubble (Gillings *et al.* 2008, 14–17) | -21.1 | 3090–2880 | Tpq for context |
| OxA-10949 | 4233±38 | Antler fragment | As OxA-10947 | -20.9 | 2910–2700 | As OxA-10947 |
| OxA-10948 | 4216±36 | Antler fragment | As OxA-10947 | -21.0 | 2910–2690 | As OxA-10947 |
| OxA-10946 | 4193±35 | Antler beam | Trench 23, context 739, soil on ditch base (Gillings *et al.* 2008, 14–17) | -21.1 | 2900–2630 | As OxA-10947 |
| OxA-10945 | 4190±40 | Single pig bone | Trench 23, context 710, chalk rubble (Gillings *et al.* 2008, fig. 2.14) | -20.9 | 2900–2630 | As OxA-10947 |
| Beta-140987 | 4150±50 | Single cattle bone | Trench 14, context 505, soil above secondary silts (Gillings *et al.* 2008, fig. 2.18) | -23.4 | 2890–2570 | As OxA-10947 |
| Beta-140988 | 4060±50 | Bone from articulated pig foot | Trench 14, context 506, chalk rubble on ditch base (Gillings *et al.* 2008, fig. 2.18) | -22.6 | 2870–2470 | Date for context and for digging of ditch |
| Beta-140986 | 4060±50 | Single cattle bone | Trench 13, context 300, backfill (Gillings *et al.* 2008, 14–17) | -23.6 | 2870–2470 | As OxA-10947 |
| Beta-140989 | 3880±50 | Single pig bone | Trench 14, context 506, chalk rubble on ditch base (Gillings *et al.* 2008, 19, fig. 2.18) | -21.8 | 2480–2200 | Later than and statistically inconsistent with Beta-140988 measured on articulated bone from same context (T'=6.5; T'(5%)3.8=; ν=1). Excluded from model shown in Fig. 6) |
| **Marlborough Mound** | | | | | | |
| SUERC-34082 | 3770±35 | Single fragment of Pomoideae charcoal | Core 1 B_667 cm (Pitts 2011d, 6–7) | -24.1 | 2300–2040 | Taken as closest date to mound construction because the most recent of the four from the cores, the sample for any one of which could have been already old when brought to the mound in turf or soil |
| SUERC-34083 | 4060±35 | Single fragment of Pomoideae charcoal | Core 1 D_1658.5 cm (Pitts 2011d, 6–7) | -24.9 | 2840–2480 | Tpq for context |

| | | | | | | |
|---|---|---|---|---|---|---|
| SUERC-34085 | 4010±35 | Single fragment of *Alnus* sp. charcoal | Core 2 K(1)_1221-1225 cm (Pitts 2011d, 6–7) | -35.4 | 2620–2460 | Tpq for context |
| SUERC-34084 | 3935±35 | Single fragment of *Alnus* sp. charcoal | Core 2 K(2)_1221-1225 cm (Pitts 2011d, 6–7) | -27.5 | 2570–2300 | Tpq for context |
| **Millbarrow**<br>8 radiocarbon dates (Whittle 1994; Whittle *et al*. 2011, 104–105, 107, fig. 3.30) | | | | | | |
| **Roundway G8 round barrow** | | | | | | |
| OxA-V-2228-40 | 3734±30 | Human, from articulated skeleton of 'an old man at least seventy' | Primary burial in grave under round barrow, with low carinated (W/MR) Beaker, Cu racquet pin, Cu tanged dagger, stone bracer, barbed and tanged arrowhead (Annable and Simpson 1964, 38, figs 59–63) | -21.2 | 2280–2030 | Date of burial |
| **Silbury Hill**<br>55 radiocarbon dates (Marshall *et al.* 2013) | | | | | | |
| **South Street long barrow**<br>4 radiocarbon dates (Ashbee *et al.* 1979; Whittle *et al.* 2011, 105, fig. 3.31) | | | | | | |
| **Wansdyke at Wernham Farm, Savernake Forest** | | | | | | |
| BM-2405 | 1020±50 | Many fragments of *Quercus* charcoal, at least partly from young wood | Recovered from pipeline trench section of earthwork. Sample came from stable phase in ditch silting, prior to ploughsoil fill and overlying mass of large loose flints 0.50 m deep, ?from agricultural clearance | -24.9 | cal AD 890–1160 | Tpq for stabilisation |
| **West Kennet Avenue, N end** | | | | | | |
| NZA-10501 | 4378±30 | Disarticulated cattle metacarpal | Pit 409, towards N end of W Kennet Avenue, near stone 15a, containing sherds from a Mortlake style bowl, charred hazelnut shell (Allen and Davis 2009) | -22.8 | 3100–2900 | Tpq for pit |
| **West Kennet Avenue occupation site** | | | | | | |
| HAR-9695 | 4260±80 | Sample unspecified. Charcoal from feature as a whole identified as 34% *Crataegus*, 59% *Corylus*, 7% *Prunus* (Smith 1965b, 215) | Hole 4, square 3. Small pit or posthole containing 2 weathered sherds Peterborough Ware, 2 chisel arrowheads, other struck flint, sarsen rubber and fragments (Smith 1965b, 215) | -26.7 | 3090–2620 | Tpq for pit, although identifications suggest charcoal could all have been of short-lived species |
| HAR-10501 | 4280±100 | Antler unspecified. Smith (1965, 213) notes antler as 1 fragment from red deer, 1 from roe, both slain | Pit 1. Bowl-shaped, 5ft across, 2 ft deep. Sterile run of Combe Rock on NW side, lower fill otherwise dark and charcoal-stained, with sherds from 3 Grooved Ware pots. Upper fill ?naturally silted, inc. Beaker fragment. >350 pieces struck flint, inc. chisel arrowhead, sarsen fragments, tip of bone pin, cattle and pig bones (Smith 1965b, 213) | -24.3 | 3320–2580 | Tpq for pit |
| HAR-9694 | 5780±80 | Sample unspecified. Charcoal from feature identified as 38% *Crataegus*, 52% *Corylus*, 10% *Prunus* (Smith 1965b, 214) | Hole 1, square 2, cutting VII2R layer 2. Small pit or posthole containing Grooved Ware sherds, a fragment of a group VII axehead and struck flint including a Levallois-like core and a serrated flake (Smith 1965b, 214) | -27.3 | 4830–4450 | Tpq for context. Sample must have included at least some charcoal which was much older than the contents of the pit |
| **West Kennett Farm** | | | | | | |
| CAR-1295 | 4050±70 | Cattle bone | Palisade enclosure 2, Tr M, core of postpipe F626 (Whittle 1997a, 12, 81, fig. 30) | | 2880–2460 | Statistically consistent with BM-2597; CAR-1289, -1290, -1291, -1292, -1293, -1298, -1289 (T'=10.1; T'(5%)=14.1; ν=7) |
| CAR-1293 | 3960±70 | Pig and cattle bone | Palisade enclosure 1. Outer ditch F100, Tr G, edge of postpipe F123 (Whittle 1997a,12, 63) | | 2840–2210 | As CAR-1295 |

*Table 5a Continued*

| Lab. No. | BP | Material | Context | $\delta^{13}C$ (‰) | Calibrated (95% confidence), BC unless otherwise stated | Comment |
|---|---|---|---|---|---|---|
| CAR-1290 | 3900±70 | Pig bone | Palisade enclosure 1. Outer ditch F200, Tr H, around postpipes F219-20 (Whittle 1997a, 12, 63, fig. 30) | | 2580–2140 | As CAR-1295 |
| CAR-1291 | 3890±70 | Pig bone | Palisade enclosure 1. Inner ditch F301, Tr J, postpipes F311, 313, 314, 315 (Whittle 1997a, 12, 66, figs 30, 33) | | 2570–2140 | As CAR-1295 |
| CAR-1289 | 3860±70 | Pig bone | Palisade enclosure 1. Outer ditch F200, Tr H, around postpipes F217-19 (Whittle 1997a, 12, 63, fig. 30) | | 2570–2130 | As CAR-1295 |
| CAR-1298 | 3830±70 | Cattle bone | Palisade enclosure 2. Outer radial ditch 1. Postpipe packing? (Whittle 1997a,12, 83, fig. 45) | | 2480–2040 | As CAR-1295 |
| CAR-1296 | 3590±70 | Pig bone | Palisade enclosure 1. Between inner and outer ditches in W, Tr H. Context 215: mass of animal bone, mainly pig, in dark matrix with Grooved Ware, overlying dark flinty layer which in turn overlay dished area of otherwise flat laid chalky layer (Whittle 1997a, 12, 76, fig. 43) | | 2140–1740 | Statistically consistent with CAR-1297 (T'=0.2; T'(5%)=3.8; ν=1) |
| CAR-1297 | 3550±70 | Pig and red deer bone | As CAR-1296 | | 2130–1690 | As CAR-1296 |
| CAR-1294 | 3260±70 | Cattle bone | Palisade enclosure 2. Trench M, core of postpipe F627 (Whittle 1997a,12, 81, fig. 30) | | 1740–1410 | Possibly a later intrusion into feature: too recent for Grooved Ware and in poor agreement with other dates from enclosure |
| BM-2602 | 3620±50 | Red deer antler beam fragment | Palisade enclosure 1. Outer ditch F26, Tr D, in edge of postpipe F40, in upper part of feature (Whittle 1997a, 12, 62, fig. 30) | -20.7 | 2140–1880 | As CAR-1294 |
| BM-2597 | 3810±50 | Red deer antler crown fragment | Palisade enclosure 1. Outer ditch F26, Tr D, layer 2. Rammed in deliberate chalk backfill in upper part of feature (Whittle 1997a, 12, 62, fig. 30) | -20.8 | 2470–2050 | As CAR-1295 |
| **West Kennet long barrow** 31 radiocarbon dates (Bayliss *et al.* 2007a) | | | | | | |
| **West Overton G1 round barrow** | | | | | | |
| SUERC-26203 | 3550±35 | Human, part of skull from skeleton of elderly male | In ?primary grave beneath round barrow with Willerby type flat bronze axehead, crutch-headed bronze pin, tanged bronze knife with single rivet, antler object (the last 2 now lost; Cleal 2005, 125) | -20.9 | 2020–1770 | Date for burial |
| **West Overton G19 round barrow** | | | | | | |
| BM-2676 | 4550±50 | Red deer antler | Base of first ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -17.7 | 3500–3090 | Statistically inconsistent with and earlier than BM-2675 (T'=8.8; T'(5%)=3.8; ν=1). Taken as redeposited in ditch and excluded from Fig. 9 |
| BM-2675 | 4340±50 | Red deer antler | Base of first ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -21.3 | 3100–2880 | Statistically inconsistent with and more recent than BM-2676 (T'=8.8; T'(5%)=3.8; ν=1). Taken as contemporary with digging of ditch |
| BM-2679 | 3520±90 | Human R femur from articulated crouched burial | At centre of second mound (Swanton 1988; Ambers and Bowman 1998, 416) | -20.3 | 2140–1620 | date of burial |
| BM-2678 | 2910±50 | Human L femur from articulated crouched burial | Upper part of burial pit at centre of first mound, described as crouched, with head to E, ?bound, subsequent disturbance of upper abdomen, perhaps relatively soon after burial, accompanied by a few pottery fragments (Swanton 1988; Ambers and Bowman 1998, 416) | -23.4 | 1270–930 | Date of burial |

| | | | | | | |
|---|---|---|---|---|---|---|
| BM-2677 | 3670±50 | Human L femur from incomplete and disarticulated body of adult male | Base of burial pit at centre of first mound (Swanton 1988; Ambers and Bowman 1998, 416) | -21.31 | 2200–1910 | Probably not long after death of individual if skeleton substantially represented |
| BM-2680 | 3380±120 | Mixed short-life wood charcoal | P31. Cremation deposit in stone setting in cremation cemetery in SW area of ditch. Cremation burials on or dug into layer of bone, pottery, sarsen and flint waste overlying turf in ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -24.2 | 2020–1420 | Probably date of burial, since all charcoal short-life |
| BM-2684 | 3150±50 | Mixed short-life wood charcoal | T102. Cremation deposit in cremation cemetery in SW area of ditch. Cremation burials on or dug into layer of bone, pottery, sarsen and flint waste overlying turf in ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -25.2 | 1520–1310 | As BM-2680 |
| BM-2681 | 3030±70 | Mixed short-life wood charcoal | T50. Cremation deposit in stone setting in cremation cemetery in SW area of ditch. Cremation burials on or dug into layer of bone, pottery, sarsen and flint waste overlying turf in ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -23.9 | 1440–1050 | As BM-2680 |
| BM-2683 | 3110±70 | Mixed short-life wood charcoal | W77. Cremation deposit in cremation cemetery in SE area of ditch. Cremation burials on or dug into layer of bone, pottery, sarsen and flint waste overlying turf in ditch (Swanton 1988; Ambers and Bowman 1998, 416) | -23.6 | 1520–1210 | As BM-2680 |
| **West Overton, Burial 1B** | | | | | | |
| OxA-V-2228-46 | 3718±28 | Human, from articulated skeleton of a large adult 22–30 years old | In flat grave cut into that of child accompanied by long-necked (FN) Beaker. Knees and ankles of adult rested on sarsens, with eleven flints were carefully placed from the crown of the skull down both sides of the body (Fowler 2000a, 82–6, fig. 6.4) | -20.9 | 2210–2020 | Date of burial |
| **Windmill Hill causewayed enclosure** | | | | | | |
| 78 radiocarbon dates (Whittle *et al.* 2011, 61–96) | | | | | | |
| **Winterbourne Monkton** | | | | | | |
| OxA-V-2228-41 | 4157±29 | Human, articulating skull and mandible | 'In the large open fields between this [Windmill] hill and the site of Millbarrow, and a few hundred yards to the west of the later, were several large Sarsen blocks which it was determined to remove ... Four at least were found to cover sepulchral deposits. Circular cists had been excavated through the marl and chalk, to the depth of four feet, the bottom in one instance being closely paved with small Sarsen stones. In the cists were human skeletons in a crouched or sitting position ... In the first cist were about six skeletons ... There were no other relics. In the second cist there were as many as twenty-five skeletons... Several bones of dogs, swine, sheep, and oxen, a few fragments of rude, hard black pottery, and a large conical sort of muller-stone of Sarsen, weighing 12 1/2 lbs, were found with the skeletons'. (Davis and Thurnam 1865, text to pl. 58). 'Since this discovery ... several other sarsen stones have been taken up in the same field with similar results. With one of these deposits were jet ornaments, objects of stone and pottery, including two drinking cups now preserved in the Society's Museum at Devizes' (Long 1858, 343). This was a burial with 2 long-necked Beakers and other goods (Grinsell 1957, 126; Annable and Simpson 1964, figs 70–6; Cleal 2005, 132).<br><br>There is doubt as to the provenance of the dated specimen (M. Jay pers. comm.) | -21.0 | 2880–2620 | Not used in the model shown in Fig. 6 because of doubt as to provenance |

*Table 5b Luminescence dates from the Avebury WHS and the surrounding area, in alphabetical order of site*

| Lab. No. | Lab code | Date | Date BC (1σ) | Material | Context |
|---|---|---|---|---|---|
| **Avebury henge and stone settings** | | | | | |
| OSL date X1559 | | 3120±350 BC | 3470–2770 | Quartz grains (Rhodes and Schwenninger 2008) | F6, stonehole of stone 2 in the cove, context 022, orange-brown clay filling much of stone hole, up against stone and sarsen packing blocks (Gillings *et al.* 2008, 156–65) |
| **Butler's Field (Winterbourne Valley at Avebury)** | | | | | |
| TL date – no number found | | 8250±575 BP | 6840–5690 | 12 burnt flints (Huxtable and Evans 1987) | Cutting E. From base of Avebury Soil (layer 7), overlying tree-throw holes. Mesolithic to early Neolithic artefacts in same horizon in adjacent cuttings (Evans *et al.* 1993, 151–3, fig. 8) |
| **Kennet Valley at West Overton** | | | | | |
| TL date Ox88TLfg | 727f | 3030±250 BP | 1290–790 | Burnt sarsen (Huxtable and Evans 1990) | Cutting DF. From concentration of burnt sarsen in Avebury Soil, ?a burnt mound, next to cremation in MBA pot from which came sample for radiocarbon date OxA-1348 (Evans *et al.* 1993, 167, figs 20, 30, 31) |
| TL date OxTL 727BA | | 4300±900 BP | 3210–1400 | Sediment | Cutting P. Layer 6k, earliest level of West Overton Formation (Evans *et al.* 1993, 163, figs 20, 25) |

doubt as to the provenance of the sample, although 4th millennium cal BC dates recently obtained by the Beaker People Project for two further individuals from Winterbourne Monkton (M. Jay pers. comm.) indicate that there were indeed Neolithic interments here as well as the Beaker burial illustrated by Annable and Simpson (1964, figs 70–6). An inhumation from West Overton G19 dates from the late 2nd millennium cal BC, a time when most burials seem to have been cremations (Fig. 9 and Table 3: *BM-2678*).

Dates for later 2nd millennium cremation burials are confined to a series of four, measured on short-life charcoal, from West Overton G19 (Fig. 9 and Table 3: *BM-2680, -2681, -2683, -2684*) and a *terminus post quem*, for another on the Kennet floodplain nearby (Fig. 9 and Table 3: *OxA-1348*).

## Settlement

The settlement context of the monuments and burials is represented by pits and artefact scatters, some preserved beneath monuments, some surviving beyond them. Its dating is even worse than that of the conspicuous archaeology. Neolithic samples from pre- or non-monumental contexts tend to consist of oak charcoal, as from beneath the Beckhampton Road and South Street long barrows; unidentified charcoal, as from some of the pits of the West Kennet Avenue occupation site or beneath the Avebury henge bank; and disarticulated bone, as from a pit below the Hemp Knoll barrow (Table 5a). Thus, while many of the monuments were preceded by earlier activity (Pollard 2005), the only case where that definitely predates the first dated monumental construction in the area, the inner circuit of Windmill Hill, consists of the undated pits preceding that circuit itself. All the others could be contemporary or later. There are hints of early 4th millennium cal BC activity in small quantities of Carinated Bowl pottery from beneath the South Street long barrow (Ashbee *et al.* 1979, 269, fig. 30: 1–2); in superficial contexts at the Horslip long barrow (*ibid.*, 223–4, fig. 8: P1–P8); and in as yet unpublished pits on Roughridge Hill (Anon. 1965b, 132–3; Cleal 2004, 176). Pottery probably, on stylistic grounds, contemporary with the enclosures and long barrows, comes from a pit on Waden Hill (Thomas 1955); from Hackpen Hill; from the site of a round barrow on Overton Hill (Smith and Simpson 1966, 151–5, fig. 7: 1–5); from an intercutting pit group south of Windmill Hill (Whittle *et al.* 2000, fig. 10); and from pits beneath the Hemp Knoll barrow (Robertson-Mackay 1980, fig. 4). Apart from Hemp Knoll, all are totally undated. Later Neolithic and Beaker settlement contexts are equally badly defined (see the dates in Table 5a for the West Kennet Avenue occupation sites and a pit to the north of it). (This may also no longer be true at the time of publication.)

Clearance and cultivation in the third and second millennia cal BC, extending through the time of the dated cremation burials, have been elucidated by the late John Evans' investigations in the Kennet Valley at West Overton (Evans *et al.* 1993, 162–90). Small-scale ritual also seems represented by what appears to have been the deliberate placement of the top of a cattle skull, complete with horncores, beneath a heap of sarsens, the skull being dated to 1450–910 cal BC (95% confidence; Table 5a: OxA-1045; *ibid.*, 163, figs 25, 27). Paradoxically, these river valley investigations provide the only dated evidence for Bronze Age agriculture: the extensive field systems and settlements of the Marlborough Downs remain undated since the withdrawal of five radiocarbon dates for samples from the postpipes of roundhouses

*Table 5c Dendrochronological analyses from the Avebury WHS and the surrounding area, in alphabetical order of site*

| Site | Result | Reference(s) |
|---|---|---|
| Avebury, Manor Barn (the Great Barn) | Eight re-used oak timbers in probably 17th-century structure felled AD 1279–1301. Later phases undatable, due to the use of fast-grown younger oak trees | http://archaeologydataservice.ac.uk/archives/view/vag_dendro Tyers 1999 |
| Berwick Bassett Old Farmhouse | Main range AD 1446–1457 | http://www.dendrochronology.net http://archaeologydataservice.ac.uk/archives/view/vag_dendro |
| Compton Bassett, Church of St Swithun | Stub ties of nave roof felled AD 1461–93 | http://www.dendrochronology.net http://archaeologydataservice.ac.uk/archives/view/vag_dendro Miles 2001 |
| Devizes Castle | *Ex situ* heads on ends of stub tie-beams dated to 1408–30. Probably from St John's Church next door, the roof of which had comparable features before its replacement in 1862–3. See Table 5a: BM-2150R | http://www.dendrochronology.net/ |
| Devizes, 4–5 St John's Alley | 1645–46 | http://www.dendrochronology.net http://archaeologydataservice.ac.uk/archives/view/vag_dendro |
| Marlborough, 121/122 High Street | 1655–56 | http://www.dendrochronology.net http://archaeologydataservice.ac.uk/archives/view/vag_dendro |

on Bishops Cannings Down (BM-1713 to -1717; Gingell 1992, 7–14, 159) by the British Museum following the identification of a counting error during the period in which they were measured (Bowman *et al.* 1990). The rich midden deposits in the south of the area, as at All Cannings Cross and Stanton St Bernard, are totally undated. (This may also no longer be true at the time of publication.)

## *The 1st Millennium cal BC and Later*

A high proportion of dates for later periods are from the Neolithic monuments, often for samples submitted in the hope of dating stoneholes. Submissions prompted by an interest in the chronology of stone burial and destruction have been made only recently (eg, Gillings *et al.* 2008, 252–355).

## *Iron Age, Roman and Post-Roman*

From the 1st millennium cal BC onwards there are signs of activity relating to standing stones at Avebury in the form of *termini post quos* of 790–380 cal BC (95% confidence; Table 5a: HAR-10061) for a stakehole on the edge of stonehole 8 and of 400 cal BC–cal AD 140 (95% confidence; Table 5a: HAR-9696) for an ash layer in stone hole 44. As Pollard and Cleal point out (2004, 127), it is difficult to dismiss these, and they may relate to other hints of Late Iron Age/early Roman use of the monument. It may be cognate that a pit within Falkner's Circle is dated to 410–210 cal BC (95% confidence; Table 5a: WK-17356), a time when the circle would have been standing and eminently visible.

At the Longstones cove, there is a convincing argument for votive activity relating to animal bone fragments from a Romano-British context, two of which yielded statistically consistent late 2nd- to early 4th-century cal AD dates (Table 5a: OxA-10950, -10951), and from a post-Roman context, two of which yielded statistically consistent dates in the early 6th to mid-7th century cal AD (Table 5a: OxA-1112, -11602; Gillings *et al.* 2008, 88–90, 230–37).

## *Early Medieval to Modern*

Silbury Hill provides the only example in the area so far of early medieval use of a major monument in the form of three statistically consistent dates for short-life samples from features on the summit, pointing to activity in the 10th to 11th centuries cal AD, perhaps related to modification of the terraces on the northern slope identified by Atkinson (1970, 314), which produced Saxo-Norman pottery and a silver quarter penny of Etheldred II (AD 1009–1016; Marshall *et al.* 2013).

Moving away from the monuments, it is worth noting a *terminus post quem* of cal AD 890–1160 for a stable horizon in the infilling of the ditch of Wansdyke, at Wernham Farm, Savernake Forest (Table 5a: BM-2405).

In Avebury itself, early medieval settlement has yielded several dates, one from the school site (Table 5a: HAR-1696), more from John Evans' investigations in Butler's Field (Evans *et al.* 1993, 153–54, figs 5, 8), where the occupation from which samples came in layer 5 (Table 5a: OxA-1218 to -1220, CAR-1092) must have been the source of charred grain intrusive in the underlying layer 7 (Table 5a: OxA-1051 to -1053). These last, together with CAR-1092, measured on hazel charcoal from a bedding trench, provide the best estimate for the occupation, the others being potentially older than their contexts.

Dendrochronological analysis of the Great Barn, probably built in the 17th century AD, has identified eight re-used oak timbers felled in AD 1279–1301, although the later phases of the structure proved undatable due to the use of timber from younger, fast-grown oak trees (Table 5c: Tyers 1999). Dendrochronological analysis also formed part of the National Trust's (2011) programme of work at Avebury Manor.

In the surrounding area, five further dendrochronological analyses have placed the timbers of domestic and ecclesiastical structures in the 15th and 17th centuries AD (Table 5c).

Five statistically consistent early 15th- to mid-17th-century radiocarbon dates (Table 5a: OxA-12935, -12936, -12937, -12897, -12898) for single charred barley grains from material packed around a stone of the Avebury cove (Gillings *et al.* 2008, 156–60) may reflect accidental intrusion from nearby settlement.

The deliberate selection of samples to define the history of stone burial, breakage and burning is a recent development, although several measured so far could be older than their contexts. The one series of short-life samples, from Falkner's Circle, although statistically consistent, coincides with wiggles in the calibration curve which reduce its precision to a span from the 15th century AD to the present (Table 5a: Beta-176547 to -176551).

*Plate 14 Taking samples for isotopic analysis (© Wessex Archaeology)*

## Biomolecular Analyses

*by Mandy Jay and Janet Montgomery*

### *Research on Skeletal Remains*

Biomolecular analysis of skeletal remains, both animal and human, is becoming a frequent part of both post-excavation work at new sites and of research work based on existing, curated assemblages. The contribution to be made by these data is becoming better understood by archaeologists generally, the techniques most usually discussed being isotope and DNA analyses, although there are other procedures, many in development, which are increasingly useful. An example is the identification of biomarkers using protein and peptide sequencing in collagen (Zoo-MS) which is allowing identification of animal bone to species at a relatively economical cost (Buckley *et al.* 2009). This may be of value in the future for zooarchaeologists wishing to evaluate the species composition of large animal bone assemblages which contain a significant amount of undiagnostic material (eg, Windmill Hill), or for more specific queries about artefacts made of bone or contexts where animal and human bone might be mixed.

Until relatively recently DNA analysis of archaeological human remains has en-countered serious problems with modern contamination and there has been a period where studies of animal bone have been preferred for archaeological DNA research. In the last few years, however, new high-throughput, next generation sequencing techniques have been developed which are revolutionizing this area of study (Meyer *et al.* 2007; Krause *et al.* 2010) and large-scale research studies of human remains at relatively low cost are becoming possible for the future which will allow consideration of the genetic relationships between groups and individuals, providing more information on archaeological issues such as mobility.

Isotopic analysis of skeletal remains has been flourishing as methods evolve and costs are reduced (Pl. 14). These techniques provide a group of tools which can be used to investigate a range of archaeological issues including mobility, residence patterns, diet, breastfeeding behaviours, environment, land-use, animal husbandry and subsistence practices. There are a range of techniques in this field, some of which have been used for decades, whilst others are rapidly developing (eg, sulphur isotope analysis of collagen: Privat *et al.* 2007; Nehlich and Richards 2009). Recent developments in mass spectrometry now offer the opportunity to reduce sample size, eg, micro-sampling by drills or lasers, and to improve the interpretative value of complex isotope systems such as lead, which was previously restricted due to the very low concentrations of lead

in prehistoric humans and animals (Montgomery *et al.* 2010). The improved resolution now achievable by new multi-collector mass spectrometers is significantly better than could be achieved 10 years ago (eg, Montgomery *et al.* 2000). As a consequence, the use of lead isotopes to track prehistoric mobility in a similar manner to strontium, which has up to now been rare due to difficulties of interpretation, is being revisited: eg, in a PhD funded by Durham University on Neolithic human mobility in England. One of the main recent advances has been towards expanding databases for multi-isotope studies across space and time, combining different isotope ratios from the same individuals and from different fractions of the same individuals. One of the reasons that large datasets are required for detailed interpretations is that most of these data require an understanding of the signals inherent in the local environments for particular times and places. Interpretation of the data from an individual can be very difficult without an understanding of this 'background' signal, which can be affected by issues such as climate, land management practices, water sources and deforestation.

Both human and animal skeletal remains are useful archaeological resources for isotope and DNA studies. Whilst a study such as that of the 'Amesbury Archer' (Pl. 15) which suggests long distance, possibly continental scale mobility in an individual, is very interesting at the smaller scale (Fitzpatrick 2003; Fitzpatrick 2011), it is the research which might be considered more mundane that is providing important larger scale pictures of life in the past, such as prehistoric animal management practices in Wiltshire (Towers *et al.* 2010; Viner *et al.* 2010; Towers *et al.* 2011). The Feeding Stonehenge project (AHRC funded, PI: Mike Parker Pearson) includes isotopic analysis of West Kennet cattle, as well as animals from Durrington Walls and Stonehenge, with a view to better understanding such practices.

One major project which has recently compiled a very large isotopic database from British human remains is the Beaker People Project, funded by the Arts and Humanities Research Council and involving researchers from a number of institutions (Jay and Richards 2007a; Montgomery *et al.* 2007; Jay and Montgomery 2008; Jay *et al.* 2012). This has looked at over 300 Chalcolithic and Early Bronze Age individuals from northern Scotland down to southern England, including a range of burials from Wiltshire and Dorset. Isotope ratio data have been obtained from both tooth enamel and from skeletal collagen. The enamel has been analysed for strontium ($^{87}Sr/^{86}Sr$) and oxygen ($\delta^{18}O$), whilst the collagen from both bone and dentine has provided carbon ($\delta^{13}C$), nitrogen ($\delta^{15}N$) and sulphur ($\delta^{34}S$) data. The

*Plate 15 The 'Amesbury Archer' burial (© Wessex Archaeology)*

project has also radiocarbon dated 150 individuals, this being done on the collagen extractions produced for isotope analysis, so that the same samples were used.

The strontium and oxygen data are those most commonly used for mobility studies, whilst carbon and nitrogen are more usually employed for investigating dietary patterns (Evans *et al.* 2006; Jay and Richards 2007b; Montgomery 2010). Sulphur analyses are a more recent development and are contributing to both mobility and dietary interpretations (Richards *et al.* 2003). Whilst these are the applications most commonly attributed to these particular isotope systems, when they are used in combination they are much more powerful than when used alone and categorizing one particular ratio as applicable to only one purpose would be a mistake, since they all reflect environmental backgrounds in different ways and contribute to an overall interpretation of resources consumed and the environments from which those resources came. Other isotopic analyses which are currently in use and which can be applied to skeletal material to add to the picture are (as mentioned above) from lead (Montgomery *et al.* 2010) and hydrogen (Reynard and Hedges 2008), data from the latter being available from Windmill Hill and showing geographical differences which will aid mobility studies when compared with other sites in the UK and internationally. There are also continuing method developments which may bring even more isotopic systems into the picture (eg, calcium, Chu *et al.* 2006).

The Beaker People Project database includes 11 individuals who are within the resource assessment region, four of whom are also within the WHS area and nine of which have been radiocarbon dated as part of the project (see Healy, above). These are listed

*Table 6 Beaker People Project burials within the resource assessment region*

| SK no.[1] | Site/curatorial institution[2] | WHS area[3] | Dated[4] |
|---|---|---|---|
| 130 | Roundway G8/WM | No | Yes |
| 131 | Roundway G9/WM | No | No |
| 132 | Winterbourne Monkton/WM | No | Yes |
| 139 | West Overton, Lockeridge (Burial 1b)/WM | No | Yes |
| 162 | Hemp Knoll (central inhumation)/BM | No | Yes |
| 176 | West Kennet Avenue (Grave by stone 25b, larger mandible fragments of adolescent)/AKM | Yes | No |
| 177 | West Kennet Avenue (Grave by stone 25b, smaller mandible fragment of adolescent)/AKM | Yes | Yes |
| 291 | West Overton G1 (JT 55), Kennet Hill/DL | Yes | Yes |
| 292 | Winterbourne Monkton (JT 37)/DL | No | Yes |
| 293 | Winterbourne Monkton (JT 39)/DL | No | Yes |
| 307 | Sanctuary, West Overton/NHM | Yes | Yes |

Notes:
1. The SK no. is that used by the Beaker People Project as a database reference
2. Curatorial institutions: WM – Wiltshire Museum, Devizes; BM – British Museum; AKM – Alexander Keiller Museum, Avebury; DL – Duckworth Laboratory, University of Cambridge; NHM – Natural History Museum
3. All sites listed are within the Avebury resource assessment region, with four also inside the WHS area
4. Nine of the burials listed have been radiocarbon dated as part of the Beaker People Project remit

in Table 6. The data from the project overall is exciting in terms of providing information about both the population as a whole in Britain and about individuals. For the individuals listed in the table, for instance, SKs 176 and 307 both show indications that they may not originate from the local region, with the former having unusual sulphur isotope ratios for the location and the latter producing a strontium isotope ratio which is much higher than might be expected for the local chalk bedrock. The first of these is an adolescent from a grave by the West Kennet Avenue stone hole 25b (Smith 1965b) and the second is an adolescent male from The Sanctuary at West Overton (Cunnington 1931), both of them having been found with Beakers.

A smaller project in the assessment area is investigating the provenance of the antler picks from Silbury Hill. The aim of this project is to establish whether it is possible, given the suspected susceptibility of bone to post-mortem contamination with ground water strontium, to nonetheless extract life-time strontium isotope ratios from buried antler. If so, it will enable investigators to explore deer mobility and origins and if there is evidence for the antlers having been brought into the site from outside the general region.

Another example of isotope research in the region, but just outside the resource assessment area, involves work on animal bones and teeth from the midden at Potterne (R. Madgwick and J. Mulville pers. comm.). The principal aims of this work have been to investigate the nature of husbandry strategies employed to sustain the large number of pigs which are represented in the midden using collagen and strontium data (Madgwick *et al.* 2012a).

## *Utilising the Available Skeletal Resource*

The problems which have arisen in recent years regarding the curation of skeletal remains from the Avebury and Stonehenge regions may affect how biomolecular analyses develop in the future. At the original time of writing (2011) the requests for reburial by minority groups had been refused and one of the reasons for this decision is the value of these remains for investigating the past using biomolecular techniques. There were, however, continuing concerns about how legislation affects the treatment of archaeological human remains. Since 2008, the differentiation in law between archaeological skeletons and more recent burials has been blurred and between 2008 and 2012 there was a situation in which excavation licences have required a stipulation to rebury within two years, with extensions possible only by continual reapplication. In other words, archaeological skeletal remains excavated since 2008 may have had very little time available for any kind of research analysis. More recently, since 2012, the Ministry of Justice has allowed the law to be interpreted more flexibly for archaeological remains, but the law will not be changed and it is the interpretation which is being relaxed here. The licencing regime currently permits either reburial or else long-term retention in a museum or comparable institution. It is possible, in the future, that the pressures put on archaeologists by minority groups will either make it impossible to retain such remains for biomolecular (or other) research, or make it so difficult that archaeologists will take the easier, reburial, option rather than face the difficulties involved with curation.

### *Research on Materials Other than Skeletal Remains*

Biomolecular techniques are not restricted to skeletal remains. The analysis of a variety of materials, from pottery residues to plant macro- and micro-fossils are also possible and can contribute much to archaeological debate, particularly with the recent dramatic increases in the use of biomarkers in organic residues (Evershed 2008). Pottery residue analysis of material from Windmill Hill and from Potterne, for instance, has contributed to the discussion of dairying in prehistory, and that from the West Kennet palisade enclosures has been used to show that pig fats were more often present in Grooved Ware than in other Neolithic pottery types (Copley *et al.* 2005a; 2005b; Mukherjee *et al.* 2007). The use of macroscopic plant remains has been limited so far, but there are methods available for considering issues such as water management in agriculture (Ferrio *et al.* 2005); soils can be investigated for land management practices such as manuring (Maxfield *et al.* 2011) and even coprolites are useful (Poinar *et al.* 2001; Gill *et al.* 2010). Environmental sampling to establish the isotope values of biosphere components that humans and animals are eating or exposed to is also needed to aid interpretations of geographic ranges or how different human choices and practices can impact on the resulting values obtained from skeletal tissues. For example, biosphere mapping for geographical strontium variability across Britain is in its early stages (Evans *et al.* 2010) and a PhD study to specifically investigate variability across the southern chalk downs and associated lithologies which is directly relevant to the Stonehenge/Avebury area has been completed (Warham 2012). Although the molecules and materials being looked at may be different, in many of these cases it is isotopic ratios which are being considered.

### *Conclusions*

Whilst it is isotopic and DNA research, often in the context of mobility studies, which are usually at the forefront of the discussion of biomolecular science in archaeology, there are many techniques and applications available. Some are already providing large datasets which directly involve the resource assessment area, whilst others are still in basic development phases and may not provide answers to applied archaeological questions for some years. As a group of techniques they are becoming increasingly valuable in addressing archaeological issues and are of particular benefit when they are used in combination, both with each other and with non-molecular techniques and archaeological understanding. It is already becoming clear that a group of specialists combining techniques for the study of one individual can provide very detailed interpretations of a life history (eg, Dickson *et al.* 2004; Melton *et al.* 2010), whilst large, recent or currently ongoing projects (eg, the Beaker People Project, the Feeding Stonehenge project and the Roman Diaspora project are providing complementary data which are able to look beyond the individual and discuss archaeological issues across regional populations. In the future, studies of groups of people through time will help to identify changes in research areas such as land management, mobility patterns and dietary attitudes.

The majority of biological and organic traces, from skeletal through to soils and pottery residues (macroscopically visible or not), are either useful for biomolecular analyses now or are likely to be so in the foreseeable future. In many cases, financial pressures on curatorial facilities may mean that some are considered for discard or, in the case of new excavations, not considered for curation at all for lack of a possible repository. This might be so particularly where they are bulky or fragmented, such as in the case of animal bone assemblages with a lot of fractured pieces, soil samples or small pottery sherds. Wherever possible, discard should be avoided and this would relate to the whole assessment region, rather than concentrating on the WHS, because environmental samples from the region generally are often needed for a full interpretation of data from a more restricted site. Reburial of skeletal remains, either those already curated or those newly excavated, should be resisted where possible if large-scale studies are to be undertaken in the future.

Finally, easily accessible records of the resource available for biomolecular research, together with details of work already undertaken and in progress, would be valuable both to researchers and to those wishing to promote the value of archaeological science to the general public and in particular to make it clear why resources should be allocated for the curation of material which is often not of museum display quality.

## Museum Collections

*by David Dawson with contributions by Jane Ellis-Schön and Rosamund J. Cleal*

### *Introduction*

Archaeological archives and other collections relating to the WHS are distributed amongst a number of institutions, although the most significant collections are held at the Wiltshire Museum (WM; often still referred to as Devizes Museum and sometimes as Wiltshire Heritage Museum), the Salisbury Museum (SM) (Pl. 16) and Alexander Keiller Museum (AK).

*Plate 16 Displays in Salisbury Museum (© Wessex Archaeology)*

In addition, significant collections are held by the British Museum (BM), Ashmolean Museum (AM), Cambridge University Museum of Archaeology and Anthropology (CUMAA) and the National Museum of Wales (NMW), as well as by a number of other museums (Stonehenge collections are summarised in Darvill 2005, 22).

The collecting areas of the Museums in Wiltshire have been agreed, and can be summarised as:

- SM – areas south of OS grid line 46
- AK – archaeological material from the parish of Avebury and from sites of the Avebury complex crossing the parish boundary, and parts of the WHS outside the parish with the agreement of Wiltshire Museum
- WM – areas north of OS grid line 46, except for Avebury parish

The Stonehenge, Avebury and Associated Sites World Heritage Sites Management Plan note that both SM and WM 'contain important collections of archaeological artefacts from the WHS designated by the Government as pre-eminent collections of national and international importance' (Simmons and Thomas 2015, 74) while AKM 'holds one of the most important prehistoric archaeological collections in Britain' (*ibid.*, 74). The plan further notes that due to a lack of space neither SM nor WM are accepting new items for storage, recognising that this situation 'is of serious concern' (*ibid.*, 74).

The situation outlined in the Management Plan has a significant impact on the ability of SM and WM to support the considerable amount of research undertaken in the WHS. In consequence, research projects generating large archaeological archives must make adequate provision for management and funding of their long-term storage (Simmons and Thomas 2015, 183: Policy 7b/Action 158).

## *Access to Collections Online*

The main collections are well-known to researchers, but the emphasis on collections documentation by the Museums and Galleries Commission Registration Scheme (now Accreditations) and the investment of funders such as MLA (Designation Challenge Fund), Big Lottery Fund (NOF-digitise) and the Pilgrim Trust have enabled museums to document their collections and to get them online. This is particularly the case for the BM, WM, SM and CUMAA, the majority of whose collections are searchable online. In addition, the availability of content aggregators such as CultureGrid and Europeana opens up the potential for cross-searching the catalogues of many museums, as well as libraries and archives at the same time. A cursory search of CultureGrid reveals that the

collections of the Hunterian Museum contain a number of items from both Stonehenge and Avebury. The AK has documented the majority of its collections; the desire has been expressed to increase digital access to its archives.

Those museums that have gone online have seen a significant impact on the way in which their collections are used for research. WM has prepared a web page (http://www.wiltshiremuseum.org.uk/documents/?LibraryID=26#l26) outlining for potential researchers the work that they should undertake before seeking to access the collections. In many cases, particularly for undergraduate and informal researchers, a combination of the Wiltshire HER database and the WM collections database gives answers to many basic research questions, and researchers are able to make very specific requests for the material that they wish to see.

The Research Information Network produced a useful report which identified the needs and priorities of researchers, with a specific focus on archaeology. The report highlighted the need for collections to be accessible, and that the records should be useful, even if imperfect or incomplete. The report also identified the need for a Researchers' Charter, which clearly outlines the way in which museums can support researchers (http://www.rin.ac.uk/our-work/using-and-accessing-information-resources/discovering-physical-objects-meeting-researchers-).

## *Alexander Keiller Museum, Avebury and Collections held within the World Heritage Site*

*by Rosamund J. Cleal*

When Avebury was inscribed on the World Heritage List in 1986 as part of *Stonehenge, Avebury and Associated Sites* there had already been a museum within Avebury for nearly 50 years. The following description of the collections is largely based on the Alexander Keiller Museum's Acquisition and Disposal (A & D) Policy (as submitted for Accreditation 2008) under the terms of which it may collect from the area of the WHS. The Museum, created largely to house collections from the monuments of what is now the WHS, was from the outset a repository for collections which included artefacts and archives not related to the period of primary use of the monuments. That practise has continued to the present and is recognised by the A & D Policy.

The present Alexander Keiller Museum is housed in three buildings: the Stables, Barn and Racquets Court and these are situated within 250 m of each other to the east of Avebury henge (the Barn actually overlying the line of the henge bank). The Stables, which was the first museum building, was converted from a coach house and stables in 1938 by Alexander Keiller; today it houses displays of artefacts from Alexander Keiller's and other excavations and some of the research collections. The Barn, which is a late 17th-century threshing barn, houses a permanent exhibition and some collection items; and the Racquets Court Store and Study Room houses the majority of the collections and facilities for research. All the buildings are owned by the National Trust but the majority of the collections are owned by the State, having been donated to the nation by Gabrielle Keiller in 1966 when the Museum was named the Alexander Keiller Museum.

The Museum's collections comprise largely archaeological material derived from the Neolithic and Bronze Age monuments and the landscape in which they lie. A small, but still considerable, proportion of the archaeological collections comprises material from excavations of later sites. Summaries of all these follow.

### Excavations by Alexander Keiller

The Museum houses the excavation archives from Alexander Keiller's excavations at Windmill Hill (1925–29), West Kennet Avenue (1934–35) and Avebury henge (1937–39). The majority of this material is Neolithic and Early Bronze Age in date, with small quantities of Romano-British, Anglo-Saxon, medieval and post-medieval to modern material included. The excavation archives include a large photographic collection and copied versions of film and audio recordings.

### Excavations and watching briefs in advance of ground-disturbance

Archaeological excavation archives and archaeological stray finds have been and are being currently added to the archaeological collections as the result of excavations in advance of building and other ground disturbing works. From the 1940s to the 1970s excavation and recording was undertaken largely by the Curators: W. E. V. Young, F. de M. Vatcher, and M. W. Pitts for, successively, the Office of Public Buildings and Works, Ministry of Works and Department of the Environment. Although there is some Neolithic material among these collections the majority of artefacts date from the Anglo-Saxon and medieval periods.

From the 1980s to the present occasional excavations and watching briefs, mainly by independent archaeological contractors, and work by the local landowner, the National Trust, have added further archaeological material (that from the National Trust being on loan rather than donated). This has largely consisted of small archives of mixed date (Neolithic to modern).

**Research excavations other than those conducted by Alexander Keiller**
The collections include the excavation archive from the 1968–1970 seasons of work at Silbury Hill. This collection is largely Romano-British in date, with minor prehistoric, Anglo-Saxon and modern components.

The last decade and a half of the 20th century and the first of the 21st century saw a renewal of research excavation in the area. Archives from this work which have already entered the collections include those from the 1988 excavation at Windmill Hill, the 1989–92 excavations at West Kennet palisade enclosures, the 1999 excavation at The Sanctuary, those from the Negotiating Avebury/Longstones project and the first season of the Between The Monuments Project (at Rough Leaze in 2007).

**Finds from surface collection**
Alexander Keiller purchased the collection of the Revd H. G. O. Kendall, which he had formed largely by collecting worked flint from the surface of fields in the Avebury area. This comprises a large number (thousands) of struck flints, mainly from Avebury parish but including some finds from elsewhere.

Alexander Keiller, and at least one of the subsequent Curators, paid finders for struck flints found locally and these form a small part of the surface collections.

Episodes of fieldwalking have taken place for research purposes and in advance of land being laid down to grass ('arable reversion') since the 1980s.

**Miscellaneous archaeological material**
Alexander Keiller purchased non-local archaeological material, mainly of Neolithic and Early Bronze Age date. A large collection of Irish worked stone was returned to the Republic of Ireland before 1994, but no attempt has been made to return the small number of items remaining. These largely comprise stone items from the Americas, the Indian subcontinent, Australasia, Europe, and other parts of the British Isles.

**Archaeological archives other than excavation archives**
The collections include letters and other papers from archaeologists, including nationally important figures such as Professor V. Gordon Childe, Professor Stuart Piggott and O. G. S. Crawford.

**Subject areas other than archaeology**
The Museum has very small collections in areas other than archaeology, including art works on paper. These are mainly representations of Avebury or people associated with Avebury.

In the area of social history there is a small collection associated with Alexander Keiller and his family, friends and associates. These include non-archaeological letters relating to Alexander Keiller, Gabrielle Keiller, W. E. V. Young and Denis Grant King.

The Museum also houses a small geological collection formed by Alexander Keiller, but it does not seek actively to collect in this area, nor in those of art or social history. In particular, the Museum does not have sufficient display or storage facilities to act as a repository or public exhibition space for the history of the parish of Avebury (and in this area in particular the Wiltshire Museum does collect).

The Museum includes a library containing antiquarian and modern books and periodicals largely relating to prehistoric archaeology and to Wiltshire. The library and collections are accessible to the public by appointment.

## Documentary Sources

*by Nikki Cook*

Documentary evidence essentially takes the form of historical archival and manuscript sources. These include formal and less formal records and associated papers and documents, ranging from narrative historical texts, such as medieval chronicles, to all other kinds of documents including maps, books, letters, diaries, photographs, poetry, sketches, paintings, newspapers, accounts ledgers and sales particulars: all of which transmit unique information from the past to the present. Such documentary sources have been created by a variety of means and for differing reasons, ranging from the records of government, State and the Church to those of individuals, landed estates and modern small businesses. Catalogues of historical sources, and even whole texts, are becoming increasingly available via the internet, and there are many places where research can be undertaken or discoveries made, from County Record Offices and museums to personal archives held by private individuals and wider institutions, and even serendipitous finds within junk shops or at car boot sales.

In order to place material remains within their historical context, documentary records provide an invaluable resource which can supplement our understanding of the past, but it is not a resource which should only be consulted after the event. Indeed, documentary sources should arguably be assessed in advance of, and in tandem with, archaeological work within the WHS, in order to provide a more holistic investigative and interpretative approach.


*Plate 17 The British Falconers' Club, including Capt. C. W. R. Knight (sixth from left) and Esmond Knight (tenth from left), at their annual HQ, the Red Lion, Avebury, in August 1930 (© Wiltshire Museum)*

Documentary sources can both enable and influence the interpretation of archaeological evidence, and may provide a wealth of information, depending on how the resource is used and what questions are asked of it. Such sources can often provide valuable insights into the explanation of archaeological remains, and are especially effective in assessing the social and economic history of a particular area, notably in terms of its landscape use, ownership and development. This holds true not just for aiding archaeological interpretation of newly excavated material, but also for re-assessing the interpretation of much earlier work: in essence, the 'archaeology of archaeology'.

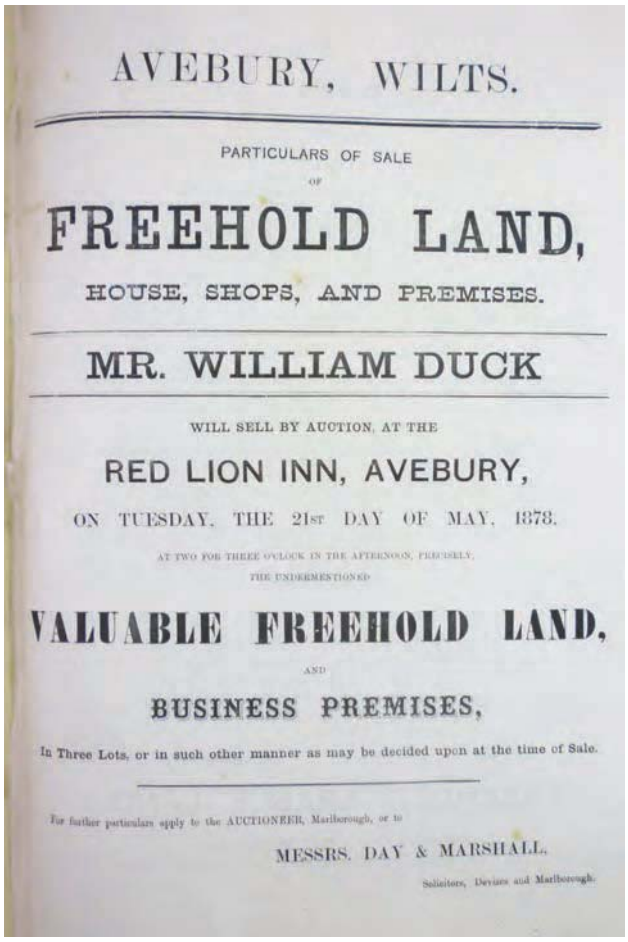
Documentary sources are also helpful in informing our understanding of particular time periods, especially from the medieval period onwards. Owing to the generally high level of continuity in both the form and structure of settlements, tenures and many individual monuments, post-medieval documentation – particularly maps and detailed surveys – have enormous potential to provide a topographical framework for both the documentary as well as the archaeological study of the medieval period.

Written records are generally sparse before the 13th century, although various key documents exist in addition to the *Domesday Survey*, particularly for certain monastic and royal estates. However, medieval manuscript can be very difficult to read in Latin and Old English although some local history handbooks can help with some of the translation (eg, Mitchell and Robinson 2007) and there are a number of useful online sources (eg, http://www.medievalgenealogy.org.uk/guide/hand.shtml), as well as helpful and knowledgeable staff at record offices and other repositories.

## *The Documentary Resource*

The resource for Avebury is considerable, and a selection of online and other accessible sources is listed in Appendix 1, although this list is by no means exhaustive.

The *Domesday Book* is useful, but there are well-known problems in utilising such sources, which cannot be simply trawled for information without some expertise (Roffe 2007). However, fortunately for Wiltshire, *Domesday* has been transcribed and is available online, while a second transcription can also be found within the *Victoria County History* (*VCH*) for Wiltshire, itself a great source of information, currently comprising 18 published volumes. The first five volumes in the *VCH* Wiltshire series are focused on general topics relating to the county as a whole; the remainder are topographical volumes, containing the histories of individual parishes and towns. The ones relevant to the Avebury WHS and study area



AVEBURY, WILTS.

PARTICULARS OF SALE

OF

FREEHOLD LAND,

HOUSE, SHOPS, AND PREMISES.

MR. WILLIAM DUCK

WILL SELL BY AUCTION, AT THE

RED LION INN, AVEBURY,

ON TUESDAY, THE 21ST DAY OF MAY, 1878,

AT TWO FOR THREE O'CLOCK IN THE AFTERNOON, PRECISELY,

THE UNDERMENTIONED

VALUABLE FREEHOLD LAND,

AND

BUSINESS PREMISES,

In Three Lots, or in such other manner as may be decided upon at the time of Sale.

For further particulars apply to the AUCTIONEER, Marlborough, or to

MESSRS. DAY & MARSHALL,

Solicitors, Devizes and Marlborough.

*Plate 18 Sale Catalogue, 1878, for the sale by auction of a house with adjoining shops and farm buildings, plus two parcels of land, 9 acres in total, at Avebury, Wiltshire (© Wiltshire Museum)*

include Avebury (vol. 12), Berwick Bassett (vol. 17), Broad Hinton (vol. 12), East Kennett (vol. 12), Hilmarton (vol. 9), Overton (vol. 11), Selkley hundred (vol. 12), Winterbourne Monkton (vol. 120) and Yatesbury (vol. 17).

The *Valor Ecclesiasticus* is another useful resource; but better still are the manorial documents in recording the more mundane and everyday goings-on, which can often prove a useful source of information. Manorial or court documents can be found in local record offices, or at the National Archives at Kew; others are held in family archives where they are privately owned. Deeds and leases may also be useful. Earlier records may well be written in Latin, but published guides are available to assist with reading both manorial and title deed documents (eg, Stuart 1992; Cornwall 1997).

Post-medieval documents, in particular cartographic sources, are a mine of information, particularly in terms of place-name evidence. Tithe maps, estate maps, Enclosure Act plans and their accompanying schedules can reveal a great deal about the way in which the landscape has been divided up and used, including indicative remnants of medieval field patterning evidenced by strips recorded on early maps. The Ordnance Survey mapped the area at a small scale in the early 19th century, and then at large scale (1:2,500, published 1886; 1:10,560 published 1889), with subsequent revisions thereafter. Earlier maps, eg, Andrews and Dury 1773 (revised 1810) are also available at the Wiltshire and Swindon History Centre, whilst earlier sources still, eg, Stukeley's 1720s illustrations, provide valuable information about the Avebury henge and surrounding area, including West Kennett and Silbury Hill.

Acts of Parliament relating to roads and taxes are also relevant, as are Parish records, such as census returns. Parish registers are a very important source of information: most are generally found within county record offices, although a number of documents from the Parish Chest are often retained by local churches, and therefore it may be useful to call and speak to the incumbent vicar, as their predecessors often kept scrapbooks and diaries.

Early newspapers yield much information, eg, in advertisements for subscriptions, as well as being used as a place to publish more 'serious' accounts of archaeological or other investigations in the local area. There are also the personal archives of those who have been part of Avebury's rich tapestry, such as Aubrey, Stukeley, Colt Hoare, Britton, Keiller, and the Cunningtons, to name but a few, many of which can be found locally within publicly accessible archives, such as those held at the Wiltshire Museum in Devizes (Pls 17–18), at the Wiltshire and Swindon History Centre in Chippenham and in the Alexander Keiller Museum at Avebury. Others can be found further afield, such as at the Bodleian Library, the Ashmolean and the Pitt Rivers Museum in Oxford, and the National Archives, Royal Photographic Society, British Museum, the British Library and other repositories in London.

Archive collections are also held regionally, for example at the Bath Record Office, Bowood House, Longleat, Dorset Record Office, and Hampshire Record Office, with the Wilton House archive and many other resources now held at the Wiltshire and Swindon History Centre at Chippenham.

The Wiltshire Record Society, through the Hobnob Press, have published a number of key historical sources and books, such as the Wiltshire Tax List of 1332 (Crowley 1989) and the Printed Maps of Wiltshire 1787–1844 (Chandler 1998).

**Resources at the Wiltshire and Swindon History Centre**

There are a variety of archival sources which can be consulted at the Wiltshire and Swindon History Centre (WSHC). Photographs can be accessed

through the county collection, maintained by the local studies librarian, also based at WSHC.

The Avebury WHS is covered by the ecclesiastical parishes of Avebury, Winterbourne Monkton and the tithing of West Overton in the parish of Overton. Printed maps of the WHS area include the Andrews and Dury map of Wiltshire, 2.5 inch to 1 mile, the OS 6 inch to 1 mile (1888–1925) and the OS 25 inch to 1 mile (1900, 1924).

**Manuscript maps include:**

- For Avebury parish: the Manor house and grounds, 1695 (184/2); William Norris' estate, 1702 (473/274); Great Farm, 1733 (21553/71H); Beckhampton, pre-enclosure: shows strips in common fields overlaid with allotments made under Enclosure Award (2027L); Enclosure Award, 1795 (EA/95)
- For Winterbourne Monkton parish: the Popham estate, 1774 (39/8); whole parish, 1809 (X6/78); and Enclosure Award 1815 (3468/2MS)
- For West Overton: Tithing, 1783 (2203/20H), 1784 (2057/S69); Estate of FC Fowle, 1811 (628/49/4)
- There is also a Whole Tithing, 1819 (778/2L); and Enclosure Award, 1802 (EA/61)

**Estate and manorial sources include:**

- Avebury: manor court book, 1651–1657 (473/52); surveys etc., 18th century (184/4)
- Winterbourne Monkton: court roll, 1408 (192/21); survey, mid-16th century (192/52)
- West Overton: manor court book, 1743–1819 (2057/M/69)
- Glebe terriers (schedules of lands in the common fields and rights pertaining to the vicars of the three parishes): Avebury, 1682; Winterbourne M, 1671, 1678; Overton, 1588–1705. Originals in WSA, but published by the Wiltshire Record Society (Hobbs 2003)

## The Wiltshire Historic Environment Record

*by Melanie Pomeroy-Kellinger*

A Historic Environment Record (HER) is a computerised database of all archaeological sites and finds locations from a given area, usually kept at county or regional level, maintained by the local authority, and adopted by formal resolution. The HER provides a unique information resource, forming the basis for sustainable conservation and playing an important role in informing public understanding and enjoyment of the local historic environment.

*Plate 19 Data from the Wiltshire and Swindon Historic Environment Record (© WSHER)*

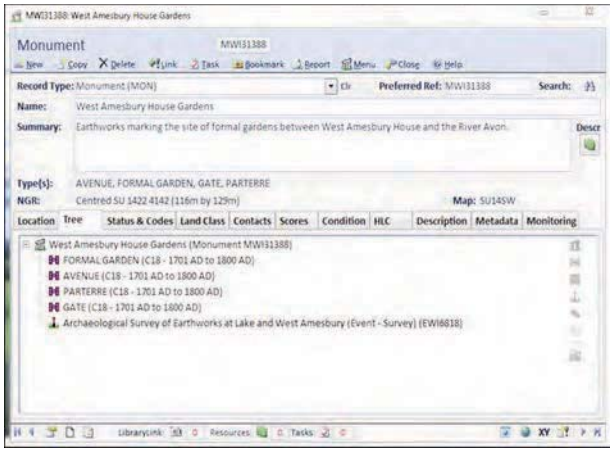



*Plate 20 Data from the Wiltshire and Swindon Historic Environment Record (© WSHER)*

The Wiltshire and Swindon HER was developed in-house from the mid-1980s. It consists of an Access database containing around 21,000 records (as of April 2014) of archaeological and historic sites (monuments) and find spots. The database also contains information about more than 6000 archaeological and antiquarian investigations (events) and associated documentary sources. The database is linked to a series of digital maps held as GIS files. The maps contain graphical depictions of all sites on the database, ranging from simple point locations to complex plots of extensive sites such as hillforts and ancient field-systems (Pls 19–20). Wiltshire Council adopted the HER in September 2010.

The HER is maintained within the Directorate of Community Services, part of Communities, Libraries, Heritage and Arts and based in the Archaeology Service. It is managed by the Archaeology Service and located in the Wiltshire and

*Table 7 Monument Types in WHS (April 2014)*

| Count | Term |
|---|---|
| 3 | Airfield |
| 86 | Associated finds |
| 1 | Barrow |
| 46 | Bell barrow |
| 285 | Bowl barrow |
| 6 | Building |
| 38 | Burial |
| 1 | Causewayed enclosure |
| 5 | Cemetery |
| 1 | Chapel |
| 3 | Circular enclosure |
| 1 | Commemorative monument |
| 1 | Cross |
| 2 | Cursus |
| 1 | Dewpond |
| 35 | Disc barrow |
| 50 | Ditch |
| 4 | Enclosed settlement |
| 36 | Enclosure |
| 1 | Feature |
| 30 | Field system |
| 243 | Findspot |
| 9 | Henge |
| 1 | Hillfort |
| 1 | Hollow way |
| 7 | Industrial site |
| 30 | Linear feature |
| 17 | Long barrow |
| 4 | Lynchet |
| 2 | Monumental mound |
| 32 | Mound |
| 6 | Non antiquity |
| 2 | Oval enclosure |
| 1 | Parish boundary |
| 1 | Pillow mound |
| 53 | Pit |
| 6 | Pit alignment |
| 1 | Pond |
| 19 | Pond barrow |
| 4 | Post hole |
| 3 | Practice trench |
| 7 | Rectangular enclosure |
| 3 | Ridge and furrow |
| 125 | Ring ditch |
| 5 | Road |
| 1 | Rock art |
| 102 | Round barrow |
| 16 | Saucer barrow |
| 43 | Settlement |
| 60 | Site |
| 4 | Square enclosure |
| 1 | Standing stone |
| 1 | Stone circle |
| 5 | Stone setting |
| 3 | Strip lynchet |
| 12 | Trackway |
| 1 | Villa |
| 5 | Water meadow |

Swindon History Centre, Cocklebury Road, Chippenham, SN15 3QN and is available for consultation remotely by telephone, e-mail, and letter or online.

The aim of the HER is to gather the known information about the historic environment and present its records, within national and international standards, in a format accessible to its users in order to:

- help advance research and understanding of the historic environment of Wiltshire and Swindon;
- help care for the Wiltshire and Swindon historic environment through conservation and environmental enhancement programmes and projects;
- inform policies and decision-making in land-use planning, development management, statutory undertakings, agri-environment and forestry schemes;
- raise public awareness of Wiltshire and Swindon's historic environment by contributing to educational and outreach programmes and projects to encourage public and community participation in the historic environment.

In July 2011 the Wiltshire and Swindon HER underwent an upgrade and data migration programme to update it and bring it in line with national standards. The data were migrated to the HBSMR database (operated by ExeGesis) linked to map depictions on GIS (ArcGIS version 10). There is an ongoing programme of data enhancement which includes putting back log reports onto the system, and enhancing the post-medieval and military sites/features and historic buildings.

Within the Stonehenge and Avebury WHS boundary there are currently 1495 monuments (including 243 find spots), 1088 events and 1555 sources linked to monuments (as of April 2014). These are broken down into 58 monument types (Table 7) and include nine henge monuments.

There is a collection of 82 fieldwork reports linked to events (archaeological interventions) within the WHS boundary.

Over the next two years the HER data within the WHS will be enhanced by a data cleaning exercise (eg, we are aware that some monuments within the Avebury part of the WHS are duplicated, and these will be amalgamated), and the addition of a number of recent and upcoming fieldwork reports. The ongoing enhancement project focused on post-medieval, military and built heritage records will greatly improve the depth and detail of the HER coverage within the WHS.

## Geographic Information Systems

*by Paul Cripps*

### *Background*

Even before the first version of the Archaeological Research Agenda for the Avebury World Heritage Site was published (AAHRG 2001), it was recognised that the use of Geographic Information Systems (GIS) would be important for research into and

management of archaeological sites. The application of GIS for the Stonehenge and Avebury World Heritage Site dates back to the mid-1990s and was used to support the generation of the Avebury World Heritage Site Management Plan (Pomeroy 1998) and also to undertake spatial analysis in the Stonehenge landscape (eg, Batchelor 1997).

By the time of the Stonehenge World Heritage Site Research Framework (Darvill 2005), GIS had developed to the point where it had become *de rigueur* and as such received only a passing mention (*ibid.*, 14, 24) rather than the more detailed documentation afforded in the Avebury version (Burton 2001).

## Geographic Information Systems

Geographic Information Systems comprise a wide range of associated tools and technologies for working with spatial data and associated non-spatial data including but not limited to graphics and images, hypertext and multimedia. Being based around spatial databases, they are ideally suited to the management of data, particularly spatial data, and in addition provide cartographic tools and analytical capabilities for undertaking various forms of spatial analysis. Their application for archaeological use is well documented (eg, Wheatley and Gillings 2002; Conolly and Lake 2006) and many of the possibilities outlined by Burton (2001, 86–7) can now be seen to be accepted approaches.

Crucial developments over the past 20 years have been based around the web as a data delivery and interface platform. Also, there have been improvements to data structures which underpin any GIS, with semantic modelling becoming recognised as an important element in any archaeological information system. Indeed, the very notion of an Archaeological Information System (AIS) has become prevalent, a concept which would include any archaeological use of GIS.

## The Stonehenge and Avebury World Heritage Site GIS

The Stonehenge and Avebury WHS GIS was initiated in the mid-1990s and until 2004 was maintained by the English Heritage Archaeology team at Fort Cumberland, Portsmouth. The move to establish such a resource was ground-breaking at the time and continuous development ensured the system remained world leading. Close links with the local Sites and Monuments Record, now Wiltshire Historic Environment Record, allowed data to be extracted and made available through the WHS GIS utilising a periodic update strategy from their CAD-based system.

Originating on a dedicated server running ArcInfo, the system was readily adapted to new technologies as they became available and through the late 1990s was made accessible to a wider group of users within English Heritage and Kennet District Council using the ArcView then ArcGIS platforms. Further development of the system took place through the early 2000s, with additional datasets added including some of the earliest lidar datasets (Bewley *et al.* 2005) and various legacy datasets including the back catalogue of geophysical survey datasets from all available sources.

This development programme culminated in the handover of the system to the English Heritage Corporate GIS team in 2004 to be maintained, managed and developed as part of their core information system portfolio, the aim being to broaden the coverage to other World Heritage Sites requiring similar systems, building on the ground-breaking work undertaken in the Stonehenge and Avebury World Heritage Site.

The use of the WHS GIS for data management in the WHS is exemplified by its use to support the various Management Plans and Research Framework/Agenda documents produced since the 1990s. All have used the GIS to support map production and some use has been made of spatial analysis to support management recommendations, notably the successive iterations of the visual sensitivity maps pioneered by Burton (Batchelor 1997) and updated in the early 2000s (Cripps 2004) to produce a revised visual sensitivity map using a probablistics methodology based on that proposed by Fisher (1991; 1992; 1994; 1995; 1996). Appraisals of the various options for road schemes and visitor centres have also made extensive use of the GIS resource, acting as a single point of access to spatial data for researchers and contractors.

Furthermore, condition surveys undertaken in 1999 and 2010 (Avebury) and 2002 and 2010 (Stonehenge) have been fed into the WHS GIS; the 2002 and 2010 surveys in particular used mobile GIS for data capture and validation and the spatial records were supported by geolocated photographic records of site conditions to produce a rich and informative record of conditions at those times. The use of mobile GIS in this way allows for more efficient data capture and field validation of data compared with more traditional means, and work in the WHS has pioneered such techniques.

The use of the WHS GIS for analysis to underpin planning and management is exemplified in recent years by the various visual sensitivity assessments undertaken and the use of the data to support the proposed developments at Stonehenge relating to the A303 improvements and new visitor centre as part of numerous projects, most recently the Stonehenge Environmental Improvements Project.

Visual impact assessment formed a key element of the overall heritage assessment (Wessex Archaeology 2009a; 2009b).

The WHS GIS was also central to the analysis conducted for the Woodland Management Strategy where models of current and proposed woodland strategies were evaluated using a GIS based process with visual impact assessment forming a key element. GIS analysis also formed the basis of the research undertaken to inform the grassland reversion programme for the WHS.

With the advent of widely available desktop GIS packages and specialist Archaeological Information Systems, especially now within Local Authorities such as Wiltshire where the local Historic Environment Record is based, the position of the WHS GIS as a stand-alone resource separate from the HER is arguably no longer the best solution. Data management would be better handled through the HER using their Historic Buildings Sites and Monuments Record (HBSMR) software which incorporates dedicated management/monitoring tools, is capable of handling rich multimedia and a GIS component for spatial depictions. Using web delivery, data could be managed in one place and made available widely to other internal and external users with access control tailored to their needs. Obstacles to such a unified approach are no longer technological but political, logistical and legal, with data licensing and ownership being key factors.

## *Resources*

The proliferation of GIS and repositories of digital data have led to a broad range of datasets being incorporated into the WHS GIS or being made available through other channels. Many of these GIS datasets have tremendous research potential and can be used to inform management of the WHS.

### WHS GIS

The WHS GIS itself represents a collation of available resources. As such, it includes HER data, all publically available datasets from government agencies (eg, Natural England, English Heritage, Environment Agency, etc.) plus datasets provided under license (eg, Environment Agency lidar and CASI, Ordnance Survey mapping and terrain data) and datasets created through the production of Management Plans and other research and management activities (eg, land-ownership, grassland reversion) and to support particular projects and analysis (eg, geophysical survey results, fieldwalking data, visual sensitivity). It also contains indices to other datasets to facilitate accessing data for which there is no direct access provision.

### Historic Environment Records (HERs)

There are two relevant Historic Environment records for the Stonehenge and Avebury WHS. Firstly, there is the Wiltshire Council HER which is the core database used for planning and development control by the Local Authority. Secondly, there is the National Trust Historic Buildings Sites and Monuments Record, maintained to support the internal management of land under their control, baseline data from which is publically accessible (http://archaeologydataservice.ac.uk/archives/view/328).

### Academic data portals

For research purposes, there are a range of resources available to accredited researchers with academic affiliations. The Edina Digimap service in particular provides access to a wide range of GIS datasets including historic and modern Ordnance Survey mapping and geological data from the British Geological Society.

### Open Data initiatives

Increasingly, data is being made available through Open Data initiatives being promoted by the UK Government. Such data is very useful for research and management purposes where it is not possible to arrange access to licensed data. This initiative includes data from organisations such as the Ordnance Survey and British Geological Survey.

### English Heritage Archives

Many of the reports and data emanating from English Heritage's internal and commissioned projects are available on request from the English Heritage archives. This includes GIS data relating to the various NMP activities, including work on the Environment Agency lidar datasets for both Stonehenge and Avebury and also reports of recent landscape survey activities (Field and Pearson 2010). Point clouds from the 2011 terrestrial laser scan (TLS) work at Stonehenge are being archived here also (Abbott and Anderson-Whymark 2012).

### Archaeology Data Service

The ADS holds various reports and documents relating to the WHS. It also holds digital datasets such as the output from the Stonehenge 20th Century Excavations database (Cleal *et al.* 1995).

### Wessex Archaeology

Archaeological works undertaken during the course of the A303 Improvement scheme at Stonehenge and a significant number of other projects have been

undertaken by Wessex Archaeology. Their digital archives include various reports and GIS datasets produced as part of this work, notably the 2008 monograph (Leivers and Moore 2008).

## *Recommendations and Potential*

**Previous recommendations and achievements**

The creation of a high resolution Digital Elevation Model (DEM) was highlighted by Allen and Burton (AAHRG 2001, 70, 89) as being of importance for contextualising environmental and other data; with the proliferation of terrestrial and aerial survey data now available, this has more than been accomplished.

A secondary aim of keeping a GIS up to date with the latest environmental data (*ibid.*) has unfortunately been less well satisfied. Indeed, updating the WHS GIS as a whole has, since 2004, been problematic resulting in various research and management groups establishing their own, unconnected GIS resources to suit their needs.

The enhancement of the base archaeological data available for use in GIS, particularly the quality of chronological information and associated sources, was flagged as of importance by Burton with respect to the Avebury part of the WHS but this also applies to the Stonehenge data (*ibid.*). This has been partially accomplished in that records enhancement at Wiltshire HER supported by major research projects and programmes has produced new and improved data. This has for the most part yet to be incorporated into the WHS GIS and given the current status of this resource, it may not be the most appropriate way forward now.

Indeed, with GIS now being ubiquitous on major research projects, such projects have generated significant amounts of high quality spatial data, data which as well as supporting the immediate needs of the projects which generated them, have tremendous potential for further work.

Massive achievement using GIS includes the outputs of major research projects for the Stonehenge part of the WHS, among them the *Stonehenge Hidden Landscapes* work by Birmingham University (Exon *et al.* 2001) and more recently the *Seeing Beneath Stonehenge* project, part of the Stonehenge Riverside Project (Parker Pearson 2012). This latter project has made an unprecedented amount of spatial data available to the public using the freely available Google Earth platform.

For the Avebury part of the WHS, GIS was used extensively to support the analysis and outputs from the Negotiating Avebury Project, a major research project undertaken from 1997 to 2003 (Gillings *et al.* 2008). Indeed, the Avebury region has been the focus of much ground-breaking GIS research undertaken by researchers involved with this project including Mark Gillings, Glyn Goodrick and David Wheatley (eg, Wheatley 1996; 2002). The data from this project was also used to investigate concepts of movement through and perception of the landscape using GIS (Cripps 2001; 2007).

**Research potential**

A major strength of GIS is as an integrative technology capable of bringing together disparate spatially referenced datasets into an environment where detailed analysis can be undertaken. Improvements in access to spatial data combined with improvements in the quality of data combined with advances in hardware and software culminate in increased research potential.

There is significant potential for spatial analysis using existing datasets and innovative methodologies. Assessments of the Environment Agency lidar data to date have proved to be very informative (eg, Bewley *et al.* 2005; Skinner 2011) but these data have more to give with advances in associated analytical methodologies yet to be deployed in the WHS (eg, Doneus and Briese 2006) or, having been deployed, could be updated to take advantage of new and improved datasets.

Environmental data, particularly in the Avebury region, including newly gathered data from recent work would benefit from further spatial analysis (M. Allen pers. comm.).

New data have been collected in abundance in recent years, particularly around Stonehenge, with both Bournemouth and Birmingham Universities carrying out wide area landscape survey using a range of geophysical techniques suitable for spatial analysis, as also undertaken for landscape survey (eg, Field and Pearson 2010) and geophysical survey in advance of the new visitor facilities at Stonehenge. Such a wealth of data has potential not only to improve our understanding of the archaeology but could provide excellent source material for the development and application of innovation GIS based methodologies (eg, after Kvamme 2006).

There is also potential for additional survey work to produce new spatial datasets for GIS based interpretation and analysis, particularly using Unmanned Aerial Vehicles (UAVs) which can be used to rapidly capture very high resolution imagery, topographic (via photogrammetry) and remote sensing data, at resolutions far exceeding that currently available in off-the-shelf lidar datasets and for much lower costs.

## Metal Detecting

*by Katie Hinds and Michael Lewis*

### *Past history/Investigation*

Prior to the establishment of the Portable Antiquities Scheme (PAS) in Wiltshire in August 2003, metal detectorists had made a number of important finds in the Avebury WHS (Chadburn 2001). While these finds made a contribution to the archaeology of the area in general, in particular to our understanding of small finds (for example, the Late Bronze Age fibula published in Hull and Hawkes (1987, 12)), they did not relate directly to the Avebury complex of monuments.

Given this past history of metal detecting at Avebury, it is perhaps surprising that since the advent of the PAS in Wiltshire there have been no further metal detected finds recorded from the WHS on its online database www.finds.org.uk/database, even though over the last eight years the Wiltshire Finds Liaison Officer (FLO) has built up good relations with the metal detecting community and recorded over 16,500 finds from elsewhere in the county. Illegal metal detecting ('Night Hawking') might have taken place within the WHS and the finds been taken away with no intention of showing them to the FLO or a museum. It is also equally possible that metal detecting may have taken place, but the finds have gone unrecorded; for example, when the metal detectorist concerned had no knowledge of the PAS. More importantly, over one third of the WHS (including the majority of the major monuments) is owned by the National Trust, who only permit metal detecting where it forms part of a properly-sanctioned project design for archaeological fieldwork, which in turn requires a National Trust Archaeological Research Agreement to be in place.

However, it is worth noting that although there are no metal detected finds recorded on the PAS database from the Avebury WHS, there are four finds discovered by other means. Two are molehill finds along well-trodden routes: in the first instance between the car park and Silbury Hill (Roman greyware vessel base), and in the second at the edge of the National Trust car park in Avebury (medieval North-Wiltshire earthenware rim sherd). An incomplete Neolithic axehead was found in the 1950s 'in the stream alongside Silbury Hill' and recently brought to Wiltshire Museum where the Curator was able to photograph it and take measurements. Most interesting of all is a cutting-edge fragment of a Late Bronze Age axehead with clear hammer marks at the break, found on the site of a Late Neolithic oval palisade enclosure.

It is therefore difficult to assess how great a contribution metal detecting as a technique has made towards our understanding of the WHS, but from evidence elsewhere in the county we know responsible metal detecting (on cultivated land in the ploughsoil only, and recording the finds with at least a six-figure National Grid Reference) can tell us a huge amount, especially on unknown sites. In addition, when used in conjunction with excavation, fieldwalking and geophysics it can add an extra dimension. Archaeologists are using metal detectorists on site with increasing frequency, either to identify 'hotspots' or to search the soil heaps, and recently there have been a number of successful surveys using metal detectors alongside fieldwalking and geophysics, one of these being an on-going project on a newly discovered Roman site near Calne, organised by the Wiltshire County Archaeologist and the Wiltshire FLO. In this instance the findspots (accurate to 15 cm) of 80 finds were plotted on a grid which was superimposed onto the magnetometer results to highlight particular areas of interest and anomalies.

## Interpreting the Archaeology of the Avebury Landscape

*by Joshua Pollard*

The beginnings of archaeological and antiquarian research in the Avebury landscape are often placed with the mid-17th-century 'discovery' of Avebury by John Aubrey (though note Leland's earlier mention: Ucko *et al.* 1991, 8). What then follows is loosely encompassed in a familiar framework of development: from antiquarianism, to nascent archaeology, culture-history, modernist and post-modernist positions (see Darvill 2005, 24–30, for an analogous account of the Stonehenge landscape). The scheme, which is commonly cited as providing the historical trajectory of the discipline as a whole (eg, Trigger 2006), is necessarily idealised, and does not always provide for the contingent, sometimes messy and performative environment within which scientific research unfolds (Turnbull 2000). Legacies of earlier work have to be negotiated, and may generate trajectories of investigation and interpretation from which it can be difficult to break free. William Stukeley's pioneering early 18th-century recording of the Avebury monuments (Pl. 21) (Stukeley 1743) provides a case in point (see Gillings and Pollard 2015). His published account of the monuments, his definition of Avebury as a temple at the heart of a religious complex, and the linkages he made between the monuments and druidical religion were to influence many subsequent works (see Gillings and Pollard 2004, 134–73). Even following the emergence of archaeology as a discipline during the middle of the 19th century, and a turn away from conjectural and

religious historical narratives, Stukeley's record and interpretation of the form of the complex was to heavily influence fieldwork. Alexander Keiller's excavation and restoration of the West Kennet Avenue and western half of the henge was guided by Stukeley's records, and arguably an attempt to take the monuments back to the form of Stukeley's vision (Smith 1965b; Gillings and Pollard 2015). The same attention to the legacy of his record can also be seen in Ucko *et al.*'s (1991) account, and in the work of the 'Longstones Project' on the Beckhampton Avenue (Gillings *et al.* 2008); not to mention an enduring if questionable aura of authority that his 1743 *Abury* has had on various alternative and New Age readings of the complex (eg, Dames 1996; 2010; Meaden 1999; Sims 2009).

Stukeley's interpretive and fieldwork legacy remain, therefore, the most potent of all. However, we should not forget that his *Abury* was as much a work of contemporary religion and politics (the two domains being synonymous within an early 18th-century context), as of antiquity (Piggott 1985). In the preface to *Abury*, he states his aim to go to 'the fountain-head' of proper divine wisdom through the medium of historical study (Stukeley 1743, i), delineating the first, simple, patriarchal religion which he equated with Druidry (Hutton 2009, 89–102). His individual philosophy comprised a complex mix of deism, trinitarianism, Newtonian science and Platonist and Pythagorean ideas (Boyd Haycock 2002; Hutton 2009), and this permeates his interpretation of Avebury. The latter centred upon the idea that Avebury was a planned construction, laid out according to an over-arching hermetic design; the very form and shape of the temple encoding esoteric knowledge. He provided a three-part classification of Druid temples, all variants on a depiction of the deity – a 'most effectual prophylact' for drawing down blessings (Stukeley 1743, 9). The scheme comprised simple circles, serpentine temples (or *Dracontia*), and winged (*ophio-cyclo-pterygo-morphus*) temples. Avebury belonged to the second category (Stukeley 1743; Boyd Haycock 2002).

The 19th century witnessed renewed antiquarian and archaeological interest in the Avebury complex, by this stage articulated through programmes of excavation. Relatively little new work was undertaken by Colt Hoare and Cunnington (Colt Hoare 1819), but by the later part of the second and the third quarter of the century active research was being pursued on the region's long and round barrows by Dean Merewether (1851) and John Thurnam (1860; 1867; 1869; 1871). Working in occasional collaboration with the anatomist J. P. Davis, Thurnam's interest was in establishing an ethnic (pre-)history of the British Isles. Accepting a very short chronology, artefacts and monuments were

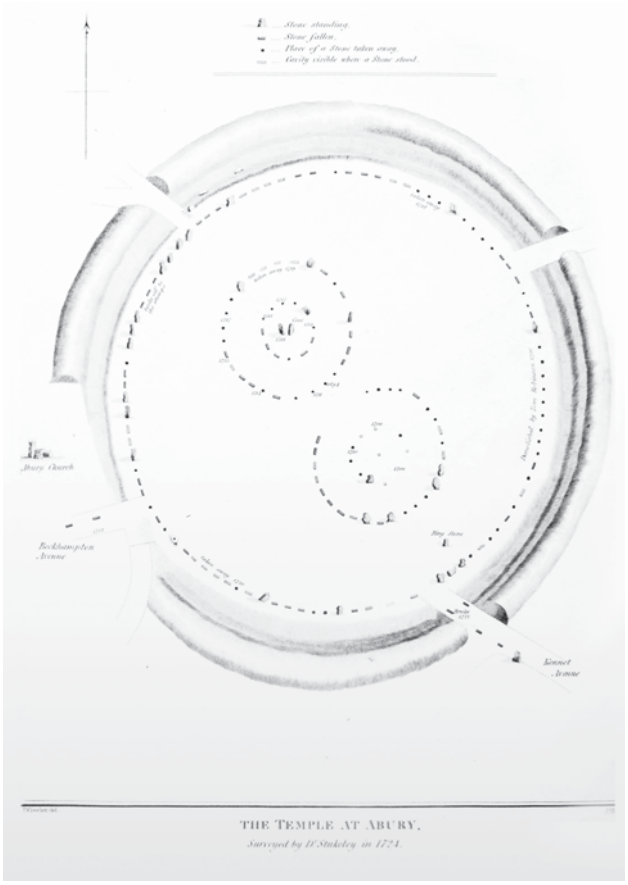



*Plate 21 The Temple at Abury Surveyed by Dr Stukeley 1724, by Philip Crocker (© Wiltshire Museum)*

erroneously attributed to historically-attested Late Iron Age tribes; his long barrow people becoming 'pre-Belgic Dobunni', for example. As Piggott (1993) observed, this was in spite of his contacts with Daniel Wilson, the author of *Prehistoric Annals* (1851) and advocate of the Scandinavian 'Three Age' system, and largely ignoring the publication of Lubbock's *Pre-historic Times* (1865), which both worked within a then fashionable long chronology and first defined an earlier (Palaeolithic) and later (Neolithic) stone age.

In 1865, A. C. Smith, William Cunnington III and the Revd Bryan King directed a series of excavations at Avebury aimed at disproving the theories of James Fergusson (Smith 1867). In an article in the *Quarterly Review* Fergusson had earlier challenged the accepted pre-Roman date of Avebury, its Avenues and Silbury Hill, claiming instead that the monument complex comprised a memorial to 'Arthur's twelfth and last great battle of Badon Hill' in AD 520. He further argued that the Avebury earthwork represented the burial place of those slain in the battle, two of Arthur's generals being interred in the centres of the Southern and Northern Inner Circles. The fallacy of Fergusson's 'burial ground theory' was rapidly demonstrated by selected excavation around the inner stone settings at Avebury and at certain points along

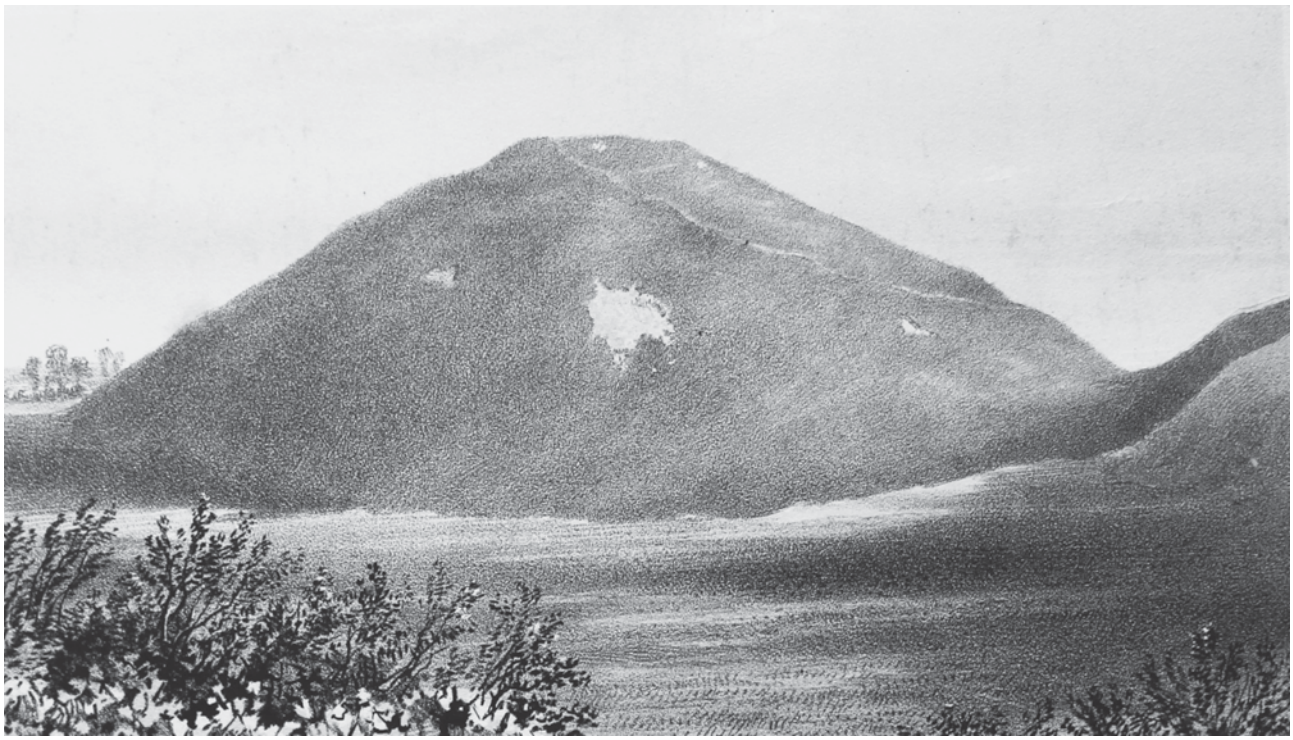


*Plate 22 Silbury Hill; from the West,* c. *1840, Rev. A. C. Smith del. Lithd. by Newman, 48, Watling Street, London (© Wiltshire Museum)*

the course of the bank. More critical in establishing the pre-Roman date of the Avebury complex was the relationship between Silbury Hill and the Roman road between *Aqua Sulis* (Bath) and *Cunetio* (Mildenhall). Targeted excavation clearly demonstrated that the road diverted to the south of Silbury, avoiding the ancient mound and therefore post-dating it (Smith 1867; Wilkinson 1869). A prehistoric date for the Avebury monuments was securely demonstrated.

Important points of synthesis came with the review of the region's prehistoric archaeology and history of research by William Long (1858), and A. C. Smith's magisterial *Guide to the British and Roman Antiquities of the North Wiltshire Downs in a Hundred Square Miles around Abury* (1885). In some respects similar to a modern Historic Environment Record, the latter was essentially a 'key' for a large-scale archaeological map. Around the same time, the first attempts at providing legal protection for ancient monuments – symptomatic of an enhanced sense of national pride in antiquity, and a recognition of value in preservation that acknowledged sites as sources of primary information – resulted in the first *Ancient Monuments Act* of 1882. The Act was largely due to the efforts of Sir John Lubbock (later Lord Avebury), and included on its first schedule five sites in or close to boundaries of the WHS: the Avebury henge, West Kennet long barrow, Silbury Hill, the Devil's Den and Barbury Castle: this out of a total of 50 in England, Wales and Scotland.

A theme that was to emerge through the course of the later 19th and earliest 20th centuries was that of greater institutional involvement in the research process, reflecting the emergence and influence of local and national scientific societies. Maud Cunnington's work at the Sanctuary, along with limited excavations on the West Kennet and Beckhampton Avenues undertaken in a 'rescue' capacity (Cunnington 1913; 1931), was nominally under the banner of the Wiltshire Archaeological and Natural History Society. Harold St George Gray's excavations at the henge between 1908–22 were initiated by the British Association as part of a project to date stone circles. The late publication of the results of this work (Gray 1935) probably subdued its impact, since by then Alexander Keiller had begun extensive excavation along the West Kennet Avenue and was planning his campaigns of restoration at Avebury itself (Smith 1965b). Gray's work, as with that of Cunnington, can also been seen to have lacked theoretical direction or context. While employing the methodologies learnt under General Pitt Rivers, Gray lacked interest in the evolutionary framework that drove that earlier work (Bowden 1991).

Keiller's research is likewise difficult to situate within a dominant theoretical paradigm. Stuart Piggott dryly and famously remarked that his work at Avebury just before the Second World War constituted an exercise in 'megalithic landscape gardening' (Piggott 1989, 32); perhaps hinting at a lack of guiding hypothesis or situational context.

Keiller was, however, fascinated by methodological development – note his interest in aerial photography and implement petrology (Crawford and Keiller 1928; Keiller *et al.* 1941) – and did operate within a wide circle of both younger and more established prehistorians, including major figures such as J. G. D. Clark, S. Piggott and V. G. Childe, whose work was to transform and modernise archaeology between the Wars. Certainly the data obtained from his 1925–9 excavations on Windmill Hill assisted Clark, Piggott and others in establishing material culture sequences for the British Neolithic, and in delineating the economy of these early agricultural communities. Windmill Hill was even to become the type-site of the southern British earlier Neolithic (Piggott 1954).

Keiller had set a pace of work at Avebury that was difficult to sustain in post-War austerity. The following decades would see more limited and episodic State-sponsored fieldwork, either in advance of public presentation (eg, at the West Kennet long barrow: Piggott 1962), or in response to the threat of agricultural improvement and development (eg, by the Vatchers during the 1960s and early 1970s). Research-led fieldwork was undertaken, but on a smaller scale: for example, by Isobel Smith at Windmill Hill in advance of full publication of Keiller's work (Smith 1965b); and Stuart Piggott's 1960 excavation at Avebury designed to test the presence of a claimed third 'inner' circle (1964)). Telling of burgeoning public interest in archaeology in the post-War decades, the BBC was to sponsor Richard Atkinson's 1968–70 investigation of Silbury Hill. Piggott's publication of the work he undertook along with Richard Atkinson at the West Kennet long barrow provided a resilient image of southern British long barrow form and function, even if aspects of the site's archaeology (such as the scale of the chambers and the secondary deposits) remain highly unusual (Piggott 1962). Undoubtedly the most important publication to emerge during this time was Isobel Smith's report on Keiller's work at Windmill Hill and Avebury (Smith 1965b). This offered an enduring interpretation of Windmill Hill and other earlier Neolithic enclosures as locations for seasonal aggregation, stressing the range of activities represented at the site.

Unsurprisingly, the most ambitious interpretations of the region's prehistory coincided with the advent of explicit and holistic theory building from the late 1960s onwards. Avebury featured as a core region in Colin Renfrew's highly influential 1973 paper on social evolution in Wessex during the Neolithic and Early Bronze Age (Renfrew 1973). While critiqued for its adherence to a model of unilinear and stadial social development, Renfrew's paper represented one of the first attempts to explain the dynamics of monument construction and the evolving relations between ceremonial centres in Wessex. Though unintended, it also contributed to an increasing centrality of Wessex in accounts of British prehistory.

The processual approaches of the late 1960s to mid-1980s brought with them interest in the ecology of early farming communities, and the notion of landscape as an appropriate analytic scale through which to view human activity (influence here coming from the work of Butzer (1982) and Foley (1981)). Bob Smith's (1984) innovative paper on the ecology of Neolithic settlement in the region is a great example of this, employing spatial modelling of environmental and archaeological data in a highly innovative and diachronic fashion (later to be emulated by Mike Allen, among others: Allen 1997). Much of the palaeoenvironmental detail for this came from the long-term work of John Evans and his students (Evans 1972; Evans *et al.* 1993), which was to revolutionise understanding of ecological regimes on the southern English chalklands, particularly with regard to the scale of Holocene woodland and sequences of clearance and regeneration. Awareness of past human activity as spatially extensive ('off-site'/'non-site') and ecologically constrained also fed into large-scale programmes of surface collection on the chalklands during the late 1970s and 1980s (eg, Gaffney and Tingle 1989; Richards 1990); although work of this kind was limited in the Avebury landscape (Holgate 1987).

The knowledge base of the region's Post-Glacial environment and Neolithic archaeology was considerably enhanced through programmes of fieldwork undertaken by Cardiff University, directed by John Evans and Alasdair Whittle (Evans *et al.* 1993; Whittle 1993). Involving excavation between 1987 and 1993 at Windmill Hill, the West Kennet palisade enclosures, Millbarrow and Easton Down long barrows, along with definitive publication of Atkinson's earlier work at Silbury Hill (Whittle 1997a; Whittle *et al.* 1993; 1999), Whittle's agenda was 'to investigate in more detail the sequence, environment, settlement and monuments of the Neolithic period in the area' (Whittle 1993, 30). The simplicity of intention does little justice to the sophistication of interpretation in his work, which moved understanding of the Neolithic complex on from the somewhat reductive agendas of earlier Processual approaches, instead stressing the drivers of sacred imperative, tradition, memory, emulation and the potentially fluid and performative nature of social relations (eg, discussion in Whittle 1997a; Whittle *et al.* 1999). Of note was the active use of ethnographic analogy in order to provide interpretive context for the West Kennet palisade enclosures and Silbury Hill (Whittle 1997a).

It was the shift in interest to the symbolic, the experiential and performative, and the nature of power relations and social reproduction, that attracted the interest of post-Processual prehistorians to Avebury and other major Neolithic monument complexes from the mid-1980s onwards. Julian Thomas' account of the region – the first theoretically informed and detailed engagement with the totality of the area's Neolithic – in *Rethinking the Neolithic* (1991, 162–75) drew upon a varied cocktail of social and practice theory, structuralism and neo-Marxism, highlighting the structuring and controlling of ritual knowledge, power, material connections and depositional practices (see also Thomas and Whittle 1986; Thomas 1999). John Barrett was to use the archaeology of the Avebury region to stress the project-like nature of monument creation in his *Fragments from Antiquity* (1994). By illustrating how relations of power could emerge through the process of monument building, here using the case of Silbury Hill, that work made the important step of inverting the normal assumption that monuments were the manifestation of pre-existing sets of social relations.

It is important to acknowledge how in all these works there exists a dialogue between theoretical intention and the physicality (materiality) of the archaeological traces themselves. In this sense the archaeology can be perceived as actively involved in the constitution of its own interpretation. Such is the case in Paul Devereux's exploration of the relationship between natural and architectural elements of the monument complex (Devereux 1991), which prefigured, yet has resonance with, later phenomenological approaches. The latter were often constructed around study of the experiential encounter with the monument complex via movement towards the henge along the West Kennet Avenue. For Thomas (1993) and Barrett (1994) the avenue defined an approved pattern of movement that structured experience and established an order of procession that created and/or reproduced social differentiation. Aaron Watson (2001), by contrast, foregrounded the diverse sensory qualities of places as people moved through the landscape, and the way that the avenue linked places physically and visually, and so conflated temporal distance.

In the last decade emphasis has shifted to understanding the past in the past (*cf.* Gosden and Lock 1998), and so the role that various kinds of historical and mythological knowledge may have held in ascribing significance to places in the landscape (eg, Pollard 2005; Gillings *et al.* 2008); and to a consideration of materiality (eg, Parker Pearson and Ramilisonina 1998; Pollard and Gillings 2009). Currently on the horizon is the possibility of creating highly sophisticated understanding of historical process and agency within prehistory, generated through new programmes of dating that utilise Bayesian modelling to produce highly refined chronologies (notably Bayliss *et al.* 2007a; Whittle *et al.* 2011).

# Part 2:
# Period-based Assessments

## Lower and Middle Palaeolithic

*by Julie Scott-Jackson*

### *Downland Areas and the British Lower and Middle Palaeolithic Archaeological Record*

The chalk downlands, which topographically characterise the Stonehenge and Avebury WHS in Wiltshire, stretch through 12 counties of southern England. Invariably these downlands are capped, on the highest parts, with deposits mapped as Clay-with-flints. Over the past 100 years or so, a great number of Lower and Middle Palaeolithic stone tools have been found in association with these deposits. The recorded evidence of the Upper Palaeolithic is almost non-existent but this may be due in part to misidentification of such artefacts with those of the Late Middle Palaeolithic and Early Mesolithic.

There has been lack of appropriate research and a general misunderstanding regarding both the archaeological integrity of the Palaeolithic artefacts from high-level sites on deposits mapped as Clay-with-flints, and the geomorphological processes that have operated in areas of chalk downlands, on these specific deposits, over geological time. As a result, these high-level assemblages are poorly represented in the British Lower and Middle Palaeolithic archaeological record. Those Palaeolithic sites which are datable and/or provide the best examples of Palaeolithic industries must command the greatest attention. But site-specific data do not necessarily address the questions of Palaeolithic peoples' habitat range and preferences, and their provision of resources across the landscape. If the behavioural organisation of these ancient hunter-gatherers is to be understood then the Palaeolithic landscape must be considered as a whole. Failure to do so will distort both the local and national archaeological record.

### *Environment*

Sometime during the Pleistocene period, Palaeolithic people first arrived in what is now Britain. This geological period was one of glacial and interglacial cycles. Ice-sheets advanced or re-treated, sea-levels rose and fell. When sea-levels were high, Britain became an island but when sea-levels were low land linked southern England to continental Europe, thereby allowing the migration of animals and Palaeolithic people across the peninsula. The Wiltshire region was never affected by direct glacial activity as the area lay beyond the ice-sheets. But weathering processes operating during the Pleistocene glacial and interglacial cycles effected considerable changes to the topography of the Stonehenge and Avebury area (Kellaway 1991; 2002). The two geomorphological (weathering) processes which dominated in the Pleistocene were periglaciation, during cold periods, and that of solution when the climate ameliorated. Often the effects of periglaciation have been confused with those of solution (Williams 1980; 1986; Scott-Jackson 2000; 2005, 66–7; Geddes and Walkington 2005, 63–4) with the result that the archaeological integrity of the Palaeolithic find sites/spots, particularly on deposits mapped as Clay-with-flints, and the artefacts they contain have been academically devalued.

Significantly, it is the presence of '*pipes*' and '*basin-like*' features in the deposits mapped as Clay-with-flints (which are produced in response to the process of dissolution in the underlying chalk) that has been instrumental in retaining the Clay-with-flints deposits and the associated Palaeolithic sites and artefacts on the highest downland hilltops and plateaux, over hundreds of thousands of years (for examples see: Smith 1894; Scott-Jackson 2000; 2005; Harp 2005; Scott-Jackson and Scott-Jackson 2014). The importance of the Palaeolithic archaeological potential *within* the high-level Clay-with-flints deposits and also at lower levels (in a variety of soils, see for example: Richards 1990, 6–7; Findley *et al.* 1984) in the WHS of Stonehenge and Avebury needs due consideration. This is particularly true if embedded artefacts are found, as many of these finds have proved to be discrete assemblages that are indicative of *in situ* Palaeolithic sites.

### *Resource Assessment*

Detailed geological, geomorphological and archaeological investigations of Palaeolithic find-spots/sites across the Marlborough Downs and


*Figure 10 Palaeolithic find spots/sites in the Avebury and Marlborough Downs area (Scott-Jackson 2005)*

Avebury area (Fig. 10) have been carried out (Scott-Jackson 2000, 53–66; 2005, 67–76). Although the majority of these recorded artefacts can be viewed only as single isolated surface-finds, a number of find-spots appear to have a geomorphological relationship (eg, on top of a hill and on the slope of the same hill). This does not of course imply that there is an actual association between the artefacts but their geomorphological relationship may help to explain the processes through which each artefact assumed its recorded location, as for example on a slope, relative to its originating location, a knapping site on a hill-top (Scott-Jackson 2000, 16–18). There are in total 39 recorded Palaeolithic find-spots/sites across the Marlborough Downs. Of these, 14 find-spots/sites are within a 5 km radius of Avebury village (Fig. 10). Full entry details and discussions on all 39 find-spots/sites may be found in Scott-Jackson 2005 (67–76).

Most of these Palaeolithic artefacts are held in either the Devizes or British Museums; the whereabouts of the others remains unknown. The majority of the artefacts are reported as being single surface finds from the topsoil overlying the downlands (many sites may well have been lost as Palaeolithic artefacts, particularly waste-flakes, are not always recognised for what they are). The most important of the Lower and Middle Palaeolithic finds from the Avebury area (just outside the WHS) are those from the site on Hackpen Hill (SU 128726), a site which was excavated with great care by H. G. O. Kendall (see Kendall 1909; 1916); the artefacts were re-assessed by A. D. Lacaille (1971) and the site and artefacts reinvestigated by J. E. Scott-Jackson (2000, 53–66) whose investigation also corrected data distortions and addressed NGR anomalies.

A site outside the WHS (15 km east from Avebury village) also requires special mention. The low-level Palaeolithic site at Knowle Farm, Gravel Pit, Savernake, is situated in soliflucted head gravel. Investigated/excavated by Cunnington and Cunnington (1903); Dixon (1903); Kendall (1909; 1911) and Froom (1983, 27–37) it produced over 2000 Palaeolithic artefacts, mainly handaxes (for detailed discussion see Scott-Jackson 2005, 71); Wymer (1993, 57) noted that 'only sporadic finds have been made since'. More recently Palaeolithic artefacts (two handaxes and four flakes) have been discovered in shallow quarrying of valley gravels, in the valley opposite Knowle Farm, Little Bedwyn, Savernake, at SU 256 678 (A) (132 m OD).

Both ancient and modern river valleys, stream channels and (to a lesser extent) dry valleys have produced a great number of Palaeolithic artefacts. The associated river gravel, alluvium and valley gravel in these low-level downland areas include materials (and artefacts) that have been washed down from

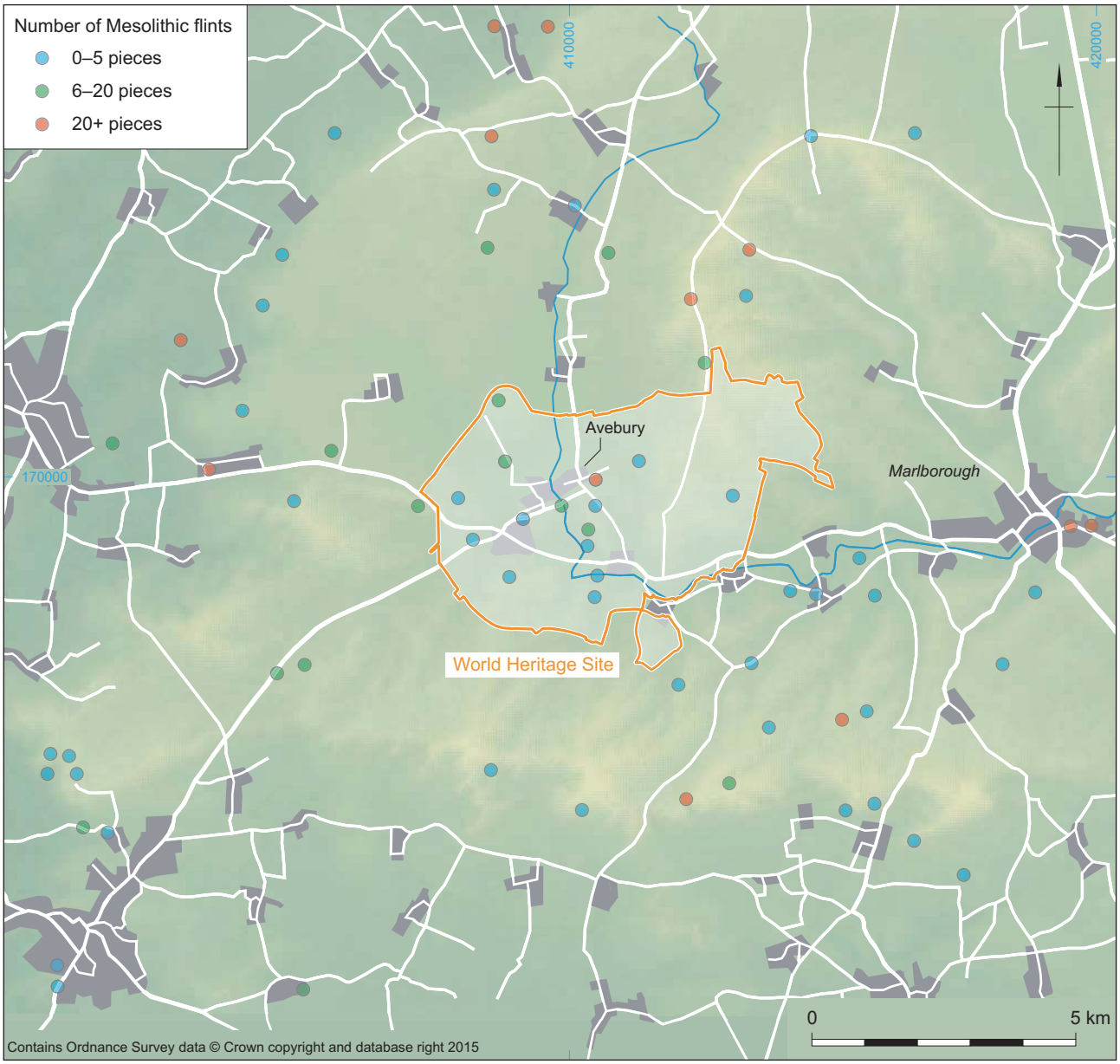



*Figure 11 Mesolithic sites within a 20 km² area centred on Avebury*

higher levels. Colluvium fills the dry-valleys, while much of the river gravel is of Pleistocene age, often overlain and replenished with reworked materials (including artefacts) of various origins and ages. Stone tools recovered both as surface-finds (ie, mixed in with the gravel) and from very shallow gravel deposits are therefore almost certainly in a derived context. Although the potential for the survival of *in situ* sites in river and valley deposits is high, few excavated sites have been found to be *in situ*, most of the artefacts being derived. Nevertheless, some of the most important Palaeolithic *in situ* sites in Britain have been found in a variety of low-level deposits (frequently gravels, but not specifically in downland areas (eg, Wymer 1999).

## Late Glacial and Early Post-Glacial

*by Abigail George*

### *Overview*

This section covers the end of the Pleistocene during a period between the last glacial maximum at around 16,000 cal BC and the beginning of the Neolithic in Britain, around 4000 cal BC. It covers an initial period of climatic oscillation, between extreme cold snaps and rapid warming, followed by a gradual rise in temperature towards the so-called Climatic Optimum of the mid- to Late Mesolithic, and terminating with a slow amelioration during later prehistory.

## *The Late Glacial and Early Post-Glacial in the Wider Area*

There are 11 finds – all lithics – noted in the HER as being 'Palaeolithic' within 20 km² around Avebury. However, none of these are assigned to the Upper Palaeolithic and at the present time there are no definite Upper Palaeolithic sites or findspots within the WHS (Scott-Jackson 2005; Pollard and Reynolds 2002; see Scott-Jackson, above). It is, however, possible that the Avebury area was exploited to some extent by human populations during the Late Glacial as there is clear evidence for sustained use of the lower River Kennet Valley (Froom and Cook 2005).

The Early Post-Glacial period refers to a time after *c.* 7750 cal BC when the tool technology began to change to a broad blade microlithic industry (Jacobi, 1976). Pollen and molluscan studies have indicated that closed woodland existed around the Avebury area (Evans 1972) although Allen (2005) suggests that within this woodland large natural clearings may have been the focus for settlement and community. Whittle (1990) proposes that the downland and upper dip-slope valley were seldom used and that the main base camps were likely to be outside the area, suggesting Cherhill and the Wawcott as possibilities. He suggests that a territory of at least this size is plausible – a distance of 40 km along the River Kennet.

There are a small number of findspots and sites within the WHS (Fig. 11), only two of which (Rough Leaze and Avebury) can be described as minor (short stay) occupation sites. Again, it is possible that the Avebury area was exploited by human groups since there is a good deal of occupation evidence for Early Post-Glacial sites in the Kennet Valley (Froom 1963; 1965; 1970; 1972a; 1972b; 1976; Froom and Cook 2005; Sheridan 1967; Wymer 1962; Churchill 1962; Heaton 1992).

Whilst these sites are not local to the Avebury WHS, it is not inconceivable that these and other sites within a few days walking distance formed part of a wider Mesolithic territory around the lower and middle Kennet Valley. The importance of the River Kennet as a tributary of the River Thames should not be underestimated. The area around Avebury prior to 6550 cal BC was probably not a place in isolation, but was rather linked to the rest of southern England and the Continent via a Kennet–Thames–Rhine routeway. In addition, routes to the south coast via the Hampshire Avon and to the Severn Estuary in the west via the Bristol Avon all lead to key Upper Palaeolithic and Mesolithic sites in the Severn Estuary (Bell 2007) and at Hengistbury Head (Barton 1992).

According to Smith (1992), hunter/fisher/gatherer populations would have been of a very low density, perhaps as few as 20 people in a 200 km² area at any one time, although Rowley-Conwy puts this at a higher density of between 45 and 120 people (Rowley-Conwy 1981). In order to annually sustain such group numbers various sections of the Avebury landscape would have been seasonally utilised. It is therefore essential that any future research agenda for this period encompass a much wider geographical area than the current boundaries of the WHS. For this purpose an area of 20 km², with Avebury as its centre, has been taken to establish a more realistic perspective on the early prehistoric human exploitation of the landscape (see Fig. 11). This is still somewhat limiting as it does not include the Kennet Valley sites mentioned above. However it is beyond the scope of this paper to encompass the full territory that may have been utilised, which may also have included sites along the River Og at Marlborough and those tributaries around Hackpen Hill and Aldbourne. These sites may be an important link between Avebury and the Wawcott sites and should be considered as part of a wider contextual assessment of the Wiltshire landscape.

Early land-use during the Late Upper Palaeolithic and Mesolithic may well have been preludes to the development of the later prehistoric landscape. A clear example of this is the large timber ('totem') posts that were discovered in the Stonehenge car park (Vatcher and Vatcher 1973; Allen 1995; and a more recent find at Amesbury Down, see Allen and Gardiner 2002; Powell and Barclay forthcoming). In addition, Mesolithic flints are often found under Neolithic monuments suggesting a history prior to the first pastoralists. However, the ephemeral nature of these finds is frustrating and until further well-stratified sites are discovered we can only speculate as to whether these are just residual finds or something more significant. Another approach, explored by McFadyen (2006) is to look at exploring the nature of such ephemeral finds in a more theoretical way: '*spaces were actively being made … rather than simply inhabited as meaningful "places"* '; even small scatters of flint can tell us a great deal about the processes that people were undertaking, and the connections between the people and their environment (McFadyen 2006). Moreover, individual lithics and scatters can also say something about trade and exchange, power-relations between communities and the pathways they may have taken for these events to take place (Bradley 1993).

## Neolithic and Early Bronze Age

*by Rosamund J. Cleal and Joshua Pollard, with Nicola Snashall and Rebecca Montague, and a contribution on Archaeoastronomy by Clive Ruggles*

### *Introduction*

The archaeological significance of the Avebury landscape ultimately rests on the value ascribed to the great Late Neolithic monument complex that includes the Avebury henge, the West Kennet and Beckhampton megalithic avenues, the Sanctuary, West Kennet palisade enclosures and Silbury Hill. These monuments, along with earlier, 4th millennium cal BC, constructions such as the West Kennet long barrow and Windmill Hill enclosure are exceptional in scale and architectural complexity; and their presence is indicative of a social and religious pre-eminence to this region during the Neolithic on a par with that of the Stonehenge landscape (Fig. 12). These monuments continue to occupy a key position in our accounts of the period on a national and international scale because of their potential to inform us of aspects of social and economic organisation, belief, ceremony and the material worlds of their builders.

Chronological frameworks are discussed elsewhere in this volume by Frances Healy. It is sufficient here to note that the transition to Neolithic practices and ways of life in the Avebury area came later than that in the Lower and Middle Thames Valley and perhaps the Cotswolds, within the range 3975–3835 cal BC at 95% probability (Whittle *et al.* 2011). This provides the upper limit for the chronological span considered in this section, while the lower limit is given by the transition to the agrarian landscapes of the Middle Bronze Age at around 1500 cal BC. Both upper and lower limits, however, need to be treated as approximate.

Archaeological activity within the WHS was intense during the 20th century, following two and a half centuries of antiquarian activity centred largely on the henge and Early Bronze Age round barrows. Previous archaeological and antiquarian activity is described elsewhere (Smith 1965b; Pitts 2000; Pollard and Reynolds 2002; Gillings and Pollard 2004), although more detailed outline histories of investigation are provided here for key monuments such as the Avebury henge. Discussion is structured thematically, beginning with the evidence for early 4th to early 2nd millennium cal BC settlement and landscape use, followed by reviews of material culture, lifeways, and monumentality. Where their significance impacts on understanding of the Neolithic and Early Bronze Age archaeology of the WHS, a small number of sites outside the area are referred to.

### *Settlement and Landscape*

Because of the absence of any sustained Late Mesolithic presence in the region, it has been argued that the onset of the Neolithic was marked by the arrival of incoming groups, either from neighbouring areas or much further afield (Whittle 1990, 107). It was during the early 4th millennium cal BC that the environment of the Avebury landscape was first subject to major human modification, through more extensive and sustained settlement, clearance, agriculture and monument building. By the second and third quarters of the 4th millennium cal BC occupation within the region was extensive, though not necessarily dense. Traces of settlement activity and agriculture are relatively ephemeral, comprising surface scatters of worked flint and occasionally pottery, more substantial remnants of middens, pits, and post and stake settings, along with cultivated soils. The absence of any solid 'domestic' architecture is taken to indicate varying degrees of settlement permanence/impermanence, which could range from strategies of short-lived sedentism to seasonal transhumance (Whittle 1997b; Edmonds 1999; Pollard 1999a). Following a pattern seen repeatedly across southern England, it is only from the mid-2nd millennium cal BC that stable agricultural settlements and field systems appear.

#### Surface collections and casual finds

Topsoil/ploughsoil scatters of worked flint and casual finds of lithics and ceramics provide the best evidence for the presence and extent of settlement and associated activity (Holgate 1987; 1988; Whittle *et al.* 2000). Many of the larger scatters that have been identified are located on the upper slopes and higher ground around the main monument complex – effectively 'looking in'. The lithics contained within them indicate that some have formed through repeated visitation over long periods of time (eg, the southern slope of Windmill Hill), while others are dominated by distinctive Middle–Late Neolithic tool forms (eg, foot of Avebury Down). Further details are provided by Snashall, see above.

#### Other occupation evidence

In addition to finds made during surface collection, traces of Neolithic and Early Bronze Age occupation have been encountered fortuitously during groundworks and in the excavation of contemporary monuments and later sites. A limited amount of research-led excavation has also focused on identifying settlement evidence (Whittle *et al.* 2000; Pollard *et al.* 2012). Traces here take the form of buried artefact scatters (including dense concentrations best interpreted as midden spreads),


*Figure 12 Neolithic and Early Bronze Age: places mentioned in the text*

pits and other sub-soil features, fence-lines, artificial surfaces and cultivated soils.

Several scatters of worked flint and pottery in the buried soil under the bank and within the interior of the Avebury henge are the residue of episodes of pre-monument occupation (Gray 1935; Passmore 1935; Smith 1965b, 224–6; Evans *et al.* 1985). Over 100 sherds of pottery and 200 pieces of worked flint were recovered from these contexts. Associated ceramics range from early carinated bowls to Peterborough Wares, suggesting a chronological span that could take in the whole of the 4th millennium cal BC (supported by three radiocarbon dates relating to pre-henge activity: Pitts and Whittle 1992). From the buried soil profile under the henge bank come indications of associated clearance and cultivation. The environmental succession begins with Early Holocene woodland, followed by clearance at some stage during the Early Neolithic, then cultivation and the formation of grassland (Evans *et al.* 1985; Evans and O'Connor 1999, 202–4). Cultivation included the use of an ard, uncommon on sites of this date though similar and more extensive ard marks of early–mid-4th-millennium cal BC date were recorded under the South Street long barrow (Ashbee *et al.* 1979). In the immediate zone to the east of the henge, topsoil sampling and limited excavation in Rough Leaze during 2007 identified scatters of worked flint that included material of possibly Late Mesolithic and certain Early and Middle Neolithic dates, a series of Early Holocene tree-throw holes containing small quantities of artefactual material within their upper fills, and one location where there exists a concentration of stakeholes likely associated with prehistoric activity (Pollard *et al.* 2012).

To the south and south-east of the henge there are several localised scatters of earlier Neolithic worked flint, pottery, pits and midden deposits along the sides and base of the dry valley formed by Waden Hill and Avebury Down/Overton Hill, and on Overton Hill itself (Smith 1965b, 210–16; Thomas 1955; Snashall 2007; Gillings *et al.* 2008). Several pits and postholes were found during the 1930s work on the West Kennet Avenue amongst a substantial 'midden' spread of flint and pottery (Smith 1965b). The range of ceramics from the site (Ebbsfleet, Mortlake, Fengate and Grooved Wares) show occupation, if intermittent, spanning the latest 4th to early/mid-3rd millennia cal BC, before the West Kennet Avenue was built. Just to the north, a small pit containing sherds of Mortlake bowl was encountered during cable work close to stone 16a of the West Kennet Avenue (Allen and Davis 2009). This pit was dated to 3090–2910 cal BC; with mollusca indicating a predominantly open yet still mosaic environment. More difficult to characterise are concentrations of 4th millennium cal BC ceramics (Plain and Decorated Bowl and early Peterborough Wares) on Overton and Hackpen Hills, associated with small amounts of worked flint and some animal bone, but no evident structural features (Smith and Simpson 1964; 1966; Snashall 2007). The relative scarcity of associated lithics and structural features is at odds with the scale of some of these ceramic assemblages (eg, that under West Overton G6b: Smith and Simpson 1966), implying occupation of a different kind – or at least a different suite of activities – on the high ground to that along the valley sides and floor.

Isolated pits and small pit clusters of Neolithic and Beaker date are also known from Windmill Hill (predominantly Early Neolithic, and some pre-enclosure; Smith 1965b); from its southern slope (one cluster associated with Plain Bowl pottery, two other pits with Grooved Ware; Whittle *et al.* 2000); from Avebury G55, close to the West Kennet long barrow (Smith 1965b); and outside the WHS on Hemp Knoll (Robertson-Mackay 1980) and Roughridge Hill (Proudfoot in prep.). The latter may belong to the first quarter of the 4th millennium cal BC and so an early phase of settlement within the region, the pits' contents included, unusually, human bone along with a range of ceramics, lithics and animal bone.

House sites of the period remain elusive. Stakehole arrangements and pits probably mark their former presence in many instances. There are hints that better preserved house structures might be found. Artificial chalk surfaces found during coring against the southern bank of the Avebury henge, here buried by colluvium (Allen and Snashall 2009), and under a midden spread at the West Kennet palisade enclosures (Whittle 1997a, 12, 76, fig. 43) look tantalisingly similar to the puddled chalk floors of houses at the Late Neolithic settlement at Durrington Walls (Parker Pearson 2007).

Beyond palaeo-environmental investigations by John Evans, and those undertaken by English Heritage as part of the Silbury Hill project, little work has taken place in the floodplains of the Winterbourne and Kennet, though these are locations where settlement evidence might be expected and where later colluvial cover should provide good preservational conditions. Potential is shown by test trenching in Butler's Field to the west of the henge where earlier Neolithic flintwork and pottery were found within buried soils (Evans *et al.* 1993). The likelihood of there being sizeable spaces 'empty' of occupation must, however, be considered, and is hinted at by gaps in lithic scatter distributions. Along the whole length of the Avebury sewer trench there were virtually no Neolithic or Early Bronze Age finds, except for the location of a 'lost' disc barrow, although the conditions of recovery during the work may have contributed to this apparent absence

*Plate 23 Large bag-shaped bowl with lug, Early Neolithic, from Windmill Hill causewayed enclosure, Avebury, Wiltshire (© Wiltshire Museum)*

(Powell *et al.* 1996, 82). Cable trenching across part of Avebury Trusloe and the northern half of Longstones Field during 2010 likewise yielded a virtual blank despite careful monitoring.

## *Things*

A lengthy history of archaeological investigation within the area of the WHS and its environs has resulted in the curation of a number of important assemblages of Neolithic and Early Bronze Age artefactual and faunal material. Setting aside for the present those from antiquarian investigation of the area's round barrows, the singularly most significant assemblage derives from the enclosure on Windmill Hill (Smith 1965b; Whittle *et al.* 1999). The early 20th-century excavations here by Keiller provided stratified assemblages of ceramics (Pl. 23), lithics and other materials (worked chalk, worked bone, imported stone tools) that were instrumental in establishing material sequences for the southern English Neolithic, reflected in Stuart Piggott's choice of the monument as the type site for his 'Windmill Hill culture' (Piggott 1954). That assemblage was augmented by material recovered in subsequent excavations in 1957–8 and 1988. A sense of scale can be gathered from the estimates of over 20,000 sherds of pottery from *c.* 1200 vessels, the majority Early Neolithic (Zienkiewicz and Hamilton 1999); and around 100,000 pieces of worked flint (Pollard 1999b). Other stratified assemblages of Early Neolithic material have come from the excavation of various pit groups (see above), and from the long barrows of West Kennet (Piggott 1962) and Horslip (Ashbee *et al.* 1979).

The substantial lithic assemblage from the West Kennet Avenue 'occupation site' includes a strong component of distinctive Middle Neolithic forms, including 'Levallois-style' cores, edge-polished pieces and chisel arrowheads (Smith 1965b). A remarkable assemblage from a little-understood phase within the region's Neolithic, it would repay further analysis. That is also true of the Peterborough Ware and Late Neolithic–Early Bronze Age ceramics and lithics from the secondary fills of the chambers of the West Kennet long barrow (Piggott 1962), and from the adjacent 'midden' site of Avebury G55 (Smith 1965a). Remarkably little material was recovered during the 20th-century excavations at the Avebury henge (Gray 1935; Smith 1965b), especially when viewed in contrast to the substantial amounts of Grooved Ware and associated lithics and faunal material from Whittle's excavations at the West Kennet palisade enclosures (Whittle 1997a). Smaller quantities of Grooved Ware have come from the excavation of pits, the buried soil under West Overton G6b (Smith and Simpson 1966), the Sanctuary (Cunnington 1931; Pollard 1992) and from the Longstones enclosure (Gillings *et al.* 2008) (see gazetteer in Cleal and MacSween 1999). Early funerary and non-funerary Beaker finds within the region have been recently reviewed by Cleal and Pollard (2012); while grave assemblages of the late 3rd and early 2nd millennia cal BC are the subject of overview in Grinsell (1957) and Cleal (2005). Of note is the important Beaker grave assemblages from West Overton G6b (Smith and Simpson 1966), East Kennet (Kinnes 1978) and immediately outside the WHS on Hemp Knoll (Robertson-Mackay 1980).

## *Lifeways*

The original Archaeological Research Agenda for the Avebury WHS stressed the need to consider evidence for human health and diet, highlighting the potential that developments in aDNA, lipid and stable isotope analyses could offer, in addition to the data routinely obtained through osteological, faunal and palaeo-botanical work (Cleal and Montague 2001, 42–3). The potential of recently refined analytical techniques is beginning to be realised (eg, Copley *et al.* 2003; Haak *et al.* 2008; Smith and Brickley 2009); and the region possesses rich assemblages of well-contextualised Neolithic and Early Bronze Age human and animal bone, carbonised plant material, and ceramics that are suitable for such work (notably from Windmill Hill, the West Kennet palisade enclosures, and various barrow excavations). Analysis of lipids extracted from earlier Neolithic vessels from Windmill Hill has revealed a majority with traces of predominantly dairy fats (Copley *et al.* 2003). The

mixing of ruminant and porcine adipose fats was also detected in individual vessels. Comparable analysis of Grooved Ware sherds from the West Kennet palisade enclosures showed a predominance of porcine adipose fats, providing good agreement with the balance of domesticated animal species represented among the faunal remains (Mukherjee *et al.* 2007).

Recent (re-)analysis has been undertaken on the human remains from a number of 4th-millennium cal BC sites in the WHS, notably Windmill Hill (Brothwell 1999), Millbarrow (Brothwell 1994), and the West Kennet long barrow (Bayliss *et al.* 2007a). An instance of trauma (healed fracture) was detected among the population at Millbarrow, along with a possible well-healed double trephination (Brothwell 1994). Wysocki's work on the West Kennet long barrow remains shows that the scale of the primary mortuary deposit was previously over-estimated (now revised down to 36 individuals), but that many more adult and infant remains are present within the secondary deposits than indicated in the original report (Bayliss *et al.* 2007a). One individual in the NE chamber may have been killed by arrowshot (Piggott 1962, 25).

For the late 3rd and early 2nd millennia cal BC, there are good data on the age, sex and health of individuals buried at Avebury G55 (Brothwell 1992), West Overton G6b (Brothwell and Powers 1966), Overton Down (Rogers and Everton n.d.), and West Overton G19 (Wysocki, in preparation). Further information, particularly on diets and mobility, will come through the work of the 'Beaker People Project' (Jay *et al.* 2012). Of note is the evidence of vitamin/iron deficiency, linked perhaps to poor hygiene and other environmental stress, from an infant buried under Avebury G55 (Brothwell 1992).

## *Monumentality 1. Earlier Neolithic*

It was through the creation of earthwork, timber and stone monuments that the geography of the region was to be radically transformed. Through their physical presence such monuments would endure, creating a lasting impact on the way in which subsequent generations would inhabit the landscape (Cleal and Pollard 2012). During the second and third quarters of the 4th millennium cal BC a series of long barrows and earthwork enclosures was constructed in localised woodland clearings, many in places which already possessed long histories of activity (Pollard and Reynolds 2002, 59–62; Whittle *et al.* 1999).

### Long mounds and chambered monuments

There are around 30 known megalithic and non-megalithic long mounds in the wider Avebury region (Barker 1985). Those with megalithic (sarsen) chambers are mostly located in the zone to the east of Avebury, and share constructional traits with so-called Cotswold-Severn long barrows in regions to the north and west (Darvill 2004). Within the WHS are the chambered barrows of West Kennet and East Kennet, along with the likely site of the Beckhampton Penning barrow recorded by Stukeley, and the Horslip, South Street and Beckhampton/Longstones earthen long barrows. A further ploughed-down long barrow may exist just to the south-east of Avebury, being visible as an apparently U-shaped ditch on satellite imagery (Pl. 5). Of these, three have been excavated under modern conditions: West Kennet, South Street and Horslip (Piggott 1962; Ashbee *et al.* 1979). Just outside the WHS a further three long barrows have been excavated in the same time period: Beckhampton Road, Millbarrow and Easton Down (Ashbee *et al* 1979; Whittle *et al.* 1993; Whittle 1994). Excavation has revealed very different constructional details and sequences; a degree of diversity in fact typical of these monuments (Kinnes 1992; Darvill 2004). South Street and Beckhampton Road are most similar, with complex bayed mound construction displaying axial asymmetry, and in both cases without mortuary deposits. At South Street an irregular cairn of stones took the place where a wooden chamber might have been found. Deposits of human bone were also absent at Horslip, although the mound was very denuded by the time of excavation, and it cannot with confidence be stated that the barrow was without a mortuary function. Here a line of pits pre-dated the mound. Easton Down originally covered a restricted number of inhumations, perhaps within a timber-defined mortuary structure (Whittle *et al.* 1993). At Millbarrow human remains from the primary mortuary deposit survived within the disturbed area of the original chambers (Whittle 1994). Available radiocarbon dates suggest the South Street, Beckhampton Road, Easton Down and Millbarrow long barrows were relatively late creations, being constructed in the second half of the 4th millennium cal BC (Whittle *et al.* 2011, 103–5).

Excavation of buried soils and features under all of these mounds has revealed important sequences of pre-barrow activity – variously clearance, cultivation, plot division, temporary occupation, artefact discard, and even, in the case of Millbarrow, hints of earlier phases of human bone deposition – a reminder that their value as 'islands' of survival of high-resolution environmental data and ephemeral traces of human presence should never be ignored.

#### *West Kennet long barrow*

The most impressive and widely known of these monuments is that of West Kennet (Pl. 24), the site having an almost iconic status. Excavations took place

*Plate 24 West Kennet Long Barrow (© Erica Gittins)*

in 1859 and 1955–6, the latter fully published by Piggott (1962), who gives a summary account of the earlier depredations and of the work by Thurnam (1867; Piggott 1962, 1–7). The finds are held by more than one museum or university: the artefacts are in Wiltshire Museum, the human skeletal remains in the Duckworth Laboratory of the University of Cambridge and the animal bones in the comparative series of the Department of Zoology of the Royal Scottish Museum, Edinburgh (Piggott 1962). Comprising a substantial chalk and sarsen mound with flanking ditches and large transept chambers, West Kennet was constructed in the middle decades of the 37th century cal BC (Piggott 1962; Bayliss *et al.* 2007a). Its primary use, which involved the interment of *c.* 36 individuals by recent estimates, may have lasted less than 50 years (Bayliss *et al.* 2007a). Following a hiatus of a century or so after the internment of the last of the primary burials, the chambers were progressively filled with a series of secondary deposits of chalk, soil, animal and human bone and pottery. This depositional activity, which could have involved the curation and transport of material from nearby settlement middens, continued on to the latest 3rd or early 2nd millennium cal BC (the bottom end of this range indicated by Late Beaker sherds from the western chamber), by which time access to the chambers had been blocked by the construction of a megalithic façade.

It may be no coincidence that the most elaborate of the region's long barrows – West and East Kennet and Millbarrow – flank the core of the region where several centuries later the Avebury henge would be constructed, implying that this part of the landscape around the headwaters of the Kennet and the Winterbourne already held especial significance by the middle of the 4th millennium cal BC.

**Windmill Hill causewayed enclosure**

Contemporary with at least some of the long mounds are the earthwork enclosures of Windmill Hill, Rybury and Knap Hill, created on conspicuous hilltops fringing the region. Two kilometres to the north-west of Avebury, that on Windmill Hill is the largest and most elaborate of these sites (Smith 1965b; Whittle *et al.* 1999), and the only Early Neolithic enclosure to lie within the WHS. In terms of its scale, involvement in extra-regional networks, and the level of participation implied by its construction and use, it may even be regarded as the pre-cursor to the Avebury henge. The enclosure is made up of a series of three concentric interrupted ditches, the outer some 360 m across at its widest point and enclosing an area of 8.5 ha.

The ditches (or at least one of the circuits) on Windmill Hill were noticed by Stukeley (1743) but were not subject to excavation until the 20th century. H. G. O. Kendall, Vicar of Winterbourne Bassett, collected voraciously on and around the hill during the early 20th century and cut sections across the ditches in the early 1920s. The history of the early investigation of Windmill Hill is fully discussed by Whittle *et al.* (1999) and Oswald *et al.* (2001). Smith's volume Windmill Hill and Avebury (1965b)

is the definitive account of the five seasons of excavation undertaken by Keiller between 1925–29, and of the excavations she conducted in 1957–58. Whittle *et al.* 1999 is also the full report on the 1988 season of excavation at the site, and provides a re-evaluation of Keiller's work. Further discussion and a revised chronological sequence are provided in Whittle *et al.* 2011 (see also Healy, above). The archive is held largely by the Alexander Keiller Museum, although some finds are on loan to Wiltshire Museum and some were discarded (particularly after a serious fire on Keiller's property in 1945), dispersed, or lost.

Windmill Hill may have become a focus for periodic gathering and settlement immediately prior to the construction of the enclosure. Excavations in the 1920s uncovered a cluster of over 30 pits in the area later occupied by the inner enclosure; while pits, a hearth and postholes belonging to a substantial structure were revealed under the Outer Bank during investigations in 1957 and 1988 (Smith 1965b; Whittle *et al.* 1999). The precise chronological relationship between the enclosure, a further cluster of Early Neolithic pits to the south-east excavated in 1993 (Whittle *et al.* 2000) and a square earthwork likely related to so-called 'mortuary' enclosures is uncertain.

Bayesian analysis of radiocarbon dates from samples recovered from primary ditch contexts shows the Windmill Hill enclosure was created in the 37th century cal BC. The constructional sequence began with the inner ditch, followed most probably by the outer, then middle ditch. The creation of the West Kennet long barrow was probably coeval with the middle part of the sequence (Whittle *et al.* 2011, 91–2). The inner and outer circuits currently represent the earliest dated monumental constructions in the region. A late phase of ditch re-cutting and circuit redefinition is seen in the south-eastern part of the outer enclosure, dating to the latest 4th–early 3rd millennium cal BC (see Whittle *et al.* 2011, 92; and see Healy, above for details). This may relate to the creation of a new approach to the monument from the then busier landscape to the south.

Some of the richest stratified assemblages of earlier Neolithic material culture and faunal remains from Britain have been recovered through excavation at Windmill Hill. They are indicative of periodic large-scale aggregation, feasting and other activities, potentially involving participants from an extensive extra-regional range. Much of this material was deposited in the ditches, often with some formality (Whittle *et al.* 1999). Fragmentary human remains were also present; often placed alongside the bones of cattle, and perhaps stressing the close relationship people held with their herds and the importance of animals in cycles of feasting and exchange. The range of activities and connections implied by these assemblages represents something of a microcosm of the earlier Neolithic world: gathering, food preparation, feasting, deposition, exchange, marriage and mortuary/ancestor rituals (Whittle *et al.* 1999).

**Other possible 4th-millennium cal BC monuments**

A single aerial photograph (Major Allen Neg 143) shows a possible cursus monument just outside the WHS to the west, in Cherhill parish (SU 07037000). Close to it are ring ditches, one of which seems to enclose a ring of holes. The site has not been located on the ground, largely due to the disruption to the area caused by the military buildings around Yatesbury (Grinsell 1957, 55).

Possible 'mortuary' enclosures have been identified from cropmarks as part of the Folly Hill barrow group near Beckhampton and to the north-east of the East Kennet long barrow (Pollard and Reynolds 2002, 70). An oval parchmark within the NW sector of the Avebury henge (Bewley *et al.* 1996) bears resemblance to the excavated Middle Neolithic barrow at Radley, Oxfordshire (Bradley 1992); a central pit-like feature perhaps representing a grave. The status of all these sites is yet to be confirmed.

Excavated but anomalous structures include the ditched square earthwork on Windmill Hill (Smith 1965b, 30–3) and the gully-defined enclosure in Longstones Field (Gillings *et al.* 2008, 21–3). Their dating is not secure, but both may be related to monumentalised 'halls' of the early 4th millennium cal BC.

## *Monumentality 2. Late Neolithic and Early Bronze Age*

The later 4th and earlier 3rd millennia cal BC may have been a relatively quiet time in terms of monument building within this landscape (Whittle 1993; Whittle *et al.* 2011), but visits to and deposition at Windmill Hill and several of the region's long barrows continued, and part of the outer circuit of the Windmill Hill enclosure was re-defined (Pollard 2005; Whittle *et al.* 2011). It was during the Late Neolithic (*c.* 2800–2200 cal BC) that the remarkable complex of ceremonial monuments centred on the valley floor was created. The result was a landscape that is equal in scale and complexity to those around Stonehenge, the Boyne Valley of eastern Ireland and Carnac in Brittany. The constructions that make-up the Late Neolithic complex at Avebury include the henge and stone circles, the West Kennet and Beckhampton megalithic avenues, the Longstones enclosure, the Sanctuary, Falkner's Circle and – occupying the floor of the Kennet Valley – the complex of palisade enclosures at West Kennet and

*Plate 25 Avebury, the henge, the south-west quadrant of the Outer Circle and the Southern Inner Circle; Silbury Hill and the West Kennet Long Barrow in the distance (© Steve Marshall)*

the giant artificial mound of Silbury Hill (Smith 1965b; Whittle 1997a; Gillings *et al.* 2008). Further afield, there are records of small stone circles at Winterbourne Bassett and perhaps Clatford, while the creation of the Marlborough Mound is now known to have begun during the latest Neolithic (Leary 2011).

**The Avebury henge**

We are now aware that the Avebury henge (Pl. 25) is a complex, multi-phase monument created in a series of stages between the early 3rd and early 2nd millennia cal BC (Gillings and Pollard 2004; Pollard and Cleal 2004). Enclosing a low ridge to the east of the Winterbourne, and overlooked by low hills on most sides, the Avebury henge is defined by a massive earthwork 420 m in diameter, broken by four entrances. Set immediately inside the ditch are the stones of the Outer Circle (the largest stone circle in Europe), themselves enclosing two Inner Circles (Northern and Southern) with complex settings at their centres (the Cove and former Obelisk). Several additional megaliths are scattered along the low ridge running north-south through the henge. Avebury henge can best be conceptualised as a series of nested spaces, the 'deepest' and surely most sacred of these being defined by the central settings within the Inner Circles; locations that also offer the greatest visual field of the landscape outside the monument (including views to Silbury Hill and Windmill Hill). The henge earthwork itself is of two phases, the first (Avebury 1) being represented by a smaller bank observed in section in the south-east and south-west quadrants (Pitts and Whittle 1992, 210). The earthwork we see today (Avebury 2) was constructed in the middle of the millennium, probably in the 26th century cal BC (Pollard and Cleal 2004; see Healy, above); and the massive Outer Circle of sarsen stones a little later. The chronology of the other megalithic settings within the henge is poorly understood, although an OSL date for the western stone of the Cove – at 100 tonnes the largest of the stones – indicates it could have been erected as early as 3000 cal BC; while artefactual and radiocarbon evidence shows that megaliths were being erected and re-set within the henge well into the early 2nd millennium cal BC (Smith 1965b; 248; Pollard and Cleal 2004).

The role of the henge is often assumed to have been that of a centre of gathering and worship. In fact very few later Neolithic deposits that might indicate

such gatherings have been encountered during excavation: either the monument was kept 'clean' or it was visited by only a few (in this sense a 'reserved' sacred space within the landscape). By the Early Bronze Age, deposits of human bone were being placed in the henge ditch (Gillings and Pollard 2004, 70–6), suggesting an increasing connection to ancestral rites and perhaps ancestor worship (*cf.* Parker Pearson and Ramilisonina 1998). While defined as a 'henge' and so linked in archaeological categorisation with other later Neolithic-Early Bronze Age ceremonial enclosures, the format of Avebury is unusually elaborate and complex. It has been suggested that the undulating henge banks mimic, as a form of landscape homology, the surrounding downland (Watson 2001): certainly, it is not unusual for monuments to represent aspects of the physical world in microcosm (Bradley 2000). Likewise, individual architectural elements could have served as monumentalised symbolic representations of other structures. The Northern Inner Circle and Cove, for instance, share the format of contemporary 'square-in-circle' timber monuments and even the shape of later Neolithic houses.

*History of Research*

The henge was not extensively or systematically excavated until the investigations of Gray and Keiller during the 20th century, but there have been a number of smaller excavations over the last two centuries. Finds made prior to Keiller's work are in general not held by the Alexander Keiller Museum, which was not founded until 1938. Details of the history of investigation can be found in Smith 1965b, Pitts 2000 and Gillings and Pollard 2004.

*Reported 1829.* Record by Joseph Hunter of digging at the foot of the Cove stones to the depth of a yard or more, but 'nothing peculiar was observed' (Long 1857, 326). Hunter was reporting this episode and was not one of those involved.

*Reported 1833.* Record by Henry Browne of digging at the Cove and finding 'the place of burnt sacrifices'; probably therefore encountered the burning pit of the northern stone (H. Browne 1833 *An illustration of Stonehenge and Abury;* information taken from Smith 1965b).

*1865.* Excavations on behalf of the Wiltshire Archaeological and Natural History Society by A. C. Smith and W. Cunnington, which lasted for a week. They recognised the burning pit for the northern stone of the Cove and also examined the bases of the surviving stones of the Cove, digging on both west and east sides of the western stone (the 'back stone') and close to the southern (side) stone. Apart from the Cove they also trenched through an earthwork in the SE part of the NE quadrant, finding part of a 'stag's horn' and pottery (Smith 1867).

In the SE quadrant they dug a trench at the centre of the Southern Circle, and across it to the north, south-west and east of the centre (each trench *c.* 60 ft (18.3 m) long). In the centre was a large quantity of burnt sarsen, including fragments and chips, and 'charred matter', and there was similar material in all the trenches. The excavators presumed a large central stone in the middle of the Circle, but found no evidence of an interior setting to the Circle.

Several trenches were dug into the bank, although locating these is difficult from the report and they do not appear to have been substantial. The largest trench was dug into the bank of the NW quadrant (Pl. 26) and extended 'many yards' into the bank; the buried soil proved to be a stiff, red clay. There were no finds from this trench and only one pottery sherd from the smaller trenches (Smith 1867, 209–16).

In total, 14 excavations were undertaken. No human remains were found but finds did include sheep, cattle and horse bones, some of which were clearly modern. Modern glass and pottery was also recovered, but 'British' pottery was also found. The buried sites of three stones in the south-western quadrant were also recorded, having been revealed by parching of the grass.

*1881.* Probing by workmen with iron bars (directed by A. C. Smith and W. C. Lukis) revealed 18 buried stones (16 in the Outer Circle and two in the Northern Inner Circle), half of which were in positions noted by Stukeley as representing stones which had been destroyed. These were uncovered to show the size of the stone, and then re-covered, the sites marked with wooden pegs (Lukis 1882, 153). Lukis found much coarse pottery, and also records the finding of an 'entire vessel of the same kind of clay' near to the centre of the Southern Inner Circle when a hole was dug for a flagpole (Lukis 1882, 153).

*1894.* Excavation carried out for Sir Henry Meux, under the direction of his steward, E. C. Trepplin and supervised in the field by another of his staff, Thomas Leslie. Between the 4 and 19 July a trench was dug through the bank in the SE quadrant, and an extension of 6 ft (1.8 m) was made along the ditch. These investigations were not published, although an account is given in the record of the 50th general meeting of the Wiltshire Archaeological and Natural History Society (*WANHM* 33 (1904), 103) and also described by Gray (1935, 103–4). Gray estimated the trench to have been 8 ft (2.4 m) wide by 140 ft (42.7 m) long, with a 6 ft (1.8 m) extension along the ditch. Gray describes the excavation from Leslie's 'rough diary', which he possessed. Leslie recorded what 'appeared to be the grass surface line of an inner rampart, defined by a curved line of vegetable mould 3½ in. in thickness' (*ibid.*, 104). The turf line beneath the bank was also recognised, reaching a thickness of nearly 2 ft (0.61 m) in the 'middle of the inner slope'.

*Plate 26 Avebury, the henge and the north-west quadrant of the Outer Circle; the Great Barn cut into the bank (© Steve Marshall)*

It appeared to have been burnt, with wood ash visible, and was said to be 2.25 ft (0.69 m) below the level of the adjoining field (1935, 103–4). (A pencil sketch of the bank section, with a report of the dig, probably from Leslie, exists in correspondence with the Cunningtons in the library of the Wiltshire Archaeological and Historical Society, Devizes; information from M. Pitts). There were few finds, all apparently dispersed, although two antler picks were bought by the Wiltshire Archaeological Society at a subsequent sale of Meux's effects (*ibid.*, 105). Passmore describes three flints as having been found, two of which he illustrates (1935); one is a serrated flake and one a chisel arrowhead, Clark's type D (Clark 1934). The other object, a combined scraper and point, and the arrowhead, are illustrated by Smith (1965b, 225–6, fig. 76.F188, F189). These three objects were purchased by Passmore, and are in the Ashmolean Museum, Oxford.

*1908, 1909, 1911, 1914, 1922.* Excavations on behalf of the British Association, directed by Harold St George Gray: mainly in the ditch, but also to reveal one of the stones of the Southern Inner Circle (Gray 1935, 131–2, fig. 5) and three buried stones (or three parts of one stone) within the interior of the Inner Northern Circle (*ibid.*, 108). The excavations were published in 1935. The finds are mainly in Wiltshire Museum, though some were dispersed. A catalogue (compiled by M. Pitts), of the location of antler and bone finds, including dispersed finds, is in the Alexander Keiller Museum. Smith also illustrates and discusses some of the Gray material (1965b, 224, n.1; 228, n.2, 229).

*1937, 1938, 1939.* Excavations by Alexander Keiller in the NW sector (1937), SW sector (1938) and SE sector (1939). The work was mainly directed at identifying, excavating and restoring the megalithic components of the monument. In the NW and SW sectors the excavations were largely confined to the Outer Circle, while in the SE sector an area in the interior was excavated, including part of the interior of the Southern Inner Circle. A partial section into the bank was undertaken in 1938. Keiller published an interim report on the 1937 and 1938 seasons (Keiller 1939), but the excavations were not fully published until 1965 (Smith 1965b).

*1960.* Excavations by Stuart Piggott to confirm or refute the existence of a third circle, north of the Northern Inner Circle, and to locate a stone near the northern entrance causeway shown by Stukeley. In

neither case did he find evidence for the existence of former stone settings (Piggott 1964).

*Post-1960 minor episodes.* Since 1960 there have been many minor episodes of archaeological recording, mainly associated with services and maintenance. These have been recorded by staff of the Alexander Keiller Museum (mainly Mrs Vatcher in the 1960s and 1970s; Mike Pitts in the late 1970s and early 1980s), by archaeological contractors and by National Trust archaeologists. Some of these have been reported only in interim, but most of the archives are available in the Alexander Keiller Museum. Excavation preceding work on the north wing of the Great Barn in 1982 was published in full (Evans *et al.* 1985). National Trust work is recorded by Intervention No.; summaries are sent to the Wiltshire SMR, and full reports and the archive are available at the Alexander Keiller Museum. Work on the backlog of unreported sites from the 1960s onwards is being undertaken by the National Trust at the Alexander Keiller Museum.

*1969 Avebury School Site.* Unpublished excavation by Mrs Vatcher on the site of the new building for the Avebury Church of England primary school. The area was largely occupied by medieval features, but a small area of remnant bank (surviving to a height of *c.* 2.0 m) was included in the excavation. Soil profile and molluscs for the remnant bank were published by Evans (1972, 268–74). Finds and the paper archive are in the Alexander Keiller Museum. A reinterpretation of the buried soils and bank sequence has been published (Pitts and Whittle 1992, 206; and more fully described in Pitts 2000).

*2001 and 2002.* Work by Oxford Archaeology at the United Reformed Church in advance of the construction of an extension and services revealed a large pit that is probably a stone-hole or stone burial pit of the Southern Inner Circle (Anon. 2003, 229–30).

*2003.* Excavations were undertaken by the Longstones Project team for the National Trust and English Heritage at the Cove, in advance of the stabilisation of the two remaining stones. The western stone was found to sit in a substantial stone-hole, and was estimated at the time of the work to weigh in the order of 100 tonnes, making it the largest known megalith in the region (Gillings *et al.* 2008, 166).

**The West Kennet and Beckhampton Avenues**

Structural relationships place the construction of the Beckhampton and West Kennet Avenues, running from the western and southern entrances of the henge, to *c.* 2600–2000 cal BC, with a range in the third quarter of the 3rd millennium cal BC being favoured (Gillings *et al.* 2008). They are, therefore, an addition to, rather than a primary feature of, the Avebury henge. Both are similar in format, comprising for most of their lengths paired settings of sarsen stones. The apparent purpose of the avenues was to physically connect (or to monumentalise existing pathway connections between) the henge and two other monumental constructions: the Longstones enclosure at Beckhampton and the Sanctuary on Overton Hill. Along their lengths they take in locations that had earlier witnessed occupation, such as the midden spread at the base of Waden Hill (Smith 1965b).

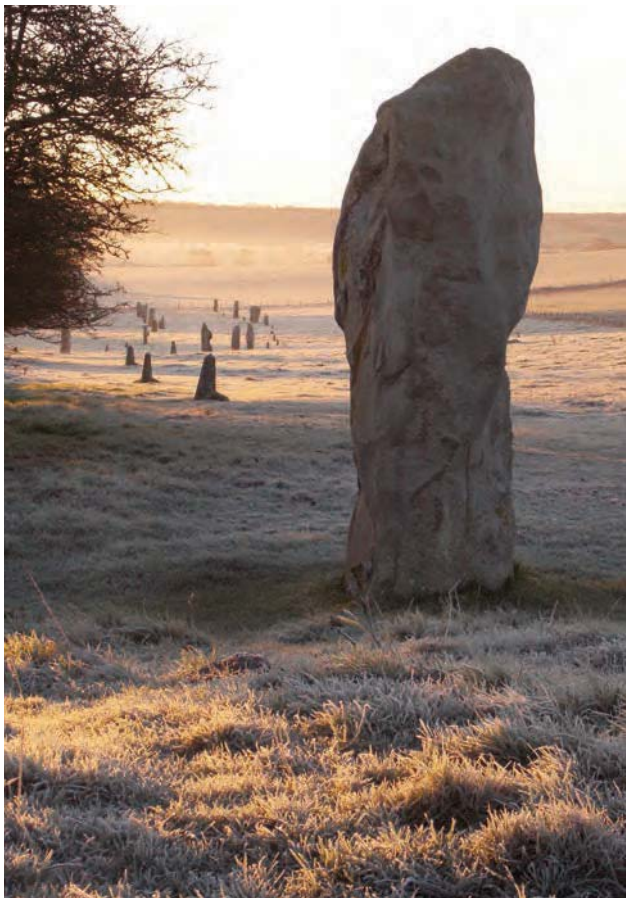


*Plate 27 The West Kennet Avenue (© Steve Marshall)*

*West Kennet Avenue*

The West Kennet Avenue (Pl. 27) links the henge to the Sanctuary, some 2.3 km to the south-east. For the purposes of this discussion, the avenue will be split into three areas:

Area 1: the northern part excavated by Keiller;
Area 2: the central area between areas 1 and 3; and
Area 3: the eastern part of the avenue from West Kennett to the Sanctuary.

*Area 1.* The northern third of the avenue was excavated and reconstructed by Keiller in 1934–5 and 1939; two stone-holes within this length had earlier been excavated by M. E. Cunnington in 1912. Keiller 'stone-hopped', and so large parts of the

interior of the Avenue in this area have not been investigated archaeologically.

*Area 3.* At the southern part of the avenue, where it straddles the A4 to the east of West Kennett House, five stone-holes have been excavated (see Smith 1965b, fig. 72) and four stones survive in the hedgerow bordering the A4. The very southern end of the avenue where it joins the Sanctuary was excavated by Cunnington in 1930. The far eastern part of the Avenue as it approaches/leads from the Sanctuary was fieldwalked in 1991 by the National Trust.

*Area 2.* The rest of the avenue between areas 1 and 3 has only been partially investigated. The area from just to the south of the Middle/Late Neolithic 'Occupation Site' excavated by Keiller to a farm track north of the A4 was investigated by geophysical survey (published in Ucko *et al.* 1991). The part of the West Kennet Avenue south of Keiller's excavated area and west of the lane from the A4 to Avebury (which includes the area geophysically surveyed) was intensively fieldwalked in 1995. A Ground Penetrating Radar survey has been carried out on the avenue south of the length excavated by Keiller. This has successfully identified a number of buried stones (Shell and Pierce 1999). Two stones survive in this area, and the position of a third was located to the north of the A4 by the Ordnance Survey in 1883 (see David, above).

A short section of the avenue north of New Cottages was examined through excavation in 2002–3 (Gillings *et al.* 2008, 133–7). No trace of stone-holes was found, although a sarsen thought to have been part of the avenue and buried in 1921–2 to afford it protection was located. Here the structure of the avenue appears to deviate from its normal pattern of paired stones, perhaps becoming discontinuous or being reduced to a single line of more widely spaced megaliths. It may be significant that this is the section of avenue closest to the West Kennet palisade enclosures.

*Beckhampton Avenue*

The existence or non-existence of an avenue of standing stones running towards Beckhampton and connected in some fashion with the two standing Longstones was a matter of debate from the early 18th century when its presence was postulated by Stukeley until 1999 when its existence, at least in Longstones Field, was demonstrated (Gillings *et al.* 2008). Ucko *et al.* (1991, 195) note that from 1719 to 1723 Stukeley did not recognise any entrance to the henge as original other than the southern one, so that the question of an avenue to the west did not arise. None of the previous observations by other writers had noticed such a setting of stones.

In *Abury*, Stukeley describes the course of the Avenue in some detail (1743, 34–7; tab VIII), charting its course from the western entrance to the henge, along the village street, across the Winterbourne, out past South Street to the Longstones where one of the stones formed the back of a Cove, down to Beckhampton and beyond, finally terminating below Cherhill and Oldbury Downs. The descriptions seem fairly confident at the village end, becoming vaguer as the avenue passes westward, until the final western stretch beyond the Longstones was clearly no more than wishful thinking given spurious support by the occurrence here of natural sarsens (Gillings *et al.* 2008, 109–19). The avenue appears to describe a gentle arc running from the western entrance of the henge to the Longstones near Beckhampton, traversing a distance of 1.3 km and crossing the Winterbourne stream.

As with the West Kennet Avenue, discussion of the course of the Beckhampton Avenue is best approached through its division into three areas:

Area 1: the eastern part as it approaches the henge;
Area 2: the central area between areas 1 and 3; and
Area 3: the western length of the avenue in Longstones Field, up to its termination at the Longstones Cove.

*Area 1.* The course and format of the avenue along the 270 m length of the High Street – of paired stones, perhaps reducing in longitudinal and transverse interval as it approaches the western entrance of the henge – has been reconstructed through synthesis of antiquarian and more recent observation (Gillings *et al.* 2008, 117–18). A number of toppled stones may still lie buried.

*Area 2.* Little is known of the course or morphology of the avenue in its length from the western end of the High Street to the eastern edge of Longstones Field, in part due to the presence of farm buildings within this area. Geophysical survey by Jim Gunter and Vaughan Roberts within Manor Farm Paddock did identify a series of anomalies that could well relate to the avenue, but which might suggest a more complex arrangement of stones than the typical paired settings (Gillings *et al.* 2008, 115).

*Area 3.* Subjected to geophysical survey by English Heritage in 1989, 1999 and 2000, and by the Longstones Project in 2003, selected sections of the avenue were excavated in 1999, 2000 and 2003 (Gillings *et al.* 2008, 62–108). This work showed the avenue to terminate just to the south-west of the former footprint of the Longstones enclosure; its first phase comprising a T-shaped setting of stones, subsequently modified to create the Longstones Cove. Large quantities of worked flint were found in association with the terminal settings (Gillings *et al.* 2008).

The larger stone of the Longstones Cove (Adam) fell in December 1911 and was re-erected by Mrs

*Plate 28 The Sanctuary, on Overton Hill (© Erica Gittins)*

Cunnington in 1912 (Cunnington 1913) (the stone was not re-erected in quite the same attitude as before its fall). During the excavation of the stone-hole and the area around it a disturbed burial was found, associated with sherds of a Northern/Middle Rhine Beaker.

**The Sanctuary**

By contrast with the valley floor setting of many of the Late Neolithic monuments, the multiple timber and stone circles of the Sanctuary (Pl. 28) occupy an unusual location on the end of Overton Hill (albeit one with vistas over the river and West Kennet palisade enclosures). This was a locale with a long prior history of activity, judging by the residual sherds of Early Neolithic bowl pottery and Peterborough Ware discovered during the original excavations (Cunnington 1931). Perhaps, as with the Avebury henge, it was the deep historical significance of this place that made it an appropriate location to construct a key monument. On the basis of analogy with other Late Neolithic multiple timber circles, associated artefactual evidence (Grooved Ware and chisel arrowheads) and structural relationships, the timber settings of the Sanctuary can be placed in the middle of the 3rd millennium cal BC (Pollard 1992).

Excavated by M. E. Cunnington in 1930, the Sanctuary was initially interpreted as an unroofed timber structure that was later replaced by a stone structure. The surviving stones were destroyed in 1724. The site was not totally excavated: large areas between the outer stone circle and the outer posthole circle were left unexcavated, as was the vast majority of the area immediately outside the structure (Cunnington 1931, pl.1). Various re-interpretations of the site have been proposed. R. H. Cunnington (see M. E. Cunnington 1931) attempted to place all the postholes as components of a single roofed building. Piggott (1940) regarded the site as a succession of progressively larger roofed timber buildings, the last with a stone circle incorporated in the structure alongside wooden posts. He considered that the outer stone ring was added as a fourth phase. Pollard (1992) rejected the more complicated phasing for a single or at most double phased (one timber and one stone) monument. The majority of the finds from The Sanctuary are in Wiltshire Museum; the animal bone is in the Natural History Museum. In 1999 a limited area, within the area excavated by Mrs Cunnington, was reopened by Mike Pitts. His work showed evidence of multiple and probably rapid episodes of post replacement in some instances, which would be incompatible with interpretations of the timber settings as a roofed structure (Pitts 2001). The process of post replacement could be linked to short 'ritual cycles' of construction and dismantling. With deposits of Grooved Ware, animal bone and lithics associated with its timber phase, activities at the Sanctuary were broadly analogous to those undertaken at the settings inside the West Kennet palisade enclosures. The conversion to a stone monument probably occurred in the third quarter of the 3rd millennium cal BC, when the monument was connected to the Avebury henge via the south-east terminal of the West Kennet Avenue.

Close to the Sanctuary human bones were discovered in the 17th century by a Dr Toope of Marlborough, who corresponded with John Aubrey (letter of 1 December 1685; quoted in Long 1857, 327). Dr Toope reported having encountered workmen who had been making new boundaries to enclose land for grass, who had found bones. Dr Toope returned and collected 'bushells' for making into medicine. The burials were shallow, only a foot or so beneath the topsoil, and Toope reported their feet as lying towards the 'temple' (the Sanctuary). 'I really believe' he wrote, 'the whole plaine, on that even ground, is full of dead bodies'. The impression given, although the point is not made specifically by Toope, is that the burials were extended rather than crouched, and therefore perhaps less likely to be Neolithic or Bronze Age than later. If the burials were on the level ground to the north they must have lain very close to the Roman road and might therefore be Roman. There are both Roman and (early) Saxon burials within the Overton Hill barrow cemetery, on the edge of which the Sanctuary is situated.

**Longstones Enclosure**

First recognised as a cropmark on an aerial photograph taken by English Heritage in 1997, the Longstones enclosure is traversed by the later line of the Beckhampton Avenue. The enclosure was excavated by the Longstones Project in 1999 and 2000 (Gillings *et al.* 2008, 9–52). It comprises a flattened oval circuit defined by a shallow ditch, 140 x 110 m across, with a 45 m-wide entrance gap on its eastern side. A small quantity of worked flint, animal bone and Grooved Ware was recovered from the base and lower fills of the ditch. Radiocarbon dates place its construction most likely in the range 2660–2460 cal BC (see Healy, above). The ditch was backfilled apparently prior to the construction of the avenue. The enclosure's morphology is unusual, sharing more similarities with earlier Neolithic formats than contemporary henge monuments.

**Smaller stone circles**

*Falkner's Circle*

This circle, *c.* 250 m east of the West Kennet Avenue, was observed by a Mr. Falkner in 1840, who saw one standing stone, two recumbent stones and nine 'hollow places' where stones had stood. The circle was recorded as *c.* 36 m in diameter (Long 1857). Only the standing stone now remains. Excavations in 2002 identified stone-holes and stone destruction pits relating to some of the missing megaliths. The work also demonstrated that Falkner's Circle was, like the circles inside the henge, a megalithic construction from the outset (Gillings *et al.* 2008). Associated with a small amount of Grooved Ware and later Neolithic worked flint, its chronology is only loosely defined.

Set in the dry valley to the south of Avebury, and 'ignored' by the course of the West Kennet Avenue, the location of this monument is an interesting one. It lies at the southern end of an extensive former spread of sarsen stone, seemingly at the point where the large 'grey wethers' – similar to those employed in the Avebury settings – diminished in number and smaller blocks of reddish-brown sarsen became more prevalent.

*Other claimed stone circles*

Other small stone circles are noted in the antiquarian literature and lie outside the area of the WHS. That at Winterbourne Bassett, 5 km to the north of Avebury, was first recorded by Stukeley, who described a monument comprising two concentric rings of stone with a single stone located to the west. Its true location (not that traditionally ascribed: Smith 1885, 76–8) was re-established through surface survey and excavation by Jim Gunter in 2004.

The Broadstones or Clatford circle was first recorded by Aubrey as comprising eight recumbent stones 'In a Lane from Kynet towards Marlborough' (Aubrey 1980; Meyrick 1955; Burl 1976). Stukeley added the observation that four other stones may have formed the beginning of an avenue running out from the circle, but also entertained the possibility that the sarsens, apparently roughly shaped, were destined for Stonehenge. Its former position has been hypothesised (in 2011) as lying immediately west of Barrow Farm, just north of the A4, in close proximity to the Manton Barrow (Preshute G1: Cunnington 1907). The possibility that the stones represented megaliths in transit to Stonehenge rather than a dilapidated stone circle is currently being investigated by the 'Stones of Stonehenge Project' (M. Parker Pearson pers. comm.).

The claimed stone circle at Langdean (Passmore 1923) could be a barrow kerb (Barnatt 1989, 505: see Mortimer 1997 for further review); while that recorded by Stukeley south of Silbury near Beckhampton Penning (1743, 46) and later investigated by Smith (1878; 1881) may be the site of an enclosure or denuded long barrow (Barnatt 1989, 505; Barker 1985, 24; Mortimer 1998).

**West Kennet palisade enclosures**

Two substantial Late Neolithic palisade enclosures and associated features are situated in the valley of the Kennet to the east of Silbury Hill. Their presence was first determined by an aerial photograph taken in 1950 and observations made during pipe-laying work in the early 1970s. Excavations directed by Alasdair Whittle in 1987, 1989, 1990 and 1992 elucidated their form, demonstrated their date, identified a range of structural components, and produced large assemblages of Grooved Ware, animal bone and

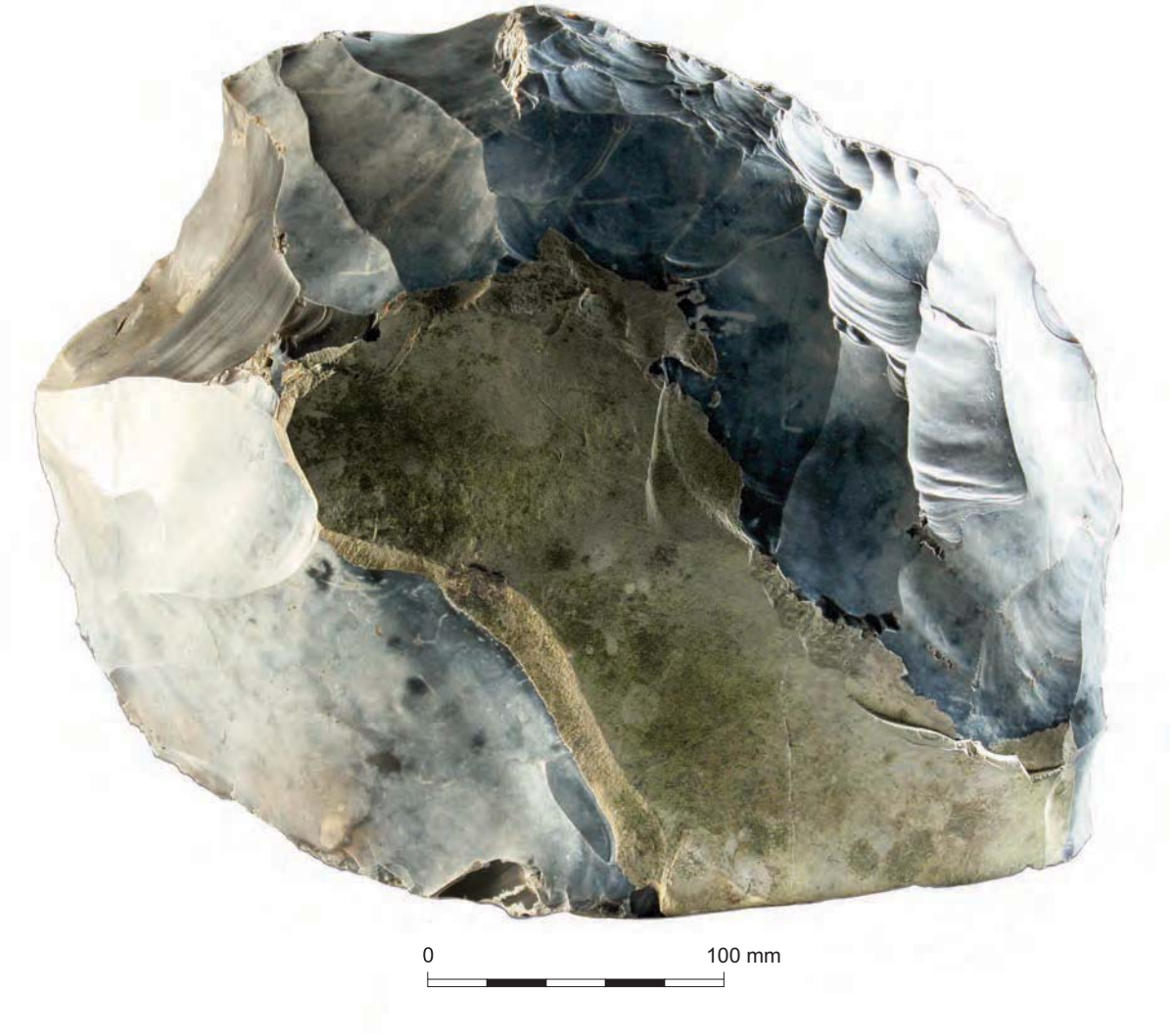



*Plate 29 Late Neolithic core from near the West Kennet palisade enclosures (© Wessex Archaeology)*

worked flint (Whittle 1997a). The eastern of the two enclosures (Enclosure 1) comprises two concentric circuits of palisade, enclosing approximately 4.2 ha and straddling the River Kennet. The single circuit of Enclosure 2 is located just to the south of the river and immediately west of Enclosure 1. It defines an area of approximately 5.5 ha within the eastern third of which are at least three ditched and timber circles. A large area within the western portion of the enclosure looks, on current evidence, to be empty of structures. Radial palisade lines run from Enclosure 2 to the south, connecting with further circular/sub-circular enclosures.

The scale of these constructions is evident from Whittle's estimate that 40,000 $m^3$ of mature timber were required for their construction (Whittle 1997a, 154), much perhaps brought from secondary oak woodland on adjacent downland. Lengths of palisade line may have been subject to intentional burning. While defence may have been a feature, the large quantities of Grooved Ware and the pig-dominated faunal assemblage show a major role for these enclosures as the location for gathering and feasting. Their precise chronology and sequence of construction remains to be established, but a cautious reading of available radiocarbon dates suggests a range of 2340–2130 cal BC (see Healy, above), and so broadly contemporary with the construction of Silbury Hill and perhaps the West Kennet and Beckhampton Avenues.

Subsequent transcription of aerial photographs has shown the complex of palisades to be more extensive than initially thought; extending to the south along the bottom of the dry valley perpendicular to the Kennet (Barber 2013; Crutchley 2005). This work has also identified a second small timber circle within the palisade circuits of Enclosure 1. Surface collection by Wessex Archaeology over part of Enclosure 2 and to the south identified localised, low-density concentrations of worked and burnt flint, along with a massive Late Neolithic core (Pl. 29) (P. Harding pers. comm.).

*Plate 30 Silbury Hill (© Steve Marshall)*

**Silbury Hill**

The West Kennet palisade enclosures lie within the shadow of the monumental mound of Silbury Hill (Pl. 30), the largest prehistoric artificial mound in Europe. Silbury Hill has long attracted speculation about its age and function. Several episodes of intrusive investigation have taken place on and around the hill since Edward Drax first sank a central shaft from the top of the mound down to ground level in 1776. In 1849 a horizontal tunnel terminated in galleries excavated in search of a central burial, as in 1922 when exploratory trenches were dug opposite the eastern causeway. In 1867 excavations proved that the Roman road (the present-day A4) swerved around the base of the hill, and therefore post-dated it. In 1886 the ditch around the hill was explored by sinking 10 shafts into it (Whittle 1997a, 10). Three seasons of excavations were carried out by Professor R. J. C. Atkinson in 1968–70. Atkinson identified three phases of construction of the hill, and important environmental information was recovered (Atkinson 1967; 1970). These excavations were fully published by Whittle (1997a).

A programme of re-dating suggested that the primary mound of Silbury was constructed in the third quarter of the 3rd millennium cal BC (the 24th or 23rd centuries), with completion either relatively swift or taking until the end of that millennium (Bayliss *et al.* 2007b). Further dates on material from a recent programme of excavation and recording, undertaken in advance of consolidation work (Leary and Field 2010), have produced a revised model which suggests a start at 2490–2450 cal BC, and a time span of 50–150 years for construction (Leary *et al.* 2013b). That work also highlighted the complexity of the constructional sequence, beginning with a succession of small gravel and organic mounds, the space they occupied then perhaps defined by a large ditched enclosure, in turn covered by several phases of chalk mound resulting in the structure seen today (Leary *et al.* 2013b). The significance of Silbury may lie in its marking the source of the Kennet. Not only is the mound sited on a low chalk spur jutting into the valley floor close to the Swallowhead springs, but river clay and gravel were used in quantity in the initial mound phases.

**Other Kennet Valley monuments**

Downstream from Silbury Hill and the West Kennet palisade enclosures, in the zone between the eastern boundary of the WHS and Marlborough, are further monuments of known or suspected Neolithic date. Moving from west to east, the round barrow West Overton G19 began as a simple ring-ditch constructed in the early part of the 3rd millennium cal BC (Anon. 1988; see Healy, above). The Broadstones or Clatford circle has been described above. Geophysical survey by the Stones of Stonehenge Project in 2011 revealed a possible small henge monument adjacent to the Manton

(Preshute G1a) barrow. A recent programme of coring at the Marlborough Mound – long suspected to be a potential Late Neolithic monumental mound analogous to Silbury Hill – has shown it to have been constructed in a series of stages within the second half of the 3rd millennium cal BC (Leary 2011).

**Early Bronze Age Barrow cemeteries and other burials**

The Avebury henge, avenues and the Sanctuary continued to attract attention into the Early Bronze Age (latest 3rd–early 2nd millennia cal BC), as evidenced by deposits of pottery and other materials, and burials of single individuals against standing stones (eg, stones 22b, 25a, 25b and 29a of the West Kennet Avenue: Smith 1965b, 229–30). However, during the course of the Early Bronze Age emphasis gradually shifted away from the Late Neolithic complex. The distribution of Beaker pottery and associated flintwork and burials in the region is much more extensive than that of later Neolithic activity (Zienkiewicz and Hamilton 1999, 307), and highlights a 're-colonization' of the high down around the head of the Kennet Valley. Evidence of cultivation also increases (Pollard and Reynolds 2002, 136–7).

The most visible statement of change comes in the form of extensive round barrow cemeteries, established during the course of the Early Bronze Age. There are over 300 known round barrows within the region, around half of which lie within the WHS. Barrow cemeteries, ploughed and extant, occur on Overton Hill/Down (West and Severn Barrows), Waden Hill North, Windmill Hill, Folly Hill, Fox Covert, Beckhampton Penning and west of North Farm, West Overton (Soffe 1993; Cleal 2005). Their distribution shows a loose clustering around the henge and the Sanctuary (*ibid.*, 121). A number of those on Windmill Hill and Overton and Avebury Downs were the focus of recorded antiquarian investigation by Merewether (1851) and Thurnam (1860; 1871). Grinsell (1957) remains a useful and accessible summary of barrow investigations prior to the mid-1950s; while Cleal (2005) provides a full and detailed review of the evidence, and considers the siting of barrow cemeteries in relation to existing monuments and topographic features.

None of the primary grave assemblages encountered (both inhumation and cremation being recorded rites) are particularly rich, or particularly early (Cleal 2005). Few of the round barrows within the region have been the subject of extensive modern excavation. Within the area, full investigation of West Overton G6b during the 1960s revealed a primary inhumation with Beaker and 'leather working' kit, and a series of secondary/satellite inhumation and cremation burials (Smith and Simpson 1966). The barrow itself was unusual in comprising a low, unditched mound encasing an annular flint and stone bank. Limited excavation in advance of pipeline renewal of the 'Stukeley' barrow on the southern slope of Waden Hill did not reveal any funerary deposits (Powell *et al.* 1996).

*Plate 31 Bronze chisel or axe found with a primary crouched inhumation in Bowl Barrow West Overton G1 (© Wiltshire Museum)*

A radiocarbon date of 2020–1770 cal BC (at 95% probability) has recently been obtained for the primary burial under West Overton G1, just to the east of the Sanctuary. Accompanied by a bronze flat axe head, crutch-headed pin and tanged knife, this is the first burial of the Wessex 1 series to be scientifically dated (Needham *et al.* 2010a).

As Beaker-associated burials against standing stones indicate, not all graves of this period were marked by barrow mounds. Flat grave cemeteries are recorded on Overton Hill (Fowler 2000a, 82–6), where three inhumations were encountered during the excavation of an Iron Age settlement, and immediately north of Windmill Hill in Winterbourne Monkton parish (Grinsell 1957, 126). Over 30 burials were discovered here at various times during the 19th century. Nearly all were in circular pits or graves covered with large sarsen slabs, one also being paved with stones. The burials included infants and adults, both male and female, generally without grave goods. The chronological span of these remains to be established, although some are certainly Neolithic (see Healy, above). One was associated with two Beakers, a greenstone pebble, a flint knife, jet buttons and a ring (Smith 1885, 85–6; Annable and Simpson 1964, 39). Single and apparently isolated sarsen-capped Beaker burials are known from the area of Beckhampton (Young 1950; Grinsell 1957, 34).

### *Archaeoastronomical Interests in Avebury and its Landscape*

*by Clive Ruggles*

Unlike the situation at Stonehenge, Avebury together with its landscape and associated monuments has generated relatively little archaeoastronomical speculation and yielded virtually nothing in the way of convincing evidence. In large part this is due to the lack of evident structures with clearly defined axes, combined with the fact that where these do occur, the direction concerned is of no obvious significance in relation to celestial bodies or phenomena. Arguably, the strongest evidence of an astronomical connection within the Avebury landscape actually concerns the earlier Neolithic.

Looking outwards from the central area within Avebury henge itself, the directions of the four entrances, significantly skewed from the cardinal directions, have no demonstrable astronomical connection. Burl (1979, 158) pointed out that the Cove is roughly aligned upon the most northerly rising position of the moon, but the few other known examples of coves are widely spread in orientation and the lunar association is tentative at best (Ruggles 1999, 133). North (2006, 274–6) identified a number of putative solar and lunar alignments as a result of a geometrical exercise, involving tangents to the interior circles, but this analysis raises many concerns, all too familiar to archaeoastronomers, regarding context-insensitive approaches in general and data selection criteria in particular. A number of putative stellar alignments have been proposed (see Burl 1979, 215–6) but in the absence of corroborating evidence of the sort proposed in the case of the Thornborough henges (Harding *et al.* 2006), these are unsustainable in view of the large number of candidate stars and their changing positions over the centuries owing to precession (Ruggles 1999, 52).

Despite the evident importance of orchestrated or formalised patterns of movement in the landscape around Avebury in the Late Neolithic (eg, Thomas 1993, 29–43; Watson 2001), there is no convincing reason to connect any of the principal directions of movement with astronomical objects or phenomena, despite some notable correlates with natural and constructed features in the visual landscape. It has long been proposed that Silbury Hill was used as a sky-viewing platform, but its low-lying situation and the lack of any convincing alignment evidence argue strongly against this (Burl 1979, 131–2).

West Kennet long barrow faces almost exactly due east (Piggott 1962, fig. 4) and Atkinson (1982, 115) identified it as arguably equinoctial. However, a comparative analysis places it within a broad pattern of NE–SSE orientation among the Early Neolithic long barrows in North Wiltshire and the Berkshire Downs as a whole (Ashbee 1984, fig. 20) extending to NE–S if we include the Salisbury Plain area (Burl 1987, 26–8; Ruggles 1997, 212). This conforms to Hoskin's 'sun-rising sun-climbing' orientation signature, common among later prehistoric tombs throughout western Europe (Hoskin 2001, 19–20). Thus while the orientation of West Kennet itself should probably not be interpreted as specifically equinoctial, it can be viewed in the context of a probable broader custom of sun-related tomb orientation in the surrounding area as far back as the earlier Neolithic.

## Middle and Late Bronze Age

*by David Mullin*

In comparison with the wealth of evidence for the preceding part of the Bronze Age and the more obvious Iron Age monuments such as hillforts, the later Bronze Age of the Avebury region appears to be poorly represented and even less well understood (Fig. 13). Indeed, the later Bronze Age of the region has recently been described as 'Avebury's Dark Age' (Gillings and Pollard 2004, 85).

This may not be entirely surprising, as the evidence for Middle Bronze Age activity in the region is sparse, Barber (2005, 139) listing only 21 metalwork finds for the Marlborough Downs area, the majority of which are without firm provenance or context. In contrast, Barber (*ibid.*, 143–4) points out the increasing importance of this period at a national level, in particular the identification of landscapes of fields and houses originating in the 2nd millennium cal BC. Avebury is located close to a major Middle Bronze Age domestic landscape, which has largely survived undamaged into the late 20th century due to a lack of deep ploughing. Occupation evidence was recovered from Preshute Down (Piggott 1942), where a D-shaped enclosure associated with Deverel Rimbury ceramics pre-dated an adjacent field system, whilst a series of sites excavated by Chris Gingell in the 1980s also produced evidence for both enclosed and unenclosed settlements (Gingell 1992). At Dean Bottom and Rockley Down, at least five house platforms which had been terraced into the hillside were enclosed by incomplete earthworks and associated with blocks of fields, whilst the settlement site at Bishops Cannings Down appears to have been open, but again set within fields. Despite the excavation of several settlement sites, and the large-scale mapping of field systems from aerial photographs, the relationships (both spatial and chronological) between field systems and settlements remains poorly understood, as does the nature of the activities which went on inside them and the organisation of the society which produced them.

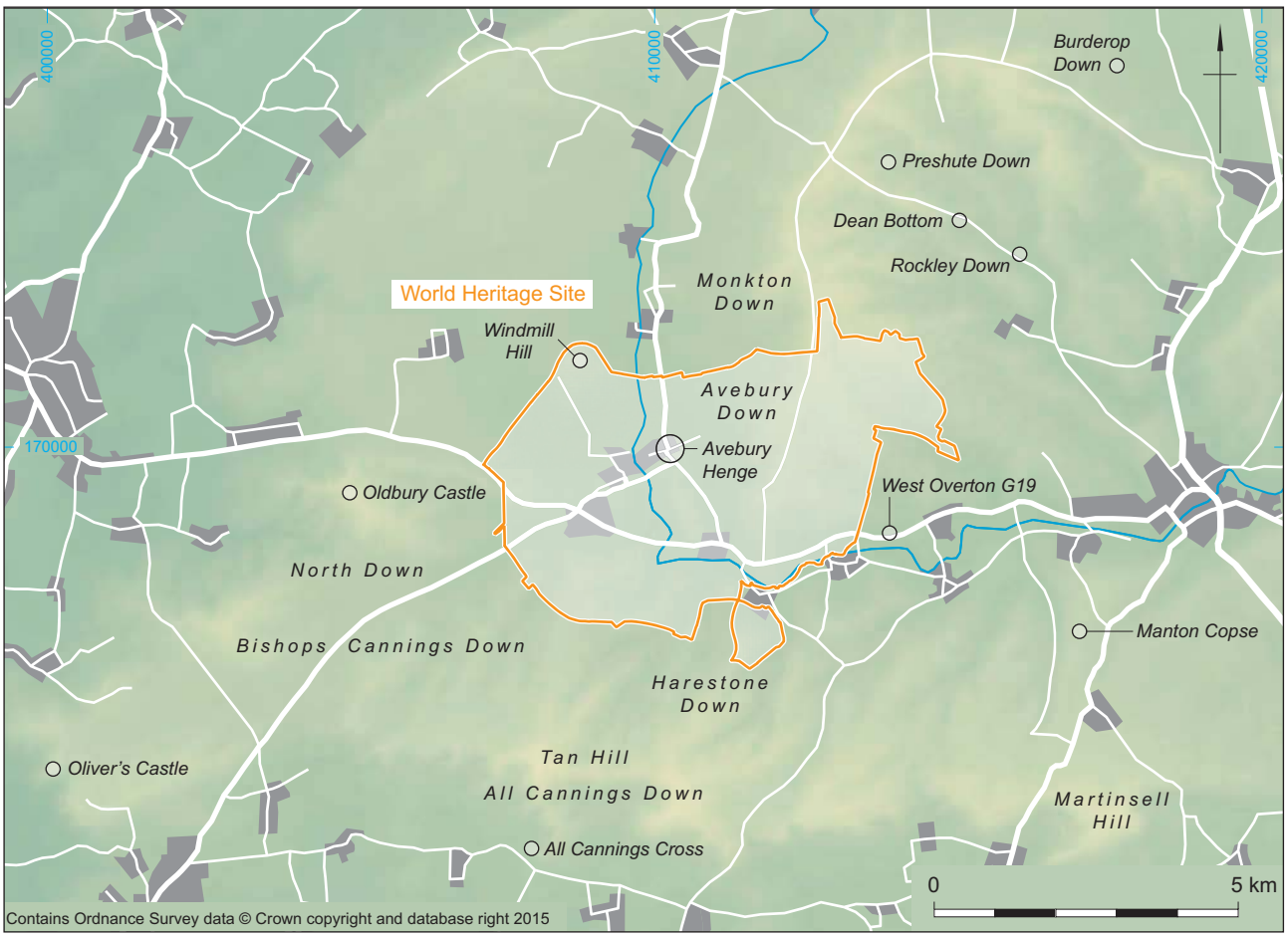



*Figure 13 Middle and Late Bronze Age: places mentioned in the text*

Whilst it is clear from these sites that there is a shift away from the construction of visible monuments to the dead during the Early Bronze Age towards the organisation of the agricultural landscape during the Middle Bronze Age, this may not have been entirely separated from earlier landscapes. In some cases field boundaries deliberately encompass round barrows, which may have had continuing significance. In addition to the (currently unpublished) Middle Bronze Age cremation cemetery associated with the bowl barrow West Overton G19, at least 10 round barrows have produced Middle and Late Bronze Age pottery. These include four on Monkton Down (PRN 7446, 7574, 7578, 7575), two on Avebury Down (PRN 7445, 7571), as well as examples on All Cannings Down (PRN 3592), Harestone Down (PRN 6744), North Down (PRN 3686) and Tan Hill (PRN 4032). The majority of these finds were recovered from surface collection by Owen Meyrick and they may represent ongoing engagement with barrows within the landscape. This is at odds with the apparent dearth of evidence for later Bronze Age activity within the Avebury monument complex itself, although it is not clear if this is simply due to a lack of evidence or a genuine avoidance of the monument during this period. Gillings and Pollard (2004, 86) have suggested that the lack of evidence of later Bronze Age activity from the stone circles and henge may indicate that they were a 'taboo' space, possibly associated with dangerous spirits, and point out that other henges, such as Durrington Walls and Mount Pleasant, were treated differently. There are, however, parallels with Stonehenge which, like Avebury sits within a landscape of later Bronze Age fields and farms. As at Avebury, these features barely enter the visual envelope of Stonehenge, which, for all intents and purposes, is abandoned.

The Late Bronze Age evidence from the Avebury region is slightly more abundant, with Barber (2005, 139), listing a total of 25 metalwork finds from the Marlborough Downs. Again, however, these nearly all lack clear provenance. Barber (*ibid.*, 144) does point out the difference in types of metalwork being deposited, with the Middle Bronze Age material being almost equally split between spearheads and axeheads, whereas the Late Bronze Age material is dominated by axeheads, which also dominate the few recorded hoards. This is certainly true of the recently published hoard recovered from south-west of

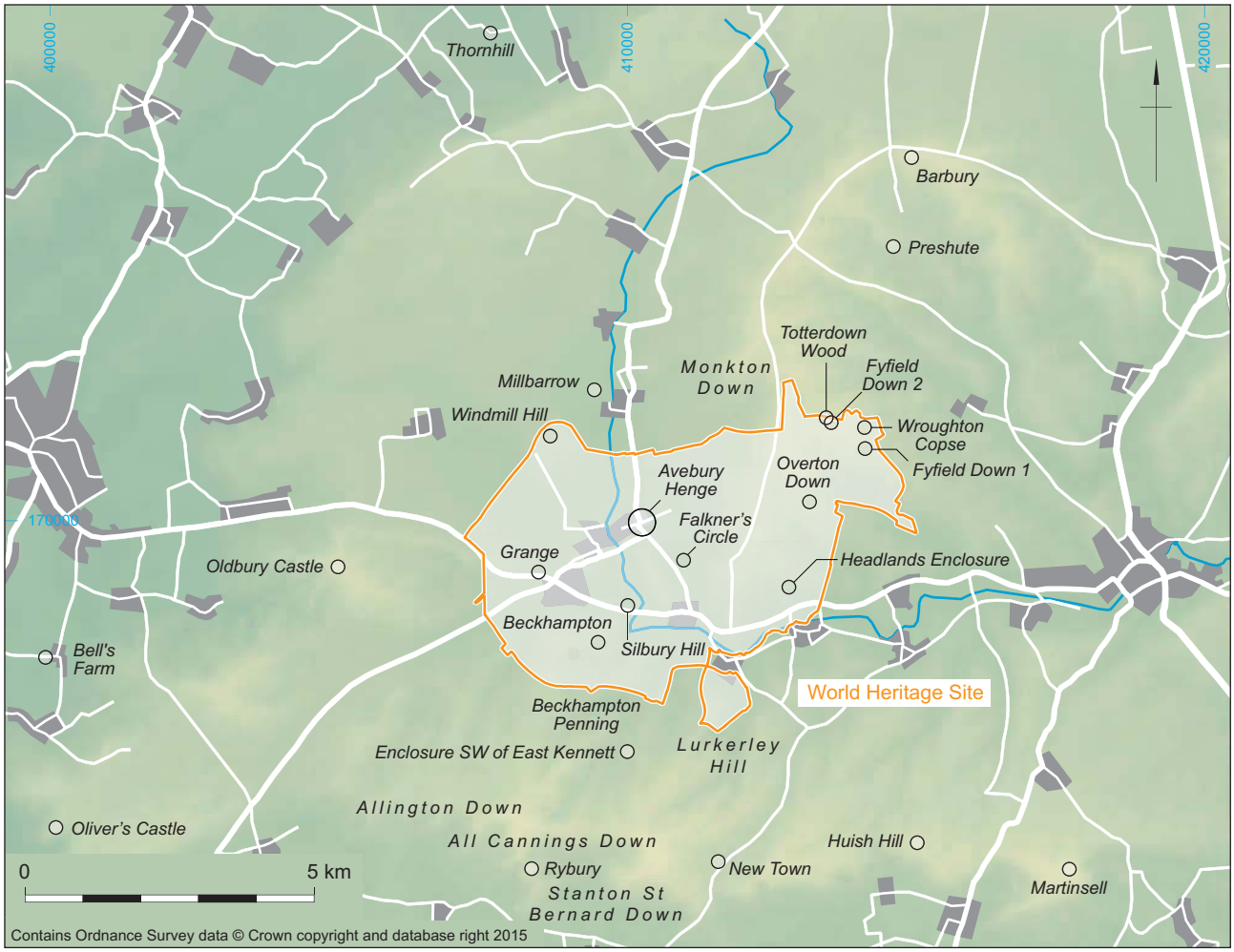



*Figure 14 Iron Age: places mentioned in the text*

Marlborough at Manton Copse, Preshute (Lawson *et al.* 2011), where a total of 17 axeheads was recovered from excavation subsequent to metal detecting in 1999. A further 10 axeheads are known from nearby, although it is impossible to be certain if the deposition of these objects, which are chronologically identical, is related. The excavators also, again, note the absence of swords and spearheads from the Manton Copse hoard, suggesting that the different forms were treated differently.

There is evidence for Late Bronze Age metalworking from Bishops Cannings Down and Burderop Down (Gingell 1992, 105–11) and querns may also have been manufactured at Dean Bottom (Gingell 1992, 30).

Settlement sites continue to be constructed during the Late Bronze Age, with McOmish (2005, 134) suggesting that there may have been a shift towards the enclosure of settlement sites during the later Bronze Age and this appears to have occurred at Rockley Down. Whilst Middle Bronze Age Deverel Rimbury ceramics were recovered from the site (Gingell 1992), the majority of the pottery was of Post Deverel Rimbury style, suggesting continuing occupation into the Late Bronze Age. Possibly Late Bronze Age pottery was recovered from pits in Area D, North Field, Windmill Hill during excavations in 1993 (PRN 18720) and pottery of a similar date was recovered from a rectangular enclosure on Harestone Down (PRN 6635). Whilst evidence for a possible Late Bronze Age phase has been found outside the area considered here, at Liddington, there is no evidence for earlier phases to any of the Iron Age hillforts in the Avebury area. Late Bronze Age metalwork has, however, been recovered from Oliver's Castle, Oldbury and Martinsell Hill (Barber 2005, 147), but this does not necessarily imply earlier construction phases. Indeed, Barber (2005) has pointed out the high number of bronze finds from Tan Hill (the highest point in the area), which is not occupied by an enclosure and suggests that there is a preference for deposition on prominent landscape features such as spurs and hilltops. A similar observation has been made by Field (2001, 61), who suggests that certain hilltops (including Tan Hill) may have been 'special places' where gatherings and assemblies took place.

## Iron Age

*by A.P. Fitzpatrick*

> *The Iron Age of the Avebury WHS is poorly understood.*
> (Chadburn and Corney 2001, 19)

The opening sentence of Amanda Chadburn and Mark Corney's assessment of the Iron Age in the WHS bears repeating. Today as then, few sites of the period have been the subject of investigation and research and it has been suggested that the Neolithic monuments that are at the heart of the WHS were deliberately avoided in the later Bronze Age and Iron Age.

But a lack of investigation and a limited understanding does not necessarily imply a lack of evidence for the periods and this is reviewed below according to site and find category (Fig. 14). It is based on the information held in the Wiltshire Historic Environment Record, the Portable Antiquities Scheme and Celtic Coin Index databases, Historic England's Pastscape website, and a literature review.

### *Settlements*

#### Enclosed settlements

Nine enclosed settlements identified by aerial photography in and close to the WHS have been suggested to be later prehistoric in date (Chadburn and Corney 2001, tab. 1). Two of these enclosures lie within the WHS and may be confidently dated to the Early Iron Age.

The only excavated settlement is at Overton Down where a small part of a large enclosure, which survives as an earthwork, was excavated in the 1960s revealing several roundhouses (Overton Down X/XI enclosure 7: Fig. 15). Although it is suggested that the occupation is dated to the Late Bronze Age and Earliest Iron Age, between the 9th–7th centuries cal BC (Fowler 2000a, 89–91; 2000b), the diagnostic pottery is Earliest–Early Iron Age, of 8th–6th centuries cal BC date, not Late Bronze Age; and the presence of two stratified La Tène I brooches indicates activity in the 5th century cal BC or later.

A little under 2 km to the south-west, at North Farm or 'Headlands', an enclosure with 'antennae' is known from aerial photography (Pl. 32) and a geophysical survey has confirmed the presence of a large number of pits. Early Iron Age pottery has been recovered from the surface of the site and its immediate vicinity (Fowler 2000a, 56, 224, pl. xi; Pollard and Reynolds 2002, 147, fig. 59; enclosure 6).

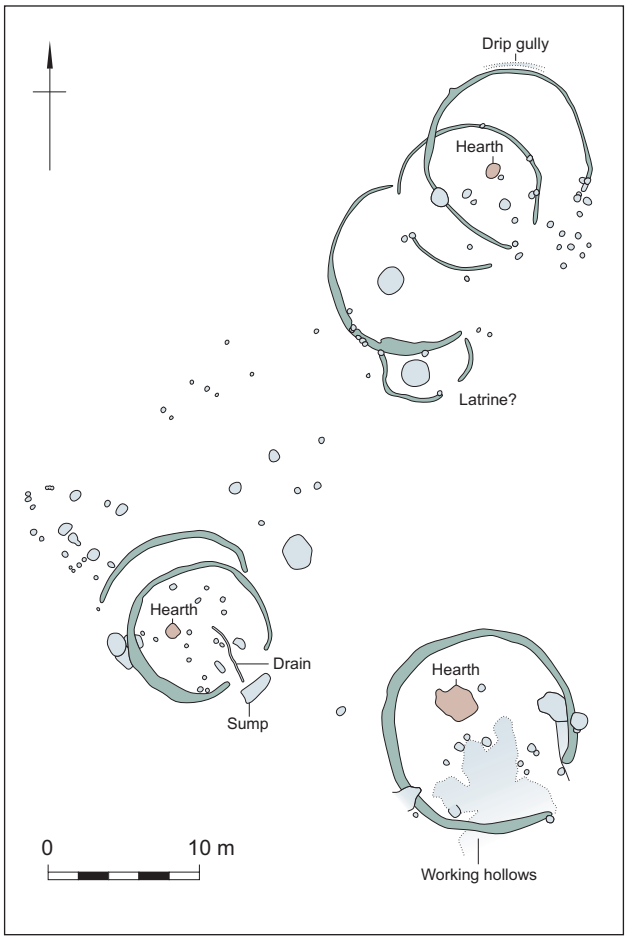



*Figure 15 The Iron Age settlement OD X/XI at Overton Down (Fowler 2000b)*

A third, undated enclosure identified by aerial photography is known to the south-west of East Kennett (SU 1066: enclosure 1). In addition Fowler suggests the presence of another enclosure by the south-west corner of Totterdown Wood (Fowler 1966, fig. 9; 2000a, 224, fig. 5.3) and, more tentatively, a possible one on Lurkeley Hill (2000a, 224)

To the south of the WHS a number of enclosures are represented by earthworks and cropmarks. Although suggested possibly to be of Iron Age date by Corney and Chadburn (2001, 21–2), the two enclosures at New Town and north-west of New Town are likely to be medieval and Late Bronze Age respectively and the date of the enclosure on Huish Hill is also uncertain (Bowden 2005, 158). One enclosure lies to the north of the WHS at Preshute Down. This site is associated with a field system of uncertain date but Iron Age pottery has been recovered from the enclosure. This may be the same site as one referred to, but not accurately located, by Colt Hoare and from which pottery and querns were recovered.

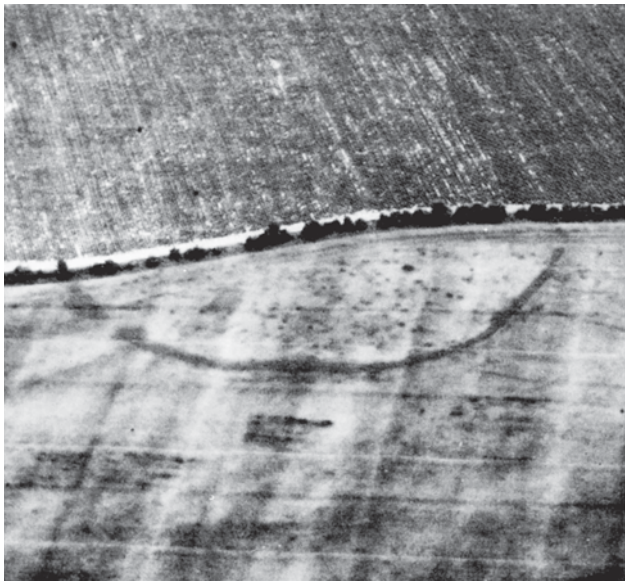


*Plate 32 The Iron Age settlement at 'Headlands'. Source: Cambridge University Committee for Air Photography (original held at the Cambridge University Collection of Aerial Photography)*

**Unenclosed settlements**

A number of finds of pits containing Iron Age pottery and other domestic debris suggest the presence of settlements that are not known to have been enclosed, though it should be remembered that it is quite common for Iron Age settlements to be successively enclosed and open and *vice versa* (McOmish 1989; 2001).

A working hollow containing both Early and Late Iron Age and Roman pottery was found west of Grange (Young 1959) and two pits which also contained Iron Age and Roman pottery as well as a bone object, a spindlewhorl and a loomweight and animal bone were found north-west of Beckhampton Penning (Cunnington 1887a). Two pits containing Iron Age pottery and domestic debris are known from Monkton Down immediately north of the WHS (Cunnington and Goddard 1934, 158; Grinsell 1957, 126).

Meyrick recorded a number of surface finds of Iron Age pottery immediately to the south of the WHS: at Stanton St Bernard Down (1947, 258, fig. ii), north east of Allington Down and All Cannings Down. The All Cannings Down finds are described as forming an extensive scatter of pottery and animal bone (Grinsell 1957, 24), though their dating, 'Iron Age C', means that a Romano-British date cannot be excluded. At Thornhill sherds from a field system might indicate the site of a settlement or the presence of one in the proximity (Grinsell 1957, 106, 275).

Bowden has noted (2005, 157) that there is some uncertainty about the identification and date of a group of open settlements near Wroughton Copse on Fyfield Down. In the case of the find near Wroughton Copse, two or three possible house platforms were noted within a field system as were a few sherds of pottery initially dated to the Iron Age (Bowen and Fowler 1962, 102). At Fyfield Down, however, Owen Meyrick recovered pottery of Early and Late Iron Age date and La Tène I and La Tène III type brooches. Pits were also observed in the course of army operations (Meyrick 1947, 258–60, fig. iv) and this suggests the presence of a long-lived settlement. It is possible that a second site at Fyfield indicated by Chadburn and Corney (2001, 22, tab. 2), who wrote before the final publication of the work on Fyfield and Overton Down in 2000, is the same site as the possible enclosed settlement at Totterdown Wood (see above).

Elsewhere, some finds are known from Windmill Hill where a few sherds and perhaps also some bone gouges are of Iron Age date (Smith 1965b, 170–1, fig. 63). It is not known if these finds are related to the later prehistoric or Romano-British field system that encroaches on the monument (Whittle *et al.* 1999, 16). Iron Age pottery was also found in the excavation of the Millbarrow long barrow to the north-west of the WHS (Whittle 1994, 40).

The evidence is scrappy but the pits at Fyfield Down, Grange, north-west of Beckhampton Penning and Monkton Down may all be accepted as indicating the sites of settlements. The surface finds from All Cannings Down and Stanton St Bernard Down are also likely to indicate settlements. However, the precise date of these and many older finds is not known; their only publication typically being in Cunnington and Goddard's 1934 *Catalogue of Antiquities in the Museum of the Wiltshire Archaeological and Natural History Society at Devizes*, brief notes by Owen Meyrick or the listings in Leslie Grinsell's Gazetteer for the 1957 *Victoria County History* volume.

It may be noted that Early Iron Age or Iron Age 'A' material is mentioned more frequently than Iron Age 'B' or 'C' types in Meyrick's and Grinsell's work but this might simply be due to this material being well known locally because of the important work at All Canning Cross (Cunnington 1923). Gingell's work on the Marlborough Downs also showed that at least some pottery that Meyrick described as Iron Age 'A' was Late Bronze Age in date and it is possible that is also the case in and around the WHS.

The only pottery clearly dated to the Middle Iron Age is from an evaluation undertaken in 1996 at Bell's Farm to the west of the WHS. It is not clear how much weight should be attached to this observation, if any, though a rarity of sites clearly datable to the Middle Iron Age was noted on Salisbury Plain (McOmish *et al.* 2002).

**Hillforts**

There are a number of hillforts to the south of the WHS (Oliver's Castle, Rybury, and Martinsell) and Oldbury Castle stands to the west of the WHS. To the north the nearest hillfort is at Barbury on the northern edge of the Marlborough Downs. Although excavation at the sites closest to the WHS has been limited, some pits in the interior of Oldbury were examined by Henry Cunnington in 1875 and these contained pottery, a bone comb, querns and animal bone (Cunnington 1887b, Cunnington 1894). The fort was included in the recent programme of geophysical surveys of Wessex hillforts and this work revealed a dense scatter of pits and roundhouses in the interior (Payne *et al.* 2006, 123–4, fig. 2.62). The analytical earthwork survey recommended by Bowden (2005, 163) was undertaken while that paper was in press (Bowden 2004).

## *Field Systems*

Although extensive field systems are known to the south and east of Avebury it seems likely that these are either Bronze Age or Romano-British in date. Fowler's work on Fyfield and Overton Down found little evidence for cultivation in the Iron Age and he wondered if the areas were used for breeding and training horses (2004, 137).

However, the Iron Age pottery collected from these and other field systems by Meyrick suggests (if dated correctly) either farming and/or settlement in the vicinity, irrespective of the date of the field systems. The date of the field system at Windmill Hill is uncertain.

## *Single Finds*

A number of brooches have been found as single finds and this partly reflects the regularity with which La Tène I style brooches are found in Wiltshire. Two examples, and also a penannular brooch, were found in excavations at Overton Down X/XI and another La Tène I and a La Tène III brooch were also found at Fyfield Down (Meyrick 1947, fig. iv).

There are a few coins of 1st-century cal BC date said to have been found in the WHS but in contrast to the finds of pottery and most of the brooches, the coins and a few other pieces of Iron Age metalwork have only very general provenances, such as 'near Silbury Hill', and the veracity of them, particularly for recent finds, must be doubted. The fragment of a La Tène sword or dagger chape from Beckhampton is an uncommon find but the provenance may be genuine (Grinsell 1957, 34). This is unlikely to be the case with the bronze brooch from Avebury Down which, while it was made in Italy in the Bronze Age and accepted by Christopher Hawkes as an ancient import (Hull and Hawkes 1987, 12, pl. 1; Robinson 2007), seems unlikely to have reached Wiltshire before the age of the Grand Tour.

Although the head of the Kennet has been suggested as a possible location for Iron Age votive offerings (Powell *et al.* 1996, 83), relatively few Iron Age objects from watery contexts come from springs and most come instead from major east-flowing rivers.

## *Activity at Earlier Monuments*

Radiocarbon dates from two Neolithic sites have indicated activity at them in the Iron Age but there are no associated artefacts to suggest what these activities might have been. Two dates are from the Avebury henge. Charcoal from stakeholes on the edge of stone-hole 8 in the south-west sector of the Outer Circle from Keiller's excavations returned a date in the Early–Middle Iron Age (770–390 cal BC: HAR-10061, 2430±70 BP) and charcoal from an ash layer in stone-hole 44 in the north-west sector of the Outer Circle from Keiller's work returned a Middle Iron Age to early Romano-British date of 400 cal BC–cal AD 150 (HAR-9696, 2080±110 BP). Another date from the same feature returned a date in the Late Neolithic–Early Bronze Age. While of no relevance to the development and date of the henge in the Neolithic (Pitts and Whittle 1992, 204) these dates do indicate activity in the Iron Age (Cleal and Pollard 2004, 127). At Falkner's Circle there was a single pit (F1) of Middle Iron Age date (Wk-17356, 2283±35 BP) and while this did not contain any settlement-related material it indicates some activity at a Neolithic monument. It should also be noted that there is a Late Bronze Age date from Silbury Hill.

While there are few Iron Age finds from the heart of the WHS (Powell *et al.* 1996, 13), these dates suggest that a taboo was not necessarily exercised over the monuments as is sometimes suggested (Chadburn and Corney 2001, 67; Gillings and Pollard 2004, 85). Henges, stone circles and avenues are not without limitations as locations for settlements and this may explain why the certain and probable settlement sites are towards the edge of the WHS. Hillforts were the most common form of monumental architecture in the Iron Age and there was no hesitation in building these on the sites of causewayed enclosures, including at Rybury Camp (Bonney 1964). Elsewhere Neolithic monuments were sometimes reused (Hingley 1996) and there was clearly an awareness of ancient objects (Stead 1998; Hingley 2009).

## Romano-British

### *The 2001 Assessment*

*by Mark Corney and Bryn Walters*

Although overshadowed by the prehistoric remains, the Avebury environs also contain a significant Romano-British archaeological resource (Fig. 16). A number of substantial settlements are known in the region and they will have undoubtedly influenced the local economy, society and administration. To the north of the region the 'small town' at Wanborough has a regular grid and at least one public building (Burnham and Wacher 1990; Phillips and Walters 1977). To the west the poorly understood site of *Verlucio* (Sandy Lane) is a focus for villa and other settlement types, whilst recent work in the Silbury Hill (Fig. 17) area has demonstrated the presence of a substantial settlement here (Powell *et al.* 1996; Corney 1997a). On the eastern fringe of the discussion area the 'small town' of *Cunetio* (Mildenhall) is likely to have played an increasingly important role as a regional administration centre in the late Roman period (Corney 1997b).

Villas and other substantial buildings are fairly evenly distributed over the area of enquiry, with known or probable examples at Cherhill (SU 0370), Bishops Cannings (SU 0465), Avebury Trusloe (SU 0870), West Overton (SU 1368), Preshute (SU 1670), Brown's Farm (SU 1967), Forest Hill (SU 2068), Draycot (SU 1463), and Alton (SU 1361). Further probable sites in the Vale of Pewsey have been noted on recent aerial photographs taken by RCHME, most notably at Huish (SU 1363) and Wilcot (SU 1361). At least one of the above sites (Brown's Farm, SU 1967), may be associated with a temple or shrine.

A large number of other settlements of varying characteristics are known or suspected: for example, Fyfield Down and Overton Down (Fowler 2000a), All Cannings (SU 0764), Knap Hill (SU 1263), Honeystreet (SU 1061), Cherhill Down (SU 0569), east of Gopher Wood (SU 1464), Huish Hill (SU 1564), Martinsell Hill (SU 1763 and 1864) and Marlborough (SU 1968). Additionally, a number of cropmark enclosures of probable Iron Age date are, by analogy with similar sites elsewhere in Wiltshire, likely to have continued into the Romano-British period, for instance, the enclosure complex at East Kennett (SU 1066). Similarly, finds of Romano-British pottery from hillforts such as Oliver's Castle (SU 0064) and Oldbury (SU 0469) suggest a

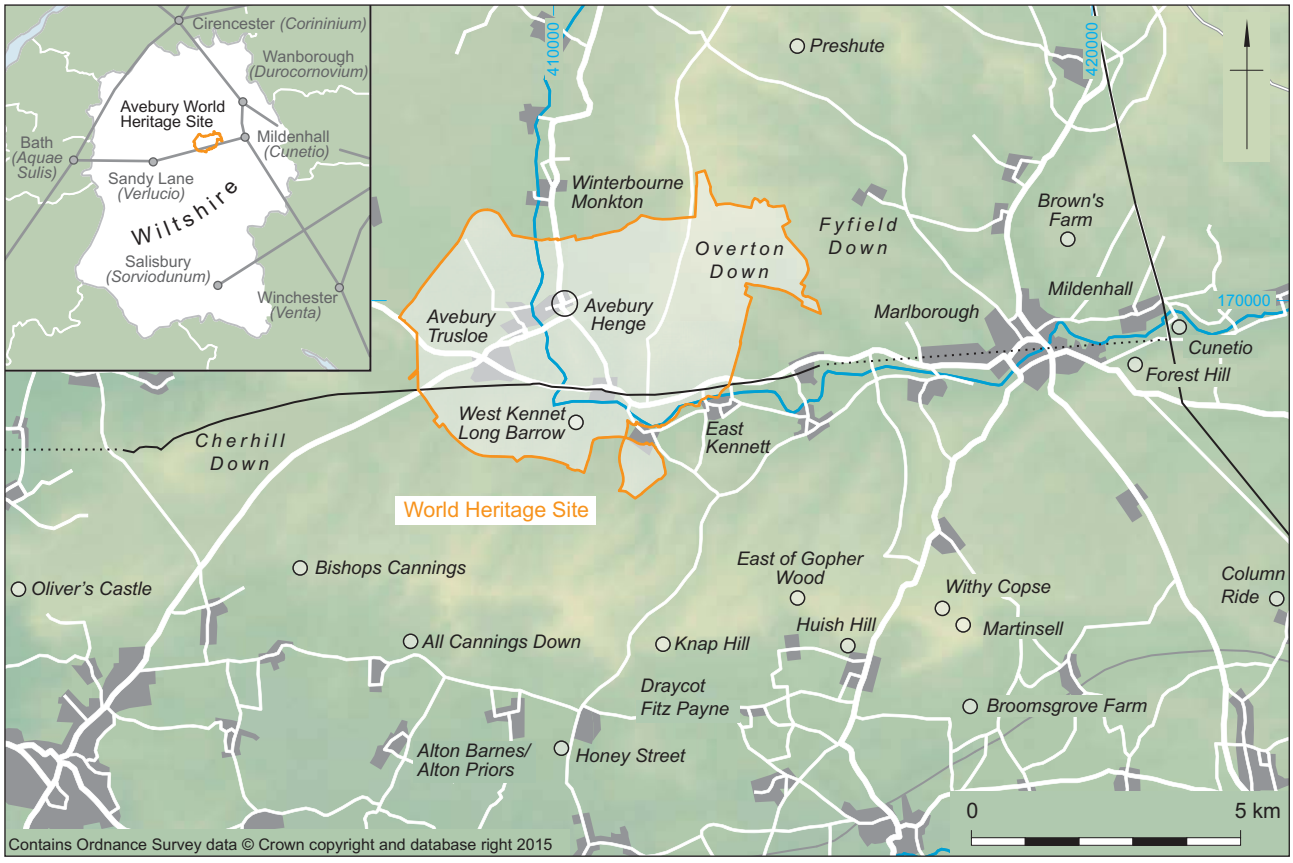



*Figure 16 Romano-British: places mentioned in the text*


*Figure 17 Plan of the Silbury Hill Romano-British settlement (© Historic England and © 2016 Getmapping PLC/Bluesky International Ltd.). This plan is reproduced from Leary* et al. *2013b*

continued use of Iron Age locations. In the case of Oldbury, the further discovery of pennant roof tiles raises the possibility of a substantial Romano-British building adjacent to the hillfort. Extensive spreads of Romano-British material noted by local fieldworkers such as Meyrick (Swanton 1987) suggest a well-settled landscape. Notable concentrations occur at West Overton (SU 1268), Alton (SU 1163), East Kennett (SU 1165), All Cannings Down (SU 0966) and Winterbourne Monkton (SU 1274–1275) (Swanton 1987).

Evidence of industrial activity is concentrated on the eastern fringe of the region; most notable is the Savernake Pottery industry, a ceramic tradition of probably Late Iron Age origin (Hopkins, pers. comm.), continuing into the 3rd century AD. Major kiln groups exist around Column Ride (Annable 1962) and Broomsgrove Farm, with a possible further group immediately to the west of Martinsell hillfort and at Withy Copse, Oare (Swan 1984).

The Romano-British period is the closest historically recorded period with which an obtainable resource might be compared with prehistoric ceremonial and religious practices. Consequently the collating of Roman evidence is of paramount importance. The possibility of continued reverence of the Avebury complex should be given serious consideration (*cf.* Williams 1998). Ritual and ceremonial sites in the region are strongly suggested at a number of locations. A major shrine associated with a spring is probable at Mother Anthony's Well (ST 9964), located at the foot of Oliver's Castle; Oldbury hillfort (see above); Brown's Farm, Marlborough (SU 1967) – where a close association with the find spot of the Savernake Hoard suggests a Late Iron Age origin; Winterbourne Monkton Down (SU 1272); and close to Silbury Hill (SU 0968–1068). An unusual Roman barrow burial tradition has been identified through excavation on Overton Hill (Smith 1964) and Roman activity around prehistoric funerary monuments is suggested by finds from West Kennet long barrow (Piggott 1962; Williams 1998). The possibility of Roman re-use of the Avebury henge is discussed in more detail below. Burials of Roman date are known from a number of locations such as Honeystreet (SU 1061), Marlborough (SU 1969) and Silbury Hill (SU 1068).

The general background pattern of 'stray' finds from the region suggests a landscape during the Romano-British period with settlements of many forms. The potential wealth of the area in the late Romano-British period has been recently demonstrated by the discovery of the large hoard of *siliquae* from Bishops Cannings (Guest 1997). The results of Peter Fowler's work on Fyfield Down and Overton Down (Fowler 2000a) are of great interest and importance in providing an insight into the evolution of the chalk downland economy.

## *The 2012 Update*

*by Mark Corney*

The original Avebury Resource Assessment, published in 2001 and repeated above, succinctly summarised the evidence for the Romano-British landscape of the Avebury area. It noted the evidence for villas, rural settlement, communications and, beyond the boundary of the WHS, the 'small towns' and nucleated settlements such as *Cunetio* and *Verlucio* which may have serviced the area as centres of trade, exchange and administration.

Characterisation of the villa settlement pattern within the WHS and its environs remains minimal with no modern investigations apart from the limited work on the site beneath Cherhill Church in 1984. Equally, no further field-work has been undertaken on the Romano-British agrarian landscape since Peter Fowler's publication of the Fyfield and Overton Down project in 2000. This volume established a firm base for further investigation and raised important questions regarding the Late Iron Age – Roman transition and potential continuity of Romano-British rural settlements and their landscapes into the 5th century or beyond.

Since 2001 two major episodes of investigation have provided important new data on the character of two nucleated settlements: the defended 'small town' of *Cunetio* to the east of Marlborough and, within the WHS, the settlement around the Swallowhead Spring, between Silbury and Waden Hill.

At *Cunetio*, investigation by *Time Team* included a geophysical survey of the entire walled area and part of the extra-mural zone. This major investment in resources has provided considerable new detail of the town landscape and has added significantly to the earlier plan derived from air photographic data. The complexity of the site is now very evident. Targeted excavation demonstrated the monumental character of the 4th-century defences and the south gate; and demonstrated the variable survival of structures within the town defences and the sometime severe impact of continued cultivation on the archaeological deposits (Wessex Archaeology 2011; the results have since been published – Seager Smith and Wakeham 2015).

Of even greater interest and importance to the Romano-British archaeology of the WHS are the results of the geophysical survey and subsequent evaluation excavation undertaken by English Heritage over the settlement adjacent to Swallowhead Spring and Silbury Hill (Leary *et al.* 2013b). The detail

revealed of the settlement layout west of Swallowhead Spring and to the south of Silbury Hill and the modern A4 significantly increases the known extent of the settlement, previously thought to be focused on the western flank of Waden Hill (Fig. 17). The settlement is regular in plan with rectangular ditched enclosures, some with evidence for stone structures. Although referred to as a 'ladder' type layout, the alignments revealed suggest a degree of planning, being set at 90° to the line of the Roman road beneath the modern A4. The alignments recorded by the geophysical survey are also in broad agreement with the features plotted from air photographs on the western flank of Waden Hill and suggest an extensive area of organised occupation.

The characterisation of the status and function of this settlement must be a priority in understanding the nature of Romano-British activity in the immediate vicinity of the Avebury complex. The Silbury settlement is equidistant from *Cunetio* and *Verlucio*, being 12 km from each site. This spacing is probably too short for the settlement to be seriously considered as a location for a *mansio* or *mutatio*. It has previously been noted that the Silbury settlement also appears to include a series of wells or shafts which feature 'structured' deposits and the possibility of a Romano-British ritual complex acknowledging the sanctity and antiquity of the prehistoric monuments remains an attractive hypothesis worthy of further investigation. Although the top of Silbury Hill was altered by late Saxon terracing and fortification and has suffered severely from antiquarian investigations and the recent collapse, the presence of a Romano-British shrine on the summit with attendant facilities and related features at its foot must remain a distinct possibility.

The incidence and frequency of Roman material from the prehistoric monuments in the Avebury landscape requires further study to ascertain the character and nature of the deposits, especially metalwork. Although many are stray finds lacking a precise archaeological context, the objects may display patterns which could point to votive activities: a good example being the late Roman coins recovered from the façade area of the West Kennet long barrow (see for instance Moorhead 2011) which could be interpreted as deliberate deposits and part of the broader phenomenon of later Roman material encountered on prehistoric monuments in Wessex and beyond. Comparisons with other Neolithic and Early Bronze Age complexes across Britain and France should be made and, in this respect, note should made of the amount of Gallo-Roman material from the Carnac complex in Brittany.

## Post-Roman and Early Anglo-Saxon (AD 410–*c.* 800)

*by Bruce Eagles*

There is only limited evidence for these periods from within the area of the WHS (Fig. 18). The Anglo-Saxon sunken-featured buildings excavated in 1976 by Faith and Lance Vatcher in the Avebury southern car park, outside the henge, are not yet fully published but, on the basis of the date of three associated glass beads, they have been assigned to the 6th century (Guido 1999, 164). Another, similar, building was excavated nearby in 1988 (Pollard and Reynolds 2002, 192–8; Wilts. HER SU06NE402; see also SU16NW404, SU17SW402). Other evidence for early Anglo-Saxon settlement in the area is provided by two clay loomweights of ring-doughnut type from East Kennett (Goddard 1929; HER SU16NW405).

Inhumation burials of men, a woman and children at West Overton were intrusive in a Bronze Age round barrow and three Romano-British tombs of the 2nd century AD. They were sited on the east side of the Ridgeway, just above its crossing with the Roman road from Bath to Silchester (Eagles 1986; Semple 2003, 86–7). The Ridgeway may have developed as a north to south through route in the early Anglo-Saxon period (Fowler 2000a, 22). The grave goods from the male burials at West Overton include shields,

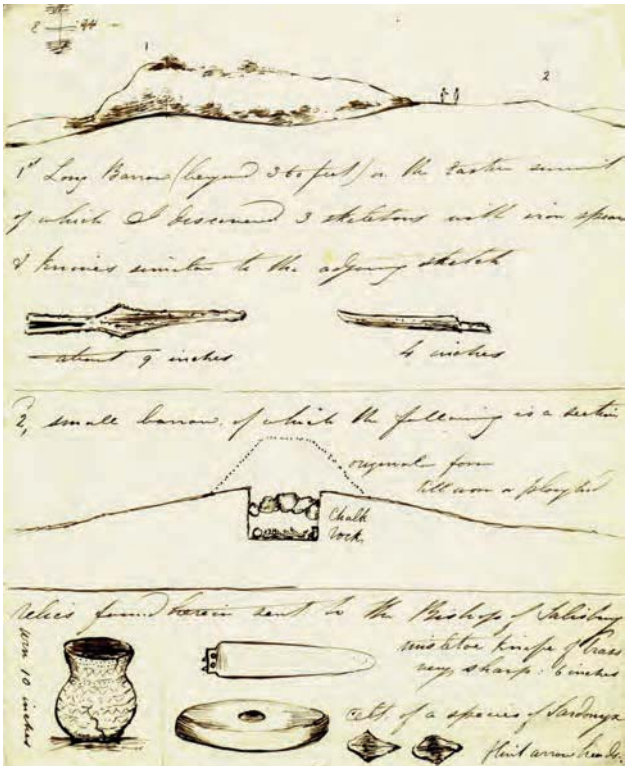


*Plate 33 Saxon burials at East Kennet long barrow (reproduced courtesy of Joshua Pollard)*

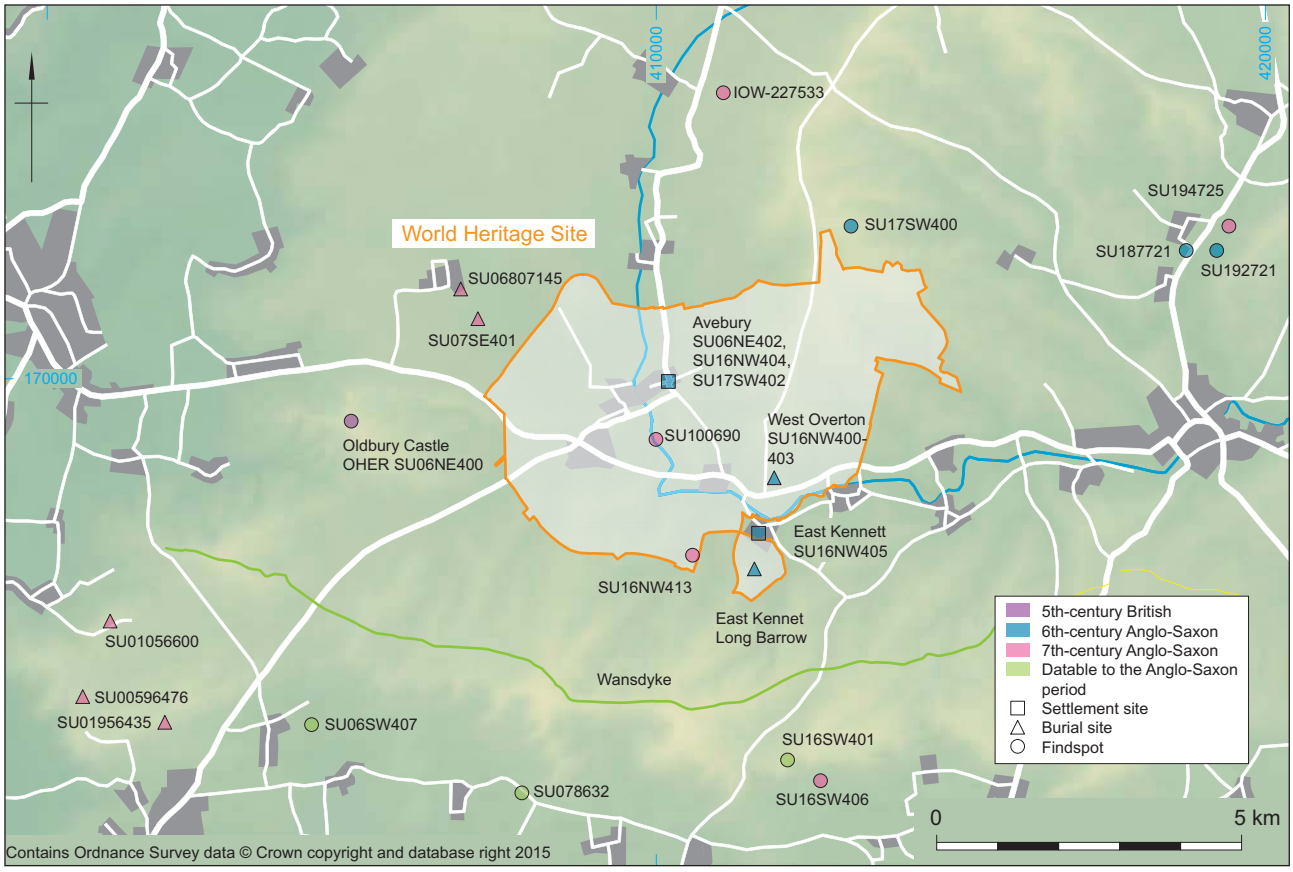



*Figure 18 Saxon: places mentioned in the text*

spearheads, knives and an iron finger-ring; they belong to the 6th century. The grave of the adult female accompanied by a small zoomorphic penannular brooch (Youngs 2010, 38), Roman key, beads of amber and one of blue glass may, however, date to the late 5th century, the earliest date that an Anglo-Saxon presence has been recognised in this area. Loose finds, in all likelihood from further, disturbed, burials, include organic-tempered pottery and a fragment of a triangular-lugged copper alloy cauldron. The latter is probably of the Westlandkessel type, which was manufactured in the Namur region, but was widely distributed throughout the Germanic world. The Westlandkessel was in production from the late 4th until at least the mid-6th century, though it clearly remained in use later (Richards 1980, 13; Eagles 1986; HER SU16NW400–403). There also appear to have been intrusive interments in the East Kennet long barrow, for an anonymous illustrated manuscript letter (Pl. 33) of *c.* 1840–50 states 'Long Barrow (beyond 360 feet) on the Eastern summit of which I discovered 3 skeletons with iron spears and knives similar to the adjoining sketch – [socketed] spearhead, 'about 9 inches'; knife, '4 inches' ' (J. Pollard pers. comm. who notes that the identification of the barrow is made probable by the dimensions cited in the letter and the accompanying sketch profile, and also by the details of the East Kennet round barrow Beaker grave group, which are reported separately but immediately below in this letter; see also Semple 2003, 87). An applied disc brooch, whose frontal silver disc – almost certainly in origin a bracteate (pendant) – is decorated with repoussé Germanic Style II animal ornament, was found near the boundary between the parishes of East Kennett and Avebury. Its closest parallel is a 7th-century silver bracteate from Sittingbourne in Kent (Hattatt 1989, 214–5; Speake 1980, pl. 13b; HER SU16NW413). The decorative mount from a bronze hanging bowl from the River Kennet (SU 100690) by Waden Hill is also likely to belong to the 7th century (Youngs with Eagles 1998). The name Waden (Old English *wēo(h)-dun*) means 'the shrine on the hill', though not necessarily a pagan one, as the term continued to be used of wayside shrines in Christian times (Gover *et al.* 1939, 295; Wilson 1992, 10; Gelling 1997, 259).

To the north and beyond the limits of the WHS, Temple Down, Preshute, may be the provenance of a complete, plain, hand-made Anglo-Saxon pot in the Wiltshire Museum, Devizes; its completeness suggests that it once accompanied a burial (Robinson 1991; HER SU17SW400). There is also a 7th-century, copper alloy gilded mount decorated in

Germanic animal Style II from Winterbourne Bassett (PAS Database IOW-227533, where the provenance is incorrectly given as Wootton Bassett).

Looking eastwards, unassociated finds of the 6th century are recorded from two sites at Ogbourne St Andrew (a small-long brooch (HER SU187721): Anon. 1991a, 148; and a saucer brooch with six-spiral decoration (HER SU192721): Anon. 1988, 185). The Marlborough area has produced another copper alloy bowl with triangular lugs. This example is of rounded, rather than the angular profile of the Westlandkessel, of which it is a typological development, and is classifiable as a Gotlandkessel; it was found with a knife (PAS Database WILT-7E5176). Such bowls are again likely to have been made in the Namur region and they too have an extensive distribution. They date to the 6th century, up to *c.* 600 (Richards 1980, 13–14). A gold wire bead (HER SU194725), possibly 7th to early 8th century in date, also from Ogbourne St Andrew probably derives from a high status burial there (Marzinzik 2005/6).

To the south-west and south of Avebury, the landscape is dominated by the great earthwork of East Wansdyke, its west to east course keeping, for the most part, to the crest of the chalk escarpment. The post-Roman date of the Dyke was established by General Pitt Rivers at the end of the 19th century, but its precise context continues to elude us. It has recently been shown that, at least in some places, it is of two-phase construction and, furthermore, that it may have origins in prehistory, though not necessarily as a continuous earthwork (Eagles and Allen 2011). East Wansdyke, it has been argued, marked part of the boundary between the Roman *civitates* of the Belgae, whose capital lay at *Venta Belgarum* (Winchester), and the Dobunni, who were centred upon *Corinium Dobunnorum*, Cirencester (Eagles 2001). It has been considered that it may have reached its present form only in the 8th century, as a frontier between the West Saxons and the Mercians (Reynolds and Langlands 2006, to whose arguments may be added the point that this may be the context for the Old English name of the River Marden ('the boundary valley': Gover *et al.* 1939, 8–9), a tributary of the Wiltshire Avon, which replaced its earlier name of Calne (Coates and Breeze 2000, 340).

A saucer brooch is recorded from Bourton in Bishops Cannings parish (Anon. 1991a, 148, fig. 3; HER SU06SW407) and a disc brooch (Anon. 1990, 229: SU 078632) from All Cannings. Cannings is an early Old English name with the '*-ingas*' suffix and refers to the *Can(n)ingas*, the people of an individual called Cana (Gover *et al.* 1939, xiv, 249–50). Their name also survives in Caningborough Hill, between Avebury and Yatesbury and to the north of Wansdyke. In 2001 a gilded silver pyramidal fitting, with niello decoration and inset garnet, of the late 6th or the 7th century and probably from a sword belt, was found to the south-east of Knap Hill (Evans 2003, no. 60; HER SU16SW406). At Knap Hill itself, a sword, two-edged, but with no other distinguishing features (it has not been x-radiographed), of early Anglo-Saxon date but not more closely datable, was found during excavations in 1908–9 (HER SU16SW401; Cunnington and Goddard 1934, 135, fig. 25, no. E27a).

It has been argued that, from the later 5th century, the Avebury area lay just to the east of the frontier between the expanding Anglo-Saxons and the Britons (Annable and Eagles 2010, 107–9). It is from this frontier, too, that there is the only archaeological information about the post-Roman Britons themselves. The evidence takes the form of two large penannular brooches, both with zoomorphic terminals. One of them was excavated from a 'hollow', one of a number once recognisable, within the Iron Age hillfort of Oldbury Castle on Cherhill Down (Cunnington 1887: the hollow is marked m.2 on the plan; Cunnington and Goddard 1934, 255–6; HER SU06NE400). Recent analytical field survey of Oldbury Castle has revealed a possibly late enclosure within its north-east quadrant, the highest part of the hill and also the area where m.2 was located (Bowden *et al.* 2005; Oldbury has also produced Roman finds, with coins up to AD 383–385, of the reign of Magnus Maximus). Another, similar, brooch, but enamelled, is recorded as from 'near Calne', but it is possible that it too is from the hillfort. It is an early example of a type introduced and developed in Ireland from *c.* 400 (Youngs 2012, 268–9). Following late Roman practice, in the 5th-century brooches such as these were worn at the shoulder by high-ranking British males to fasten a cloak (Youngs 2010, 39–40; for dating of the large penannular brooches see Mackreth 1986, 30).

There are also indications of a late Roman site at the foot of Cherhill Down, to the north-east. Metal-detected finds there include a copper alloy spoon and a number of late 3rd- and 4th-century coins, the latest of them of Gratian (367–383), and a fragmentary silver penannular brooch, also with zoomorphic terminals, but smaller than the others and of 4th-century date (now in Wiltshire Museum, Devizes). Silver examples of zoomorphic penannular brooches are extremely rare ( Youngs 2012, 259: WILT-809E32 in the PAS Database, which also holds records of the other finds). This frontier marks the most westerly limit of Anglo-Saxon penetration, as determined by material culture, until the late 7th century. It is also defined to the west and south-west of Avebury by high status burials of the later or the end of the 7th century at Roundway Down and Yatesbury (HER SU07SE401) and other, primary, burials which also date to the 7th century at Heddington and at another location in Roundway.

References to these four sites will be found in Semple 2003, respectively, under 'Roundway Down 7' (SU 00596476) possibly a bed-burial (for which see also Speake 1989, 107); 'Yatesbury 2', 'King's Play Down, Heddington' (SU 01056600); and 'Roundway Down 3' (SU 01956435). Semple also notes that another burial at Yatesbury, her 'Yatesbury 1' (SU 06807145), may have been another primary burial in this area.

In addition, there is a marked concentration of Brittonic and even more ancient place-names in north-west Wiltshire, a distribution emphasised in the Avebury area by the names Cherhill, Calne, Quemerford and, possibly, Penn (High and Lower Penn farms) to the west and north-west of Oldbury Castle (Coates and Breeze 2000, 112–6, 339–40, 391 (map); Eagles 2001, 208, fig. 11.2). These names indicate the late persistence of the British tongue in that region: 'Brittonic was still spoken here in the 7th century by people capable of influencing the linguistic behaviour of the West Saxon overlord class and its administrators' (Coates and Breeze 2000, 113). The territory of the *Can(n)ingas*, it has been suggested (Reynolds 2005), stretched westwards beyond Calne, and so across this frontier, although the names directly associated with them are all further to the east.

Organic-tempered, hand-made, potsherds, which, if plain, cannot be dated more closely than between the 5th and the early 10th centuries, have been recovered from within Avebury henge and from the building and an adjacent pit found in the car park in 1988 (Pollard and Reynolds 2002, 191–2, 196–7). Similar potsherds have also been found at many other sites across the wider region under discussion here: West Overton, as already noted, Winterbourne Monkton (HER SU07SE402), to the north of Avebury, Compton Bassett to the north-west, Cherhill, Yatesbury and East Kennett (Pollard and Reynolds 2002, 211; Anon. 1995, 154), and also the Neolithic Palisade Enclosure 2, West Kennet (Whittle 1997a, 83, and also 84 'Anglo-Saxon' sherds).

## Mid–Late Saxon and Medieval (AD 800–1500)

### *The 2001 Assessment*

*by Andrew Reynolds*

Avebury is one of the few places in north Wiltshire for which excavated and standing structural evidence exists for an Anglo-Saxon settlement with a long history, that then developed into the medieval period and later. The research potential is high and it is a matter of some concern that no full synthesis has been published. Consequently, the importance of the Anglo-Saxon and medieval remains has yet to be fully realised.

The only work to attempt to draw together all forms of evidence for Anglo-Saxon and medieval settlement at Avebury is that prepared by Professor Martyn Jope and intended for publication in Isobel Smith's 1965 volume *Windmill Hill and Avebury*. The absence of Jope's paper from the volume has meant that an important aspect of Avebury's archaeology has remained without public assessment, although a version of the article has been published (Jope 1999). An undergraduate dissertation undertaken at University College London has listed the unpublished excavations and provided a useful overview of the current state of knowledge based upon the work of the present writer (Harward 1997).

The documentary evidence for Avebury and its parish has been synthesised and published in the *VCH* account of the Hundred of Selkley (Freeman 1983), whilst the evidence for transport and communications in and around the monument has been clarified and expanded (Reynolds 1995).

### *Anglo-Saxon and Medieval Settlement at Avebury: an assessment*

Excavations to the west of the henge monument at the present visitor car park have provided evidence for settlement in the early Anglo-Saxon period, although the density, character and dating of occupation is hard to determine on the basis of current knowledge. Dating rests on three glass beads considered by Margaret Guido to be of 6th-century date associated with at least two sunken featured buildings identified in excavations inside the entrance to the Glebe Field car park in 1976 (Department of the Environment 1977, 32–3). Further structural evidence, probably broadly contemporary, includes a sunken featured building in the northern part of the car park, found in 1985, and a further example adjacent to the Vatchers' earlier excavation found in 1988 (Borthwick 1985; Leah 1988).

The 1985 excavations revealed further features which were not excavated owing to time constraints – a situation to be very much regretted given Avebury's potential for understanding settlement processes in the pre-Conquest period. The 1988 excavations revealed a series of postholes, which might represent either fence-lines or perhaps fragments of earthfast timber halls; the former would indicate a date in the 6th century or later, when property boundaries became common again on rural settlement sites (Reynolds 1999, 48–50). Anglo-Saxon interest in the henge itself is revealed by the finding of chaff-tempered pottery in the upper fills of the henge ditch during St George Gray's excavations in the earlier

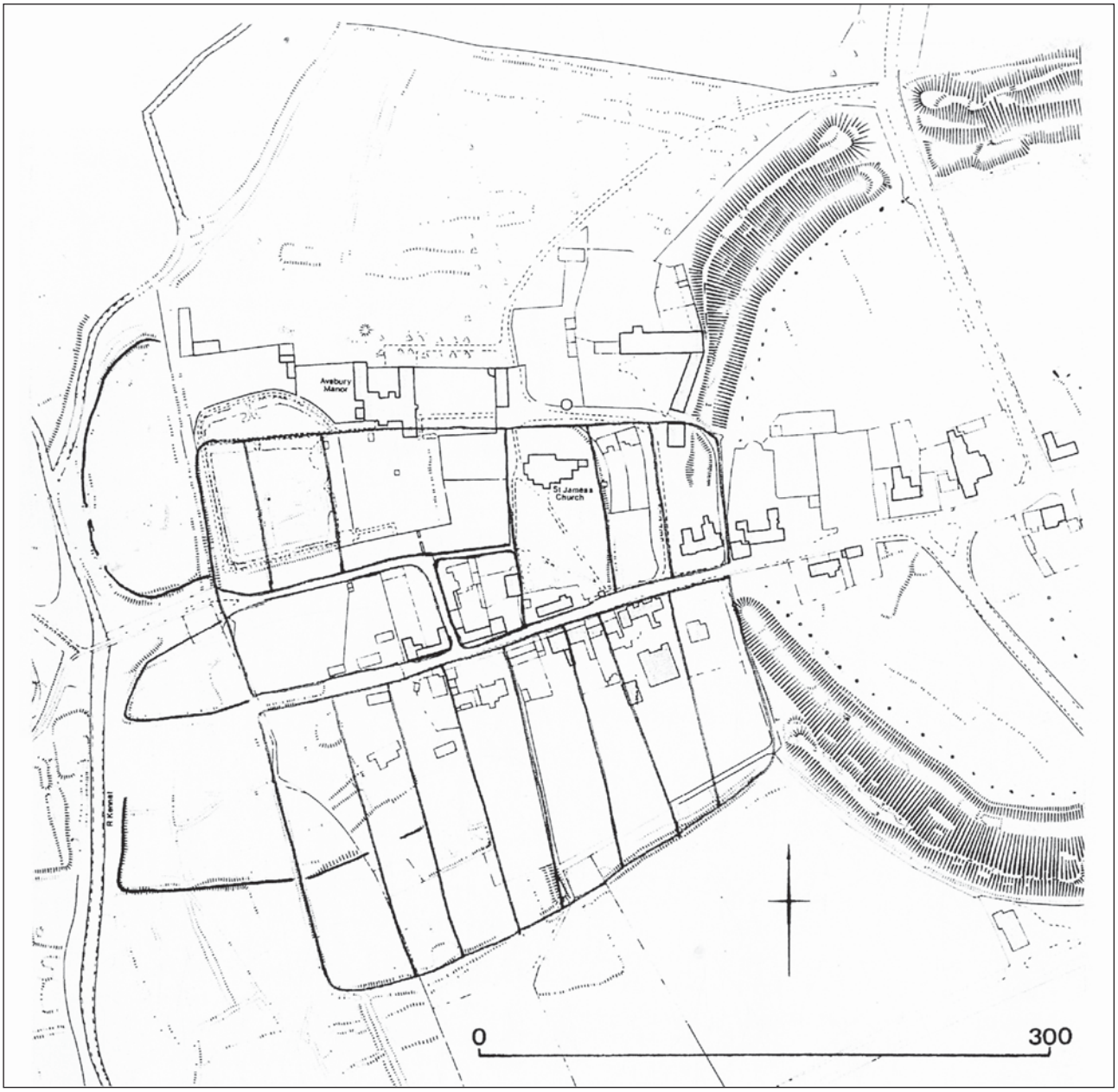



*Figure 19 Extracts from the RCHME survey of Avebury with outline of the possible 9th-century burh and earlier enclosures (© Crown Copyright. Historic England Archive). This plan is reproduced from AAHRG 2001*

part of the 20th century (Gray 1935). This type of pottery, however, can only be broadly dated to between the 5th and early 10th centuries (Hamerow *et al.* 1994, 15) in the absence of sherds displaying diagnostic decoration or form.

Excavations by John Evans *et al.* to the north of the car park settlement in Butler's Field have provided a series of radiocarbon dates between AD 800 and AD 1200, which indicate occupation in the middle to late Anglo-Saxon period and beyond (Evans 1993 *et al.*, 146, table 1). Of particular importance is a calibrated date of cal AD 680–1030 (OxA-1220; 1160±80 BP) obtained from faunal remains apparently in an occupation deposit (Evans *et al.* 1993, 146, table 1 and 190).This middle to late Anglo-Saxon date was obtained from Evans's Cutting J, which lay on the south side of an eliptical plan-form arguably of this period (see below).

At the School site, on the south side of the west entrance of the henge, Faith and Lance Vatcher revealed occupation earlier than, contemporary with, and later than that found by Evans, including a date of cal AD 660–1020 (HAR-1696; 1200±80 BP) from a pit containing grain in association with occupation debris (Wilson 1970, 200–1; R. Cleal pers. comm.). Although the Vatchers' excavations remain unpublished, the excavation plan indicates dense and successive occupation phases. Timber structures are

*Plate 34 St James's Church, Avebury (© Erica Gittins)*

seemingly represented, although the stratigraphic relationships between the various features are not shown. Structures and boundaries are clearly perpendicular to the current high street but little more can be ascertained without a detailed analysis of all aspects of the excavation archive.

Medieval Assize Rolls of 1289 describe the henge itself as *waledich* (ditch of the Britons; Kempson 1955, 60–1), and it seems highly likely that the modern place-name of Avebury refers to an Anglo-Saxon settlement to the west of the monument rather than the henge itself. The English Place-Name Society interpretation of the name meaning 'fortified place by the Avon' (Gover *et al.* 1939, 293–4) would fit well with the evidence from the RCHME survey (Fig. 19) which shows a rectangular enclosure, surrounding the church and regular house plots, extending westward from the west entrance of the henge toward the Winterbourne. The most likely historical context for such a settlement plan is the later 9th or early 10th century, when fortified settlements, or *burhs*, were either refortified or newly established across southern England in response to the Viking threat after Alfred's defeat of Guthrum and his army at Edington in Wiltshire in 878 (*Anglo-Saxon Chronicles* s.a. 878). The RCHME survey appears to show an underlying, and thus earlier, settlement extending to the west of the suggested *burh*; a situation of no small academic importance.

It may be significant that the morphology of the earlier layout is comparable with the elliptical plans of both Ramsbury and Kintbury to the east; both important Anglo-Saxon *towns* with minster churches and *burh* suffixes. To the south, at Tilshead, and at Winchcombe in Gloucestershire, further elliptical plan forms can be observed in combination with later Anglo-Saxon administrative centres and minster churches, although there is no documented minster at Tilshead (Haslam 1984, 117–18, fig. 49; Bassett 1985).

Within the suggested *burh*, which survives as an earthwork along the southern and western sides of the enclosure, regular plots of land are laid out perpendicular to the east–west *herepað* route that passes through both the henge and the *burh*: the course of the *herepað* itself can be reconstructed from a variety of sources (Reynolds 1995). Settlement planning of this type is commonly found in the *Burghal Hidage* towns, such as Cricklade and Wallingford, but not in *normal* rural settlements. It is of interest to note that the area encompassed by the proposed *burh* is comparable to estimations made for the extent of Anglo-Saxon Marlborough and Wilton (listed in the *Burghal Hidage*) (see Haslam 1984, 99, fig. 39 and 126, fig. 52). It might also be suggested that the henge itself served as an area where stock could be kept in times of emergency. The plan forms of many of the larger burghal towns indicates open spaces within the major fortifications, but the henge

would have served the purpose perfectly and thus have minimised the labour requirement for the initial building of the *burh*.

On the basis of plan form, the existence of a substantial church, the association of the henge and settlement with a *herepað*, and the various archaeological discoveries, it is possible to suggest that Avebury is a failed small town of 9th- and 10th- to early 11th-century date (Reynolds 2001). The early radiocarbon date from the School site could just as easily belong to the initial phase of settlement within the proposed *burh* as to the underlying plan-form, particularly as the earthwork phases at most excavated *burh* sites are undated. Jeremy Haslam has suggested that the decline of Chisbury and Bedwyn (both east of Marlborough) can be ascribed to the growth of Marlborough and Ramsbury in the late Anglo-Saxon period (Haslam 1984, 140). It seems equally likely that competing settlements to the west of Marlborough could have experienced decline to the benefit of Marlborough and perhaps also to Calne. By 1086 the *Domesday Survey* records only the presence of the church and its holding of two hides of land under the entry for Avebury, itself an indicator of the former's minster status (Blair 1985, 108, fig. 7.1).

St James's Church (Pl. 34) itself contains displaced sculpture of the 9th–10th centuries. Recent work on the building by the Compton Bassett Area Research Project and (independently) Professor Rosemary Cramp has revised both the dating and recording of the structure undertaken by Harold and Joan Taylor (Taylor and Taylor 1965, 32–4; Semple in prep.). The north-west corner of the present nave is composed of side alternate megalithic quoins incorporating a fragment of Anglo-Saxon sculpture, of later 9th- or 10th-century date and originally part of either a cross shaft or a coffin lid. This displaced stone indicates that the standing Anglo-Saxon fabric might represent the second masonry church on the site. Monumental sculpture is more likely to be associated with an important church rather than, for example, representing an isolated preaching cross as is often presumed (*cf.* Jope 1999, 61 who mistakenly refers to the sculpture being set into the tower rather than the north-west corner of the nave). It may be further conjectured that the displaced sculpture is related to a church contemporary with the building of the putative *burh*. The rebuilding of *c.* AD 1000 described below, therefore, apparently occurred shortly before Avebury's decline to a settlement of a more rural character.

The 10th- or 11th-century fabric of St James's includes single splay windows, with external rebates for wooden frames, on either side at the west end of the nave. Circular windows with holes for wicker formers appear to have been positioned above the single-splay windows and it seems probable that each side of the nave was furnished with four single-splay windows with circular lights above each one. The chancel of the Anglo-Saxon church was apparently discovered during restoration in 1878 as being shorter than the present chancel and probably of a single bay (see Taylor and Taylor 1965, 32–4 for a fuller description; and Semple 2003 for a revision of aspects of the Taylor's work). St James's Church (dedicated to All Saints in the 13th century) would have been an impressive building by local standards in the years around AD 1000.

The medieval settlement can only be viewed in terms of continuity from the Anglo-Saxon period as its location (and that of later settlement) was clearly established by the late Anglo-Saxon period. This is evidenced by the Vatchers' School site excavations and by the often-substantial finds of medieval pottery from the majority of excavations within and adjacent to the henge monument (Jope 1999). Clearly though, the medieval settlement was complex and dynamic with a number of foci and the precise chronology of expansion and contraction is not yet established. The finding of a late Anglo-Saxon coin brooch at Avebury Trusloe may indicate that the origins of that settlement lie in the pre-Conquest period, although the find might equally well represent a casual loss (Wilts SMR SU06NE404). A sherd of 'possibly Saxon' pottery was found on the south side of Beckhampton Road at Avebury Trusloe in 1997 (Wilts SMR SU06NE405).

St James's Church was comprehensively remodelled in the Norman period, during the early to mid-12th century, when aisles were added on both sides of the nave. Towards the end of the 12th century, the church acquired its finely decorated font. The font is seemingly not Anglo-Saxon as is often claimed (*cf.* Powell *et al.* 1996, 59), although certain stylistic details of the upper band of decoration do suggest Anglo-Scandinavian influence/survival/revival and there are indications that the lower band of decoration might be a later addition. There is 13th-century work, including the chancel and a lancet window at the west end of the north aisle, but also several reset groups of encaustic floor tiles at the east end of both aisles. The tower is late medieval (15th century), with archaeological indicators that its west door is a later insertion, perhaps of the 16th century. Both aisles were widened during the 15th century, presumably on different occasions as they are of differing widths, and the south doorway (of the second half of the 12th century) which gave access into the Norman church was reset into its current position. The rood loft at the east end of the nave is 15th century, but much of the screen itself is later, probably Victorian.

The presence of an alien priory at Avebury in the medieval period is of significance yet remains

uninvestigated by archaeological techniques (excepting the RCHME survey). Traditionally the priory is thought have occupied the site of Avebury Manor, ie, immediately adjacent to the Parish church (Burl 1979, 34). Avebury was one of only two English holdings (the other being Edith Weston in Rutland) of the Benedictine Abbey of St Georges de Boscherville near Rouen (Kirby 1956, 392).The priory at Avebury was set up soon after grants of land were made for its support in 1114. The peculiar position of the French monks is borne out by the fact that they were granted leave from Shire and Hundredal jurisdiction by Henry I; privileges which were later confirmed by Henry II and Richard I in 1189 and 1198 respectively. The priory seems to have been a small-scale operation, probably with a small staff, but a series of disputes with the Parish church (and its owner by 1133, Cirencester Abbey) is recorded throughout the Middle Ages.

A number of potentially medieval vernacular buildings survive in the village, but only a thorough investigation behind the present frontages would enable this aspect to be elucidated. A small amount is known about medieval domestic structures from excavations over a wide area including the Vatcher's School site excavations noted above for their earlier remains. The recent Kennet Valley Foul Sewer pipeline revealed apparently dense occupation in Butler's Field, to the south and west of the henge, characterised by pits, ditches and a possible sarsen wall-foundation sealed by a layer containing a single sherd of 13th–14th-century pottery (*cf.* Powell *et al.* 1996, 63–5). These results concur with those from the cuttings made in Butler's Field by Evans *et al.* (1993), which suggest that the dry valley floor either side of the Winterbourne was cultivated and settled from the mid-12th to late 13th century, with the subsequent consolidation of settlement on higher ground on either side of the river, Avebury Trusloe to the west and Avebury to the east (Powell *et al.* 1996, 61). The recent RCHME survey has recorded complex and well-preserved earthworks in and around the monument with features of several phases clearly visible west of the henge. These latter features include water meadow earthworks and the well-preserved remains, seemingly of at least two phases, of the settlement earthworks of Avebury Trusloe.

The use of the henge up to the 14th century is largely unremarkable in archaeological terms. Pottery of 12th- and 13th-century date has been recovered with frequency from excavations and other interventions within the monument, both from excavated boundary banks and ditches, largely in the south-east sector of the henge, but also from what was presumably ploughsoil (Burl 1979, 37; Jope 1999, 68). During the 14th century interest in the stones themselves is brought sharply into focus via evidence for the burial of up to 40 (and perhaps more) of the stones (Smith 1965b, 176–8). Jope's analysis of medieval ceramics from stone burial pits concluded that there was little material earlier than the late 13th or 14th century (Jope 1999, 67), whilst the recent discovery and excavation of buried stones of the Beckhampton Avenue has revealed at least four as yet undated stone burials which are probably contemporary with those found within the henge (Gillings *et al.* 2000, 7).

There is a tendency to ascribe the destruction of stones at Avebury by medieval populations to ecclesiastical concerns about pagan practices or revivals, but to view the better documented stone burning and burial of the 18th century in more practical terms *cf.* Burl 1979, 66–7 and Gillings *et al.* 2000, 7. Impressive as the prehistoric stone settings are in terms of scale, if medieval populations driven by religious fervour desired the removal of the stones this could surely have been done in totality quickly and relatively easily. Of particular interest is the discovery of the so-called 'barber-surgeon' found during Keiller's campaign in 1938 (see Burl 1979, 39–40 for a description and discussion of this remarkable find).The burial is dated to *c.* 1320–1350 on the basis of associated coins (Ucko *et al.* 1991, 178) and concurs well with that suggested by ceramics for the general period of medieval stone burial at Avebury. Further, a buried stone along the line of the Kennet Avenue was associated with a worn silver penny of Henry III, minted between 1222 and 1237 (Burl 1979, 37). The condition of the coin indicates its loss after a considerable period of circulation and a date of deposition *c.* 1300 is not unlikely.

The late middle ages at Avebury are represented largely by additions and alterations to St James's Church, as described above. Interestingly, Jope notes that late medieval ceramics are largely absent from excavated assemblages at Avebury, although this most likely reflects the reversion to pasture of the henge interior as opposed to a contraction of settlement (Jope 1999, 69).

**Summary**

From the evidence available, it can be argued that early medieval settlement began immediately to the south-west of the henge monument, probably during the 6th century, and most likely comprised a single farmstead. By the early 9th century the settlement had moved northwards and eastwards, up to the west entrance of the henge itself. During the 8th or perhaps the 9th century an elliptical plan-form developed, with evidence for further enclosures to the north and south, which perhaps included the precinct of a minster church (the present-day St James's). In the 9th century the settlement was arguably

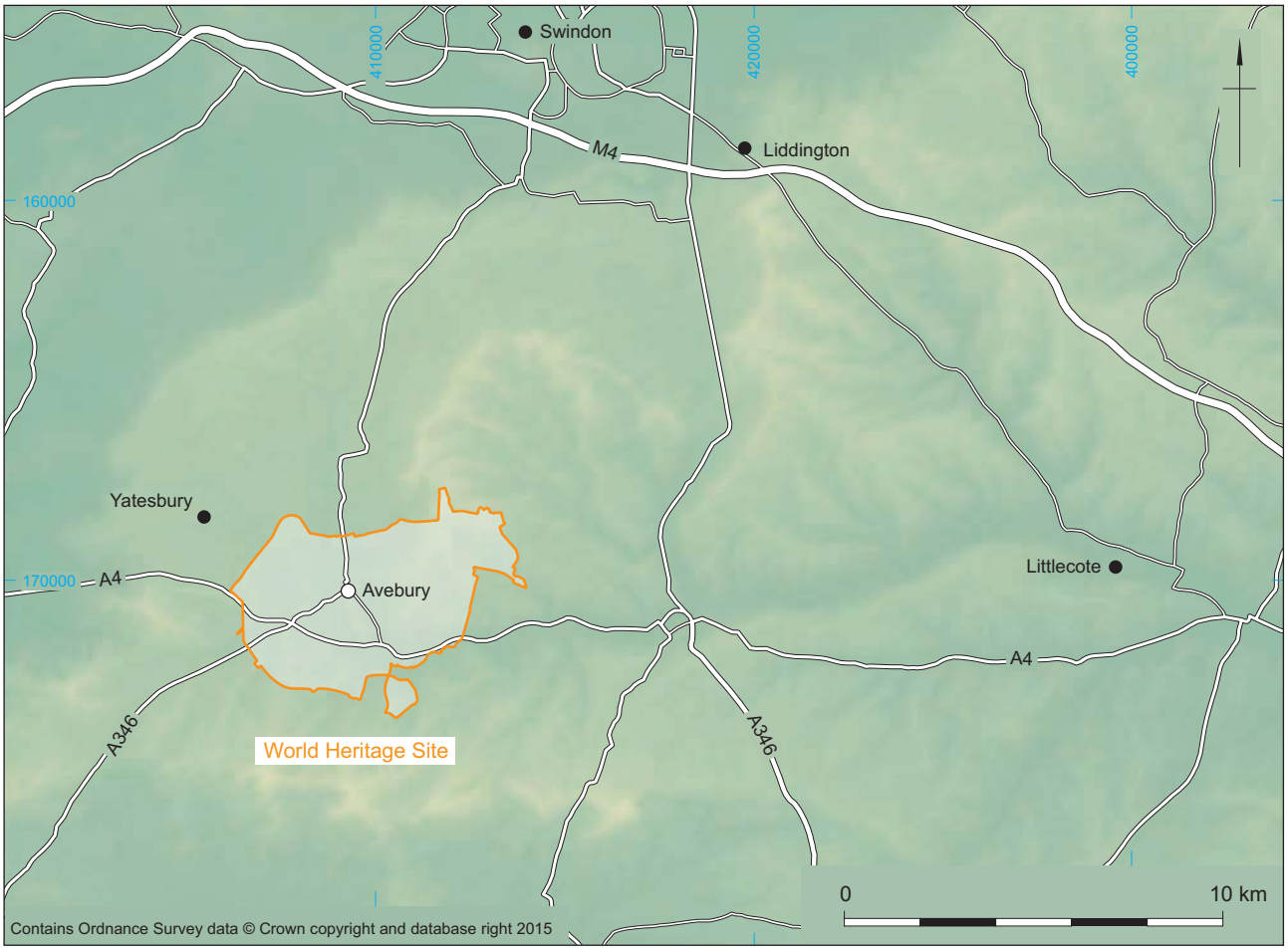



*Figure 20 Anglo-Saxon settlements in the Avebury area*

replanned on a major scale and the minster church, either rebuilt or newly built, leaving the fragments of Anglo-Saxon sculpture which survive today incorporated into the late Anglo-Saxon church and the present south porch. The extent of the proposed 9th-century settlement indicates speculative urban development, but by the time of the *Domesday Survey* the rural character of Avebury, which has persisted into modern times, was established. With the exception of property boundaries, settlement lay largely without the henge until the post-medieval period, but extended and expanded westwards and northwards in the form of Avebury Trusloe and the growth of Avebury village itself.

## *The Avebury Area*

Archaeological evidence for Anglo-Saxon settlements of the period up to *c.* 950 in the vicinity is poorly researched and almost entirely unpublished. Settlement sites have been recognised at Yatesbury, Liddington, Swindon and Littlecote among other less well investigated examples (Fig. 20). Burial sites of the early period comprise intrusive interments in round barrows such as those at Yatesbury and West Overton (Smith 1884; Eagles 1986), although flat cemeteries are known to the east at Blacknall Field, Pewsey and in the south of the county, most notably in the Salisbury region (Eagles 1994).

The late Anglo-Saxon timber fortification on the top of Silbury Hill is of considerable interest as studies of Anglo-Saxon civil defence have relied almost wholly upon the evidence from the major fortified sites listed in the *Burghal Hidage* of the early 10th century. Richard Atkinson's discovery of postholes, associated with iron nails and a coin of Æthelred of 'about 1010', on the shelf of the upper terrace of the hill indicate a fortified site (Atkinson 1970, 313–14) suggesting that the name Silbury is best interpreted as OE *sele-burh* meaning 'fortified structure or hall'. The presence of a Viking burial on the top of Silbury Hill has been suggested on the basis of the finding of human bones, including a skull, 'deers horns', an iron knife with a bone handle, two 'brass bits of money' and an iron horse-bit on the summit of the hill in 1723 (Stukeley 1743, 158). Stukeley's draft manuscript for his 1743 *Abury*, however, describes the horse-bit as being found separately and seemingly on the slopes of the hill

rather than the summit (Evison 1969, 335–6, note 9). The condition of the skeletal remains and the 'deers horns' is described as 'excessively' and 'very' rotten by Stukeley, and all of the finds, with the apparent exception of the horse-bit were made in the area of a 'great hole' sunk into the top of the hill in 1723. In other words, none of the finds need be associated with the human and animal bones, which may well be prehistoric to judge by their condition. The horse-bit itself is probably not of 9th- or 10th-century date as suggested by Vera Evison, but more likely an 11th-century piece (J. Graham-Campbell pers. comm.) associated with late Anglo-Saxon military activity on the summit of the hill.

Fieldwork at Yatesbury to the north-west of Avebury has suggested that the region was defended by a network of minor fortifications which relied on intervisible signal stations and military roads (Reynolds 1999, 92–4; 2000, 113–18). Viking activity in the vicinity of Avebury is recorded in *Anglo-Saxon Chronicle* entries for 1006 and 1010.

Archaeological evidence for late Anglo-Saxon settlement in the locality is notably sparse, although this is probably due to a lack of fieldwork rather than any other factor. The Pewsey Vale in particular possesses an impressive number of Anglo-Saxon land charters, largely of the 10th century, which indicate that the basic framework of the landscape in the Avebury region is a product of that period. The origins of the manorial system, viewed more clearly in the *Domesday Survey* a century later, lie in the 10th century during which time the medieval settlement pattern was largely fixed. Two substantial field projects, on Fyfield and Overton Downs to the east of Avebury and at Yatesbury to the west, provide important comparative data from which to assess the relative economies and status of nearby Anglo-Saxon and medieval settlements (Fowler 2000a; Reynolds in prep.).

Apart from existing settlements with medieval or earlier origins, there are also extensive traces of deserted or shrunken settlement in the region (for example Bupton, Richardson and Beversbrook to the west and Shaw to the east). Medieval archaeologists now view such sites as part of the continuum of human settlement and not as a phenomenon in their own right. Work on the individual settlements of the region has tended toward morphological analysis in recent years (Lewis 1994), although the deserted settlements of the broader western region have recently been reviewed (Aston 1989) along with aspects of medieval settlement in general (Aston and Lewis 1994). There are limitations with morphological approaches and it is clear from the archaeological record that settlements were subject, in many cases, to continual morphological change. There has been only limited work in the market towns. Jeremy Haslam's 1984 review of Wiltshire's Anglo-Saxon towns still provides the research agenda as little new data has become known, apart from that, for example, at Warminster and Wilton (Smith 1997; Andrews *et al.* 2000), although Wiltshire County Council are currently preparing a new assessment of the urban archaeological resource in the county.

The potential of the pre-Conquest charter evidence for landscape reconstruction has been clearly demonstrated (Hooke 1998; Costen 1994), although much remains to be done with this material and with the later cartographic and documentary sources. Of particular importance is the reconstruction of the agrarian landscape in both the early and middle Anglo-Saxon periods, prior to the establishment of open field systems in the region.

The precise chronology of the introduction of open fields in the broader Wessex region is a fundamental research issue, which requires extensive fieldwork if broader patterns are to be understood. The recent discoveries of buried stones along the line of the former Beckhampton Avenue highlights this aspect given that extensive traces of ridge and furrow were found underneath the modern ploughsoil over the area in which buried stones were found (Gillings *et al.* 2000, 3, fig. 1). If the Beckhampton stones were buried during the early 14th century (see above), then a late date is apparent for the ridge and furrow given that the field would be difficult to plough if the stones were still present. Open fields are generally considered to develop from the 10th century (Reynolds 1999, 155–6). The social and settlement organisation that their existence implies emphasises the importance of establishing chronologies, particularly when settlement evidence is sparse. Medieval strip-lynchets have been recorded in the Avebury area, recently at Waden Hill, Beckhampton and Compton Bassett, but one of the most extensive excavations undertaken on such field remains is close by at Horton (Powell *et al.* 1996, 65–6; Soffe 1993, 145; Reynolds 1994, 180–5; Wood and Whittington 1959).

## *Conclusion*

In conclusion, the Anglo-Saxon and medieval archaeology of Avebury and its environs is complex and varied, but also of a high quality and with significant potential for addressing national research questions in addition to local and regional issues. The potential to examine long-term trends in the development of settlement at Avebury from the post-Roman period through to the end of the middle ages and beyond makes the medieval archaeology of Avebury very special indeed.

## *The 2012 update*

*by David Hinton*

The previous 'Resource Assessment' (above), 'Resource Strategies' and 'Research Strategies' for this period were written by Andrew Reynolds (2001, 28–34; 52–4; 69–70), who has subsequently published or jointly published a number of relevant books and papers, notably on the administrative arrangements of the Avebury region in general (Reynolds 2005), and on fieldwork and monuments within the WHS specifically (Pollard and Reynolds 2002). There are interim reports and discussion papers both in print and in press, but not yet the full report, on the Yatesbury project. Other contributions include Gillings and Pollard (2004) and Gillings *et al.* (2008) on Beckhampton Avenue and the post-prehistoric treatment of the standing stones. The general discussion of the research framework appropriate for the south-west of England, which includes Wiltshire, does not make more than passing reference to Avebury in the medieval period (Webster 2008).

Relevant contributions by other scholars include Simon Draper's on Roman and post-Roman Wiltshire (2006; 2011b), and fieldwork on the Downs has been published (eg, Fowler 2000a; McOmish *et al.* 2002). The late Anglo-Saxon use of Silbury Hill has been published (Crosby *et al.* 2013); and there has been much discussion of the East Wansdyke, with a variety of possible dates and reasons for it now under review, two of which would see it within the mid-Anglo-Saxon period (Draper 2006, 60; Reynolds and Langlands 2006), but others not abandoning the traditional immediately post-Roman period (Fowler 2011, 141). Furthermore, less reluctance to consider 'superstitions' in the Middle Ages (eg, Gilchrist 2008) permits further reconsideration of some of the behaviour witnessed at Avebury by such discoveries as the 'barber-surgeon' burial.

**Avebury Village and Henge**

Since 2001, the Wiltshire Historic Environment Record records only minor archaeological evaluation work in Avebury parish as having produced medieval evidence – a sherd at the United Reformed Chapel, three sherds in South Street, Avebury Trusloe. Not in the Record, however, are two coins and an enamelled brooch which the database of the Portable Antiquities Scheme (http://finds.org.uk/ accessed June 2011) lists as found in the parish. Recent fieldwork, therefore, has not tested Reynolds's hypotheses (2001), in particular that a settlement with an elliptical plan-form partly underlies a rectangular defensible *burh* with tenement plots that are evidence of a 'failed town'.

Reynolds postulated an ellipse on the basis of parallels with other places in Wiltshire and beyond, and on the existence of earthworks west of the present village, between it and the River Kennet. There are three distinct earthworks in that area, the largest being the most northerly, now roughly a semi-circle. If that extended eastwards, taking in the sites of the present church and manor house, what is now the east–west village street would lie well to its south. At Ramsbury, the obvious parallel, the equivalent street forms the southern edge of the postulated ellipse. If that had been the case at Avebury, what is now a back lane would have been the original route, and the line of a documented *here-path*. The case for that is supported by the way that routes approaching from the west focus on a river crossing at the lane's west end (and not on the suggested line of Beckhampton Avenue). Against it is that one of the two middle Anglo-Saxon sites known would be outside it, and the other, the 'School site' and the west entrance into the henge, would only be within it if it was not elliptical at its east end. In that case, the present 'main' street would result from replanning.

If an earlier plan is to be sought, another possibility would be to take the second of the western earthworks, the central one, and project that along the 'back lane' and the 'main street'. Any such enclosure would exclude the church, manor house and the School site, but in using the two lanes as its boundaries would be more like Ramsbury. The most southerly earthwork is different again, as it is right-angled; it seems to extend into the croft of the most westerly of the house plots south of the street, so is likely to predate it. Unfortunately, that is the only stratigraphical evidence that can be cited. Until any and all of these earthworks are dated, the 'ellipse' cannot be taken as established.

Avebury Church has late Anglo-Saxon structural elements, but the existence of an earlier church is argued for in the 2001 Agenda, on the basis that a carved stone built into one of the corners is likely to be part of an originally free-standing cross-shaft, or a coffin, subsequently ascribed to the 9th or 10th century by Rosemary Cramp (2006, 200–1); it was argued that such an important work would not have been on its own, or in a cemetery without an attached church. An earlier church building, perhaps in timber, may well have predated the present masonry structure, but whether it was on the same site remains to be established, though in the normal course of events it is more likely than not. That it was a 'minster' by the time of the Norman Conquest seems very likely, as Rainbold the priest held two hides in Avebury and the church is relatively large, though it is not such a strong case as to have deserved discussion by Blair (2005). That need not mean that an early and regionally important church was placed alongside

the henge to 'christianise' the stones (this was not proposed by Reynolds, but has been proffered elsewhere: Gillings *et al.* 2008, 286–7 for a critical review); it looks much less exceptional when seen in relation to the other churches strung out along the Kennet Valley west of Marlborough, which reflect stream-side settlement patterns.

The precise date, status or location of Avebury's first church may never be established; equally, it is not certain that there was an Anglo-Saxon manorial centre on the site of the present manor house. Although close to the church, it is not as directly adjacent as is often the case. Alfred of Marlborough had a Kennet estate in 1086, which may have included land in Avebury that came to be used in 1114 for the foundation of an alien priory; but only in 1294 is there mention of a house, and the identification of medieval structure within the present manor house shows where that was located (Freeman 1983, 91–2). Even if Alfred of Marlborough had some sort of manorial centre in Avebury, however, that Anglo-Saxon/early Norman predecessor might not have been on the same site; recent work at Bishopstone, Sussex, has shown that what is likely to have been a manorial complex was abandoned in the 11th century, probably for a new location on the opposite side of the church (Thomas 2010). Early medieval settlements were more fluid than used to be thought.

The 11th-century Rainbold the priest presumably had a base in Avebury from which to run the two hides credited to him by *Domesday Book*. His holding became Cirencester Abbey's 'rectory estate', and its house in 1307 was near the church, the evidence for that being a rigmarole about creating an access path (Freeman 1983, 95). Stukeley's 'plot' shows a house immediately east of the church with a tree-lined avenue leading to it, suggesting something more than an ordinary farm. Was it the older of the two centres? Even if it were, it would not fall comfortably within either possible 'ellipse'.

Reynolds argued that the middle Anglo-Saxon elliptical settlement was replaced by a fortified late Anglo-Saxon rectilinear *burh* enclosed by a bank and ditch. The defensible capability of any such enclosure is open to question, however. Pollard and Reynolds published a 1985 photograph of a section through the south side of the bank and ditch, noting that it is 'not exactly massive' (2002, 206–9). Indeed, a ditch no more than 1.5 m deep is directly comparable to excavated ditches between tofts and village streets elsewhere (Astill 1988, 51–3; few excavations have examined the boundaries between croft ends and fields), a barrier against hungry beasts rather than ravenous vikings. Draper (2006, 76; 2011, 99–103) has pointed out that -bury place-name suffixes are as often applied to manorial enclosures, with or without an associated 'minster', as to defended settlements (see also Rippon 2011, 46–50 for other examples of mid-Saxon manorial complexes). Furthermore, serious replanning would surely have included a refocusing of the routes on the west side of the Kennet, so that they entered the *burh* at the west end of the main street. Instead, they seem to have stayed where they were.

The interesting case for a 'failed town' was made largely on the basis of the very regular tenements on the south side of the east-west 'main' street. Aston and Gerrard's work at Shapwick (Gerrard with Aston 2007), however, suggests an alternative, that this is a planned village, perhaps an extension to a late Saxon core round the church. Such replanning could have been coeval with the introduction of open fields to the area, a much debated current topic which is considered in a different context in the 2001 Agenda. Gillings and Pollard suggest that similar regular tenements were established within the stone circle. This could represent expansion, or be part of the same planning process; in either case, post-Conquest estate management by the alien priory might be responsible.

It may never be possible to find convincing new evidence about medieval attitudes to the henge and its stones, but the very detailed review of the evidence about their burial and other forms of destruction by Gillings *et al.* shows that their treatment varied and that no pattern of deliberate extermination can be seen (2008, 232–363). They also point out that the first documentary mention of the stones, in the 1307 concord about the path from the church, merely calls them *magnas petras veteres*, 'big old stones', implying that they were viewed as no more than landmarks, not something redolent of superstitious fears. The villager who was referred to as John de la Stone presumably had no concern about his identifier. The burial of the 'barber-surgeon' – who may have been a tailor or a shepherd (Gillings *et al.* 2008, 276–7) – is no longer seen as resulting from an unfortunate accident to someone who was helping to lower the stone when it fell and trapped him, leaving the locals too frightened of the stone's malice to free its unhappy victim, but as the deliberate concealment of a murder.

Reynolds's point that the stones would have been a hindrance to arable and the development of open fields is valid, and some indeed seem to have been removed to clear the way for the plough. Others probably served as boundary markers (Gillings *et al.* 2008, 276–84). The post-Conquest pottery sherds found are indicative of manuring, their variation in distribution and size reflecting differential cultivation within the henge interior (*ibid.*, 277).

The newly excavated Beckhampton Avenue stone, its 'ugly' side down and a cow-bone, radiocarbon-dated to the 12th/13th centuries, pushed into a natural hole in it, seems to require some other

explanation, possibly to do with superstitious practices about passing babies through such holes, to heal them. Someone may have taken exception to some rural practice of this sort, and determined to prevent it, leaving the cow-bone as a mockery … or to bless the land … but as there is no certainty that the hole was visible when the stone was upright, it is unprofitable to speculate (Gillings *et al.* 2008, 278–9). Reynolds's reluctance to see any religious antipathy to the stones, or all would have been destroyed, is certainly hard to counter.

Another murder was responsible for the first mention of the henge, for John the spinner met his death at the *waledic* in 1289. In 2001, Reynolds translated this as 'ditch of the Britons', from OE *weala*, but subsequently discussed the more prosaic alternative that it is simply 'wall-ditch' (Pollard and Reynolds 2002, 203–4). The 'e' could point to the *weala* origin, but at such a late date is far from conclusive, and it would run counter to the general southern English practice of naming earthworks after people, gods or the devil (the 1304 document has '*waldich*', which does not help further; one might note that the 'barber-surgeon' had three coins with him which post-date 1289, otherwise the document and the archaeology would almost certainly have been claimed as an example of the two sorts of evidence confirming each other – if he were indeed a tailor, and John was really a spinner, Avebury was a particularly dangerous place for textile workers!).

**The Avebury Area**

There is little comment to be added to Reynolds's 2001 statement. The 11th-century evidence on Silbury Hill is remarkable; presumably it acted as a ready-made watch-tower from which to observe the road, and perhaps to be a beacon site. Recognition that the mound at Marlborough is a prehistoric construction does not preclude similar late Saxon use, with the difference that it subsequently became part of a royal castle. It will be interesting to see if it can be used to revise sight-lines suggested for the area.

Expansion of settlement and continued intensification of agriculture is not very different in the WHS area from any other, and it also has its share of deserted and shrunken later medieval sites.

## Post-Medieval (AD 1500–1950)

*by Joshua Pollard*

### *Introduction*

Consideration of the post-medieval period was omitted from the original *Archaeological Research Agenda for the Avebury World Heritage Site* published in 2001 (Chadburn and Pomeroy-Kellinger 2001), and indeed its archaeology is often not reviewed in synthetic accounts of the region (eg, Pollard and Reynolds 2002; Brown *et al.* 2005). There are exceptions (eg, Burl 1979; Ucko *et al.* 1991; Gillings

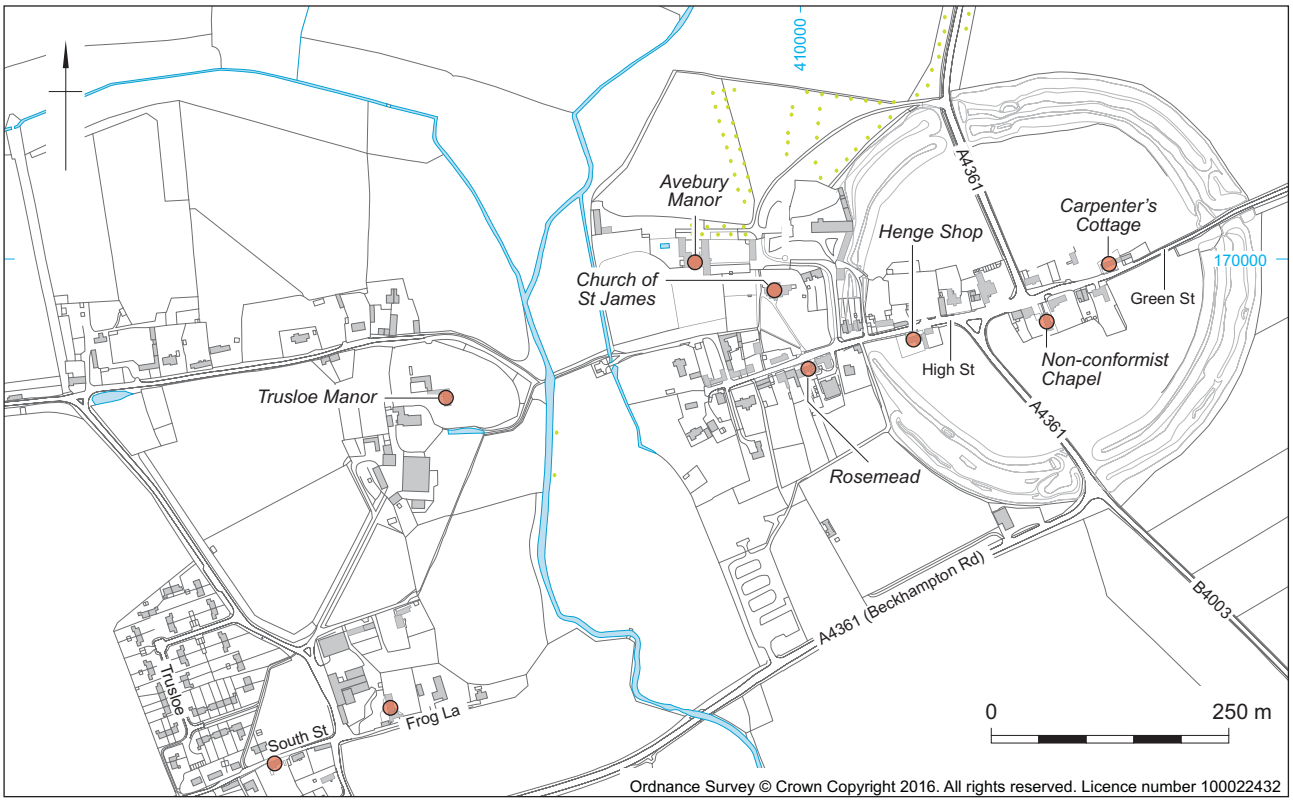



*Figure 21 Medieval and post-medieval settlement in the Avebury environs*

and Pollard 2004), although when dealing with the last five centuries these focus as much on documentary sources as archaeological. Academic interest in post-medieval (or 'historical' to borrow North American terminology) and recent and contemporary archaeology has flourished over the last two decades (eg, Hicks and Beaudry 2006; Tarlow and West 1999), but its potential is yet to be realised in the context of the WHS. This may seem rather perverse given the wealth of the material record – the ubiquity of buildings, landscape features and material culture – from the period under consideration; yet it is perhaps its omnipresence and the archaeological tendency to focus on the prehistoric (which has, after all, given the region its pre-eminent status) which has led to its being ignored. Recognising this gap in research potential, in his preface to the recent *Avebury Landscape* volume Fowler stressed the need to engage with '*landscape issues of the modern period*' [his emphasis], and defined a four-fold and thematic chronology of the 'mid-16th to early 18th century (post-Dissolution), mid-18th to early 19th century (Enclosure), 19th to mid-20th century ('industrial-isation'), and mid-20th century – present ('com-modification')' (Fowler 2005, xvi). Other schemes could be adopted, even ones that take a disciplinary frame of reference (pre- and post-antiquarian encounter, for example), but they do highlight a number of research strands such as social, economic and religious change, the working and inhabitation of the landscape, and material entanglement, that run through the thematic sections adopted here. At one level, the area comprises a fairly unremarkable piece of rural southern England; but because of the early recognition of the importance of its prehistoric archaeology, and the varying responses this engendered, it has developed a very peculiar character of its own.

Here, the focus is upon the material record of human activity from 1500 to 1950; though only passing reference will be made to historic standing buildings. The WHS boundaries incorporate the medieval and later parishes of Avebury (including the tithings of Beckhampton and West Kennett), East Kennett, Winterbourne Monkton and Overton (including the tithing of West Overton). Historical background is provided by a number of sources, principally Crowley 1983, Fowler and Blackwell 1998, Chandler 2001, Edwards 2003 and Parslew 2004; and these are drawn upon to provide context. That this is a short section does not reflect the wealth of known or potential archaeological evidence for the period, rather its poor realisation. To date, there has been only limited archaeological interest in the post-medieval archaeology of the Avebury component of the WHS (contrast with that of Stonehenge; Darvill 2005), and where encountered through mostly development-led fieldwork its reporting has been minimal, if undertaken at all. An exception, which hints at the research potential of the region, is provided by Fowler's archaeological and historical landscape study of Fyfield and Overton Downs ('Fyfod') in the eastern part of the WHS (Fowler 2000a).

## *Sources*

Resources include published and unpublished fieldwork reports, artefact assemblages, environmental remains, earthworks, sub-soil features and deposits, landscape features such as roads/tracks and hedgelines, and standing structures. Early maps (estate, county and Ordnance Survey) and drawings, along with other documentary material, provide a rich source of information on the development of settlements, changing patterns of road communication and landscape organisation (for early estate and enclosure maps of Avebury see Ucko *et al.* 1991; for Fyfield and West Overton see Fowler 2000a, 39–41). Another important, if currently little utilised, source of information comes from early antiquarian records, particularly those made by William Stukeley between 1719 and 1724. As well as producing rich visual documentation of ancient monuments, Stukeley faithfully recorded the contemporary surrounding landscape in which sites occurred; perhaps in order to provide points of geographic reference in an age before the availability of detailed maps. His records of Avebury in particular show houses, barns, plots and even the locations of orchards and stands of trees with a level of hobbyist accuracy (*cf.* Stukeley 1743, frontispiece; Ucko *et al.* 1991). It has even proved possible to translate this record onto a modern map base (Gillings and Pollard 2004, fig. 15). The background detail preserved in Stukeley's drawings of the megalithic complex (eg, Gillings *et al.* 2008, figs 12.1–12.8) can similarly be used to reconstruct the wider early 18th-century landscape, especially when combined with data obtained through fieldwork. Such an exercise has already been undertaken for the area to the west of Avebury (*ibid.*, fig. 12.9).

Other antiquarian/early archaeological mapping exercises are equally useful. Colt Hoare's 1821 plan of the Avebury complex, prepared by Philip Crocker (Colt Hoare 1821, pl. X), gives excellent detail of not just archaeological features, but of contemporary roads, the settlements of Avebury, South Street, West Kennett and part of Beckhampton; while A. C. Smith's admittedly schematic maps of the area include field names and show areas where sarsen spreads remained during the later 19th century (Smith 1885).

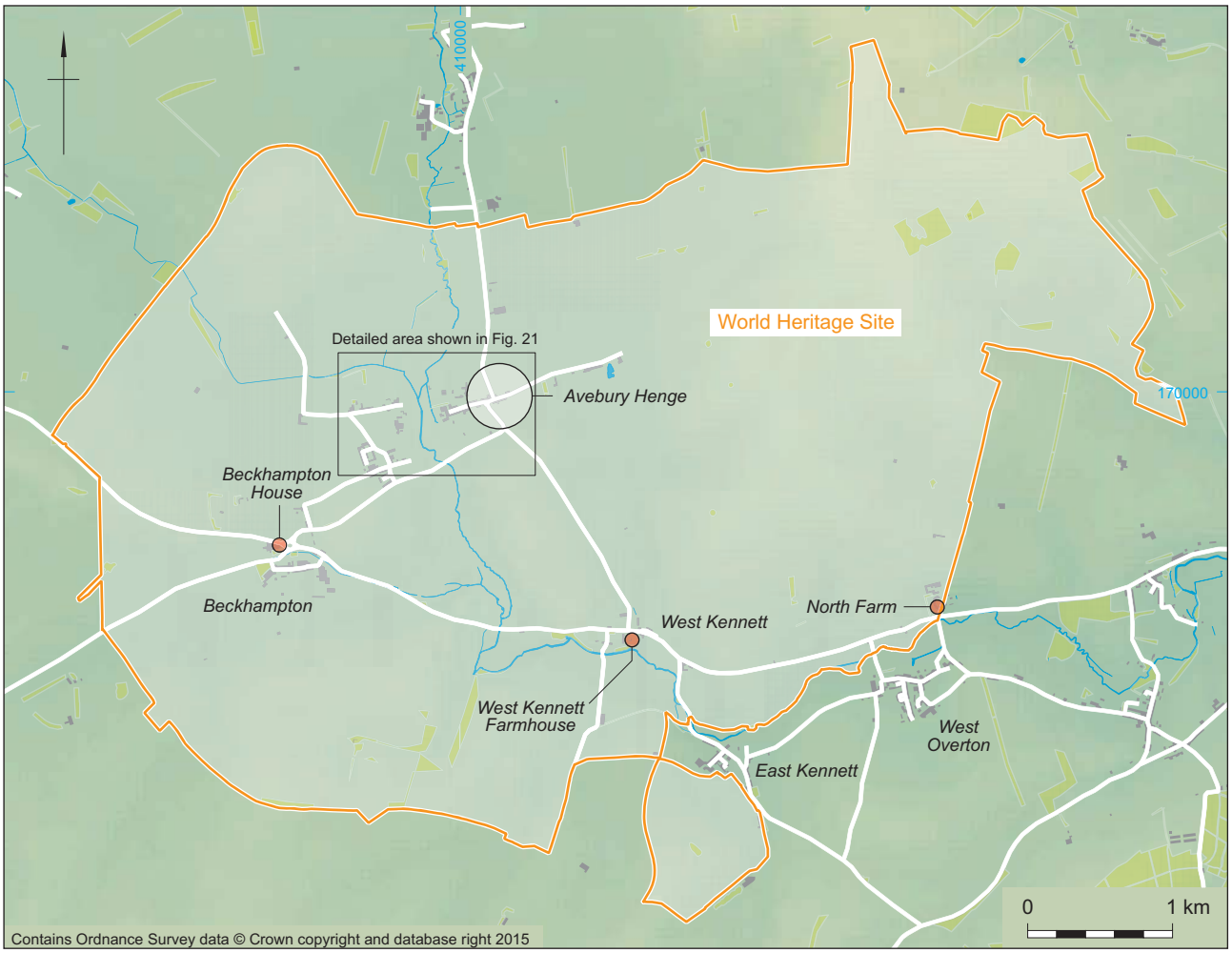



*Figure 22 Medieval and post-medieval: places mentioned in the text*

Aerial survey has made a major contribution on a landscape scale, through both transcription of photographs and more recently lidar. An example is the plotting of the incidence of ridge and furrow cultivation and valley-bottom watermeadow systems in the eastern part of the WHS by English Heritage for the 'Fyfod' project (Fowler 2000a, figs 2.3 and 15.3).

## *Settlement*

The structure of settlement in the area was established during the medieval period (Fig. 21), in the case of Avebury being shaped by monastic holdings that included three manor houses and associated premises (including the alien priory in the hands of the abbey of St Georges de Boscherville that was to become Avebury Manor). This had generated a complex pattern that included more than one focus: the main village stretching along the High Street/Green Street axis within and outside the henge; several early post-medieval cottages along Frog Lane and out along South Street (probably part of a shrunken medieval settlement); and around and to the north-west of Truslowe Manor. Other smaller settlements were present at Beckhampton, West Kennett, East Kennett and West Overton (Fig. 22). In the case of Avebury significant 19th-century infill occurred along roads such as Green Street, though more systematic development in the second half of the century was prevented through purchase of land by John Lubbock (later Lord Avebury). Also reflecting growing concerns over the impact of expanding settlement on the prehistoric complex, Avebury Trusloe became more populous and nucleated from the 1930s with the relocation of families from the Avebury henge to a new estate here in advance of Keiller's restoration of the monument. The process of piecemeal demolition of structures within the henge and relocation of residents was to be continued by the National Trust after the War.

A good number of early post-medieval buildings survive within Avebury and other parts of the WHS. Of note are the complexes at West Kennett Farm and Avebury Manor. The former includes a substantial

*Plate 35 Avebury Manor (© Erica Gittins)*

farmhouse of the 17th century and later, ranges of 18th- and 19th-century barns around a courtyard (part of which contained the former Kennet brewery), a dovecote and cartshed. Avebury Manor (Pl. 35) developed from the alien priory. The manor itself is mid–late 16th century with 17th century and later additions. Contemporary are a dovecote, the Great Barn and early 18th-century components such as the stables now converted to house the Alexander Keiller Museum. A recent survey of the Manor complex by English Heritage (McOmish *et al.* 2005) has shown that while medieval and possible Anglo-Saxon earthwork traces are present, much of the visible complex is post-1600. Visible/surviving features include an 18th-century pond, drive, tracks and surviving tree-lined avenues; much of the work having been undertaken by Sir Richard Holford in the early 18th century. The gardens still preserve much of the 'room' format established by the Dunches during the late 16th and early 17th century (Mowl 2004, 14–7).

As much as can be determined, early (pre-1650) vernacular building was in timber-frame (eg, Carpenter's Cottage, Avebury). Sarsen and brick became favoured materials from the late 17th century, and there are also surviving examples of cob construction such as barns at North Farm, West Overton. The development of technologies to split sarsen, first by fire-setting, later by cold splitting, led to its wide-spread adoption as a building material, not just for houses, but also ancillary buildings, walls and paving. Numerous styles of sarsen building are evident.

There has been only limited excavation within areas of post-medieval settlement. Keiller's work at Avebury recorded building foundations against the High Street in the SW sector of the henge, along with property walls and ditches first established during the medieval period (information from Alexander Keiller Museum). Development-led excavations during 1982 at the rear of the Avebury 'Gift' shop (now the 'Henge' shop) and 'Rosemead' on the High Street revealed an expected range of small pits, gullies, building extensions and a brick-lined well (Harrington and Denham 1986). Work around the non-conformist chapel at Avebury has produced traces of mostly late (19th century) surfaces, structures and a pit (Anon. 1991b; 2003). 18th- to early 20th-century refuse deposits were encountered against the stones of the Cove during reinstatement work in 2003, along with wall footings and small pits (Gillings *et al.* 2008). Some at least of the refuse had accumulated in the backspace between the rear

of the original Rawlins' garage and the Cove. In each instance the scale of excavation was limited, but enough to establish the recurrent presence of post-medieval features and deposits in the spaces behind properties.

## *Agriculture and Industry*

An economy of sheep (wool) and corn was prevalent on the chalk of the Upper Kennet Valley during the late medieval and early post-medieval periods (Smith 2005). Open fields were cultivated on the valley floor and sheep grazed on the downland. This pattern is neatly depicted in the background of Stukeley's field drawings of the Avebury monuments which show very extensive open field cultivation across low ground to the west and south of Avebury (the West and East fields), and open downland beyond, dotted with what appear to be hedged square and rectangular sheep pens (*cf.* Stukeley 1743; Gillings *et al.* 2008, figs. 12.1–12.8). Such earthwork sheep enclosures – pennings – were constructed and used into the early post-medieval period, but were redundant by the mid-19th century. They occur in numbers across the Marlborough Downs, examples surviving on Horton Down, Avebury Down and Hackpen (Smith 2005). The large square earthwork of the Delling enclosure, on the high down of West Overton parish, may have served as an animal enclosure, though intimately linked to a farmstead. Limited excavation here in the early 1960s revealed traces of a house in one corner with an associated midden containing 16th- to 17th-century ceramics (Fowler 2000a, 128–31).

Plant macrofossil and faunal evidence, as limited as it is, provides more detail. The most intensively studied assemblages come from the excavation of stone destruction pits of 16th- to 18th-century date at Falkner's Circle and along the Beckhampton Avenue. Faunal remains from the early 18th-century Beckhampton pits are dominated by sheep and cattle, with much smaller numbers of horse, pig and dog (Coward and Gouldwell 2008, 319). Oak, ash roundwood, maple, elm and willow/poplar charcoal represent the range of wood fuel used in the stone burning process on the Beckhampton Avenue, with the presence of relatively fast-growing roundwood indicating coppice probably from managed woodland (Gale 2008, 323–4). The Falkner's Circle charcoal includes a rather different range of wood species, being dominated by small oak roundwood and a limited amount of cherry, yew, hazel, hawthorn and ash (Young 2008, 324–5). What is not known is the distance from which wood might be procured. Fuel debris from Beckhampton also included much burnt straw, grain, and peas/beans, the latter almost certainly accidentally incorporated remnants of crop. Grains of six-row barley, intrusive in stone-hole fills, and radiocarbon dated to AD 1480–1660, were recovered from excavations at the Cove in Avebury (Gillings *et al.* 2008).

Enclosure came in the late 18th century (of Avebury and Beckhampton in 1795); more or less contemporary with a shift from sheep wool to meat production, and so different grazing regimes (Smith 2005). The requirement to provide early grass for sheep and hay for over winter led to the establishment of floated water meadows in the Kennet Valley floor. Extensive remnants of water meadow systems survive to the west of Avebury against the Winterbourne, and along the Kennet to the east of Overton Hill and at West Overton (Fowler 2000a, fig. 15.3). Survey of the latter suggests more than one phase to the earthwork channels (Anon. 2001, 253). Downland dew ponds are another water management technology widely utilised during the 19th and early 20th century for watering 'grass sheep' kept on the downs throughout the year and fattened for meat (Smith 2005). There are, however, good indications that some ponds may have a much greater antiquity, being first created during the Late Bronze Age (Gingell 1992).

The period under consideration saw various episodes of landowner sponsored 'improvement' of estates and farmland. Cannon suggests that both aesthetic sentiment and antiquarian interest during the later 18th and 19th centuries lay behind the planting of copses of trees on barrows, as on Overton Hill and the East Kennet long barrow. Providing game cover for hunting, these transformations could be seen as improving and evoking the past (Cannon 2005, 209).

Agricultural improvement involved progressive clearance of extensive spreads of sarsen stone within valley bottoms. There is little information on how this was enacted on arable land prior to the 19th century, but through excavation and contemporary accounts the details of stone removal are well documented in the case of megaliths making up the Neolithic monument complex (Smith 1965b; Gillings *et al.* 2008). From the 14th to the later 17th centuries obstructing megaliths of the Avebury henge and West Kennet and Beckhampton Avenues were toppled and carefully buried in bespoke pits. Contrary to earlier interpretations, there is no evidence that such clearance was Church sponsored. By the late 17th century demand for sarsen as a building material led to the adoption of fire-setting and breaking as a preferred technique. In the case of Avebury and its avenues, the main period of stone breaking came in the last quarter of the 17th century and first quarter of the 18th century; though radiocarbon evidence indicates the use of fire-setting at Falkner's Circle to the south of Avebury somewhere between the early

*Plate 36 The modern Ridgeway path, where it crosses Overton Hill (© Erica Gittins)*

15th to mid-17th century (Gillings *et al.* 2008, 336). The main phase of landscape clearance came between 1850 and 1939, led by Edward Free and family in response to demand for stone for kerbs and tram setts in Swindon and elsewhere (King 1968). During this period sarsen blocks were split using steel wedges, the blocks being 'quartered' into manageable sized lumps that could be removed and further worked down elsewhere. A number of partially split blocks remain on the downs in the eastern part of the WHS (see Fowler 2000a, pl. IV).

## *Communications*

Since prehistory the area has been traversed by an important east–west routeway, defined during this period as the London–Bath coach road (the current A4). Prior to improvement and formalisation with the 1742/3 turnpike, the main east–west route comprised a braided road network that ran over Manton, Overton and Avebury Downs, along Green Street through the east entrance of the Avebury henge, and exiting through the southern entrance towards Beckhampton, in places then following the Roman road. Traces of the coach road still survive as a network of hollow-ways on the downs to the east of Avebury (Fowler 2000a, 22; pl. VI). Of other communication routes, those running north–south from Swindon, through Avebury, then to Devizes (the current A4361) and into the Vale of Pewsey became turnpike roads in 1767 and 1840 respectively (Chandler 2001, 89). The present-day Ridgeway (Pl. 36) is best understood as one of a series of mainly north–south downland droveways cutting across the Marlborough Downs that were utilised during this period for the controlled movement of sheep (Fowler 2000a, 256). Other downland paths and fieldways in active use during the post-medieval period are preserved as contemporary trackways; while redundant routes can occasionally be detected through geophysical survey, as with the north–south fieldway at Beckhampton (Gillings *et al.* 2008, figs 2.76–7).

Of the infrastructure associated with major communication routes, there exists a series of mid-18th-century milestones in colour-washed sarsen with painted legends to the north, east, south and west of the present Beckhampton roundabout. During the early decades of the 20th century garages were established in Avebury and on the A4 to the west of Silbury Hill. The site of the original Rawlins garage adjacent to the Cove in Avebury was cleared as part of pre-War improvements to the monument and remains open. Its Deco-inspired successor, located outside the north entrance, has since been lost to redevelopment.

## *Religion, Ceremony and Recreation*

The period covered here incorporates the Dissolution, the formation of the Church of England and the rise of non-conformism. As elsewhere, the English Reformation will have led to changes to the fabric of St James's Church at Avebury, though these remain to be investigated in detail. The churchyard contains a range of later 18th–20th-century tombstones that would also repay examination (Mytum 2000). Avebury itself witnessed an influx of non-conformists during the later 17th century as a result of the 1665 Five Mile Act; and it was members of the non-conformist congregation who led the process of stone breaking during the late 17th and early 18th centuries. Their chapel, in sarsen and brick of *c.* 1707 with early 19th century additions survives on Green Street.

Physical traces of more profane practices are present, such as the site of the village maypole

*Plate 37 Concrete markers at The Sanctuary (© Erica Gittins)*

excavated in the area of the Southern Inner Circle at Avebury during 1939 (Smith 1965b). An important annual sheep fair was relocated from Tan Hill to a spot adjacent to another prehistoric monument, Silbury Hill, in 1932 (Smith 2005, 196). Reflecting its landscape prominence and roadside position, Silbury also provided the focus for a number of gatherings and sporting events during the 19th century. The breeding and training of racehorses has been a feature of the region over the last two centuries. Early stables and gallops are still in use at Beckhampton, and former gallops are visible as runs of marker stones and carefully levelled strips of ground on the Marlborough Downs (Fowler 2000a, 253).

## *Material Culture*

Selective recovery and partial reporting affects our knowledge of material culture consumption (acquisition, use and discard) in the WHS during this period. Those assemblages that have been reported, principally from Avebury, display a range of ceramic and glass types that would be expected from a reasonably prosperous large rural settlement. Excavations at the rear of two post-medieval buildings in Avebury – the 'Henge' shop and Rosemead – produced 17th-century and later stoneware bottles and tankards, coarseware iron- and lead-glaze pancheons, along with mocha and transfer-printed wares (Harrington and Denham 1986). More distant imports comprise sherds from several early 18th-century Westerwald tankards from Keiller's excavations adjacent to the High Street in 1938. Though not fully reported, there is a reasonably large assemblage of 17th–19th-century ceramics, glass, clay pipe and coins excavated in the paddock immediately across the Calne road from Beckhampton House (Gillings *et al.* 2008, 113). In part this may have been generated by activities at the building during its various uses as an inn (The Catharine Wheel), then meeting place of the political 'Beckhampton Club' in the early 19th century, and finally racing stables (Parslew 2004, 38).

The most thoroughly reported post-medieval finds assemblages derive from the excavation of stone destruction pits within the henge and along the Beckhampton Avenue (Smith 1965b; Gillings *et al.* 2008). Keiller's excavations at Avebury produced a substantial number of clay pipes, mostly spanning the period 1660–1710 and produced by Marlborough makers, which appear to have a strong contextual and chronological link to the process of stone-breaking (Gillings *et al.* 2008, 300–2). Material from the fills of the Beckhampton Avenue stone-breaking pits includes items that might again be related to the process of fire-setting and reducing megaliths (such as clay pipes, and ironwork such as nails and roves from timbers), to incidentally lost dress fittings (copper

alloy buttons and a spur), and things that might have been introduced to the field through manuring (sheet and bottle glass and ceramics). Here, the small ceramic assemblage is dominated by Verwood-type earthenwares, but with lesser quantities of slipwares (Bristol or Staffordshire) and Rhenish stonewares; with later stonewares, pearlwares and industrial white wares as topsoil finds. That the process of stone-breaking could generate its own material culture is illustrated by the find of a unique hooked iron implement recovered from a pile of broken sarsens outside the southern entrance of the henge (Smith 1965b). Contemporary depictions by Stukeley of megaliths being fire-set show labourers holding hafted versions of this implement, which was probably used for raking out burning straw (Gillings *et al.* 2008, fig. 10.1).

## *The Archaeology of Archaeology*

By the late 1930s archaeology was rapidly reconfiguring parts of the landscape – sites were being excavated and reinstated, housing shifted to accommodate restoration of the prehistoric monument complex, and facilities created for growing numbers of tourists. Needless to say, this all produced a distinct set of material signatures that are now becoming both heritage in their own right and important physical records of the development of an academic discipline. Traces take two forms: the modifications made to monuments through excavation; and the modifications made to monuments in their reconstruction and presentation. While often characterised as 'damage', re-excavated antiquarian trenches such as those at Silbury Hill, the Avebury Cove and various round barrows on Overton Hill provide an important resource detailing emerging investigative practices linked to a development of understanding of monument sequence, morphology and deposit content. In the case of monument reinstatements, those at the Sanctuary (Pl. 37) (1930), Avebury henge, West Kennet Avenue and Windmill Hill (1934–9) provide records of quite innovative responses – permanent marking of timber post positions in concrete in the case of the Sanctuary, redefinition of earthworks at Windmill Hill (ultimately unsuccessful), and full-blown reconstruction in the case of Avebury and the West Kennet Avenue. There is a need to shift disciplinary histories away from those that are histories of ideas to ones that take account of field practices, their material dimensions, the physical encounter with the past and its imagination as realised through presentation to the public. The Avebury WHS is exceptionally well placed to do this.

*Plate 38 The Great Barn, Avebury (© Erica Gittins)*

## Built Heritage

*by Bob Davis, Anne Upson and Rosamund J. Cleal*

### *Study of the Built Heritage Resource to Date*

In contrast to the considerable body of past investigation and recording of the important prehistoric landscape, previous study of the extant built heritage of the area has been modest. However, even some early visitors to the area, such as Stukeley, although initially drawn by the prehistoric monuments, were also aware of some of the buildings of the area, evidenced by his sketch of the gabled front of Avebury Manor of 1723 and by his many detailed drawings and plans, including highly detailed and apparently accurate representations of the village, which include 'birds eye' views of many of the houses, other buildings and infrastructure such as roads and tracks (see Ucko *et al.* 1991 for a study including many previously unpublished views).

It is only in recent decades that the study of the vernacular built heritage has been given the importance that it deserves. Even the iconic *Buildings of England* series is subject to the criticism that the first editions of its county volumes focused disproportionately on the churches and higher status buildings of each settlement, while confining mention of the local vernacular buildings to a general passage resulting from a 'Perambulation'. In the edition of 1975 the only houses described in Avebury parish are Avebury and Trusloe Manors, West Kennett House, and Bannings and Westbrook farmhouses; only Avebury Manor is described at any length (Pevsner, revised Cherry 1975, 96–103, 564).

Due to its considerable national and international importance, the archaeological resource of the prehistoric to medieval periods within the WHS has been investigated and surveyed in detail, while the less significant remains of its post-medieval and modern past have not been subject of any comprehensive study. Conservation Area Statements prepared for Avebury and West Kennett Conservation Areas in 2003 provide the most comprehensive analysis of the surviving built heritage of the area to date.

### *The Designated Resource*

**Listed Buildings**

This heritage-rich and relatively unspoilt part of rural Wiltshire is well-represented on the *List of Buildings of Special Architectural or Historic Interest*. The designated area contains a total of 82 Listed buildings, only four of which are listed at above Grade II. The higher grade buildings are all situated at the heart of the village of Avebury and comprise:

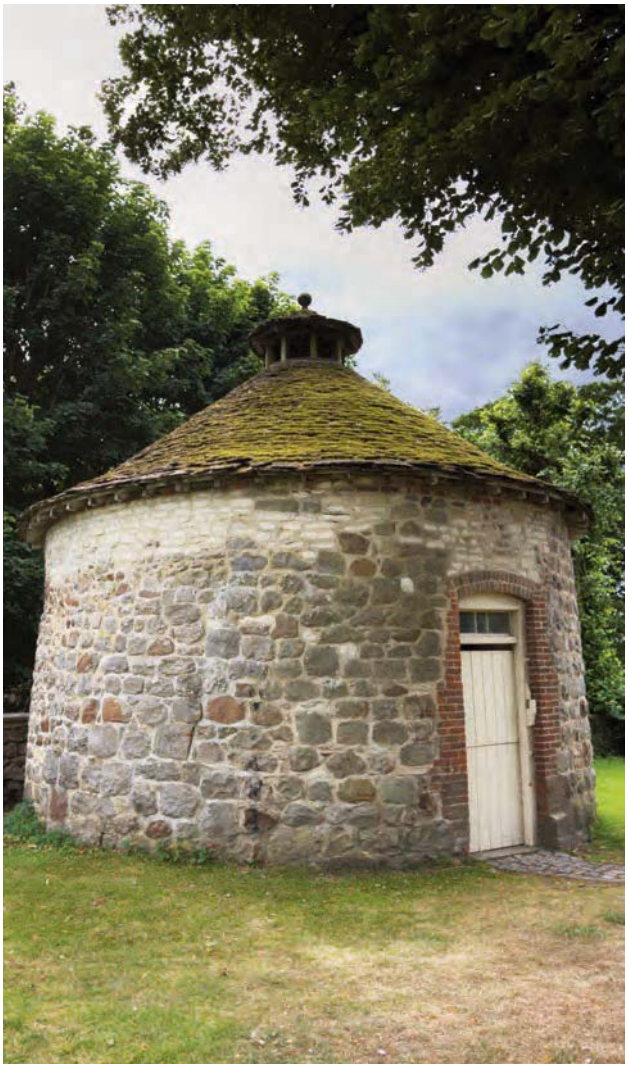


*Plate 39 The Dovecote, Avebury (© Erica Gittins)*

- Church of St James (Pl. 34) Grade I
- Avebury Manor (Pl. 35) Grade I
- Great Barn at Avebury Manor (Pl. 38) Grade I
- Dovecote at Avebury Manor (Pl. 39) Grade II*

A total of 14 of the 82 Listed buildings are associated with Avebury Manor, and include the house, former stables, racquets court, garden walls, gates and statuary. Other built heritage 'types' well represented in the group of Listed buildings are farmhouses (6), other farm buildings (6), cottages (14), milestones (5) and boundary walls, gates and railings (18).

The vast majority of the Listed buildings are situated within one of the nucleated settlements; the notable exceptions being a series of milestones along the A4 and A361, and Down Barn Cottage in an isolated location on Overton Down. The village of Avebury has a total of 44 Listed buildings, Avebury Trusloe has nine, and Beckhampton and West Kennett have eight each.

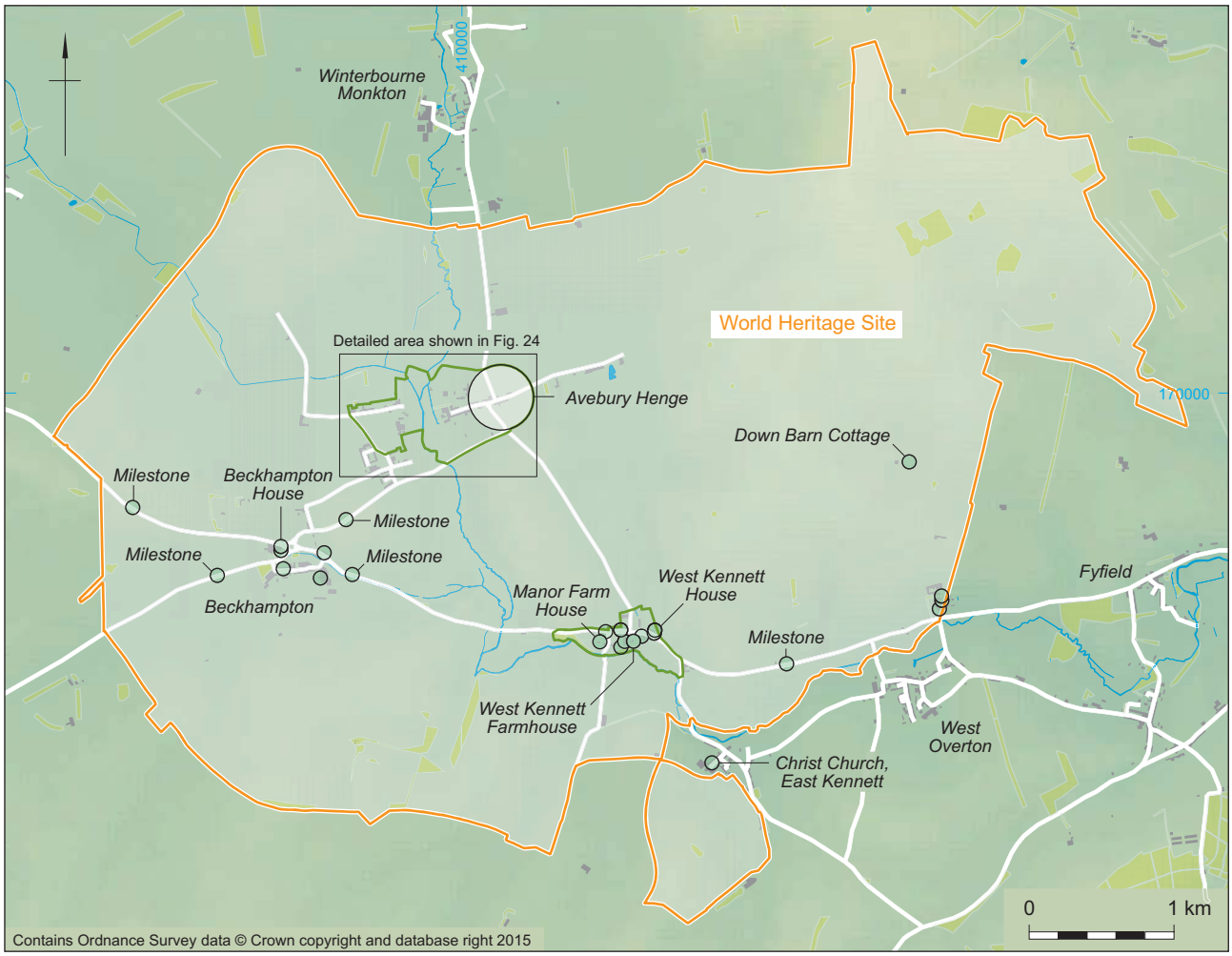



*Figure 23 Listed buildings in the Avebury WHS*

**Conservation Areas**

The Avebury area of the WHS also contains two Conservation Areas: the settlements of Avebury and West Kennett, both of which were designated in 1975 (Fig. 24).

The Avebury Conservation Area includes the prehistoric circle, the entire village centre and lands to north and south, and extends westwards over the line of the River Kennet to include the northern part of Avebury Trusloe, including Trusloe Manor and the buildings along Bray Street. It also extends south to include Chapel Cottages on the edge of the later settlement core (Fig. 23).

The West Kennett Conservation Area includes Manor Farm and West Kennett Farm to the south of the A4, and West Kennett House and all other developed sites to the north of the main road (Fig. 24).

Both settlements contain a varied mix of architectural styles and materials, reflecting the range of locally available materials, and the utilisation of imported materials in later buildings. Conservation Area Statements have been prepared for both of these areas, and provide a good level of information about the development of the built heritage, locally distinctive materials, and their deployment in different periods.

## *Character of the Built Heritage*

**Settlement characterisation**

The settlement pattern within the WHS is characterised by a small number of villages located in the Winterbourne and Kennet River valleys, and a few isolated farmsteads. The villages are traditionally of nucleated form, though in some cases this has been affected by later ribbon development along major routes.

The pattern of settlement has generally been dictated by the need for water and only the village of Avebury itself appears to have been sited deliberately in close association with the prehistoric monument. Even then, the village is also close to the Winterbourne which flows from north to south to the west of the village.

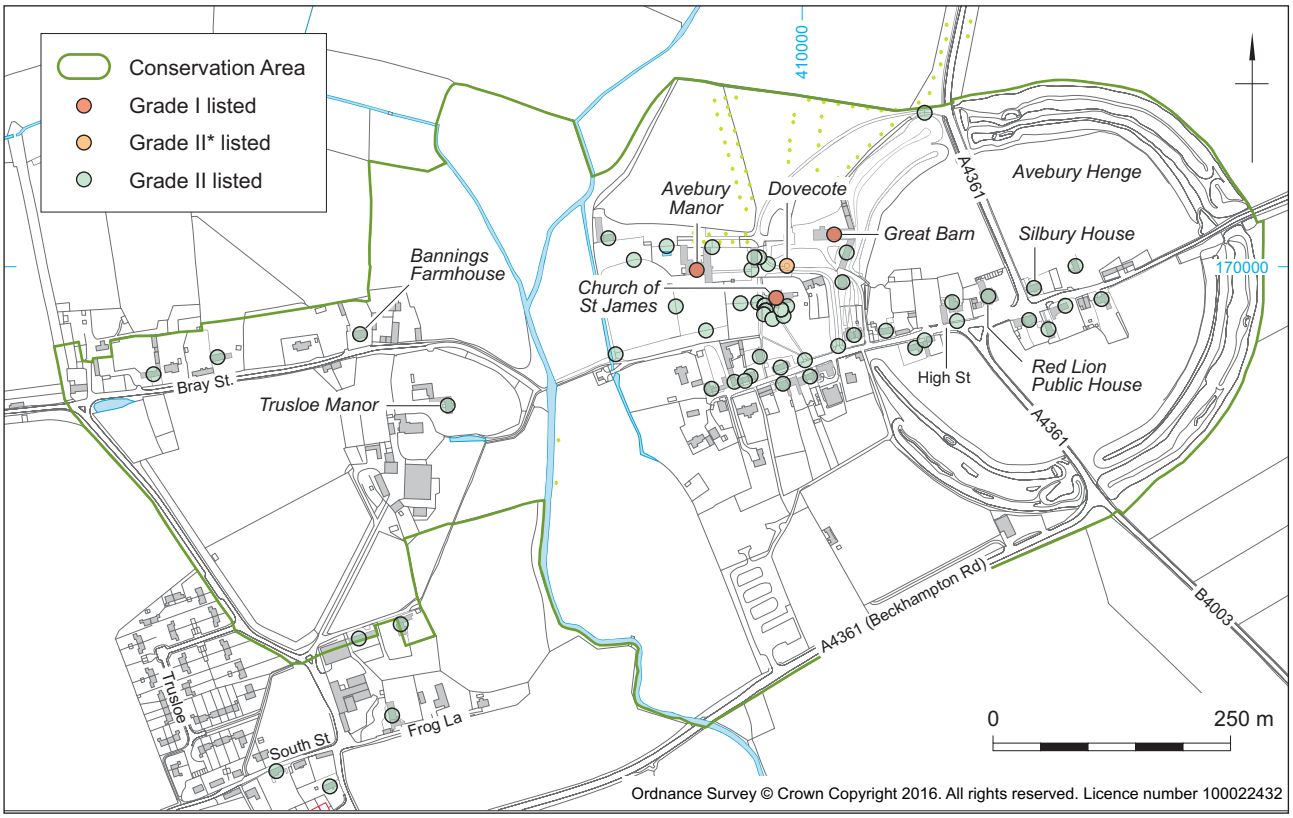



*Figure 24 Listed buildings in Avebury and Avebury Trusloe*

**Vernacular building**

The vernacular built heritage resource is dominated by dwellings and farm buildings constructed from a variety of readily available and local materials. These predominantly include timber framing, sarsen and limestone, while flint, chalk and cob were also traditionally used. Lime has been the traditional bonding material and this has also added a distinctive character to the appearance of the area.

One of the most notable features of the built heritage of the area is the known use of components of the prehistoric stone circle and avenues to provide vernacular building materials. The process was well known, with some local families specialising in stone-breaking, which was also carried out by farmers. The tradition was described by Stukeley, with reference to specific local families, and demonstrates that this activity was carried out over a number of centuries up to and including the 18th century. This provides one of the most tangible links between the prehistoric monuments of the area and the built heritage (see Gillings *et al.* 2008 for a fuller description of stone breaking).

Traditional roofing was again generally typical of the southern region, with simple steep pitched roofs covered in thatch; in this case long straw wheat. Many examples of the traditional thatched roof (Pl. 40) covering still exist within the WHS, but examples of the modern vernacular, dating to the 18th, 19th and 20th centuries demonstrate the availability of a greater range of materials such as plain tile and slate, giving the roofscapes of the various villages their existing diverse appearance. Traditional windows and doors are also typical of the southern region with mainly small timber framed casements used.

Surviving historic farm buildings contain timber framing of both oak and elm and are also built to regional plan types such as rectangular threshing barns, cart sheds and stables. However, no extensive survey has been made of the plan form and layout of farm complexes within the WHS. Farm buildings in the area reflect the many agricultural improvements imposed by government and fashion and show the characteristic expansion of farm yards and buildings required to keep pace with the needs of agriculture. Together with surviving examples of traditional farm buildings, there are numerous examples of more modern and functional buildings alongside. There is also a predominance of modern external cladding to barns (Pl. 41) and this includes timber weatherboarding and corrugated metal and asbestos sheet.

Whilst the farms have been the subject of major changes and expansions the individual houses of the nucleated settlements retain their traditional form and are generally set within their well-defined

*Plate 40 Traditional thatched roof, South Street, Avebury Trusloe (© Erica Gittins)*

*Plate 41 Modern agricultural buildings, Avebury Trusloe (© Erica Gittins)*


*Plate 42 United Reformed Church, Green Street, Avebury (© Erica Gittins)*

enclosures or boundaries. The dwellings are characterised by typically modest one- and two-storey cottages built to a post-medieval rectangular plan form with end or central chimney stacks.

There are also examples of 19th-century estate buildings in Avebury and the surrounding area which provide a distinctive and recognisable stylistic element to the built heritage, and also reflect the changing land ownership of the area. The rest of the built resource is typified by pre-fabricated farm buildings and modern houses, including local authority stock, which form part the modern element of the settlements.

**Gentry-owned houses**

A number of houses within the WHS were built or developed by gentry families and were used, in some cases only occasionally, by those families. Avebury Manor is the largest of these, and appears to have been built or rebuilt in the mid-16th century, considerably enlarged around 1600, enhanced internally in the first half of the 18th century and substantially restored and enlarged in the early 20th century (Treasure 1991; Upson with Davis 2011). Smaller examples are found at Avebury Trusloe, Beckhampton, East Kennett and West Kennett and this architecture is represented in all of the settlements as well as being located along the main east–west A4 road.

Stylistically these buildings range in date from the 16th century to the 18th and 19th century, and those earlier houses, such as Avebury Manor, demonstrate architecture of successive periods through their incremental extension and embellishment. The quality of this architecture is partly a reflection of traditional styles mixed with modern design and the availability of materials. The 18th and 19th centuries saw significant advances in both design and materials. The Avebury WHS has excellent examples of these types of buildings. Architectural features such as sash windows and slate-covered low pitched roofs together with rendered exteriors and brick elevations are all well represented. Landscaped formal gardens have been laid out and in many cases their proportions maintained by historical boundaries.

*Plate 43 Iron railings on low stone brick walls, High Street, Avebury (© Erica Gittins)*

**Christian foundations**

Christian foundations are also represented within the WHS. The site on which Avebury Manor and Garden stands was that of a Benedictine alien cell, but no certain tangible remains of this survive (an example of possibly *in situ* pre-16th-century stonework mentioned by Sir Francis Knowles as found during his work on the house (Knowles 1958, 360) cannot now be identified although it is possible that it is buried under a small area of late 20th-century render). St James Church at Avebury has origins in the Saxon period with later Norman and post-medieval additions and alterations (see Anglo-Saxon and Medieval section, above). The Nonconformist movement is also represented in Avebury by the United Reformed Church (Pl. 42) in Green Street. Material used in the fabric of St James includes flint, sarsen, limestone and brick, largely reflecting and maintaining the local character, while the roofing material is largely slate.

**Boundary features**

As a result of the modern expansion of farming techniques in the area, the overriding impression of the open landscape field boundaries is of modern fencing such as post and wire. The more established boundaries, particularly within and around the settlements, demonstrate the local vernacular of the area with a variety of materials and styles employed. These include, most notably, rendered cob on sarsen footings with traditional thatched, stone and clay tile copings. These are mainly employed around farmyard enclosures and domestic property boundaries, and a particularly notable example is the thatched sarsen wall around Truslowe Manor. Avebury Manor Old Farmyard also includes an unusual example of an inscription in sarsen, on the boundary wall between the 'Plough Way' or South Drive and the farmyard. A large sarsen within the wall is inscribed 'Sr AW Kt 1797', Sir Adam Williamson being at that time the owner of Avebury Manor, recently returned from the West Indies.

The significance and quality of boundary features within the WHS is demonstrated by their inclusion on the statutory list. There are a total of 18 Listed hard landscape features within the WHS, including walls, gates and railings, as well as the very locally distinctive drainage channels using sarsen setts along the High Street in Avebury village. Iron railings set on low stone (Pl. 43), and later brick walls, are a particular feature of Avebury village, and survive in association with quite modest houses. A local anecdote records that the survival of iron railings at Avebury Manor, and perhaps elsewhere in the village, during the metal-collections of World War II, was due to the refusal of Alexander Keiller, the then owner of Avebury Manor, to allow them to be taken, but there appears to be no documentation to support this.

**Milestones**

Features relating to transport also add distinctiveness to the local scene. Avebury was at the centre of an important east–west cross roads for many years. By the late 18th century the popularity of Bath to the west was at its height and the road to the west was improved by this time. Traditional roadside coaching

inns are represented within the area, and a group of five listed milestones relating to the 18th-century turnpikes survive.

**Street furniture**
Street furniture is chiefly represented by period telephone and Royal Mail post boxes (Pl. 44). These traditional red features, once taken for granted within the English village, are now becoming a rarity. The World Heritage status of the Avebury area has helped to preserve these iconic items and they continue to form an important part of the streetscape.

**Military**
There is little or no evidence of specific military features within the WHS. However, there are features relating to the Second World War period located just outside the WHS area to the west. These features principally relate to the abandoned RAF airfield at Yatesbury and include hangars, buildings and defensive structures such as pill boxes. A single post-Second World War Royal Observer's post survives on Waden Hill.

## *Period Summaries*

**Saxon and Medieval**
The Church of St James, Avebury, dates from the 10th century, with alterations in the 12th and subsequent centuries up to the 15th. The nave is Anglo-Saxon, with 15th-century aisles replacing late 12th-century narrower ones, and a 13th-century chancel.

While this is the only known extant built fabric of the period within the Avebury area of the WHS, there is considerable further evidence of contemporary building in the form of complex earthworks, including building platforms, especially to either side of the River Kennet between Avebury Manor and Trusloe Manor. A hollow-way running north through Avebury Manor Park may represent an early extension of settlement in that direction.

**16th century**
A small group of buildings date securely to the 16th century:

- Avebury Manor (Pl. 35)
- Avebury Trusloe Manor
- Dovecote at Avebury Manor (Pl. 39)

While a further two date to the late 16th/early 17th century:

- Dovecote at West Kennett Farm
- Red Lion Public House (formerly a farmhouse), Avebury (Pl. 45)


*Plate 44 Royal Mail post box, Avebury Trusloe (© Erica Gittins)*

The 16th-century east range of Avebury Manor, its dovecote, and the surviving elements of Trusloe Manor are all constructed of the local sarsen rubble – the former rendered, the second previously rendered, and the last lined with chalkstone – and all have stone slate roofs. The dovecote at West Kennett Farm is also of sarsen, and the central early range of the Red Lion is of rendered sarsen rubble. Due to the very hard and unworkable nature of the sarsen rubble, most quoins and all dressings were of limestone or chalkstone.

**17th century**
Fourteen of the listed buildings within the area date to the 17th century, and another three to the late 17th/early 18th century. It is to be assumed that any building of this date, which survives in anything like authentic condition, will be Listed and therefore a considerable amount of information about this period of building is available through listing descriptions. However, the descriptions written some decades ago were regularly prepared from an external inspection


*Plate 45 The Red Lion, Avebury (© Erica Gittins)*

only, leaving a considerable proportion of the evidence untapped.

The majority of the Listed buildings of this date are cottages; regularly found in pairs or short linear ranges, and are of low, linear proportions, with first floor windows immediately below the eaves. Many retain their thatched roofs, which would originally have been ubiquitous and of long straw wheat. Dormers are not a feature of this period of cottage, and 'eyebrows' in the eaves line are very rare.

Three Listed farmhouses also date to this period – Manor Farm House and West Kennett Farmhouse in West Kennett, and Westbrook Farmhouse in Avebury Trusloe. Although Westbrook Farmhouse is thatched, the other two have plain tile roofs.

These 17th-century farmhouses and cottages are almost exclusively built of sarsen rubble, though in the case of West Kennett Farmhouse, the sarsen has been squared and coursed. Some of the higher status dwellings have limestone or brick dressings, while many of the cottages have been colour- or white-washed. While the majority of buildings of this date were of sarsen, a small number of cottages introduced brick to the local scene.

Another notable building dating to this period is the Barn which was originally part of Avebury Manor Farm and is now part of the National Trust's 'Old Farmyard' area. This large, nine-bay thatched, aisled barn is of timber frame with weatherboarding set on stone dwarf walls and is nationally a relatively rare and therefore significant survival of this date.

Dendrochronology has dated some of the principal timbers to a felling date of around 1300, with the timbers representing at least two previous buildings, one probably an aisled barn, and one a cruck building (of which two partial blades survive). The majority of the Barn is in elm, and documentary sources record it as 'New Barn' in 1695.

Developments which may be classed as part of the built heritage in the sense that they involve considerable construction include the creation or 'floating' of watermeadows within the WHS. There are extant traces of at least one carrier alongside the Winterbourne north of New Bridge and the 1924 edition of the Ordnance Survey map of the area shows an aqueduct crossing the Winterbourne just upstream of the bridge. Water is shown at least along one stretch of the carrier in a plan of Avebury Manor of 1695 (Wiltshire and Swindon History Centre), indicating that much of the system was in place by then. The OS map of 1924 seems to show a fairly simple system, probably with overbank flooding from the carrier.

Water meadows were established quite early in Wiltshire and it is entirely likely that a system was operating in the Avebury area before the end of the 17th century, but there is also some indication that systems were being used and maintained into the late 18th century.

**18th century**

By far the majority of the Listed buildings within the Avebury WHS area date to the 18th century. This period includes the listed milestones, a number of monuments in St James' churchyard, and several hard landscape features including boundary walls, gates and railings.

The domestic buildings of this period begin to demonstrate to a greater degree the use of imported materials, in particular brick and plain tile. A number of fine houses displaying high quality brickwork, such as Bannings Farmhouse, West Kennett House, Beckhampton House and Silbury House were built during this period. In Avebury, some fine 18th-century houses were built along the High Street. These buildings were not subject to the 20th-century clearance activities, and therefore the built heritage character of the High Street within the monument is disproportionately of this type of property.

Although still often related to the agricultural economy, these houses display reference to the national fashions in building of their day, made possible by access to a greater range of non-indigenous building materials. The houses became taller, with more generous floor to ceiling heights, and with habitable attic spaces over two principal floors such as at Bannings Farmhouse, and even three principal floors at West Kennett House. The construction of these houses introduced a mix of materials and variety of building forms and architectural detail which characterises the area today.

A number of farm buildings dating to this period also survive. Whilst most of these would traditionally have been timber-framed and weatherboarded with thatched roofs, a small but significant group of stone-built farm buildings also survives, most notably those belonging to Avebury Manor Farm.

The 18th century also saw the establishment of one of the very few industries within the area, evidenced by reference to a malthouse on the lands of West Kennett Farm in 1745.

At least one structure in the landscape, a small but elegant brick-built bridge over the Winterbourne from Waden Hill to Silbury Meadow appears to have been built in 1793/4 as part of the arrangements for enclosure and at least in part financed as part of the process, as documented in correspondence between Richard Hickley, steward to the owners of Avebury Manor, and the owners, Anne and Adam Williamson (Wiltshire and Swindon History Centre 184/7).

**19th and 20th centuries**

New development in the area during the 19th century appears to have been relatively modest, though the century did see the growth of another of the very few industries in the area – George Butler's Brewery, with buildings on both sides of the main road through West Kennett and associated worker's cottages.

*Plate 46 20th-century housing in Avebury Trusloe (© Erica Gittins)*

At least one building, known in the late 20th/early 21st centuries as 'Avebury Antiques' still carries the traces of an advertising sign on its western gable end, advertising 'Perry's Hotel', an important village business through much of the 20th century. Other industries, including Titcombe carpenters, a butcher's, a baker's and a rope walk, have left no visible traces externally. Rawlins Garage, which stood in the early 20th century adjacent to the Cove stones, was moved in the 1930s to a site just outside the circle, partly funded by Alexander Keiller, and was finally demolished in the early 21st century by the then owners.

One of the most notable impacts on the built heritage of Avebury was that instigated by Alexander Keiller in the 1930s. His ambitious programme of works to improve the understanding and condition of the stone circle led to a move to reduce the number of buildings within the monument, although demolitions by Alexander Keiller were a very minor element in the eventual removal of a number of buildings. Documentation in the Alexander Keiller Museum – principally an annotated map – shows that most removals and demolition took place during the 1950s when a large part of the site was in National Trust ownership and the Ministry of Works supported this work. The demolitions took place alongside the development of alternative housing at Avebury Trusloe to the west (Pl. 46), establishing the 20th-century character of the southern part of that detached settlement.

## Modern Avebury

*by Ronald Hutton*

In 1800 Avebury was essentially a village with a prehistoric monument somewhat awkwardly dispersed through it. In 2000 it was a World Heritage Site formed around a prehistoric monument, with a village somewhat awkwardly tacked onto it: and in the contrast lies the best and the worst of its modern history, and most of the opportunities and problems that characterise it at the present day.

Scholarly publications on the monument continued to appear through the 19th century as they had through the 18th, but in larger quantity and with a return to the conflict of opinion which had marked attitudes to it before 1740. Certainly the orthodoxy was still that established by William Stukeley – that monuments like the Avebury complex had been built by the Druids – but within this model many different permutations were possible. Thus, Thomas Maurice in 1801 thought the Avebury henge to be an astronomical observatory; William Lisle Bowles in 1828 made it a calendar and temple of the Gaulish god Teutates as well; Edward Duke in 1846 found it to be a planetarium and in 1857 J. M. Kemble pronounced it to be a cemetery. At the same time the Druidic interpretation became challenged once more. In 1823 Henry Browne declared that it was a memorial to the events in the Garden of Eden, raised by Adam himself. Longer-lived and more influential was a school of thought which arose in the middle of the century and returned to the medieval idea that megalithic monuments were post-Roman. The first major exponent of this theory was Algernon Herbert in 1849, but the best-known and most prolific was James Fergusson, who between 1860 and 1872 made the Avebury henge into a memorial to the British war dead in the struggle against the invading Anglo-Saxons.

Meanwhile the villagers continued quietly going about their daily lives, which at times occasioned the destruction of more of the monument. In 1812 Sir Richard Colt Hoare had the site surveyed for the first time since Stukeley's day, and found that a dozen more stones had vanished since then, leaving only 17 in place. During the following two decades, tenant farmers broke up two fallen megaliths and a landowner directed the removal of three stones of the northern inner circle which obstructed cultivation of his property. Between 1841 and 1871 the population of the settlement virtually doubled, so that it pressed ever harder on the ancient remains. Small wonder that visiting antiquaries began to refer to the village as a whole with resentment or concern, Joseph Hunter calling it a 'vile hamlet' in 1829 and Sir John Lubbock a 'beautiful parasite' in 1865. Lubbock was one of the greatest of Victorian scholars, the one who first applied Darwin's new concept of human evolution to the study of the ancient European past, and introduced a large reading public to the model of a European prehistory severed from Biblical narratives and divided progressively into the Palaeolithic, Neolithic, Bronze Age and Iron Age. He also inaugurated a new epoch in the history of Avebury, by intervening in 1872 when land containing some of the remaining stones was offered for sale as a potential housing development. Lubbock bought some himself, to block construction, and thereafter lobbied for the passage of the first national legislation to protect ancient monuments in 1882, which included the henge, the surviving part of the West Kennet Avenue, the two Longstones and Silbury Hill in its schedule. Lubbock's affection for the place was signalled when he was subsequently awarded a peerage, and took the title of Baron Avebury, which is still held by his family.

Having secured the safety of the complex, the next step to be taken by modern scholarship was to commence systematic investigation of it. A trial excavation was made in 1865 to 1867, which merely confirmed that it was not a cemetery, and a thorough survey added in 1881 which detected many buried stones. In 1899 the British Association for the Advancement of Science formed a committee to settle the age of stone circles, and this commissioned a more ambitious programme of exploration at the henge. It was entrusted to the curator of the Taunton Museum, Harold St George Gray, who had learned the most advanced archaeological techniques of the time from their pioneer, General Pitt Rivers. He applied them well at Avebury, directing a team of diggers there at periods between 1908 and 1922 which focused on the ditch and bank which promised the best evidence for a date of construction. This was arguably to prove the most important single excavation at the henge thus far, because it established, once and for all, that the monument belonged to the Neolithic. Gray's work proceeded without any discernible disturbance of the village, and indeed provided some benefit to it, although not of a kind which he himself desired: he left open one of his ditch cuttings for eight years to discover how quickly it filled with earth, and returned to find that local people had dumped several tons of domestic rubbish in it instead.

After the process of study was well advanced, a parallel scholarly enterprise, that of reconstruction, could commence. In 1911 'Adam', the surviving megalith of the Longstones Cove, fell over, and the Wiltshire Archaeological and Natural History Society

decided to re-erect it, and followed this by putting up a stone in the West Kennet Avenue which had toppled in 1899. Such work was continued on a grand scale in the 1930s, and at the behest of a personality who arguably ranks with Stukeley as one of the two most colourful and influential yet associated with the henge: Alexander Keiller. He was born rich, the heir to a fortune made in the manufacture of Dundee marmalade, and equipped with enormous energy, confidence, curiosity, aggression and libido. His enthusiasms embraced some of the traditional pastimes of the wealthy, such as grouse-shooting, but more that were distinctively a creation of the 20th century, including fast cars and skiing. Fortunately, the latter category also included archaeology, in which he displayed his general love of novelty and innovation. He was first attracted to it in 1922 by reading in a newspaper of O. G. S. Crawford's pioneering work in the use of aerial photography to identify ancient sites, and offered to sponsor this. Two years later, Crawford drew his attention to a scheme to erect a radio mast on Windmill Hill, where signs of extensive prehistoric occupation had been noted. Keiller purchased some of the land (although by the time he did so the radio mast scheme had been abandoned) and this allowed him to pay for a major excavation, which revealed a Neolithic causewayed enclosure and such a rich assemblage of bones and artefacts that it became regarded as the definitive site for the main Early Neolithic culture of southern Britain, throughout the mid-20th century. Keiller was personally responsible for introducing practices of sectioning of ground and general retention of finds which were in advance of even most reputable contemporary archaeologists.

He also had to reckon with two problems in the process. The first was the immediate suspicion and hostility of the county's existing experts in prehistory, assembled in the Wiltshire Archaeological and Natural History Society, and above all Maud and Benjamin Cunnington, who had earlier re-erected the fallen stones described above. Crawford brokered a deal whereby they allowed the Windmill Hill excavation if Gray were brought back to supervise it. In 1927 Gray withdrew, or was pushed out, and Keiller took over directly, only to hit his second problem, a car crash in 1929 which left him incapable of the work. Meanwhile his antipathy towards the Cunningtons had remained as powerful, and as fully reciprocated, as before, and provoked Maud to compete with him by locating and excavating the site of the Sanctuary, an undoubted service to scholarship, although her methods were well below Keiller's standards. Keiller himself responded to both setbacks by turning his attention to the Avebury complex itself, hiring one of the finest archaeologists of the rising generation, Stuart Piggott. Piggott suggested an excavation of the section of the West Kennet Avenue nearest to the henge, but it seems to have been Keiller himself who now decided to buy the chunk of avenue outright, and with it the whole henge, and to re-erect fallen stones and repair and set up broken stones, in order to restore as much of the complex as was possible. The section of avenue was the first part of the complex to be given this treatment, in 1934–5, with dramatic effect: only three of its megaliths were still standing, but Keiller put up nine more that had fallen and 13 which had been buried, and set concrete markers on the sites of those completely lost, to give a sense of the whole monument. For the rest of the decade he applied the same treatment to the henge, restoring all that could be located of the megaliths of the outer circle, for more than half of its circuit, and the southern inner circle. Some startling incidental discoveries were made, such as the body of the 'barber-surgeon', and the complex was turned back into a much more spectacular monument. He managed to do this, moreover, without alienating the villagers. He was a good landlord, providing employment, buying drinks regularly and playing a full part in the social world of the community. He demolished a few modern buildings as part of his restoration of the prehistoric site, but the only one not already derelict at the time was a garage which he rebuilt handsomely outside the earthwork. He served both scholarship and the public by establishing a museum to house the finds from his excavations, and, though his perfectionism prevented him from publishing the results of those, they were well recorded enough to be brought into print by Isobel Smith in 1965.

The one, fatal, flaw in his plan was that even he could not afford it. In 1941 his fortune began to collapse, after he had spent the equivalent of £2,500,000 in current money on reconstructing the henge. He gave up the grand design with almost half of it incomplete, and with it any further interest in Avebury. In 1943 he sold all his land there to the National Trust for its agricultural value alone, bearing permanently himself the full cost of all his restoration work. The Trust thus found itself in charge of what he had turned back into one of the world's most impressive prehistoric structures, just at the moment at which the increase in private motor transport allowed it to become a major tourist attraction. In an important sense, Keiller had transformed the henge from being the concern of people with a special interest in prehistory to one of the iconic sites of ancient Britain. It suddenly became prominent in every textbook on the subject, and the National Trust

*Plate 47 The reconstructed West Kennet Long Barrow (© Erica Gittins)*

and the government's Ministry of Works set about, in parallel, developing it further for this changed role. Some of this process was destructive: the Trust went much further during its first 20 years of ownership than Keiller had done, in demolishing parts of the village and relocating the inhabitants in order to open up spaces around the megaliths. It removed several buildings in good repair and some of historic value, such as a row of 18th-century cottages, transplanting the inhabitants to a new housing development at Avebury Trusloe. The most constructive aspect of the work consisted of developing a selection of sites around the henge to make up a package with it which could be offered to visitors as the best representative sample of Neolithic ceremonial structures in England.

This was carried out by the Ministry, and a portfolio of four satellite attractions resulted, each taken directly into Government care and conserved by it, with footpaths, signposts and interpretative panels set up for tourists. Windmill Hill and Silbury Hill were two of these, and a third was the Sanctuary, where nothing had survived above ground since the 1720s but concrete blocks were installed to mark both the positions of the stone circles and of the timber posts which preceded them. The result, based on Maud Cunnington's interpretation, was to give a deceptive impression of four coherent stages of construction including two roofed buildings – corrected by Mike Pitts's re-excavation at the end of the century – but it made a vanished monument seem imposing and meaningful. The fourth satellite monument was to become the most exciting for many visitors. It was created after 1955–6, when Stuart Piggott, by now probably the leading British expert on the Neolithic, supervised the thorough re-excavation of one of the largest long barrows still visible in the district, that above West Kennett. It proved to be a transepted gallery grave, the most elaborate and impressive kind of stone-chambered barrow, with chambers of unusual size even for the kind. After the dig was complete, the Ministry restored them carefully, with deft additions of concrete, gravel and Perspex (Pl. 47), as a tourist attraction. The alteration in the site's reputation was striking: before the mid-1950s it does not feature in the guides to English prehistoric monuments, while thereafter it was the most famous, and frequently visited, long barrow of all. Although a thoroughly exceptional specimen of a rare variety of this class of structure, it has come to be the type one for very many people. When it had taken its place on the visitor trail, the latter was essentially complete, and all that was needed to activate it was a comprehensive, learned and accessibly-written official guide book, which was duly provided in 1959 by Richard Atkinson (1959), who stood second only to Piggott as an expert in the Neolithic of England.

The odd one out in the assemblage of 'honey-pot' monuments was Silbury, which had not undergone

any 20th-century excavation and whose purpose remained a complete enigma. In 1969 Atkinson therefore took it on, with ample funding accompanied by maximum media exposure, resulting in a two-year programme to bore a tunnel laterally through to the core, reported stage by stage on national television. The result was an anticlimax, and perhaps a disaster. No spectacular discoveries were made to satisfy the viewing public, and the mound remained almost as much an enigma as before. It was confirmed that no remains of a burial or of chambers existed in the centre, but that was also the conclusion drawn by antiquaries who had dug a shaft in 1776 and a tunnel in 1849. For a time it was believed that Atkinson's 'Silbury Dig' had still yielded important information, but it never received proper publication and was superseded by a much more effective if less publicity-conscious excavation in the 2000s. Its most important and least expected result was, perhaps, to inspire a lecturer in art history, Michael Dames, to offer his own, fluent and confident, interpretation of the hill. In 1976 he suggested that it represented the body of a great mother goddess, the empowering spirit of the earth, who had been the paramount deity of the European Neolithic (Dames 1976). The concept of such a deity had been orthodoxy among archaeologists themselves in the 1950s, having grown up slowly during the century before then. Ironically, it had been abandoned by them over the 10 years before Dames published, for lack of any unequivocal supporting evidence, but he was apparently unaware of this, and proceeded to link the cult of this presumed being with both Silbury and a nearby spring, at Swallowhead, which had hitherto not featured as significant in accounts of local prehistory. The success of his book inspired him to publish another, in 1977, which combined the Avebury henge with Silbury, the West Kennet long barrow and the Sanctuary as the focal points of a cycle of festivals, based on the opening of the seasons, which united all four monuments in one religious system.

What Dames had done, of course, was to impose an imagined ancient festive system on sites picked out by the Ministry of Works in the mid-20th century as its sample for tourist consumption. Archaeologically, his cycle did not work, because it put together monuments from different millennia, such as the henge and the long barrow, and ignored the western parts of the complex, such as the Longstones. His interpretation of Silbury, on the other hand, remains feasible, but only as one among many others. Such considerations are largely beside the point of his true significance, which was to open up Avebury as a focus for modern spirituality, and especially that associated with Paganism, the earth mysteries movement and the Goddess movement, three cultural phenomena which appeared in Britain between 1950 and 1980.

*Plate 48 Offerings in the rag tree at Swallowhead Spring (© Erica Gittins)*

All were associated with radical counter-cultures, and all drew on that yearning for a reconnection with the natural world and with former inhabitants of one's land which was one result of the dislocation produced by industrialisation and urbanisation in the Western world. Dames had provided these groups with a festive cycle which spoke to those needs and could be celebrated in the monuments so helpfully restored and opened to the public since 1930. In particular, his interpretation of Silbury as a representation of a great goddess made a natural appeal to the Goddess movement, a religious wing of American feminism which arrived in Britain in the 1970s. He turned the hill into a site for its rituals, and made the Swallowhead Spring another (Pl. 48). Henceforth, management of the Avebury complex had to reckon with a fourth interest group, to join the villagers who had been there for over a millennium, the scholars who had arrived in the 17th century and the tourists who had begun to appear in numbers during the mid-20th century: practitioners of forms of newly-evolved religion who regarded prehistoric remains as their sacred sites.

Archaeological investigation remained vibrant and very productive: indeed, excavations were conducted


*Plate 49 The Henge Shop, Avebury (© Erica Gittins)*

in or around Avebury in every decade of the 20th century except the 1940s, and continued into the 21st century. Since 1980, four stand out as especially noteworthy, the first being the investigation of outlying sites led by Alasdair Whittle in the years around 1990, the greatest discovery of which was the pair of palisaded Late Neolithic enclosures at West Kennett, used for assemblies which included feasting. This added a major, and hitherto unsuspected, component to the complex. The second was Mike Pitt's re-examination of The Sanctuary in the 1990s, which revealed that the stone circles had been preceded not by a sequence of timber buildings but by a succession of pits and posts, which were renewed at intervals ad hoc. The Longstones Project of the late 1990s and early 2000s, which included Joshua Pollard and Mark Gillings, proved the existence of the Beckhampton Avenue and Cove and added to knowledge of the West Kennet Avenue and Avebury Cove. Finally, the sudden collapse of the 18th-century shaft through Silbury Hill, on the 29 May, 2000, enforced repairs which allowed a more thorough examination of the mound led by Jim Leary and David Field. This established the long sequence of construction, involving successive changes of plan, which eventually resulted in its permanent form. In 1986, of course, the set of protected and conserved monuments and their landscape at Avebury was designated a World Heritage Site by the United Nations, coupled with Stonehenge and its environs (see *Introduction*).

None of these important accretions of knowledge, however, resulted in any addition to the sites offered to visitors. They were duly incorporated into the latest guidebook to the henge, issued by the National Trust in 2008, and into the display of information on the Avebury monuments established in the 2000s in the Great Barn near the museum. In sharp contrast to the policy of the mid-20th century, however, no attempt was made to add the sites investigated to the tourist landscape. The West Kennet palisade enclosures remain as invisible as they were before their discovery, with no concrete markers and signboards to indicate their position. The Longstones Project found a number of buried megaliths along the line of the Beckhampton Avenue, but there is neither the funding nor the willpower available to re-erect them or any of those still lying beneath the ground within the henge. An early 21st-century system of interpretation is therefore resting rather uneasily upon a mid-20th-century set of conserved monuments. Indeed, access to those has diminished rather than increased. Silbury was climbed by local people, sometimes on annual festive occasions, for centuries, and during the middle of the 20th century it was still accessible to visitors. The swelling numbers of those,

however, meant that from the 1970s it was barred off with ever greater care, and treated as an attraction to be viewed from a distance. The growing press of people in the West Kennet long barrow produced sporadic proposals to close it, happily not implemented to date; while sections of the henge bank at Avebury were showing serious signs of erosion by the 1990s, and needing closure to allow regeneration of soil. In that decade the henge had begun to attract more than half a million visitors a year, a number which represented the absolute maximum that it could sustain without serious levels of damage. A crisis was averted by the simple and brutal tactics of making the parking of visitors' vehicles both more restricted and more expensive; but the problem has not wholly gone away.

The strain upon the monuments was accompanied, of course, by a growing one upon the village, which was a compound of three different, but converging, developments. The first was the obvious drawback of living in a growing major tourist attraction: of having strangers present in one's neighbourhood throughout the year and crowding it during the holiday season. This popularity did not rescue it from the second development, the general decline of facilities which beset rural England in the late 20th century, as local employment dwindled and commuting became a norm for residents. Businesses which could cash in on the tourist boom did well, such as the pub, and the café which opened opposite the museum in 1984. So did shops selling commodities related to the prehistoric heritage (Pl. 49). Those which provided the necessities of life, however, almost all closed down, along with the social and sports clubs and the school. The National Trust is now the main employer. These losses did not prevent the third pressure on the community, of a steep rise in property values as wealthy outsiders, attracted by the prospect of living within a spectacular ancient landscape, increasingly bought up the houses. For a southern English village at the present time, Avebury remains unusually prosperous, and campaigns of local opposition have seen off some of the worst threats of tourist development, such as a grand hotel complex and a theme park. Even so, the inhabitants prepared to chat with a stranger have tended to express a sense of unease and grievance.

If those expressions are rooted in general social and economic changes, their largest single focus at the end of the 2000s was often on the specific problems created by forms of avant-garde spirituality. It should be stressed that practitioners of these represent only an extreme distillation of a very widespread popular tendency to regard the complex of monuments as places of mystery (which is justified in that we still have no access to the belief system which inspired their construction or the rites enacted there), possibly

*Plate 50 Contemporary activity in and around West Kennet Long Barrow (© Erica Gittins)*

associated with arcane forces. At the time at which Michael Dames was starting to reactivate it as a place for pagan worship, in 1976, Harlech Television screened a series entitled *The Children of the Stones*, set in a fictional village which was Avebury in all but name and investing its prehistoric remains with occult forces, including the earth energies so dear to the earth mysteries movement. This attracted a large viewing public, and certainly enhanced the henge's reputation as a place on the tourist trail. During the 1970s and 1980s, counter-cultural religious activity tended to focus on Silbury, the Swallowhead Spring and the West Kennet long barrow (Pl. 50), following Dames's books, but in the 1990s it entered the henge itself. This was largely because of the banning, in 1985, of the midsummer rites at Stonehenge, which modern Druids had held for most of the 20th century and which had been accompanied by a pop festival since 1974. In 1993 one of the most colourful and visionary characters among Druid chiefs, Tim Sebastion, began to hold regular ceremonies within the Avebury circle, which settled thereafter into eight gatherings a year, at the festivals observed by modern Pagans. Many different Druid orders engaged in these, and hundreds of people attended them from a spectrum of Pagan traditions: in effect, they provided a full range of religious facilities, within a Pagan milieu, including seasonal rites, weddings and child-namings. Some of the celebrants camped locally, and not all of these treated the environment and

monuments with care, resulting in moments of tension with the guardians of both.

These eased in the later 1990s, as the huge groups who had joined together in the eight annual assemblies divided into different factions celebrating in parallel, and as the small element of bad behaviour more or less disappeared. None the less, some villagers remain unhappy with the element of noise and intrusion at the Pagan festivals. This problem was enhanced once more in the new century, ironically as a result of the reopening of Stonehenge for midsummer festivity and ritual. The very large numbers which subsequently celebrated there discouraged some people from further attendance, and they began to observe the night and dawn of the summer solstice in the quieter, larger and less heavily policed setting of the Avebury henge itself. By 2010 several hundred people were doing so in a carnival atmosphere of drumming, dancing, street theatre, bullroarers and other boisterous entertainments. The police were attempting to control the numbers attending by preventing car-parking in the area on that evening, and many villagers were arranging to stay elsewhere in order to get any sleep. Like the issue of overall visitor numbers, that of use of the monuments by religious groups teeters on the brink of the unsupportable.

In view of all this, it needs to be emphasised how harmoniously and effectively the WHS has been managed since its establishment. Responsibilities are complex: the henge, the West Kennet Avenue, Windmill Hill, Silbury Hill, The Sanctuary and West Kennet long barrow are in State guardianship and therefore under the control of English Heritage, along with the Alexander Keiller Museum (Stables building) and most of the collections. Local Management Agreements and a Local Management and Loan Agreement are in place between English Heritage and the National Trust for all of the above except Silbury Hill, which is directly managed by English Heritage. The ownership of these guardianship monuments is yet more complicated – some are owned by the National Trust, some by the State and some by private owners. Wiltshire Council also has a role to play, not least since the main road between Swindon and Devizes still twists through the centre of the henge, and is the Council's responsibility. It can therefore be considered a considerable achievement that all have thus far managed to work together, and in the process to balance the wishes and needs of villagers, archaeologists, tourists and Pagans in such a way as to accommodate all. Stonehenge is, intrinsically, a monument, but Avebury is a community, and its modern history is one of successful accommodation of an ever growing complexity and diversity in the components, permanent and transitory, which comprise it.

# Appendix 1:
# Documentary Sources

Examples of Avebury-relevant online and other accessible sources. *These are only examples and do not represent a comprehensive or definitive list.*

Note: facsimiles whether printed or online may be imperfect reproductions, from unreadable and missing pages to split illustrations and marks.

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Alexander Keiller Museum
http://www.nationalarchives.gov.uk/nra/lists/GB-1659-MS.Collections.htm

Ashmolean Museum
http://www.ashmolean.org/collections/

Bath Record Office
http://www.batharchives.co.uk/

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Bowood
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http://www.bl.uk/reshelp/findhelprestype/catblhold/all/allcat.html

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British Museum
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## Avebury Chapel

Restoration
http://www.minervaconservation.com/projects/avebury.html

Visitor's Book entry selection
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## Avebury Online Parish Clerk Records

Avebury Census Returns 1861
http://www.wiltshire-opc.org.uk/Items/Avebury%20-%20Census%201861.pdf

Avebury Poll of Freeholders 1772
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Avebury St James Biographical Memorial Roll of Honour 1914-18 & 1939-45
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## Avebury Rights of Way

http://www.wiltshirelaf.org.uk/definitive-avebury.htm

http://www.wiltshirelaf.org.uk/definitive-all-cannings.htm

http://www.wiltshire.gov.uk/communityandliving/rightsofway/publicrightsofwaymapping.htm

## Avebury map

Local plan 2011
http://www.wiltshire.gov.uk/kennet_local_plan_2011_-_avebury.pdf

## Avebury Teacher's Kit

http://www.english-heritage.org.uk/publications/avebury-teachers-kit/

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Name search
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## Wiltshire Family History Society

Parish transcripts and other publications:
http://www.wiltshirefhs.co.uk/WFHSPublications.pdf

## Wiltshire Council

Avebury Population Figures
http://history.wiltshire.gov.uk/community/getcensus.php?id=15

Biography of Charles Pearce of Avebury, composer of 'Sweet William' (1923)
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