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Dorset County Museum 2018: Excavation in the public gaze

CLARE RANDALL

The Tomorrow's Museum for Dorset project has required major remodelling of the museum site, including demolition of various buildings. Being situated in the heart of Roman Dorchester, it was clear that there would be archaeological features on the site which would need exploration. During 2018 Context One Heritage and Archaeology carried out historic building recording prior to the demolition of buildings, and subsequently undertook an excavation where they had been removed. The building recording has revealed hitherto unappreciated details of various buildings on the site. Despite truncation by post-medieval buildings, a range of features and deposits werepreserved which relate to the Roman town. Additionally, a key element of the excavation was enabling the public to experience the excavation, and for a range of people to get involved in the process. In the event, thousands witnessed the excavation.

Introduction

The development of new museum facilities as part of the Tomorrow's Museum for Dorset project has necessitated a major remodelling of the whole museum site. Most visitors to the museum have never been aware of the areas which did not house exhibitions, so had no idea of the size of the site. Most of the buildings to the rear of the main museum were not fit for purpose for storage (Fig. 1), so it was clear from the outset that they would need to be replaced with modern facilities. Inevitably, this meant removing several buildings, remodelling others and excavation of large areas beneath them. In addition to the need to carry out historic building recording and undertake archaeological excavation during this process, it was important from the start of the project to recognise that this would be a unique opportunity to enable museum visitors to see archaeology in action and facilitate volunteer involvement in the project.

Context One Heritage and Archaeology (C1) were engaged to carry out the programme of works, which comprised historic building recording prior to demolition, excavation of the site once buildings were removed and continued archaeological monitoring and recording once construction started. A substantial area of the site had been cleared in May 2018, which enabled an open area excavation during the summer. However, there were parts of the site which had to be left, where for safety reasons elements of buildings had to remain standing. Monitoring and recording of these areas, with excavation where needed is still ongoing at the time of writing. Once the fieldwork is complete, there will be a post-excavation phase to analyse the findings of the excavation and monitoring

Figure 1: The secret garden – the west elevation of the Craft Market

Figure 5: A panoramic view of the site under excavation

the Stable. These were all Grade II listed as part of the curtilage of the main museum building. John White's Rectory will be renovated and re-purposed during the development and is Grade II listed in its own right. The historic building recording generated a detailed photographic record, both of overall building form and details of architectural features. Some of these had been long-concealed behind furniture, fittings, museum display cases and stored equipment. In particular, investigations into the phasing, form and spatial organisation of John White's Rectory and the Stable are of particular interest in illuminating the origins and development of both these buildings.

The supposed early origins of the rectory are difficult to decipher as any features have either been modified or removed, in particular the stone mouldings from the doorway. However, several lateral extensions are evident in the historic fabric and the walls have been raised by several courses, showing that the Rectory was originally much smaller (Fig. 4). In the nineteenth century the rectory housed two cottages, with twentieth-century light industrial use accounting for the differences in floor heights between the two sides and significant alterations. Between *c.* 1834 and 1889 the two properties to the east were replaced with three terraces, at which point the Rectory appears to have been extended slightly in this direction and encompassed part of the fabric of the former neighbouring property. This extension seems to have allowed the east wall to be remodelled into a chimney. The Stable originated as a domestic property, which in the late eighteenth century was completely enclosed by the buildings along Colliton Street and High West Street. By 1810, the removal of one of the three cottages east of the rectory would have facilitated access from Colliton Street, and it is perhaps from this time that it became a stable. There are two phases to the building represented by the east-west wing and the north-south wing with cellar.

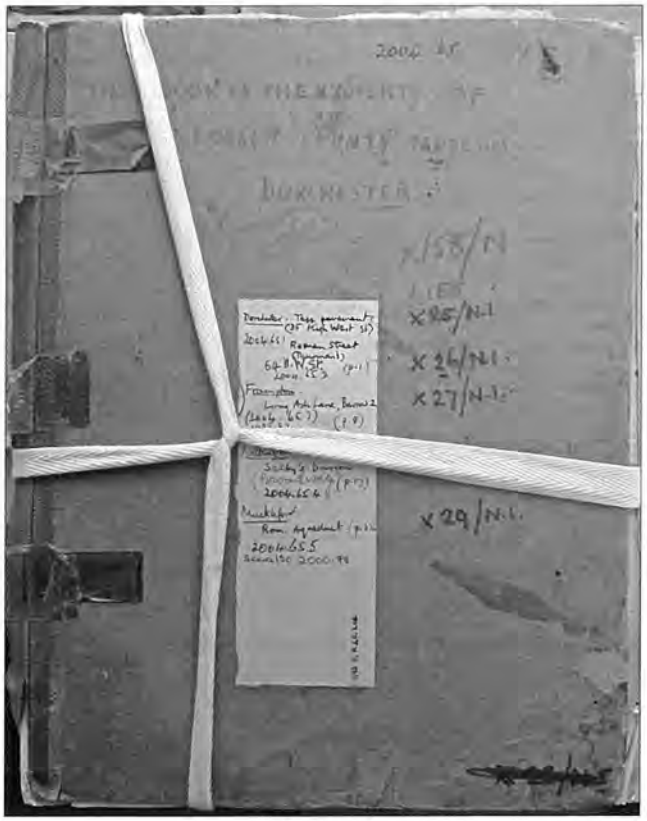
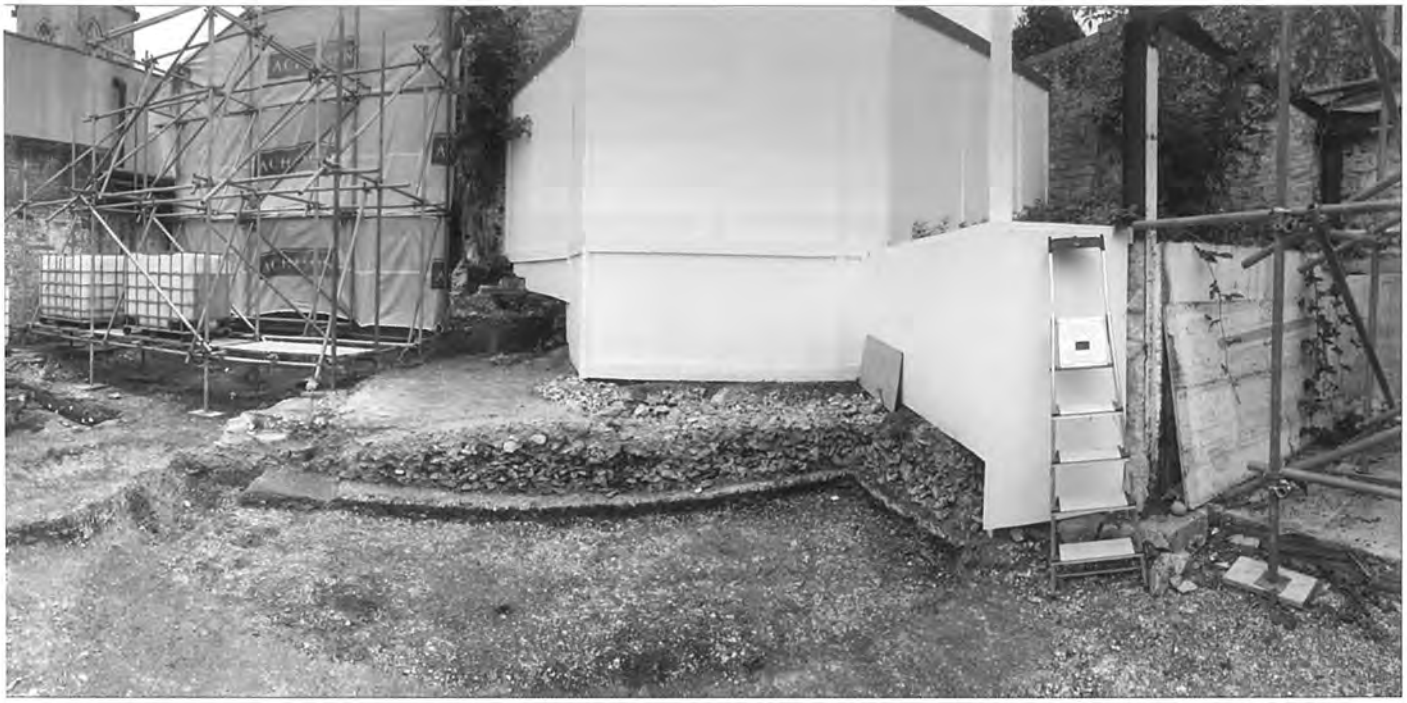


Figure 6: Notebook from 1937



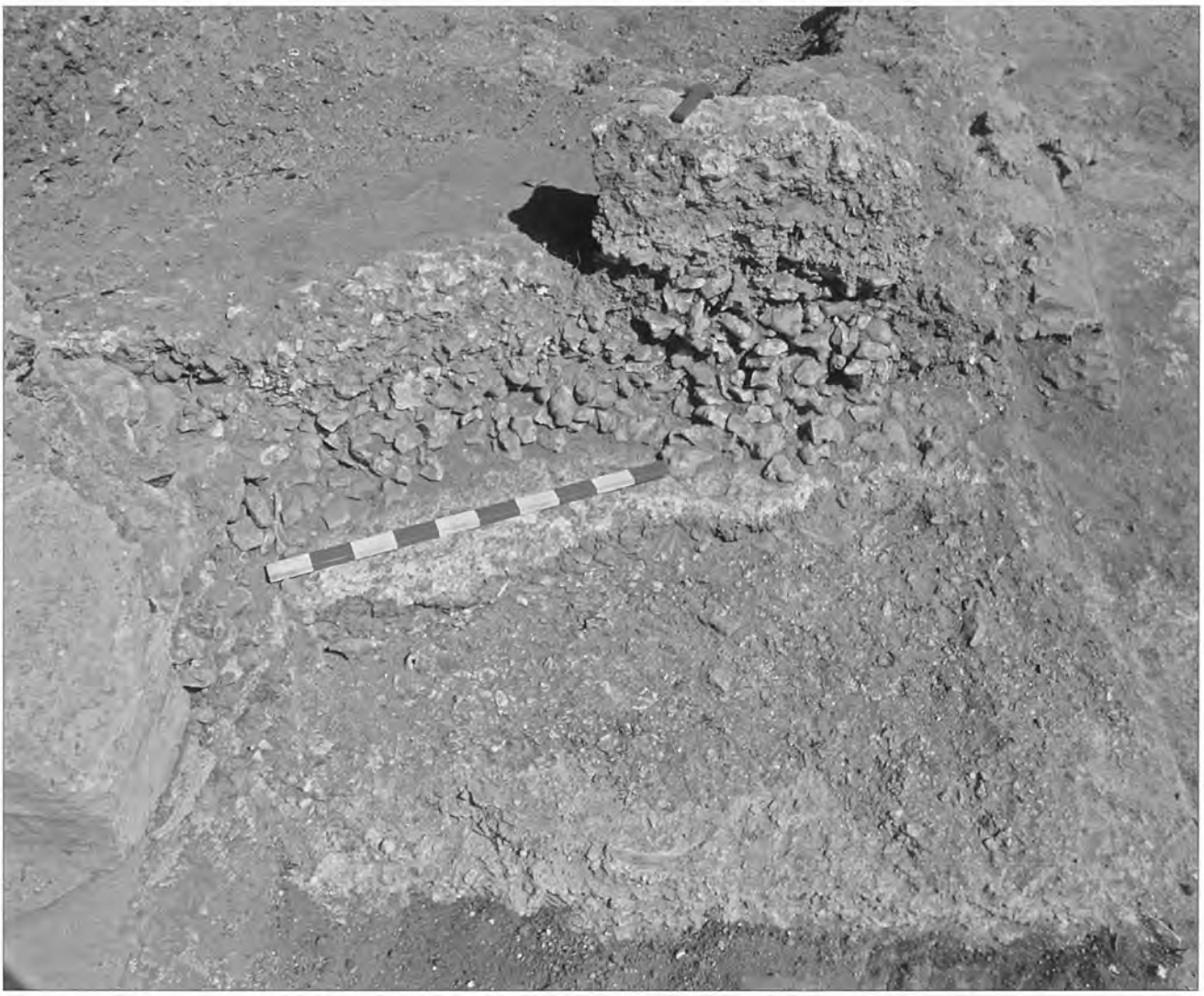


Figure 7: Section through the Roman Street; to the left is a pillar which was against the side of one of the demolished buildings, and chopped away on all sides by Victorian rubbish pits

Archaeology

Once the buildings were demolished, the below-ground archaeology needed to be considered. Previous field evaluation carried out as part of the planning for the project had indicated that there was good survival of archaeology in most of the western areas of the site. This comprised significant features and deposits relating to the Roman town, pre-Roman soils, as well as subsequent medieval and post-medieval activity (Bellamy 2016). Following demolition of the Craft

Figure 8 Aerial view of the site. North is to the top, and the roadside ditch, and beamslots for buildings run across the site from north-west to south-east

Market/ Skyrme's Workshop, open-area excavation was carried out by C1 during the summer of 2018. It was possible to excavate about half of the total area of the development at this point (Fig. 5, pages 4-5). The areas occupied by the rest of the Craft Market, Brawne Building, and Stable Building, were demolished in a second phase of site clearance in early 2019. This revealed further features, deposits and finds which can be associated with the remains recorded in the main excavation.

During the construction of Skyrmes Workshop in the 1930s a Roman street was discovered running through the site. A notebook with a sketch of the section through the road was recently located in the museum archives (Fig. 6). The location of the road had been confirmed by the field evaluation (Bellamy 2016), so it was not a surprise when the 2018 excavations encountered this same road. The best-preserved area was in a small originally outdoor space to the south of Skyrme's Workshop, known as the Bay Tree Courtyard. To the north, only a 'pillar' of the road material remained due to some enthusiastic Victorian rubbish pit digging (Fig. 7). The sequence of deposits forming the road was very similar to that recorded in 1937. It comprised a buried clayey subsoil covered by a compacted levelling layer of chalk, creating a continuous and notably flat base, over which was a thick dump of unworked flint nodules. This was capped with a series of deposits of sandy clays overlain with gravel which created the road surface. The roadside ditch on the eastern flank of the road was also identified (Fig. 8).

The northern part of the site had been much altered by nineteenth-century construction and levelling and the digging of rubbish pits in the garden to the rear of 3-4 Colliton Street. These yielded a prodigious amount of eighteenth- and nineteenth-century bottles, pottery and other material, including a pony, complete with horseshoes. This provided an insight into the issues with rubbish disposal encountered by earlier inhabitants of Colliton Street. It was also clear that the construction of the Craft Market had removed anything which post-dated the Romano-British period, so there were no remains relating to medieval Dorchester.

However, directly below the make up for the concrete floor of the Craft Market, there were actually numerous features and deposits preserved which relate to the Roman town. Excavation revealed at least three timber structures. These were evident from a series of beam-slots and post-holes, dug into the natural chalk. Remarkably, in many cases, the location of the original timber posts within the beam slots, the wood long rotted away, were preserved as voids in the soil. More than one was discovered by standing on it! The structures were set back from the roadside ditch and shared the same alignment. Occupation deposits survived within these structures, yielding abundant pottery sherds and environmental data. Part of an oven was identified in the south part of the excavation. It showed signs of multiple occasions of use and remodelling. However, when the rest of the Craft Market was demolished, it was discovered that this oven was situated over another beam slot, so was as suspected part of a later phase of use of the site.

The roadside ditch had filled up as the street went out of use. Deposits into the roadside ditch were found in the monitoring of the removal of the remains of the Craft Market in February 2019. The upper part of a Romano-British quern stone had been very deliberately placed into the ditch, possibly as a deliberate act marking the ditch no longer being used. A large pit seen in the centre of the site during the main excavation may have originated as a timber-lined cess pit. This pit (Fig. 9) post-dated the infilling of the roadside ditch and if it

Figure 9: Composite photograph of the cess pit section.

was a cess pit, it may indicate that the use of this space, or its orientation in relation to the town centre may have changed over time. The upper layers of the pit comprised dumps of large quantities of wall plaster and clay roof tiles, which implies the presence of another substantial, and fashionably decorated, Roman building nearby.

Figure 10: The Fordington mosaic during removal (Courtesy of Clivedon Conservation)

Figure 11: Working indoors

The Fordington Neptune Mosaic and beneath

The mosaic, which was discovered in 1903 at the Foundry in Fordington (an account of which is included in the *Proceedings* for 1928, vol. 49), had been installed into the floor of the link building between the Brawne and the Stable, used in recent years as the Learning Base. It was clearly going to have to be carefully removed before the demolition of the Brawne building began. The mosaic had been set into the concrete floor, and extracting it was a specialist job. This was carried out by Clivedon Conservation. They began by breaking up the concrete floor around the outside of the mosaic. Once this was done, they were able to lift the mosaic in segments. The mosaic will be conserved and the aim is to install it on a wall in the new building. The process of lifting the mosaic was timelapse photographed (Fig. 10).

Once the Neptune Mosaic had been removed it was possible to see that whilst it was situated over nineteenth-century demolition debris, which itself had covered a number of further Romano-British features, including another short run of a building beam slot and a number of pits, rich with finds. These were excavated with the shell of the Brawne building still standing (Fig.11). Once this and the Stable had been demolished and the excavation of the new museum basement started, a further deep pit was recognised, this one having potentially gone out of use with a final act of depositing an entire cattle skull and group of black burnished ware pots.

Meeting the public

The museum remained open during the excavation, providing an excellent opportunity for visitors to see the investigations in progress from a purpose-built viewing platform overlooking the site (Fig. 12). The platform was rarely empty. The excavation team were particularly appreciative of the skilled efforts of volunteer museum stewards who ably assisted visitors and answered innumerable questions. In addition, a small temporary exhibition was mounted in the area leading to the viewing platform. This outlined the location of the site within Roman Dorchester and explained the purpose and principal discoveries of the excavations. It also provided an opportunity to display a selection of the Museum's existing Roman collection and a sample of artefacts from the excavation. During the excavation we were able to run 'meet the archaeologist' sessions twice a week. Numerous groups came for guided visits, both with specific and more broad interest (Fig. 13). A

Figure 12: Explaining the archaeology – a crowded platform

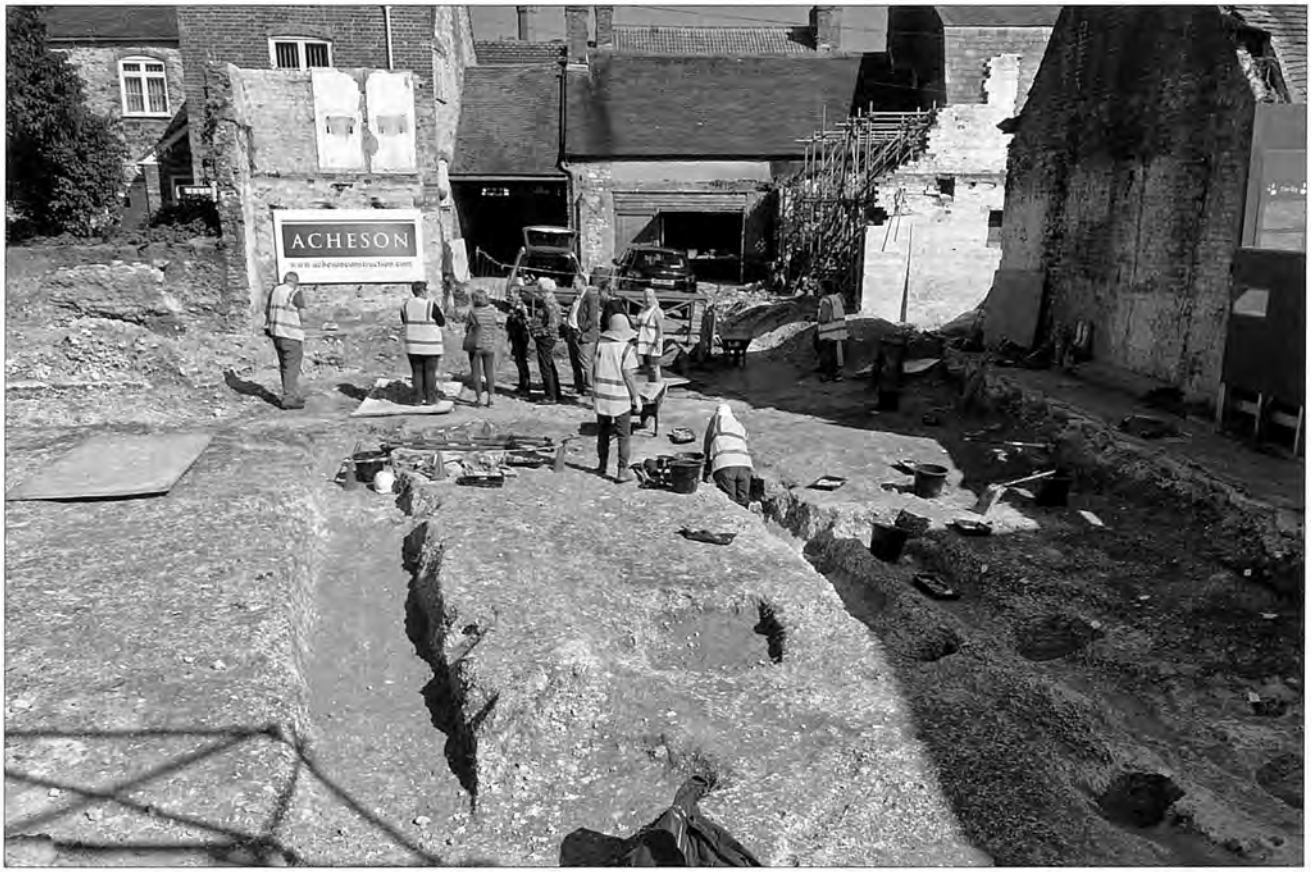


Figure 13: Site tour in progress

Figure 14: Linda and Julie enjoy some sieving

number of schools had their visits adapted to include the excavation. We were also able to offer access on Heritage Open Days, with an archaeologist available all day to explain the site and answer questions. In the event more than a thousand people visited the museum and site, made up of a wide cross section of ages and interests. People showed huge enthusiasm for the opportunity to see an excavation whilst it was being carried out. In addition, the project offered several opportunities for student work experience placements. These included placement students who had applied via the museum as well as directly via C1. In two cases, the students remained long after their allotted time. In addition, a number of existing museum volunteers, as well as people new to archaeology, had the opportunity to take part with a range of activities on the site, assisting with finds processing and some aspects of excavation (Figure 14). Plenty of new skills were learned by many people who are now seeking to expand on their experience; one person at least is actively hoping to change career and another is now studying archaeology at university!

Conclusion

This project has already fleshed out our understanding of the post-medieval buildings of the museum site and revealed significant elements of the Roman town. At the time of writing, monitoring of areas which were inaccessible at the time of the excavation is ongoing, and more continues to be revealed. The post-excavation process will enhance and refine our understanding of the structures and features seen during the excavation, and there may well be new surprises. The museum site will make a modest but significant contribution to our understanding of Roman Dorchester, but has already provided a stimulating opportunity for visitors, students and volunteers alike.

REFERENCE

Bellamy, P. 2016. 'Dorset County Museum, High West Street, Dorchester,Dorset Archaeological Field Evaluation, March 2016', unpublished Report 53408/2/1 Terrain Archaeology

'A Dream of Tarrant Hinton'— A Dorset pageant in stained glass

T.P. CONNOR

In 1896, as a result of a slight scandal in the university, a Fellow of Pembroke College, Cambridge found himself suddenly Rector of the small village of Tarrant Hinton. Edward Heriz-Smith then threw himself into the life of his village, championing its interests while developing over the next few years a scheme for the embellishment of the parish church. His twenty years as a don had not only made him widely popular in the university, it had also given him first-hand experience of a variety of developments in church decoration which, with the help of the Diocesan Architect, Charles Ponting and a range of craftsmen, he intended to apply at Tarrant Hinton, a church that had recently suffered a rather draconian restoration. The most interesting part of this was a sequence of stained glass windows intended to tell a history of Dorset that differs significantly from the romanticised, distant history then being portrayed in the immensely popular pageants which followed the example of Sherborne (1905). With small financial resources and failing health and eyesight Heriz-Smith could implement only small parts of his intentions, but much can be reconstructed from his papers, in which the title of this paper is to be found.

The living of St Mary's, Tarrant Hinton, came into the possession of Pembroke College, Cambridge, in the mid nineteenth century. In the summer of 1896 the college may have been relieved to find it possible to offer this distant living to one of their Fellowship who had become an embarassment in the university. The new rector, however, threw himself energetically into the life of his new parish where he hoped also to redecorate its church, a project cut short by his ill health and death in 1911. Sufficient evidence both documentary and physical survives to suggest that he hoped to create a vividly coloured, late perpendicular gothic interior that would have gone far to soften the draconian 'restoration' by his immediate predecessor.

Ernest John Heriz-Smith (1851-1911) the son of a Fellow of Gonville and Caius and Rector of Loddon, Norfolk, matriculated at Pembroke College in 1869, and became a Fellow there in 1875, the year he was ordained. Subsequently he served for several years as curate at All Saints, Cambridge, while that important church designed by G.F. Bodley, a turning point in the evolution of late-Victorian Gothic architecture, was being completed. Smith was a gregarious man and 'one of the most popular dons in the university'(Cambridge Chronicle and University Journal, 10 April, 1896). Though not a distinguished oarsman himself, he was well known enough as a coach of college rowers to be caught by the caricaturist 'Hay' (W.B. Hayes) in Vanity Fair in 1888 (Fig. 1). There he is described as the 'soul' of his college: 'Sincere in his work, generous in his friendship, and the leading spirit among the undergraduates, both in the schools and on the river, he has combined, with a success hitherto unequalled, the characters of Dean, Proctor, and Mr. Smith, each one of which is more popular than the other two' (Vanity Fair, 53).

A different aspect of Heriz-Smith's sociability was shown in his founding of a semi-religious society called the Companions of St John. This was a group of undergraduates of pronounced High Church

Figure 1. W.B. Hayes ('Hay'), 'Pembroke' (E.J. Heriz Smith), Vanity Fair *28 Jan. 1888* © *National Portrait Gallery*

leanings, bound together by secretive rituals — including kneeling, blindfold and with hands tied, to swear obedience to rules that were only disclosed once the oath was made — and the habit of wearing a broad belt round the waist, latterly under other clothing, which led to their being known as the 'belly-banders'. Heriz-Smith was said to have founded this society in 1886, and when knowledge of it broke into public awareness with the publication of 'A Secret Society at Cambridge' in *The Times* newspaper in April 1896, it was said to have branches in 'Oxford, Birmingham, London and other towns'(*The Times*, 4 April,1896). The story went viral, with The Times article being repeated everywhere from Dundee to Dublin. To his defenders, as a letter to *The Times* a week later declared, the group was characterised as one that 'can only be taken seriously by such as are absolutely wanting in humour'(*The Times*, 10 April 1896). Smith was said to be 'notorious for his eccentricities', and the authorities there 'have for some years prevented the enrolment in his society of members from Pembroke College'.[1] Opponents however saw the society as part of a much larger danger to the Church of England in which, they felt 'that some who have taken orders in the Anglican Church are in reality doing the work of Rome'(*The Times*, 7 April 1896). The *Yorkshire Post* was more balanced: 'The business has an ugly look: proselytism upon such lines does not commend itself to Englishmen, but Mr Heriz Smith has not spoken since the secret was blabbed, and it seems premature to condemn him. All that can be said is that the Senate of the University must take cognisance of the matter' (*Yorkshire Post* 10 April 1896).' It may well be in order to avoid this eventuality that when, a month after this minor scandal erupted, the living in the remote village of Tarrant Hinton became vacant, Heriz-Smith was quickly installed as its rector.

St Mary's church, Tarrant Hinton, had not passed through the nineteenth century unscathed (Fig. 2). The chancel had been taken down and rebuilt by Benjamin Ferrey in 1874 and in 1891 the rector, Alfred Newman stated that there was 'most necessary and urgent work' to be done to the nave. The floor was lowered, the roof repaired and the seating replaced. It was also intended to strip plaster from the internal walls. Application for financial help was made to the Incorporated Church Building Society and the Society for the Preservation of Ancient Buildings (SPAB). The latter had been set up about fifteen years earlier by William Morris and others, to protect buildings against over-zealous 'restoration' and it had won a

Figure 2. St Mary's, Tarrant Hinton, view of nave, prior to restoration of 1891. Society for the Protection of Ancient Buildings. 28 Jan. 1888

reputation for its opposition to the removal of historic plaster. Not only was this surface an essential part of the texture of a building, it often carried painted decorations, like the texts still visible in the churches at Cerne Abbas, Puddletown and Upwey, or wall paintings as at Tarrant Crawford. In a letter to SPAB Newman professed 'the objects of your society have my entire concurrence' and that he was 'extremely particular in the preservation of every ancient detail' (SPAB). Nevertheless his chosen architect, a friend from Leicester called Alfred Burder who was working gratis, decided that the walls should be scraped. Both bodies protested, and although Burder later admitted that he had found that the plaster was original and promised that the walls should be replastered, this never took place (ICBS 9617). The church that Heriz-Smith inherited four years later would have had a very chastened and bleak interior.

In his obituary in *The Times* it was said of Heriz-Smith that he had 'more than ordinary acquaintance with liturgical and ecclesiological subjects' characteristic of High Church clergymen (*The Times*, 16 March 1911). East Dorset was not a congenial area for clergy with such convictions. A generation earlier, local landowners including the Earl of Shaftesbury and Viscount Portman had organised a public meeting to oppose the ritualism supported by the then Bishop of Salisbury, Walter Kerr Hamilton, which led to petitions with three thousand signatures being presented to the House of Lords (Yates 1999, 184-94). Insofar as there was a High Church presence in the county, it was far stronger in the west (Anon. 1903).[2] In these isolated circumstances Heriz Smith gave himself fully to the concerns of his new community (population 231). The

needs of the parish took priority over his attention to claims for dilapidations at his own rectory. In 1898 the earliest surviving document among his papers concerned the conversion of a portion of his barn into a room for the use of the parish, and another estimate mentions the erecting of a stage in it. By 1902 he was thinking of building a separate Parish Room and obtained an estimate from W. Cooper, 751, Old Kent Road, to erect a corrugated iron hut for £65 (DHC, PE/TTH/ CW2/2/2). A few years later he would be a stout defender of the usefulness of local church schools for all children in a village, irrespective of denomination, against the educational policies of the Liberal government, and he cited the example of Tarrant Hinton (*The Times* 29 May 1908).[3] By 1907 his architect reminded him that he had not yet sorted out the matter of his claim for dilapidations on the rectory, nor is it clear how much of that was ever completed.

Until now Heriz Smith had had little chance to put any practical interest in church decoration into action, but he had had plenty of significant experience. As curate, first at All Saints, Cambridge, and then at St Andrews, Wells Street, London (1879-83), he will have had direct experience of two of the most significant programmes of nineteenth-century church embellishment. At Bodley's All Saints, Cambridge, the painted decoration of the nave by Kempe and F.R. Leach was completed just before his curacy, but the mural over the chancel arch and the painting of the pulpit (1873-5) he will have seen in the making, together with Leach's decoration of the south aisle (1878-9) (Halliday 2016). At St Andrews, Wells Street, (a building removed in its entirety to Wembley in 1932-4), the long process of decoration during the incumbency of Benjamin Webb was coming to an end with Bodley's design of the sacristy in 1881 (Hall 2014, 235,447). Moreover, as a young Fellow at Pembroke, Heriz Smith also knew the architect Giles Gilbert Scott jnr. who was building New Court and from 1879 extending Wren's chapel there. There can be little doubt that he would have wished to beautify the parish church where, after twenty years in a Cambridge college, he suddenly found himself. He was not a wealthy man, nor was the living, at £254 p.a. particularly well endowed and debts remaining from the earlier restoration of the nave persisted to almost the end of his incumbency. He would have to proceed slowly. What he had in mind for his church can to some extent be reconstructed from surviving papers, although they lack the richly coloured effect he wished to achieve.

Heriz Smith will have met his architect Charles Ponting in the first instance over the matter of delapidations at the rectory for Ponting was Surveyor to the Salisbury Diocese. Ponting (1850-1932) was a man after his own heart. He was a High Church man, a member of the English Church Union, and an expert, scholarly and very restrained restorer of churches. He was also extremely busy, as Diocesan Surveyor for Bath and Wells as well as the whole Salisbury diocese. In Dorset alone he was busy on at least twenty-five churches during the decade 1900-1910, sometimes merely advising and writing a report, but at others, as in the case of St Stephen's, Kingston Lacy (1907-13), producing at least six variations on a design for an entirely new church for the Bankes family, and then seeing it, as well as his major work, St Mary's, West Fordington (1910-12), through to completion. Ponting's letters show that both men were equally interested in the embellishment of the chancel at Tarrant Hinton, even if on a shoestring, while the letters Heriz Smith received from other craftspeople provide vivid details of what he intended. Not surprisingly, several of these craftspeople were known from his life in Cambridge. The firm of F.R. Leach & Sons, who had worked for Bodley on the decoration of All Saints, Cambridge while Heriz Smith was a curate there, provided estimates for a new list of rectors (DHC, PE/TTH/CW2/2/4). One of the artists contacted concerning the remarkable scheme for reglazing the entire church was Charles Powell, son of a Cambridge glass cutter and brother of W.O. Powell, previously a foreman of Leach's. Powell had been recommended to him by Samuel Weatherley, who Heriz Smith had met on a visit to Cambridge. Weatherley had been a pupil of George Gilbert Scott jnr and wrote of Powell as someone who 'was brought up in Kempe's office & has worked for him and Bodley. His glass has quite the finish & delicacy of Kempe's work at about 1/2 the cost' (DHC, PE/TTH/CW2/2/4). An artist consulted over painting the walls of the chancel, Charles Godfrey Grey, also wrote from a Cambridge address.

From these and other craftsmen, and with Ponting's professional help, Heriz Smith developed his plans to redecorate the church, focused mainly in the chancel, but with one important scheme which was to extend over the whole building. He also had the unusual good fortune to be able to bring from Cambridge the end sections of his college's baroque communion rails, made redundant since Scott's extension to the chapel in 1881 (Fig, 3) These had been part of the original furnishing of Wren's fine chapel for the

Figure 3. St Mary's, Tarrant Hinton. Detail of altar rail, attrib. Edward Pearce, c. 1670

college and were made in the late 1670s, possibly to the design of Edward Pearce (Grimstone, 2009 98-101). He also brought an amount of Italian marble for the sanctuary step, surplus to what had been been used at Pembroke, and for which he claimed, a quarry at Sarravezza, near Carrara 'was opened after being disused since Roman times' (DHC, PE/TTH/IN 3/2).[4] Larger plans for enriching the rest of the chancel floor with a variety of British marbles were also considered. A rood screen was an essential part of a proper High Church interior, and in 1906 Ponting sent a drawing of one 'to go right across the end of the nave in [front] of the Chancel arch. The figure might be got from Meyer of Ober Ammergau in limewood, put on a dark oak (or deal painted) cross' and, if Heriz Smith could afford it, the two figures of Mary and St John could be added. A year later Ponting was anxious that the actual display of figure of Christ on the cross might encounter opposition, apparently from the Registrar of the Diocese: 'I doubt whether, in these days, we could even get consent to erect a Rood over the screen, where it ought to be' (DHC, PE/TTH/CW2/2/5). Ponting was to find similar opposition to what was felt to be excessive ritualism expressed by such figures as the crucified Christ on a rood screen in his designs for St Mary, West Fordington in 1909 (DHC, PE/FOR(SM:CW3/3/3/2) and the screen he intended for the embellishment of the chancel at Hinton St Mary in 1911-12 was never executed (WSA D1/61/47/16 and DHC PE/ HISCW4/3).[5]

Behind the altar, Heriz Smith wanted a carved wooden triptych in the manner of the north European altarpieces of fifteenth and sixteenth centuries that had become popular in the work of English architects such as Bodley who had designed one for his short-lived interior at Wimborne St Giles in 1886-7. A drawing for Hinton St Mary suggesting a similar altarpiece had been suggested by Gerald C. Horsley, perhaps in the 1890s, but this had not been executed (DHC, PE/HIS/CW4/3). Ponting wondered whether his design at Tarrant Hinton would stand sufficiently high to create the desired 'rich setting'. In what was clearly a temporary version of a reredos, one can dimly make out in a contemporary photograph the Arundel Society reproduction of Van Eyck's Adoration of the Lamb, now at the back of the church, placed in front of the east window above the altar (Fig. 4). Ponting doubted whether any local craftsmen could achieve the quality he and Heriz Smith intended: 'I did not know there was a man in Dorset who could put the right feeling into carving of this kind, & know that Green (the Blandford builder) does not think he has a fellow townsman good at this work — perhaps the Prophet in his own County!' (DHC, PE/TTH/CW2/2/5). Despite this, Heriz Smith was later to commission the statue of the Good Shepherd that stands in a niche above the font from Edward Sheppard of Boscombe (DHC, PE/TTH/CW2/1/3).[6] It was also hoped to paint the walls of the chancel, and Charles Powell included an offer to paint both walls and roof of the chancel for £75 in his estimates for stained glass (DHC, PE/TTH/CW2/2/4).

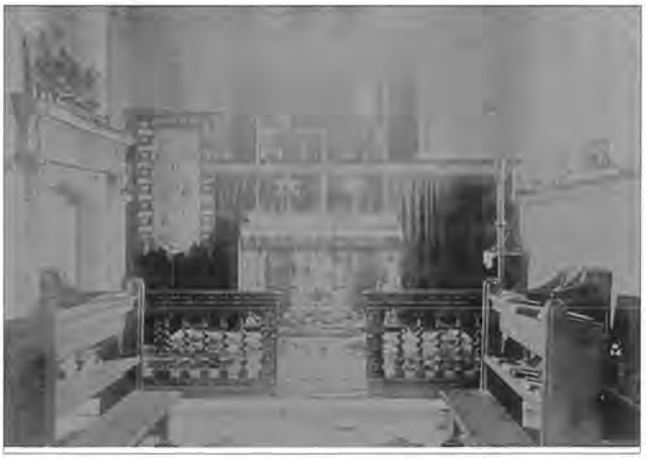
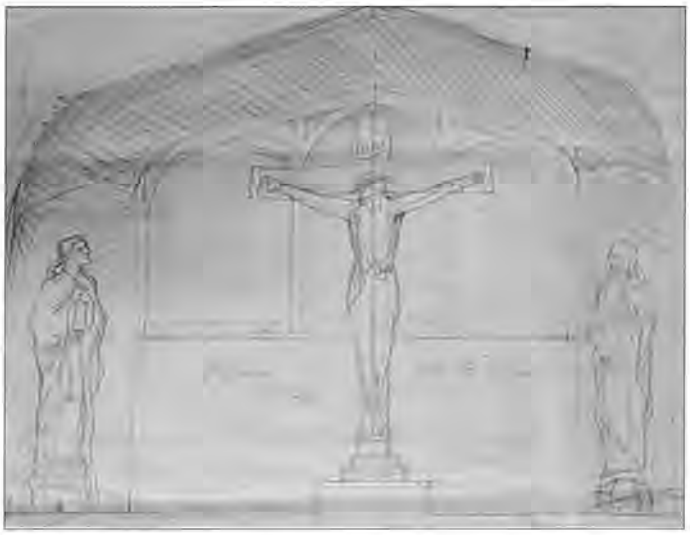


Figure 4. St Mary's, Tarrant Hinton, view of Chancel, c. 1910. WSA



Left to right:
Figure 5. Scheme for upper part of Easter Sepulchre, pencil. DHC PE/TTH/CW2/4
Figure 6. Scheme for upper part of Easter Sepulchre: Christ Crucified, chalks DHC PE/TTH/CW2/3
Figure 7. Scheme for upper part of Easter Sepulchre: St John, chalks DHC PE/TTH/CW2/5

Besides the high altar, two areas of the church were to receive attention, both of which were the result of its early sixteenth-century embellishment by Thomas Wever (Connor, in preparation). Ponting mentioned 'the Calvary that we hope to get over the Easter Sepulchre' and drawings survive to indicate what was being considered for a position in the upper part Wever's Easter Sepulchre on the north wall of the chancel (Figs 5; 6; 7). Figures of St John and St Mary stand in the side-niches in the depth of the wall, looking towards a crucifixion which was to hang in front of the blocked central window. Charles Gray of Cambridge, who seems to have been working with Ponting and Heriz Smith on this project, sent samples for the background wall of the niche and suggested placing blue and gold gesso stars irregularly over the surface. 'Don't you think they would look well? If you like the idea send me the size of the recess & I will send you sufficient' (DHC, PE/TTH/CW2/2/4). The other area for which Ponting was preparing drawings was what he called 'the Loft over the Chapel'. This must refer to the western part of the north aisle, which still shows, in its paired windows one above the other and the filled stonework where once floor joists were lodged in its north wall, the existence of a second storey, accessed by the spiral stair, the embrasure for which survives. As Ponting added 'You will see by the drawing how very cramped for height this loft will be - almost impracticable for singers excepting perhaps in the front row'. Nothing came of the idea nor does the drawing survive, but it does suggest that the two storey arrangement of this area with the staircase in the south-west corner survived into the twentieth century, and it shows that Heriz Smith, who, in his Cambridge days had been Precentor of All Saints church and a versatile singer himself, was keen to develop an active choir for services (DHC, PE/TTH/CW2/2/5.). In 1905 the vestry conveyed a vote of thanks to the organist, Mr. R.R.Eustace, for training the choir and to encourage him to 'further efforts'.

The largest and most interesting scheme that Heriz Smith developed was an ambitious design for reglazing the entire church. In July 1909 Mary Lowndes wrote from her Chelsea studio 'your scheme for windows [...] seems most interesting — & also novel for Dorsetshire where I think it has not been the custom to honour local celebrities in this way' (DHC, PE/TTH/CW2/2/4). Lowndes, daughter of a rector of Sturminster Newton and already with windows of her design in her father's church (1887) and Hinton St Mary (1893) was well qualified to comment. Nevertheless, Heriz Smith's selection of 'celebrities' was as unusual in its completeness as in its choice of whom to represent. All windows were to depict notable individuals in separate lights. The chancel windows were the province of the patron, Pembroke College, to be represented by three college masters, Laurence Booth, Bishop of Durham, benefactor and Master in 1450, Richard Fox, Master 1507-16, a major early Tudor politician, founder of Corpus Christi College, Oxford and Bishop of Winchester, Matthew Wren, Master after the Restoration, rebuilder of the Chapel, together with Edward Bickersteth (1850-97), bishop of South Japan, who had been appointed Fellow of Pembroke

at the same time as Heriz Smith. In the rest of the church the glass was to illustrate a history of English Christianity that referred particularly to Dorset: Pope Gregory the Great, St Augustine of Canterbury and Matthew Parker shared one window in the south aisle, with Saints Birinus, the seventh-century apostle of Wessex, Edward the Martyr, patron of Shaftesbury Abbey, Tarrant Hinton's pre-Reformation patron, and St Aldhelm in another. The sequence moved on past Richard Poer, Bishop of Salisbury, buried at Tarrant Crawford, William Middleton, the last Abbot of Milton Abbey, through eighteenth century divines to nineteenth century luminaries including not only William Barnes, but the Blandford-born sculptor, Alfred Stevens (d. 1875), designer of the Wellington monument in St Paul's. The north chapel windows brought the sequence thoroughly up to date. Besides including figures of the current Bishop of Salisbury, John Wordsworth (d. 911), Archbishop Benson (d. 1896), and a Bishop of Zanzibar and East Africa (d.1894) who had at least been to school at Milton Abbas, the pair of three small lights were to depict three of Heriz Smith's predecessors who had helped to build this church, C.D. Saunders in the 1870s, A.S. Newman in the 1890s and Thomas Wever (d. 1536), builder of the north chapel, the Easter Sepulchre, and indeed part of the old Rectory, demolished in 1841. Below were to be lights representing Charles Bugg, a wealthy tenant farmer and churchwarden for twenty-eight years before his death in 1911, Susan Wordsworth (d. 1912), the Bishop of Salisbury's sister and founder of a community of women church workers, and Julia, Charles Bugg's widow, President of Tarrant Hinton Mothers' Union, and responsible for the distribution of poor relief in the village, who was not to die till 1924.

This scheme was by no means a narrative created by an unbending High Church ritualist. The zealous evangelical Marian Exile (William Kethe, Rector of Child Okeford, (1561-94)) and Victorian missionaries feature alongside the non-juror Master of Gillingham free school, Robert Frampton (d. 1708), and the presence of two women workers at different levels in the church suggest the distance travelled from the homosocial world of Heriz Smith's band of undergraduates, the Companions of St John.

This chronological procession of historical figures round the windows of the nave may owe something to the contemporary enthusiasm for historical pageants that followed the extraordinary success and reputation of the Sherborne pageant of 1905. However, the Sherborne pageant had set a fashion for enacting richly coloured incidents lodged in a romantic and comfortably distant past Indeed, the modern pageant nearest to Tarrant Hinton, the Pydel Pageant held in the Vicarage Grounds, Piddletrenthide in July 1910, had begun in the Stone Age and got no nearer the present than King Canute (DHC, PE/PDT/Acc 5278). By contrast, the twenty-four subjects of the Tarrant Hinton windows included four who had died in the dozen or so years since Heriz Smith had come to Dorset, from an Archbishop to a church warden. Nor were they intended to be simply colourful. Only the windows of the chancel and what was then called the Sacristy (originally, perhaps, Wever's chantry) were to be coloured, while those of the nave were to be 'in white, black brown and gold' in deliberate imitation of similarly-toned early sixteenth-century windows in several parish churches in the French city of Troyes. Heriz Smith was a considerable traveller and may have visited these churches himself, but the idea was derived from a proposal made by G.G.Scott for the windows at Pembroke College chapel.

In his choice of local figures, the programme also illustrates Heriz Smith's complete identification with and support by his new community. As he stressed in a letter to the Diocesan Chancellor, 'all my changes have had full approval' (WSA, D1/61/46/34). In returning thanks at a Vestry meeting in 1908 for a vote of satisfaction at the improvements in the chancel achieved so far, he said 'he had invariably consulted those who ought to be consulted. . . They always met him with fairness and consideration. He thought they by this time understood and trusted one another, as far as he and they were concerned, & so far were a happy family in Tarrant Hinton' (DHC, PE/TTH/CW/1/3). To the Chancellor he was well justified in pointing out that 'when I came 12 years ago there were 9 communicants and that last Eastertide were 61, the population being about 140'(WSA, D1/61/46/34). He was clearly both effective and a popular success.

Almost none of all this was realised. Detailed knowledge of the scheme for reglazing the church comes from a chance off-print from an issue of *The Tarrant Magazine*, a publication of which no copies appear to have survived[7] (Fig. 8). It is entitled 'A Dream of Tarrant Hinton'. What was carried out was due to the generosity of the family that clearly supported the rector's ideas and had the means to do so. The rector's churchwarden, Charles Bugg who farmed about 750 acres of the Manor and North Farms, died childless in October 1908. His estate was

A Dream of Tarrant Hinton.

A Picture Book of Dorset Church History.

Chancel. Pembroke College, Cambridge

A

(1) Lawrence Booth, Archbishop of York, 1474, or Thomas of Rotherham, Archbishop of York and first Provost King's College, 1460.

(2) Richard Fox, Master of Pembroke, Bishop of Winchester, 1500. Founder of Corpus Christi College, Oxford.

B

(1) Matthew Wren, President Bishop of Ely, and builder of Pembroke College Chapel, 1665. Imprisoned in the Tower 1641—1659.

(2) Edward Bickersteth, Fellow. Bishop in Japan. Founder of the Nippon Sekwai—(Church of Japan).

South Aisle. East Window.

C

(1) S. Gregory the Great. "Our father who sent us baptism." 596

(2) S. Augustine, first Archbishop of Canterbury, 597.

(3) Matthew Parker, Archbishop of Canterbury, 1559, or Archbishop Laud, martyr, 1645.

Window E. of door. (Already erected in memory of Mr. Bugg.)

D

(1) S. Berin, Bishop of Dorchester, Apostle of Wessex. 634.

(2) S. Edward the Martyr. 978. The pride of Shaftesbury Abbey, to which of old, Tarrant Hinton Church belonged.

(3) S. Aldhelm, bishop of Sherborne. 705.

Small Window.

E

(1) Richard Poor, Bishop of Salisbury, Founder of the Cathedral, and of Tarente (Crawford) Abbey, where his heart was buried.

(2) William Middleton, Abbot of Milton, Founder of Milton Abbas School. 1521.

Tower Window.

F

(1) Robert Frampton, Bishop of Gloucester, non-juror. 1689. Born at Hinton.

(2) William Wake, Archbishop of Canterbury, 1715. Born at Blandford.

(3) Joseph Butler, author of the "Analogy" 1737. Bishop of Bristol, with Dorset in his diocese.

North Window in Nave.

G

(1) William Kethe, writer of "All people that on earth do dwell," rector of Childe Okeford, 1561.

(2) Brave Dame Mary Bankes defender of Corfe Castle, 1646.

(3) William Barnes, Dorset poet.

(4) Alfred Stevens, sculptor artist of Wellington monument in S Paul's Cathedral. "A second Michael Angelo," a native of Blandford.

Small Window on North side. (Transept)

H

First tier. Three Rector Builders

(1) Thomas Weaver or Trotteswell. Builder of north side of chancel and Easter sepulchre, 1520, and of old Rectory.

(2) Cosaley Diggle Saunders, Builder of chancel and Rectory, 1847—1887.

(3) Alfred Stilgoe Newman, Restorer of church, 1892 [1889—1896].

I

Second tier. Three worthy modern Church Workers.

(1) Susan Wordsworth, first president of Sarum Diocese Women's Union.

(2) Charles Bugg, churchwarden, 1871—1909.

(3) Julia Bugg president Tarrant Hinton W.I. and churchwarden, 1909.

Sacristy.

J

(1) C. A. Smythies. Bishop in Central Africa. A Blandford man.

(2) Archbishop Benson. Died 1896.

(3) John Wordsworth, Bishop of Sarum in 1909.

It is proposed that the figures in the Chancel and Sacristy should be in colours. Those in the rest of the church in white, black, brown, and gold, after the windows at S. Nicholas, S. Urbain, and S. Pantaleon at Troyes, recommended by G. G. Scott, R.A., for the windows in Pembroke College Chapel, Cambridge.

The names are suggestions only, and may be revised.

Figure 8.'A Dream of Tarrant Hinton' The Tarrant Magazine *n.d. (c.1909)*

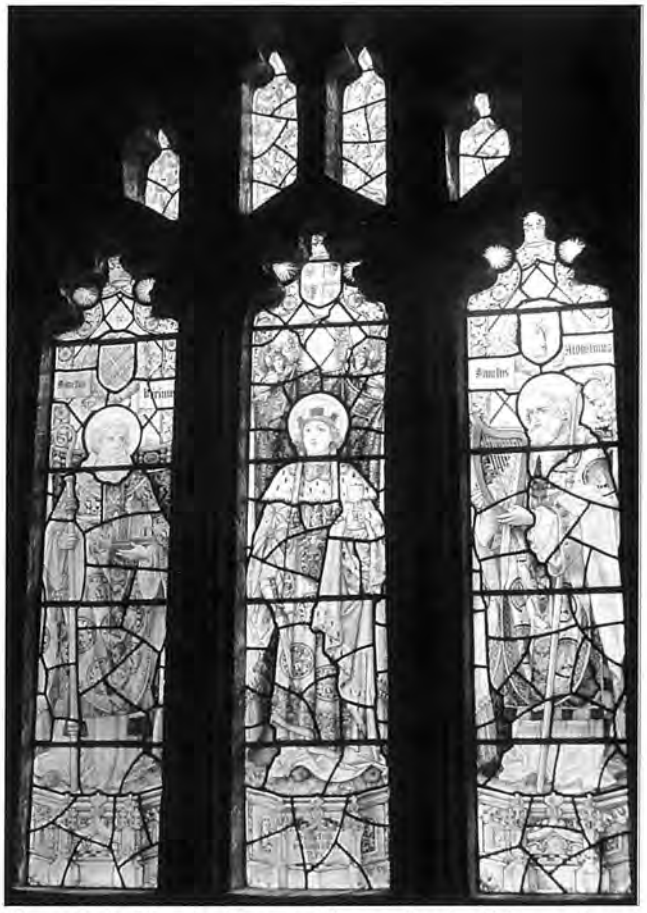


Figure 9. St Mary's, Tarrant Hinton, South Aisle, south-east window. Percy Bacon Bros. 1911

worth £35,420. 13*s.* 8*d.* a marked contrast to Heriz Smith's own, a couple of years later, worth under £1,500. His executors applied for a minor faculty to glaze a window in the south aisle in September 1909 (Fig. 9), which reproduces exactly what Heriz Smith envisioned for that space, with lights depicting Saints Birinus, Edward the Martyr and Aldhelm. It was designed by Percy Bacon Bros. of London whose work is also at Leigh, St Peter's, Poole (1908) and Lady St Mary, Wareham (1903-27). Bacon had not been one of the firms previously in correspondence with Heriz Smith, but the window carries out his desired design and colour scheme fully. Further, another memorial to Charles Bugg was installed in the church by some of his nephews, the principal beneficiaries of his will (DHC, NG-PB/1/44 p.173). This was the remarkable lectern, a fine, rare example of Art Nouveau design in the county. Although sadly anonymous, it was singled out for its excellence in successive editions of *The Buildings of England, Dorset,* and exhibited at the Victoria and Albert Museum in 1977 (Fig. 10).

In the last months of his life, Heriz Smith was applying for a faculty to erect a second altar in the south aisle, and to curtain off that space to 'make us all much warmer on winter Sunday mornings being nearer the stove'. This was his first step towards the

Figure 10.St Mary's, Tarrant Hinton, Lectern, 1911

larger project 'I don't want to do more than I can help at first for everything here falls on me' (WSA, D1/61/46/34). Apart from the remarkable altar rails and marble steps, the rest, the painted chancel above a rich marble floor, the carved and gilded reredos, the 'Calvary' above the Easter sepulchre, a rood screen, and the grand procession of Dorset figures around the church, what would have been an ecclectic, intensely coloured and richly detailed late gothic-revival interior, remains 'A Dream of Tarrant Hinton'.

ENDNOTES

1 *The Times*, 10 April 1896 letter from 'A Fellow of a Cambridge College' identified as (Sir) Montagu Butler, Fellow and later Master of Pembroke College. I am most grateful to Jayne Ringrose for this identification.

2 *The Ritualistic Clergy List*, 3rd Ed. 1903, published names of 9600 clergy, said to be 'helping the Romeward movement'. The large majority of Dorset incumbents listed by this alarmist tract were located in the west of the county; (Yates,1999, 322)

3 'The Education Question'.This followed a resolution of Tarrant Hinton Vestry on 27 April. The rector was instructed to convey their resolutions to the MP for North Dorset, Lord Portman, and the Bishop Wordsworth. Vestry Minutes, (DHC, PE/TTH/CW/1/3).

4 'Notes on Tarrant Hinton church.' in Heriz Smith's hand. These notes could well have been written in preparation for a visit by DNAHFC to the Tarrant Valley on 27 July 1909 (*PDNHFC*, **XXX**, lvii)

5 Ponting's original design for rood screen at West Fordington was exhibited at the Royal Academy Exhibition in 1911, (*The Builder*,1 December 1911, p.638).

6 A photograph of the statue in the sculptor's workshop accompanied Heriz Smith's application for a Faculty, Wiltshire and Swindon Archives, (WSA D1/61/46/34).

7 That title was succeeded in January 1912 by No. 1 of '*The Parish Magazine*' covering thirteen other parishes besides Tarrant Hinton. It includes a note on the death of 'our late Rector' about whom 'we are still many of us, far from having recovered from his loss' (DHC, PE/TTK/MG1/1).

THE AUTHOR

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Vanity Fair, 28 Jan 1888

WSA. Wiltshire and Swindon Archives

Yates, N. 1999. *Anglican Ritualism in Victorian Britain, 1830 - 1910, Clarendon Press*

Yorkshire Post, 1896.

ABBREVIATIONS

DHC. Dorset History Centre.

DNHAFC. Dorset Natural History and Archaeological Field Club.

Weatherbury's Midwife and Hintock's Adam

TRACY HAYES

Hardy's delineations of characters such as Gabriel Oak in Far From the Madding Crowd *and Giles Winterborne in* The Woodlanders *are of men whose masculinity is characterized, if not defined, by their individual practice of 'Einfülung', or 'feeling into'. Oak is variously demonstrated as being nurturer, midwife, and mother-figure without being perceived as compromising his sense of himself as masculine. Giles is a man of the earth, his own masculinity is inextricably linked with his empathy, his work is that of the Hintock Woods he personifies. This paper argues that Oak and Winterborne are examples of Hardy's 'New Men', adhering to a code of altruism whose difference is signified not by sexual dissidence or deviancy, but rather by an articulation of masculinity that is based upon a heightened sense of empathy and stoicism, Hardyan New Men who provide a complement to the nineteenth-century New Woman.*

The concepts of empathy and stoicism pervade Thomas Hardy's novels; his delineations of characters such as Gabriel Oak in *Far From the Madding Crowd* and Giles Winterborne in *The Woodlanders* are of men whose masculinity is informed, or perhaps defined, by their individual practices of 'Einfühlung'. Einfühlung translates from the German as 'feeling into', a form of empathy that the German Romantic thinker Novalis viewed as a corrective against contemporary scientific attitudes of dissecting nature into its elements, such as Georges-Louis Leclerc's work on the mechanical properties of wood, or Carl Linnaeus's biological classification systems. Not only do Hardy's literary notebooks mention Novalis in two specific entries, there is also a direct allusion to him in chapter 17 of *The Mayor of Casterbridge*: 'Character is Fate, said Novalis'. If Henchard is 'a man of Character', then Oak and Winterborne may be read as 'men of Einfühlung', each able to feel into Nature in order to practice altruism that allows them to articulate the benevolence of a 'New Man'.

In *Manliness and Masculinities in Nineteenth-Century Britain* John Tosh describes J.S. Mill as 'the anti-sexist man', or 'new man', who from his twenties 'never wavered in his belief in the equal rights of women'. Ben Griffin relates how 'many MPs were deeply troubled by Mill's vision of marriage, which seemed to flout the authority of scripture', causing consternation amongst the patriarchal elite wishing to maintain the status quo. Hardy was well-read in the writings of J.S. Mill, claiming in 1865 to know *On Liberty* 'almost by heart'. Sue Bridehead, who quotes from *On Liberty* to her husband Phillotson as part of her bid from freedom in *Jude the Obscure*, is widely credited as being a contribution to the New Woman discourse begun by Sarah Grand in her 1894 essay 'The New Aspect of the Woman Question', published in the *North American Review*. Grand used the phrase 'the New Woman' to 'denote the woman who has finally solved the problem and proclaimed for herself what was wrong with Home-is-the-Woman's-Sphere, and prescribed the remedy'. In this paper I will argue that Oak and Winterborne are a response to the New Woman debate in the trope of the New Man. By this I do not mean the masculinity of the Wildean aesthete or the influential but imprecise idea of the Victorian gentleman, an elastic term loaded with the judgemental authority of a particular social elite. The epithet of New Man has been utilized by critics such as Jane Thomas who describes Donald Farfrae as 'the consummate new man' due to 'physical strength no longer [being] the primary indicator of masculinity in the bourgeois capitalist world' of *The Mayor of* Casterbridge (Thomas 2016, 134). The definition of New Man that I posit is one based on an altruism, an articulation of masculinity that is based upon a heightened sense of empathy and stoicism, a Hardyan New Man who provides a complement to the nineteenth-century New Woman.

Gabriel Oak — Weatherbury's Midwife

For this purposes of the essay the term 'stoicism' may be interpreted as exhibiting a behaviour in which one bears pain, hardship and sorrow without complaint or demonstrable show of feelings. Khatereh Tanoori has written at length on Stoic masculinities within

Hardy's fiction, her main subjects being Oak and Winterborne, though she also includes Clym Yeobright from *The Return of the Native* in a triumvirate of what she has designated 'Stoic heroes' as opposed to 'tragic heroes'. She defines a tragic hero by his obstinacy and strong sense of self-uniqueness, and a Stoic hero by his renunciation. While the character of Clym may be read as demonstrating certain Stoical qualities, Hardy represents this particular protagonist in such a way that we are also able to recognize an obviously Oedipal element in his relationship with his mother which would by definition preclude any altruism extending beyond his family. According to Hardy's contemporary and friend J.M. Barrie, 'Oak is the hero whom novelists try to draw eternally, the good fellow with a head as well as a heart [[...]] A *manlier* Englishman was never drawn' (Barrie 1889). Barrie also stated that 'Gabriel is the true growth of Wessex soil' (ibid.); it is Gabriel Oak's status within *Far From the Madding Crowd* as a midwife to Nature that secures for him both an altruism and an otherness. Roy Morrell notes that 'Gabriel Oak is not a part of Nature. He may be a countryman, but he is always a human being, fully conscious of his human responsibility, always ready to modify, to deflect, to improve, Nature's workings' (Morrell 1968, 61). Oak is not a part of Nature, he 'feels into' Nature, as a practitioner of Einfühlung. He is able to stoically renounce any claim upon Bathsheba while retaining a consistently unselfish regard for her and all she represents, but he also articulates an empathy for the correlating non-human constituents of the text, his sheepdog, the hayricks, the toads and spiders that alert him to changes in the weather, and the sheep for whom he is both midwife and nurse. His ability to 'feel into' Nature and recognize the needs of fellow minded creatures is what formulates his own individually gendered identity.

While the term 'nurse' during the nineteenth-century connoted images of feminine care (see John Ruskin's treatise 'Sesame and Lilies' 1865), Hardy has imbued Oak's character with a power that valorises the male as nurturer:

> Gabriel was already among the turgid prostrate forms. He had flung off his coat, rolled up his shirt-sleeves, and taken from his pocket the instrument of salvation. It was a small tube or trochar, with a lance passing down the inside, and Gabriel began to use it with a dexterity that would have graced a hospital surgeon. Passing his hand over the sheep's left flank, and selecting the proper point, he punctured the skin and rumen with the lance as it stood in the tube, then he suddenly withdrew the lance, retaining the tube in its place. (Hardy 2002, 141)

Tube, trochar, lance and puncturing are all highly suggestive of the phallus, yet rather than conquering in a sexual sense, Oak is instead nursing. This scene may invoke satyric imagery, but it is actually a passage describing the rescue of blighted livestock for a woman whom Oak has stoically renounced to the advantage of a less-suited but honourable rival.

Oak's character is that of a self-sufficient man who does not value possessions in a materialistic fashion, whose sense of masculinity does not depend upon a particular position of employment or social status amongst his peers. Hardy has Oak perform a number of duties within the text: farmer, shepherd, shearer, itinerant farmhand, flute busker, bailiff and, finally, farmer once again. Each occupation is performed stoically but also with a deep sense of empathy for all that surrounds him, whether plant, animal or human. When he discerns a distant glow he quickly ascertains that it is a fire, and without any consideration for personal safety immediately devotes himself to putting it out, not knowing whose hay ricks he is saving, only that someone's livelihood hangs in the balance (ibid., 47-51). Ascending a hill late in the evening he comes across a helpless young girl whom he notices is scantily clad despite the chill air; he respects her wish for anonymity but altruistically offers the stranger money, '"I will go on", he said adding hesitatingly —"Since you are not very well off perhaps you would accept this trifle from me. It is only a shilling, but it is all I have to spare"' (ibid., 54). From a simple brushing of her wrist Oak detects from her 'pulse beating with tragic intensity' a 'consumption too great of a vitality which, to judge from her figure and stature, was already too little', suggesting that Fanny has been pushed beyond the limits of endurance (ibid., 54). 'He fancied that he had felt himself in the penumbra of a very deep sadness when touching that slight and fragile creature' (ibid., 55). This scene is one of

pathos; Oak is not performing a charitable deed, but rather participating in an empathetic exchange.

In the scene which takes place at Warren's Malthouse the text is permeated with a code of masculine rusticity. The peasants share a communal drinking cup and plate for victuals without recourse to cutlery. Out of respect for a heroic newcomer who has almost single-handedly extinguished a potentially devastating blaze, the Maltster demands that Oak be given a 'clane cup' which is refused, not out of condescension or simply for comic effect, though the ensuing conversation is indeed humorous, but through an innate sense of Einfühlung. Oak has instantly felt into the nature of these kinsfolk, understanding and engaging with them on their own terms:

> 'I never fuss about dirt in its pure state and when I know what sort it is'. Taking the mug he drank an inch or more from the depths of its contents, and duly passed it to the next man. 'I wouldn't think of giving such trouble to neighbours in washing up, when there's so much work to be done in the world already' (ibid., 58).

Oak's altruism is classless; he renounces any claim upon Bathsheba Everdene in favour of the prosperous farmer William Boldwood, whose own community standing is high. Rather than display bitterness Hardy has the shepherd actively pleading his rival's case, and on a number of occasions he shows great and genuine concern for Boldwood, a character who is presented as being psychologically unstable. Boldwood's 'symptoms of mental derangement [...] Bathsheba and Oak, alone of all others, and at different times, had momentarily suspected' (ibid., 373). Oak is variously represented by Hardy as being nurturer, midwife, and mother-figure without being perceived as compromising his sense of himself as masculine. If we understand Hardy's narrative within the context of nineteenth century perceptions of Stoicism and empathy we are able to recognize Gabriel Oak as representing a new form of Victorian masculinity, that of the New Man.

Giles Winterborne — Hintock's Adam

Since the publication of *The Woodlanders* many critics have remarked upon the similarities between Oak's character and that of Giles Winterborne. William Wallace wrote that 'There is a little of Gabriel Oak in Giles Winterborne; but not enough to round off his life with domestic happiness' (Cox 1970, 154). Khatereh Tanoori notes that like Oak, Giles 'lives in accordance with reason [...] knowing his place in the order of the universe', but unlike his predecessor, 'Hardy's portrait of Giles as a Stoic [...] is not entirely positive' (Tanoori 2013). She describes Giles as 'melancholy' and 'cynical', and in comparison with Oak 'he finds the regulation of his emotions more difficult'. But where Oak is a character evincing traits of mothering combined with masculine earthiness, the role of Giles Winterborne seems to be an allegory for Nature and its many constituent parts. Giles's character may be seen as not simply possessing the qualities of Einfühlung, but of representing the New Man as the embodiment of Einfühlung itself.

Terry Wright argues that Giles is like Tess in his 'purity', he is 'purely natural, his moral rectitude and oneness with nature contrasting with the infidelity and sophistication of his more cultured rival' (Wright 1989, 80). Yet as Wright notes, 'conventional morality remains powerless' in the face of the sexual licentiousness exhibited by Edred Fitzpiers, and men like Winterborne gain very little from their restraint, leading Wright to conclude that the novel itself 'is deeply split between admiration of the 'manliness' of Winterborne's ideal and recognition of its unreality' (ibid., 88). Where Oak's stoicism and the strength of character symbolized by his name eventually lead to the fulfilment of his desires, Winterborne's stoicism leads to his self-destruction. His idealisation of a chivalric code of masculinity is ultimately unattainable.

Giles is a man of the earth, one of Nature's Stoics who accepts the inevitability of events and adapts accordingly. This has led to a number of readings in which his character is denigrated as stolid or dour. Thus Geoffrey Thurley writes of 'the dogged Giles, with his slow-moving taciturnity' which displays 'an absence of alacrity' (Thurley 1975, 120-121), and Frank Giordano goes so far as to attribute to Giles a love for Grace Melbury that is 'bloodless', for he is never seen to express 'any heat or passion for her' (Giordano 1984). Yet the anonymous critic writing for the *Saturday Review* just after the novel's

release declared: 'Mr Hardy has not often drawn a more sympathetic character than that of the undemonstrative, patient, and self-denying Giles Winterborne' (Cox 1970, 152). This same reviewer describes Giles as 'the very genius of the orchards' (ibid., 152), chiming with J.M. Barrie's description of Oak mentioned above, and illustrating the point at which nineteenth-century stoicism becomes wedded to empathy to form a New Man discourse.

Giles's masculinity is inextricably linked with his empathy, his work is that of the Hintock Woods he personifies. His character represents a Pagan otherness, and Thurley avers that Giles is 'a Dionysiac worshipper of the earth and the seasons, associated profoundly with growth and fruitage' (Thurley 1975, 119). A number of scenes within the narrative allude to Giles as a folkloric Fruit-God or God of the Woods. He is among other things a cider-maker, and Hardy's narrator describes him in terms of fecundity: 'He looked and smelt like Autumn's very brother, his face being sun-burnt to wheat-colour, his eyes blue as corn-flowers, his sleeves and leggings dyed with fruit stains, his hands clammy with the sweet juice of apples, his hat sprinkled with pips [...] ' (Hardy 2005, 185). His appearance transports Grace Melbury: 'her senses revelled in the sudden lapse back to Nature unadorned. The consciousness of having to be genteel because of her husband's profession, the veneer of artificiality which she had acquired at the fashionable schools, were thrown off, and she became the crude country girl of her latent, early instincts' (Hardy 2005, 186). In this passage Hintock's Adam has had the effect of causing Grace to revert to a pre-lapsed Edenic Eve. The image of the apple is in fact contiguous with Giles's character and is utilized symbolically by Hardy in this text in various ways. Radford writes of Giles's representation as a figure of fertility and his 'personifying the earth's thriving abundance' (Radford 2001). He ascribes to Giles the epithet of 'wood-God' and notes a 'quasi-mystical correspondence' between the woodlander and his trees, a 'fertile bond' fostered by his 'custodian[ship] of the forest and its ancient culture' (ibid.). Giles's Stoicism is demonstrated by his absence of materialism, his adaptability, and his renunciation of the woman who had been promised to him in his youth in favour of a more worldly but fickle figure, whom he knows is undeserving of Grace Melbury's attentions. His character shares these traits with that of his predecessor Oak, but where the former could be read as performing the role of Nature's midwife, Giles seems to give birth to siviculture itself: 'He had a marvellous power of making trees grow. Although he would seem to shovel in the earth quite carelessly there was a sort of sympathy between himself and the fir, oak, or beech that he was operating on; so that the roots took hold of the soil in a few days' (Hardy 2005, 58). Hardy's choice of a surgical discourse here as signified by the words 'operating on' connotes a figure with power over mortality: 'Winterborne's fingers were endowed with a gentle conjurer's touch in spreading the roots of each little tree, resulting in a sort of caress, under which the delicate fibres all laid themselves out in their proper directions for growth' (ibid., 59). Through the figure of Giles as wood-God Hardy perfectly illustrates the concept of Einfülung, feeling into Nature as an organic whole rather than a dissection of its scientific elements.

Giles's Einfühlung is represented in such a way that it is valid to read his character not only as a New Man, but as the First Man, as the Adam of Little Hintock. The pervasive use of apple imagery, of Edenic references, and of direct allusions to Milton's *Paradise Lost* (1667) that comprise the text of this novel all support the legitimacy of such a reading. Penny Boumelha in her introduction to the novel remarks upon 'the pervasive apple-tree motif which evokes the underlying story of Eden and the Fall' (Hardy 2005, xx), this is indeed borne out in scenes such as that featuring Giles carrying 'a specimen apple tree to market with him as an advertisement of what he dealt in' (ibid., 31); the apple tree under which Giles meets Grace when she returns to Little Hintock as a newly refined young woman (ibid., 34); and his own apple trees that he must forsake when he loses his lease-hold to the returned landlady Mrs Charmond (ibid., 83). However, Hardy also employs apple imagery in Judeo-Christian terms symbolizing the forbidden fruit in instances such as that which takes place when Giles has officially renounced his residence and is later surveying the property he has forfeited to Felice Charmond: 'Apples bobbed against his head, and in the grass beneath he crunched scores of them as he walked. There was nobody to

gather them now' (ibid., 167). When her husband Fitzpiers rides off in order to fulfil an assignation with his mistress on a horse which had originally been purchased for Grace by Giles, Grace wonders 'if there were one world in the universe where the fruit had no worm, and marriage no sorrow' (ibid., 184). Marty South contemplates 'her apple of discord' (ibid., 223), and when Giles sacrifices himself to the expediencies of Christian moral doctrine, the narrator informs us that 'social law had negatived forever their paradise' (ibid., 273). Through the persistent use of apple imagery and allusions to Milton's *Paradise Lost*, a copy of which Hardy owned and annotated, the setting of Little Hintock becomes identified with Eden and the character of Giles, the 'genius of the orchards', is elevated to the status of Adam.

Much has been written about the stoical manner in which Giles dies, sacrificing himself to the elements in order to ensure that Grace's reputation remains unbesmirched. Tanoori states that it is in the precise manner of his death that Hardy 'elevates his male protagonist to the status of "hero" [...] for his tolerance of agony, for his refusal to see pain, and even death, as negative' (Tanoori 2014), and she infers from the text that Hardy himself 'laments Giles's death while admiring his practise of masculinity, his ability to master his desires and constitute himself through fellow-feeling' (Tanoori 2013). While we obviously cannot know what Hardy was thinking while writing this novel, we can recognize that Hardy's description of Giles's demise is indeed invested with a poignancy befitting a Classical Stoic hero. Giordano proposes that Giles's 'unnatural repression of his emotions' is the cause of his defeat, that like Michael Henchard in *The Mayor of Casterbridge* 'they can only succeed in realising themselves by sacrificing their lives' (Giordano 1984). Giles may seem to have been portrayed as sacrificing himself in his love and respect for Grace, but such a reading seems not to have taken into account that Hardy's narrator has already explicitly informed the reader of Giles having previously battled a debilitating illness which left his immune system extremely weak; Doctor Fitzpiers surmises that this illness may in fact have been typhoid (Hardy 2005, 288). Exposure to the elements is not a deliberate choice for Giles, but one he endures stoically for empathetic reasons that need not be connected with any wish for martyrdom. His altruism precludes regard for personal circumstances, it is rather one which prizes the experience of fellow feeling.

More in common with the reading of Giles as an embodiment of Einfühlung is the trope mentioned earlier of Giles as Woodland God. Where Mary Jacobus has noted that *The Woodlanders* is an elegiac novel 'for which the death of Giles Winterborne is the declared focus, and trees the silent mourners' (Jacobus 1979), it is Andrew Radford's definition of Giles as fertility God that most closely echoes the preposition of Giles exemplifying the New Man. This character 'apotheosizes the Autumnal fertility figure' by his 'affinity with [...] the vibrant physical world' (Radford 2001), but where he had earlier symbolized the fecundity of Little Hintock, as Giles lies delirious and dying he 'dissolves into the sylvan surroundings by imperceptible degrees' (ibid.). Yet, as Radford points out, it is not the death of this character that constitutes the narrative as tragic, for Winterborne's 'absorption back into the forest' simply signifies the completion of nature's cycle, 'growth and decay, sowing and reaping, are equally necessary' (ibid.). The true tragedy is the realization that while Giles has been portrayed by Hardy as a nurturing fertility figure, Hardy chooses to leave this protagonist as a 'sterile asexual force' (ibid.). What Radford describes as 'a galling irony' is that while Giles is portrayed within the plot as a fertility figure, he himself has not become 'fertile' in the human sense (ibid.). Exemplifying fertility without he himself procreating, this otherness elevates Giles's character through the concept of Einfühlung to the status of the New Man. Through the proxy of Giles as Hintock's Adam, or the New Man, Hardy may be seen in this novel as representing a masculinity for which 'manliness' is not compromised by not procreating, but is in fact inextricably linked with Einfühlung, and therefore integral to his position within the narrative as the epitome of regeneration. Gabriel Oak and Giles Winterborne both act as fictional proxies to represent Hardy's own investment in the concept of Einfühlung — his 'feeling into' nature.

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Dr Tracy Hayes received her doctorate from the Open University in 2017 for a thesis which investigated representations of masculinity in Thomas Hardy's novels. She has presented at conferences throughout the UK, and published a number of essays and reviews for various journals. She is a member of the Thomas Hardy Society Council of Management on which she acts as secretary; she is also the website and social media coordinator, and a member of the academic board. She is a Vice President of the Thomas Hardy Association in the US, for which she is the book reviews and publications checklist director.

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Ways of Seeing: an architectural reconstruction of Wessex

KESTER RATTENBURY

This paper introduces the thinking and broad speculative architectural methodologies underlying the recent book The Wessex Project: Thomas Hardy, Architect *(Rattenbury 2018). The book is the first time that Hardy's work has been studied in detail by an architectural critic. This article introduces the usually tacit but highly-evolved and widely-used ways in which architects both 'read' and 'construct' real and imaginary design projects, and how applying them to Hardy's wider body of work opens up a new and profoundly architectural interpretation of Hardy's work. From this perspective, it is argued that there is a fundamental importance to Hardy's visual material land method are key facets of Hardy's architecturally cross-disciplinary content, meaning and argument. It is proposed that Hardy's varied work (including collaborations notably on photography and stage design); his maps;* Wessex Poems *drawings; collaborative visual and design work typically ascribed to others (the Hermann Lea Photos, the Hardy Players stage sets); his covert conservation campaigns; his buildings; and his factual writings on Wessex, have to be read as components making up the construction of Wessex, and operating as what is an experimental and highly influential architectural conceptual project with considerable outreach today.*

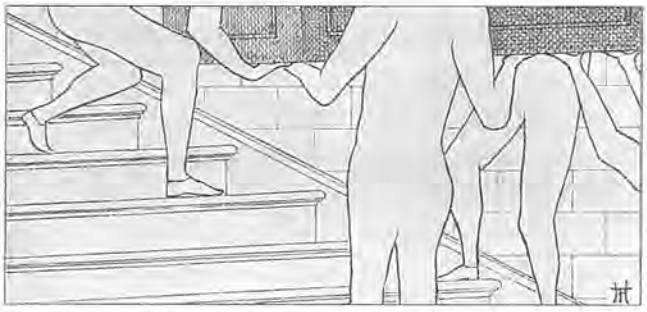

Figure 1: Hardy's Wessex Poems *drawing accompanying the poem 'Heiress and Architect'*

Architects do many more peculiar things than non-architects might think — especially those who publish more than they build. They do peculiar drawings, for instance, like Hardy's *Wessex Poems* picture which accompanies his poem 'Heiress and Architect' (Fig. 1). Such drawings are clearly architectural, but are obviously not for building.

Drawings are crucial for architects. They are the way they work; they form a kind of a language, which architects make and read and use (Evans 1995, 1997). They are full of information. I could talk about this example for hours: about its relationship to mediaeval drawings and its predictions of contemporary ones (Beatty 1963, 330-1); about its relationship to Hardy's time working as an architect in Blomfield's office in London, and to the work he did on the extension of Max Gate — especially the design of the coffin stair leading to Emma's new attic, down which Emma must indeed have departed. To an architect this drawing is readable and it shows us that throughout his life Hardy was thinking, not just as an architect, but very clearly as an experimental architect.

Hardy's work is full of architectural pictures: the ones he wrote — the famous, precise, scripted set-piece scenes, and the whole wide range of other kinds of written visual descriptions; the ones he drew — the maps, the various kinds of architectural drawing, the remarkable *Wessex Poems* pictures; and the ones which he curated, or directed, or collaborated on: the illustrations, the photographs, and the stage sets for the Hardy Players.

Drawings and pictures are critical for architects, because architects don't build buildings: they make *imaginary* buildings — designs — for other people to build. Later, perhaps, other people may build them and the real and imaginary (more or less) come together. Meanwhile, they construct these imaginary buildings using drawings: all kinds of drawings. Drawings to survey, to sketch, to develop ideas, to work things out, to revisit things. Gradually, they add these together and build up in their imagination the complex thing which is a whole, detailed, designed building — before it is built.

They use drawings to communicate with other people, too: with clients and builders, in publications — and also with colleagues, staff, or other architects who help them develop and test what the building will be like and how it will work, always comparing them with other buildings. They have developed all kinds of complex processes for doing this, using drawings and other representations as their central tools. Fig. 2 shows a PhD by Practice examination in which a well-known architect is presenting his work — drawings and photos of work, that is; architects are used to working with surrogates —

Figure 2: PhD by Practice as developed by The Royal Melbourne Institute of Technology. This shows the public examination of Tom Holbrook, of the architects 5th Studio, in Ghent in 2014. Photo courtesy of RMIT

and an audience of other architects are looking at those pictures and putting them together in their heads to see what the work adds up to.

This is fairly new as a PhD process but it is very well established in architectural practice. It is, more or less, what was going on at the young Architectural Association when Hardy was a member in the 1860s, where working architects/pupils presented their work to each other. The AA went on to become one of the world's most famous and influential architectural schools. Claudius Beatty (1966, vii), the great scholar of Hardy's architectural work, thought the process almost laughably home-made, but it is still in active use in offices and architectural schools all around the world.

These are projective skills which architects learn by doing their job, and which are not often described. But if you want a description of this from inside an architect's head, try *A Laodicean*: Hardy does it brilliantly. The book is woven through with descriptions of the surveying, reading, drawing, designing, analysing and making of buildings on site — as well as speculating on what this means in what Walter Benjamin would call the 'age of mechanical reproduction'. It is a remarkable body of description, and a very unusual one. In 1900 Hardy said of *A Laodicean* that it had 'more of the facts of his life in It than anything else he had ever written' (Phelps 1939, 391) — and it is surely this everyday act of architectural imagination that he is referring to.

These imaginary buildings that architects make are called 'projects'; they exist for other architects whether the buildings get built or not, and a surprising number of them are not built. Fig. 3 is a drawing by Thomas Hardy. It is a competition design for an unbuilt church, so the best he could realistically have hoped for was that it might be exhibited in a gallery. It is his best conventional drawing: this cropped version shows a section, with some constructional details drawn in a quite interesting stripped-Gothic design, with unusual, modern, random-shaped, clear glass windows.

What is really remarkable about this drawing, however, is its extreme, immersive detail. The quality of the rendering — the detail of the stonework, the windows, the shadow. If you look at it closely, as Hardy would have drawn it (he seems to have had extremely close vision) it is almost like being there, as if moving through the space. The drawing represents a huge investment of time in something which Hardy must have known would have almost no chance of being built. This is normal, for architects. It is how they work. It comes with the territory.

These unbuilt projects can, in a way, be even more important for architects than the built ones. To take a fairly random and preposterous comparison, the architect Zaha Hadid (a famous member of the radical Architectural Association school, a century after Hardy) designed many famous, dramatically-shaped buildings across the world, and yet her unbuilt competition-winning design for the Peak in Hong Kong remains one of her most significantand influential projects (britannica.com, accessed 2/3/2019).

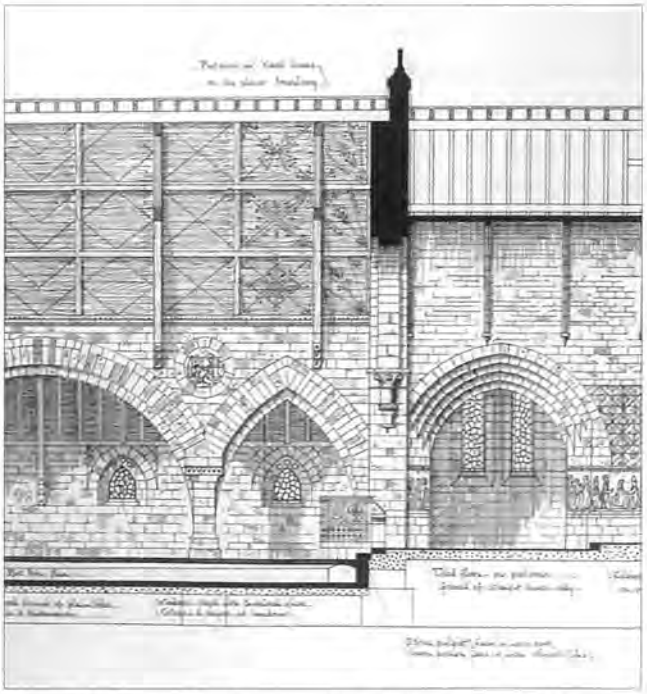

Figure 3: Thomas Hardy, competition design for a church (detail). Dorset County Museum

Even by winning the competition, her series of paintings changed the landscape of architectural imagination, demonstrating that a type of architecture, Deconstructivism (which until then had seemed entirely speculative 'paper' architecture) could manifestly be accepted by clients and, at least potentially, be built. It changed the realm of architectural possibilities. The high ground of architectural culture is waymarked with projects like this: unbuilt, published projects which changed the scope of architectural thought, design — and, eventually, practice.

Many of these seminal, imaginary projects were never even meant to be built, and some are not buildings at all. One of the most extreme — another project by an AA member a century later than Hardy — is Temple Island, by Mike Webb (archigram.westminster.ac.uk, accessed 18/2/2019). This is a decades-long, elusive, challenging and beautiful series of drawings and paintings exploring the way we see a real landscape — in this case the area round Henley (including a Fawley Court and Fawley village, coincidentally). The project forensically explores and illustrates different ways of seeing this place by comparing different kinds of visual perception and analysis of a place in time and space — the framed Romantic landscape against the telephotography of racing boats, for example.

Many of such way-marking projects are books. Architectural books have existed throughout the history of the architectural profession (Hill, 2013; Powers 2002), often with an unusual and provocative association of pictures and text (Derrida is a common reference in architectural theory). Some books are overtly pragmatic — advertisements for built works, for instance — but many are polemical and challenging. Rather like science fiction, such books may be a way to try out, in detail, radically new ways of seeing and building the world.

Three of the most influential architectural books of the twentieth century, for instance, are Le Corbusier's *Vers Une Architecture* ('Towards a New Architecture', 1923), Robert Venturi, Denise Scott Brown and Steven Izenour's *Learning From Las Vegas* (1972), and Rem Koolhaas' *Delirious New York* (1979). All were produced early in the careers of extremely famous practising architects — and all look at an existing overlooked landscape — a place, or subject which was not, at the time, considered at all architectural. All use an architectural approach to their subject matter, and thus propose a whole new way of seeing and changing the real world.

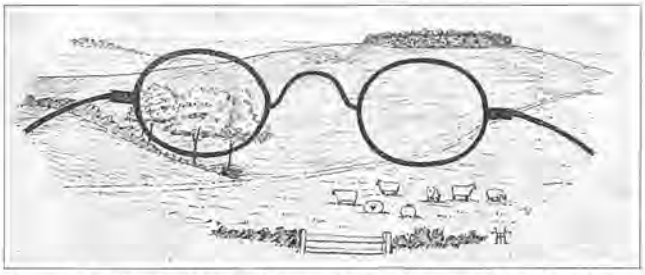

Figure 4: Thomas Hardy, Wessex Poems drawing, In a Eweleaze Near Weatherbury

Architectural writing was just as important in Hardy's day. John Ruskin was the towering figure of the age — a self-taught but privileged art and architectural critic of vast popularity and influence who wrote widely about aesthetics, painting, craftsmanship and photography; about education (and whether craft workers should have it); about ethics and morals; mediaeval and contemporary architecture and how it was made; about stonework, and the mason's relation to it; and exhaustively, about trees. From a privileged outsider's position, Ruskin was laying down the law about the whole of Hardy's home ground.

Ruskin's books experiment with pictures too, including drawings, diagrams, and photography. He was an early user of photography in his publications (Harvey 1994, Arrhenuis 2005) and was fascinated by the way in which different types of image could change his readers' perceptions. Reading Ruskin's work alongside Hardy's is startling. Their writing is close in both form and subject matter and highly engaged and oppositional in argument. Even the ponderous uses of language — which can leap from philosophy to technical detail: from intense, detailed description to narrative or polemic — are remarkably familiar. Far closer, however, is a now-forgotten, intriguing critic of Ruskin, Edward Garbett, whose *Treatise* (1850) was in Hardy's library. Hardy had aspired to be an art and architectural critic, and reading these works alongside each other — comparing their powerful and often directly opposing polemics, it becomes blindingly clear that he never abandoned this aspiration.

When architectural critics see peculiar architectural drawings — that showing the Wessex countryside through Hardy's glasses in *Wessex Poems* for instance (Fig. 4) — they see something very recognisable — something not unlike Claude-Nicholas Ledoux' image of the theatre of Besancon reflected in an eye (Fig. 5), or Temple Island's exploration of cones of vision. This is a type of picture which emerges occasionally throughout the history of the profession. It shows not

just what the architect is imagining, but the whole process of imagining it.

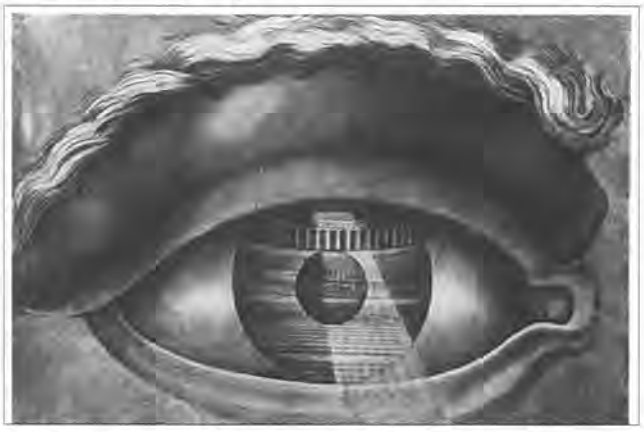

Figure 5: Claude Nicholas Ledoux, Theatre at Besançon

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Figure 6: Max Gate phase 1, newly complete in 1882. Dorset County Museum

Architects and architectural critics are always comparing drawings with the buildings, and it was Max Gate which started this whole line of reasoning off. 'There is [...] no greater shock in English literary biography than to visit that far from distinguished Villa [...] set in its rather bleak upland' wrote John Fowles (Draper and Fowles 1984, 9). Max Gate's reputation has since been rehabilitated, especially in the last twenty years, by generations of loving tenants, its own relatively graceful ageing, and by the National Trust, which has recently made it accessible (both practically and imaginatively) in a way in which it never was before.

To the architectural critic, there is something very particular about Max Gate. It is so determined, so deliberate. Hardy never stopped working on it: eight years after the photo (Fig. 6) was taken, it was a building site again. It is not the 'neutral matrix' that John Fowles suggests. On the inside, indeed, it is almost madly detailed: every skirting board, latch or cupboard is individually designed. According to Andrew Leah, a former resident, only two windows are the same. There is no wonder Thomas Hardy senior, the builder, said of this project 'never again' (Millgate 1982, 257).

Max Gate also has an awkward, uncomfortable relationship with the Arts & Crafts movement. It has real architectural context, but it is without that movement's jewel-box quality. It looks from the outside, surely deliberately, like any other aspirational roadside villa. That was a provocation, and Hardy knew it. Think of that passage in *A Laodicean* where the architect, Somerset, visits the former owner of the ancient castle in just such another roadside villa. 'How are the mighty fallen!' says Somerset — only to grudgingly recognise its 'air of healthful cheerfulness', the 'sun and air riddling the house' (Hardy 1881, 36). Houses like this, with their 'mushroom modernism' and 'roadside respectability' were always a provocation to architects (Oliver *et al* 1981). Surely, Hardy is being deliberately provocative.

Max Gate is, of course, shocking in contrast to the picture-postcard image of Hardy's Wessex: the house at Higher Bockhampton (Fig. 7). Yet to an architectural critic, it is remarkable how much of this image was shaped by Hardy. It is not just because his grandfather built it and his father extended it, or even the suggestion that the young Hardy may himself have helped puddle the clay for the walls — it is that when Hardy's mother, Jemima, died, Hardy moved his friend and photographer Herman Lea into the building — so that it exists now in a remarkable state of preservation, almost entirely unmodernised. Hardy directed Lea on how to plant the garden and directed many photographs. Even the trees at the back of this picture — planted by Hardy's grandfather and described in Hardy's first poem 'Domicilium'

Figure 7: Higher Bockhampton. Hermann Lea, Toucan Press.

— were, by the time of this photograph, already protected under the aegis of Hardy's Wessex. From a wider architectural viewpoint there is almost nothing in such images which Hardy hasn't himself, in some

Figure 8: Bookman map of Wessex

way, constructed.

Moreover, Max Gate is only a key to Hardy's great architectural work, for the author constructed, in extraordinary detail, his 'Wessex' — a fully mapped, visualised, coherent, widely-published polemic — a part-real, part-dream country. He surrounded it with factual and philosophical footnotes, prefaces and additional material. He directed the illustrations, photographs, stage sets, some of the watercolours and the tourism. Crucially he claimed copyright of the whole thing (Hardy 1888) and used it, for polemical purposes. That is almost a definition of a conceptual architectural project: a type with long roots in architectural history — but this was of a very remarkable kind, a century ahead of its time, and with an outreach most architects could only dream of.

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If this paper were addressed to an architectural audience, the maps and the copyright ought to have hooked their attention, but it is the *Wessex Poems* illustrations which should reel them in. These are profoundly, recognisably experimental architectural

Figure 9: Wessex Poems drawing (Ringstead)

drawings. They take the hard-line pen and ink media, and precise conventions of architectural drawings and extend them to include subject matter which is normally excluded — time and space, decay, darkness; life and death. They depict narrative as well as substance, mixing architectural drawing with photographic conventions.

They are also profoundly cinematic, and that is hugely important. Hardy scholars have been writing about Hardy's cinematic vision since the 1920s, David Lodge's 1974 paper for example, which compares Hardy's use of wide establishing shots and cuts to close detail with John Ford Westerns (Lodge 1974). This is crucial for architects, because cinematic vision is supposed to be *the* modern and post-modern vision of architecture, a vision which puts the viewer at the centre of the image. It is often argued that cinema is a profoundly architectural medium, and vice versa, a view which supposedly emerged roughly the same as cinema itself (Keiller 2002). However, here we have something remarkable: an architect predicting a highly sophisticated cinematic vision before cinema, as we understand it, existed.

The *Wessex Poems* drawings are also retrospective, and that is significant too. Retrospective drawings are often made by architects to uncover and define for themselves the critical characteristics of work originally developed through trial and error. These drawings were also made after Hardy had completed his novels. They are not exactly illustrations of the poems, but works in themselves, and indeed in some ways seem to have driven the publication (Dalzeil 1997). In architectural terms, that gives them absolute status, as definitive drawings. They revisit and emphasise certain types of vision which, as a latter-day architectural critic, I had already registered as being profoundly and experimentally architectural — whether they contained buildings or not. The famous Hardy opening scenes, for instance; the famous descriptions of set scenes (often landscapes); the passages which are like architectural drawings in written form: those intense, highly-specified instructions to imagine.

This is a technique where the long and precise description makes the reader really look at something, read it and realise how much can be understood from looking. The drawing (Fig. 9) shows a view towards Portland Bill, with defined, morning shadows: the soldier on the road and the ships coming into Weymouth Bay. You can find all kinds of narrative

in this single image simply by looking. This, too is a precise and detailed architect's instruction, not on what to build, but on what to imagine — which is what those architects who don't build very much often do instead.

Some of the *Wessex Poems* drawings also have odd, unexpected crops. Fig. 10 is like (but is not actually) an architectural axonometric. It is photographic, an up-view; the crop suggests speed, or movement. It looks like an outtake from Alfred Hitchcock's *Vertigo*,

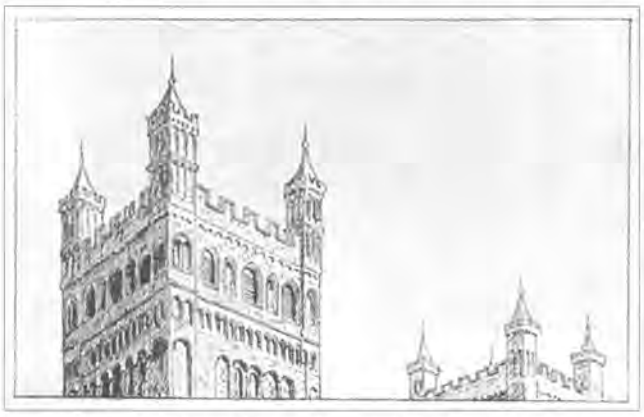

Figure 10: Wessex Poems drawing (Wimborne Minster)

and reminds you of visually and viscerally dramatic moments in Hardy's books: Cytherea's father, the architect, falling from a church spire, while his daughter watches through a town hall window in *Desperate Remedies*; or Knight falling from the cliff in *A Pair of Blue Eyes*. Again, this is remarkable for latter-day architects. 'Deconstructivist' architecture of the 1970s had a particular penchant for 'cliffhangers', which are often dated from movies of the 1920s, and linked with the architecture-cinema argument. But Hardy seems to have actually *invented* the cliffhanger — again, before movies, as we know them, existed.

Hardy shows us sections as well (Fig. 11). *The Hand of Ethelberta* is considered to be a novel showing how society is a construction — and a remarkably architectural construction it is too. The novel is dotted with sectional descriptions: the acoustic packing

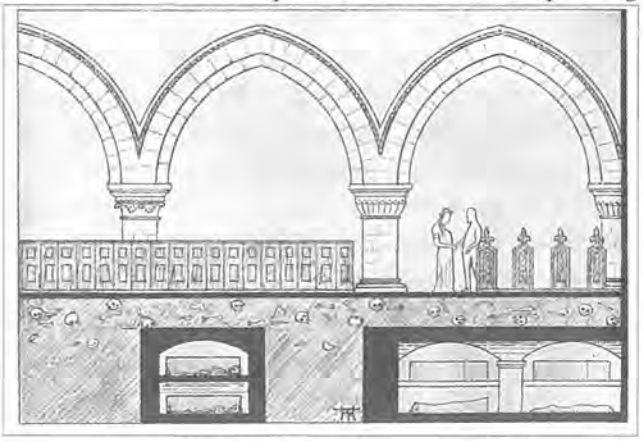

Figure 11: Wessex Poems drawing (sectional)

between the floor joists of large London houses which means that knowing servants can hold dances on the floor above their employers' dinner parties, without their employers finding out, or the cladding of a brick mansion with stone panels, so well done that you would never know the difference, despite the architects' credo about the 'truth' of construction. Indeed, Kingston Maurward, the 'real' model, clad by Hardy's grandfather, does appear to be entirely stone, even under close examination. Or the description of a part-cantilevered spiral staircase — a true miracle of pre-computer construction. Even broadly, this is remarkable: section was a radical storytelling method when Georges Perec used it in *Life: A. User's Manual* (1978). It is still 'edgy' now when Wes Anderson uses it in his movies. Once again, Hardy was way ahead of his time.

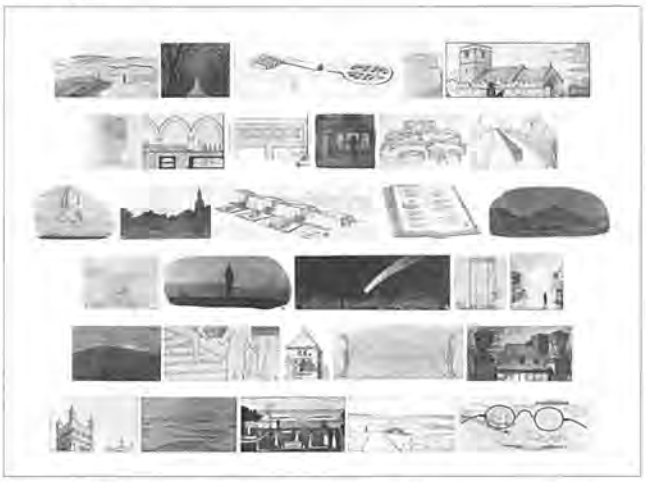

Figure 12: Wessex Poems drawings can be rearranged to form storyboards of their own

The *Wessex Poems* drawings are ambiguous: they can be attached to different stories. They can be re-ordered to form a kind of storyboard of their own (Fig. 12) or cherry-picked and grouped to illustrate fragments of other Hardy tales. All this is not just vaguely like late-twentieth-century architectural concerns, it is remarkably close to the works of Bernard Tschumi, another radical architect to emerge from the Architectural Association a century after Hardy.

Tschumi invented the concept of 'event architecture', arguing that architecture should not be seen as a matter of static forms, but as the construction of events through conjunctions of detailed circumstances and uses; a line of work which Jacques Derrida (who later collaborated with Tschumi) would call 'the' modern vision of architecture. Collaborating with Tschumi on the Parc de la Villette, Derrida wrote 'architectural writing interprets [...] events which

are marked by photography or cinematography. Marked: provoked, determined or transcribed, captured in any case mobilised in a scenography of passage' (Derrida 1985).

Tschumi's career originally took off with his provocative 'Advertisements for Architecture' images (1976-7), the most famous one using an image culled from an old movie of someone falling from a window (remember that Hardy 'invented' the cliffhanger) and the 'Manhattan Transcripts' drawings, which mixed traced photographs with architectural details and diagrams to form a speculative narrative storyboard 'to transcribe things normally removed from conventional architectural representation, namely the complex relationship between spaces and their use, between the set and the script' (www.tschumi.com, accessed 1/5/2019) — a description which precisely fits the *Wessex Poems* drawings.

Things looking like each other is not regarded as accidental in architectural criticism. It is evidence of people thinking and working in the same way — just as similar writings separated by time and circumstance would be. And indeed, Hardy was working in the same way — he was demonstrably tracing photographs, as may be proved by overlaying Hardy's retrospective drawing of St Juliot's pews on a photograph of them taken before restoration (Fig. 13). You don't get an exact overlay like this by accident — the draftsman's eye, perspective, and the camera lens all construct two-dimensional pictures using different conventions, and with differing results.

There are also signs and marks of tracing in many of Hardy's drawings and Claudius Beatty's scrupulous work on his architectural notebook (Beatty 1966) identified a mass of copied or traced drawings — virtually all the fine drawings in the notebook. In one key rough sketch, his retrospectively-imagined view of the gallery at Stinsford, though the simplest of one-point perspectives, is wrongly set out, even by a rule of thumb measure. I suggest, on the evidence of Beatty's detailed analysis of Hardy's visual sources and the drawings I have seen in the DCM collection, that Hardy was more or less unable to draw in formal perspective or in axonometric at all, except by tracing. Of course, at the time, Ruskin was advocating tracing photographs as a superior way of 'seeing' the world.

Moreover, Hardy may have been using some kind of drawing machine, perhaps a Camera Lucida, which would give the same kind of projected image type. This works roughly like a Camera Obscura (but in daylight) with a lens projecting an image directly onto paper. When using this device the draftsman would see their own hand drawing in reverse, making the hand movement hard to coordinate.

Figure 13: St Juliot pews before restoration; and Hardy's demonstrably traced 'sketch' (overlaid) Dorset County Museum, overlay: author's

The Camera Lucida was a new invention in the 1860s when Hardy moved to London (Kemp 1991). He was a frequent visitor to the Great Exhibition where all kinds of photographic devices were on display, including mass-produced stereographs and versions of cinematic projections. The drawings he preserved include a series of curious sketches that date from this time, which I believe may have been produced using such a device, including drawings from windowsills and at least one landscape drawn 'on the spot' (Fig. 12), a note which Hardy made only rarely, in itself suggesting how unusual it was.

The curious nature of these drawings is not just their photographic view (many other apparent sketches suggest this, including drawings with odd, blurry focus, or the abrupt ending of a detailed sketch at the edge of a rectangular image) — the odd, ragged line quality in the rough outlines of groups of trees shown as a single mass suggests the blurry projected image of the Camera Lucida process. Hardy's rough ragged lines seem far more characteristic of Camera Lucida drawing than normal direct sketching.

Hardy had a lifelong fascination with lenses. As a child he carried a telescope around, through which he watched the hanging of Martha Browne. There are the photographic phantasmagoria of *A Laodicean* and

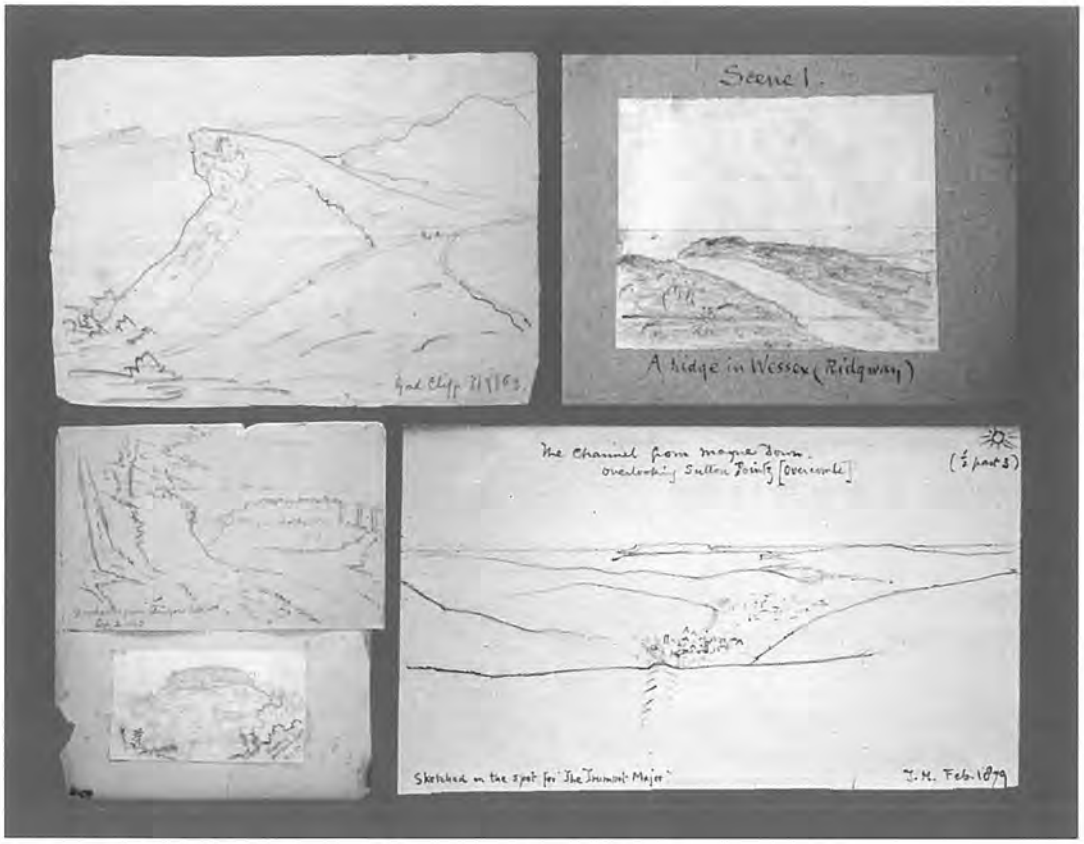

Figure 14: Hardy's sketches suggest tracing or use of Camera Lucida. Dorset County Museum

the detailed work and scope of *Two on a Tower*, and throughout his writings his descriptions zoom from remote to close-up. I propose that from the 1860s on, Hardy was actively experimenting with photographic drawing techniques, as the detailed descriptions in *Two on a Tower* and *A Laodicean* manifest. And if, as an architect, he was drawing experimentally, using new methods to see and describe his, often ancient, material, then he was unquestionably thinking experimentally too, in architectural terms.

Of course, Hardy was using conventional architectural drawings as well. The detailed working out shown in the drawings of the remarkable staircase at Max Gate, say, is also shown in the development of his novels, where he describes, in detail, things he would have to study or invent — and perhaps a little of both. Claudius Beatty shows that these tiny drawings in the notebook may be an adapted version of Kingston Maurward house, which Hardy is describing as Knapwater House in *Desperate Remedies* (Beatty 1966, 25). To an architectural critic, these drawings show the interaction of the 'Served and Servant' parts of the house (a key architectural idea made famous by Lois Kahn) and naturally, given his background, one of his ongoing architectural concerns. Most precisely, in terms of Hardy's development of the book, they show how the lady of the house could creep from the grand part of the house, spend the night in her maidservant's

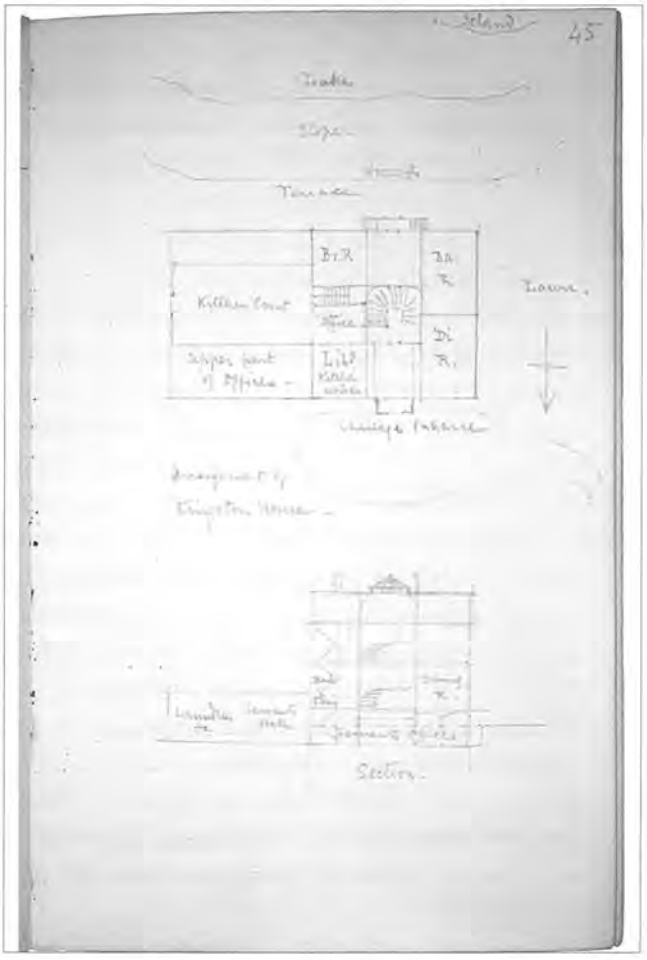

Figure 15: Architectural notebook: Section of Kingston House for Desperate Remedies. Dorset County Museum

Figure 16: Helen Paterson Allingham's illustration for Far From the Madding Crowd

bed, and still hear the death rattle of her dying father in the main bedroom below. Hardy had worked it out, in section.

Naturally then, he controlled the illustrations of his part-imaginary world — or tried to. He expected his detailed instructions to be carried out to the letter, not just by following the written specifications in the books, but also his supplementary directions to real landscapes and sketches of costumes or implements. Sometimes his wishes were met. His favourite illustrator was Helen Paterson Allingham who illustrated *Far From the Madding Crowd*. The picture (Fig. 16) of the sheep-shearing supper, was evidently his favourite: it hung on the wall in Max Gate. Even though it is not drawn from Hardy's exact viewpoint (the scene is not told from a fixed viewpoint, but is a full three-dimensional survey of movement round around the table) this image is followed closely in both the John Schlesinger adaptation of *Far From the Madding Crowd* (1967, with Julie Christie), and the Thomas Vinterberg version (2015, with Carey Mulligan). This is a tiny fragment of highly authenticated, 'real' Wessex. The description of space around a table, by an architect, to illustrate a sophisticated everyday understanding of domestic and social spatial behaviour is, incidentally, another idea which crops up in the later twentieth century, as explored in both Charles and Ray Eames' *Think!* video installation (1964), and Sarah Wigglesworth's 'Increasing Disorder at a Dinner Table' drawings (Wigglesworth and Till 1998, Fig. 17).

When Hardy was not happy with illustrations, he had a very architectural response — he added a map (Fig. 18, overleaf). *The Return of the Native*

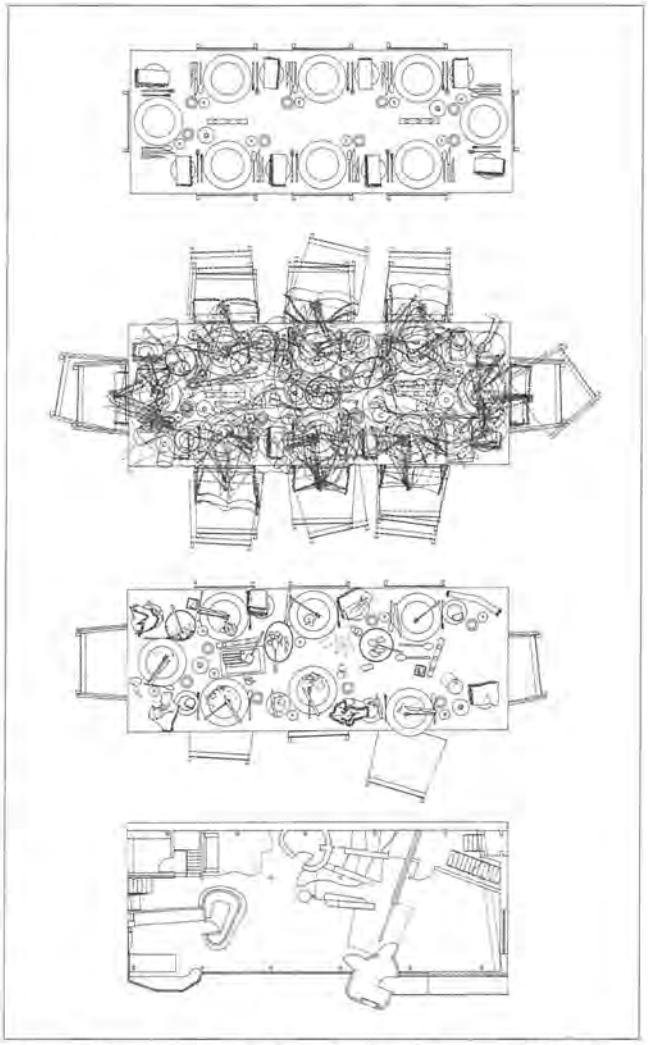

Figure 17: 'Increasing Disorder at a Dinner Table'. Sarah Wigglesworth

was not the first novel to include a map — there was one in Robinson Crusoe (1819) — but it was certainly unusual, and argued for it in his usual disingenuous fashion in his much-quoted letter to his publishers, Smith, Elder & Co. (Hardy 1978-2012). In architectural books, however, a plan or map is almost obligatory. It does something very particular — it allows readers to locate themselves by adding together the illustrations, the text and the map (mentally assembling drawings is a key architectural skill) and gives the location a kind of three-dimensional imagined reality as a place: in, beyond and independent of the story itself. If *Far From the Madding Crowd* is where Wessex was named, *The Return of the Native* is where it started to become a project.

Hardy never stopped developing Wessex. He never stopped adding new ways of drawing, describing and visualising, as architects do. Egdon Heath, for instance, is remarkably well *photographed* — of course, Herman

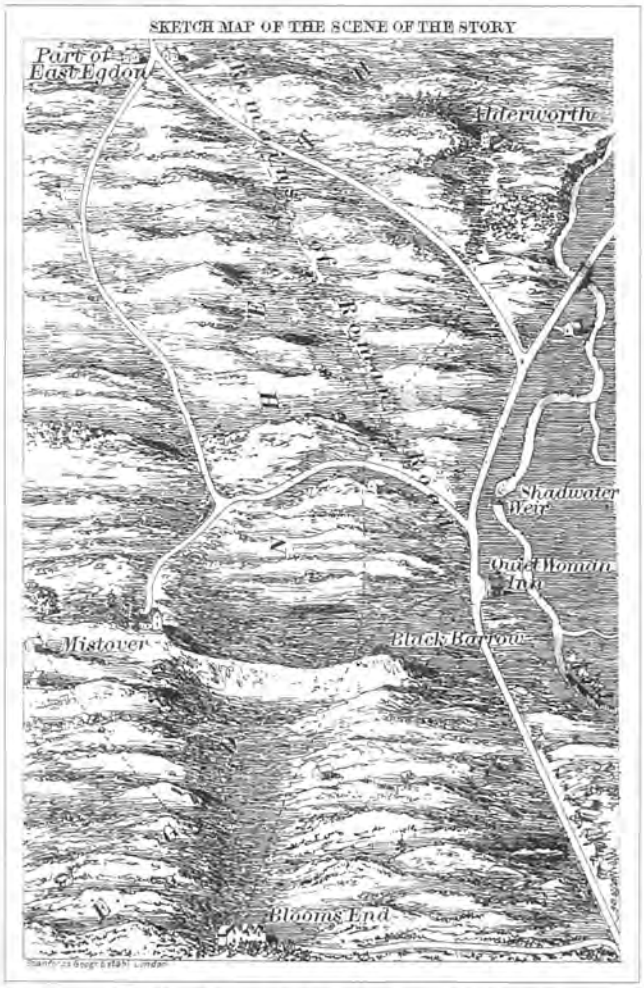

Figure 18: Hardy's map for Far From The Madding Crowd

Lea, installed at Bockhampton, could do this easily. Hardy worked very closely with Lea on his Wessex photos which became one of Hardy's key creative collaborations (Fig. 19). Indeed, I would argue that all Hardy's collaborations need looking at from the point of view of an architect at work, because architects always collaborate — they have to. It is practically impossible to build a building by yourself, or to have all the varied sets of skills which go into making one. Architects work with builders, clients and craftsmen (again, there is a great description in *A Laodicean* (Hardy 1881, 211) one of many in his writing). Single authorship in architecture, while often crucial in terms of the imaginary idea, is a myth in actual production, which is actually a far more collective effort. When a collaboration goes well, who has done what becomes less important because both parties go further, do more, than either on their own — that was surely the case here.

The Lea photographs are wonderful, detailed, utterly beautiful and aesthetically radical in their day — the sparse bleak vision described at the start of *The Return* — and now, as Hardy predicted, thoroughly in vogue. But they have been reproduced appallingly with poor quality renditions and terrible crops from the first editions onwards, and often worse in later versions. You can see both the startling original quality and the evidence of this damage in the crop marks on Hardy's own exquisite prints, which the printers or publishers marked up to cut out acres of empty land and sky — as if the empty land and sky, seen in forensic detail, weren't exactly what these photos were designed to show us (Fig. 15).

The empty, detailed view was entirely deliberate and Hardy and Lea went to enormous trouble to get it. They designed and built a remarkable, vast zoom lens — something like those used now for filming wildlife or sport — and they dragged it on a home-made trailer, behind their bicycles, to extremely inaccessible places to take photos of empty landscapes, often in terrible weather (Fig. 19). Lea's account of their collaboration does not describe the design and making of the lens, though I am reminded of the correspondence with the Greenwich Observatory regarding *Two on a Tower* and Hardy's lifelong fascination with lenses. This was surely a direct collaboration, and whoever released the shutter, there is no question that this is Hardy's vision of Wessex (Fig. 20, overleaf).

Figure 19: Egdon Heath. Dorset County Museum

Figure 20: Wessex 'through the camera's eye', Hermann Lea and Lea's camera. Hermann Lea, Toucan Press

It is the kind of view we've already seen in the novels and in the *Wessex Poems*. It is a landscape seen from a human viewpoint on an ancient empty road, which runs from the viewer and vanishes into the distance ahead — the vanishing being almost the subject of the picture itself. You can read time and space in this view: estimating the distance to walk to the next ridge, aware of the traces of the countless travellers before you, through a landscape which is now empty. You are both imagining yourself in that place and aware that you are not in fact there — for the whole image is framed in the most modern technology available. This is what Wessex really looks like.

Figure 22:The Ridgeway, near Dorchester. Dorset County Museum

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If *The Return of the Native* was where Wessex becomes a project, then *The Mayor of Casterbridge* is where Hardy starts using it, more directly and centrally, for profoundly architectural purposes. Written at a key, mid phase of his life, and as part of the newly-coherent idea of Wessex, the book deliberately recreates the machinations of late pre-railway Dorchester. Alongside it, Hardy was starting to write factual essays about his subject matter and also to campaign directly for the new conservation movement.

The Society for the Protection of Ancient Buildings approached Hardy to intervene in a local case in Wimborne in 1881 (Beatty 1995, 9). The intervention was valued, and Hardy never stopped campaigning for them — modestly, disingenuously, working behind the scenes, persuading (which was all that SPAB could do at that time) and typically, as Hardy saw it, failing. However, Hardy was, from the start of this interaction, sharply aware of the question of influence and of the role that his novels were already playing in public debate. From *The Mayor* on, he began writing a detailed, sophisticated conservation argument into those novels (see Rattenbury 2018, chapters 10 and 20).

Significantly, this was not the campaign for churches and castles, on which SPAB were already engaged. Hardy was arguing for the value of the whole fabric of urban life: for the shops, the workplaces, the unfashionable houses; those buildings too poor to merit attention. Most remarkably, he shows us pubs, in loving detail, particularly Dorchester's already-demolished Three Mariners (which, as in other instances, he seems determined to preserve, at least in fictional form). While Hardy admitted that he had 'never found alcohol helpful to novel writing in any degree', Robert Graves, in *Goodbye to All That* describes how during a visit to Hardy, the writer 'grew enthusiastic in praise of cyder, which he had drunk since a boy, as the finest medicine he knew.' He also owned shares in the Dorchester Brewery and wrote in praise of the local beer and cider (Bunten 2019; Seekings 1988). This was not a common view, however. Pubs were certainly not seen as widely desirable in conservation circles at the time. Indeed, in the near future, the Garden City movement was to

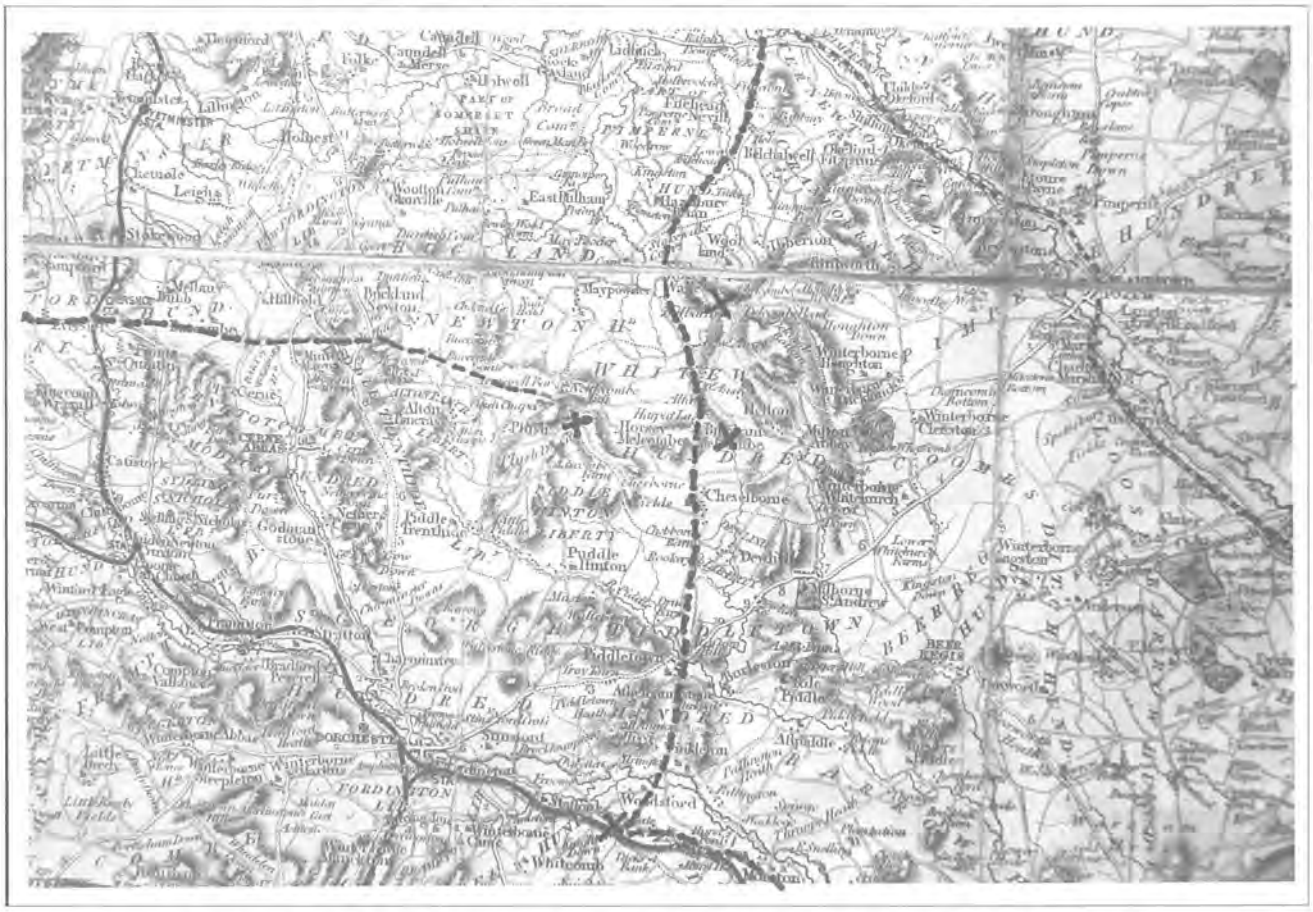

Figure 21: Hardy's marked up map, detail. Dorset County Museum (this copy re-marked by the author)

deliberately plan towns without them. The whole idea of the pub (and not the church) as the centre of English rural society, along with a social, accretive approach to conservation, I believe, dates from this time and from Hardy's deliberate campaign.

If *The Mayor* is where Wessex becomes a campaign, *Tess of the D'Urbervilles* is where it becomes complete as an imagined, meaningful place. It was Hardy's favourite novel; the most contemporary, and the one most strongly linked to a visitable landscape. Two of his maps of it exist: a sketch which shows Tess's travels — a diagram of the heartland of Wessex, and Hardy's marked-up detailed map (Fig. 22). If you follow Tess's travels, as Hardy, by now, knew people would, you find yourself on a carefully selected walk from one desperately depopulated habitat to another — from Marnhull (Marlott) to Shaftesbury (Shaston), Wool (Wellbridge) to Bere Regis (Kingsbere), with Stonehenge as its thumping finale.

Figure 23: Lyscombe, 'the remains of a village'. Paul Sutton

Flintcombe Ash, at the centre of book and map, has caused surprising confusion with generations of writers failing to locate it. But Hardy was precise: a farm near Nettlecombe Tout; a mile south of Nettlecombe Tout. That is Lyscombe, with a medieval village so ruinous it was largely unrecognised until the 2004 restoration (Fig. 23). Lyscombe sits at the centre of an age-marked landscape, circled with cross-dykes, visible strip lynchets from the fields (as Hardy says), and the once-busy hollow-way crossroads of the Dorset Gap just behind it. From its exposed fields you can just see Bournemouth and the sea; the 'steel feelers' of the railways are hidden in the valley from Hardy's Wessex Heights. *Tess* is indeed a central vision of Wessex, and it shows us, precisely, an ancient landscape turned inside out to fuel the booming new towns beyond the horizon.

Figure 24a: Reading stonework, West Knighton. Mark Russell

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Once you've seen Wessex as a polemical, highly-realised architectural project, all kinds of details swim into sharp, new focus. That little owl, Hardy's signature in the restoration of Turnworth church by Crickmay in 1868-9, is clearly a biting response to one of Ruskin's most famous debacles. This was the Oxford Museum, which Ruskin and the client body had intended as the great exemplar of Arts & Crafts building, giving free rein to the best stonemasons of the age, the O'Sheas. Ruskin and the client body (the university) took offence at the O'Sheas 'caricatures' of the client 'convocation' in stone as cats, parrots and owls. The offending stonework was hacked off and the O'Sheas left the project (www.oumnh.ox.ac.uk, accessed 5/3/2019). A couple of years later, Hardy (who worked for Blomfield in Oxford) and his own stonemasons produced a lovely local version — a single owl, prominently displayed. Architecturally speaking, this is clear as day: 'Stonemasons welcome here', it says (Fig. 24)

That suggests the whole of *Jude the Obscure* must be a bitter critique of Ruskin. Hardy had been reading

Figure 24b:Overt Ruskin references at Turnworth. Clare Hamman

Ruskin's *The Stones of Venice* just before writing it: he called it 'humbug' (Gittings 2001, 439). Ruskin was then the Slade professor of art at Oxford, but increasingly, instead of encouraging the young artists he was teaching, he was telling them to go back to their day jobs.

The whole of *Jude* takes issue with this: from the great visions of the ideal city which Jude sees or

imagines — so remarkably like Ruskin's visions in *Stones* — which Hardy shows to be as ephemeral as a kind of marsh-gas. The book is filled with product placement for some key sites of Arts & Crafts work, and another Ruskin failure — the 'Ruskin Road' built by amateur stonebreakers including Oscar Wilde. Even the name of the Professor who turns Jude away is relevant here – it is Tetuphenay, a name based on the Greek for 'beaten', or slayed. The link to the Slade profession simply cannot be a coincidence. Hardy mentions his need to tell about 'Oxford' (Bird Wright 2002, 238), and even mentions Ruskin in the preface once Ruskin himself is dead. *Jude* is an astonishing piece of engaged architectural criticism, in fictional form.

There is also the coherent alternative to the 'Restoration' of the day, where architects wiped out the real character of ancient buildings. Hardy argues against this in written form, in 'Memories of Church Restoration' (in *Public Voice*, 1906). He is also involved in physically building an alternative, at West Knighton, while actually writing *Jude*. West Knighton is a really lovely project: there are new parts, manifestly by Hardy, but he also patches the existing — a repaired stone roof; an unlevelled graveyard — unusual for their time, and he actually exposes ancient and very unusual features. With his new work — the clear glass windows, the new gallery which replaces those the 'Restorers' were destroying, he assembles a remarkable sense of acoustic and social presence, one tangibly formed by generations of skilled and anonymous workmen into something both wonderful, ancient, everyday and alive.

Max Gate, too, improves radically as it becomes accretive. It always centred around that wonderful Arts & Crafts double stair: a tight, steep, two-rise, servants' stair wrapped round a generous, open three-rise one for Hardy and Emma, with the double-screen clerestory window making both stairs beautifully toplit. In the second phase, he twists the whole house round this stair. The best rooms now, Hardy's lovely study and Emma's little attic rooms, are in the back of the house; the working quarters, which have a relaxed, vernacular confidence of their own. Max Gate phase two is really quite good. The study, by the way, is a lovely room. Don't be fooled by the travesty in the DCM (the 'reconstruction') which is too small, and with a window looking onto a courtyard; whereas the scale and the view are the great focus of the real thing. Like the reproduction of the Lea photos, the copy is a farce, and we are lucky now to finally have access to the real room to compare it with.

Hardy believed he had failed as a conservation campaigner. He was very engaged in the vain attempt to save the White Horse at Maiden Newton in an age when pubs were considered dens of vice. This campaign, perhaps even the 'alternative' proposal, has Hardy's fingerprints all over it. The unusual, uncredited, photos of the building, I imagine, might be by Hardy using Lea's camera, without his skill, but making a telling, painful record of the thatch being stripped and thrown down.

But, on the contrary, beyond his death, his rhetoric and his campaigns are ingrained in English conservation thinking and practice. His influence cannot be proved, but the similarities of his wide, detailed arguments and our own, sophisticated conservation policies, campaigns and thinking are remarkable. Surely, his century-and-a-half long campaign is still active in all those books and their adaptations, in our consciousness of rural buildings, our love for accretions and our belief in heritage as a form of social memory. Stonehenge, for example, is given prominence in *Tess*, recalled in 'Channel Firing', and campaigned for in detail in an interview where he directs exactly how much land should be saved. Imagine how good it would be had his full vision, protecting almost twice as much land, been realised. He seems to have coined the phrase 'National Trust' (Hardy 1881, 57). Even in its challenged form, Hardy's was surely the greatest conservation campaign ever (see Rattenbury 2018 chapters 10 and 20)

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I also believe Hardy did find a way to act as a very interesting designer. His early engagement with stage adaptation was fraught, but in 1894, he published a letter with a brief for a new kind of stage design: sparse and suggestive, predicting the world of physical theatre (Wilson 1994, 16). He went on to write *The Dynasts*, which absolutely demands such visionary staging, and collaborated with the minimalist designer Harley Granville Barker on one remarkable London staging, and with the Oxford University Amateur Dramatic Society on another. Of course, the collaborative element cannot be easily disentangled here, though the question is well worth revisiting.

The really evident piece of design work was for the Hardy Players, the Dorchester-based group of actors with whom he worked increasingly closely, writing and directing the adaptations, and which

Figure 25: Hardy and Tilley's remarkable designs for the Hardy Players. Dorset County Museum

gained national and international celebrity. More to the architectural point, he clearly designed the sets in another, absolutely key, design collaboration. The credit given by Hardy was always to Henry Tilley, but then Hardy always did credit collaborative work to the collaborators: think of Florence Hardy, credited with full authorship of the *Life*, on Hardy's direction. Tilley himself describes Hardy as being entirely in control (Wilson 1994), and as a monumental mason and decorator, Tilley would be well used to taking architect's instructions (Fig. 25).

The sets they produced are clearly Hardy's work. Again, the vision is Hardy's — emphatic, coherent and precisely set out. The little model theatres, which they used to display and test the sets would be Hardy's design — Tilley may have physically made them but Hardy would have designed and painted them. The architectural nature of the paintings, the precision of the many various trees, settings, artefacts and buildings — even the tiny Turberville portrait from Wool Manor (there is a larger original among Hardy's drawings) is visibly Hardy's (there are also his drawings showing how to scale up). Hardy had at last found a way to make his oddly flattened, two-dimensional drawings operate, in three dimensions, in real space. In his book, Keith Wilson puzzled why Hardy put such effort into the Hardy Players. For an architect, there is no question. This was his project, now he could design it in a new way for a new audience. It must have been hugely satisfying.

In my book I have asked was Hardy a great architect, and answered yes, absolutely — and it depends on what you mean. He was a conceptual architect of extraordinary invention and scope, creating speculatively a remarkable project entirely in the public realm. He was a remarkable literary architect and produced some of the best engaged architectural criticism — most directly in *Jude the Obscure*. He was, I believe, the most remarkable and influential conservation writer there has ever been. And in all of these, he is completely unrecognised. But did he design great buildings? Not really; he challenged the idea of everyday buildings being great, in that way. He was a kind of anti-architect, as many great 'paper' architects are.

Did he recognise this himself? Yes, I think so. In one of his cryptic asides, in the *Life*, Hardy says that 'if he had his life again he would live it as an architect in a small country town' (Millgate 1982 102); there is surely a sense in which he meant it. In Victor Hugo's obituary Hardy called him a great literary architect (Beatty 1966, 51), which, like the mention of Ruskin in the preface to *Jude*, begs an architectural comparison with his own work. He also said of the Royal Institute of British Architects that it was 'an institution of which he had never lost sight' (Hardy 2007, 374). The Dorset County Museum has his RIBA Silver Medal awarded for an essay — it is mounted on a tiny mirror, where Hardy's name can be seen in reverse. Like many of his asides, that comment is not just a provocation or a metaphor, it is a sharp, pointed fragment of information. He must have kept it on his desk.

THE AUTHOR

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Language in the Landscape: an excavation of William Barnes' 'A British Earthwork'

JOHN BLACKMORE

William Barnes is best known for his Dorset Dialect Poetry *and depictions of nineteenth-century rural life, yet his poem 'A British Earthwork' appeared in the inaugural edition of* Proceedings, *in 1877. This lesser-known poem, written in standard English and surtitled 'An Archaeologist speaks' reveals the writer's engagement with the Dorset Field Group and his affinity with wider movements of scientific and social enquiry that emerged through the nineteenth century. Through close reading of the poem, this essay challenges common preconceptions of William Barnes as a retrospective or nostalgic writer, and puts forward an argument that the writer's portrayal of an archaeological site affords Barnes opportunities to examine the interrelationship between the language, landscape and people of this space through all time. In this regard, Barnes' poem becomes part of the material culture of this archaeological site. By blurring the distinctions between past and present, between human and natural environments and between 'Cornish-British' and Standard English, Barnes is able to show how our experience of physical features in the landscape, such as an earthwork, is inevitably bound to language and culture, as both are subject to change through time.*

A British Earthwork by Rev. William Barnes

[An Archaeologist speaks]

The grassy downs of Dorset,
Rising o'er our homes of peace,
E'er teem with life and riches
In the sheep and precious fleece;
And charm the thoughtful roamer
When, like us, he climbs to scan
Their high-cast mounds of war — the works
Of Britain's early man,
Whose speech, although here lingers yet
His mighty works of hand,
Has ceased a thousand years to sound
In air of this green land,
And startled may it be to hear
The words of British kin —

An gwaliow war an meneth,[1]
An caer war an bryn.[2]

Their breastworks now are fallen,
And their banks are sunken low;
The gateway yawns ungated,
And unsought by friend or foe.
No war-horn[3] calls for warriors,
And no clear-eyed watchmen spy
For tokens of the foe, around
The quarters of the sky.
No band, with shout and singing,[4]
Sally forth with spear and sword,
Staying foes at wood or hill,
Or at the waded river ford;
Or else to take the hill, and fight
To win, or die within

An gwaliow war an meneth.
An caer war an bryn.

There were lowings of the cattle
By the rattling spears and swords;
There were wails of weeping women
And grim warriors' angry words —
'Be every Briton fearless, or
For ever live in fear;
And bring his ready weapons out —
His bow, and sword, and spear![5]
For what have we to fight the foe?
Our children and our wives!
For whom have we to fight? For those
Far dearer than our lives!
And we, to shield them all, will die,
Or else the battle win,

Yn[6] *an gwaliow war an meneth,*
Yn an caer war an Bryn !

But now, in sweet, unbroken peace,
May Dorset land-folks sleep;
In peace may speed the gliding plough,
In peace may graze the sheep;
In peace may smoke our village tuns,
And all our children play;
And may we never need nigh banks
To keep the foe at bay!
And blest be lord or farmer
Of the land, who wins our thanks
By sparing from the spade and sull
These olden British banks,
And not destroying, for a crown
Or pound that he might win,

An gwaliow war an meneth,
An caer war an bryn.

Notes to the poem:

[1] The ramparts on the mountain.

[2] The stronghold on the hill.

This is In the old Cornoak or Cornish-British, that of our West of England. The modern Welsh would be —

Y gwaliaie ar y mynydd,
Y au caer ar y bryn.

Au pronounced ace; y like e in le, French ; 'mynydd,' munneethe.

[3] Cadgorn. The bugle-horn was used for hunting, war, and drinking.

[4] By the laws of Hoel Dda, when the Welsh marched to battle the bards were to go before them singing a national song, now lost, called *Unbenaeth Prydain* ('The Monarchy of Britain'). This, however, was later than the time of the upcasting of our earthworks.

[5] A law triad gives, as law-bidden weapons which every man was to keep ready for battle, a sword, a spear, and a bow with twelve arrows.

[6] In.

Mention the name William Barnes in his native Dorset, and you will still, more often than not, see a flicker of recognition in the faces of his countrymen and women. Best-known for writing poetry in the dialect of the Blackmore Vale, the Victorian polymath's most enduring works are those that summon bucolic imagery of rural life in Dorset. Poems such as 'My Orcha'd in Lindèn Lea', 'The Girt Woak Tree that's in the Dell' and 'A Bit O' Sly Coortèn' are immediately evocative of the people and places of the writer's environment (Barnes 1858; Burton and Ruthven 2009).

For those who are as intimate with the Blackmore Vale as Barnes, these poems, his most popular works, trace familiar roads, rivers, towns, people, flora and fauna in 'Dorset speak' and are incredibly poignant — which is inherently problematic when extending Barnes' readership. Barnes' intense local gaze and use of dialect verse has presented challenges to readers since the nineteenth century; Barnes himself conceded:

> My writings are not of such a kind as may sell quickly, and therefore it would not be a wonder that the many things which I have in manuscript should never find a publisher [...] as to my Dorset poems and others, I wrote them so to say as if I could not help it. The writing of them was not work, but like the playing of music the refreshment of the mind from care or irksomeness
>
> (in Baxter 1887, 278).

In the eyes of his admirers — who attended his readings and lectures in Somerset, Wiltshire and Dorset, some having 'walked nine miles to hear him and would willingly do as much again' — William Barnes' modesty and humility, as evidenced above, did little to detract from his greatness (Baxter 1887, 168). Nevertheless, some of Barnes' contemporaries viewed him and his works with curiosity rather than reverence.

Indeed, Alan Hertz claims that the writer's 'most enthusiastic champions serve him badly: they present him to potential readers purely as a local poet' (Hertz 1985, 109). The impressions recorded of Barnes by literary luminaries, including Hardy, Tennyson and Hopkins, all draw on his deep sense of place. Hopkins, for example, writes: 'it is as if Dorset life and Dorset landscape had taken flesh and tongue in the man' (Abbott 1935). Binding Barnes too closely to the responses and experiences of his native environment in this way was, Hertz argues, an act of 'subtle discrimination' (Hertz 1985, 110). It is perhaps comments such as those from Hopkins that have precipitated contemporary critics to draw conclusions such as: 'Barnes found sufficient inspiration in Dorset life and landscape' (Reynolds 2001, 275). Here, Matthew Reynolds' use of the adjective sufficient — meaning enough, or adequate — perpetuates what Hertz might call the respectful marginalisation of Barnes and his most popular poetry. As long as this view persists, literary scholars will continue to overlook the rich tapestry of cultural, social, scientific and political themes that permeate William Barnes' diverse and extensive writings, like any other principal writer of the nineteenth century.

While Barnes' dialect poetry has won him respect and an enduring (if particularly local) audience, these works are complicit in conveying Barnes as a marginal nineteenth-century figure, reducing his scope unfairly to solely local interactions between local people and their local environment. Dialect poetry represents only one part of William Barnes' literary output, and expresses only one dimension of his intellect and interests. To encounter Barnes as merely a retrospective, introspective or even nostalgic poet is to neglect William Barnes the teacher, engraver, social commentator, philologist, grammarian, linguist, rector, historian, scientist and antiquarian.

While we should not, and could not, entirely ignore the writer's deep sense of place, an exploration of elements of Barnes' works that address ideas, issues and pressures that extend beyond the sphere of Dorset life and experience will bring him a greater readership,

wider appreciation and deeper understanding. As Forsyth puts it, 'in Barnes, microcosm and macrocosm were harmoniously integrated' (Forsyth 1963, 332). In this way, the location of Barnes' writing becomes not irrelevant, but ancillary to the primary subject, purpose or theme.

In order to challenge how readers encounter William Barnes and stimulate new enquiry in to his works, this paper will examine one such example of where microcosm and macrocosm convene in Barnes in a startling way, revealing the extent to which the writer engaged with the burgeoning ideas, debates, and discoveries of the mid-nineteenth century, and the resultant restlessness that defines the Victorian era.

Published in the very first volume of *Proceedings of the Dorset Natural History and Antiquarian Field Club* in 1877, Barnes' poem, 'A British Earthwork', reveals the writer's engagement with the emerging science of archaeology. Indeed, the poem could be considered an enquiry of philological and social evolution through a site of historic interest. What does the inclusion of Barnes' poem reveal about the rationale, purpose and remit of the Dorset Natural History and Antiquity Society in its infancy? What does Barnes' poem reveal about Victorian attitudes towards the emerging field of archaeology and the literary representation of such sites in the Dorset landscape? And how does Barnes' 'A British Earthwork' allow us to encounter the people of the past, but simultaneously represent our linguistic heritage and how we encounter language and dialect today?

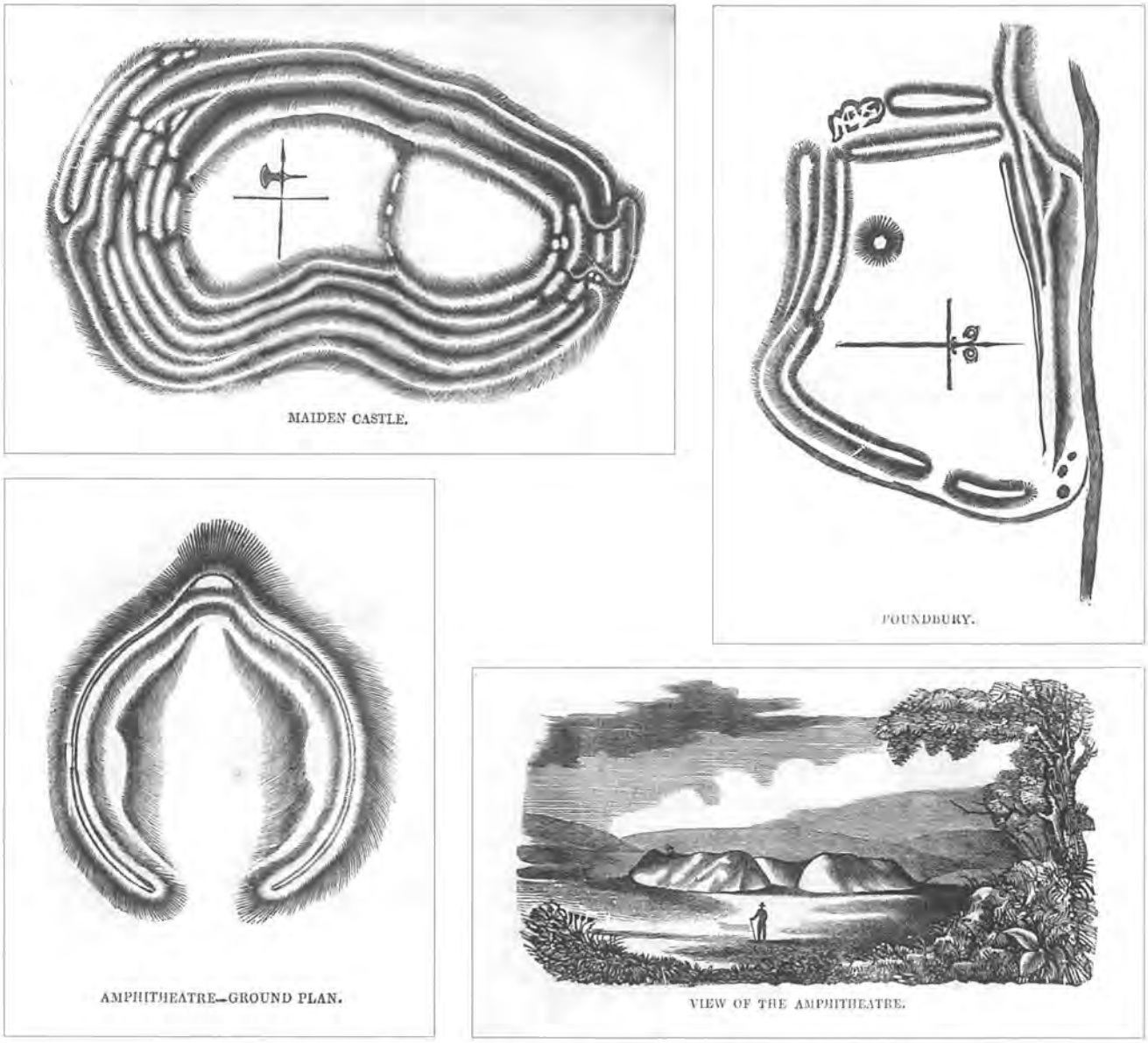
The reader's preconceptions of William Barnes are immediately confronted in the title and subtitle of this poem: 'A British Earthwork [An Archaeologist Speaks.]' Written in standard English, the title relinquishes Barnes' characteristic giving of place names and intense Dorset voice, choosing not to make explicit this site to the reader through the use of both the indirect article 'A' and the adjective 'British'. This is certainly not through ignorance. Indeed, within the same volume of *Proceedings* we learn of the Field Group's visit to the Iron Age fort on Eggardon Hill, near Bridport, and read that 'Mr Barnes gave an interesting and instructive explanation of the generic features of the camp' (*Proceedings* **1**, 1877, 5). There are frequent references to William Barnes offering such insight at a variety of sites through several volumes of *Proceedings*, testament to his involvement with the Field Club from its establishment in 1875.

For a writer immortalised by his contemporaries as a quiet, gently aging rector lost in the Dorset of his childhood, it is perhaps surprising to realign him with the scientific fields of natural history and archaeology. But it was not unusual for nineteenth-century writers to draw on archaeology for inspiration. In her article 'Victorian literature and archaeology: contemporary excavations' (2018), Angie Blumberg argues that, 'in a move that seems paradoxical, Victorian authors regularly engaged with the materials of the past as a crucial mode of conceptualizing modernity, often imagining radical possibilities for the present and future' (1). Virginia Zimmerman writes: 'excavation [...] became a powerful epistemological trope for the Victorians. [...] Excavation was a way of knowing and conquering the depth of time' (Zimmerman 2008, 8). Similarly, Reid highlights that the Victorians 'expressed a peculiarly urgent attention to the past,' and that their 'belief in their own modernity paradoxically entailed this absorption in the past' (Reid 2017, 357).

This preoccupation with investigating the past, measuring and reconciling human and geological concepts of time as a means of defining the present, is inherent to Barnes' work. To explore such resonances is not only compelling, but necessary for gaining greater insight into the work of such writers: 'Tracing an archaeological epistemology in Victorian literature, we infuse our own research with the richness of unexpected cross-fertilizations that the writers we study took for granted' (Blumberg 2018, 3).

Before Barnes compiled his first collection of dialect poems, his non-fiction contributions could be found in local and national publications. He wrote on subjects ranging from mathematics and grammar to social histories and topographical observations. In 1832, his engravings of Poundbury Camp, Maiden Castle and Maumbury Rings (Fig. 1) were included in Savage's *History of Dorchester* (Keen and Lindgren 1987, 13). Later, Barnes submitted an essay and 'his own more detailed survey drawings' of Maumbury Rings to *The Gentleman's Magazine*, which were duly published (Fig. 1) (Keen and Lindgren 1987; Urban February 1839, 472).

While these works helped raise Barnes' status from enthusiast to an authority on the people and places of Dorset, opportunity and obligation soon saw Barnes extend his role further, taking tentative steps into scientific taxonomy. By 1847, the arrival of the railway in Dorchester prompted the need for a museum and, as his daughter Lucy Baxter, records: 'William Barnes became one of its secretaries' (Baxter 1887, 89). When



Barnes' engraving of Maumbury Rings for Savage's History of Dorchester *(1833)*

he was not teaching, Barnes 'was soon constantly at work arranging and classifying' the fossil and archaeological finds (Baxter 1887, 90). By the time he was ordained in to the Church of England in 1847, 'William Barnes, always an archaeologist by natural taste, was now by office bound to become a preserver of Dorset antiquities' (Baxter 1887, 92). Barnes' acquaintance with the Archaeological Institute commenced in 1865, and he was their guide for their congress in Dorchester that year (Baxter 1887, 227).

Returning home after an excursion with the Somerset Field Group, Barnes recorded his personal disappointment in his journal:

> I shall ask Dorset men (in the newspaper) to form an Archaeological Society for this county. I feel ashamed for it with the Somerset club. One man said to me, 'I suppose you have a Dorset Society ?' ' No.'
> ' Tell it not in Gath,' said he.
>
> (Barnes in Baxter 1887, 265)

The writer's ardent desire and promise to take prompt action to establish an enquiring natural history group for his own county and the juxtaposition of the humorously employed proverb 'Tell it not in Gath' (2 Samuel 1:19-20), which in this case shows the Somerset member's secret delight that Dorset hadn't yet founded an archaeological society, invites a re-evaluation of William Barnes. The relationship between Barnes' role as a pillar of faith, his status as a 'hwomely' poet, and his authoritative voice on matters of philology and natural history is clearly complex (Barnes 1858). While this paper will focus on his expressions of natural history and philology in a single poem, there remains much to explore.

Barnes' deep sense of place served, perhaps, as his conduit to natural history, as demonstrated in his daughter's tribute:

> There was not a place in the county of which he could not give a history, nor a name which was not suggestive and pregnant with meaning in his hands; not an archaeological query was put to him that he had not an answer ready to give to it, and nowhere was the quaint familiar figure more missed than when it ceased to be the peripatetic philosopher of the Dorset Field Club.
>
> (Baxter 1887, 270)

Barnes contributed fourteen papers in the seven volumes of the publication that appeared in his lifetime, ranging from poetry to the philological and the proto-archaeological. The use of the prefix 'proto-' is quite deliberate here, for, although Barnes openly identifies himself as 'an archaeologist' in the subtitle of his first contribution to *Proceedings*, the field of archaeology as we understand it today was in the process of emerging out of the singular occupation of antiquarianism. Characterised by their private collections of particular objects, antiquarians were often wealthy European men whose artefacts provided tangible links to the theories of history afforded to them by their classical education. In the late nineteenth century, however, thanks to emerging scientific thought and industry's extensive excavation of Britain's landscape, natural and human history became immediately accessible to all, and archaeology became part of a national movement of recording centrally, for public posterity, historical artefacts of local, national and international interest (Breuilly 2013, 78). Certainly, Barnes was part of this movement, although the extent to which his understanding would be considered rigorously archaeological by today's standards is questionable. Indeed, it was not until 1930 that the Dorset Field Club changed the 'Antiquarian' in their name to 'Archaeological'.

Baxter's word 'peripatetic' serves to indicate the breadth of Barnes' knowledge and interest in local language, landscape and history, but the word also suggests variation, movement and transition. Of course, being knowledgeable in all these disciplines, across long time frames, demands one to recognise the forces of constant change and evolution to be at the centre of things. Indeed, perhaps Barnes' deep sense of space, broad interests and avid curiosity converged to allow the writer to recognise such evolution most intimately. The versatility of Barnes' intellect was obviously respected and admired by the members of the Dorset Natural History and Antiquarian Field Club. The inclusion of a Barnes poem in their first volume of *Proceedings* acknowledges the local writer's literary talents, builds the cross-discipline rigour of the publication and, perhaps, raises the profile of the Field Club as a result. The collision of the poetic and archaeological in Barnes' poem is, however, tantalising.

The title, 'A British Earthwork', as discussed, is stripped of its Dorset nomenclatures, and stands anonymously in the contents page as if it were a paper on the subject. A dialect poem would not — could not — be accommodated alongside such academic treatises in this publication: this poem, at first glance, appears as a product of science and enquiry. The poem's inclusion reveals that, although earnest and enthusiastic in their research, the members of the Dorset Natural History and Antiquarian Field Club took their responsibilities to disseminate their theories and ideas seriously and with pride.

In her book, *Victorian Poetry in Context* (2013), Rose Miles highlights how the poems 'If' (Kipling, wr. 1895 pub. 1910) and 'Invictus' (Henley 1875), have been 'co-opted as an aspect of 'British spirit' [...] written at the height of the British Empire' (Miles 2013, 158). The word 'British', although a common, galvanising, nationalistic word in both Barnes' and our own time, is not employed by Barnes for this effect, although it is hewn from the same seam of identity that justifies a Briton speaking with authority on any subject. Rather, Barnes' use of the word 'British' denotes his sensitivity of the space, potentially Eggardon Hill, and the culture of its people. The original inhabitants of such an Iron Age earthwork probably preceded the concept of 'Dorset', but might have identified more with the notion of 'Britain' or 'British': a word whose usage predates the Romans and Anglo Saxons, reaching back to the proto-Celtic languages (Savage 1833, X). This awareness not only highlights Barnes' philological expertise, but challenges his critics' view that his focus is solely based on eighteenth and nineteenth-century experience. In the use of the word 'British', Barnes at once transcends the physical and temporal bounds of his locality, foregrounding a generic space that is recognisable to a broader audience, and also re-affirms, subtly, his academic grounding in his native space.

The poet's use of the word 'Earthwork', offers equally exciting permeations. In its construction, the

word combines natural and human spaces as one. Implicit within this word, though, is the inherent conflict of the natural and human components of such a landform, played out over millennia. Do we, in the twenty-first century, encounter such hilltop spaces as predominantly human, or natural? It is a challenging question, for although we are aware that these mounds of earth were moved by human hands, there are few traces of human experience in these undulating folds in the windswept landscape that have remained familiar to our own lives. Part of the intrigue of walking round an earthwork is that human and natural history appear to be seamlessly interwoven. Barnes' location is not picturesque: this is neither a Romantic space of 'tranquil restoration' (Wordsworth 1798), nor a space where enigmatic antiquarian treasures lurk, such as Ozymandias' 'shattered visage' (Shelley 1818), or 'the single little turret that remains' of a mythical city (Browning 1855).

As a poem, 'A British Earthwork' is not rigorously academic; some might argue that the work reverts to a 'Barnesian' type, immediately invoking 'The grassy downs of Dorset / Rising o'er our homes of peace', which is a distinctly comfortable, domestic image. The poem's metrical construction is simple with sing-song iambic lines accented by lines of six or seven syllables, and a vocabulary that rarely stretches to three syllables. Even the imagery used to summon the inhabitants of the site perpetuates the quasi-mythical stereotypes that passed as authority amongst the enthusiastic amateur antiquarians on the brink of archaeology. The speaker reveals the proximity between our 'homes of peace' and 'mounds of war', where, long ago, the 'rattling spears and swords' of 'grim warriors' juxtaposed the 'wails of weeping women'. Emotive alliterative monosyllables such as 'fear', 'fight' and 'foe' anticipate combat, while the men's fate, to 'win' or 'die', seems deliberately primitive and exclusively martial. The poem returns to the almost inert, 'sweet, unbroken peace' of modern times, a hope that 'we may never need high banks / to keep the foe at bay', and concludes with an impassioned thanks and blessing to 'the lord or farmer' for 'sparing [...] / these olden British banks, / And not destroying, for a crown / Or pound that he might win'. This cyclical structure (reminiscent of the earthwork's physical form) or recapitulation is superficially pleasing to the reader or listener, but does not provide the groundbreaking science that one would expect from an archaeological excavation — not least because the surface of the soil is never disturbed.

While historical precision and poetic nuance are left wanting in this poem, Barnes' attempt to communicate his interpretation of a historical site, and vindicate those who preserve it, is still significant. Barnes had distinct views himself on the role of such poetry:

> Many men may be ready to believe that poetry belongs only to a fair refinement of life, or to a so-called cultivated or written tongue; and that poetry came with the pen, and the bard with the book. The truth seems to be rather that there has never been a full-shaped tongue that has sounded from the lips of generations of any tribe without the voice of song; and that to a bookless and unwriting people verse is rather a need than a joy. Wherever there have been deeds that were great to the minds of the tribes to whom they belonged, there has been felt a want of history; and the history of a bookless people is verse.'
>
> (Barnes 1867, 306)

It is the final phrase, 'the history of a bookless people is verse', that resonates through William Barnes' 'A British Earthwork'; the poem is presented in *Proceedings* as an archaeological discourse, but retains the possibility of being received as an oral history of a specific location in the Dorset landscape, passed down through generations. Barnes is teaching history through poetry. To 'speak' as an archaeologist *and* poet reveals to us Barnes' inherent didacticism that permeates almost every aspect of his life and works. As a teacher and Church of England minister, Barnes had an obligation to make learning and language accessible to all who encounter it, and while this may not account for Barnes' want of scientific rigour, it accounts for the poem's simple construction, vocabulary and quasi-mythic storytelling.

Blumberg argues that 'writers eagerly turned to archaeology for literary inspiration in part because of archaeology's fragmentary nature' (Blumberg 2018, 3). This is reinforced by Zimmerman's assertion that '[S]cientists fashioned narratives out of fragmented remains. The evidence they excavated revealed at once the extraordinary depth of time and the awesome ability of the writer to measure time and to craft its story' (Zimmerman 2008, 2). Barnes' reanimation of the lives of the earthwork's inhabitants, according to his interpretation of the fragments that remain on the surface, gives us a working example of how poetry and archaeology convene in the nineteenth century.

On one hand, the earthwork itself is the object that invokes Barnes' inner archaeologist to speak; it is the sole fragment and focus of Barnes' investigation. On the other hand, the earthwork serves as a representation of the process of time, the ephemeral nature of our lives, and the transient cultural experience of a given place. In this way, Barnes' quasi-mythic writing becomes part of the enigmatic history and archaeology of the site itself. Even if this was not Barnes' intention, Blumberg concedes that 'the literature of archaeology may outlast the materials of archaeology' (2018, 8), and shares Malley's conclusion that 'subjective experiences of the past in popular culture leave behind an important layer of archaeological experience' (Malley 2012, 25).

John Hines draws a subtle distinction in how we might further interrogate the archaeology of Barnes' poem:

> There is a subtle but important difference between two otherwise straightforward ways of describing archaeology: that archaeology is the study of the past *through* its material remains, and that archaeology is the specialist study *of* the material remains of the past.
>
> (Hines 2004, 10).

If we consider the first interpretation, and recognise Barnes' earthwork to be the exclusive focal point of his poem—the material evidence through which we might access the past—then, Hines suggests, the earthwork must be 'treated as transitional' (Hines 2004, 10):

> [...] it is the route by which the scholar proceeds to a reconstruction or understanding of the past which itself transcends the window that has made the view possible. Used in this way, archaeology becomes a means of writing more, and even new, history.

Subscribing to this view, the earthwork is the transitional medium through which Barnes is able to reconstruct, or even construct, his history of the site. Indeed, he brings 'warriors', 'children' and 'wives' (back) to this otherwise uninhabited space.

While this interpretation functions on one level, in that it makes accessible Barnes' history of the historic site to others, it has its limitations. It forces us to reconsider the liminal and dual connotation of the word 'earthwork' that we have discussed already: to what extent do we encounter this land formation as a 'material remain' (Hines 2004, 10)? To what extent does our temporal and spatial dislocation from the people inhabiting such spaces warn us against accepting, or even preclude such a re-imagining, or new history of Iron Age life? Do we grant Barnes too much authority in his recreation of the earthwork? Alexander Stille provides a historian's perspective, echoing Zimmerman's words on Victorian writers fashioning narratives from archaeological fragments (Zimmerman 2008, 2):

> The past is only the memory or residue of things that now exist in the present moment, a mental construction that —cleaned up or embellished — often serves the needs of the current moment instead of corresponding to any historic truth.
>
> (Stille 2003, 752)

For Stille, 'A British Earthwork' might serve to sate Victorian, Dorsetian appetites for a history concerning their homeland and the ancestors that used to call it home. Reading the poem this way, one might argue that Barnes is legitimising the advancements of the Victorian Age by drawing such dramatic contrasts in the way people lived in Dorset over millennia. Given the breadth and depth of Barnes' knowledge and interest in natural and human history, it would be disingenuous to consider the work to be a simple vindication of domestic improvement from 'Earthwork' to the contemporary 'homes of peace', in the same way that it would be inappropriate to interpret the nomenclature 'British' as a nationalistic statement, rather than a term distinguishing the earthwork's characteristics for archaeological classification (Barnes 1877).

Another weakness of Hines' first approach to archaeology is its dependence on a single physical object as a conduit to the past. This precludes a broader, holistic understanding demanded of both literary interpretation and scientific inquiry. Hines' second approach to archaeology, that it is the 'specialist study *of* the material remains of the past', offers the literary scholar more opportunities:

> In the other case, it is rather the intrinsic nature of what we frequently refer to as the 'material culture' itself that is the principal focus of scrutiny. [...] This latter perspective is inherently more likely to direct the archaeologist towards comparative studies of different periods and places (Hines 2004, 10).

Significantly, Hines considers both archaeological approaches as 'valid' and 'complementary' (2004, 10). The physical presence of an earthwork is clearly

important to this poem, however encountering the earthwork as only one component of material culture within the poem allows us to scrutinise Barnes' other choices.

Hines' definition of material culture is particularly useful to literary scholars. Central to this term is the idea that artefacts are 'meaningful: not just in the sense of transmitting information about the past to the present-day archaeologist who observes them, but also meaningful to people within their original contexts' (Hines 2004, 11). Furthermore, this meaning is forged 'through the inter-relationship between object and context: a context made up of people [...], and of other material circumstances' (Hines 2004, 12).

The ways such meanings are expressed and transmitted between people and over time are central to Barnes' intentions in 'A British Earthwork', for these meanings are inherently embroiled in language and philology. Having considered the inclusion of the poem in the first volume of *Proceedings* in 1877, and recognised the poem, broadly, as an expression of Barnes' status and skill as an educator, proto-archaeologist and poet, assessing the philological ramifications of 'A British Earthwork', particularly its 'Cornish-British' refrain, and the transmission and interplay of language through the poem, represents the final dimension of our excavation of this poem.

At the end of each of Barnes' stanzas of Standard English verse, but integrating seamlessly with the rhyme and metrical structures of the poem, is the refrain:

> *Angwaliow war an meneth, (1)*
> *An caer war an bryn. (2)*

In the footnotes, Barnes clarifies its meaning and inclusion:

> *(1) – 'The ramparts on the mountain.'*
> *(2) – 'The stronghold on the hill'*
> *This is the old Cornoak or Cornish-British, that of our West of England. The modern Welsh would be –*
> *'Y gwaliaie ar y mynydd,*
> *Y au caer ar y bryn.'*
> *Au pronounced ace ; y like e in le, French ;*
> *'mymydd,' munneethe.*

The use of Cornish-British (and 'modern Welsh') is central to Barnes' intention to educate. While in translation the words summon familiar imagery of 'ramparts' and a 'stronghold', our compulsion to look to a footnote to find this information makes us complicit in Barnes' antiquarian exercise, or archaeological excavation: what we encounter first is unfamiliar, and, as Barnes concedes, 'startling'. It is only by reading on, delving deeper and actively seeking to uncover explicit meaning, that we are rewarded by finding such an answer at the end of the poem. In this regard, the title of the publication *Proceedings* becomes more profound and fitting. While the title refers to the record of walks, talks and actions of the members of the Dorset Field Club, engendered within the word 'proceedings' are connotations of forward movement, advancement and progress. This publication seeks to educate and inform, offering new knowledge and understanding of new scientific fields of enquiry, predominantly of the past, which is precisely what Barnes intends for his poem.

In both the footnotes and the poem itself, Barnes makes use of first person plural pronouns 'we' and 'our' to give the reader a sense of communal belonging, prompting us to recognise the philological roots of our language and acknowledge that those who spoke it were our 'kin', however strange this may seem. Barnes notes that the language 'lingers yet', acknowledging the spoken dialect which Barnes himself harnessed as a poetic medium on the page and for performance. To 'linger' is a distinctly unsettling action, suggesting something in decline or decay while not drawing closure by its certain cessation. The word 'cease' two lines later refers not to the sound of language, but to the sound of these people's 'works of hand'. In this single word 'linger', language, the people and the earthwork are not temporally fixed: the earthwork is subject to the tireless process of weathering, yet the evidence of its form remains intact. Similarly, our cultural heritage is still betrayed by the lingering traces of accent, dialect and diction that we retain, consciously or unconsciously, in the same way that our biological ancestry lingers in the chemical information carried down in our DNA.

The contemporary landscape, employed as a framing device for the poem's archaeological focus, is deliberately subdued and presented as almost unconscious: the 'homes of peace' in the first stanza are mirrored exactly in 'sweet, unbroken peace' of the last stanza. The vocabulary of Barnes' reconstructed earthwork in the middle part of the poem is striking, however, and set in direct aural contrast to the surroundings. Use of present participle verbs: 'lowings', 'rattling' and 'weeping' brings these sounds in to direct focus, as does the moment when the poem's archaeological speaker is consumed or

overtaken by a 'grim warrior', rallying his 'Britons' to fight: rhetorical questions and exclamation marks indicating persuasive oratory, but perhaps, too, the peak of Barnes' fervour when reciting in performance. To return to the domestic 'peace' of our present day is both a relief, but also unsettling. The deliberate subversion of action seems to give the past more cultural authenticity and credibility (however fanciful) than the unconscious, inert present.

Indeed, this is not a comfortable poem; we readers are not immersed in a bucolic scene for quiet, third-party reflection as one has been led to expect from a William Barnes poem, but are encouraged to confront simultaneously our relationship with a space as we see it today and as it was in the distant past. This affirms Reid's view that Victorian writers paid 'peculiarly urgent attention to the past,' and the tendency of 'putting past and present into contact with each other and of tracing the endurance of the past into the present' in their writing (Reid 2017, 357). While the 'endurance of the past' is a prominent motif of Barnes' poem, it is not depicted chronologically, however, but encountered haphazardly, flitting between past and present — as the reader flits between poem and footnote, between Cornish-British, Standard English and modern Welsh — in the same way that one would when encountering an historic site. The reader's immersion in the past is both disrupted and embellished by the successive footnotes that permeate Barnes' deployment of language and imagery with further historically-sourced permutations, as he justifies the inclusion of a Welsh variant to the Cornish-British refrain or clarify a specific weapon, almost to reconfirm to us that 'An Archaeologist Speaks'. Furthermore, the people and language of this space converge and compress with the shifting tenses between sections: present tense ('e'er teem') to past tense ('There were'), back to present tense ('But now') and then from present to anticipation of the future: ('And may we never').

The temporal compression and cultural synthesis experienced by the reader of Barnes' poem summons both scientific and religious analogues: first, the geological concept of stratigraphy, the study of the formation of rock and soil layers and the circumstances of their layering, and second, Hopkins' notions of 'inscape' and 'instress' (Dubois 2017, 11).

Charles Lyell's *Principles of Geology* (1830-1833) significantly influenced thinking in the fields of natural history in the middle part of the nineteenth century. Lyell's work contributed to thought on the process of stratigraphy based on the distribution and frequency of marine shells within each layer and offered distinctions between layers in the Tertiary period (Mitchell 2013, 468). Lyell argued the case, too, for 'uniformitarianism', which is best defined in his subtitle to *Principles*: 'An attempt to explain the former changes of the Earth's surface by reference to causes now in operation' (Lyell 1830).

The ramifications of such scientific thought for literature of the nineteenth century, particularly serialised fiction, are highlighted by Hughes and Lund, who argue that new thought in 'geology, history, archaeology, and biology acted to emphasize the immensity of time. This enlarged sense of time was conceived partly as an expanding sequence, partly as an accumulation of layers, a point given force by archaeologists' excavations and geologists' stratigraphic columns' (Hughes and Lund 1991, 5). Blumberg concludes that 'the real-time unfolding of a serial story functioned much like a history' (Blumberg 2018, 3). For Barnes' poem, however, the reader does not encounter stratigraphy as part of the mechanics of serialised publication, but in the co-existence of different temporalities in parallel.

Although theories of geological uniformitarianism have since been honed to reflect the thought that the Earth's gradual geological development was punctuated by natural catastrophic events, Lyell's writing was widely disseminated and trusted in Barnes' lifetime (Mitchell 468). As a member of the Dorset Field Club, we must assume that Barnes would have been familiar with Lyell's theories, for his poem uncovers the cultural stratigraphy of the earthwork by revealing the inherent intimacy and separation of the respective people and language: he draws attention to the evolution of civilisation, the 'lingering' resonances and deposits that remain, while framing the poem in such a way that distinguishes between the past and the present. The poem embodies uniformitarian thought in the same way that it aligns with Hines' primary distinction of archaeology being 'the study of the past *through* its material remains' (Hines 2004, 10): whether predominantly human or natural, the earthwork on the hill is a reference point in our contemporary landscape, subject to geological processes 'now in operation', which affords us the opportunity to 'attempt to explain former changes' (Lyell 1830).

The reader's immersive experience at the site of the earthwork, which Isobel Armstrong might describe as a moment where 'purism and antiquarianism converge with experiment and eccentricity in an odd

way' in William Barnes' writings, might be more appropriately aligned in this standard English poem with what Hopkins described as 'inscape' and 'instress' (Armstrong 1993, 426). Dubois writes that 'inscape' 'signifies the unique inner essence of a thing or scene, that which constitutes the governing law or pattern of individual forms', while 'instress' is the 'energy or 'stress' of individual being' and 'the effect of observing the inscape on the beholder' (Dubois 2017, 11-12). We see inscape in Barnes' poem in the way that the earthwork transcends physical description: its 'inner essence' being that of language, the noise of the cultural experience of people from the past and the process of geological and human time acting upon the site. The reader's encounter of all this might be aligned with 'instress' most successfully through Dubois employment of Sobolev to support his view that 'instress [...] involves a willed act of perception to apprehend the energy of being' (Dubois 2017, 12):

> The description of the energetic impact of the world upon the mind, without which no discussion of instress is possible, requires the description of both the functioning of the mind and the energetic depths of the world.
>
> (Sobolev 2011, 43 in Dubois 2017)

The reader perceives 'the energetic depths of the world' in a physical, archaeological, geological sense, but also through the metaphysical dialectic presented by Barnes' philological and anthropological representations of the earthwork and its culture through time.

Greenblatt argues that, for Hopkins, 'ultimately, the instress of inscape leads one to Christ, for the individual identity of any object is the stamp of divine creation on it' (Gleenblatt 2006, 2159). Despite Barnes' status as a Church of England rector, it is difficult to align 'A British Earthwork' so tightly to Greenblatt's ultimate destination of the term, which is invariably informed by Hopkins' Jesuit doctrine. For Barnes to speak openly as 'an archaeologist' in a natural history publication seems to dispute this quite clearly. Rather, reading 'inscape' and 'instress' in to William Barnes' writing, particularly this work, reveals the poet's compunction to impart his enthusiasm, curiosity and knowledge and allow readers to confront their natural and cultural history 'willingly', in order to 'apprehend the energy of being' (Dubois 2017, 12). Reading William Barnes this way offers new opportunities to liberate the poet from the margins of nineteenth century literary obscurity, align him and his works closer to those of his literary friends, contemporaries and followers, and encourage us to encounter his writings with greater holism.

To work as a teacher and rector is to live vicariously; the fact that Barnes' first publication in *Proceedings* is a poem that invites the reader to accompany the speaker as he carries out an excavation of 'A British Earthwork', rather than a retrospective written paper, places the reader and his or her experience at the forefront of this text. The way that Barnes enables us to confront this history is crucial to the effect of 'A British Earthwork'. The act of 'speaking' is inherently more accessible to an audience than writing, yet, as Stille highlights: 'History as we understand it begins with writing. The act of writing in some sense separates us from the past by making it an object outside ourselves' (Stille 2003, 754).

The conceit is, of course, that Barnes both writes and speaks, making our encounter with language, the earthwork and its cultural history invariably more unstable. The obfuscation or confusion of time, the moving forward by travelling back in to the past, is encapsulated superficially in Barnes' use of an earthwork as a physical, tangible setting for poetic archaeological reconstruction. Barnes goes further, though, for we encounter the evolution of our words and language — our culture — through our examination of this site. Whether he intended the poem to be an academic discourse, or an act of pseudo-mythical story-telling, or both, by excavating 'A British Earthwork', we realise that Barnes, like many of his literary contemporaries, makes a significant attempt at 'knowing and conquering the depth of time' (Zimmerman 2008, 8). For Barnes, the 'British Earthwork' is inescapably bound to language, for they are both subject to the same stresses and pressures of 'meaning' through time (Hines 2004, 10). Barnes' archaeological reconstruction coincides with a philological deconstruction of Standard English. The act of deciphering the earthwork is a philological exercise as Barnes controls the language of the landscape, in the landscape.

For while we haven't left the bounds of Dorset, this poem challenges our preconceptions of Barnes and his reception as a solely 'local poet'. The complete absence of Barnes' familiar dialect verse in 'A British Earthwork' is particularly striking for a poem of such philological weight. Dialect is conspicuous by its absence; it is the missing link between the Cornish-English and Standard English of the poem, which is evocative of the temporal disruption that permeates Barnes' work. The absence of dialect here is, perhaps,

to the poet's benefit, for it allows Barnes to transcend the solely regional in order to excavate the origins of a national language through the lenses of natural history and archaeology.

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Temporary sections within the Charmouth Mudstone Formation (Sinemurian-Pliensbachian Stages, Lower Jurassic) of South Somerset compared with the type area of the Dorset coast

JOHN G. HUXTABLE

Renewal of mains water pipelines in South Somerset (2009-17) presented an opportunity to record sections near Hambridge and Dowlish Ford that provided lithostratigraphical details with related palaeontology for part of the Lias Group (Lower Sinemurian-Lower Pliensbachian), in an area where it is rarely exposed. The sparse ammonite fauna recovered is described and confirms that the two locations compare well with the coastal sections. Additional evidence is provided by belemnite specimens. An overview of the related stratigraphy at the Dorset coast is given for comparison. An exposure of Upper Toarcian sediments near Stocklinch is described.

Introduction

To meet the projected year-round demand for potable water within their supply area, Wessex Water announced a major project that would not only renew much of the existing delivery infrastructure, but ensure that areas that experienced shortages would benefit from a new diversion system that would maintain supply. Named the Grid Project, it would take eight years, and a budget of £400 million, with completion by the end of 2017, starting in Wiltshire and terminating in South Somerset. The project took into account the rich archaeological nature of the counties involved — a female skeleton dating from the Iron Age was recovered near West Knoyle — but geological interest appeared to have been overlooked.

The Lias Group Charmouth Mudstone Formation (hereafter CMF) inland from the Dorset coast is very poorly exposed and consequently, any opportunity to obtain new stratigraphical data is of interest. The Dorset coastal exposures are reviewed for comparison, particularly as they include the type area and section. Full details of the chronostratigraphy and related outcrops of the Lower Jurassic are reviewed elsewhere (Simms *et al.* 2004).

General Description

Two inland locations (Fig. 1) were developed separately and, as major differences were encountered, two descriptions are given, cross referenced where applicable.

Locations between National Grid References ST 390 229 and ST 384 192.

Initial works were undertaken in mid-2013, by drilling 17 boreholes to a maximum depth of 20 m, together with 46 mechanically excavated trial pits to a depth of 2.6 m. The 'soft' ground area involved is a low-lying plain, with a minor climb towards the village of Isle Brewers, then sloping southwards towards Barrington. The general composition as indicated by the trial pits comprised topsoil, head, and alluvium. The latter contained concentrations of abraded limestone fragments suggesting river terrace deposits but with variable associations of undifferentiated clay, silt, sands and gravels. The overall ground conditions were anticipated by reference to the published

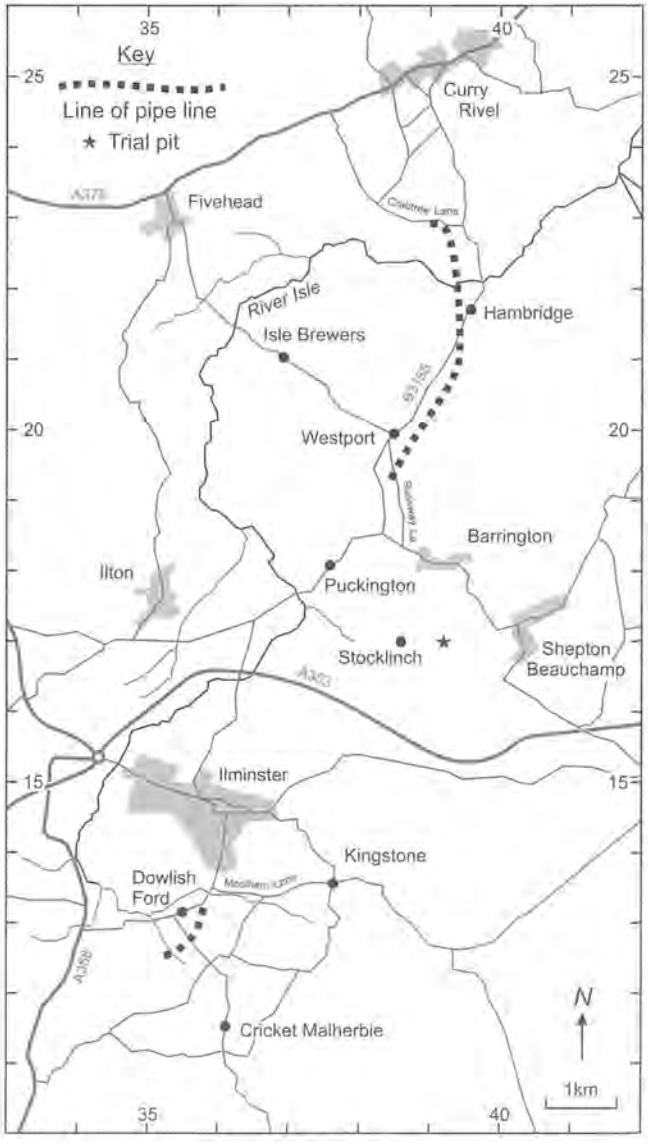

Figure 1: Map of inland locations

mapping of the British Geological Survey (hereafter BGS), starting at Crabtree Lane near Hambridge and terminating at Ruskway Lane, Barrington. This area lies within the outcrop mapped as undifferentiated 'Blue Lias Formation and Charmouth Mudstone Formation' on the solid geology map of the BGS Geology of Britain (BGS 2019). The pipeline trenches were excavated to achieve depths up to 5m. A separate, deeper excavation for an inspection pit nearby to the site offices at Westport (Fig. 1) confirmed the presence of the CMF (Fig. 2). If the Belemnite Marls Member / Belemnite Stone was encountered, that would be an important marker horizon for accurately establishing the stratigraphy in the absence of any ammonite evidence. The CMF within the Wessex Basin ranges in age from the Lower Sinemurian Stage to the Middle Pliensbachian Stage. The Belemnite Marls occur in the latter stage, partly within the Jamesoni to Ibex Zones, (Fig. 2), with the type section defined as the cliffs below Stonebarrow and Golden Cap, east of Charmouth, Dorset (Lang *et al.* 1928). These are capped by the Green Ammonite Beds Member.

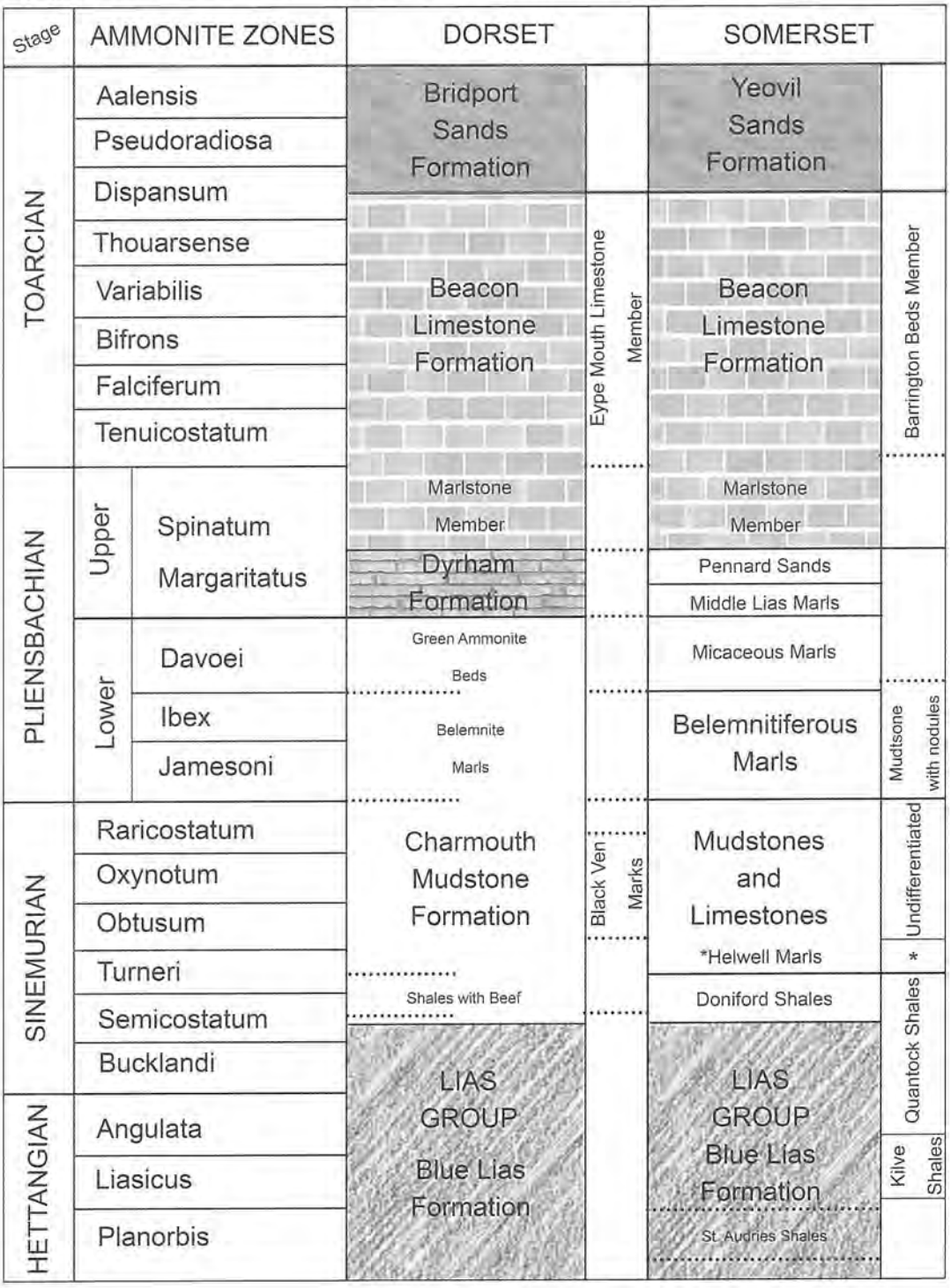

Figure 2

Due to the speed of the excavations and having regard to site safety, *in situ* inspections and measurements were restricted to the down times of the excavators with details supported by a visual inspection of material as it was removed from the trench.

1. *Topsoil*

Weathered, brown, slightly sandy clay with admixture of fine to coarse subangular limestone lumps: 0.20-0.25 m.

2. *Head deposits*

A composite of various materials resulting from soil creep or hillwash and generally comprising gravel, sand and clay, depending on origin and distance transported. Downwards the composition comprised:

a) Light brown to brownish orange, very silty sand: 0.20 m.

b) Brown, very silty clay, often with a fine to coarse gravel: 0.80 m.

c) Gravels of weak sandstone appear as admixture within the clay, the gravels hardening with depth. At different locations the clay was either brown with a grey mottle and very silty or darkish grey, silty, sandy with only rare gravels of weak mudstone: 0.70 m.

3. *Alluvium.*

Consolidated, firm, compressible silty clay. Lenses of brownish orange silty sand occurred. The clay varied from grey to dark grey with a variable content of silty, sandy mudstone gravel towards the base: 0.40 m.

Charmouth Mudstone Formation

The clays and mudstone bands that represent this part of the Lower Jurassic Lias Group were excavated at depths up to ~5 m and provided the base strata for most of the pipeline installation. The rocks were observed to be subhorizontally bedded. The uppermost clays were a very pale grey, presenting variable lithologies that included concretionary, occasionally tabular beds of argillaceous limestone. Subjacent, the lithology comprised dark greyish, marly shales, alternating with dark bluish-grey mudstone bands of variable thickness. The ammonite fauna was sparse but sufficient to confirm the Lower Sinemurian Stage, indicated firstly by a limestone lump with an impression of an ammonite tentatively assigned to *Arnioceras* sp. indet. Although not abundant, the dark grey clays yielded frequent specimens of *Eugassiceras* sp. indet., all preserved as crushed, white coated impressions. The inspection pit mentioned above also yielded whorl fragments of both of the above ammonite genera, which indicated the Resuspinatum Subzone, Semicostatum Zone. This is lower stratigraphically than expected, placing the strata within the Shales with Beef Member of the coastal exposures (Fig. 2).

Locations between National Grid Reference ST 358 132 and ST 352 125

This section of pipeline was located on sloping ground along the side of a shallow valley and started nearby to Dowlish Ford, terminating near Mary Hunt's Grave, a distance of 1.1 km. The geology of the overburden reflected that described at the previous location but with some differences.

1. *Topsoil*

Similar to previous description, but with an abundance of subangular flint of variable textures: 0.30 m.

2. *Head*

Comparable to description above: 0.70 m.

3. *Alluvium*

Only encountered as two ribbons at right angles to line of trench. Some similarity to description above but with lumps of limestone (cobbles) and a noticeable abundance of a flint gravel as seen in 1 above. Thickness variable: ~1.5 m.

Charmouth Mudstone Formation

The northerly section at this location was trenched to >4 m and for approximately 400 m. The CMF here was represented by the Belemnite Marl Member (Fig. 2), in agreement with the solid geology map of the BGS Geology of Britain (BGS 2019). As its base was not reached, the thickness of this subhorizontally bedded unit could not be estimated. The lithology comprised pale grey clays with an interbedded calcareous, dark grey mudstone that was much fragmented. This unit was no longer exposed after the trenching crossed the minor road (A3037 / ST 355 128) that leads south-east to Cricket Malherbie, suggesting a fault had displaced the CMF by some metres. This is in agreement with BGS sheet 311 (BGS 2009) which shows an ESE-WNW-trending fault downthrowing to the north at this position.

The Belemnite Marls (Jamesoni-Ibex zones) contained an abundance of broken belemnite guards, but it was difficult to ensure a complete collection was acquired of representative species. However, those collected were sorted and subsequently identified (Peter Doyle, pers. comm. November 2015) (Fig. 3). These specimens were all considered attributable to

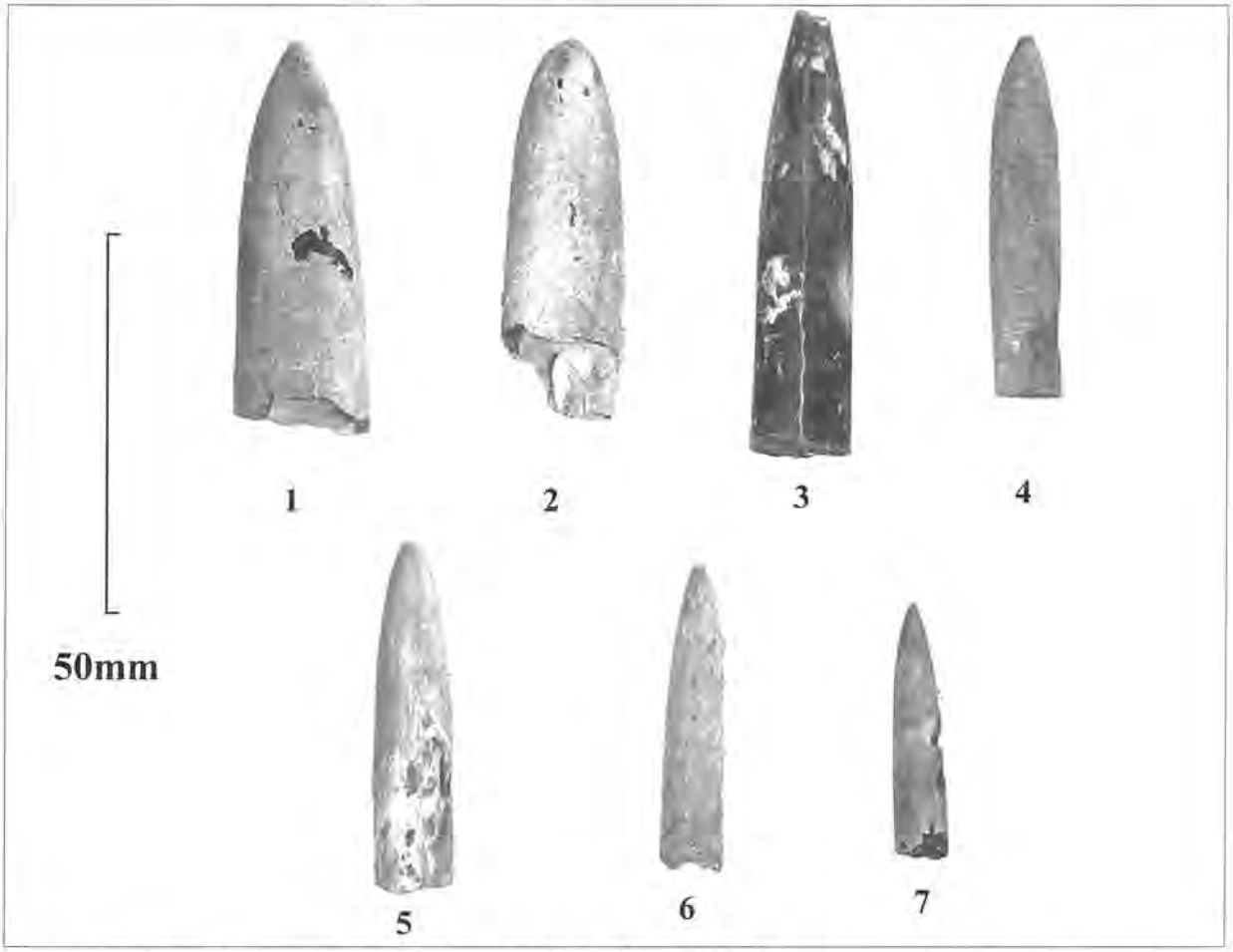

Figure 3: Specimens of Belemnoidea from the Belemnite Marls of Dowlish Ford:
1. Angeloteuthis michael (Lang); *2. A.* cf. *michael; 3. Passaloteuthis; 4. Bairstowius* sp.; *5. Hastites* cf. *clavatus* (Schlotheim); *6. Nanobelus acutus* (Miller); *7. N.* cf. *acutus.*
These specimens have been donated to Dorset County Museum and accessioned under ref. DORCM?G15323

the Lower Pliensbachian: *Angeloteuthis, Passaloteuthis and Hastites* — all genera of the Ibex Zone, although *Passaloteuthis* sp. ranges throughout the Marls — and *Bairstowius*, a genus referred to the Jamesoni Zone. Whilst *Nannobelus* is recognised from the Lower Sinemurian to the Lower Pliensbachian, it is here considered probably of the latter age. The few ammonites seen were much fragmented and indeterminate, but a large fragment of a liparoceratid is tentatively assigned to *Liparoceras (Liparoceras) cheltiense* (Murchison), referable to the Ibex Zone.

Excavated to a depth of 2.4 m, the CMF in the southerly section presented facies that suggested lower horizons, as there was no sign of the pale grey belemnite clays. On the BGS Geology of Britain solid geology map (2019), this section is situated within an outcrop of 'Charmouth Mudstone Formation —mudstone', and the present observations are consistent with this. The rocks here consist primarily of a sequence of dark grey, subhorizontally bedded shales with a tabular limestone bed that was fragmented into variously sized lumps. These loose lumps yielded a few ammonites, most of the specimens preserved in calcite and identified as *Echioceras raricostatum* (Zeiten). One pyritised specimen is tentatively assigned to *E. raricostatoides* (Vadasz). These specimens confirm the Raricostatum Zone (youngest Sinemurian age), which correlates with the upper part of the Black Ven Marls Member of the Dorset coast (Beds 90-102 of Lang and Spath 1926). At the base of the trench, a bluish grey mudstone was noted, also fragmented but unfossiliferous.

Toarcian exposure at ST 392 170

The original plan for the pipeline renewal was to include the area from Barrington to the reservoir near Stocklinch (ST 392 170 Fig. 1). Although deferred, some renewal works at the latter site required excavations to 2.8 m. This locality is located within an outcrop of 'Beacon Limestone Formation' on the BGS (2019) map.

Whilst the top 0.8 m was in disturbed clay with limestone lumps, the subjacent 2.0 m presented subhorizontally bedded clays and limestones of variable thickness: Bed 1, a dark grey clay with weathered limestone lumps, underlain by Bed 2, a more evenly

stratified series of bedded limestones with thin intervals of clay, the rock heavily veined with soft, ferruginous marl. The ammonite evidence, whilst poorly preserved, confirmed the beds numbered 26-28 of Howarth (1992).

Bed 1

Zone of *Grammoceras thouarsense* based on a single specimen of the index ammonite.

Bed 2

Zones of *Haugia variabilis* and *Hildoceras bifrons*. The condensation of this part of the Toarcian succession is well documented (Howarth 1992; Huxtable 2012, 2018). The higher layers, each up to 20 cm thick, contained abundantly both of the zonal indices, also *Haugia phillipsi* (Simpson) whilst lower beds contributed both *Hildoceras bifrons* (Bruguière) and its successor *Hildoceras semipolitum* (Buckman). From the base of the excavation, the presence of *Hildoceras lusitanicum* (Meister) and *Harpoceras falciferum* (J. Sowerby) were indicative of the late Falciferum Zone. On the Dorset coast, these zones are recognised within the Beacon Limestone Formation, Eype Mouth Limestone Member (q.v. Huxtable 2018, fig. 1).

Discussion

The described excavations were too shallow for comparison of formation thicknesses with the strata at the Dorset coast. Nevertheless, the sparse ammonite fauna collected agree well with the coastal records. Some re-working of the sediments may have influenced the final stratigraphy, with bioturbation also a consideration. These factors are recognised as contributing to the faunal evidence (Sellwood 1972).

Lithologically, the Belemnite Marls compare well with the coastal exposure of dark and light marly clays. This succession is considered as one sedimentary cycle with varying concentrations of belemnite guards, particularly at the top where the marls are much condensed (Phelps 1985), which may explain the sudden abundance at the first excavation at Dowlish Ford.

Whilst the rock beds of the CMF on the Dorset coast are famous for well preserved ammonites, there are intervals where the shales yield only crushed, poorly preserved material. Inland, the situation is far worse, as the formation has no natural exposure, so stratigraphical details and related palaeontology have had to be pieced together from records obtained over many years from temporary exposures. Most of the known records are the result of decades of research by the late Hugh Prudden, whose records and fossil material, as well as that collected by others, have been collated to produce an indispensable paper (Page, 2009) which provides a detailed synthesis of all known data on the CMF ammonite chronostratigraphy for Somerset and the West Dorset coast. Where there is a more complete succession, the top of the CMF passes into the Dyrham Formation (Fig. 2, Upper Pliensbachian), of which a recent description has been given by Prudden and Simms (2014). However, no sandy or silty facies which might suggest the presence of this formation were seen at either of the above sections.

It has long been recognised that the rocks in this area have been subjected to considerable syn-depositional erosion and/or faulting, probably due to influences by the Mere Fault, resulting in the absence of any younger strata of Upper Pliensbachian/ Toarcian age that would usually succeed the CMF. This is highlighted near Dowlish Ford, where one of the thickest developments of the Marlstone Rock Member (Beacon Limestone Formation) in Dorset or Somerset, is exposed at Moolham Farm, about 400 m to the NNE of the pipeline trench (Huxtable 2012, 2018). It remains uncertain as to whether the inland CMF succession has significantly diminished in thickness in comparison with the Dorset coast exposures, where non-sequences in the succession are well documented (Page 2009).

At lower stratigraphic levels, the contrast between the temporary sections exposed in the trenches at Hambridge and Dowlish Ford may have a similar cause. Whilst the difference in stratigraphic level between these two subhorizontally bedded sections, a distance of *circa* 8 km, may simply be the result of post-Jurassic faulting, it is possible that the horizons exposed at the two localities are separated by a major non-sequence corresponding to an absence of Upper Sinemurian beds. Again, one possible explanation for this hiatus would be localised erosion due to syndepositional movement of small-scale fault blocks, for which there is considerable evidence on the Dorset coastline (Hesselbo and Jenkyns 1995, 107). BGS source maps (Geological Survey of Great Britain - England and Wales 1997, BGS 2009) show faults in the vicinity of Barrington, Ilminster and Dowlish Ford, some of which downthrow to the north, but whether or not they were active during the Lower Jurassic is unclear.

Conclusions

The lithological and palaeontological details obtained during temporary excavations have provided additional evidence of the succession the Charmouth Mudstone Formation in a region with few natural exposures. The trench near Hambridge yielded Lower Sinemurian strata correlating with the Shales with Beef Member of the Dorset coast. The NE portion of the trench near

Dowlish Ford exposed rocks of the Lower Pliensbachian Belemnite Marl Member, whilst the SW portion exposed Upper Sinemurian rocks correlating with the Black Ven Marl of the Dorset coast. The third temporary exposure, near Stocklinch, revealed rocks corresponding to the Toarcian Beacon Limestone Formation. Whilst consistent with the BGS map sheets, these observations provide greater stratigraphic precision than hitherto available. Nonetheless, additional data are badly needed and should be sought especially in the Char Valley and Marshwood Vale, north of Charmouth, both in streams and at any temporary exposure as the extensive overburden of drift militates against any permanent location.

ACKNOWLEDGEMENTS

I am pleased to thank the Project Managers of Wessex Water, Joe Edmunds and Andy Collier, for support and permission to freely use the geological data and route maps prepared by the appointed consultants. I am grateful to Dr Mike Howarth (Natural History Museum, London; retired), for his comments on some of the ammonites. The belemnites were determined by Professor Peter Doyle (Visiting Geologist, University College, London), whose help is duly acknowledged. I would thank Dr Mike Simms (National Museums Northern Ireland) for his construction of a revised lithostratigraphical table and permission to reproduce it, subsequently emended by this author as Figure 2. The critical appraisal by the reviewers of an earlier version of the paper and suggested changes, both narrative and technical, was appreciated and is acknowledged. I take this opportunity to thank Dr Giles Droop for his support and refinement of the editorial presentation of this report.

THE AUTHOR

I have enjoyed the interest and excitement of finding the fossil remains of ancient life since the early 1950s, when I introduced a geology club at my grammar school. As my career that took me to many countries, as well as various regions of the U.K., I had the opportunity of collecting the invertebrates from the Cambrian to the Tertiary. In the 1970s it was the Cretaceous, for a Monograph on the Lower Chalk ammonites (Wright and Kennedy), then in 1988 a chance meeting with Professor John Callomon introduced me to the mid Jurassic and for the next 20 years I focused on the ammonite fauna of Dorset, with a number of related papers published in the *DNH&AS Proceedings*. More recently, I researched the Toarcian of Somerset and Dorset. My life collection of some 16,000 specimens was accessioned by the Oxford University Natural History Museum in 2003, and the *c.* 4000-specimen Toarcian ammonite collection by the (London) Natural History Museum in 2014.

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Land north-east of Blandford Forum, ST 90036 07652

In November 2018, Wessex Archaeology undertook trial trench evaluation of land located to the north-east of Blandford Forum. The evaluation revealed a small number of archaeological features, mainly in the eastern part of the site. During the course of the evaluation a pair of prehistoric pits were recorded, and contained a good quantity of Middle Neolithic decorated Peterborough Ware pottery. An Iron Age field boundary ditch was also recorded.

László Lichtenstein, Wessex Archaeology

Former Hall and Woodhouse Brewery, Bournemouth Road, Blandford St Mary, ST 88540 05943

An evaluation recorded a small assemblage of possible Bronze Age residual worked flint that was likely to have been deposited by alluvial action prior to the construction of the brewery.

Steven Bush and Ray Kennedy, Cotswold Archaeology

Land south of Westleaze, Charminster, SY 68175 92374

An evaluation identified Early/Middle Bronze Age to Early Iron Age ditches and pits, possibly representing agricultural activity on the periphery of a prehistoric settlement. A few redeposited Mesolithic and/or Early Neolithic worked flints were retrieved.

Paul Clarke and Christina Tapply, Cotswold Archaeology

The Paddock, Lake Gates, Wimborne Road, Corfe Mullen SY 99558 99004

Archaeological evaluation was carried out in October 2018 on a plot of land bounded by the Wimborne by-pass (A31) to the north and by the modern Corfe Mullen/Wimborne road to the east. The site lies about 80 m outside the south-west corner of the Lake Gates Legionary fortress. Two evaluation trenches were set out beneath the footprint of a proposed agricultural building. The larger measured 5 m long by 1.2 m wide and was positioned across the width of the building and the shorter measured 2 m long by 1.2 m wide and was positioned along the width of the building. Both were 1.3 m deep and at this depth surfaces of potential archaeological features were encountered. The topsoil is redeposited and is associated with major 1980's roadworks

The overburden was a homogenous very dark brown loam with rare inclusions. This overlay a compacted pale brown silty loam with natural gravels. Parts of two ephemeral shallow features were recorded; both comprised dark brown silty loam with abundant charcoal flecks. Seven small sherds of Roman pottery were retrieved from the cleaning of the trench bases. Six were derived from locally-made Black Burnished ware forms. A single Samian rim sherd from a Form 24/25 hemispherical cup is a pre-Flavian form dating to before AD70, suggesting activity associated with the nearby short-lived military fortress.

Lilian Ladle, Bournemouth University

St Mary and St Bartholomew Church, Cranborne, SU 05453 13247

In July 2018, Wessex Archaeology undertook an archaeological watching brief during the installation of a new drainage pipe at St Mary and St Bartholomew Church, Cranborne. The groundworks comprised of monitoring the excavation of a drainage trench, which ran from the western end of the church through the graveyard to Swan Street, located to the north of the site. The watching brief identified a total of two possible *in-situ* inhumation burials located under the church path. A small amount of disarticulated human bone was uncovered, which was re-interred with due discretion and reverence.

László Lichtenstein, Wessex Archaeology

Land north of Blandford Hill, Milborne St Andrew SY 80440 97730

In August 2018, Wessex Archaeology undertook trial trench evaluation on land off Blanford Hill . A number of features were recorded, including a substantial east-west aligned prehistoric ditch at the northern end of site, as well as a smaller north-south aligned ditch in the neighbouring trench. These could be representative of outlying features related to a known site in the Milborne Business Park. Limited dating evidence suggests these features may belong to the Early to Middle Bronze Age period. Further features, including a group of postholes, gullies and a pit further to the south and east could, based on very limited artefactual evidence, represent Late Prehistoric Iron Age to Romano British activity within the site itself.

László Lichtenstein, Wessex Archaeology

St Andrew's Church, Okeford Fitzpaine, ST 80708 10837

In October 2018, Wessex Archaeology undertook an archaeological evaluation within St Andrew's Church, Okeford Fitzpaine. The archaeological evaluation consisted of the hand excavation of two test pits, to a depth of approximately 0.45 m below ground level. Both test pits uncovered a series of deposits interpreted as demolition layers, associated with the renovations to the church in 1772 and 1865. A possible floor surface comprised of roughly-laid ceramic tile was also revealed. Finds comprising of ceramic building material, pottery, clay pipe, glass and worked stone were recovered, along with three pieces of disarticulated human bone. No in-situ burials were encountered in either of the two test pits.

László Lichtenstein, Wessex Archaeology

1 High Street, Poole, SZ 00929 90299

Context One Heritage and Archaeology carried out archaeological monitoring and recording at 1 High Street, Poole. The site lies on the quay, within the historic core of the town close to two Scheduled Monuments; the medieval town house, Scaplens Court; and the Town Cellars in Paradise Street which forms part of Poole Museum. It was also close to the known later Saxon and medieval shell midden deposits located along the earlier shoreline. Despite the potential of the site, no archaeological features or deposits were observed. A few fragments of oyster shell were observed but there were no coherent deposits of shell. This area, being close to the modern quayside appears to comprise more recent reclamation.

Clare Randall, Context One Heritage and Archaeology

North Poole, Canford Park, Bearwood, Poole, SZ 05090 97310

An evaluation confirmed the results of a preceding geophysical survey and identified several probable enclosure ditches dating to the Late Iron Age/Early Roman period. The finds assemblage was suggestive of domestic waste, indicating that the features relate to an enclosed settlement. Several undated ditches and a pit were also recorded.

Jonathan Orellana, Cotswold Archaeology

High Angle Battery, Fortuneswell, Portland SY 694 732

Context One Heritage Archaeology carried out erosion repair work on the embankments at High Angle Battery, which dates to *c.* 1892. The Scheduled Monument is recognized as one of the best examples of a late-nineteenth-century battery in the country, and forms part of a wider group of military defensive installations including the Verne Citadel, East Weare batteries and Portland Harbour. Five erosion scars were identified in a HLS Historic and Archaeological Features Management Plan, created by people walking and sliding down the steep bank on the west of the site and a smaller bank on the east side leading directly to the area above the concrete gun emplacements. The scars were repaired with clean soil placed in sandbags, topped with further clean soil, and pegged over with hessian matting using biodegradable stakes before reseeding. The work was only superficial in nature and nothing was noted with respect to the construction of the banks.

Clare Randall, Context One Heritage and Archaeology

Druce Farm Neolithic Site, Puddletown, SY 733 954

During clearance of the Druce Farm Villa site SY 733 954 in 2017, an area assumed to be Roman was identified by magnetometry survey and was subsequently shown by excavation to contain Neolithic features. The investigated area was L-shaped in plan, measuring 24 m long with widths varying from 11 m to 14 m; approximately 0.3 m of ploughsoil was removed to reveal underlying features which were cut into clay-with-flints and the chalk. After cleaning, a small, semi-circular ditch and seventeen shallow pits or postholes aligned in three rows were revealed. The arrangement of these features was consistent with the footprint of a large timber-framed building. A further three pits were also located.

Four sections were cut through the ditch. Two layers were present in each section, the upper layer being particularly charcoal and finds-rich. In total 75 sherds of pottery weighing 342 g derived from at least ten different vessels, and 58 pieces of worked flint weighing 1122 g were recorded. The pottery was in the Early Neolithic carinated bowl tradition as was the flintwork. Two samples of charred plant material from the upper level of the ditch were submitted for radiocarbon dating in March 2018. A fragment of hazelnut shell returned a date of 3941-3705 cal BC (SUERC-77832: 5008±30 BP) and a wheat grain returned a date of 3775-3648 cal BC (SUERC-77831: 4928±34 BP). The results confirmed activity taking place in the early fourth millennium BC. With a potential domestic character, this is one of the earliest such sites in Dorset.

In 2018 the boundaries of the original cleared area were extended outwards by three metres and divided into 5 m by 3 m grids. The topsoil was removed by a small back-acting JCB and the surfaces were trowelled down to the level of the original clearance which was also hand-cleaned. This trowelling back revealed further features.

The ditch feature

This crescent-shaped feature with rounded terminals measured 6.3 m long with widths varying from 1.1 m to 1.7 m and was completely excavated. The base was uneven with depths varying from 0.5 m to 1.1 m. The stratigraphy of the feature was complex and the edges were incredibly difficult to define satisfactorily. At least four phases of activity were apparent.

The initial feature comprised a central pit filled with homogenous silty loam containing small pieces of worked and burnt flint. This was succeeded by a series of small pits, set out in a crescent shape. Their loam fills also contained worked and burnt flint as well as many small quartz pebbles. The pits were ultimately joined together forming the ditch-type feature. Slumping or re-digging occurred in the central, upper part of the ditch and it was this last phase which produced large numbers of pottery sherds, worked flint and charred material which returned early Neolithic dates. A further 432 sherds of pottery weighing 1327 g and 574 pieces of worked flint were recovered as well as quantities of burnt flint, pebbles and foreign stone.

Pits

Three pits were recorded in 2017 and a further six were located during the 2018 work. Only one pit produced pottery; this was associated with the ditch feature and may have been part of the pit-digging sequence there. A further five circular and oval pits were located north of these two features. Their fills were similar to that of the ditch and they also produced worked and burnt flint, pebbles and foreign stone. Three large, irregularly-shaped pits were probably small sinkholes which infilled during the Early Neolithic; the fills and finds were similar to those from the other pits on the site. A large lump of sarsen was retrieved from one of these pits.

Postholes

In addition to the seventeen postholes located in 2017, a further four postholes were revealed within the same alignment in 2018. Located to the north and east were sixteen further postholes which may also have been associated with this putative structure.

The post-excavation programme will examine, analyse and report all on finds and environmental materials alongside the construction of a site narrative, and submit samples for radiocarbon dating to determine the duration and sequence of activity.

The site is of high regional importance, and the excavation results will significantly add to the database of information for this under-represented and crucially important period of social and agricultural change.

Lilian Ladle, Bournemouth University
& Andrew Morgan, East Dorset Antiquarian Society

Rushmore Golf Course, Tollard Royal, Sixpenny Handley, ST 96444 18487

In January 2018, Wessex Archaeology monitored groundworks associated with works to improve the approach to the eleventh hole at Rushmore Golf Course, Tollard Royal. The work consisted of the machine excavation of three new bunkers, and the backfilling of four existing bunkers. No features, deposits or artefacts were detected during the works.

László Lichtenstein, Wessex Archaeology

Castle Close, Pound Lane, Wareham, SY 92181 87189

Wessex Archaeology undertook a watching brief during the removal of a 1980's conservatory, and the erection of a new replacement conservatory on a slightly larger footprint at Castle Close, Pound Lane, Wareham in April and May 2018. The ground works associated with the removal of the existing conservatory, and the subsequent excavation of ground beams and ground reduction to accommodate the foundations and raft for the new structure, did not unearth any archaeological features or any evidence of the castle keep at the depth to which excavation was undertaken. What was observed was a sequence of made ground layers varying from soils to sands and gravels intercut with the remains of the foundations of the pre-existing conservatory. No archaeological features or artefacts were encountered.

László Lichtenstein, Wessex Archaeology

St Edward's Church, Shatter's Hill, Wareham, SY 9210 8777

In March 2018 work associated with groundworks for a new car park at the Roman Catholic church of St Edward the Martyr were undertaken. The church is located on slightly elevated land south of the north bank of the town's Saxon defences. A single trench

measuring 6m long and 1.5 m wide with a depth of 1.3 m was dug for a soakaway. On the base of the trench two ditch-type features were recorded. An east-west linear related to mid-twentieth-century drainage work; this cut a narrower, earlier north-south linear. Finds associated with its fill included three sherds of Black Burnished Ware, one sherd of limestone-tempered Saxon pottery and four sherds of early medieval pottery. The topsoil which sealed these features was a homogeneous, black humic earth consistent with centuries of gardening activities.

Lilian Ladle, Bournemouth University

Land north of Oakley Lane, Wimborne Minster, SZ 02500 98800

In November 2018, Wessex Archaeology undertook trial trench evaluation, comprising 52 trenches on a 26-hectare parcel of land located at Land North of Oakley Lane, Wimborne. The evaluation revealed features dating from the Early Neolithic, Early Bronze Age, and Iron Age, as well as a large number of currently undated features. Finds dating from the Late Upper Palaeolithic/Mesolithic to the medieval periods were also recovered. The features included ditches, gullies, pits and postholes. Two pieces of Late Upper Palaeolithic/Mesolithic worked flint, a blade and a bruin, were recovered from a possible palaeochannel. Four pits contained Early Neolithic pottery, another pit contained a near complete Early Bronze Age collared urn. Two trenches had postholes forming semi-circular shapes, interpreted as roundhouses, and one of these postholes contained Iron Age pottery. Four semi-circular gullies, although undated, were also interpreted as possible roundhouses.

László Lichtenstein, Wessex Archaeology

Water Meadows, Winterborne Herringston, SY 69203 88354

Context One Heritage and Archaeology carried out a survey of water meadows at Winterborne Herringston. The survey provides an accurate plan of the layout of the Herringston water meadow system, and a record of the various sluices associated with it. The course of the South Winterbourne river was diverted onto higher ground to create a head main, and the associated carriers and drains cover the majority of the meadows. Furthermore, the layout of the system and the stone construction of the sluices suggests that the water meadow is likely to have been a relatively early establishment, certainly before the mid-eighteenth century, and probably seventeenth century. Later maintenance of the system using brick indicates its continued use into the later eighteenth or nineteenth century, but historic maps suggest that it had ceased to be maintained and was going out of use in the mid nineteenth century.

Clare Randall, Context One Heritage and Archaeology

Maiden Castle, Winterborne St Martin, SY 66562 88534

Context One Heritage and Archaeology carried out archaeological monitoring and recording at Maiden Castle as a condition of Scheduled Monument Consent for the replacement of fencing. The area of intervention was restricted to the location of this fencing utilizing existing fence post-holes with strainer posts situated along the inner rampart. A uniform topsoil occurred around the circuit of the fence, and as far as could be ascertained this was underlain by similar deposits in all locations. These darker grey brown silts, containing slightly larger chalk fragments, may relate to the upper layers of the dump material forming the rampart, but further observations of the nature, depth or variability of this material was precluded by the narrowness of the postholes and disturbance created by the original fence posts.

Clare Randall, Context One Heritage and Archaeology

Portable Antiquities Scheme 2018

CIORSTAIDH HAYWARD TREVARTHEN

In 2018 there were 1317 finds recorded in 1232 records for Dorset on the Portable Antiquities Scheme (PAS) database (finds.org.uk/database)

The work of identifying and recording these finds was carried out by the Dorset Finds Liaison Officer (FLO) and several other FLOs and PAS volunteers. As in previous years, Dorset has benefitted hugely from the work of many volunteers and self-recorders both working with the Dorset FLO and across the Portable Antiquities Scheme, supported by the PASt Explorers initiative (funded by the Heritage Lottery Fund). i

Of the finds recorded for Dorset in 2018, approximately half were of Roman date, 19% Medieval, the Post Medieval material accounted for 15%, 6% were of Neolithic to Bronze Age date, 5% dated from the Iron Age, 3.5% from the Early Medieval period. The remaining 1.5% includes finds from the Palaeolithic, Mesolithic and modern periods.

In addition to the material volunteered for recording, a number of potential Treasure finds were reported as required under the Treasure Act 1996 (revised). These included coin hoards, fragments of Bronze Age gold, Early Medieval and Medieval finger rings and Post Medieval buttons, bodkins and cufflinks. Both the Priest's House Museum and Garden and the Dorset County Museum continue to express interest in acquiring treasure items where funding allows.

Among the more unusual finds for Dorset in 2018 were eight coins of Early Medieval date. For comparison, nationally there were over 369 coins of this date recorded on the PAS database in the same period. They have a largely central and easterly distribution with the Dorset examples being on the western fringes (although there are a few outliers further west).

All eight coins are silver; four are seventh to eighth century early pennies or 'sceattas' and the remaining four are pennies and cut halfpennies of the later eighth to eleventh centuries, (in the later part of the Early Medieval period and beyond halfpennies and farthings were not minted as separate denomination but created by cutting whole pennies into fractions).

Sceattas:

1. DOR-70B66D (*c.* 675 – 750). On the obverse a stylised bust facing right in a stitched border and on the reverse a small bird facing right with a stitched double torc enclosing a snake (Series O, type 38, Abramson 113, no. 0120).

2. DOR-5B9807 (*c.* 685 – 700) On the obverse a triple diademed head right and on the reverse a bird on a cross within a serpent (Primary Series B, Cable border/ skeletal bird subtype, Abramason (2012) no. 1650).

3. DOR-AA10D9 (*c.* 700 – 765) On the obverse a 'Porcupine' and on the reverse a votive standard inscribed 'TOTII' (Group 94, Variety 10, Abramson 2012).

4. DOR-AD9846 (*c.* 715 - 730) of divided by saltires with central saltire / coiled serpent with radiate lines down back protecting cross and biting pellet), The SEDE type is probably an English variety. (Secondary Phase Series E SEDE type 89, Abramson 2006, 109, E700). John

Figure 1: DOR-70B66D (c. 675 – 750)

Figure 2: DOR-5B9807 (c. 685 -700)

Figure 3: DOR-AA10D9 (c. 700 – 765)

Figure 4: DOR-AD9846 (c. 715-730)

Naylor (pers comm) notes that this coin appears to be die-linked to a specimen in the Fitzwilliam Museum, Cambridge (MEC8, 324 Naismith 2017, pl. 11, no 324). These coins were identified by Ciorstaidh Hayward Trevarthen, Wil Partridge, John Naylor and Simon Maslin with assistance from Lucy Bevan and Rachel Mowbray.

Pennies and halfpennies:

5. DOR-EC1F88 A penny of Coenwulf of Mercia (796 - 821) dating to c. 796 - 805. On the obverse a Mercian M with contraction mark above within plain circle and on the reverse a Tribrach of three lines. Minted by Eaba of Canterbury. (Naismith 2011 type C14.2; North no 342).

Figure 5: DOR-EC1F88 (c. 796 – 805)

6. DOR-EA9AC7 A halfpenny of Aethelred II (AD 978 - 1016) of 'crux' type dating to *c.* AD 991 - 997. Bust facing left, holding sceptre in front on the obverse and on the reverse a short cross, voided with CRVX in the angles. Minted by the moneyer Heawulf. He is listed as a moneyer for this type at Chichester, London, Southwark and Winchester. (North 1994 no. 770; Jonsson and van der Meer 1990).

Figure 6: DOR-EA9AC7 (c. 991-997)

7. DOR-EB3F87 A penny of Edward the Confessor (1042 -1066) dating to 1046 - 1048. On the obverse a bust facing left, diademed with sceptre and on the reverse a short cross voided, a quadrilateral ornament over. Minted by Lifinc, probably in London. (North 1994: 179, ref: 817; Trefoil Quadrilateral).

Figure 7: DOR-EB3F87 (1046-1048)

8. SOM-FA6C66 A halfpenny of Edward the Confessor (AD 1042 - 1066), dating to AD 1050 - 1053. On the obverse a bust facing left, diademed with sceptre and on the reverse a voided short cross with expanding arms. Minted by an uncertain moneyer at Shaftesbury. (North 1994 no. 823; Expanding cross, heavy issue).

Figure 8: SOM-FA6C66 (1050-1053)

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Catchwork water meadows in west Dorset

DUNCAN HARRIS

The paper investigates the possibility that there were water meadows in west Dorset of the catchwork variety positioned on hillsides. Catchwork water meadows are an alternative design of water meadow when compared with the more often quoted bedwork water meadows of the seventeenth century that are located on floodplains, as are the more primitive 'floating upwards' systems. Catchworks have not been previously investigated in Dorset. Within the category of catchwork water meadow are several variations, most of which can be identified in the examples in the fourteen parishes covered by Beaminster Museum. The method was to investigate tithe map apportionments. The accompanying explanatory tables provide details of plots and their agricultural use, in the limited area of those parishes where fields were classed as 'Water Meadow' or 'Water Mead'. These fields are compared with later Ordnance Survey maps of the late nineteenth or early twentieth century with the purpose of identifying possible sources of water. Where practical, site visits were undertaken and proposals are suggested for the way in which the water meadows operated.

Introduction

During a study of the tithe maps and apportionments of the parishes in the area served by the Beaminster Museum it was noticeable that there were many fields called 'Water Meadow' or 'Water Mead'. First, it is important to distinguish three basic types of water meadows (Taylor, 2007):

- *Bedwork:* on the level with ridges carrying a water channel. The water flows along and over the ridge and through the grass sward down to a hollow between the ridges.
- *Catchwork* (also sometimes called catchmeadows) on slopes with water channels along contours
- *Floating upwards:* here sluices or hatches control the level of the river or stream to enable low lying ground to be flooded.

Some of the early catchwork water meadows may have been associated with monastic houses (Cook, Stearne, Williamson 2003, 159, 160). We may be sure there have been such water meadows from at least the sixteenth century (Taylor 2007, 31), although later in Cambridgeshire (Taylor 2007, 29). Meadows of catchwork designs were also constructed in Staffordshire (Breeze, Challis and Kincey, 2008, 7) and also in Nottinghamshire in the eighteenth century, and more particularly nineteenth century (Hillman and Cook 2016). In the nineteenth century, catchwork water meadows were used to enhance agricultural production in areas such as Exmoor (Curtis 1971, 23-24) and they employed piped sewage irrigation in Edinburgh (Taylor 2007, 29) and elsewhere.

Scrutiny of Ordnance Survey (OS) maps from the late nineteenth and early twentieth centuries suggests that most of the fields named probably could be former water meadows, specifically of the catchwork variety. As most sites appear to have been abandoned by the period of the tithe maps (1835-45), it was anticipated that there would be little or limited evidence for the actual layout of the water meadows. However, the way in which these water meadows had functioned can sometimes be deduced from early OS maps. Site visits were essential to enable more detailed descriptions.

Catchwork water meadows may have been in use in the twelfth century (Taylor 2007, 31) and it is possible that the Romans constructed them (Taylor 2007, 33). These water meadows used spring water or hillside streams to irrigate valley sides or hill slopes. If neither of these water sources were available, rainwater and farmyard run-off was collected in a specially constructed feeder pond. Water was diverted from sources into a ditch parallel to a contour, called a gutter, which skirted the top of the meadow. There may be a set of parallel gutters down the slope fed by channels. In some arrangements there were complex sets of gutters oriented in different directions within the same field and a system of downslope feeder channels (Smith 2013, 3). Since the gutter was blocked at one or both of its ends surplus water overflowed down the hillside and collected in gutters further down the slope (Fig. 1). Alternatively where downslope

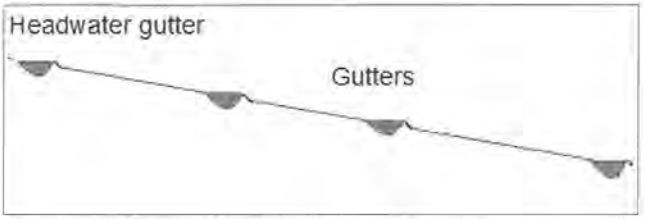

Figure 1: Diagram of gutters along contours down a slope. The bottom gutter would collect any surplus water and feed it back to a lower level of the water source.

channels permitted drainage there was more control and each section could be watered separately. The number of gutters depended upon the soil type and the incline of the slope, there would have been fewer on non-porous soils such as clay and for shallow slopes, and more on porous soils and subsoils and on steeper slopes.

In the South West of England, a subset of catchwork water meadows called 'integrated systems' may be found. The source water passes alongside a farmyard allowing the liquid manure there to be washed down the meadow (Williamson and Cook 2007, 28-29). The purpose being to add organic amendments on poorer hillside soils.

The area of study and purposes of water meadows in the area.

Of the 14 parishes covered by the area served by the Beaminster Museum those with named Water Meadows and Water Meads are shown in Table 1.

The water meadows vary in size from about 1 acre (about 0.4 hectares) up to 10 acres (about 4 hectares). There may also have been water meadows in the other parishes on sites which do not appear on the tithe maps labelled 'Water Meadow' or 'Water Mead'. To date fourteen identified sites have been visited.

Only three sites on the tithe maps were associated with water mills (Table 3), all of which have been visited. There were more possible water meadows associated with 40 or more former water mill sites in the 14 parishes in the Beaminster Museum area (Harris 2018) that were not identified as 'Water Meadow' or 'Water Mead' on the tithe maps.

It is most likely that these water meadows were developed to graze sheep rather than cattle. Sheep were an economically important for the parishes in the area until at least the nineteenth century. The downs at Hooke were enclosed in 1620 for sheep (Harris 2005,

Table 1 Parishes with named Water Meadows and Water Meads on the Tithe Maps

Parish	*Date of Tithe Map*	*Number of named Water Meadows and Water Meads*	*Number associated with mills*	*Total area of water meadows Acres/hectares*
Beaminster	1843	6	1	34/13.6
Broadwindsor	1840	5		23//9,2
Hooke	1840	2	1	4/1.6
Mosterton	1840	2		8/3.2
Netherbury	1835	1	1	2/0.8
Stoke Abbott	1841	1		5/2
Thorncombe	1839	1		4/1.6

Table 2 Water meadows on farms

Field number	*Size (acres)*	*Visited 2018/19*	*Gutters*	*Water source*	*Accessible*
Beaminster 688 (C)	5	May, July 2018	Some	Partial	No
Beaminster 734 (C)	8	No*	?	?	No
Beaminster 824 (C)	3	To be arranged	?	?	No
Beaminster 1239 (C)	8	Arranged	?	Possible	No
Beaminster 1321 (C)	8	May 2019	Possible	Possible	No
Broadwindsor 40 (C)	4	September 2018	No evidence	No evidence	No
Broadwindsor 80 (C)	3	September 2018	Some	Possible	Yes
Broadwindsor 349 (C)	4	August 2018	No evidence	Possible	Edge
Broadwindsor 851 (C)	2	August 2018	No evidence	Possible	Edge
Broadwindsor 1476 (C)	10	Arranged	?	Possible	No
Hooke 16 (U)	2	August 2018	None	Yes	Yes
Mosterton 75 (C)	5	August 2018	No evidence	Possible	Edge
Mosterton 162 (C)	3	June 2019	Possible	Possible	No
Stoke Abbott 111 (C)	5	September 2018	Some	Possible	Yes
Thorncombe 1387 (C)	4	June 2019	Possible	Yes	No

C Catchwork water meadow; U Upward floating water meadow.

*This site was made into a plantation circa 1990.

Table 3 Water meadows between mill leats and source water

Water mill and field number	*Size (acres)*	*Visited 2018/19*	*Gutters*	*Water source*	*Accessible*
Buckham, Beaminster 1228(C)	5	May 2019	Possibly two	Yes	Edge
Hooke 34 (C)	2	August 2018	One	Yes	Edge
Netherbury 359 (C)	2	October 2018	None	Yes	Yes

45; Taylor 2004, 128). In the late eighteenth century there were well over 10000 sheep in four parishes: 1180 in Mapperton, 2825 in Netherbury and 3555 in Stoke Abbott (Minchinton 1955, 162-73). At Beaminster there were about 3000 sheep (Hine 1914, 44). The sheep were kept on the downs during the day and taken and into the valleys for the nights where they were enclosed by hurdles (folded) in order to fertilise the fields. Water meadows have the potential of extending both the grazing period and the production of hay during the year, thereby increasing the size, health and value of the flocks.

The individual flocks of sheep belonging to each farmer were usually quite small, often less than 100, so they could be grazed on relatively small water meadows. These might be formed by the enclosure of ancient common meadows to provide much needed early spring grass (Taylor, 2004, 130). Cheap labour meant that the landlord, landowner or occupier may have invested in the development of the water meadows, as occurred in Nottinghamshire (Hillman and Cook 2016, 92).

Methods used during the study

Tithe maps, apportionments, older Ordnance Survey maps and local knowledge were used to identify and locate possible water meadows. Maps also provided information on the water sources.

The identification of former water meadows could be difficult on site, particularly when the gutter had been removed by digging or ploughing. If the water meadow has not been used for some years, the gutters silt up, however, the ridge at the lower part of the gutter often remains to identify the system. Where the field has been ploughed regularly the remains are less visible. The summer of 2018 was particularly dry so surviving features were easier to identify than in other years. Site visits were initiated on fields near to or on public footpaths, bridleways or roads, and fortunately, at some sites owners were ready to provide the history of the site and local knowledge — in particular whether it had ever been ploughed. Permission was obtained from owners to also visit surrounding fields and related features.

The ridges and water sources were used as the main indicators for those meadows that were visited. In many cases the possible source of water and the outlets remained and these were located by visiting surrounding fields. Photographs were taken of the sites upon which the observed positions of the ridges were super imposed. The remaining channels and ditches in, or at the edges of, fields, and their relationships to water sources such as ponds, springs and streams were noted and photographed. Drafts of the photographic and mapping reports were sent to the owners and these sometimes generated a reply providing further information.

The additional mill sites had evidence of potential water meadows between the mill leat and the source water. From an analysis of fields between the leats and source water of mills there were ten meadows that had the potential of being former water meadow sites. Four sites were problematic and eliminated from the study: Greenham Mill and Sandpit Mill in Broadwindsor may have once had water meadows but landscape changes made the evidence very unclear; from a site visit in August 2018, the possible water meadows at Netherbury Mill were seen to be either too small or not likely to have been flooded; the area of the former possible water meadows by Westford Mill in Thorncombe has a railway line running through it and has been redeveloped eliminating evidence; the

Table 4 Possible sites of further water meadows associated with mill leats

Water mill	*Field number(s)*	*Size (acres)*	*Visited*	*Gutters*	*Accessible*
Whetham	Burstock 16, 17	1,2	October 2016	Possibly	No
Corscombe	Corscombe 918	2	May 2018	No	No
Clenham	Netherbury 1404, 1408	2,1	September 2018	Yes	Yes
Slape	Netherbury 569	9	October 2018	Possibly	Yes

two meadows at Horsehill Mill in Stoke Abbot were both under 1 acre (0.4 hectare) and probably too small to be worth the investment of time and resources to contstruct an intricate watering system.

The remaining water meadows associated with water mills and not labelled on the tithe maps are shown in Table 4. It seems possible that some of the mill leats developed from the ditches for earlier water meadows.

Of the 14 parishes in the area served by the Beaminster museum nine are represented in the Tables 1- 4.

Information from tithe maps, apportionments, Ordnance Survey maps and site visits to fields

Table 2 shows the sites identified on the tithe maps and including additional available information. The field numbers reported are as on the tithe maps. Those marked 'C' are catchwork water meadows, those marked 'U' are floating upwards water meadows. Where water meadows are shown as accessible there is a public bridleway or footpath through the meadow, where the comment 'Edge' is entered it is possible to get to one boundary; the comment 'No' means no public access near the site. At the time of writing, arrangements are in place to visit two of the remaining sites.

Ten of the water meadow sites visited have possible ridges left from what may have been the gutters: three at Beaminster (one between a watermill leat and water source), one at Broadwindsor, one at Burstock (between the watermill leat and water source), one at Hooke (between a watermill leat and water source), one at Mosterton, two at Netherbury (both between watermill leats and water sources) and one at Stoke Abbott. At the other sites ridges may have been ploughed out or the land re-landscaped so that no ridges can be seen. Otherwise water meadow sites mostly had sufficient features to identify how they possibly worked.

In the following section four examples are given for types of water meadows:

1. Evidence of former gutters at Beaminster (Figs 2 to 5),
2. Little remaining evidence at Broadwindsor (Figs 6 to 9),
3. Meadow located between the mill leat and water source at Hooke (Figs 10 to 12).
4. A possible water meadow that is not identified on the Netherbury tithe map between a mill leat and source water (Figs 14 to 17).

1. An example of a water meadow on a farm with evidence of former gutters at Beaminster.

At Beaminster the site visit provided considerable further information besides what could be determined from the tithe map (Fig. 3). To the left of 'A' reeds growing across the field denote a boundary between Greensand and the Fullers Earth Clay, the latter being impervious causing groundwater water seepage. The field has had a field drain system installed, so the original spring at 'B' is no longer functioning. The source of the water from 'A' to 'B' is thus supplemented by ground water. In winter there is a lot of water available, mostly from surface water runoff.

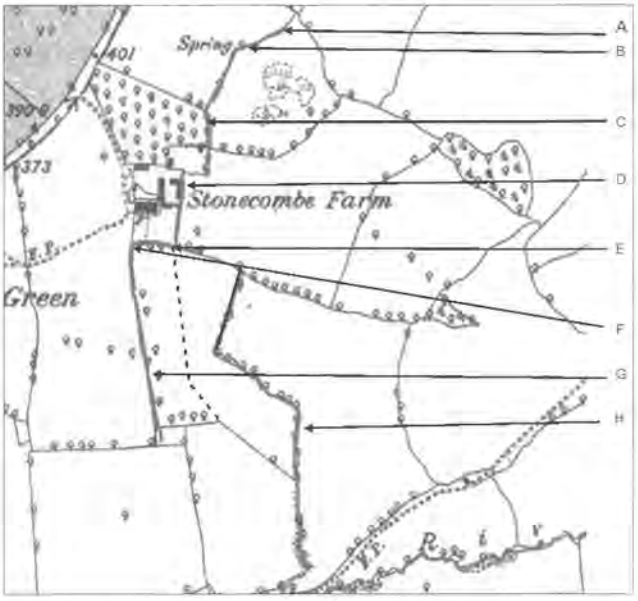

Figure 3: Enlargement from six-inch OS map 1888 Dorset XXIX. NE. The darkened lines show the ditches and the remnants of the gutters superimposed. The original stream bed went down the middle of the field.

Figure 4: Enlarged lower section of field. Three possible ridges shown with dotted lines, from the right towards the centre gully. The gutter farthest away is near the hedge jutting out from the right which is just north of the original field boundary (see Fig. 2).

At 'B' there is a deep depression which could have been formed by scouring of the saturated Greensand from the spring. The ditch continued by the side of the orchard at 'C' to the side of the farmyard at 'D' before taking a sharp right-angled bend (obviously man-made), at 'E', with a further right-angled bend at 'F'. There is a ditch both sides of the field at 'G' and 'H'. The ditches each side of the field drain off into the River Brit. The farmyard sloped down to the section between 'E' and 'F' so the nutrient load would have fed into the ditch, suggesting an integrated system, and that the style of the water meadow bears some relation to that at Cloggs Meadow in Somerset (Smith 2013, 4).

The field slopes, and with the large water supply which occurs in winter it would be easy to block or partially block the bend at 'F' to cause water to flow down the field, possibly supplementing each gutter from the ditch alongside. There was evidence of a type of clay field drain from a recent excavation by Wessex Water in the field, suggesting nineteenth- or early twentieth-century drainage. According to the farmer, the field may have been ploughed in the Second World War. Since the geology is Fullers Earth Clay there is little soil permeability. The very dry weather of 2018 enhanced some ridges: on the west side of the stream bed there were three ridges remaining which may have originated from the water meadow gutters. Two less well-defined ridges were on the east side of the field.

The system may have been used as follows: The left-hand side of the channel between 'E' and 'F' is blocked at 'F', possibly with turves or a sluice. The water overflows to the next gully in the field and drains off into the central stream bed where the gutter is partially opened, the other end of the gutter being blocked with, say, turves. This meadow may have been watered by compartments: after the first part of the field is irrigated, the channel between 'E' and 'F' is re-opened. The left channel of the first gutter is opened to channel 'G' and the end nearest the old stream bed is blocked. This gutter overflows to the next gutter which is blocked at the 'G' end and partially opened at the old stream bed end to allow drainage. The pattern likely continued downslope until all of that side of the field has been irrigated. Alternatively, the whole field may have been irrigated on the hillside by the careful adjustment of all the entries and exits from the gullies, but this would be a much more complex operation.(Hillman and Cook 2016, 77)

Figure 5: Water meadow field from North. A gully can be seen coming from the bottom right-hand corner of the photograph, where the dashed lines are, going down the field. This gulley was proably the the orginal stream bed follwing the line of the stream before the right-angled bend at E (see Fig. 3).

A similar process would occur on the east side of the field, the opposite side of the central channel (Fig. 4) where no gutters are marked on the left of the picture. Here the feed is uncertain. The feed could have been from the extended ditch from 'F' and 'E' in an eastward direction (Fig. 2). Today the ditch at the top of the field flows towards 'E', however that may have been changed in direction when the land drains were installed. Alternatively, the ditch 'H' on the east side of the field may have fed into a gutter near the top of the field. A set of gutters on the east side of the field, where two small ridges were observed, could have functioned in the same way as those on the west side of the field. The gutters would have had an outlet into the original stream bed in the middle of the field (Fig. 5). Both sides of the field may have had more gutters when in operation. The overflow from the final gutters could have fed into the original stream bed allowing any overflow to feed into the river near the bottom of the meadow. On the tithe map there was field boundary adjacent to the position of the lowest gutter (Fig. 4). The ditches still had some water in them during the dry spell of 2018 and the landowners stated that in winter they are full to the top. While other fields on the farm also had field drains none had any ridges.

2. An example of a water meadow with little remaining evidence at Broadwindsor

At Broadwindsor the monoculture of a single grass crop in the field identified on the tithe maps as number 349 and described in the tithe apportionment as a water meadow suggests that the field has been

Figure 6: Broadwindsor tithe map, field number 349 is named as identified as water meadow on the accompanying apportionment (4 acres).

Figure 7: Broadwindsor section from 1904 six inch Ordnance Survey map Dorset XX.SW. The water meadow is marked 'X'.

ploughed and re-seeded (Fig. 6). However it was not possible to identify the owner for verification. The water meadow may have been either fed from higher up the stream or from the spring (see Fig. 7). There is very little clear evidence left on the ground (Fig. 8) apart from the dry ditch (Fig. 9) which seems to have no other purpose that to feed water from the field back into the stream. The evidence from the tithe map and apportionment at Broadwindsor are definitive, but the remaining physical features might easily be interpreted as simple drainage, rather than as part of a planned water meadow system.

Figure 8: Broadwindsor: there is a gentle slope from the top right by the hedge to the left-side hedge where there is a stream. There is also a ditch on the right side, also shown in Fig. 9.

Figure 9: Broadwindsor: ditch on right side of field.

3. An example of a water meadow between a mill leat and a water source at Hooke Flax Spinning Mill

At Hooke it would appear the level of the water in the leat was controlled by a sluice (Fig. 11, bottom left). A further sluice would have been at the top of the overflow channel which ran between fields 34 and 35 (Fig. 10). It may have been possible to cause the leat to overflow across the fields 148 and 34. There may also have been a further gutter lower down field number 34 (see Fig. 12) which may have been the original run of the leat for water meadows. It is possible that the ridge was the original line of the leat which only served the field, being enlarged and re-routed when it was also used to feed the flax spinning mill.

The water meadow was ploughed during the Second World War and more recently was observed by the author to have been ploughed again in the

Figure 10: Hooke tithe map and apportionment 1840, field number 34 is identified as Water Meadow on the tithe apportionment. Number 148 is also a possible water meadow although not listed on the apportionment

Figure 11: Remnants of leat at Hooke in 1870 (Original in Hooke Church; taken from a copy in Beaminster Museum)

Figure 12: There is a ridge in the field. The ridge follows the dotted lines roughly where the horse is standing going from right to left on the photograph along a contour. The hedge line is the route of the river.

late 1990s and early 2000s. The bottom of the field has reeds, suggesting that it remains water logged possibly with drainage impeded by clay. A farmer in Hooke (now in his late 80s) and who was born and brought up in Hooke, states that he remembers older people telling him that both the fields 34 and 148 were used as water meadows, suggesting their use into the twentieth century.

Field 16 is on nearly level ground with natural banks along the edges. It is in a field known as the Water Meadow which contains a house known as Water Meadow House. The author has seen it flood after heavy winter rainfall. On the Ordnance Survey map of Dorset XXX.NW 1887 there is a sluice shown to control the flooding: on site visits it was clear that this was an upward floating water meadow most of which was located to the west of the river. This meadow was also of the upward floating variety (see Fig. 13).

Figure 13: Hooke tithe map, showing field 16

4. An example of possible water meadows between a mill leat and source that does not appear on a tithe map.

On the Netherbury tithe map of 1835 there were potential water meadows at Clenham Mill that were not identified as such in the apportionment. The field numbered 1404 is called Lower Meadow in the tithe apportionment, and is a meadow of 2 acres, or 0.8 hectares. Field number 1408 is identified as Claire's

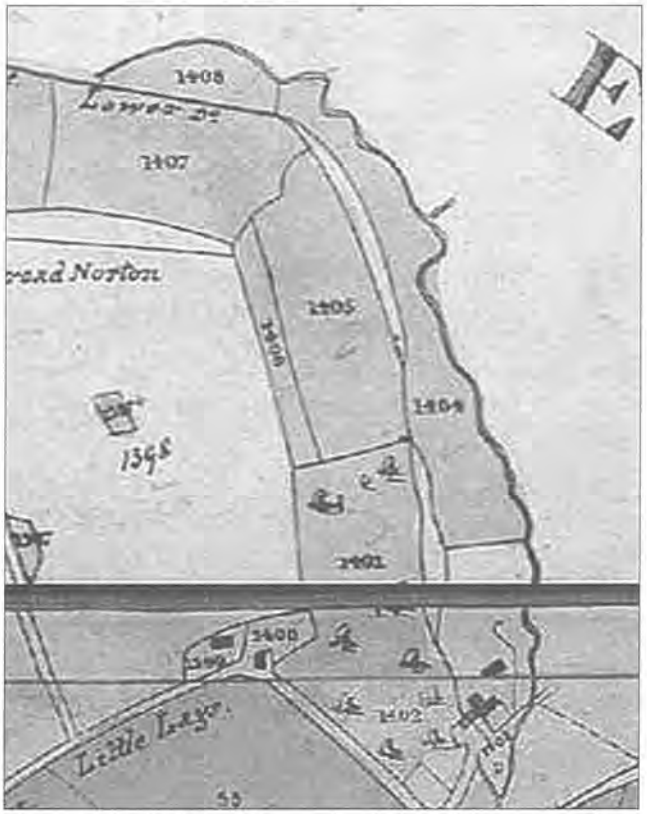

Figure 14. Netherbury tithe map showing possible water meadows: field number 1404, was called Lower Meadow and 1408, called Claire's Wood, was identified as a meadow .

Figure 15: Enlargement from the six-inch 1904 OS map Dorset XXIX.NW. The ridges are shown with dotted lines (see Fig. 16)

Figure 16: Netherbury field 1404. The ridge around the field emphasised with dotted lines

Wood, meadow (measuring less than an acre, or 0.4 hectares, (Fig. 14).

The dotted lines in Fig. 16 show the current rough lines of a ridge which could have been a gutter fed from the leat. The bank at the top of the field on the left is the leat bank, below this is the ridge which may have been a gutter to control the flow of water over the field. The ridge goes round the corner shown by the dotted line. The leat could have been caused to overflow by means of the sluice shown on the map (Fig. 15).

The hollow shown lit by the sun in Fig. 17 is roughly where the arrow points to the letters 'FB' on the 1904 OS map (Fig. 15). To the right of the bank (Fig. 17) at the top is the leat. It is possible here that the leat could have been permitted to overflow down this bank or there could have been a gutter in the top section. There were no further obvious clues on the ground.

Figure 17: Netherbury part of the rest of the meadows

Conclusions

The tithe maps, apportionments, and Ordnance Survey maps give some indication of the possible sources of water, but there was no information about the steepness and directions of the slopes involved because the contours on the Ordnance Survey map were too widely spaced. Fieldwork was essential to fill in these and other details.

To date, only ten water meadows have revealed any trace of ridges where the gutters could have been. For most of those visited, it has been possible to work out how the meadow was fed from a water source, extrapolate the drainage system for the field and to infer the way in which the meadows functioned. So far no owners have given permission to dig out the ridges to find their form and structure. However, because of the very dry weather, basic observation has, perhaps, provided adequate information.

The water meadows visited are either fed from streams and springs or are between the leat and water sources of mills. In two cases there also appears to have been the use of farmyard run-off to provide nutrients. There is some evidence of possible gutters remaining in ten of these water meadows, and for others it is clear how they functioned, although some have probably not been in use for up to 200 years. The current active watercourses and their relationship to farms support these conclusions.

There is clear evidence for catchwork water meadows in the area served by the Beaminster Museum in west Dorset. The current state of the project, with more details about each water meadow, is available at Beaminster Museum and the Dorset History Centre, and will be updated when further field work is completed.

Dependent on the owner's or farmers' permissions for access, it is hoped that further work will be carried out on the remaining identified fields, most of which are inaccessible from public footpaths or roads. More resources such as trench digging, soil analysis and aerial photography would enhance the information. In addition, further work is needed to investigate other fields in all fourteen parishes to see if any further fields may have been water meadows in the past.

Catchwork water meadows have received relatively little attention compared with other systems. They were clearly sufficiently important to the local economy in the sample area of West Dorset for landowners to invest significant capital in their management and maintenance.

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Professor Duncan Harris retired as Head of the Education Department at Brunel University in 1994. He and his wife moved to Hooke in Dorset in 1995 and Beaminster in 2004. He completed an Advanced Diploma in Local History at Oxford University in 2009. He has written or co-authored seven books on local history, the most recent being *The Old Mill by the Stream: History of Water Mills in and around Beaminster.* His current research interests are water meadows, water mills and drovers.

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Dorset History Centre:

Tithe maps and apportionments, all 1839-1846:

Beaminster T/BE

Broadwindsor T/BDW

Burstock T/BSK

Corscombe T/COR

Hooke T/HOO

Mosterton T/MSN

Netherbury T/NBY

Stoke Abbott T/STA

Thorncombe T/THO (1924 revision)

Devon Heritage Centre:

Tithe maps and apportionments, 1839-1846:

http://www.devon.gov.uk/tithemaps.htm

Post-Roman Purbeck and a further consideration of St Aldhelm's chapel

DAVID A. HINTON

New information on the archaeology and documentary history of the Isle of Purbeck in south-east Dorset permits a challenge to the proposal that a church on a headland in Worth Matravers parish dedicated to St Aldhelm was replaced by the extant late-twelfth-century building. Instead of viewing an early twelfth-century history as hagiography except for the dedication, the inverse argument is put that the account is basically true, apart from the dedication.

In his paper in the most recent *Proceedings*, Professor Nicholas Orme discussed the problems associated with an account by William of Malmesbury, writing early in the twelfth century, about a purported visit to south-east Dorset made in the late seventh century by Aldhelm, while abbot of Malmesbury. William stated that Aldhelm had built a church while waiting for a boat, that the church had become ruinous, but still gave shelter to shepherds, and that people went there for healing on Aldhelm's feast day. William did not name the location of the church, but said that it was near Corfe and Wareham, two miles from the sea. Professor Orme argued that most of the many suggestions that have been made about that location should be discarded because they take William of Malmesbury's words at face value, not as hyperbolic hagiography written to inflate Aldhelm's reputation (Orme 2018). One speculation not considered by Professor Orme also expressed doubt about the total reliability of William's account, but was less dismissive of it, agreeing that Aldhelm indeed did not build a church — he would not have had the time — but proposing that he visited one that already existed (Hinton 1994, 11). Further discussion requires a review of both the documentary and the archaeological evidence that has become available for the area in recent years, enabling reconsideration of aspects of the transition from British *Durngueir* to Anglo-Saxon 'Dorset', in the words of Asser writing in the late ninth century (Keynes and Lapidge 1983, 82), and feeding into the wider debate about the nature of the 'Anglo-Saxon' take-over of most of Britannia in the fifth to eighth centuries.

Memorials, burials and production

There is no charter or other evidence to show when south-east Dorset came under the control of the West Saxon kings, but it is unlikely to have been much if at all after *c.* 700 – King Ine (688-726) would not have placed his sister in Wimborne if it had been close to an area that did not acknowledge him. Political control did not necessarily lead to immediate cultural change, however. A new and very complete discussion of the carved stones preserved in Lady St Mary church, Wareham, has shown that the inscriptions on five of

Two of the inscribed stones and two pieces, probably frpm grave markers, displayed in St Mary's church, Wareham: photo by Jerry Bird

them cannot be dated with absolute certainty from the lettering, but that the names on them are undoubtedly British and post-Roman, with dates possibly from the fifth century into the early ninth, though centering on the seventh/eighth; they are still by a long way the most easterly of their sort known (Higgitt 2006, 65, and catalogue discussions 118-24). They are cut into Roman masonry, from Inferior Oolite limestone of the sort found in abundance in south Purbeck. Also in St Mary's are four broken grave-markers which Professor Rosemary Cramp has shown to be broadly of the same period as the memorial stones, and not tenth-/eleventh-century as previously thought; they are unlike anything in the 'Anglo-Saxon' sphere (2006, 116-18). They do not seem to be reused architectural fragments, but are geologically similar to the inscribed stones. So even though there is no direct evidence that all these fragments came originally from a British predecessor of St Mary's in Wareham, they had not come from far away. Both the grave-markers and the inscriptions 'suggest a British link with the Gaulish church' (Cramp 2006, 117). Professor Barbara Yorke's judgement that the stones 'imply the presence of prominent British Christians [...] after the official conquest of the area by the Anglo-Saxons' (1995, 70) remains valid; presumably descendants of those who had lived in the island under the Roman administration were able to boost their identity by overseas contacts. The early church of St Mary was demolished in the nineteenth century, but is now generally agreed to have been built at the very end of the eighth/start of the ninth century as a mausoleum for King Beorhtric (786-802), who was buried in Wareham, because of its close comparison with the Mercian church at Brixworth, Northamptonshire, recently redated from the seventh to the later eighth century (Parsons and Sutherland 2013, 196-7).

Neither inscribed stones nor grave-markers have been found in the two Purbeck cemeteries excavated in modern times and radiocarbon-dated to the seventh to ninth centuries AD: Ulwell (Haddon-Reece 1988) and Football Field, Worth Matravers (Krus 2018). They are therefore broadly contemporary with the inscriptions (one of the seven dates at Worth, SUERC-61181, is significantly earlier than the rest and should perhaps be discounted, although still post-Roman). The bodies in both cemeteries were laid out with heads to the west, in the Christian manner, and were in orderly rows, showing careful organization. There were practically no grave goods, though some graves were lined with stone slabs, possibly a status indicator. The only object found at Football Field is a buckle similar to Anglo-Saxon ones in its shape, but not in its method of fixing, and so probably came from outside the area controlled by the West Saxon kings (Hinton 2018). Like the Wareham stones, the cemeteries span the period when the 'British' on Purbeck were coming under those kings' domination, and show that there was no immediate change in burial customs in 'open' cemeteries any more than is seen in the stone memorials. Furthermore, like them, continental influence may lie behind the use of stone slab linings.

Lack of evidence of rural, agricultural settlements remains a problem in establishing what happened on Purbeck after AD 407-11 and the formal end of Roman control. Recent work has shown that its pottery industry survived, on a reduced scale, well into the fifth century, with the distinctive if comparatively crude 'South-East Dorset Orange Wiped Ware' replacing the Black-Burnished wares that had had a very wide distribution; the modern name indicates the much more limited local, western, distribution of the vessels that continued to be made (Gerrard 2010; the pottery has since been found at other Dorset sites, but not to the east of Poole Harbour). Sherds have been found at the Bucknowle Roman villa, which is a significant pointer to continued activity there (Light and Ellis 2009). To the east of present-day Wareham, sherds have been found at Bestwall Farm, where at least one sunken-featured building was post-Roman, though not of the normal type found in Anglo-Saxon areas. No evidence of post-Roman shale-working or quarrying has been found, and salt-making is not mentioned until Domesday Book, when it was well established, so could have continued from the Roman period at a reduced scale. More positive evidence of production is iron smelting at Bestwall Farm, where pits containing large amounts of charcoal gave radiocarbon dates from the fifth to the tenth centuries, with the seventh and eighth centuries predominant. Significant production activity was also taking place at Wytch Farm and at Worgret, where a mill, dated to the late seventh century by dendrochronology, was excavated, and seems likely also to have been associated with iron production (Ladle 2012, 119 and 322-3). These new discoveries do not show a break between 'British' and 'Anglo-Saxon'.

Despite all the metal detecting that has taken place in recent years, Purbeck has still produced no Anglo-Saxon objects of the sort that are so common a few miles away on the Isle of Wight; in Dorset generally, there are very few from the fifth/sixth centuries, rather more from the seventh. Two glass beads found near the shore at Ower

are both probably continental (Guido 1987), showing the same links with Gaul as the Wareham stones. 'South-East Dorset Orange Wiped Ware' has not been found east of Purbeck. This all suggests little interaction between the neighbouring communities, although the iron produced around Wareham might have been expected to lead to exchanges of some sort. This may have begun to change in the eighth century, with coins of the type that were circulating in eastern England being found in Dorset to a greater extent than previously thought, pointing to commercial development (Costen and Costen 2016, 9-12); the only new record of a coin in the south-east of the county, however, is reported as being found 'near Corfe' and may have been early eighth century (EMC no. 2003.0002). Another was said to have come from Wareham in 1948, but the information about it was verbal and the coin cannot now be located — it may have been Roman (Rigold and Metcalf 1984, 265; it is not on EMC). Otherwise, the only evidence of activity inside the later town remains a single potsherd (Hodges 1977, sherd 2).

Survival of a British enclave into the eighth century might be expected to have had an impact on Purbeck's place-names, with a higher incidence of British language elements than in other areas. The sole relics of the older language are topographical, however, as is often the case, with the only settlement name being Creech, derived from the British word for hill, and some river and stream names like Frome. Most place-names are only recorded after 1066, but the Purbeck charters use words for boundary markers that appear to be Old English, not Celtic (e.g. Mills 1977, 30-3), and the local vernacular speech had probably therefore made the transition by the middle of the tenth century. A slightly earlier record is of the name Wareham, in the late ninth-century Anglo-Saxon Chronicles, in Asser's Life of Alfred, and in one version of the Burghal Hidage (Keynes and Lapidge 1983, 82 and 193); it is Old English *wer-ham*, meaning '[at the]weir', and either '[by the] homestead' if the second element was *hām*, or '[in the] meadow]' if it was *hamm* (Mills 1977, 152-3). The discovery of the Worgret mill, which was probably supplied by a leat, implies water management and gives credibility to the existence of a weir.

One Old English place-name that has received attention recently is 'Kingston', used of places that show a significant correlation with Roman and other ancient routeways; the Kingston in Corfe parish may well be on a north-south Roman road leading to the causeway across the Frome on the south side of Wareham (Bourne 2017, 22), but it was also on an east-west route, attested by a *here-path* in the charter of *c.* 948. This track's westward direction is unclear, but may eventually have led to Dorchester; eastwards, it looks as though it is followed by the present B3069 road towards Swanage, although the very exposed shoreline there makes it an unlikely regular landing-place. The argument that Kingston place-names in Dorset and west Hampshire were in a line is not enhanced by bringing the Corfe example into play, but does support the concept that there was some relationship between these places and communications (Bourne 2017, 23; Blair 2018, 224-6). It also supports the interpretation that the names were not applied to estate centres, as 'Kingston' is not used in the Purbeck charters. Instead, it first occurs in Domesday Book, but that would have been after William I had acquired Corfe from Shaftesbury Abbey, so that name would no longer have been appropriate for their remaining land. The probability is that the nuns' centre was at Corfe in 1066.

Whether the Corfe estate existed as a unit before the royal donations recorded in the tenth century is unknown, but King Beorhtric's burial in Wareham in 802 implies a large royal holding, and probably a residence. There is no reason why that should have been as distant from his mausoleum-church as Corfe, though no trace of it has been found in Wareham — recent excavation in Wantage, Oxfordshire, has shown how a 'palace' may be close but not exactly adjacent to a minster-church, but also how vestigial surviving evidence may be (Lewis 2016, 39). Wantage had nothing to imply that a British royal centre on the same site was taken over, and the same remains true of Wareham.

St Aldhelm's *ecclesia*

The main implication of all this for Aldhelm's putative church or chapel — Professor Orme demonstrated that when William used the word *ecclesia* either translation is permissible — is that Purbeck had a flourishing British Christian community during the bishop-saint's life-time. Professor Orme suggested that William of Malmesbury had no adequate source for the whole story of his hero's visit to south-east Dorset and building of a church, but as a hagiographer created a reason for Aldhelm to have been in Dorset, to visit his estates before going to Rome, and was waiting for a boat — a detail that admittedly is suspiciously similar to the story in the life of St Willibald about his waiting for a ship from Saxon Southampton to take him across the Channel a few years later, but which is given some

credence by the likelihood that iron production was on more than a local scale and involved transport, so that suitable boats were operating through Poole Harbour.

Aldhelm was active at a time when 'Anglo-Saxon' kings were taking control of southern England and were accepting Christianity according to the practices of the Roman Church introduced by St Augustine in AD 597. This gave a political overtone to the disputes that inevitably arose with 'Britons' in the south-west who practised their Christianity differently and who 'had fallen to the lot of the West Saxon kings'. William of Malmesbury exaggerated Aldhelm's efforts to correct 'these unhappy people' 'wrong in their religious belief', but he certainly wrote to them in conciliatory tones, so that they 'should not be driven by force, but led by reason' (Preest, trans. 2002, 215). Some details in this account do not ring true — not least that Aldhelm's letter had caused the south-western Britons immediately to change their ways, and they were surely not 'called the North Walians, that is the North Britons'. Nevertheless, a version of Aldhelm's letter that survives indicates good relations with them, as seemingly does correspondence with Sherborne Abbey (Yorke 1995, 179). In those circumstances, Aldhelm might have visited a British church if he was in the area — and possibly have tried to preach its congregation into submission to Roman practice. On that interpretation, he did not 'build' a church, but might have blessed one that already existed.

Professor Orme suggested that William of Malmesbury had been told about a ruinous church on Purbeck and accepted that there was indeed such a building in the early twelfth century. He also accepted that local people associated it with Aldhelm, though not that Aldhelm himself had built it, or that it necessarily existed in the late seventh century, or that William was correct to place it two miles from the sea; instead, he advocated that it was on the site of the surviving late twelfth-century chapel dedicated to the saint in Worth Matravers parish on the headland of a medieval estate owned by Cerne Abbey. The alternative hypothesis, that a church or chapel indeed existed somewhere two miles from the sea on Purbeck in the late seventh century but had become ruinous by the early twelfth, is made more justifiable by the geographical and other changes now known to have taken place during that time. The church implied by the stones at Wareham was

St Aldhelm's Chapel: photo by Jerry Bird

supplanted, and both the Ulwell and Worth Matravers cemeteries were on new post-Roman sites but went out of use in or around the ninth century. Neither had a medieval church or chapel, or settlement, immediately adjacent to it; that at Worth is within a few metres of Roman stone buildings, but they were barns/workshops that had not survived: an outlying grave there was cut through one of the wall footings, so William's description of a roofless ruin would not fit that site. None of the parish churches on the peninsula necessarily predates the twelfth century, but their establishment is clearly related to estate units, which owed little or nothing to earlier Roman ones. Reconstruction of those units, and of the ecclesiastical *parochiae* from which the parishes were carved, has led to different interpretations, but the probable primacy of Wareham and Corfe dates at least from the ninth century (Hall 2000, 13-15 and 93).

The people who were buried in the open cemeteries at Ulwell and Worth Matravers presumably had buildings of some sort in other locations in which to practise their regular worship. For those, Roman villas could have served. Excavations at the Bucknowle villa produced no evidence of an early Christian presence (Light and Ellis 2009), but elsewhere in Dorset vestigial traces of Roman-period Christianity have been found, notably the mosaic at Hinton St Mary (Putnam 1984, 69-76). The 'tanks' found at Bucknowle were tentatively associated with shrines (Light and Ellis 2009, 177); could they have been, or have become, Christian baptisteries? That some villas became and remained Christian sites is becoming increasingly likely: nearly 200 medieval churches and chapels 'overlie or adjoin Roman villas' and 'at least some of these are "developments" of perceived ancestral burial sites or shrines' (Blair 2007, 377), although Dorset has not made much of a contribution to the total (Hall 2000, 21-4). Many other villa-located shrines are likely to have been replaced by new church provision in new settlement locations from the seventh century onwards.

The three known Purbeck Roman villas, Bucknowle, Rempstone and East Creech, would all fit William of Malmesbury's curious detail that Aldhelm's building was two miles from the sea. Professor Orme suggested that this meant no more than that it was near Wareham and Corfe, and that William did not know the name because it was such an isolated spot on the headland. His source, however, even if only local folklore, would surely have known that the estate was owned by Cerne Abbey, something that William might have recorded. The alternative is that the name was unknown because a Roman villa's would have been forgotten by William's time, even locally. That a church visited by Aldhelm in the late seventh century should have become ruinous by the early twelfth is quite credible; continuation of worship at abandoned Roman villas would have been affected not only by changing settlement and burial-place patterns but also possibly by developing antagonism towards British Christianity during the eighth century. Deliberate obliteration could be shown by the memorial stones at Wareham being built into the fabric of St Mary's as though to dishonour them, assuming that none is earlier than the late eighth century (Hall 2000, 15).

No physical evidence exists of any predecessor of the late twelfth-century chapel dedicated to St Aldhelm on Cerne Abbey's Renscombe estate, but it could have been totally removed, leaving no trace because it was even smaller than its replacement . Is that likely, however? The practicality is that a ruin substantial enough to shelter shepherds would have been built of stone, and so would probably have been renovated rather than entirely demolished, particularly if it was associated with the saint, even if only by dedication, as it would have had the status of a relic. If they were going to build a church in the tenth or eleventh century, the monks would have been more likely to follow the norm and locate it at the centre of their estate, inland at the present-day Renscombe Farm. Aldhelm's cult was at a low ebb in the eleventh century, and was nearly eradicated, only being saved from extinction by Bishop Osmund in 1078 (Farmer 1982, 11). Would anyone have dedicated a chapel to him in the two centuries before then, and if built after 1078, would it already have been ruinous by *c.* 1125 when William wrote? Did he really have local information for the association of the ruined church with a dedication to Aldhelm? Professor Orme was prepared to accept William's ascription despite rejection of most of the story, yet it is exactly the sort of detail that a hagiographer might have seen fit to add. In other words, a church existed in the seventh century and had become ruinous by the early twelfth, but was not dedicated either to or by Aldhelm.

William's account of the church includes the detail that local people went there for healing purposes. This would normally indicate a place with a flow of holy water; there are eleventh- and twelfth-century chapels that were not attached to or within the immediate environs of a parish church, but nearly all are at springs or wells (Blair 2005, 377-8), which the Renscombe headland lacks. Isolated chapels in prominent locations are not a normal feature of the

landscape until well into the twelfth century. The Cerne monks had a St Catherine's on the hill overlooking their abbey (Hall 2000, 92), and Leland credited them with having a St Andrew's chapel on Brownsea Island in Poole Harbour; Henry II granted them the potentially valuable right of wreck in *c.* 1154, which was confirmed in the thirteenth century, and their 'temporalities' on the island were valued at 51*s* 11*d* in 1293 (Hutchins 1861-70, 648). Also in Poole Harbour, on what is now called Green Island, Milton Abbey founded a St Helen's (Mills 1977, 13). For Cerne in the late twelfth century to establish an isolated chapel on its Renscombe estate that was visible from land and sea would therefore have been in tune with the times — and a visible reminder of their claim to right of wreck, which the abbey had for Renscombe as well as for Brownsea Island (Calthrop 1908, 55). Although the dedication to Aldhelm was unusual (Orme 2018, 67), the Cerne monks might have read William of Malmesbury's work and noted the saint's claimed association with Purbeck; perhaps they hoped to encourage a revival of his cult in order to bring visitors and their offerings to the new chapel.

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Vikings go digital: Using the Ridgeway mass burial to investigate skeletal injuries in three dimensions

HEATHER M. TAMMINEN, ANDREW FORD, KATE WELHAM, and MARTIN J. SMITH

A mass burial discovered in 2009 during construction of the Weymouth Relief Road, revealed evidence for dramatic events in Dorset during the tenth century AD. The grave contained approximately fifty individuals, later identified as having originated in Scandinavia and North-Eastern Europe, who had suffered widespread sharp force injuries in addition to being decapitated. Whilst the injuries observed have been well documented by conventional methods, the collection has now been loaned to Bournemouth University as the focus of a jointly funded doctoral research project investigating the potential of digital technology to generate three-dimensional visualisations of injuries to skeletal remains, which can be used to further inform research and facilitate display of such remains to the public. The current project will not only investigate methodology, but will also further knowledge about this invaluable collection and reveal more information about the events surrounding their deaths. By exploring the possibilities of digitisation through photogrammetry, the results will help guide researchers in the 3D modelling of collections using approaches that are inexpensive and quick, yet still accurate.

Introduction

During the renovations currently occurring at the Dorset County Museum, the human skeletal assemblage discovered in a mass burial pit close to the Dorset Ridgeway in 2009 (popularly known as the Weymouth Vikings) has found a temporary new home at Bournemouth University. In September 2018, a PhD project supported jointly by the University and the Dorset County Museum commenced in order to explore the potential of current digital technology to record and display injuries to human skeletal remains through the creation of three-dimensional virtual models.

The Weymouth Vikings

In 2009, a mass burial containing approximately 50 individuals was uncovered during construction of the new Weymouth Relief Road on Ridgeway Hill (Fig. 1). In addition to sustaining widespread injuries inflicted with bladed weapons, the individuals in the grave (a reused Roman quarry pit) had all been decapitated during a single event prior to burial, with all the heads placed on one side of the pit, whilst the bodies were deposited haphazardly into the main part (Loe *et al.* 2014). The site was excavated by Oxford Archaeology with subsequent publication of a detailed osteological report. The most likely number of individuals (MLNI) was 52 (MLNI of 47 skulls and 52 skeletons, calculations by Loe *et al.* 2014). Whilst a small, non-exhaustive attempt was made to re-associate the skulls and skeletons, producing seven potential matches, no definitive reassociations were made. A significant quantity of disarticulated bones were excavated along with the skulls and articulated skeletons. Completeness and fragmentation varied, though overall the preservation of the bone surface was usually moderate to good. The majority of individuals for which sex determination was possible were found to be definite males (43/47 skulls and 31/36 skeletons) whilst the remainder (4/47 skulls and 5/36 skeletons) were found to have characteristics categorising them as probable males. Most were in young to prime adulthood, though some older adults and adolescents were found.

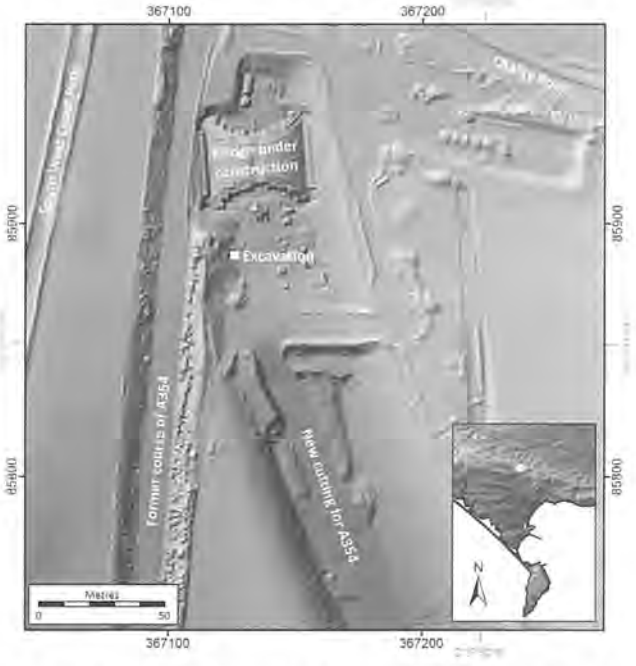

Figure 1: Location of the excavation as seen in Airborne Laser Scanning (ALS) data (via the Environment Agency for England & Wales) acquired December 2009 & January 2010 during the construction of the Weymouth Relief Road (A354). Contains OS data © Crown copyright and database right (2019). British National Grid (BNG) projection, Airy 1830 ellipsoid, Ordnance Survey 1936 datum.

Radiocarbon dating of the skeletons revealed they were from the Saxon period in England, around 970-1025 CE, the majority of that dating range falls within the reign of Aethelred the Unready (978-1016 CE) (Cunliffe 1993; Chenery *et al.* 2014; Loe *et al.* 2014). Through isotope analysis, it was found that these individuals had originated overseas, specifically from parts of Scandinavia and North-Eastern Europe (Chenery *et al.* 2014; Loe *et al.* 2014). These results in combination with the dating evidence led to the characterisation of these individuals as 'Vikings'. Although there is no mention of Vikings specifically around the Weymouth Ridgeway Hill around this time in any sources, there is documentation of Vikings having been present in Dorset and Wessex (Cunliffe 1993; Loe *et al.* 2014). Sharp force trauma was found on over half of the individuals, most commonly on the vertebrae, crania, and mandibles. A confirmatory appraisal of the sharp force trauma is currently being carried out as due-diligence for the present project.

The 'Digital Dead' Project: New Horizons in Trauma Analysis

Recently, researchers have shown an increased interest in integrating digital technology into cultural heritage and archaeology. Such methods can offer effective ways of recording, preserving, and curating artefacts and historic sites and safeguarding them from damage, thus allowing their preservation for years to come (Historic England 2017). An aspect of digital technology that has generated recent attention is three-dimensional (3D) modelling. The creation of digital reconstructions of archaeological features and objects can currently be achieved using data captured by various different methods, for example terrestrial laser-scanning (TLS) and computed tomography (CT) scanning have commonly been used in recent years. Both these latter methods come with technical challenges of their own in addition to being relatively expensive. However, a cheaper and potentially more effective solution is now available in the form of photogrammetry (Olson *et al.* 2013). Photogrammetry is a method of creating 3D models by taking overlapping photographs of the same subject from differing angles (Lillesand *et al.* 2015). Homologous points in images are then matched, and the respective camera positions calculated mathematically, tying the photographs together in correct orientation (Fig. 2). Algorithms then match more points and create a cloud of these points that form the initial stages of the model. This dense "point cloud" (DPC) is turned into a 3D mesh which conforms to the shape of the original object or feature. When an object needs to have the top and bottom photographed separately, the DPCs that are created for each can be merged and then turned into a 3D mesh. This model can then be textured using the original photographs that were taken (Fig. 3). This procedure is used for archaeological landscape and site recording, geological survey and monitoring, ecological and zooarchaeological studies, cultural heritage monitoring, and artefact recording and preservation to name a few examples (Micheletti *et al.* 2015; Historic England 2017). In so far as this technique has been applied to human remains, it has generally been used to record the burial position of skeletons within graves, either instead of or in addition to a hand-drawn plan (Ducke *et al.* 2011). Although artefacts are sometimes examined at close range, bones have not been sufficiently studied in this capacity. The current project therefore offers significant opportunity to explore this emerging technique thoroughly so its full capabilities and limitations for osteological and archaeological study can be understood.

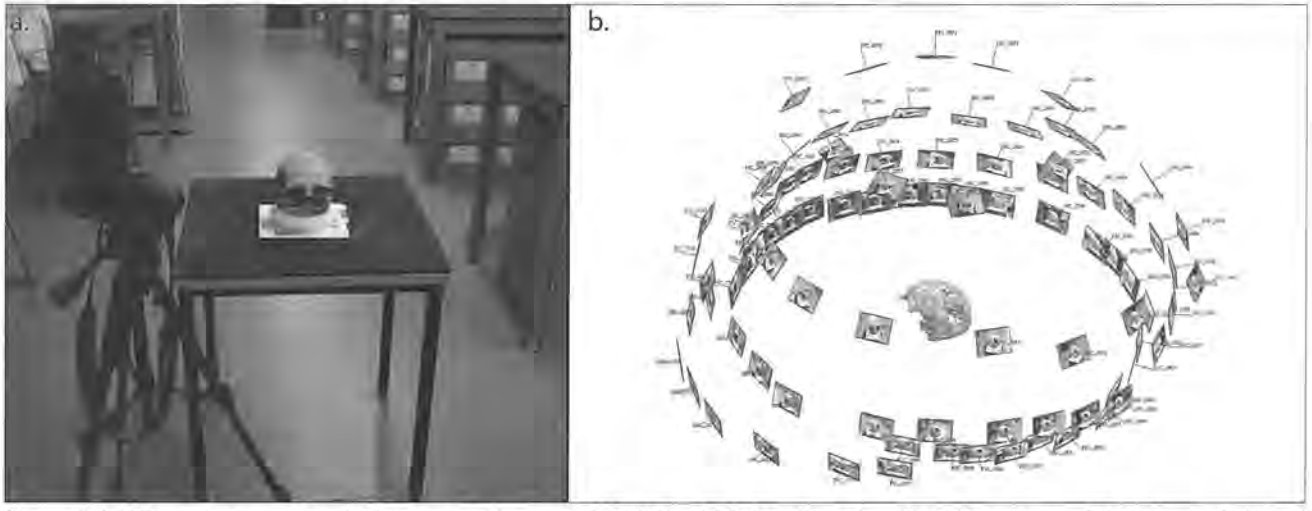

Figure 2: (a) The arrangement required to capture images of SK 3738 and (b) the orientation of each image around the sparse point cloud of SK 3738.

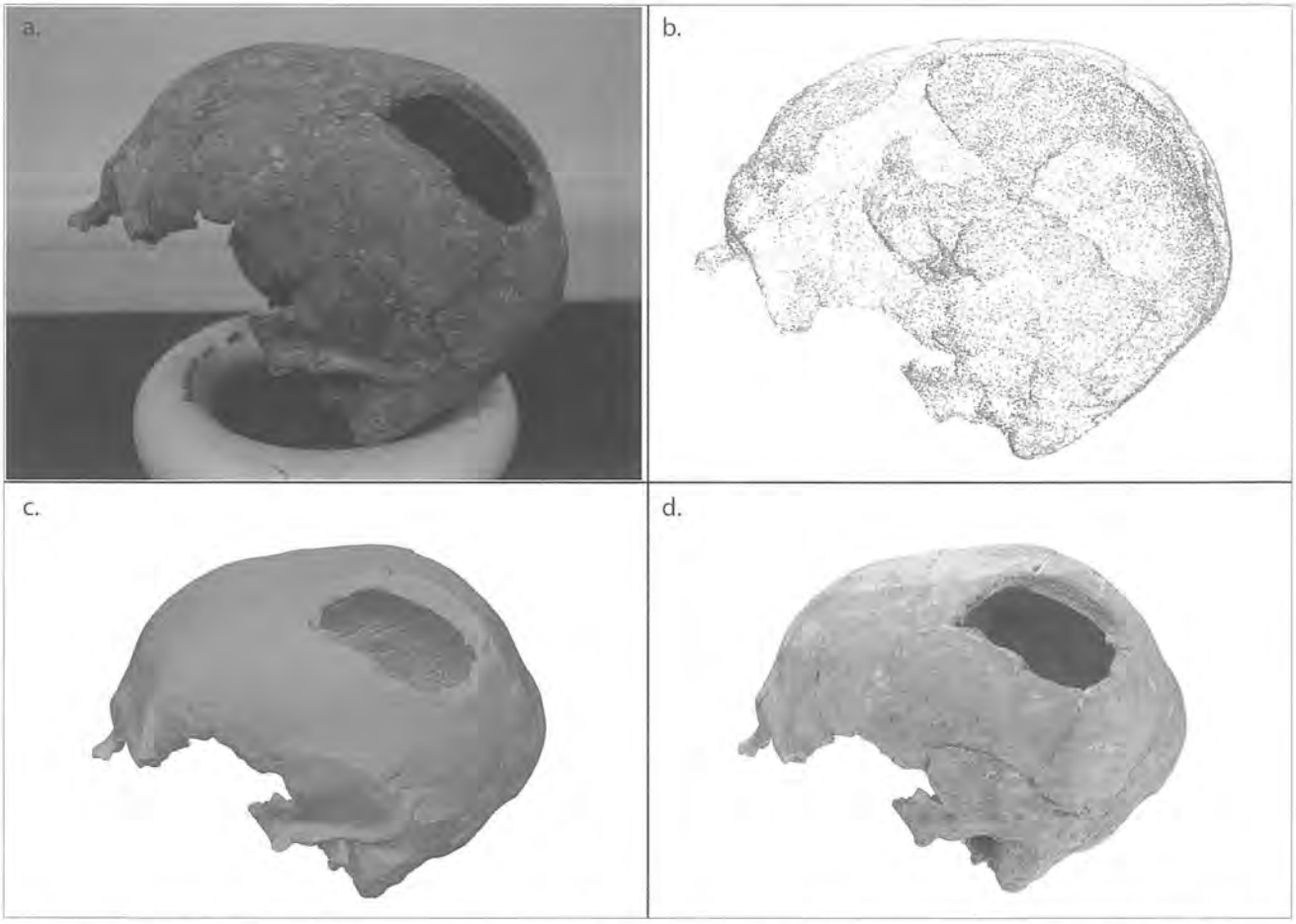

Figure 3: (a) A photograph of SK 3738 showing the left side of the skull, (b) the sparse point cloud of SK 3738 after the initial camera alignment, (c) the polygon mesh created from the dense point cloud of SK 3738, and (d) the textured model of SK 3738.

The ability to easily create detailed and accurate 3D models of osteological specimens has significant implications for osteological curation and research. With guidelines on how to create such models, institutions such as commercial archaeological units, research groups, and museums could create models of collections that can be easily presented and shared. This allows for the use of larger and more variable data sets without putting the original collection at risk of damage, whilst also making collections accessible anywhere in the world. More specifically, the recognition and interpretation of traumatic injuries to the human skeleton is an aspect of study that has advanced considerably in recent years, but which has been limited to two-dimensional methods of recording and presentation. The widespread and very well-defined nature of the weapon injuries amongst the Ridgeway Hill assemblage provides an

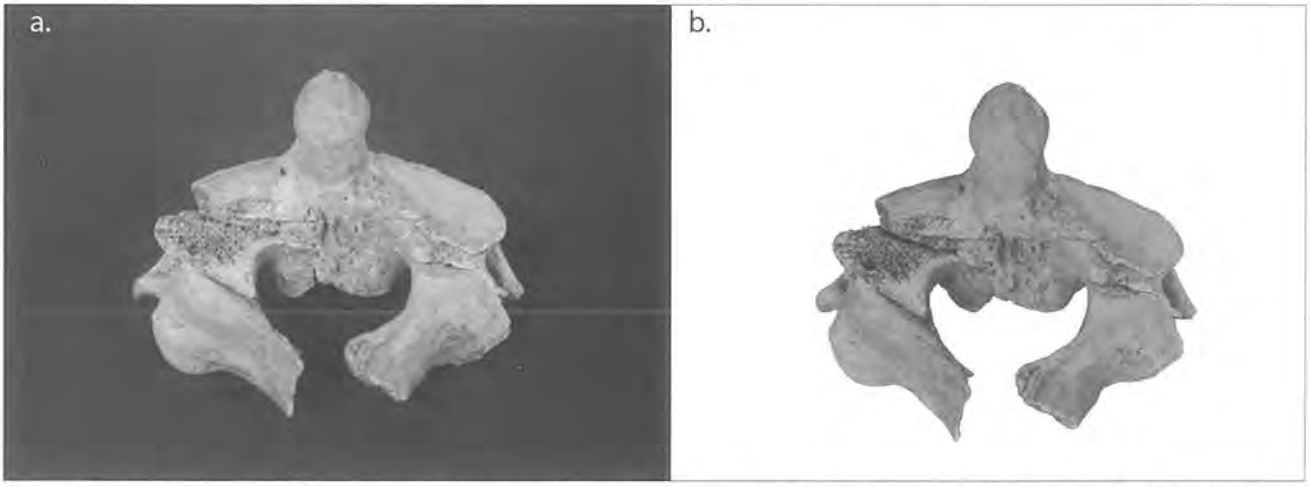

Figure 4: (a) A photograph of SK3742 showing the posterior view of the second cervical vertebrae and (b) the textured model of the second cervical vertebrae of SK 3742.

excellent opportunity to investigate the potential of photogrammetric reconstruction for recording and interpreting injuries to bone in ways that are not otherwise possible (Fig. 4). But in addition to these areas of general interest, further analysis of the sharp force trauma on these models will help unravel the specific history of the Weymouth Vikings, whilst the 3D digital models created through this project have the potential to be used in interactive displays to help present the collection to the wider public at the Dorset County Museum.

ACKNOWLEDGEMENTS

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The lead author is the Bournemouth University postgraduate researcher undertaking this project. Originally from Canada, she obtained her MSc in Human Osteology and Funerary Archaeology from the University of Sheffield in 2016. She has a long-standing interest in studying conflict trauma and is looking forward to studying this outstanding collection.

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Evidence of medieval agriculture and settlement: Excavation at Curtis Fields, Chickerell, Weymouth

CLARE RANDALL

Excavation at Curtis Fields, Chickerell, Weymouth, carried out in advance of residential development, produced evidence of medieval and post-medieval occupation. A rectilinear series of ditched enclosures were dated to the thirteenth to fourteenth centuries, although they may have originated earlier. Whilst no direct evidence of associated structures was located, the finds from cut features and a contemporary spread from a probable midden indicate a modest domestic and agricultural setting. However, three items of equestrian equipment may indicate a higher status presence. Post-medieval features were consistent with historic map evidence for a farm at Little Francis, and its gradual abandonment in the first half of the twentieth century.

Introduction

Context One Heritage and Archaeology (C1) carried out an archaeological excavation at Curtis Fields, Chickerell, Weymouth, as the final stage of a programme of works relating to residential development which started in 2012. Evaluation work on the final parts of the scheme, encountered medieval features including boundary/enclosure ditches and gullies, pits, and post-holes/stake-holes (Green 2014) which merited further archaeological work which was carried out in 2018.

Background

Curtis Fields is set on the west side of the Weymouth and Portland District in the civil parish of Wyke Regis. The entire development area covers 26.96 ha and is situated to the south of Chickerell Road, between Lichfield Road and Roundhayes Close. The site (centred on NGR SY 366453 78366) is located towards the south-eastern edge of the development area *c.* 100 m south of St Augustine's Primary School, and on ground that slopes moderately from north-west to south-east at an average height of *c.* 19 m above Ordnance Datum (aOD) (Fig. 1). The site straddles two solid geologies, the Stewartby Member and Weymouth Member (undifferentiated) — Mudstone, and Nothe Grit Member — Sandstone. (BGS, 2018). The soils are slowly permeable, seasonally wet, slightly acid loams and clays of moderate fertility (CSAIS 2018).

Archaeological finds of prehistoric and Romano-British date are known from the top of the ridge to the south, and medieval pottery and a coin from near St Augustine's School to the north (Tabor 2012). Romano-British and medieval pottery and mid- to late Bronze Age flint was recovered during evaluation in areas to the north-west and south-west of the present excavation (Lachlan-Cope *et al.* 2015), whilst two scatters of Neolithic flint were located in the most north-westerly part of the broader site (Tabor and Milby 2013). Medieval features and finds were located during evaluation of the current excavation area (Green 2014).

Results

A full methodology and comprehensive description of the general deposit sequence and the nature of medieval and post-medieval archaeological features, fills and deposits is included in the assessment report (Randall 2018) and site archive. The majority of the fills were variations on yellowish brown silty clay, derived from the underlying geology.

Medieval

A total of 28 features, comprising ditches, gullies and pits, could be assigned to the medieval period either stratigraphically and/or based on dateable finds from the fills. This phase of activity was all located in the main trench (Area A), revealing a complex sequence comprising several episodes of development. The earliest evidence of landscape enclosure/organisation is represented by a series of ditches which form a broadly rectilinear plan in the western, upslope, part of Area A. Ditch F7 (Figs 1 & 2) was one of the earliest firmly dated elements, aligned north-west to south-east with a north-east return. The undated gully F35 running parallel to ditch F7 was phased as thirteenth to fourteenth century or earlier, however the stratigraphic relationship with F7 was not entirely clear and it might be later. In addition, undated ditch F10, situated to the north-east and oriented in a similar way, may be a continuation of either F7 or F35. The relationships were not fully explored but it was probably overlain or cut by a widespread deposit F6 which contained contemporary material and was thereby thirteenth or fourteenth century or earlier.

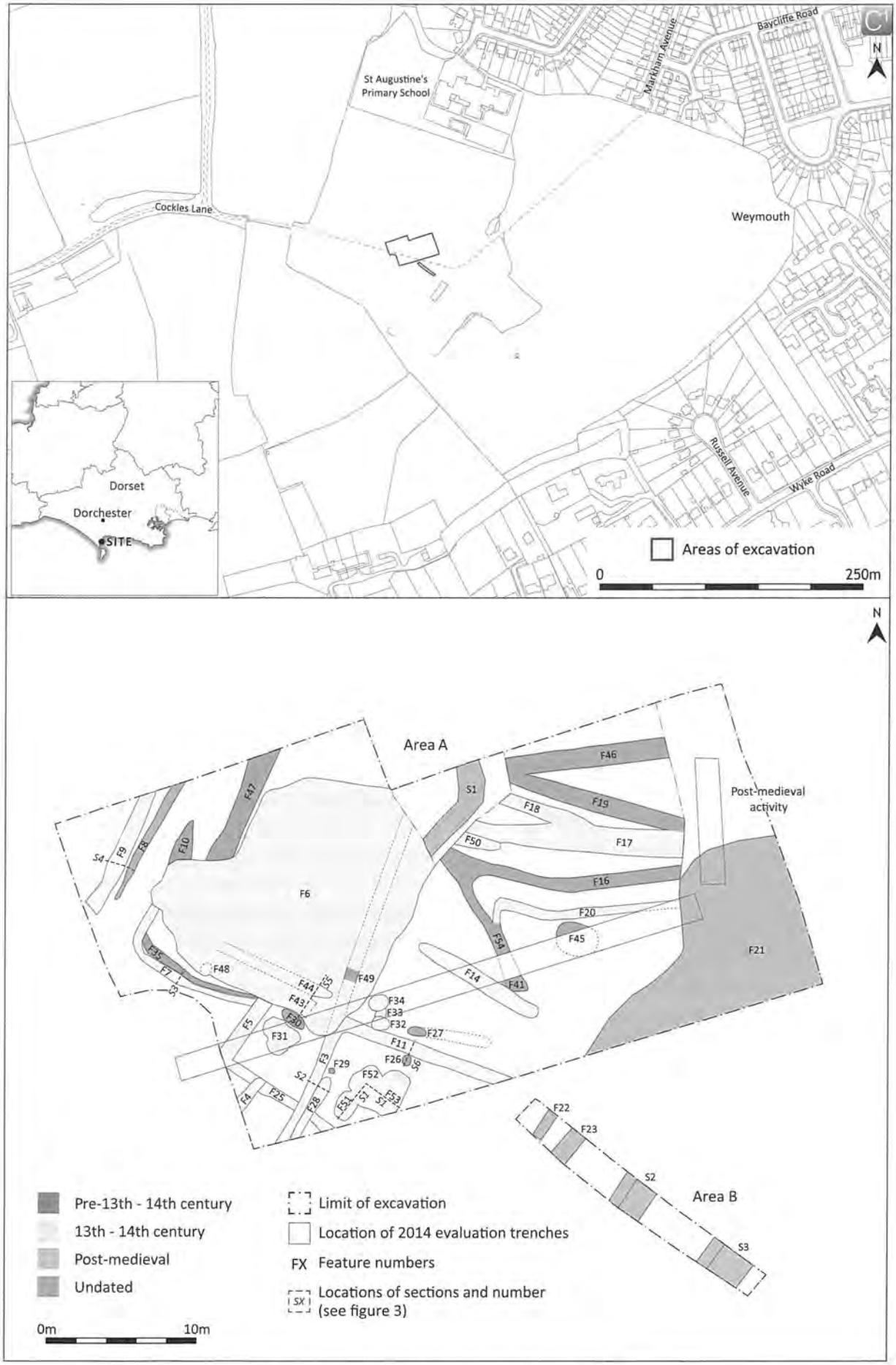

Figure 1 Location and plan of archaeological features

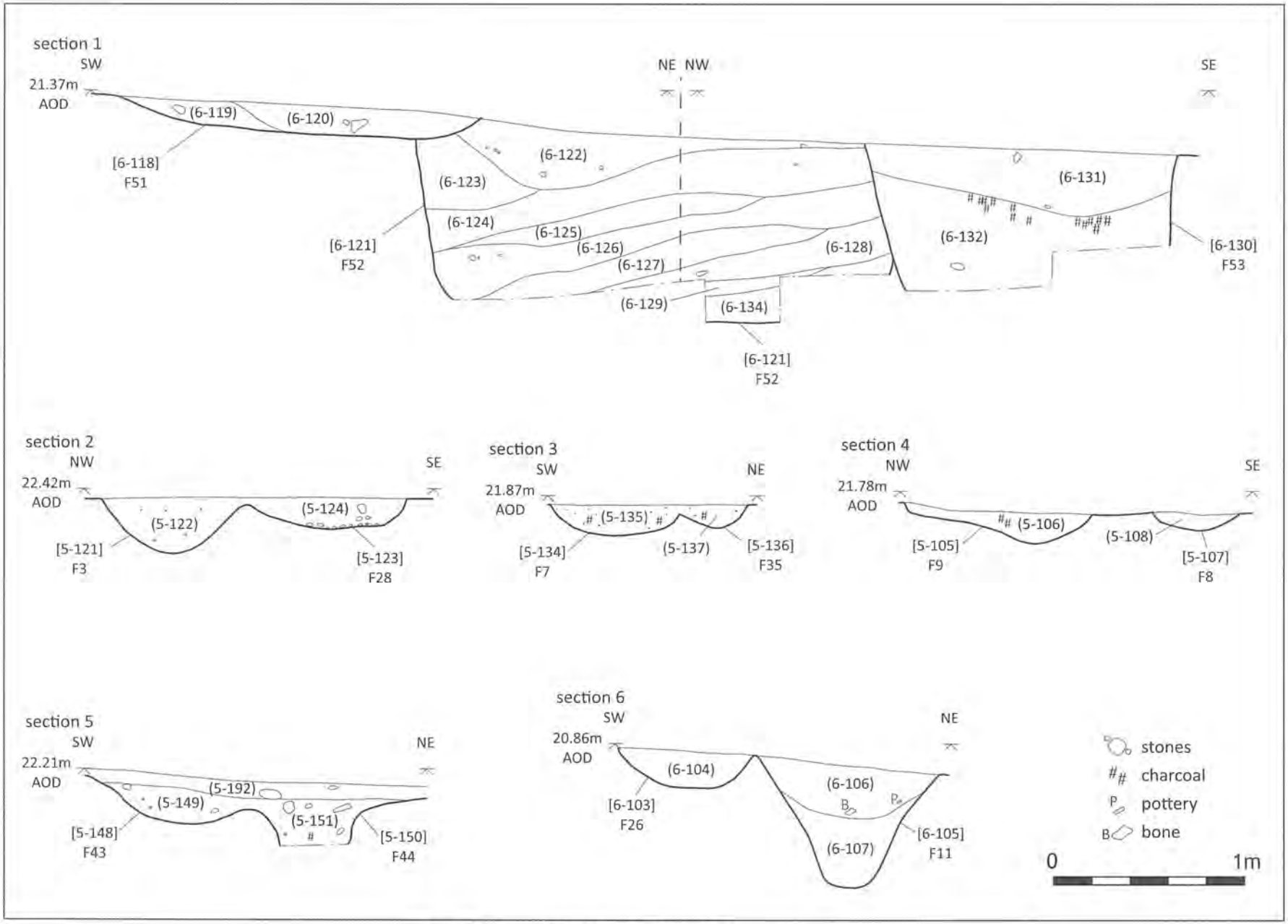

Fig 2. Sections of selected archaeological features

Although there was no clear stratigraphic relationship, it seems likely that both F7 and F35 were cut at their south-eastern extent by ditch F5, which contained dateable finds. Aligned north-east to south-west, F5 was larger than the earlier ditch and gully. It seems that gully F25 formed a right-angle with F5, aligned north-west to south-east, albeit narrower and shallower and similarly dated from pottery. Gully F25 was cut by te terminal of ditch F4, aligned north-east to south-west. Further to the south-east it was cut by ditch F3 and ditch F28, immediately adjacent to one another and sharing the same alignment as ditch F4. Ditch F3 contained two fills both yielding medieval pottery, and at its north-east end met ditch F11, which continued in a south-easterly direction.

A number of other short sections of gully or ditch share similar alignments to those outlined above but have no stratigraphic relationship with any of the other linears, or indeed most other features, and therefore cannot be directly related to an episode or particular plan of features. Ditch F14 was cut on a north-west to south-east alignment together with ditch F44, which ran parallel and to the north-east of F35 and F7. In the north-western corner of the trench was ditch F9 aligned north-east to south-west. All three of these features contained medieval pottery. A further undated gully F8 ran closely parallel to F9. Two additional linear features, F47 and F49 (the latter in line with F3), were on a north-east to south west alignment, maintaining the rectilinear arrangement. Both these linears, whilst not containing any datable material, were covered by spread F6, and are therefore likely to be thirteenth to fourteenth century or earlier, whilst F49 may be a continuation of F3 which is phased to the thirteenth to fourteenth century.

The linear features described above appear to create a sequence of coherent rectilinear features all arranged on a north-west to south-east orientation and running across the slope of the hillside. In the eastern half of Area A however there was a further group of linear features of slightly different character, being generally more irregular, arranged on a broadly west-north-west to east-south-east orientation, and running downslope. Four of these linears contained medieval pottery whilst the others were undated, and there were few stratigraphic relationships between them. Ditch F20 was aligned north-north-west to east-south-east, and gully F18 to the north was on a similar alignment. This feature joined with ditch F17, although there was no clear boundary between the two. Ditch F50 was similarly aligned, being situated at the western end of F17, parallel and adjacent to it. The relationship between them is unclear and F50 may cut F17. A further four linear features in the same area were undated. Ditch F46 was aligned east-west whilst ditch F19 and ditch F16 were aligned north-west to south-east. F54 was associated with F16 at its north-western end and was aligned north-north-west to south-south east. This was unexcavated but may have terminated as undated F41 and may have been attached to F20, although the relationship was not clear.

A total of nine pits appear to date to the later medieval period. A group of small pits was located immediately to the north of ditch F11 and included F32, F33 and F34 which were all sub-circular and generally shallow. Of these, F33 was the earliest, cutting the natural subsoils. Each of these pits contained similar pottery dated thirteenth to fourteenth century. Three large pits formed a group within the angle to the south of the intersection of ditches F11 and F3. Pit F51 was sub-circular and shallow, whilst F53 was also shallow but sub-rectangular. The largest and first pit in the sequence, F52, had steep, straight sides and a flat base, measuring 2.76 m long, 2.30m wide and 0.97 m deep. This contained a series of nine fills. F31 was a large single pit located to the south of spread F6, to the east of ditch F5, and had an irregular shape. Pit F43 was also substantial with an irregular plan and situated beneath the spread F6, as was sub-circular pit F48.

The widespread deposit F6 covered several linear features and pits in the north-western part of the Site. It was irregular, and the shallow cut (or depression) had moderate straight sides and an irregular or flat base. It was uniformly filled with firm dark grey brown silty sandy clay with dark blueish grey mottles, and occasional coarse shelly limestone and coarse angular mudstone fragments. These deposits were all between 0.08 m and 0.50 m deep, and all contained cultural material.

Post-medieval

A number of post-medieval structures and associated spreads of material were present in the southern part of Area A, and in Area B. A large spread of material F21 occupied the south-eastern portion of Area A. Another spread of material, originally designated S1 but subsequently seen not to be a structure, comprised a dump of unworked local stone. In Area B, Structure 2 (S2) was a stone wall aligned north-east to south. It included a concrete surface covering an older stone surface more than 1.6m long and 2 m wide, but this was unexcavated. Structure 3 (S3) was an unexcavated faced limestone block wall with a brick surface aligned

north-east to south-west. Two deposits of material, F22 and F23, were situated to the north of these walls and on a parallel alignment.

Finds

Artefacts and ecofacts were recovered from a number of cut features, comprising pottery, flint, stone, metals, animal bone, and plant material from environmental samples.

The pottery, by Rachel Hall

A total of 363 sherds, weighing 5862 g, were recovered from thirty-five contexts from the excavation. The average sherd size is 16.15 g and generally the assemblage is in a good/fair condition. The entire assemblage of sherds dates to the medieval (thirteenth to fourteenth century) period. Six different fabrics were identified, ranging from fine to coarse, which are probably locally sourced. The coarse wares include

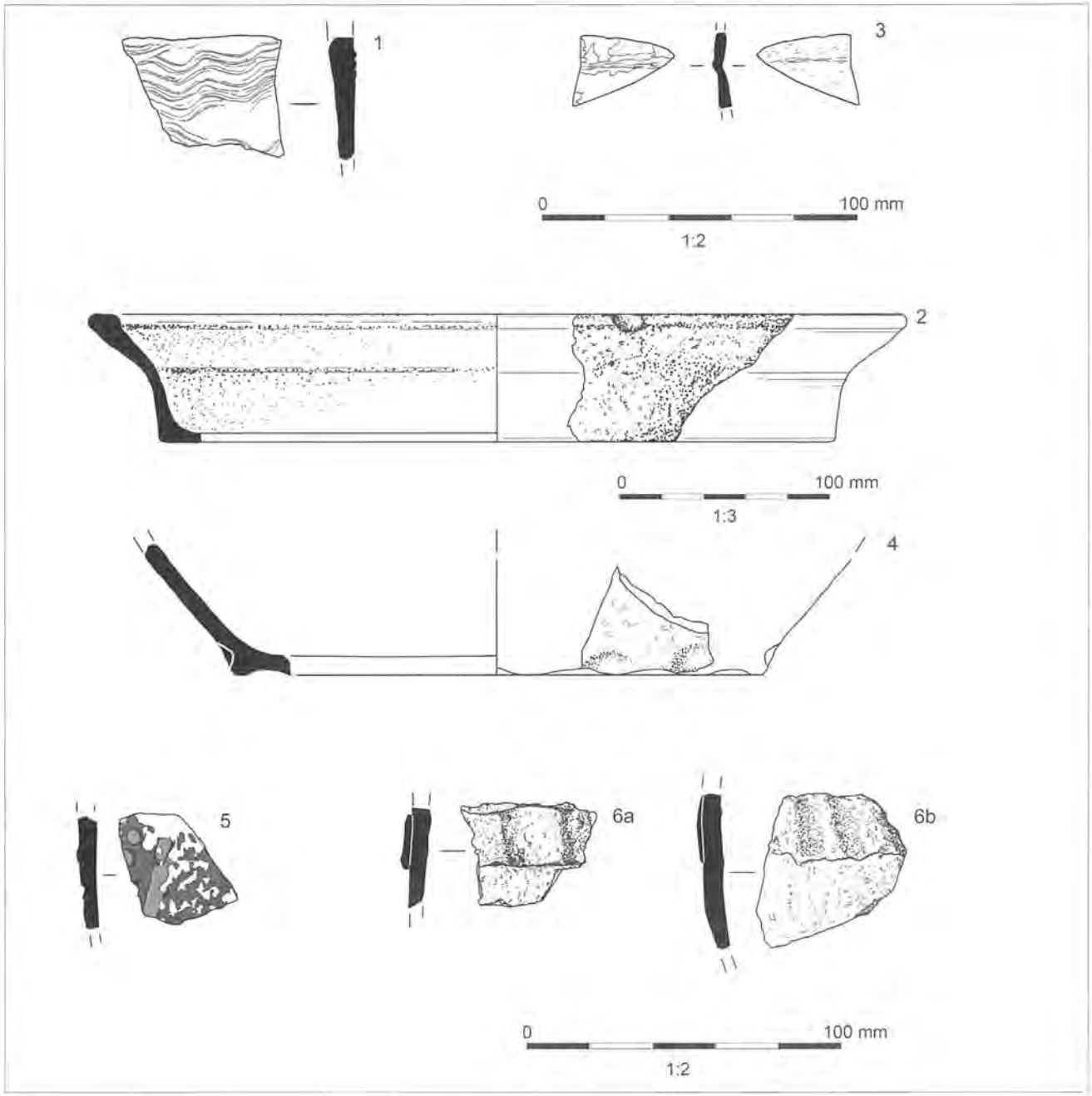

Fig. 3 Pottery

1. F6; (5-581); spread; decorated fineware body sherd, wavy incised lines
2. F6; (5-181); spread; complete cooking pot profile
3. F.32; (6-113); pit; decorated fineware, applied strip
4. F33; (6-115); pit; thumbed base sherd
5. F34; (6-117); pit; fineware ribbed neck? jug
6. F56; (6-117); pit; decorated fineware body sherd, impressed strip

coarse patinated flint, sparse patinated flint, calcareous/voids and frequent quartz grains all in sandy fabrics. The sherds are all handmade with variable firing and smoothed surfaces. The finer fabrics comprise sandy, oxidised wares, with examples of unglazed sherds with sandwich firing and a small amount of finer sandy wares with a green glaze and trailed decoration.

A small range of diagnostic sherds were identified which suggest most of the coarse wares were used as cooking vessels. There are a moderate number of similar rim types, from open cooking bowls. The vessels all have concave bases, sooting on the outside and a small number have a residue on the interior of the vessel. These were recovered from pits F32 and F52. The rim forms from the cooking pot assemblage are very similar, and examples of this pot type were recovered in large numbers from material spreads F6, from pits F52, F51, F33, F32, F28, and ditches F11 and F7. A small number of diagnostic base sherds were recorded from ditch F4 and pit F33 (Fig. 3.4), with thumbed bases.

A small number of diagnostic sherds were identified in the fine ware assemblage. Body sherds including a possible fragment of a jug, with ribbed neck decoration, were recovered from pit F34 and ditch F4. Decorated

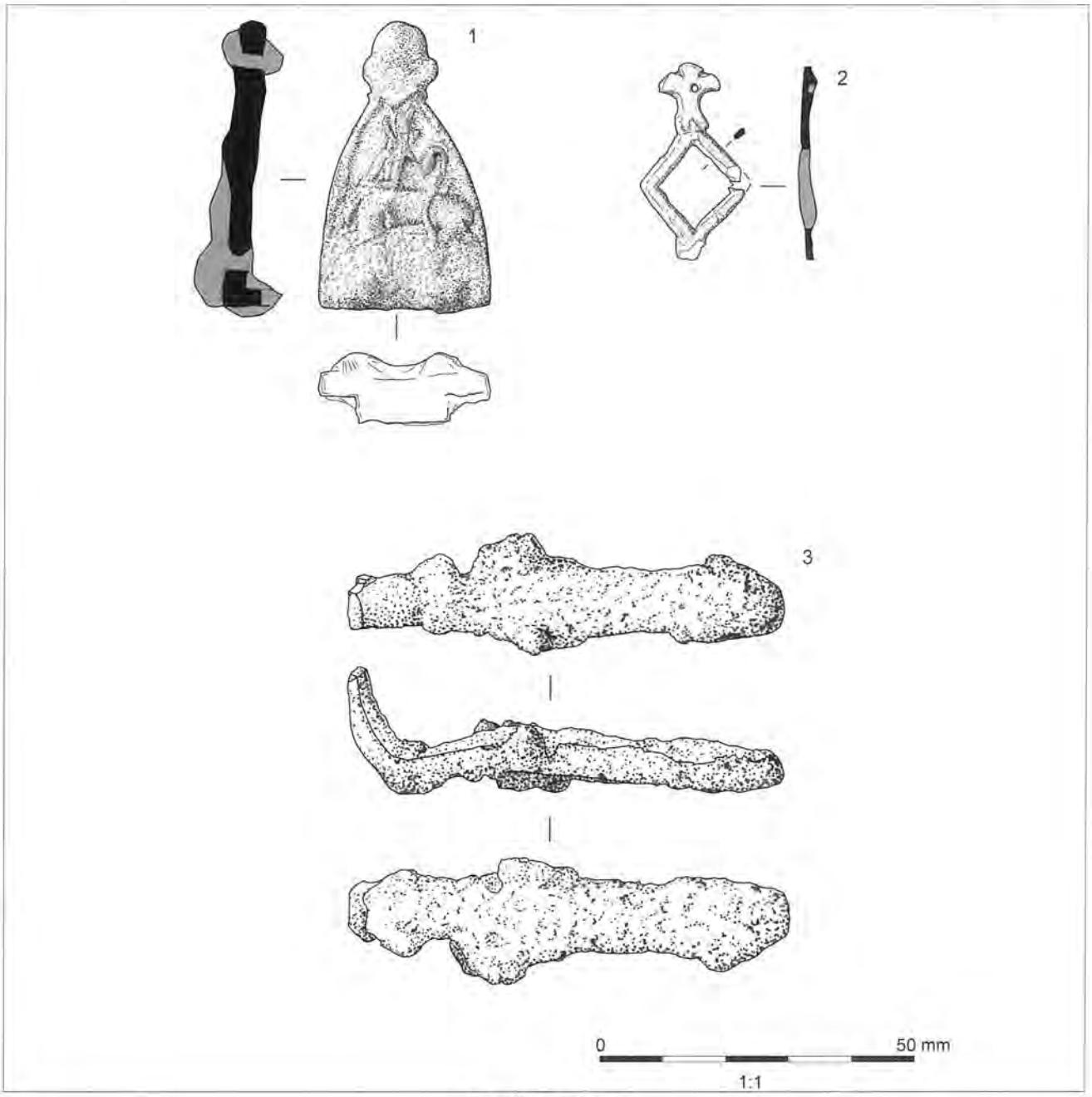

Fig. 4 Metal objects

1. Stirrup-strap mount of sub-triangular form. Unstratified
2. Fitting, lozenge-shaped frame. Unstratified
3. trip (?foot-rest of stirrup?). Context: (6-117) F34

sherds were also recorded. Body sherds with applied strips were recorded from pits F32 (Figure 3.3), F34 (Figure 3.5, 3.6) and F52. Examples of incised wavy or straight lines were found from feature F43, spread F6, ditches F11, F14 and gully F17. Glazed sherds were recovered from feature F6; these conjoining sherds have ribbed decoration (Figure 3.1, 3.2).

Based on both form and fabric, the assemblage can be dated to the medieval period (thirteenth to fourteenth century). The examples of cooking pots and smaller amounts of serving vessels, for example, jugs can all be dated to the thirteenth to fourteenth century, commonly recovered from domestic, low status settlements.

The Flint, by Dr Richard Tabor

A total of 34 pieces of flint weighing 324g were recovered from the excavation. The methods and full details are contained in the site archive. The assemblage comprised four fragments of irregular debitage, one bladelet, 20 flakes and seven complete or fragmentary recognisable tools. Most of the material was in a fresh condition. Four pieces had limited signs of exposure to heat. The bulk of the material was similar to the dark grey flint which has dominated the assemblages from other parts of the wider site, although only one example had the matt quality noted previously (Tabor 2013, 15). Three pieces were sepia, two pale sepia and one grey. All of the latter were in contexts where dark grey material was also present, but both of those in pale sepia had Early Neolithic traits contrasting with the bulk of the material. Only one piece had been freshly struck from previously worked flint which had re-corticated surfaces.

No cores were recovered. The assemblage of flakes is too small and widely distributed to allow meaningful statistical analysis. It can be suggested only tentatively that the dominant low height to breadth ration of between 1.1 and 1.4 to 1 may be indicative of greater use of flint in the area post-dating the Early Bronze Age, as suggested at Maiden Castle (Edmonds and Bellamy 1991, table 76a). It should also be noted that the high mean weight of 9.5 g is also suggestive of a later date, and that it is closely comparable to the mean of 9.6 g for a larger assemblage from evaluation Trench 11 (Tabor 2015, 7). However, some pieces are broadly datable in themselves and are indicative that more than one phase is represented. Retouching was generally moderate to coarse hence in most instances executed by hard hammer techniques. On broad-butted flakes it was usually fairly restricted but where present on more than one edge it was associated with butts of 3 mm width or less. Five butts had traces of abrasion indicative of platform preparation typically associated with earlier Neolithic assemblages and of these four had butt widths of 3 mm or less. Amongst them was a single broken bladelet with traces of wear which can be dated with confidence to the Late Mesolithic or Early Neolithic.

There were nine pieces which were, or were from, identifiable tool types, a high number for such a small

Table 1. Summary of assemblage object classes by context

Feature	*Context*	*Bladelets*	*Flakes*	*Scrapers*	*Piercers*	*Hammer*	*Other*
	U/S		1				
	5-100			1			
F3	5-122		1				
F6	5-181		1				
F6	5-183		1		1	1	
F7	5-135			1	1	1	1
F9	5-106	1	2	1			
F17	5-141		1				
F20	5-155		3				
F25	5-114		1				
F25	5-116			1			
F31	5-133						1
F44	5-151		2				
F48	5-185		1				1
F52	6-122		1				1
F52	6-124		3	1			
F53	6-131		2				
Totals		20	5	3	2	4	

assemblage (Table 1). A distal-pointed awl from (5-183) was one of two pale sepia fragments and had an abraded butt so may be broadly contemporary with the bladelet from (5-106). A simple distal piercer had a broad, complex butt implying a later date. There were two multipurpose scrapers. One had a distal point for piercing and had a relatively narrow, abraded butt from (5-135), the other from (5-106) had a lateral point but due to breakage lacked other characteristics. The remaining three scrapers were all in dark grey flint and were 10 mm thick or more and had both distal and lateral retouch. Two from contexts (5-116) and (6-124) had height/breadth ratios of 1:1 with ventral retouch varying from slightly invasive to abrupt allowing diverse scrapping techniques. The butt of the other scraper, a topsoil (5-100) find, had been modified to a former a lateral piercer at the proximal end. Abrupt retouch is typical for earlier Neolithic scrapers, but a Late Neolithic / Early Bronze Age date cannot be excluded for any of the scrapers. Three fragments had percussion pitting two of which from contexts (5-183) and (5-135) are probable hammerstone fragments and one from (5-122) is possible.

The dominant raw material is the same as that recovered during earlier phases of archaeological investigation of the broader site (Tabor 2015, 7). The greater part of the present and previous assemblages is likely to be Middle to Late Bronze Age but on this occasion, there are more examples of flakes with evidence for platform preparation consistent with a pre-Late Neolithic date. A bladelet and an awl can be dated with confidence to the Mesolithic or Early Neolithic and at least two scrapers are probably later Neolithic / Early Bronze Age.

Equestrian metalwork, by Jörn Schuster

The three metal objects reported here comprise a copper alloy stirrup strap mount, a small fitting of the same material and a bent iron strip.

The stirrup-strap mount, Cat. No. 1 (Fig. 4.1) with its front decorated with a striding lion stretching its neck and head with open jaw as if to bite the base of the trilobed apex, belongs to the most numerous type of this kind of horse gear: Williams Class A, Type 11A (Williams 1997, 58-60, fig. 39, 202-7 particularly, and perhaps also 208, 210, 211, 214-15). Even though the lower portion of the decorated field is obscured by corrosion from the two domed iron rivets, the quality of the craftsmanship links this mount to a distinct group of eleven mounts which all show a left-facing lion of which the example probably from London (ibid., fig. 39, 205) appears to be an almost exact parallel. Based on the limited chronological evidence available at the time, Williams (ibid., 8) considered the entire series of stirrup-strap mounts to essentially be an eleventh century phenomenon, but in a well-reasoned article dedicated specifically to the type of interest here, and drawing on both stylistic as well as additional archaeological evidence, Lewis (2007) identified them as 'Norman, typically Romanesque' and proposed a refined chronology for Type 11A-mounts comprising the period between *c.* 1070 and *c.* 1140.

While the distribution of Class A Type 11A mounts recorded by Williams (1997, 20, fig. 15) lay predominantly south-east of a line between Exeter and the Wash, with a small number in Yorkshire, Lincolnshire and the Midlands, the above-mentioned group of very well-made mounts is a more south-eastern English phenomenon, found between Kent and Northamptonshire. The 67 examples recorded by Williams can now be augmented by a further 91 recorded on the PAS (https://finds.org.uk/database/search/map/objecttype/STIRRUP/description/Williams+Class+A%2C+Type+11A#; accessed 9.1.2018). The extent of the distribution has more or less remained the same, but the density has increased, with many more examples recorded in southern counties from Dorset via Hampshire and especially the Isle of Wight to Sussex.

Cat. No. 2 (Fig. 4.2) is a copper alloy openwork fitting with a lozenge-shaped frame ending on one side in a trilobed terminal (maybe a stylised fleur-de-lis?). No exact parallel is known to the author, but the treatment of the terminal shows a distant similarity to fittings in the tradition of late Anglo-Saxon openwork strap-ends like an example from London from a late thirteenth/early fourteenth-century deposit (Egan and Pritchard 2002, 131–2, fig. 85, 608). Among the more than 4600 medieval strap fittings listed on the PAS database there are a number with similar terminals albeit with differently shaped – mainly rectangular – openwork centres. The closest might be a fitting with a central openwork quatrefoil from Fransham, Norfolk (PAS: NMS-2143A3). The examples with rectangular openwork centres have so far also predominantly been found in the eastern half of England, from North Yorkshire to Buckinghamshire (Cropton, North Yorkshire, PAS: YORYM-B5C9D4; Kettlethorpe, Lincolnshire, PAS: YORYM-F3BFA5; Corringham, Lincolnshire, PAS: FAKL-918768; Freckenham, Suffolk, PAS: SF7502; Slapton, Buckinghamshire, PAS: BUC-96A806) with an outlier from Compton Abbas in

Dorset (PAS: DOR-241DF2) and two further examples from Meols on the Wirral (Egan 2007, 124-6, pl. 21, nos 1257–9). As none of the comparisons comes from a secure context the date range of these fittings can only broadly be given as thirteenth to fifteenth century, and a similar range might apply to the fitting from Curtis Fields.

Although the fragmentary condition of the iron strip Cat. No. 3 (Fig. 4.3) precludes any certainty, the distinctive bent shape at one of its ends suggest that it might have been the foot rest of a later medieval stirrup. Comparable details can be found on a variety of stirrup forms, including with triangular arches from London (Clark 2004, 73, fig. 55, 83), Velds in Jutland, Denmark, and Kvalsta, Sweden (Williams 1997, 4–5, fig. 2a and pl. 1 resp.), and with wide rounded arches from an eleventh century context in Ploegsteert, Belgium (Theune-Großkopf 1992, 89, 93 Vitrine 15/3) and an eleventh to thirteenth century context at Burg Schnellerts, Germany (Goßler 1996, 174, Abb. 3, 2).

To conclude this brief consideration, it should be mentioned that there is the possibility that – on the premise the suggested identifications of Cat. Nos 2 and 3 are correct – all three objects could have been part of the horse equipment belonging to the same saddle.

Catalogue

1 Stirrup-strap mount of sub-triangular form with convex curved sides and straight base, trilobed apex in the form of a stylised fleur-de-lis with its top obscured by a domed iron rivet. The recessed field shows a zoomorphic design depicting a stylized lion passant with head facing upwards as if trying to bite the lobe extending into the field from above, the tail is tucked between the legs and curling upwards in front of the left thigh, the raised right foreleg resting on the raised rim. Two domed iron rivets are set along the base, obscured by corrosion which also covers the animal's legs. The reverse is flat and has a right-angle flange (L 15.5 mm; W 4.8 mm; Th 2.9 mm) set between the rivet shafts. Copper alloy with iron rivets. H 46.8 mm; W 27.8 mm (base), 12.4 mm (apex lobes); Weight 26.0 g. Context: unstratified.

2 Fitting, lozenge-shaped frame with trapezoidal cross section, one side with trilobed end with countersunk hole drilled from the back (cone from drilling narrowing to front and grating around hole still preserved at front), opposite end missing and right corner of frame (with trilobed end top) broken. Filing marks on trilobed end, applied before hole had been drilled. Copper alloy. L 31.4 mm; W 16.1 mm, Th 1.6 mm; Weight 1.0 g. Context: unstratified.

3 Strip (?foot-rest of stirrup?). Parallel-sided, flat-rectangular-sectioned strip with one end first bent down and then up at an angle of *c.* 60°; bent end might be broken, the other appears rounded/?worn but could also be broken. Entire surface covered in soil accretions, no detail discernible, no x-radiograph. Iron. L 55.2 mm; W 9.2-11.4; Th 4.9-7.1 mm; Weight 18.2 g. Context: (6-117) F34.

The archaeobotanical remains, Alys Vaughn-Williams

Five bulk samples were analysed. The aim was to identify the function of the contexts sampled; evidence relating to the rural economy; and evidence relating to the environment. The flots were sorted using a low power zoom-stereo microscope. Identifications were made with reference to the author's modern seed reference collection, and Cappers *et al* (2006), Anderberg (1994) and Berggren (1981). Plant nomenclature follows Stace (1997). The results are presented in Table 2

All five samples were from ditches and other linear features. The samples presented moderately dense charred assemblages with a low to moderate diversity of species. The dominant taxa was wheat grain (*Triticum* sp.) with four naked wheat (*Triticum aestivum*) spikelet forks present in sample 3 (5-165) in F17. Barley grain (*Hordeum* sp.) was an occasional presence in all but sample 4 (5-122) in F3. The grains were generally poorly preserved, however occasional barley grains did display signs of having been the hulled variety. Seeds from the grass family (*Poaceae* spp.) were the second most frequent taxa, the majority of which were >1 mm so comparable to the cereal grains in size. Amongst these grass seeds were those identified as oat (*Avena* sp.) and rye (*Secale* sp.) although the lack of chaff meant that they could not be identified as either the cultivated or wild varieties. Legumes were a moderate presence in the samples, with potential cultivars such as lentil (*Lens culinaris*), broad bean (*Vicia faba*) and a possible garden pea (cf. *Pisum sativum*).

Arable weed seeds were occasional in all the samples, and included stinking mayfield (*Anthemis cotula*), corn cockle (*Agrostemma githago*), grass vetchling (*Lathyrus nissolia*), wild radish (*Raphanus raphanistrum*) and fat hen (*Chenopodium album*). Legumes (*Fabaceae* spp.), particularly pea / vetch

Table 2 Archaeobotanical data

	Sample	4	2	1	5	3	
	Context	5-122	5-181	5-135	5-106	5-165	
	Feature	3	6	7	9	17	
	Feature type	Ditch	Layer	Linear	Ditch	Linear	
	Sample Volume (l)	Medieval	Medieval	Medieval	Medieval	Medieval	
	Type						**English Name**
2 Grassland Vegetation							
Rumex cf. *acetosa*	seed	5		1		4	Common Sorrel
3 Ruderal Vegetation							
Sambucus ebulus	seed			1			Danewort
4 Ruderals/Segetals undiff.							
Atriplex spec.	seed					2	Orache
Brassica cf. *nigra*	seed					2	Black Mustard
Chenopodium album	seed					1	Fat-Hen
Malva spec.	seed				1		Musk Mallow
5 Crops							
Triticum aestivum s.l.	spikelet					4	Naked Wheat hexaploid
Triticum spec.	grain	25	22	87	131	48	Wheat
Hordeum cf. hulled.	grain		1			2	Barley undiff.
Hordeum spec.	grain			2	5	4	Barley undiff.
cf. *Hordeum* spec.	grain		1				Barley undiff.
Hordeum/Triticum	grain			27			Barley/Wheat
Cerealia indet.	culm node	1					Cereal
Lens culinaris	seed				5		Lentil
cf. *Lens culinaris*	seed			1			Lentil
cf. *Pisum sativum*	seed		1				Garden Pea
Vicia faba	seed	1					Broad Bean
Vicia cf. *sativa*	seed			12			Common Vetch
7 Weeds of Cereal Fields							
Agrostemma githago	seed					1	Corn Cockle
Anthemis cotula	seed	7	1		6	19	Stinking Mayweed
Lathyrus nissolia	seed			2			Grass Vetchling
Raphanus raphanistrum	seed				1		Wild Radish
11 Varia							
Avena spec.	seed				3	7	Oat
Avena cf. spec.	seed			8			Oat
cf. *Avena* spec.	seed		1		3		Oat
cf. Brassicaceae	seed			1			Cabbage Family
Chenopodiaceae	seed					1	Goosefoot Family
Epilobium spec.	seed				1		Willow-Herb
Fabaceae	seed	26	1	2		13	Legumes
Hordeum spec.	internode				2		Barley undiff.
Lamiaceae	seed	1					Mint
Lathyrus / *Vicia* spec.	seed		3		41	12	Pea / Vetch
Poaceae	seed	20	2	20	40	18	Grasses
Poaceae	internode	1					Grasses
Polygonaceae	seed			1		1	Knotgrass family
cf. Polygonaceae	seed					2	Knotgrass family
Rumex spec.	seed				1		Dock

20 Other					
Indeterminata	seed			1	undetermined remains
Without Ecological Group					
cf. Nigella	seed			1	
Secale	seed		1		Rye
cf. *Secale*	seed	2			Rye
cf. *Secale*	seed		1		Rye

(*Lathyrus / Vicia*) were frequent in sample 4 (5-122) and occasional in the remaining samples. One damaged seed that displayed characteristics of cf. *Nigella* sp. was present in sample 3 (5-165); however, *Nigella* is not thought to have been introduced to Britain until the 16th century, so it may represent contamination and remains a tentative identification.

The medieval period saw significant changes in cultivation, particularly in terms of the crop selection. Free-threshing wheat and barley grains became more popular along with cultivated oats and rye (Davis, 1995; Letts, 1999; Van der Veen *et al* 2013, Monkton, 2015) as seen at contemporary south-western sites such as Castle Dene, Devon (Vaughan-Williams, 2010) and Club Hub, Taunton (Vaughan-Williams, 2009). The majority of the wheat grains from Curtis Fields demonstrated the rounded characteristics expected of bread wheat (*Triticum aestivum*), and there were also four bread wheat spikelet forks. Whilst this isn't enough to confirm that the grain was this free-threshing wheat, it is highly probable given the period to which it was assigned and the characteristics. Unfortunately, as is often the case, the absence of oat and rye chaff means that they cannot be identified as cultivated or wild varieties. Their presence is typical of the mixed cereal cultivation of the time (Monkton, 2015).

Characteristically of medieval rural sites, the low quantity of small weed seeds and cereal chaff is suggestive that the harvest was at least semi-cleaned prior to transporting it to the settlement. This is due to the free-threshing nature of the cereals (Hillman, 1981, 1984; Jones, 1984; Van der Veen *et al* 2013). The raw data does show a high proportion of moderate to large weed/wild seeds relative to cultivated seeds/ grains; however, those legumes identified simply as *Fabaceae* and vetch/pea were poorly preserved and could represent either cultivated or wild varieties, food or fodder. The seeds that are typical of arable contaminants, such as corn cockle, fat hen, wild radish, grasses and stinking mayweed could represent either bedding, straw from the floor or fodder swept up and thrown in a fire, potentially as kindling, before being disposed of in these linear features.

The samples represent typical medieval crop assemblages with a dominance of wheat grain with smaller quantities of barley, broad beans and lentils. Oat and rye were also potentially cultivated. The charred material recovered from the linear features are highly likely to represent a mixture of domestic waste, composed of food spillage, floor sweepings and crop-processing by- products disposed of on the fire.

The animal bone, Dr Clare Randall

The full methods and details are included in the site archive. The assemblage comprised a total 50 fragments of disarticulated and co-mingled animal bone from 13 features including pits, ditches, gullies and deposits. All of the material has been assigned to a single medieval phase, with a large proportion (19 fragments) from the deposit F6, and from various pits (18 fragments). There were several fragments which displayed dog gnawing and indications of weathering, but no burnt fragments. The species identified were cattle, sheep/goat, pig, horse and dog. A few fragments could be assigned to cattle-sized and sheep-sized mammals. Sheep/goat were the most numerous by identified specimens, with 13 fragments to 11 cattle fragments, one pig fragment, five horse and one dog fragment.

This small assemblage confirms the presence of livestock species and includes some other evidence such as carcase processing. The assemblage is too small to consider methods of husbandry, or relative abundance. Only mature animals were represented, which may relate to preservational conditions. Dogs were present, and evidently had access to discarded bone. It is not possible to consider the distribution of material on the site, or the representation of elements. However, it should be observed that nine of fourteen elements showing taphonomic changes came from the deposit F6. This might support the interpretation of this deposit as deriving from midden material. This assemblage suggests household consumption.

Discussion

This excavation has expanded on the indications of medieval activity found during the earlier evaluation in this area (Green 2014). Whilst a small selection of flint was recovered from a variety of contexts, with dates covering the Mesolithic or Early Neolithic to later Neolithic/Early Bronze Age, and the Middle Bronze Age, none of the features could be assigned to the prehistoric period. However, these finds attest to prehistoric activity occurring within this landscape. All of the pottery recovered from the site was medieval, with a relatively narrow date range between the thirteenth to fourteenth centuries AD. Three equestrian metal objects suggest a similar or slightly earlier date range.

The most coherent set of features on the site are a series of linears, categorised here as ditches or gullies. However, they often shared common characteristics and it is unlikely that they had a distinct functional difference. The formation sequence of these features is unclear, and as the dateable material from them is from the narrow range mentioned above, it is difficult to identify distinct phases of activity. However, it seems that the series of linears in the western, upslope, portion of the Site formed a series of broadly rectilinear enclosures on a north-west to south-east alignment. Of these, F7 and F35 appear to have been early elements. Fitting within the same broad period, and similarly difficult to place into any sequence, are a number of pits. The multiple fills of the more substantial sequences of features produced pottery, animal bone and stone, and may represent domestic refuse. The apparent close dates and intercutting indicates a potentially rapid sequence of pit digging, or back filling, and the number of dated and undated pits underlines the intensity of activity in this small area. In addition, a large area of the western part of the site was later covered with a large spread of culturally derived deposits containing more pottery and animal bone. This material was again of similar date, and it seems that this deposit may represent a spread originating from a contemporary midden heap.

A series of linears in the eastern part of the site were of different character, being more irregular, generally shallow and producing little cultural material. These features do not have the rectilinear pattern of those discussed above and are oriented generally downslope. It is considered likely that many, if not all of these, are of natural origin and relate to past water run-off. It appears that deliberate medieval activity in this area was less intense. A number of spreads of post-medieval rubble were aligned north-east to south-west and parallel to each other. Comparison with historic maps indicates that these features are situated on the same alignment and location as the most northerly elements of buildings shown on the 1st edition 1883 OS map. They therefore appear to relate to the nineteenth century configuration of farm buildings at Little Francis. A building is shown in the area on the 1841 Tithe map, and subsequent maps imply that the farm yard increased in complexity during the mid-nineteenth century.

'Franches Barn' is mentioned in the papers of the Ilchester Estate in 1554 (Hollings 2002, 92). A farm is recorded by Hutchins, 'Francis, a farm, once belonged to Dr Sella Nova of Weymouth, whence it came to his three heiresses' (Hutchins 1870, 851). By the middle of the 19th century it was owned by Robert Hassell Swaffield, the major landowner in Wyke parish. The 1841 census has two large households listed at 'Franchise', one of John Symes, Yeoman, and one of John Galpin, Dairyman. By 1851, at 'Francis', John Symes' son William was farming 100 acres and employing two boys, although this had shrunk to 24 acres by 1861. Charles Ward was the farmer in 1871, employing three men and two boys, but by 1881 'Frances Cottages' housed two labourers' families. By 1901, at 'Francis Farm' George Bazzell had the land as a 'dairyman on his own account' and was still there in 1911. The historic maps indicate that the farm had ceased to operate as such by the mid-20th century. The 'old thatched farmhouse' still being farmed by Mr and Mrs Bazell was apparently destroyed by fire in 1923 (Hollings 2002, 92), after which the land was sold on (Western Gazette). The elements of structures seen in the excavation accord with the changing use during the 19th and 20th centuries

The references to the farm as 'Franches/Franchise' rather than 'Francis' suggests its origins as a new freehold area in the privilege of corporation of Wyke parish, although the date of this establishment remains unclear but intriguing. The former parish of Wyke Regis was large, and originally encompassed the historic area of Weymouth. Weymouth, occupying the southern side of the current harbour, may have been established as early as the 10th century, gaining its charter in 1252 (RCHME 1970, 330). The medieval village of Wyke Regis was situated around the current fifteenth century church, some 1.5 km distant to the south-west of the site, whilst a small settlement also came into existence at Small Mouth (the opening into

the Fleet) by 1244 (RCHME 1970, 370). This focus on coastal areas may have left this part of the parish as a more peripheral area, on the heavier Oxford Clay, and only utilised for more intensive agriculture at a later date.

The main phase of medieval activity appears to have been during the thirteenth to fourteenth centuries. Whilst there are a number of ditches, pits and evidence for a midden heap, there is no clear evidence for a structure on the site, and whilst there is culture material present, it is not abundant. This may imply that the habitation was at a slight distance, potentially subsumed beneath the later post-medieval structures to the south. A typical selection of medieval crops were grown or used on the site, with a dominance of wheat grain with smaller quantities of barley, broad beans and lentils. The limited animal bone assemblage confirms the keeping and consumption of the three main livestock species and the presence of horses and dogs. Both of these are consistent with household consumption. Nevertheless, there are some indications that the activity was not purely at subsistence level given the nature of the ceramics; these include both coarse and fine wares although these are akin to those seen on domestic, low-status settlements. However, the presence of fragments of equestrian equipment also implies that the inhabitants were of greater status.

Conclusion

This excavation has provided evidence of agricultural and domestic activity in the area of Little Francis during the thirteenth and fourteenth centuries AD. It has also identified the northern part of the buildings of Little Francis shown on mid-19th century maps which had all but disappeared by the mid-20th century. There was no evidence of medieval buildings associated with the activity, or of continuity of settlement between the thirteenth to fourteenth century phase and the 19th century, and this may have originally been a peripheral area of the large parish of Wyke Regis, although it was not near the parish boundary, which may not support a suggestion of inter-commoning. Nevertheless, the evidence of medieval agriculture and settlement in this area provides additional understanding of the medieval landscape on the Weymouth Lowlands. In an area where there is little known about the land use during the medieval and early post-medieval period it provides a wider context to the known medieval settlement within the wider parish of Wyke Regis.

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The author is an osteoarchaeologist and zooarchaeologist and this report was produced as part of her role at Context One Heritage and Archaeology.

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Excavation of medieval burials in Wimborne Minster 2012

GILL BROADBENT

In February 2012 the excavation of a small trench took place in the town square of Wimborne Minster at the request of the East Dorset District Council during the redevelopment of the Square. This is an area in which two chapels, St Peter's and St Mary's, and a burial ground are known from documentary sources to have existed during the medieval period and from where fragments of human bone were recovered from a number of test pits in 2009. Although no structures were identified during the excavation a large amount of human remains were uncovered with twenty-three separate burials identified. Radiocarbon dates obtained for three of the individuals place the burials in the thirteenth and fourteenth centuries. These dates indicate that St Peter's Chapel and associated graveyard was in existence some 100 years earlier than the available documentary sources show.

Introduction

At the request of East Dorset District Council an archaeological excavation was undertaken in Wimborne Minster between February and March 2012 during redevelopment of the Town Square. As part of the enhancement scheme a new tree was to be planted which necessitated the excavation of a trench for a planter to contain the tree roots. The excavation was carried out over a two-week period by a group of experienced archaeologists on a voluntary basis under the direction of the Priests' House Museum. Those involved were either connected to the Priest's House Museum or were members of East Dorset Antiquarian Society

t is known from documentary sources that two chapels and a graveyard existed in the Square during the medieval period. In 1945 Sir Kaye Le Fleming, a local historian, stated 'it is common knowledge that it is almost impossible to dig under the surface of the Square without disturbing human bones'.

Due to the possibility that archaeological features and burials would be disturbed by the redevelopment, in October 2009 East Dorset District Council commissioned the excavation of six test pits within the Square. These were excavated by members of East Dorset Antiquarian Society and disarticulated human bone was found in four of the six test pits and possible foundations of a building in another (Ladle 2009).

Following these findings, it was important that the trench for the tree planter was carefully excavated by hand. A two-week time scale was set for the excavation to fit in with the schedule of work for the redevelopment project. The size of the trench (5 m x 3 m), and its location in the north west of the Square (SU 00935 00078) were determined and marked out by the engineers in charge of the 'enhancement' project.

Background

The town of Wimborne Minster lies at the confluence of the rivers Allen and Stour on a gravel terrace above the floodplain. The site occupies a central position within the town at approximately 20 m above OD. The geology of the area comprises valley gravels of the Bagshot Bed series.

The origins and early history of Wimborne Minster have been fully described previously (Page 1908; Mayo 1860; Clegg 1960; Woodward 1983) and it is generally accepted that by the tenth century Wimborne was an important ecclesiastical centre and royal residence. Although being a significant ecclesiastical centre and the burial place of two kings the town appears to have reduced in importance after the end of the tenth century. Burgesses are mentioned in the eleventh century but the town did not achieve Borough status, although some urban expansion occurred during the medieval period. The Leaze was a short-lived planned development to the south west of the Minster in the Manor of the Deanery. Excavations carried out there in 1973 identified buildings dated to the thirteenth and fourteenth centuries (Field 1973). Further development occurred to the north of the historic core of the town with the formation of two streets, West Borough and the parallel street of East Borough. Both form part of the present-day town of Wimborne Minster, but in the twelfth century they were in the Borough Manor and part of the Kingston Lacy estate.

Two chapels are known to have existed in the vicinity of the present-day square during the medieval period: St Peter's with its graveyard, and St Mary's (Clegg 1960, 167) but no description of either exists.

St Mary's Chapel had been founded in the eleventh century by Horton Abbey and stood at the corner of the Square and Pillory Street (present-day West Borough) on land which is still leased by the Church (D. Reeve 2014 pers. comm.). It is unclear when St Marys ceased being a chapel but by the middle of the fifteenth century records indicate it had been converted into the Church House.

Whilst the date of the foundation of St Peter's is not known, documentary sources show it was in existence by 1330 and continued in use into the middle of the

sixteenth century. In 1544 the building was converted into a new Church-House but by the end of the 16th century both the Chapel building and graveyard are described as 'decayed' (Fleming 1945, 48).

The property was then acquired by Thomas Hanham who donated it to the Corporation as a site for a Town Hall (Clegg 1960, 168). While the Churchwarden's Account for the year 1544 record St Peters Chapel merely as being *"in the market place"* two surviving 17th century maps show the position of what is generally accepted to have been the site of the Town Hall and therefore St Peters Chapel, in the south west area of the Square. According to Clegg the Town Hall had been so badly built that it fell down a few years later leaving only the east wall standing. The remaining wall was eventually demolished in 1860 when the area was cleared to form the current Town Square.

Although the graveyard had gone out of use in the sixteenth century the Parish register of 1638 records that it was reopened for the interment of 400 inhabitants of the town (James 1982, 40). These deaths were presumably the result of an outbreak of plague.

Unfortunately, excavations conducted within the Square in 1979 (Woodward 1983) which recorded features dated to the twelfth and thirteenth centuries, did not throw any light on the whereabouts of either chapel or churchyard.

The 2012 Excavation

The excavation was carried out within the Town Square (Fig. 1) during the wider redevelopment work and safety fencing was erected around the trench for protection. The fencing also served to conceal the site and the extraction of the human remains from public view.

Under supervision the modern road surface and 2 layers of underlying hard core of the 5 m x 3 m trench were removed by tracked mechanical excavator using a toothed bucket. After the mechanical removal of these upper layers the trench surface was cleaned back by hand and the distinct patches of darker soil that had been exposed were investigated. However, no archaeological features were found other than an irregular area of compacted small to medium flint gravel which ran along the western baulk and which is considered to be the remains of a previous road or yard surface.

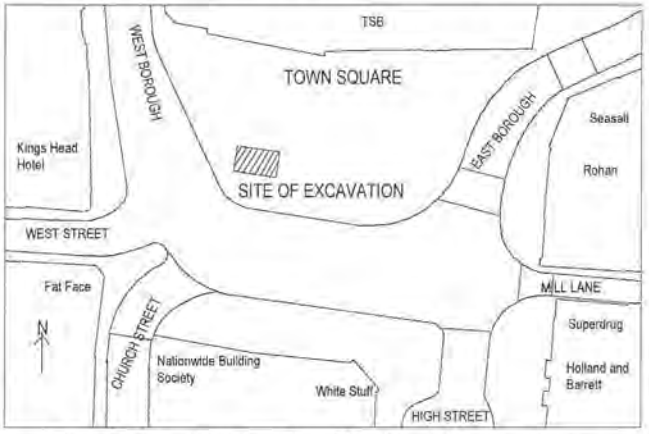

Figure 1: Site Location Plan, Wimborne Minster Square

Demolition debris consisting of brick and tile fragments together with pieces of limestone and sandstone and flint nodules was littered across the site with a greater density in the western half of the trench. At a depth of approximately 15 cm below the base of the hard-core scatters of disarticulated human bone were evident over the whole site intermingled with this debris. The location of all archaeological features and deposits were planned using taped measurements and all depths were recorded from the existing ground surface. Although steel fencing had been erected around the trench the site was not secure and exposed burials were lifted at the end of each day to minimize the possibility of overnight interference.

Due to such a short length of time being available for the excavation and because of the complexity of the site it was not possible to plan each individual inhumation before they were lifted for reburial later. Several of the skeletons lay partly under the western baulk (SK31, SK32, SK51, SK54) and here only the visible bones were lifted with the remainder being left undisturbed. Individual context forms for each burial were completed, colour scaled digital photographs taken and a photographic log completed. These can be found in the archive which is held at the Priests' House Museum under the code WS12.

The only evidence for the existence of any structures was the presence of two semi-circular depressions (Context 16 and Context 27) three metres apart on opposite edges of the trench approximately two metres from the western baulk. Context 16 was cut by the southern baulk and was 40 cm wide and 95 cm deep. Context 27, running into the northern baulk was 50 cm in width and was cut to a depth of one metre below ground level. They were both filled with fine dark humic soil which contained in the case of Context 27, fragments of human bone and in Context 16, general demolition debris, brick and pieces of limestone. It is considered they represent robbed out features belonging to an unknown demolished structure. At a depth of 60 cm below the ground level a large irregular deposit of oyster shell (Context 23) was found in approximately the centre of the trench

intermingled with demolition debris and human bone fragments.

The Burials

Preservation of the skeletal material was poor and, in many cases, very fragmentary owing partly to repeated grave cutting, but mainly due to the changing use of the locality over time. Due to the high level of interference that has occurred to many of the burials post interment it is impossible to ascertain the total number of individuals originally buried within the area of the trench. All the human remains were taken to Winchester University for analysis by Dr Katie Tucker and her full report is held in the archive at the Priests House Museum. Dr Tucker identified a total of twenty-three individual inhumations, of which twelve were reasonably intact with the remaining eleven varying in completeness (see below).

A further 4019 fragments of human bone that could not be related to specific individual burials were recovered from the site and whilst not included in Dr Tucker's report a comprehensive catalogue of these fragments can also be found in the archive.

The amount and depth of the disturbance varied between the eastern and western ends of the site. In the east, the disturbance continued to a depth of approximately 75-80 cm below ground level with the inhumations recovered from below this level more or less intact. Where disturbance had occurred below this level it appears to have been due to repeated grave cutting rather than modern interference.

Skeleton SK52 lay at a depth of 100 cm below a number of later burials. A chop mark visible in the right femur of the skeleton was large enough to have been made by a spade when the ground was re-opened for the later burials. A large number of the bones of the skeleton had been displaced and, including the skull, inverted. The bones missing from the left side of burial SK36, which otherwise showed little other sign of interference, also suggests disturbance during the reopening of the ground for a later burial.

Lying above burial SK52 but showing no signs of disturbance were burials SK30, SK38, SK39, SK40 and SK41, SK42 and SK44. These were closely packed together some on top of others and others touching. The lack of any evidence of post interment disturbance to this group of individuals suggests they had been buried at the same time or within a very short time of each other.

At the western edge of the site three burials lying below 75 cm, (SK32 at a depth of 80cm, SK51 at a depth of 1.05 m and SK54 at a depth of 1.08 m), had all suffered the same damage having been sharply truncated just above the level of the knee.

Where it could be determined, all the individuals had been buried lying on their backs with arms by their sides. Heads were to the west with feet to the east indicative of Christian burials. The feet and ankles were close together suggesting the individuals had each been bound within a shroud as was generally the practice during the medieval period. There was no evidence for the presence of any coffins and with the exception of a whetstone, or pendant, found in the fill above burial SK35, possibly a stray loss, there were no grave goods relating to any of the burials.

Whilst there were no signs of individual grave cuts, the majority of the burials had been placed in orderly rows respecting each other. The exception was in the south-east corner where the burials were much more closely packed and appeared randomly placed. SK40 and SK41 were out of line with the rest of the burials with the left leg of SK40 touching the left shoulder and arm of SK30. It is also noticeable that the skulls of these closely packed skeletons were lying on the side facing south whereas those of the other burials were facing upwards as if they had been more carefully placed.

The distribution of the burials was not even across the trench with an area of approximately 4 square meters in the south west of the trench containing no burials at all. The area stretched from the southern edge of the trench, 0.5 m from the western edge from where the burials SK32, SK51, SK54 had been truncated and 1m from burials SK45 and SK53 to the north. It is possible that if there had originally been inhumations within this area at some time they had been cleared and the bones re-deposited. If this was the case it may account for the 714 disarticulated fragments and six teeth which had been collected together and redeposited to the east of this area (Context 26). Analysis of this assemblage showed it consisted of fragments relating to a minimum number of three individuals, one of which was a female (Lundberg & Elmer 2015). The 282 bone fragments and two teeth recorded in Context 34 from a minimum of two individuals, one adult and one juvenile, may also relate to such a clearance and redeposition.

Radio Carbon Dating

In the absence of any associated dating evidence samples from three of the burials, SK40 from the south-east corner of the trench and SK45 and SK53

from the north west of the site, were submitted to the Scottish Universities Environmental Research Centre, Glasgow for radiocarbon dating.

The results obtained are:

SK53, SUERC-52445 (GU33582), 704 +- 30 giving a calibrated date of AD 1216 -1276

SK45, SUERC-52441 (GU33581), 658 +- 30 giving a calibrated date of AD 1262 - 1322

SK40, SUERC-52440 (GU33580), 610 +- 30 giving a calibrated date of AD 1310 - 1370

The radio carbon dates obtained show a continued use of the graveyard for over 200 years. The earliest date range for SK53 of between AD 1216 - 1276, shows that the graveyard was in existence by at the latest the middle of the thirteenth century. By inference, this suggests that St Peter's chapel to which the graveyard was attached, must also have been in existence by this time which is considerably earlier than the date identified in the documentary sources currently available.

The middle of the date range for burial SK40, at 1340, is very close to the time of The Black Death which entered Dorset in the middle of 1348. This date range together with the apparent random and hasty method of burial of the other closely linked group of six individuals to SK40 does suggest they were possibly victims of the epidemic.

Analysis of the Medieval inhumations

Dr Katie Tucker **(2013)**

The completeness, age, sex, stature and cranial index of each individual was analysed, as well as any non-metric traits and pathologies observed. The detailed records are held in the Site archive and the results summarised in Table 1.

Demographic results

Amongst the twenty-three individuals from the assemblage, there were nine adult females and five adult males, as well as four adult skeletons where the sex could not be assessed due to absence of necessary elements (Table 2). The sex ratio of this assemblage, although small, does therefore seem to be biased towards females, although at least two of the unsexed adults were possibly males based on their stature and robusticity, and once this is taken into account, the sex ratios would be more balanced.

The age profile of the assemblage is also largely typical for a medieval attritional cemetery site, with a slightly higher number of children under the age of eight years, a decline in individuals dying in adolescence and young adulthood and then an increase in numbers of individuals dying in older middle and mature adulthood. The assemblage is also typical for the period in containing very few neonates and infants, even though there would have been high infant mortality. There are a number of explanations for this absence, including possible segregation in burial location for particular groups of individuals, or that, due to their small size and often ephemeral nature, neonate and infant graves are often completely removed by later activity (adult burials are also subject to the same degree of truncation but are very unlikely to be completely removed).

The stature could be calculated for four males and five females. The mean stature for the males was 173.12 cm with a range of 160.79cm to 182.31 cm, and for the females, it was 159.94 cm with a range of 152.65 cm to 166.49 cm. This accords relatively well with the average statures calculated for the period as a whole, namely 171 cm for males and 159 cm for females (Roberts and Cox 2003: 248), although the males from Wimborne were, on average, slightly taller than was the norm.

Dental disease

Evidence for dental disease is very commonly found in archaeological populations as the dentition tend to survive relatively well even amongst heavily fragmented and poorly preserved assemblages. Dental caries and dental calculus are a reflection of poor levels of dental hygiene and high levels of protein and sucrose in the diet (Lieverse 1999; Hillson 2005: 291), although modern levels of dental hygiene are still not sufficient to prevent the build-up of dental calculus (Roberts and Cox 2003: 131). Periapical lesions (cavities caused by dental abscesses) are associated with severe carious cavities and result from an infection penetrating into the alveolar bone from an infected tooth or tooth socket (Dias and Tayles 1997). Periodontal disease is caused by inflammation of the gingivae and is usually associated with calculus deposits and the oral bacteria that reside within (Connell *et al.* 2012: 58). Ante-mortem tooth loss is also usually associated with severe carious cavities or periodontal disease, although it can also result from trauma to the dentition.

Nine of the individuals had evidence for dental caries (60% of those with surviving dentition). This is slightly higher than the total recorded for the period as a whole, which was 53% of individuals with dentition (Roberts and Cox 2003: 259). When true prevalence

Table 1: Skeletal table

Skeleton No	*Age*	*Sex*	*Stature*	*Completeness*	*Dental Pathology*	*Skeletal Pathology*	*Non-Metric Traits*
SK9	Adult	?F	-	Parts of the cranium, mandible, scapulae, right clavicle and right humerus	Caries (1/25); calculus (24/25); slight-moderate periodontal disease; Abcess - buccal periapical lesion of the maxillary left PM4; lingual periapical lesion of the maxillary left M1; enamel hypoplasia of the maxillary and mandibular lateral incisors and canines	Roughening of the attachment site for *M. subscapularis* on the right humerus	-
SK14	Young child (1.5-3 years)	-	-	Parts of the left radius and ulna, and parts of both legs and the left foot	-	-	-
SK19a	Adult	-	174.46 ± 3.27cm (femur)	Parts of both legs and feet	-	Degenerative joint disease left hip; spur of bone, proximal and lateral shaft of the left tibia; cortical defect at the attachment site for *M. soleus* on tibiae	Femoral plaque (L)
SK19b	Adult	-	-	Parts left radius and ulna, parts of femorae, part pelvis and sacrum, and part right hand	-	Cortical defect at the attachment site for *M. biceps* on the left radius	-
SK24	Adult	?M	-	parts of the cranium and mandible, the right clavicle, scapulae and humerus, C1 and C2	Calculus (9/10)	Degenerative joint disease C1 and C2; circular defect on the superior central part of the frontal, c. 40mm in diameter, with thinned ectocranial bone around the margins and missing bone in the centre of the lesion. Consistent with a healed trephination or healed blade injury; cortical defects at the attachment sites for *M. teres major* and *M. pectoralis major* on the right humerus	Lambdoid wormians, parietal foramen (R), mastoid foramen exsutural
SK30	adolescent (13-15 years)	-	-	Majority present, apart from parts hands and feet	Caries (1/27), calculus (14/27)	Active periosteal new bone medial midshaft of both femora - non-specific infection active at the time of death; delayed skeletal growth (long bone length suggests an age of 7-9 years); cortical defects at the attachment site for the costoclavicular ligament on both claviculae and for *M. soleus* on both tibiae	Distal septal aperture
SK31	Adult	-	-	Parts of both tibiae, fibulae and feet	-	Avulsion fracture of the attachment site for the bifurcate ligament on the left calcaneus; enthesophytes at the attachment site for *tendo calcaneus* onboth calcanei	Tibial squatting facet (L)
SK32	mature adult (46+)	?M	173.89 ± 4.32cm (radius)	Part left humerus, both radii and ulnae, L5, sacrum, pelvis, and parts of both femorae and hands	-	Osteoarthritis of L5 and sacrum; degenerative joint disease of both wrists hands and hips; spondylolysis of the right side of L5 with subsequent instability and eburnation of the margins of the facets of L5 and S1; enthesophytes at the attachment sites for *M. Biceps*, both radii, for *M. gluteus medius*, both femora, for *M. psoas major*, right femur, for *M. Semimembranosus*, left ischium, and for *M. Iliacus*, right ilium	Femoral plaque

SK33	old middle adult (36-45)	?F	164.26 ± 3.55cm (femur + tibia)	Majority of elements present, apart from the thoracic vertebrae and part of the right scapula and humerus	Caries (5/13); calculus (12/13); slight-moderate periodontal disease; enamel hypoplasia of mandibular canines	Osteoarthritis of cervical vertebrae and left thumb; degenerative joint disease of lumbar vertebrae, wrists, hands, feet, shoulders and elbows; healed *osteochondritis dissecans* of the proximal facet of the proximal phalanx for the right MT1; healed crush fracture of the medial side of the distal joint surface of the proximal phalanx for the right MT1; cortical defect at the attachment site for *M. teres major*, left humerus; enthesophytes at the attachment site for *tendo calcaneus*, both calcanei, for *M. peroneus brevis*, both MT5s, for *M. psoas major*, both femora, for *M. gluteus medius*, the right femur, and for *M. Soleus*, left tibia; porosity and roughening of the attachment sites for the rotator cuff muscles, left humerus; roughening of the attachment site for *M. Semimembranosus*, both ischia	Supra-orbital foramen (R), parietal foramen, mastoid foramen exsutural (Rt), tibial squatting facet
SK35	old middle adult (36-45)	?F	156.2 ± 3.55cm (femur + tibia)	Majority of elements present, apart from the right radius, and parts of the cranium, hands and feet	Caries (2/10); calculus (8/10)	Degenerative joint disease thoracic and lumbar vertebrae; Schmorl's nodes, lower thoracic and lumbar vertebrae; healed *osteochondritis dissecans*, superior facet of the right calcaneus; slight depression 10mm in diameter, posterior of the right parietal near to the sagittal suture with no changes to the endocranial surface, which is possibly remodelled blunt force trauma or a cyst; button osteoma, 10mm by 7mm, occipital near to the lambdoid suture; enthesophytes at the attachment site for the *tendo calcaneus*, right calcaneus and for *M. quadriceps femoris*, both patellae	Mastoid foramen exsutural, femoral plaque, tibial squatting facet (L), distal septal aperture, vastus notch (L)
SK36	mature adult (46+)	?F	152.65 ± 3.72cm (femur)	Majority present except part left arm and leg, and parts both hands and feet	Caries (2/14),; calculus (9/13); enamel hypoplasia of the maxillary and mandibular canines and lateral incisors; abnormal wear, maxillary medial incisor and canine, with grooves worn medio-laterally across the crown, suggests use as tools	Degenerative joint disease, thoracic and lumbar vertebrae and right ankle; Schmorl's nodes, lower thoracic and lumbar vertebrae; concentric lesions with osteophytic development, anterior and superior of the body of L4, possibly indicating brucellosis; enthesophytes at the attachment site for the *tendo calcaneus*, right calcaneus and for *M. gluteus medius*, right femur	Lambdoid wormians, supra-orbital foramen, transverse foramen bipartite (R), six lumbar vertebrae, the superior facets of L1 are of the thoracic type
SK38	young child (1-2 years)	-	-	Majority present except right scapula, sacrum, parts of the mandible, cranium, arms, legs, pelvis, hands and feet	Calculus (1/11)	Small plaque of new bone on the endocranial surface of the occipital	Lambdoid wormians, parietal foramen (L), mastoid foramen exsutural
SK39	old middle adult (36-45)	?M	160.79 ± 2.99cm (femur + tibia)	Majority present except some cervical and thoracic vertebrae	Caries (5/13); calculus (4/13); slight-moderate periodontal disease; abcess - buccal periapical lesions of maxillary left lateral incisor, lateral premolar, mandibular left and right medial premolars; enamel hypoplasia of mandibular lateral incisors	Osteoarthritis, cervical, thoracic and lumbar vertebrae, left ankle; degenerative joint disease hands, shoulders, hips, knees, feet and right elbow; fusion across the facets and arches of C2 and C3 with partial fusion across the intervertebral space and height reduction of this space. Possibly Klippel-Feil syndrome, although may be a result of the spinal degenerative disease; button osteoma, 7mm in diameter, posterior of the right parietal near to the temporal suture; thickening of the frontal with very deep arachnoid depressions and plaques of thick new bone, indicative of *hyperostosis frontalis interna*; volar grooving of the proximal hand phalanges for MC3-MC5; cortical defect at the attachment site for the costoclavicular ligament, right clavicle; enthesophytes at the attachment site for the common extensors, right humerus, for *M. quadriceps femoris*, both patellae and for the *tendo calcaneus*, both calcanei; roughening of the attachment site for *M. Subscapularis*, right humerus	Supra-orbital foramen (L), parietal foramen, tibial squatting facet (L), distal septal aperture (R), vastus notch, inferior facets of T11 are of the lumbar type

SK40	young middle adult (26-35)	?F	158.42 ± 3.55cm (femur + tibia)	Majority present except from some cervical vertebrae and parts hands and feet	Caries (5/29); calculus (26/29) (over the occlusal surface of the maxillary right M2 and M3); Abcesss - buccal periapical lesion of the maxillary left M2; enamel hypoplasia of the maxillary and mandibular canines; narrow groove worn into the lingual surface of the crown of the maxillary left lateral incisor with polished edges, indicating use as a tool	Degenerative joint disease cervical, thoracic and lumbar vertebrae; Schmorl's nodes, lower thoracic vertebrae; healed *osteochondritis dissecans*, proximal joint surface of the left ulna; enthesophytes at the attachment site for *tendo calcaneus*, both calcanei	Sagittal wormians, parietal foramen (R), femoral plaque, tibial squatting facet, vastus notch, transverse foramen bipartite (R), inferior facets of T11 are of the lumbar type
SK41	child (6-8 years)	-	-	Majority present except the right ulna, left scapula, part of the left femur and parts of the hands and feet	Calculus (19/21); enamel hypoplasia of mandibular medial incisors	*Cribra orbitalia*, right orbit; cortical defect at the attachment site for *M. Soleus*, both tibiae	Parietal foramen (R), mastoid foramen exsutural, transverse foramen bipartite (L)
SK42	young adult (19-25)	?F	166.49 ±3.55cm (femur + tibia)	Majority present except parts of the hands and feet	calculus (18/29); enamel hypoplasia of maxillary second molars and canines	Schmorl's nodes, lower thoracic and lumbar vertebrae; delayed skeletal development (epiphyseal fusion suggests 13-15 years); avulsion fracture of the attachment site for the bifurcate ligament, both calcanei; healed *osteochondritis dissecans* of the inferior facet, both tali; volar grooving on the proximal phalanges for MC3-MC5; cortical defect at the attachment site for *M. pectoralis major*, both humeri and for *M. Soleus*, right tibia; enthesophytes at the attachment site for *M. Soleus*, left tibia; the right humerus is 5mm longer than the left.	Lambdoid wormians, parietal foramen (R), mastoid foramen exsutural, tibial squatting facet
SK44	young child (4-6 years)	-	-	Majority present except sternum, cervical vertebrae and parts of the hands and feet	Calculus (3/8); enamel hypoplasia of permanent maxillary central incisors	Slight *cribra orbitalia* of both orbits	Metopism
SK45	young middle adult (26-35)	F	161.62 ± 3.55cm (femur + tibia)	Majority present except parts of the hands and feet	Caries (4/28); calculus (14/28); slight periodontal disease	Degenerative joint disease, cervical and thoracic vertebrae; Schmorl's nodes, thoracic and lumbar vertebrae; smooth edged lesion, right side of the body of L3, possibly indicating a cyst; remodelled fracture of the distal joint surface of a proximal foot phalanx; sacrum is lumbarised on the right side and the neural arch is unfused. Apparently altered posture and gait, right leg was longer and more robust than the left; enthesophytes at the attachment site for *tendo calcaneus*, both calcanei and for the anterior talofibular ligament, both fibulae	Metopism, parietal foramen (R), tibial squatting facet (R), transverse foramen bipartite (R)
SK48	mature adult (46+)	F	-	Part of the left arm and hand, the pelvis, tibiae and left fibula	-	Osteoarthritis of the sacrum; degenerative joint disease, left wrist	-

SK51	old middle adult (36-45)	?F		Parts of both arms and hands, L4 and L5, the pelvis, and parts of both femora	-	*Osteochondritis dissecans* of the proximal joint surface, right radius	-
SK52	mature adult (46+)	?M	182.31 ± 3.27cm (femur)	Majority present except parts of the cranium and mandible, right arm and leg, and hands and feet	Calculus (15/15)	Osteoarthritis, cervical vertebrae; degenerative joint disease, thoracic and lumbar vertebrae, right elbow and left hip; Schmorl's nodes, lower thoracic vertebrae; healed fractures of the shafts of the left MT2 and MT3 with some disruption to the joint surfaces and angulation, and evidence for a healed infection in the form of compact bone on the shaft of the MT2 and a cloaca on the distal shaft of MT3; remodelled compact bone on the distal shafts of both femora, the shafts of both tibiae and left fibula and the distal shaft of the right fibula, indicating a healed non-specific infection; well-defined area of expansion of the medial midshaft of the right tibia, 23mm by 8mm; cortical defect at the attachment site for the costoclavicular ligament, right clavicle; enthesophytes at the attachment site for *tendo calcaneus*, right calcaneus, for *M. quadratus femoris* and the adductor muscles, both femora, for *M. quadratus femoris* on the left patella, for *M. Soleus*, both tibiae, for the tibiofibular ligament, left tibia and for the talofibular ligament, left fibula	supra-orbital foramen (left), femoral plaque
SK53	old middle adult (36-45)	M	175.48 ± 2.99cm (femur + tibia)	Majority present except parts of the cranium and hands, and most of the feet	Caries (2/21); calculus (21/21); slight periodontal disease; enamel hypoplasia of maxillary first and second molars and mandibular incisors and canines	Osteoarthritis, cervical, thoracic and lumbar vertebrae; degenerative joint disease, right shoulder and left hip; Schmorl's nodes, mid thoracic and lumbar vertebrae; volar grooving on the proximal phalanges for MC4 and MC5; remodelled compact bone on the shafts of both fibulae and distal shafts, both tibiae, including at the attachment site for the interosseous ligament, indicating a healed non-specific infection; cortical defect at the attachment site for *M. Semimembranosus*, left ischium; enthesophytes at the attachment site for *M. Soleus*, right tibia; roughening of the attachment site for *M. Subscapularis*, both humeri; posterior bending of the proximal shafts, both humeri and an increased torsional angle of the heads	Ossicle at lambda, lambdoid wormians, parietal foramen, mastoid foramen exsutural, femoral plaque, tibial squatting facet (R), transverse foramen bipartite (R)
SK54	Adult	-	170.67 ± 2.99cm (femur + tibia)	Legs and parts of the hands and feet	-	Degenerative joint disease of the left knee	Tibial squatting facet

Table 2: demographic profile of the Wimborne assemblage

	male	*?male*	*?female*	*female*	*unknown*	*total*
young child					3	**3**
older child					1	**1**
adolescent					1	**1**
young adult			1			**1**
young middle adult			1	1		**2**
old middle adult	1	1	3			**5**
mature adult		2	1	1		**4**
adult		1	1		4	**6**
total	**1**	**4**	**7**	**2**	**9**	**23**

rates (number of teeth affected) are calculated, the rate for Wimborne is 27 of 274 teeth (9.85%), which is also higher than the average for the period as a whole of 5.55% (Roberts and Cox 2003: 259), although it does correspond well to the percentage seen amongst the population from the cemetery of St Mary Spital in London, which was 9.2% (Connell *et al.* 2012: 46).

Dental calculus was present in all fifteen individuals with surviving dentition, with a true prevalence rate of 197 of 273 teeth (72.16%). This is much higher than the average rates of 59.18% of individuals and 53.99% of teeth recorded for the period as a whole, although percentages ranged from 4.17% of individuals to 100% at individual sites (Roberts and Cox 2003: 261-2), showing that variation can be very large and probably reflects variables such as individual oral flora, hygiene and diet, as well as recording protocols (Roberts and Cox 2003: 261).

Periapical lesions were recorded in three individuals (21.4% of those with surviving alveolar bone) with a true prevalence rate of 7 of 232 tooth sockets (3.02%). These results are also very similar to those recorded for the period as a whole, which were 26.27% and 3.11% respectively (Roberts and Cox 2003: 260). Periodontal disease was recorded in five individuals (35.7% of those with surviving alveolar bone), which also compares very well with the percentage of 37.53% recorded for the period (Roberts and Cox 2003: 261). Ante-mortem tooth loss was recorded in seven individuals (46.7% of those with surviving dentition) with a true prevalence rate of twenty-three out of 347 teeth (6.63%). This is higher than the average number of individuals in the period as a whole (36.42%) but lower than the true prevalence rate for the period of 19.44% (Roberts and Cox 2003: 262-3).

Two individuals (both adult females) also had evidence for having used their teeth as tools in the form of medio-lateral grooves across the posterior of the occlusal surfaces of their maxillary incisors and canines. One of these individuals (SK36, a mature adult female) demonstrated relatively high levels of dental attrition (probably age related) and had evidence for deep and wide grooves across the occlusal surface of a maxillary lateral incisor and canine. The other individual (SK40, a young middle adult ?female) had evidence for a narrow and sharp edged groove across the occlusal surface of a maxillary lateral incisor. The features seen in both of these individuals have been ascribed to habitually drawing fine thread across the surface of the teeth in the process of spinning (Molleson 2007: 11) or in processing materials for bow strings, cordage or basketry (Larsen 1997: 259).

Degenerative disease

Osteoarthritis (OA) and degenerative joint disease (DJD) are also very commonly found in archaeological populations. The conditions manifest as osteophyte formation around joints, porosity and subchondral destruction of joint surfaces, with eburnation (polishing) of joint surfaces, due to bone rubbing against bone through cartilage loss, being specific to osteoarthritis. Both disease processes are a result of the ageing process and wear and tear on joints (Jurmain and Kilgore 1995). Thirteen individuals (56.5%) had evidence for degenerative joint disease, with six (26.1%) having evidence for osteoarthritis, and, as would be expected, where the age of the individuals could be assessed, these were mostly old middle and mature adults, although two young middle adults were also affected. The most commonly affected area of the body was the spine with eleven individuals showing evidence for degenerative processes (47.8%), which is much higher than the 26% of individuals showing evidence for the disease in the period as a whole (Roberts and Cox 2003: 281-282). Extra-spinal joint disease was recorded in nine individuals (39.1%), which is again much higher than the 14.1% recorded for the period as a whole (Roberts and Cox 2003: 283).

Activity related lesions

Schmorl's nodes are depressions in the superior and inferior surfaces of the bodies that have a complicated aetiology but are probably the result of unusual compressive loading of the spine during adolescence or early adulthood, such as through carrying heavy loads on the back or head (Faccia and Williams 2008). Seven individuals (30.4%) had evidence for Schmorl's nodes, which is lower than the 44.3% of individuals with evidence for the condition at St. Mary Spital, London (Connell *et al.* 2012: 76, 78-79) and the 40.1% recorded at SS James and Mary Magdalene, Chichester (Boylston and Lee 2008: 248), although this may be partly due to the lower percentage of individuals in the Wimborne assemblage who had surviving vertebral columns.

Entheseal changes are expressions of stress at muscle attachment sites on the skeleton in the form of enthesophytic bone formation around the margins of an attachment site, or roughening, porosity or cortical defects of the surface of the attachment (Knüsel 2000: 397) and have been found to correlate with activity patterns (Villotte *et al.* 2010). Eleven individuals had evidence for enthesophytes (47.8%), with ten individuals having evidence for cortical defects

(43.5%), with the humerus and tibia being the most commonly affected elements. Four individuals (17.4%) had evidence for entheseal changes to the proximal end of the humerus, which can be ascribed to injuries to the rotator cuff.

One individual (SK32, a mature adult ?male) had evidence for spondyloylsis of the right side of the fifth lumbar vertebra with subsequent instability of the joint and osteoarthritis. This condition is a disruption of the neural arch of the vertebra and may be a result of congenital weakness or habitual activity-related trauma (Judd 2008: 236).

One individual (SK53, an old middle adult male) demonstrated increased torsional angles of both humeri and bending of the shafts, which can be assumed to be an adaptation to strenuous activity (Rhodes and Knüsel 2005: 541), and another individual (SK42, a young adult ?female) demonstrated asymmetry in the length of the humeri, with the right humerus being 5mm longer than the left. This probably indicates activity-related hypertrophy whilst the limb was still growing and suggests a right sided dominance (Knüsel 2000).

Childhood health

Enamel hypoplasia are areas of reduced enamel deposition on the dental crowns, usually manifesting as linear depressions and pitting and thought to relate to periods of acute ill-health and increased body temperature during childhood (when the dental crowns are developing) (Lewis and Roberts 1997). Nine individuals (60% of those with surviving dentition) had evidence for enamel hypoplasia, which is significantly higher than the 35.4% of individuals from the period as a whole (Roberts and Cox 2003: 264) but less than the 80.3% recorded in the population from the hospital of St James and St Mary Magdalene, Chichester (Ogden and Lee 2008: 195).

Cribra orbitalia is a porosity of the roof of the orbits that is probably the result of iron deficiency anaemia, whether through inadequate diet or parasitic infection, although more complicated aetiologies have also been suggested (Walker *et al.* 2009). Two individuals (8.7%) had evidence for the condition, which is slightly lower than the 10.8% recorded for the period as a whole (Roberts and Cox 2003: 235) and the 10.1% recorded in the population from St. Andrew's, Portland (Raes 2005: 72).

Two individuals (8.7%) also had evidence for delayed skeletal growth and maturation, with their long bone lengths and degree of epiphyseal fusion suggesting a much younger age than their dentition (dental age has been found to vary less from chronological age than skeletal age (Molleson and Cox 1993: 49)). Delayed skeletal growth and maturation is assumed to be related to childhood stress and poor nutrition (Humphrey 2000, 23), although neither of the individuals with delayed growth had evidence for more indicators of childhood stress than the rest of the population, something that was also found in other medieval populations (Ribot and Roberts 1996).

Infectious disease

Evidence for non-specific infection in the form of periosteal new bone, either porous woven bone, indicating an infection active at the time of death, or compact remodelled bone, indicating a healed infection (Roberts 2000a) was recorded in four individuals (17.4%), which is slightly higher than the 14.1% recorded for the period as a whole (Roberts and Cox 2003: 235).

Only one individual (SK36, a mature adult ?female) had possible evidence for a specific infection, namely brucellosis, in the form of osteophytic growth and a concentric lesion on the anterior and superior of the body of the fourth lumbar vertebra. Brucellosis is a chronic infection caused by the bacterium *Brucella* and is usually passed to humans via ingestion of milk or meat products from infected animals, or from close contact with their secretions (Connell *et al.* 2012: 117). However, there is currently a great deal of debate over the diagnostic criteria for brucellosis in archaeological skeletal remains (Mutolo *et al.* 2012) and therefore the diagnosis of this condition amongst the Wimborne assemblage will have to remain tentative.

Neoplastic disease

Two individuals (8.7%) had evidence for button osteomas, which are small, circular, projections of bone on the ectocranial surface (Lee and Boylston 2008a: 252). They are benign bone-forming tumours (Steinbock 1976: 327) and are the most common form of neoplastic disease found in archaeological skeletal remains.

Trauma

There was no evidence for any long bone fractures amongst the Wimborne assemblage, with the only evidence for fractures being found in the foot. Three individuals (13%) had evidence for healed fractures to the foot phalanges or metatarsals, with SK52 (a mature adult ?male) showing evidence for fractures to the left second and third metatarsals and associated infection in the form of compact bone and a cloaca (a

sinus cavity to allow for drainage of pus from the site of infection (Lee and Boylston 2008b: 226)).

Two individuals (8.7%) had evidence for avulsion fractures, which is when a fragment of bone is detached from a muscle attachment site due to a sudden contraction of that muscle (Roberts 2000b: 339), both of which were at the attachment site for the bifurcate ligament on the calcaneus. One individual (SK24, an adult ?male) had evidence for a circular lesion, 40mm in diameter, on the frontal bone with thinned cortical bone around the margins (fig. 6). This appears to be consistent with a case of healed trephination, which is the surgical removal of a piece of skull, either for the treatment of head injuries or headaches, or to release spirits causing disease (Roberts and McKinley 2003). Seven other examples of trephinations from medieval Britain and Ireland have been identified and at least four of these show evidence for healing, suggesting a good survival rate for the operation (Roberts and McKinley 2003).

Miscellaneous conditions

Five individuals (21.7%) had evidence for *osteochondritis dissecans*, a localised disorder of the joint surface in which an area of subchondral bone becomes necrotic and separates from the rest of the joint, possibly due to an impaired blood supply to the affected area (Lee and Boylston 2008a: 257). This is much higher than the 2.3% of individuals recorded at St. Mary Spital (Connell *et al.* 2012: 131) and the 8.3% recorded at SS. James and Mary Magdalene (Lee and Boylston 2008a: 257), and it is interesting to note that there may be inherent susceptibility and a familial occurrence of the condition (Stougaard 1964).

Three individuals (13%) had evidence for volar grooving on the proximal hand phalanges. This results from flexion contractures of the manual digits and is commonly seen in individuals with neuromuscular degeneration associated with multibacillary leprosy (Ortner 2008: 203-204). However, there is no evidence for any of the other skeletal manifestations of leprosy in these individuals and therefore this is likely to be some form of congenital digit flexion deformity, which can be sporadic in appearance but can also be inherited (Kozin 2004).

One individual (SK39, an old middle adult ?male) had evidence for fusion across the neural arches of the second and third cervical vertebrae with partial fusion across the intervertebral space and reduction in height of the space (fig. 8). This is possibly a case of Klippel-Feil syndrome, although the presence of this anomaly alone is insufficient to diagnose the condition, which, in its most severe form, is associated with a suite of other defects (Pany and Teschler-Nicola 2007). However, it is worth noting that this individual does demonstrate short stature (160.79cm), which is one of the features associated with the condition in clinical studies (Driscoll *et al.* 2003).

The same individual also demonstrates evidence for *hyperostosis frontalis interna*, which is a thickening of the endocranial surface of the bone, usually nodular in nature, and considered to be the result of hormonal changes, usually after the menopause in women, although the condition can also be found in males, as in this case (Lee and Boylston 2008a: 254).

Family relationships

In addition to the possible familial relationships suggested by the presence of *osteochondritis dissecans* and flexion contractures of the manual digits in a number of individuals from the assemblage, two individuals demonstrated evidence for retention of the metopic suture, which normally closes by the second year of childhood, and six individuals had evidence for wormian bones of the cranial sutures, which are extra osseous "islands" located within the cranial sutures (Storm 2008: 171). Both of these anomalies can have a genetic predisposition, although they can also be caused by excess stress placed on the cranium during growth (Storm 2008: 171).

Summary

In summary, the assemblage from Wimborne in fairly typical for a medieval attritional cemetery population in terms of demographics, but also in such aspects as dental hygiene and diet, levels of childhood stress and rates of infectious disease. There are suggestions from the high levels of degenerative disease and activity related skeletal lesions that the population from Wimborne were subjecting their muscles and joints to higher levels of stress than was the norm. The assemblage also contains some unusual findings, in the form of a healed trephination, possible cases of Klippel-Feil syndrome and brucellosis, and evidence that individuals were using their teeth as tools. Finally, there is the suggestion that there may be familial relationships between some of the individuals with the presence of *osteochondritis dissecans*, manual

Figure 2: The whetstone

digit flexion deformities, and metopism and wormian bones in a number of individuals.

The Finds

A variety of finds were recovered during the excavation but due to the previous disturbance of the site none were found in a secure context and are therefore of little use for dating purposes. The finds were mainly fragmentary and included animal bone, metal work, ceramics, worked flint and building materials. Only two finds were found intact, the whetstone found in the fill above burial SK35 and a Jetton found within the disturbed upper layers of the trench. Full details of all the finds are held in the excavation archive.

The Whetstone (Fig. 2) is sub-trapezoidal in plan and rectangular in cross section. It is in excellent condition with smooth faces and little sign of wear. It is made from a hard, dark grey-green, fine-grained sedimentary rock that is not found in the Dorset area. It is 52 cm in length, tapering from 12 mm at the narrowest end to 16 mm at the broadest. Its thickness also varies from 8 mm at the narrow end to 10 mm at the broad end. A 3 mm hole, which would have been used to suspend the stone from a belt, has been drilled through the object 5 mm from the narrow top edge. To date it has not been possible to identify the source of the stone or date the object.

Due to the lack of wear on the surface of the stone it is uncertain whether it is an unused whetstone or a decorative pendant. It was found in the fill above burial SK35 and is possibly a stay loss rather than connected directly with the burial. However, it is relatively common to find whetstones being hung as pendants in burials (pers com K Tucker) and it may have been dislodged by later disturbance of the site.

The Jetton (Fig. 3) has a diameter of 22 mm. It was made at the Nuremberg mint by either Wolf Lauffer or his son, also called Wolf, and dates from the early to mid seventeenth century. On the obverse are three crowns alternately with three lis arranged around a central rose and on the reverse is the Imperial orb within a tressure of three arches and three angles. Unfortunately, the item is in a poor condition and it is not possible to decipher the full lettering upon it.

Discussion

The archaeological excavation in the town square of Wimborne Minster has proved to be invaluable for the early history of the town. It allowed the opportunity to obtain radio carbon dates for three of the burials in the graveyard which in turn has enabled a more precise date for the use of the graveyard to be established.

The relatively large number of burials obtained from the small sample area of 15 square metres would indicate, if the density of burials was consistent over the remainder of the Square, a high use of the burial ground over time.

A traditionally accepted view in the local community is that the burials in the Square relate to the re-opening of the graveyard in the seventeenth century to accommodate a 'plague pit' following an epidemic. During the current excavation, no evidence

Figure 3: The jetton

was obtained to confirm or refute this suggestion and such a plague pit may well exist in a different part of the cemetery.

However, it is extremely unlikely that Wimborne Minster would have been spared the devastating effects of the Black Death which hit the country in the fourteenth century, and the resulting decline in population following the outbreak has been suggested as the reason for the abandonment of The Leaze (Field 1973).

The radio carbon date obtained for burial SK40, with a date range of AD 1310 to 1370, does draw attention to the possibility that plague victims from this epidemic are buried within the excavated trench. Burial SK40 is part of a group of seven individuals interred in the south-east area of the site. Although aligned east-west as with the other inhumations, these appear to have been interred in a much more random manner and far closer together than other burials. Also from the lack of evidence for post-interment disturbance, it would seem that this group was either buried at the same time, or within a very short time of the others.

The composition of the group, one male, 2 females, 1 adolescent and three children ranging in age from 6-8, 4-6 and 1-2 years, also raises the possibility that some, if not all, were part of a family group which had succumbed to the epidemic at the same time. The possibility of a close relationship between some of these burials is strengthened by the fact that the two females (SK40 and SK42) both showed signs of wormian bones in the cranial sutures and *osteochondritis dissecans*, both conditions which Dr Tucker identifies as having genetic predispositions. The youngest child (SK38) also had wormian bones in the cranial sutures.

If the prehistoric flint and tesserae are discounted as residual, the finds recovered reflect the main periods of activity of the site and its change of use over time. The artefacts datable to when the area was functioning as a graveyard are limited to a few sherds of pottery and the whetstone. The greater majority of finds are dated to the time after St Peter's chapel was converted firstly into the Church House and then into the Town Hall. This would also imply that after this time the area was no longer respected as a graveyard with the discarded animal bone, pottery and oyster shell midden suggesting it was used as an area in which to tip rubbish.

Foreign finds, although limited to two pieces, a stoneware sherd produced in Raeran between the late fifteenth and middle of the sixteenth century and the Nuremberg Jetton from the seventeenth century also show there was contact between the area and Continental Europe during Tudor and Stewart periods with Poole being the likely port of entry.

Although there was a considerable amount of building rubble in the trench, with the exception of the two semi-circular cuts (C.16 and C.27) there was no other evidence to indicate a building had existed in the immediate area. The recovery of nine tesserae from the site is interesting but inexplicable. However, they may have a connection with the section of mosaic that exists in the Minster thought to have possibly originated in the Roman period.

While the excavation was underway, further human remains were found on the southern edge of the Square. These were excavated and recorded by AC Archaeology and a number of inhumations were identified. Taking together the results of the two excavations and the six test pits it is apparent that the graveyard extended across the full extent of the Square and beyond. As burials can be found at only the shallow depth of 50 cm below the current ground surface, it is important that in the future as little groundwork as possible is undertaken within the area of the Square in order to limit any further disturbance to remaining inhumations.

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Gill Broadbent obtained a BA (Hons) in Archaeological Studies at Bristol University in 2004. I have been a volunteer at the Priests House Museum since 2011 and am currently honorary Keeper of the Archaeological Collections at the Museum.

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Further prehistoric and Romano-British activity at Poundbury Farm, Dorchester

KIRSTEN EGGING DINWIDDY and TOM WELLS

Excavations in 2013 completed the archaeological works associated with the development of the area to the north of Poundbury Farm near Dorchester, Dorset, revealing further evidence of prehistoric and Romano-British activity. Two possible Bronze Age cenotaphs containing memento mori *deposits were found not far from similarly dated cremation burials excavated previously. The work also clarified the extent and development of a series of large ditched enclosures associated with a previously identified small Romano-British settlement. Other evidence related to the settlement's agrarian, predominantly sheep and crop-based economy, and small-scale craft and industry. Thirteen Romano-British inhumation graves were revealed, adding to the thirty-three already recorded. As seen before, there were two forms of burial rite — the local* Durotrigian *style, and a more typical form for the period (supine, extended and coffined). Unusually, four of the individuals were buried with complete lamb carcasses. One of these was even more remarkable; a child of around 10 years of age, decapitated as part of the post-mortem rites. In general, the results from the final phase of excavation support the patterns, interpretations and discussion presented in the previously published report, whilst providing further insight into the lives of past populations in the Dorchester environs.*

Introduction

The excavation of a 0.26-hectare area of land in 2013 marked the completion of an extensive programme of archaeological works associated with the development of the area to the north of Poundbury Farm, near Dorchester, Dorset (National Grid Reference 367291 90967; Figs 1–3). The narrow strip of land investigated during the final stage of work was situated between two large areas (Areas 4 and 5) excavated by Wessex Archaeology in 2007.

The following provides a summary of the main findings of the 2013 excavation and how they relate to the published results of the earlier phases of investigation at Poundbury Farm (Egging Dinwiddy and Bradley 2011). For reference, the full results of the 2013 excavation and subsequent analysis, including a detailed stratigraphic narrative, radiocarbon dates and calibration information, finds and environmental assessments, tabulated data, photographs and illustrations are provided in the comprehensive report published online (Egging Dinwiddy 2018) www.wessexarch.co.uk/our-work/poundbury-farm.

Previous excavation results

The preceding phases of excavation undertaken to the north of Poundbury Farm in 2007 revealed a variety of prehistoric remains (see Egging Dinwiddy and Bradley 2011 for details). These included Mesolithic worked flint found residually in later contexts, and several pits containing Early Neolithic pottery, axe manufacturing debris (Harding 2010) and, in one example, an extensive dump of charred grain. Other prehistoric features included Beaker period pits, an Early Bronze Age ring-ditch and pits, and a grave, pits and other mortuary deposits of Middle and Late Bronze Age dates. The excavations also demonstrated that the area was settled, and the landscape farmed during the Middle and Late Bronze Age.

The paucity of features or artefacts of Iron Age date, however, indicated a hiatus in activity on the site from the end of the Bronze Age until the early Romano-British period, when a small settlement, or farmstead was established there. The settlement, which continued to be occupied during the middle and late Romano-British period, was associated with a complex of large, ditched enclosures related to stock control and arable farming (enclosures A to E; Figs 2 and 3; Egging Dinwiddy and Bradley 2011, figs 3.1–3.5). Although it was not possible to reconstruct the developmental history of the complex in precise detail, it was determined that most of the enclosures were established early in the sequence, and later modified and extended throughout the remainder of the period.

The character and relative densities of recorded remains suggested that the south-western part of

Figure 1: Site location within surrounding archaeological setting

the enclosure complex (enclosures D and E) formed the focus of the settlement area. This part of the site contained two successive masonry-walled semi-subterranean structures and other remains associated with both domestic and, later in the sequence, small-scale craft and/or industrial activity. Similar, although more dispersed, evidence was encountered across the wider area, represented by a scattering of crop-dryers, ovens/kilns and working hollows, pits and gullies. However, the full extent of the settlement could not be defined, as the enclosures and associated features continued beyond the excavated areas.

As was characteristic for the period, the Romano-British inhabitants at Poundbury Farm chose to bury their dead along the enclosure edges, away from the main settlement area (particularly within, and around enclosure C; Fig. 2); the remains of the very young were more often recovered from domestic settings.

Thirty-three Romano-British inhumation graves and a relatively unusual late-phase urned cremation burial were excavated within Areas 4 and 5 (Fig. 2). Most of the burials had been made in a style widely adopted during the period: the corpse laid in an extended and supine position, often within wooden coffins (Philpott 1991). Where it was possible to tell, these burials dated to the middle and late Romano-British period.

The *Durotrigian* burial rite, which is peculiar to this region of Dorset and generally attributed to the Late Iron Age /early Romano-British period, had been

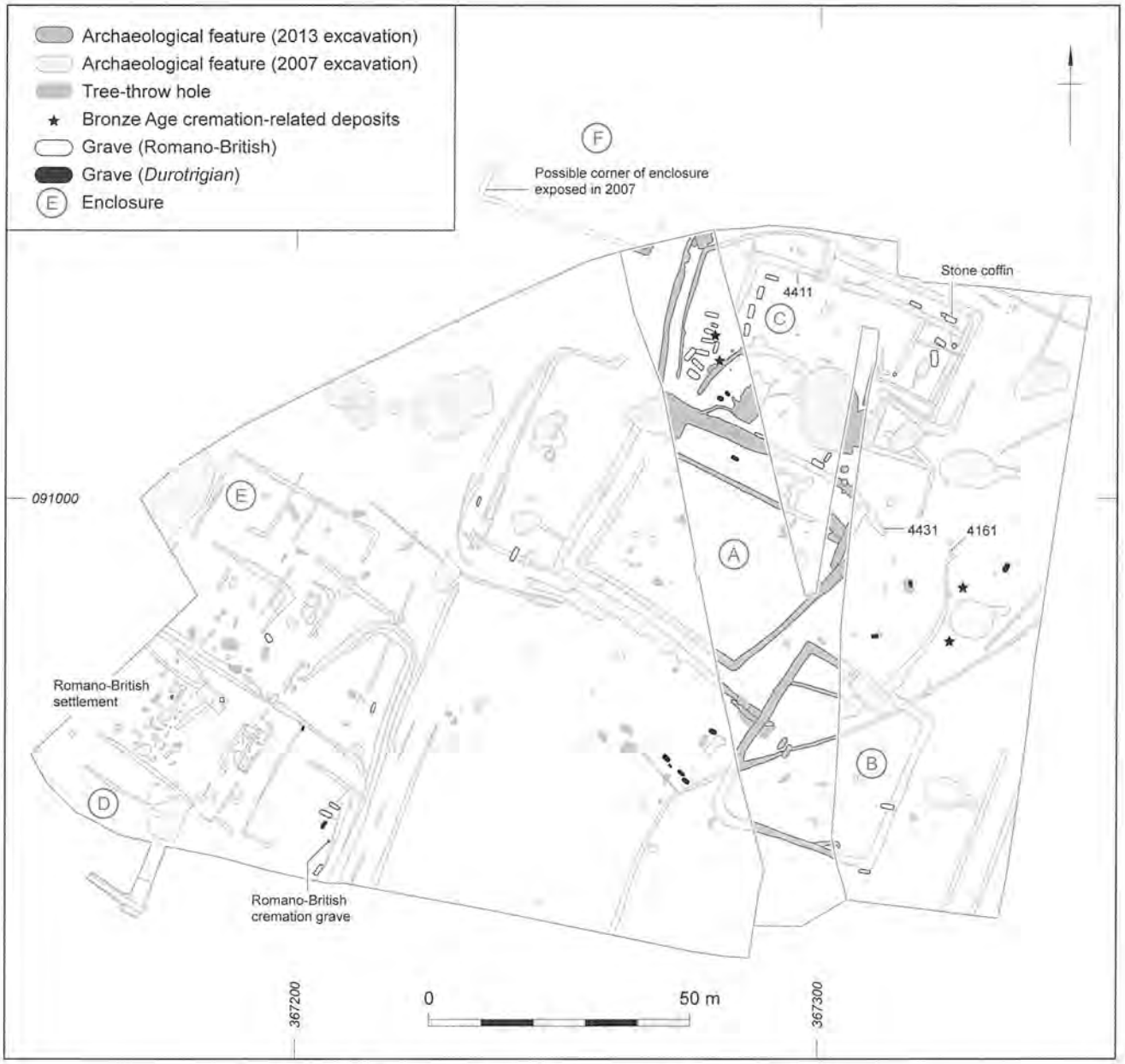

Figure 2: Plan of archaeological features excavated in 2007 and 2013

Figure 3: Detail plan of archaeological features excavated in 2013

chosen for the remaining individuals; their bodies had been laid on one side in a flexed or crouched position, some with a ceramic vessel (Egging Dinwiddy and Bradley 2011, 44; cf. Farwell and Molleson 1993; Smith *et al.* 1997). The majority of the *Durotrigian* burials at Poundbury Farm were considered to be of early Romano-British date. However, the late-Roman armlet worn by one of the previously recorded individuals demonstrated that adherence to local burial traditions was long-lived.

Evidence for post-Roman activity on the site was limited to a handful of artefacts and a few features relating to agricultural land use.

Results of the 2013 excavation

Prehistoric

Two discrete and heavily truncated features, 9095 and 9104 (Figs 2 and 3), were excavated in the northern part of the site, approximately 60 m north-west of two Middle Bronze Age cremation graves found in 2007 (Fig. 2; Egging Dinwiddy and Bradley 2011, 15–19, fig 2.8). The fill of cut 9095 (around 0.30 m diameter) contained redeposited pyre debris, including a small concentration of cremated human bone, from which a radiocarbon date was obtained, placing it in the Middle Bronze Age (SUERC-59048; 1420–1230 BC; Barclay and Wyles 2018). The other, slightly larger cut (9104) held the remains of an upright Early or Middle Bronze Age vessel, which in turn contained small quantities of cremated human bone and fuel ash throughout. Whilst the cremated bone assemblage represents a minimum of one individual (MNI) — a woman aged around 40 years — it is not possible to determine if the material in the two features relate to the same or different individuals or cremation-related events. The features themselves represent either the truncated remains of graves, or cenotaphs created to hold *memento mori* deposits (McKinley 2018). The charcoal assemblage from these deposits suggests a deliberate and specific selection of oak for cremation, consistent with patterns seen elsewhere (Gale 1997; Thompson 1999, 357). That from 9095 was, however, slightly unusual due to the quantity of bark preserved — possibly a result of the material having derived from a part of the pyre which had been subjected to less intense burning (Challinor 2018).

Other evidence of prehistoric activity was restricted to small assemblages of worked flint and pottery found residually in later features. The former provided a representative sample of Early Neolithic to Bronze Age flintwork from the area (Harding 2018). The residual pottery assemblage consisted of eight plain body sherds in grog-tempered fabrics, similar to that of the Early or Middle Bronze Age vessel contained within feature 9104 (Seager Smith 2018a).

As with the earlier investigations at Poundbury Farm, there was a conspicuous lack of evidence for Iron Age activity on the site.

Romano-British

The majority of the evidence uncovered by the 2013 excavation relates to the multi-phase Romano-British rural landscape within which the inhabitants of the nearby settlement lived, worked and buried their dead (Figs 2 and 3). No traces of post-Roman activity were found during the investigation, mirroring the paucity of later remains found in 2007 (Egging Dinwiddy and Bradley 2011, 166).

Enclosure complex

The final phase of works enabled the examination of the previously unexcavated parts of three of the enclosures (A–C) that were largely exposed in 2007.

Enclosure A was confirmed as one of the earliest Romano-British enclosures on the site. The outer ditch (4407) can now be described as delineating the north, south and western sides of a sub-square area approximately 44 x 42 m. The ditch was 2.84 m wide, 0.86 m deep, and had moderately sloping, concave sides and a flat base. Within this, a trapezoidal area around 30 x 30 m was defined by ditch 4410, which was up to 2.12 m wide and 0.9 m deep with straight sides and a concave base. The resultant peripheral 'corridor' (there was no evidence for a bank) was between 2.5 m and 6.5 m wide and seemingly accessible from the east. Although masked by later features, it was possible to identify an entrance in the north-east corner of the internal enclosure, where there were potentially associated internal divisions.

The previously identified maintenance, necessitated by periods of neglect, of the outer ditch of enclosure A (Egging Dinwiddy and Bradley 2011, 28) was corroborated by at least one re-cut (context 9172) and two episodes of tree/over-growth at its southern terminal. Heavily truncated feature 9016, which contained scraps of late Roman pottery, animal bone and a decorated copper alloy disc, is likely to have re-established the north-eastern entranceway. Probably during the late Romano-British period, the route into the inner enclosure was narrowed or blocked by the

insertion of a broad north-west to south-east ditch (group 9210), which encroached into the 'corridor' and truncated the outermost edge of the inner ditch. The north-eastern entrance to the same 'corridor' was then obstructed by ditch 9006 (see below).

Enclosure B (group 4400) continued more or less as predicted, and stratigraphic evidence confirms that it post-dated at least parts of enclosure A. Its defining ditch was between 1.7 m and 2.5 m wide, up to 1.04 m deep and had moderately sloping, straight sides and a concave base. A 0.5 m wide and 0.1 m deep gully (9163) recorded within enclosure B, may have been an internal division or, alternatively, a continuation of gently curving ditch 4161 (Fig. 2); later features have destroyed the stratigraphic evidence here. It was also proven that an earlier meandering landscape division (4405) continued across the area encompassed by enclosure B, although again, no finds were recovered.

Ditches 9211 (outer) and 9213 (inner) were revealed to the west and possibly the north of enclosure C, forming a 1.8–2.3 m wide peripheral corridor. The outer of the ditches varied between 0.75 m and 1.35 m in width, was up to 0.28 m deep and had steeply sloping sides and a flat base. The inner ditch was of similar depth but generally less wide. A 3 m wide break in the south-west corner, between the ends of 9213 and 4407, may have served as a point of access into the 'corridor'. Ditch 4411 (Fig. 2) probably terminated at the interface between the two excavation phases, suggesting that there had not been any substantial division between the cemetery groups in this part of enclosure C. Previously interpreted as part of enclosure C, ditch 4452 is now thought to have been associated with later working hollow 9205 a few metres to the south (see below).

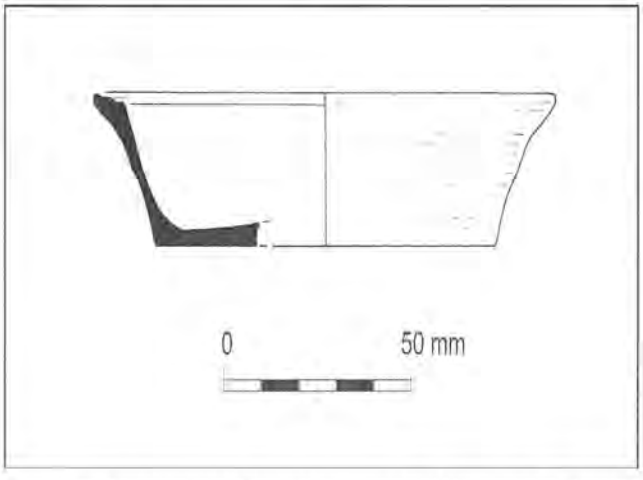

Figure 4: Straight-sided dish (or possibly lid), with flat, inward sloping rim and a flat base (WA 109). South-western Black Burnished ware. Mid/late 1st century AD. From Enclosure B ditch 4400.

A well-defined 0.9 m wide and 0.45 m deep ditch containing residual worked flint was revealed in the northernmost part of the recent excavation area. It formed the south-eastern corner of an additional, previously unknown enclosure (9026, enclosure F; Fig. 3). A feature partially revealed during soil-management works in 2007 probably represented the south-west corner, and so enclosure F could feasibly cover an area approximately 35 m square. A fragment from a rotary quern was previously recovered from an evaluation trench positioned just beyond the enclosure's projected north-east corner.

A fairly large assemblage of pottery and much of the animal bone derived from the ditches of enclosures A and B (see below). The fills of enclosure A also contained a variety of other artefacts including two copper alloy brooches, three pieces of blue/green glass, a steelyard weight, antler-working waste, quern fragments and very small quantities of tile, brick and fired clay.

The Roman pottery assemblage from the 2013 excavation, as a whole, is broadly comparable with that from earlier phases of investigation at Poundbury Farm, as well as other sites in the Dorchester area (e.g. Davies and Hawkes 1987; Seager Smith 1997; 2002; 2008; 2011; Seager Smith and Davies 1993). It is dominated by Black Burnished wares from the Wareham/Poole Harbour region, with only a limited range of Continental and regional imports and other local wares (Seager Smith 2018b). Of note, however, is one new form (designated type 109; Fig. 4), represented by a single well-burnished example in the Wareham/Poole Harbour fabric, found within the ditch of enclosure B alongside others of mid–late first–century AD date. The form may, therefore, represent a forerunner of the standard straight-sided, flat-flanged bowl/dish (type 22).

Industry, agriculture and settlement

The remains of a late Romano-British oven (9032) were found within enclosure B, its construction cut truncating ditch 4405. The 2.64 x 1.14 x 0.54 m keyhole-shaped construction cut was lined with rough sandstone and shelly limestone blocks and a few flint nodules. Faced, mortar-bonded blocks lined the chamber, while the flue was more roughly constructed using coarser stones. A large iron bar, positioned vertically to the left of the entrance, was probably the remains of a post for the oven-door. The base and stone

lining of the chamber were coated with fired clay and a 0.18 m thick charcoal-rich deposit containing fired clay inclusions was preserved on the floor. Deposits formed during the abandonment and decay of the structure were overlain by a final silting layer. A coin from the latter deposit suggests its formation occurred no earlier than the mid–late third century AD. There is evidence for grain-dryers and ovens being used for multiple purposes during the Romano-British period (van der Veen 1989). In this instance, the composition of the charred plant remain assemblage from the oven provided no clear indication as to the use of the structure (Wyles 2018).

Parallel to the oven, at a distance of around half a metre, was a hollow (9072) similar in shape and size to the oven, although much shallower (0.08 m) and lacking any evidence for a structure. Its fill comprised compacted chalk rubble and silty-clay with (some possibly burnt) stone and pottery. This probable working hollow is similar to others previously recorded nearby (Egging and Bradley 2011, 27, fig. 3.2).

A large sub-rectangular feature to the north (9205) — interpreted as a working hollow associated with late Romano-British industrial activity — is similar to others in the vicinity (Figs 2 and 3). A layer of dark silty-clay rich in charcoal, occupation debris and iron slag, filled the feature and extended beyond its edges. An apparently integral run-off gully was evident in the western corner, winding downslope into the partially infilled ditch delineating the northern edge of enclosure A; a similar gully was previously recorded on the opposite side, joining large quarry feature 4320. A line of three shallow pits were situated around 21 m to the south-east of the hollow (9020, 9022 and 9024), and likewise post-dated the enclosure ditch. They contained similar charcoal and finds-rich deposits, including late Roman pottery and slag (see below).

Coinciding with the reported landscape and settlement modifications, and an increase in industrial activities, the north-eastern end of the corridor around enclosure A was seemingly deliberately blocked by the addition of a 15 m length of ditch (context 9006, a continuation of 4431; Fig. 2). As well as a large quantity of pottery, this late Romano-British feature also contained possible stone roof tile, a few ceramic roof tile fragments, animal bone and a variety of copper alloy and iron objects (including a cleat and a corner bracket).

A series of four intercutting pits blocked the north-western corner of the enclosure C peripheral corridor, and also cut ditch 9213. The earliest pits (9056 and 9068) were each around 0.80 m in diameter with steep sides and a flat base; the least truncated was 0.85 m deep. Fills had generally accumulated gradually, although collapse of the sides of 9056 part-way through the infilling process was evidenced by a layer of chalk rubble. Larger pit 9030 (1.6 m diameter, 1.1 m deep) cut pit 9056 and was filled with a dumped deposit containing late Roman pottery and animal bone. An overlying tertiary deposit was then cut by steep-sided pit 9065 (1.75 x 1 x 0.65 m), whose initial fill was particularly dark but, like the subsequent fill, devoid of datable material.

An assemblage of slag (1.653 kg) was recovered from several contexts associated with late Romano-British pottery, including working hollow 9205, and pits 9022 and 9024. With the exception of one piece of possible smelting slag, all the material is likely to derive from iron smithing. However, it remains unclear whether the slag, which was broadly comparable with material recovered in 2007 (Marter Brown and Mepham 2011a, 103), indicates small-scale iron working in the immediate vicinity, or residual or redeposited material derived from activity further away (Andrews 2018). Examination of the mixed-species charcoal assemblage from associated contexts was inconclusive in determining whether the material derived from fuel associated with metal working or other, domestic-type activities (Challinor 2018).

With the principal exception of several whole sheep carcasses deposited as grave goods (see below), the modest animal bone assemblage largely consisted of disarticulated material from livestock species (Table 1). This material was mainly recovered from the enclosure ditches, particularly enclosure A. It was not possible to identify any concentrations of bone waste from different stages in the carcass reduction sequence or specialist craft/industrial activities (e.g. bone-working, tanning etc) that might suggest different zones of activity within the enclosures (Higbee 2018).

The composition of the livestock assemblage is consistent with the animal bone evidence recovered from previous excavations at the site (Buckland-Wright 1983, 129; Grimm 2011, 134). Sheep/goat were represented in greatest abundance (66% of the total livestock assemblage), confirming that sheep-farming was the mainstay of the rural economy, although cattle (27%) were clearly also of some importance.

All parts of the sheep and cattle carcass are present in the assemblage which, along with occasional butchery marks, suggests that animals were brought in from the surrounding fields to be slaughtered and butchered for local consumption. However, the overall mortality pattern for both species implies that meat production was not the primary focus of the husbandry regime. That for sheep, based on a sample of 20 mandibles, shows two main peaks of slaughter amongst older animals aged between 3–4 years and 6–8 years. The remaining mandibles, including those from graves, are from younger animals aged between birth and 2–3 years. The pattern suggests that sheep were managed primarily for wool and possibly milk. Similarly, the cattle bone largely derived from adult, old adult and senile animals that were probably maintained for milk, traction and as breeding stock. Indeed, the presence of a young calf aged just 1–8 months supports the notion that dairying was part of the husbandry strategy (Higbee 2018). Less common species including dog, cat, domestic fowl, small birds, rodents and frogs were also represented, albeit in small numbers. Of note were two pieces of red deer antler from enclosure A, which bore clear signs of having been worked, presumably reflecting some form of local craft activity.

Turning to the evidence for the plant-based economy, the charred plant remains assemblage (recovered from working hollow 9205 and oven 9032) shares similarities with those recovered from the 2007 excavations, demonstrating that cereal cultivation was practised alongside livestock farming (Pelling 2011; Wyles 2018). However, the assemblages from the most recent excavation appear indicative of general settlement waste and suggest that this part of the Poundbury Farm site was located away from the main crop processing areas seen in the earlier phase of investigation (ibid.). Weed seeds outnumbered the cereal remains, which were mainly those of hulled wheat, emmer or spelt (*Triticum dicoccum/spelta*), with a few fragments of barley (*Hordeum vulgare*). The weed seed assemblages included seeds of docks (*Rumex* sp.), vetch/wild pea (*Vicia/Lathyrus* sp.), clover/medick (*Trifolium/Medicago* sp.) and ribwort plantain (*Plantago lanceolata*), all typical of arable land. Other weed seeds indicative of grassland, field margins and arable environments include those of red bartsia (*Odontites vernus*), oat/brome grass (*Avena/Bromus* sp.), rye-grass/fescue (*Lolium/Festuca* sp.), curled dock (*Rumex crispus*), goosefoot (*Chenopodium* sp.), oraches (*Atriplex* sp.) and meadow grass/cat's-tails (*Poa/Phleum* sp.).

Table 1: Animal bone: number of identified specimens present (or NISP). Sheep/goat count adjusted to take account of Associated Bone Groups (ABGs) (see Table 3)

Species	*NISP*
cattle	55
sheep/goat	133
pig	15
horse	11
dog	3
red deer	2
cat	1
domestic fowl	6
passerine sp.	2
rodent	7
frog	2
Total identified	**237**
Total unidentifiable	**286**
Overall total	**523**

Mortuary activity

Thirteen Romano-British inhumation graves were found in the northern half of the site, all associated with the enclosure complex (Fig. 3; Table 2). Ten of the burials had been made in the 'typical' Romano-British style i.e. extended and supine, sometimes with slight leg flexion. These formed a cluster of nine graves within the western part of enclosure C, a few metres from a group of similarly dated graves discovered previously, along with an outlier to the south-east, on the northern edge of enclosure A. The three remaining graves contained the remains of *Durotrigian*-style burials — uncoffined, lying on one side, with the legs acutely flexed. These comprised a pair 5 m to the south–east of the cluster of Romano-British style graves and one within the enclosure A corridor, 10 m further south-east. The lack of intercutting and careful arrangement of all the graves indicates that their locations would have been readily apparent or recorded, perhaps by way of grave-markers for which no other evidence remained.

The *Durotrigian* graves were sub-oval in plan with concave sides and bases, and at 0.1–0.2 m deep, they were substantially shallower than their Romano-British style counterparts. In anticipation of the flexed position of the corpse, the *Durotrigian* graves were also relatively short, (1.11–1.40 m), although their widths were not very different to those of the other graves (0.70–0.90 m). The remains from the paired

Table 2: Inhumation grave summary

context	*cut*	*deposit type*	*date*	*approx. quantity*	*estimated age/sex*	*pathology*	*coffin fittings*	*grave goods?*
9040*	9039	inh. burial [D]	E-MRB	15%	adult >40 yr ??male	amtl; calculus; dental caries; enamel hypoplasia; op – C2 as	none	no
9051	9052	inh. burial	RB	5% l	juvenile/ subadult 10–15 yr		none	hobnailed footwear (ON7021 left foot; ON 7022 right foot)); bone pin ON7023
9089	9090	inh. burial [D] a) R	RB	68% a) *c.* 10% l	adult 35–45 yr ??female a) juvenile/ subadult 10–15 yr (add. individual)	amtl; calculus; dental caries; enamel hypoplasia; pd; periapical void; HFI; *osteochondritis dissecans* – right distal humerus; Sch – 1T; oa – 2T ap; op – right proximal radius; pitting – L ap, left c-v, left sterno-clavicular; enth – patellae; cortical defect – ?right 1st proximal finger phalanx, right 1st proximal toe phalanx; plastic changes – radii & ulnae; MV – coalition (hallux sesamoid) a) plastic change – left tibia	none	ceramic vessel ON7024 & refitting fragment ON7025 (under pelvis); ?iron object ON7026
9093	9094	coffined	RB	65%	adult 40–50 yr female	amtl; calculus; dental caries; pd; periapical void; calcific discitis – C6–7; oa – 1T ap, 1st c-v; op – C6, T1 ap, right patella, right acetabulum; pitting – acetabulae; enth – middle finger phalanges; cortical defect – right distal radius	36 iron nails: ON7027-30, 7032-40, 7043-50, 7054-56; 7082, 7087-91, 7095-7, 7101-7103	hobnailed footwear (ON7102 left; ON7102 right; iron shoe fixtures ON7097 & 7101); ABG7104 - animal burial along right side, outside coffin, head at human hip, feet at human shoulder; appears back long coffin, legs at grave edge, skull awkwardly back/twisted round; SHEEP
9098	9097	coffined	RB	96%	subadult 16–17 yr ??female	calculus; dental caries; enamel hypoplasia; pd; *cribra orbitalia*; endocranial capillary impressions; sinusitis; pitting – left 1st proximal toe phalanx; enth – orbital margin; MV – dental crowding; impaction; shovelled incisors, sutural ossicles, palatine torus	39 iron nails (ON7041-2, 7051, 7053, 7057-74, 7076-81, 7083-86, 7092-4, 7098-7100)	iron object -ON7075 (foot end of coffin)

context	*cut*	*deposit type*	*date*	*approx. quantity*	*estimated age/sex*	*pathology*	*coffin fittings*	*grave goods?*
9115*	9114	inh. burial [D]	E–MRB	40%	juvenile 10–11 yr	calculus; dental caries; enamel hypoplasia; lamellar new bone/ ossified ligament – sacrum, sacral body; MV – plural mental foramen	none	no
9124	9125	coffined (decap)	RB	60%	juvenile 9–10 yr	calculus; dental caries; enamel hypoplasia; pd; *cribra orbitalia*; sharp blade trauma – mandible, C1–2 (decapitation); pnb – left rib; plastic change – radii, femora; MV – sutural ossicles	24 iron nails (ON7111-12, 7118-25, 7140-47, 7149-54, 7164);	hobnailed footwear (ON7165 – left; ON7166 – right foot); ABG7167 - animal burial placed outside coffin, along left side, head just below level of human knee, legs together at human hip; SHEEP
9127	9126	coffined	RB	18%	adult >30 yr	calculus; enamel hypoplasia; MV – shovelled incisor	6 coffin nails (ON7136-7, 7148, 7159-61); 14 iron fittings/ brackets (ON7114-7, 7126-35); plus *c.* 50 various iron objects with no ON (from samples)	hobnailed footwear (ON7276)
9132	9133	coffined	RB	55%	adult 45–55 yr female	calculus; dental caries; enamel hypoplasia; *cribra orbitalia*; HFI; pnb – right proximal tibia; oa – L4–S1 ap, left hip; op – L2–3 ap, 2 c-vs, sacro-iliacs, right hip, acetabulae, distal femora; pitting – temporo-mandibulars; enth – ischia, right calcaneum; cortical defect – right navicular; ?cyst – right temporal; MV – accessory sacral facets	18 iron nails grouped across coffin head end, across knee region & one or two at foot end (ON7138-39, 7185-86, 7189, 7199-207, 7213-16)	hobnailed footwear (ON7221 (left), 7222 (right)
9155	9154	coffined	RB	55% a.u.l.	adult 40–45 yr male	fracture – right talus; septic arthritis – left acetabulum, ischium, proximal femur, left fibula; op – left distal ulna, knees, 2 right, 2 left tarsals; enth – innominates, right patella, right calcaneum; exostoses – left femur shaft; plastic change – radii & ulnae, fibulae, tali; MV – accessory tibial foramen, coalition (right middle cuneiform & 3rd MtT)	*c.* 15 iron nails (ON7171-74, 7176-79, 7187-93) iron fitting (ON7196); plus more from samples	hobnailed footwear (ON7194 - left; 7195 - right; plus more from samples; N.B. feet crossed); ABG7197 - outside coffin, along right side, from shoulder (head of animal) to mid left femur (back legs outstretched); SHEEP

context	*cut*	*deposit type*	*date*	*approx. quantity*	*estimated age/sex*	*pathology*	*coffin fittings*	*grave goods?*
9196	9195	coffined	RB	90%	adult 40–50 yr male	amtl; calculus; dental caries; enamel hypoplasia; pd; periapical void; *cribra orbitalia*; fracture – maxillary incisor, L4 ap, right talus; avulsion – T11, L1; sinusitis; pnb – left mandible, left 1st rib; ankylosis – right sacro-iliac; Sch – T9–L3; op – temporo-mandibular, T6, T8–12, L3–S1 ap, L2-3 bsm, T2-9 tp, left 6 right & 2 left c-vs, right sacro-iliac, hips, right glenoid, left distal radius; pitting – left temporo-mandibular, T1, 4, 6–10, 12 ap, T8–10 tp, 3 c-vs, acromio-claviculars, left proximal femur, 3 left tarsals; rotator cuff degeneration; enth – fingers, calcanea; cortical defect – right clavicle, left calcaneum, left talus; exostoses – right tibia; plastic change – right scapula, upper limb asymmetry, enlarged femoral foramen, femora, tibiae; cyst – hamate; MV – dental crowding, shovelled incisors, sutural ossicles, mendosal/biasterionic sutures, M3s absent, palatine tori (M2s), cranial shift (L/S; vestigial 12th ribs), accessory tibial foramen, *os naviculare*, variant cuneiform	17 iron nails (ON7198, 7208-12, 7217-20, 7252-58)	hobnailed footwear (ON7259); ABG7261 - small animal with back along grave end back along foot end of grave, head to left. Outside coffin but animal appears to have gone in first as under human foot; SHEEP
9200	9199	coffined a) R	RB	80% a) 2 frag. u.l.	adult 35–45 yr ??female a) adult <18 yr	amtl; calculus; dental caries; enamel hypoplasia; pd; periapical void; *cribra orbitalia*; sinusitis; Sch – T11–12; ddd – L5–S1; op – T8-9, T11, L1 ap, T11–L1 bsm, 4 right & 1 left c-v, right elbow, right wrist, right 1st MtC-P; pitting – T11–12 ap; enth – innominates, right calcaneum; plastic changes – femora & tibiae; MV – dental crowding, shovelled incisors, sutural ossicles, multiple supra-orbital foramen, asymmetric nasal aperture, very narrow nasal region, pre-condylar tubercle, vertebral asymmetry	22 iron nails & fittings (ON7223-34, 7265-74)	no

context	cut	deposit type	date	approx. quantity	estimated age/sex	pathology	coffin fittings	grave goods?
9203	9202	coffined	RB	65%	adult >45 yr female	calculus; dental caries; enamel hypoplasia; fracture – left fibula; *cribra orbitalia*; oa – right hip; op – right acetabulum (labrum), right proximal finger phalanx, left proximal femur; pitting – temporo-mandibulars, right distal radius; enth – calcanea; cortical defect – left 1st MtT; plastic change – left hip, right 4th MtT	15 iron nails (ON7235-49)	hobnailed foot-wear (ON7250-51);

KEY: * – C14 dated; [D] – *Durotrigian* style; inh. – inhumation; R – redeposited; s.a.u.l. – skull, axial, upper limb, lower limb; amtl – *ante mortem* tooth loss; pd – periodontal disease; HFI – *hyperostosis frontalis interna*; pnb – periosteal new bone; Sch – Schmorl's nodes; ddd – degenerative disc disease; oa – osteoarthritis; op – osteophytes; C, T, L, S – cervical, thoracic, lumbar, sacral vertebrae; as – articular surface; ap – articular process joint; bsm – body surface margins; tp – transverse process joint; c-v – costo-vertebral joint; enth – enthesophytes; MtC- /MtT-P – metacarpo-/metatarso-phalangeal; mv – morphological variation; M – molar tooth

graves (a juvenile and an adult male) were aligned approximately north-west to south-east, respecting the outer ditch of enclosure A. The third grave (9090), which contained the remains of a woman, was similarly influenced by the enclosure, although the body had been placed in the reverse direction. The legs of all three individuals were flexed to the right; the adults were found on their right side; the juvenile's torso being found largely supine.

Grave goods were recovered from only one of the *Durotrigian* style graves, that of the adult female within grave 9090. In addition to the left forelimb of a sheep/goat, the individual was buried with a samian cup placed near the feet. The vessel bore the stamp of Tetturo of Lezoux, dating its manufacture to *c.* AD 135–165 (Hartley and Dickinson 2012, 53–4, die 3-a), and thus providing further evidence for the continuation of the burial rite well beyond the Late Iron Age/early Roman period (Marter Brown and Mepham 2011b, 75). Almost identical radiocarbon dates (SUERC-59047: 1856±29 BP and SUERC-59052: 1851±29 BP; cal 70–240 AD) were obtained from the unaccompanied pair of *Durotrigian* style burials, indicating that both could have been made during the early–mid Romano-British period (Barclay and Wyles 2018).

The Romano-British style graves were generally sub-rectangular in plan, with straight, steep to vertical sides and flat based. The well-defined cuts ranged between 1.73–2.73 m in length, 0.63–1.13 m in width, and between 0.19 m and 0.85 m in depth. The burials made in the standard Romano-British style were those of male and female adults, a subadult possible female, a juvenile/subadult and a juvenile. All of these are considered to be of mid–late Romano-British date.

Evidence for wooden coffins (iron nails, brackets and fittings) was present in all of the Romano-British style graves, except one highly truncated example (9052). The coffin from grave 9126 had been of more elaborate construction than the others, with three iron angle brackets at each corner and a binding strip running across the underside of the base. Angle brackets had also been used on the upper corners of the coffin from grave 9199. As with the examples from the main Poundbury cemetery (Mills 1993, 124) and the earlier excavations on this site (Marter Brown and Mepham 2011b, 77), it is likely that these extra fittings were largely decorative, associated with the social and/or financial status of the individuals, as both graves also contained additional nails in numbers sufficient to hold the coffins together.

Clusters of iron hobnails were found at the feet of the individuals within seven of the Romano-British style graves, and a bone hair pin (probably of third- or fourth-century date) accompanied the remains of the subadult in grave 9052. A few pig bones recovered from the backfill of grave 9125, and the right foot of a sheep from grave 9154, suggest that joints of meat had been deposited with these burials.

Four of the Romano-British style graves contained the complete, articulated skeletal remains of immature sheep, positioned along the side or at the end of the coffin (Table 3). There is no obvious demographic pattern, with a juvenile and adults of both sexes afforded the rite. Whilst sheep/goat remains have been recorded in some numbers in Late Iron Age and Romano-British funerary contexts in southern England, they are most commonly found as partial skeletons, i.e. joints of meat (Morris 2011, 91). To have four examples of complete sheep from such a small group is, therefore, unusual. It has been estimated, on the basis of the relative ages of the lambs placed as offerings, that the juvenile in grave 9125 was buried in spring, while two of the adults (graves 9094 and 9195) were buried in the spring or summer, and the third adult burial (grave 9154) probably occurred in the autumn or winter months (Higbee 2018).

As well as being buried with a lamb offering, the body of the 9–10-year-old juvenile in grave 9125 was remarkable for having been decapitated, the skull plus the mandible and fragments of the atlas placed between the individual's knees as part of the burial rite. Analysis of the decapitated juvenile's remains indicates that they had recovered from a chronic inflammation of the thoracic lining, as occurs with enduring respiratory infections such as pneumonia and tuberculosis, or repeated inhalation of environmental irritants.

Romano-British decapitation burials are not an unusual find, although the Poundbury Farm example is interesting, as immature individuals are generally under-represented amongst the decapitated contingent. The incised, precise nature and location of the severance are also relatively uncommon, and the practical implications of the technique employed strongly suggests that the individual was deceased prior to decapitation (Harman *et al.* 1981; McKinley and Egging Dinwiddy 2009; Philpott 1991, 84; Tucker 2015, 53; Tucker 2015, 65–7).

The Poundbury Farm unburnt bone assemblage derives from a mostly, 'Romanised' and largely local rural population (Egging Dinwiddy 2018). The social and economic opportunities offered within the *Durnovaria* hinterland (including Poundbury Farm) attracted people from the wider region (Redfern *et al.* 2015). The greater degree of morphological variation in male skeletons from Poundbury Farm, along with the predominance of female remains buried following the more traditional, local rites, implies that such migration was more prevalent amongst the male contingent — a phenomenon also recognised at Little Keep, Dorchester (McKinley and Egging Dinwiddy 2009).

Indicators of stress, health, diet and activity are generally comparable to their contemporaneous counterparts within the wider region, although anaemia — potentially relating to lifestyle, diet and/or pathogen and parasite load, for example — seems to have been more prevalent. In keeping with rural populations of the time, the Poundbury Farm inhabitants led physically demanding lives, which no doubt involved much traversing of the landscape and a miscellany of strenuous labouring tasks required as part of a farming community. Subtle variations in joint degeneration patterns between the sexes hint at differences in the nature of everyday activities, or the way in which they were carried out. Their way of life inevitably led to several, fairly minor injuries. However, one strongly robust man had survived at least one major traumatic event, his many injuries possibly resulting from a fall from height. Limited evidence for long-term infections includes a lung condition (decapitated juvenile) and a bacterial infection in the hip of an adult male, which may well have contributed to his demise.

Discussion

The final phase of excavations undertaken in 2013 provided some of the missing pieces in the understanding of this part of the Poundbury Farm development site, clarifying and adding nuances to the previously published findings. In general, these support

Table 3 Summary of sheep/goat animal bone groups (ABGs) from graves

Cut	Fill	ABG	NISP	Age estimate ABG	Location and associations
9094	9109	7104	40	2–6 months	outside coffin, along right side. Female *c* 45–55 yr
9125	9153	7167	32	0–2 months	outside coffin, along left side. Juvenile *c* 9–10 yr
9154	9180	7197	57	6–12 months	outside coffin, along right side. Male (*c* 40–45 yr)
9195	9196	7261	20	2–6 months	outside coffin, below left foot. Male (*c* 40–50 yr)

previous patterns, interpretations and discussion, while at the same time they have revealed further insight into the lives of past populations in the Dorchester environs.

The study of the cremation-related deposits has enhanced the growing corpus of evidence for Bronze Age mortuary practices in the county. The selection of oak for the pyre associated with the cremation-related deposits (potentially *memento mori*/cenotaph type) is more in keeping with the general pattern for the period (albeit with greater quantities of bark), something that contrasts with the previously recorded cremation deposits in the vicinity, for which ash-wood was the material of choice (Challinor 2018).

The absence of Iron Age finds or features is consistent with the results of earlier phases of work on the site, indicating a hiatus in activity during the period. This appears to reflect a trend, evidenced by other excavations in the vicinity, for the abandonment of previously occupied or otherwise utilised areas, perhaps due to a shift of activity towards the nearby hillforts at Poundbury Camp and Maiden Castle during the Early and Middle Iron Age (Sharples 1991, 260; Smith *et al.* 1997, 299; Gardiner 2003, 154–6; Egging Dinwiddy and Bradley 2011, 24, 69).

The newly discovered Romano-British features and contexts have elucidated certain aspects of the sequences of activity on the site and have proven that the enclosure complex continues to the north. The results substantiate the population's reliance on a mixed agrarian economy, particularly regarding sheep — animals well-suited to the local contemporary environment. The production of secondary products such as wool and milk (probably sheep as well as cattle) was clearly important, and traction animals were used to assist with the arable aspects of farming. No doubt there was a high demand for their products in nearby *Durnovaria*.

Although we know that the settlement's inhabitants had been cultivating, harvesting and processing crops in the immediate vicinity, it was not possible to determine a specific function for the oven-type structure excavated in 2013, but it may have served several purposes. Wild floral and faunal resources were also being exploited for food, fuel and crafts; the presence of the remains of useful and/or companion animals (e.g. cat and dog) adds a touch more realism to the narrative.

As evidenced previously, various small-scale industrial activities associated with the small settlement at Poundbury Farm, including possible iron-smithing, began to leave more obvious traces towards the end of the Romano-British period.

The recently discovered Romano-British mortuary evidence is of particular interest. A study of the burial contexts has revealed variation in this rural community's treatment of the dead. The atypical inclusion of whole lamb carcasses in several closely associated inhumation burials, for example, may reflect a particular socio-cultural importance of these animals, or perhaps what they represented — lambs have long been symbolically associated with purity, innocence and renewal, sometimes sacrificed for the atonement of sin and to assure salvation (Tressider 1997, 118; Werness 2004, 250–1). The remains of these young lambs have also enabled a broad determination of the seasons in which the burials were made. Although we cannot be certain why these particular people were afforded this unusual rite, it is likely that there was some common purpose.

Romano-British decapitation burials are a well-recorded phenomenon, and there are many recorded in the assemblages from the cemeteries of *Durnovaria* — the most abundant numbers seen at Little Keep, just to the south of the much larger Poundbury Camp cemetery limits (McKinley and Egging Dinwiddy 2009). This recent discovery at Poundbury Farm is of particular note due to the youth of the deceased. The reasons for such treatment are complex, although it is generally supposed that they address various beliefs, especially if they had somehow been identified as 'different' (positively as well as negatively perceived). A recurring theme in discussions of the rite being the prevention of the return of the dead — particularly if the death was untimely or unexplained, or if the spirit of the individual was to be feared/revered for some reason (e.g. Harman *et al.* 1981; Philpott 1991, 77–83; McKinley and Egging Dinwiddy 2009; Tucker 2015, 155–9). Perhaps in this case, it was the child's chronic lung condition that set them apart for special funerary treatment. Other variations in burial rites, morphology and some of the pathological lesions may be reflective of, for example, status, occupation and lifestyle.

The evidence gleaned from the additional burial remains confirms as well as enhances the findings of the previously published analysis (Egging Dinwiddy 2011). Detailed analysis of the skeletal remains suggests that the health and lifestyles of the Romano-British inhabitants of Poundbury Farm are fairly typical of rural populations of the

time. The evidence hints at a greater proportion of males being attracted from outside the local area by the opportunities offered by *Durnovaria*, whilst the female remains were less morphologically diverse and women more likely to have been given traditional, local style funerary rites. Childhood saw the usual stresses of weaning and juvenile diseases, and possibly the increased responsibilities as they reached the age of majority. Indicated high levels of anaemia are of interest, and may suggest that this group were particularly affected by the causative factors, e.g. diet and pathogen/parasite load. Their farming lifestyle is reflected by signs of heavy physical exertion, particularly of the lower limbs, that suggests a large amount of walking would have been involved. Men and women might have been participating in different tasks, or carrying out similar tasks in different ways. Injuries were typically minor, resulting from accidents, slips, trips and falls, with only rare examples of more serious injury. The evidence for chronic infections/inflammation remains at a low level.

As previously surmised, there is little evidence for occupation in the vicinity during subsequent periods. It appears that, from the post-Roman period until recently, the site formed part of a large expanse of land used predominantly for agricultural purposes.

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Location of the archives

The archive is currently held at the offices of Wessex Archaeology Ltd, in Salisbury, under the project code 60027. It will be deposited with the Dorset County Museum, Dorchester, in due course.

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Excavation and survey at Badbury Rings, Dorset

MARTIN PAPWORTH

Archaeological research including earthwork, LiDAR and geophysical survey and analysis were combined with the first excavations within Badbury Rings to establish a dated sequence for the hillfort's development within its landscape. Occupation evidence from the Mesolithic to the sub-Roman period was found. Radiocarbon and ceramic evidence, demonstrated that the main period of settlement was in the later Iron Age c. 350 BC-AD 10 with a reoccupation of the site from c. AD 400-600. This has led to a reinterpretation of earthwork evidence for Badbury and its environs which reveals a concentration of Bronze Age, Iron Age and Roman activity and suggests that the outer rampart and Dorchester Roman road were built or modified in the sub-Roman period due to Badbury's strategic location at Dorset's major Roman crossroads.

Introduction

This report describes the first archaeological excavations within the Iron Age hillfort of Badbury Rings. It also presents documentary research and details of earthwork (Donachie 1994; Fletcher 1998) and geophysical surveys (Stewart 2007a) of the site and compares this information with LiDAR analysis (Manley 2016).

The National Trust with the help of the East Dorset Antiquarian Society carried out fieldwork in around Badbury Rings for three weeks from 3-24 September 2004. Trenches I-III were excavated within the hillfort and trench IV lay on the west side of Badbury and recorded the excavation and resurfacing of the north-east end of the visitor car park.

Trench I was partially reopened on 23 May 2005 to examine earlier stratigraphy and based on this evidence a deeper excavation of the whole trench took place from 17-21 October 2005.

Background

The Iron Age hillfort of Badbury Rings in east Dorset is 5 km north-west of Wimborne Minster and lies north of the road to Blandford Forum (Fig. 1). The 'rings' refer to the three pairs of concentric ramparts and ditches that surround the dome of the hill enclosing a roughly circular area of about 7 hectares. With High Wood to the north east, it occupies the highest position within the roughly triangular area of land bounded by the rivers Tarrant to the west, the Stour to the south and the Allen to the north east.

The Roman road from Old Sarum to Hamworthy crosses the saddle of land between the twin summits of High Wood and Badbury before turning north into Batts Bed field where it forms a crossroads with Roman routes to Bath, Dorchester and perhaps Ilchester, if the straight parish boundary between Shapwick and Pamphill marks its course.

High Wood also has an Iron Age enclosure (Papworth 2009) but this has a ditch within its bank in contrast to Badbury which has its three ditches on the outside of each rampart. The hillfort's middle rampart and ditch run tight against the inner defences. This is apart from the west side, where for 140 m the earthwork flares outwards by 30 m, forming a rectilinear enclosure known as the 'barbican'. The outer rampart is oval in plan and runs on average 20 m from the middle rampart and barbican. This outer defence is more slight in scale and more uneven in profile suggesting that it was a later, perhaps unfinished, addition. There are entrances on the east and west sides (see below).

The earthwork survey (RCHME 1975; Donachie 1994; Fletcher 1998) and geophysical survey (Brown, Stewart and Papworth 2004) provided the information to underpin an application to carry out archaeological excavation within the hillfort. This was principally to obtain an outline chronology to help interpret the site but also to provide evidence of the damaging effect of the 1980s tree plantation on the buried archaeology.

Impetus for the excavation was provided by the author's PhD which compared and contrasted the Iron Age settlement evidence around Badbury Rings with that surrounding other Dorset hillforts (Papworth 2008). Lack of chronological information for Badbury severely hampered the research and consequently English Heritage agreed to grant scheduled monument consent for intrusive fieldwork based on the PhD research design and with funding provided by the National Trust, Kingston Lacy Estate.

Documentary History

Badbury Rings is a prominent, curious and imposing earthwork and many have met and puzzled over its origins and development. If we had been present at Badbury on September 11 1890, for the meeting of the Dorset Natural History and Antiquarian Field Club,

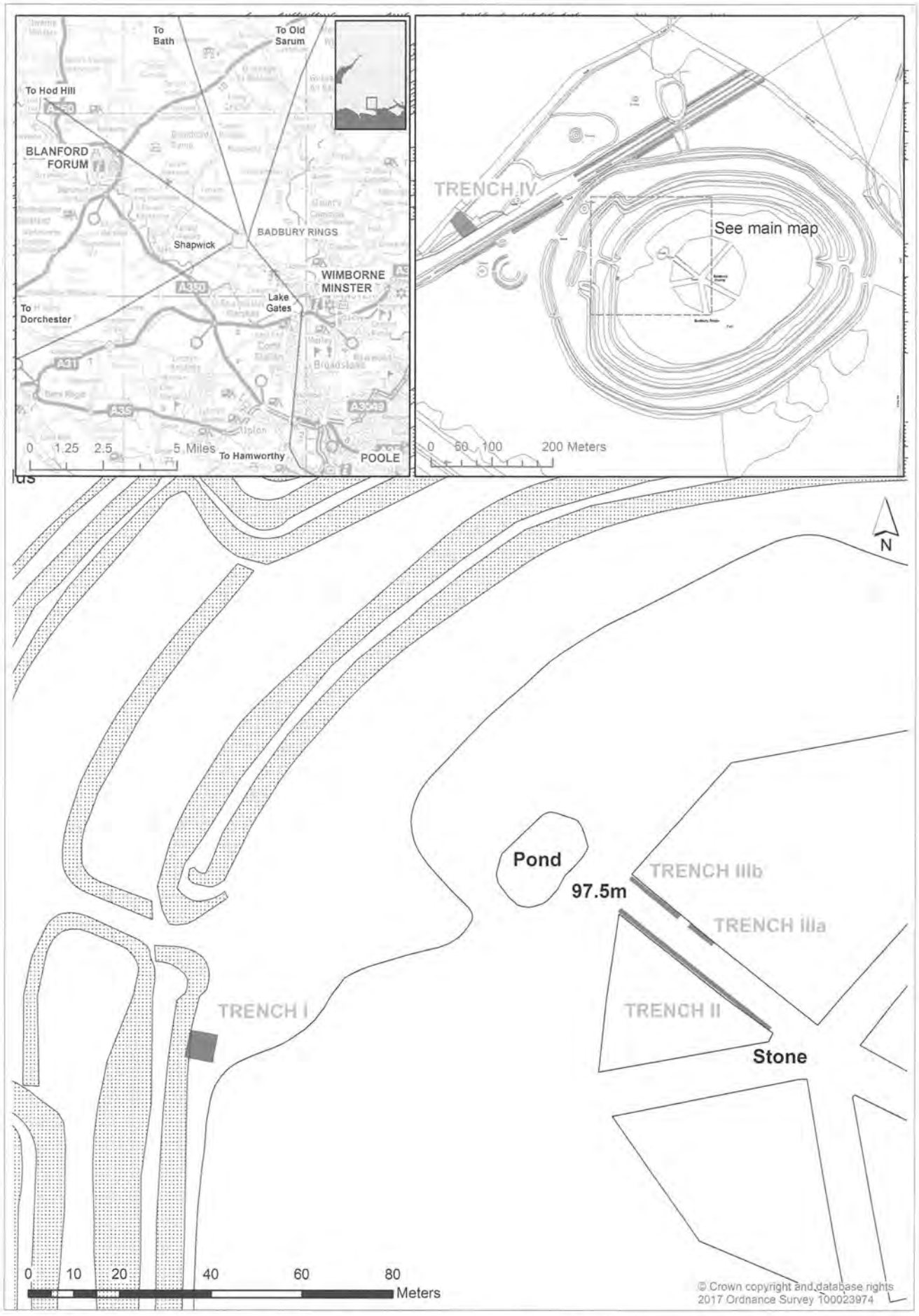

Figure 1: Location map to show Badbury Rings in relation to Roman Roads and the sites of Trenches I-IV

the questions raised would be very familiar. On that day over 120 members and friends 'seated themselves on top of the Rings, where a paper written by Dr. Wake Smart of Cranborne was read'. Following this, a discussion ensued. Was Badbury the site of the Roman station of Vindogladia listed in the Antonine Intinerary? Did the battle of Mount Baden take place here: where Arthur 'for a time rolled back the tide of Saxon Conquest'? How was water supplied if Badbury was a habitable town? The President then questioned whether it had ever been a residential colony but instead a hill, fortified as a place of safety for farmers of the neighbourhood in times of disturbance. One can imagine the continued debate as the gentlemen descended the hill to their carriages on their way to tea with Mr Walter Bankes at Kingston Lacy House (Wake Smart 1890, 16-26). The discussions continue today, though in recent years new research has provided firmer answers to some of these questions.

Revd John Hutchins (1774, 526) brought together the earliest accounts, starting with John Leland (1539-45) who believed Badbury was a castle of Saxon kings. He may have been referring to the first surviving record of Badbury which appears in the Anglo-Saxon Chronicle for the year 901. At that time, Alfred's son, Edward the Elder camped with an army at Baddanbyrig on the way to Wimborne Minster to defeat his cousin Aethelwold who occupied the royal manor to make his claim for the throne of Wessex (Garmonsway 1994).

Domesday Book records the site as giving its name to a local Saxon administrative division, the Badbury Hundred. Surviving medieval court rolls, dating back to 1391 show that the hundred assembly met six times a year, often at Badbury Rings itself, and that the court continued to meet there until the seventeenth century. The early documents are in medieval latin and were held at Kingston Lacy House until the 1980s; very few have been transcribed (DHC D/BKL: CF1/1)

Leland's brief description of Badbury includes the phrase 'now conyes burrough into it' and this may be a reference to the hillfort being part of Badbury Warren. The earliest records describing Badbury deer park and warren date from the thirteenth century. It was directly managed by a warrener and park keeper as part of the demesne lands of Kingston Lacy until the end of the fifteenth century. It varied in size during its history and may originally have included the hillfort (Papworth 1994, 61-64). It was leased as a rabbit farm from the sixteenth century and a survey of 1564 gives its extent (NA DL44/103). The 1742 map of Kingston Lacy (DHC D/BKL) shows the boundary of the warren after John Bankes had enclosed the area in 1740 and converted it to arable farmland.

In 1635, a Lieutenant Hammond of Norwich visited Badbury and described it as an 'ancient old place' covered with ash trees (Camden Misc. 1936). During the English Civil War, in the early summer of 1645, over 4,000 men met at Badbury armed with clubs, swords, bills and pitchforks. These were the Dorset 'clubmen', neither for King nor Parliament, they sought to protect their property from marauding bands of soldiers through united action. They heard a speech from a lawyer named Thomas Young which inspired them to continue with their cause but on 4 August their movement was broken. A force led by Oliver Cromwell besieged them on Hambledon Hill and after a brief battle they were defeated (Chancellor 1944, 20).

Dr Wake Smart (1890, 19) refers to a manuscript in the Bodleian Library, written by John Aubrey, in which he records the discovery of Roman coins on Badbury Warren in 1677, a Roman sword found inside Badbury Rings in 1665, and another found there about 1688. In 1847, Wake Smart was told of Roman finds made at Badbury by the Kingston Lacy gardener, Mr Lumsden. These included 'several small vases of Roman ware encountered when digging out a ferret in the camp' (ibid.).

A map of 1742 (D/BKL) shows a simplified depiction of the ramparts with a central rectangular plantation of trees. It is not until 1773 that a more accurate plan of the hillfort was surveyed which includes the barbican at the west entrance (D/BKL Woodward Survey). This plan shows the summit occupied by a neat circular pine plantation. No other trees or features were shown within the hillfort (Fig. 2).

The Woodward plan and a Shapwick enclosure map of 1813 (D/BKL Woodward) both show the east and west entrances through the ramparts but not the cuts through the south side of the barbican and outer rampart. However, Philip Crocker's plan published in 1821 (Colt Hoare 1821) indicate their presence by this time. The Ordnance Survey 1887 map is the first to show these southern entrances in any detail and also the two dew ponds on the west side of the interior. The 1773 map shows neither of the dew ponds, though one is shown on the 1813 map.

Sir Richard Colt Hoare provided the first substantial account of Badbury in which he suggested that the outer rampart was a later addition:

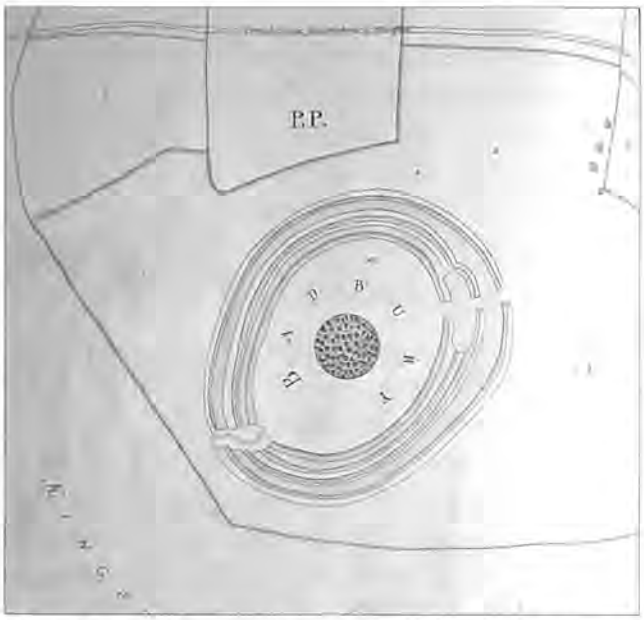

Figure 2: Plan of Badbury Rings surveyed by William Woodward 1773-4 (DHC D/BKL) [North at bottom of map].

> The strongest part of the works consists of two ramparts and ditches and beyond them is another rampart of slighter construction, encompassing the whole circumference of the work, and perhaps was added to the original work. In the centre of the area a clump of trees has been planted, by which the eminence is rendered a very conspicuous land-mark from all the surrounding country (Colt Hoare 1821, 36)

His surveyor, Philip Crocker's plan also shows the break of slope between the inner rampart and the summit which is the change of geology but perhaps he had discerned traces of an earlier enclosure predating the hillfort (see earthwork discussion below).

A bronze rapier, now in the British Museum, was ploughed up in 1851 about 100 m from the 'principal entrance' of Badbury Rings (Crawford and Keiller 1928, 60) and a bronze palstave axe was found in a drainage pit south of Badbury (Smith and Papworth 1987, 123). These are the only objects of this type found on the Kingston Lacy Estate and suggest a Late Bronze Age significance centred on Badbury Hill.

Hutchins (1861, 177) mentions that a beacon was established on the hillfort during the Napoleonic war but the establishment of a more permanent signalling station was prevented. Between 1826 and1831, Henry Bankes refused frequent requests by the Admiralty to lease part of Badbury and build a more permanent telegraph signal post there (Teasdale, 2016; DHC D/BKL/E/H/4/61).

However, a timber direction finding beacon mast was constructed in the 1940s on top of Badbury Hill. This was to serve RAF Tarrant Rushton, 2km west of the hillfort, which was a base for airborne forces from 1943-45. Horsa gliders carrying troops left here for D-Day and also Arnhem. Concrete blocks used as anchors for the mast remain on the summit.

The earliest air photograph of Badbury (July 1924) shows the circular clump surrounded by scrub which is mentioned by O.G.S. Crawford in his classic volume Wessex from the Air (1928, 58). The 1940s photographs show that the deciduous woodland thicket continued to develop around the clump. When the Royal Commission on Historic Monuments earthwork surveyors arrived in the 1960s, the density of vegetation was so great that they were only able to map the ramparts (Peter Fowler pers comm.; RCHM 1975, 62).

Although there are no public rights of way across Badbury Rings, the Bankes family traditionally allowed access to the site. This was greatly appreciated by the public, but increasing numbers of people visited. The site is an easy drive from large population centres such as Poole and as private car ownership increased the visitor impact was seen as erosion scars across the site. Dogs chased sheep and farmers became unwilling to graze Badbury. This led to the expansion of scrub cover and by the 1970s the condition of Badbury was of great concern to archaeologists. Dorset County Council began preparing a plan with the owner Mr H.J.R. Bankes to better conserve the site. There are stories of Roman coins churned up by the wheels of the ice cream van parked on the Romano-Celtic temple on the west side of Badbury and motor bikes scrambling over the burial mounds and hillfort ramparts. The acquisition of the Kingston Lacy Estate by the National Trust in 1982 led to a project, part funded by the Prince's Trust, which created a new access track and car park away from the earthworks.

During the project, the scrub across the site was greatly reduced and deep erosion scars into the ramparts repaired. The central Scots Pine plantation had almost disappeared by this time with only a few trees identifiable. The decision was made, in 1984, to replant the pine trees and to place a toposcope on the top of the hill. This imitated an illustration which Hutchins includes (1774, 526), drawn by his friend Tiberius Cavello but never placed on the Rings. The National Trust pine trees were planted in segments which allowed for a series of vistas out into the wider landscape from the summit. However, the scheme was never properly completed. Since the initial eighteenth-century plantation, mature

deciduous trees had colonised the lower slopes of the interior which blocked the views along the vistas and these trees were not removed in 1984.

Until 1997, the fenced plantations became thick scrub between the maturing pine trees. The fences were then removed and the scrub cleared and the pine trees thinned. This enabled the completion of the RCHME earthwork survey of Badbury.

Nearly all of these 1980s pine trees have now gone and the last are planned to be felled in 2021. The current management plan stipulates no new tree planting on the hillfort and the gradual removal of mature trees. Eventually the views from the toposcope will be achieved. The interior is now pasture and each of the rings is cleared of regenerating scrub once every three years in rotation.

Earthwork and geophysical surveys and LiDAR

This discussion is based on the RCHME survey report (Fig. 3; Donachie 1994, 5-6) but will also re-examine O.G.S. Crawford's interpretation based on his fieldwork and early aerial photographic evidence (1928, 58-60). This also takes into account analysis of the Environment Agency LiDAR data (Manley 2016) and the geophysical surveys which have been carried out in the area (Brown and Papworth 2002; Stewart 2007a; Papworth and Stewart 2011). To locate items discussed in the text, Crawford's capital letters and RCHME lower case letters have been transcribed onto the LiDAR plot and are included in the text e.g. (A/a).

Earthwork Surveys (see Figs 3 & 7)

RCHME staff have carried out three surveys at Badbury. In the 1960s, Peter Fowler's survey for the Dorset volumes was inhibited by the woodland and scrub growth that obscured the interior of the hillfort at that time (RCHME 1975, 62) but he was able to survey the Romano-Celtic temple and surrounding earthworks on the west side of the outer rampart. Subsequent conservation management meant that by April 1993, most of the ground surface within the inner rampart of the hillfort was visible, enabling the earthworks to be surveyed (Donachie 1994). However, the conifer plantation of 1984 prevented the summit of the hillfort being examined. This was finally possible after the plantation fences and undergrowth were removed in 1997 (Fletcher 1998).

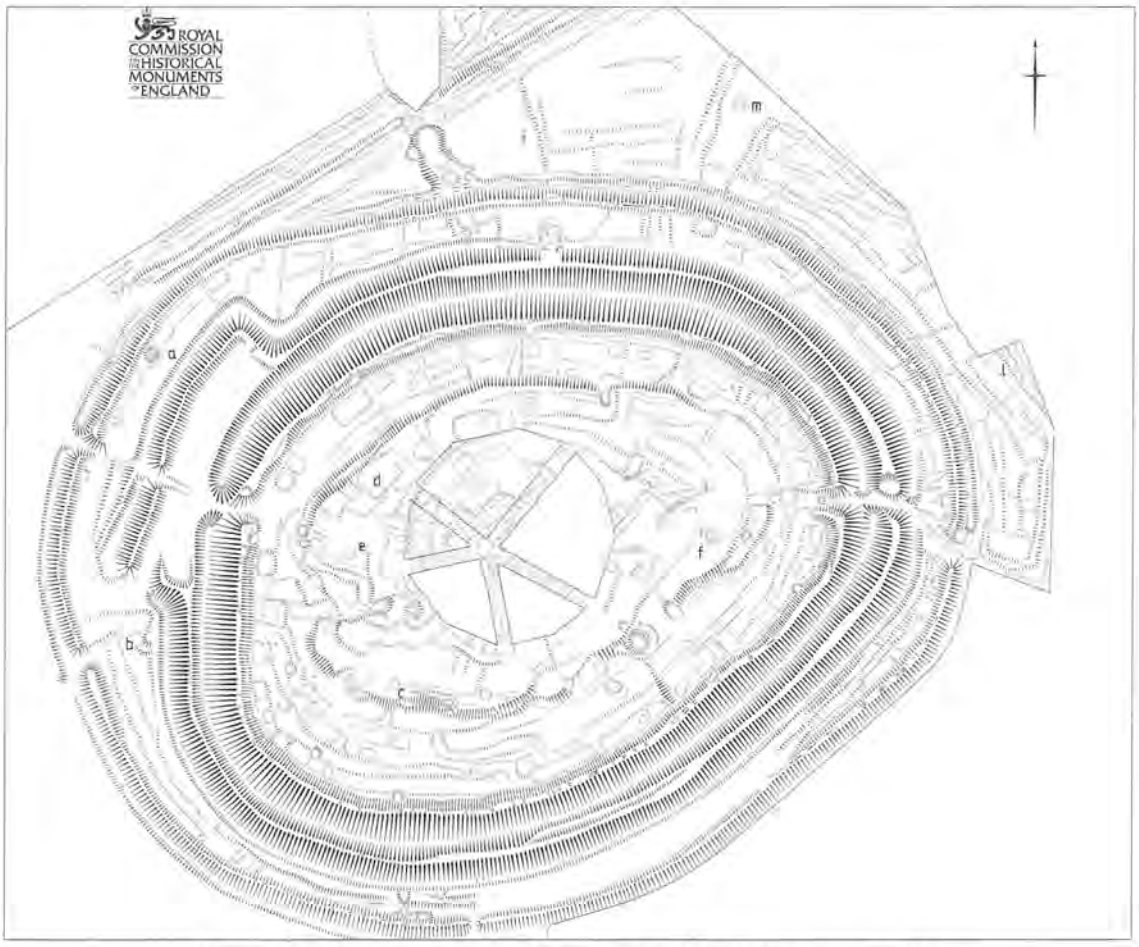

Figure: 3 Badbury Rings Earthwork survey (RCHME 1998) crown copyright

The Geophysical Surveys

The surveys were carried out between 2000 and 2007 first by Geoffrey Brown and then by Dave Stewart (Stewart 2007). The whole of the interior was surveyed using a Geoscan FM36 fluxgate gradiometer. Readings were taken at 0.5 m intervals along parallel traverses one metre apart. Using the same grid, a sample area of twelve squares (120 m long by 40 m) aligned north to south was surveyed using an earth resistance meter (Geoscan RM15). Readings were taken at one metre intervals in one metre traverses with a 0.5 m array in a twin probe conFig.uration.

The gradiometry configuration plot (Fig. 4) indicates that the 20-40 m wide ring of ground immediately within the inner rampart produced the best results. The gradiometry was more successful on the chalk bedrock compared with the variable sands, clays and gravels of the central area of the hill. The summit of the hill has also been contaminated with ferrous material which has most likely obscured any subtler underlying archaeological anomalies.

A regular group of nine features of ferrous origin spaced 20 m apart and 50 m in diameter (Fig. 4 [1]), are the iron and concrete anchors for the WWII direction finding beacon tower. The pairs of linear anomalies radiating from the summit (Fig. 4 [2]) mark the remnants of the buried fence lines showing the positions for the vistas created between the Scots Pine plantations of 1984.

Other ferrous concentrations are less easy to explain. There is a ring of these immediately within the inner rampart. They average between 10-15 m in diameter and range from 20-100 m apart. Four along the south-west edge of the survey (Fig. 4 [3]) are regularly spaced about 50 m apart. These may relate to piles of burnt material and ferrous waste debris left behind after the extensive repairs of 1983-4 but may have a more ancient origin. Similar anomalies were seen on the magnetometry plot for Hod Hill (Stewart 2007b) these too were found against the inner rampart but here interpreted as evidence of iron smithing hearths.

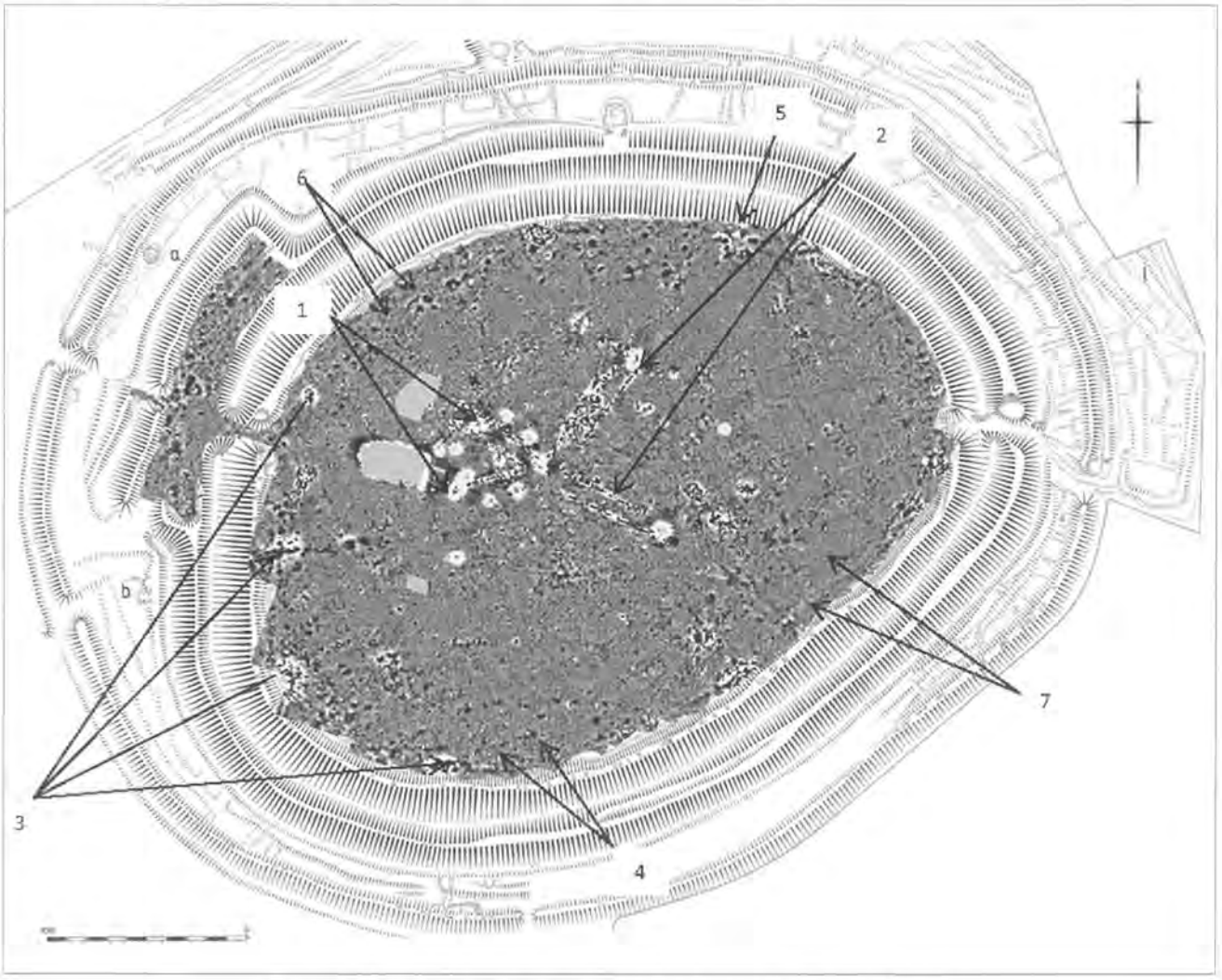

Figure 4: Magnetometry Survey with numbered anomalies described in text

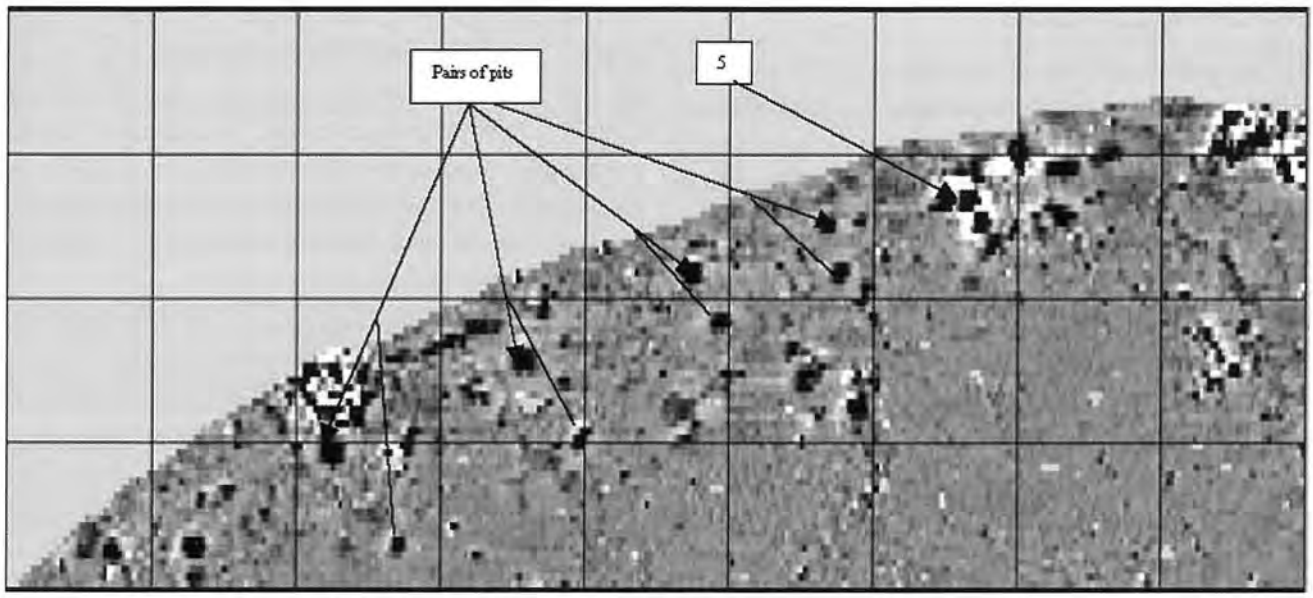

Figure 5: Detail of magnetometry survey north west Badbury interior survey grid 20 m

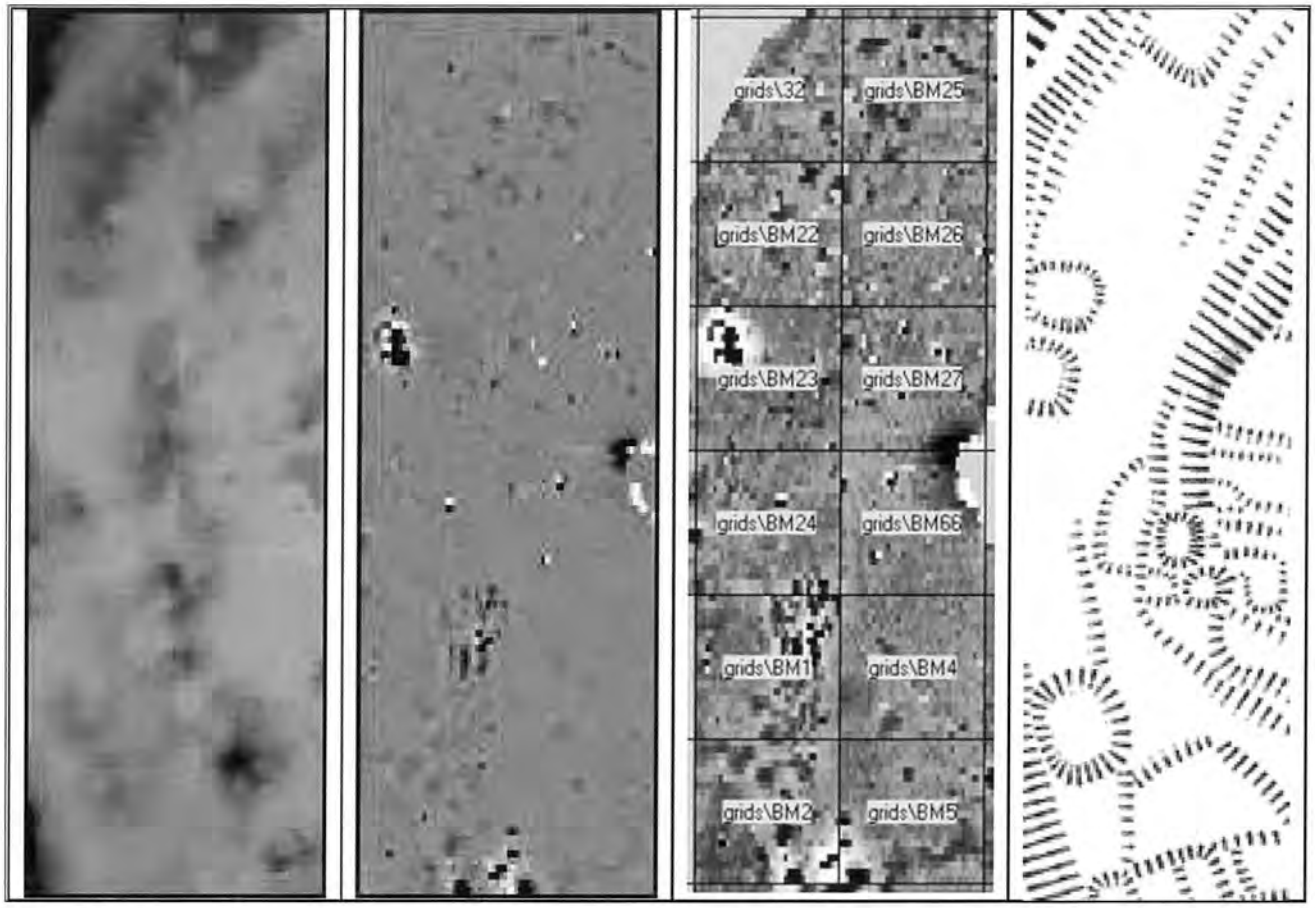

Figure 6: Aligned north to south four views of the same 140m by 40 m area of land Badbury west interior flanking west gate. Left to right earth resistivity survey, magnetometry survey, magnetometry overlaid by 20 m grid and comparative extract from RCHME earthwork survey

The magnetometry survey plot shows a scattering of pit-like anomalies in the chalk between the inner rampart and the gravel escarpment, particularly along the north and west sides (Fig. 5) but they are present as fainter anomalies elsewhere. There are regularly spaced groups and two are of particular note. A rectilinear pattern of pit-like anomalies (Fig. 4 [4]) was 30 m long and 20 m wide on the south side of the hillfort, perhaps post pits for a large building, and a ring of similar anomalies (Fig. 4 [5]), though with ferrous content, about 15 m in diameter on the north side of the hillfort (Fig. 5 [5]).

To the west of this (Fig. 4 [5]) are pairs of pit-like anomalies regularly spaced amongst other features (Fig. 5). Traces of round houses in the form of ring gullies are most visible in the north-west of the survey area (Fig. 4 [6]) and there are linear anomalies generally following the edge of the inner rampart in the south-east quadrant of the survey (Fig. 4 [7]).

From these results it can be said that the gradiometer survey has revealed numerous features within the hillfort which can be interpreted as dense settlement activity. Clearly, extensive further excavation would be required to better understand the comparative date and function of this array of anomalies.

The earth resistance sample area was centred on the west entrance of the hillfort with the north and south edges extending over the curving inner rampart where the survey grid crossed it. The earth resistance results were compared with the gradiometry and earthwork surveys (Fig. 6). The darker, higher resistance readings reveal the hard packed chalk of the embankment. East of this are two concentric irregular concentrations of higher readings which may be geological or perhaps caused by compacted material forming a buried trackway, although there is no indication of this in the gradiometry survey. Due to the limited results, it was decided that the earth resistance results did not justify further work. Therefore the remaining area was only surveyed using gradiometry.

Fig. 6 Aligned north to south four views of the same 140 m by 40 m area of land Badbury west interior flanking west gate. Left to right earth resistivity survey, magnetometry survey, magnetometry overlaid by 20 m grid and comparative extract from RCHME earthwork survey.

Consideration of the earthworks with reference to LiDAR

The three ramparts and ditches of Badbury may represent three phases of construction, although it seems likely that they represent two major construction events. The inner two ramparts are very similar in scale, and compared to them, the outer seems a weaker after- thought. The 140 m long and 30 m wide barbican on the west side seems to be integral with this bi-vallate phase, as the earthwork and geophysical surveys revealed no trace of a backfilled ditch to indicate that the middle rampart once ran concentric with the inner before the barbican's construction.

The east entrance through the inner rampart has a typical Iron Age in-turned rampart. Although such a

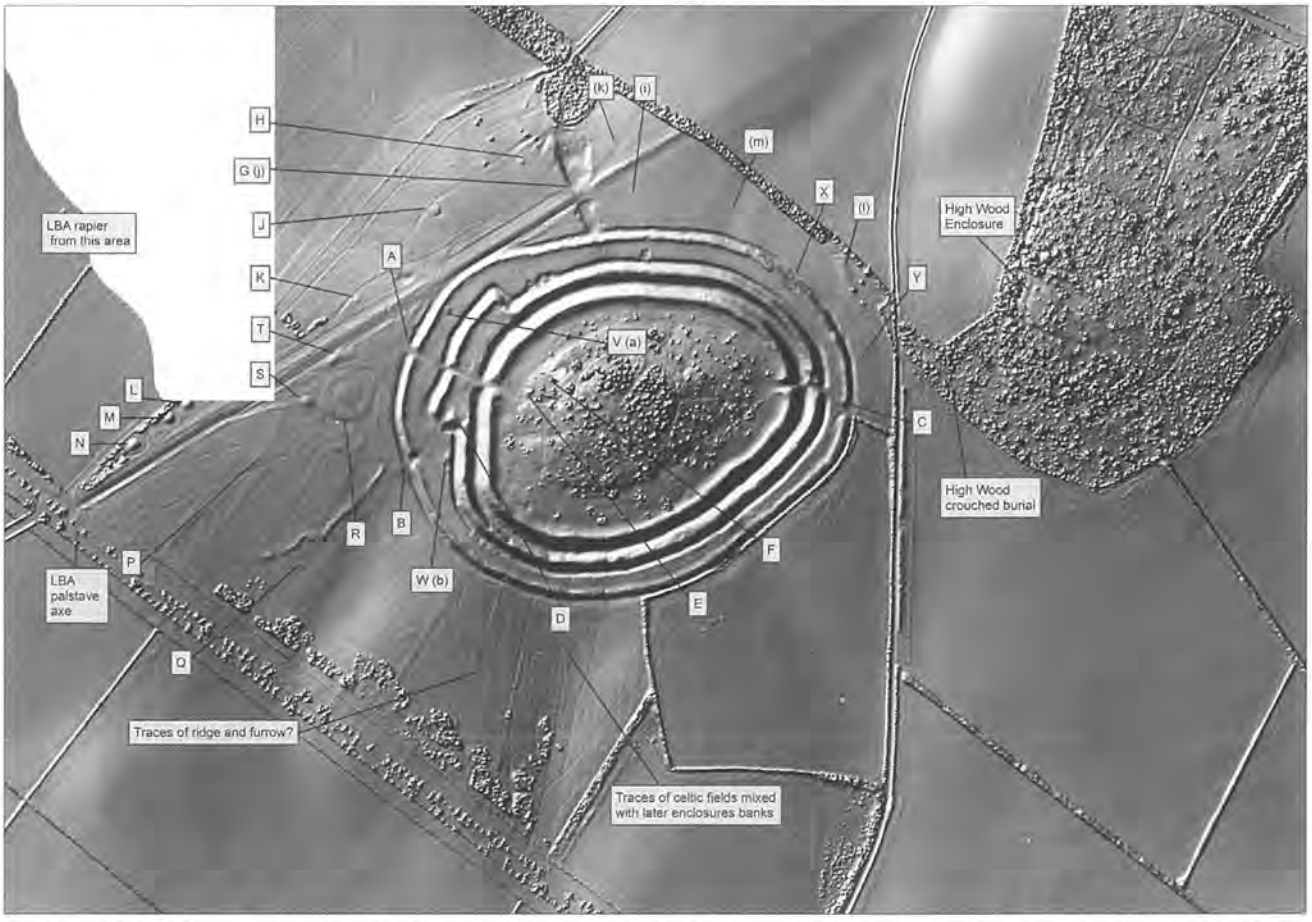

Figure 7: LiDAR plot with lettered features described in the text © Environment Agency copyright and/or database right 2015.

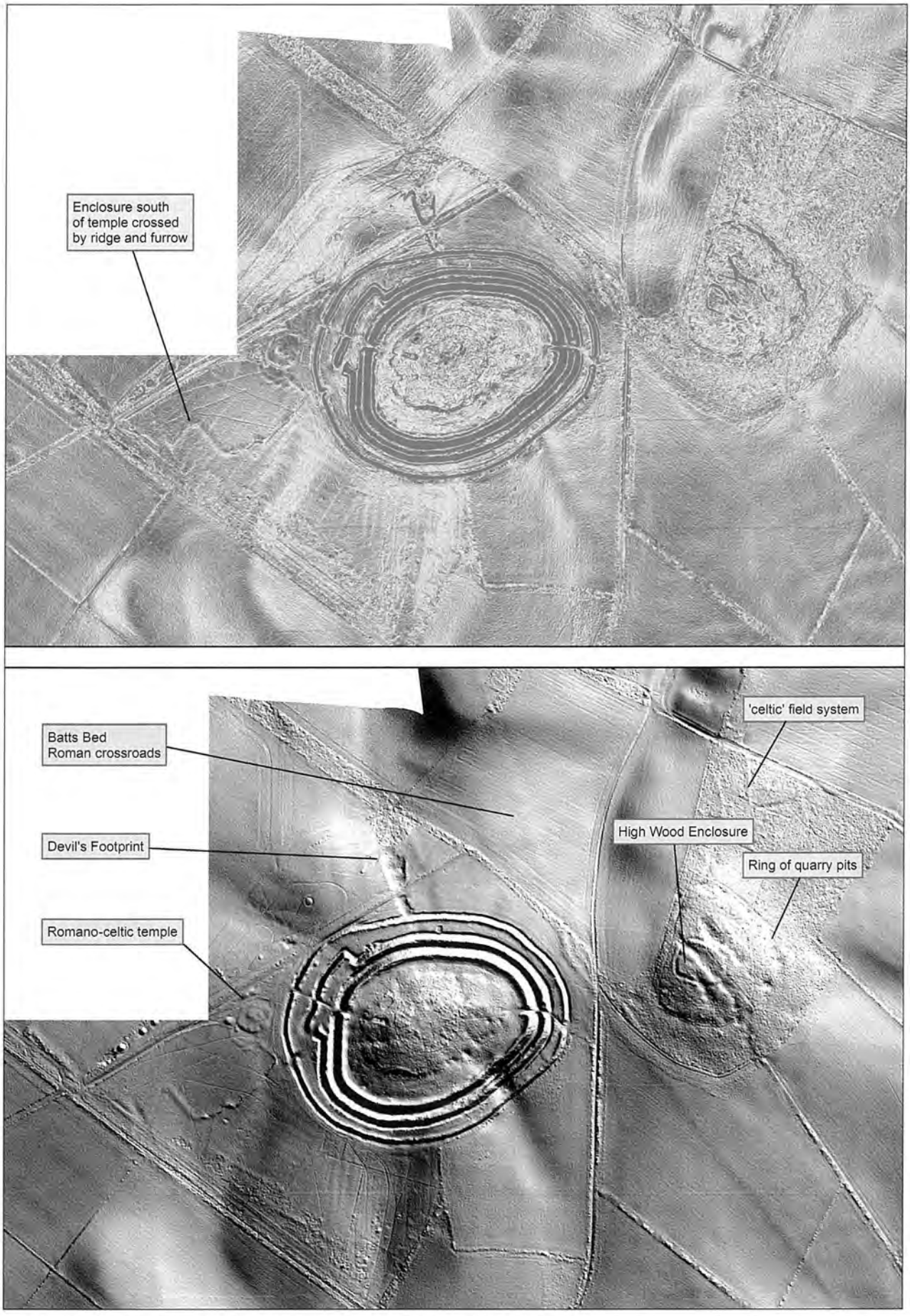

Figure 8: LiDAR plots showing features described in the text: Harry Manley/Bournemouth University 2016 © Environment Agency copyright and/or database right 2015.

feature is not as clear for the west entrance, there is a slight in-turn on its south side and the LiDAR (Fig.s 7 and 8) suggests traces of an equivalent feature to the north. Opposing east and west entrances are to be expected, particularly in the early phases of a hillfort's development (e.g. Danebury, Hampshire; Hod Hill, Dorset). In Badbury's case, access is required to enable use of the barbican. Although the barbican's function is unclear, similar outworks are known, for example Yarnbury near Salisbury and Danebury but at both these sites the outwork enclosures are more clearly a separate phase, built it seems to enhance the defences and not integral with the rampart to create a large enclosed space as at Badbury.

Badbury's two inner ramparts, step one above the other, constructed to follow the contours of the dome of the hill. Each rampart measures 20-25 m across and each has a V-profiled external ditch, 14 m wide. Ramparts and ditches run tightly against each other, apart from the barbican section. The crest of the inner rampart is 3.5 m above the interior and 8 m above the bottom of its ditch. The middle rampart is 6 m above this ditch and 7.5 m above its outer ditch. Clearly these measurements follow over 2000 years of erosion and silting and the original bases of the ditches would have been over twice the depth they are today.

The hillfort interior

The interior, covering about 6.9 hectares, is roughly oval in shape. A pronounced scarp, ranging in height from 4 m in the south-west section to 1 m on the north is set back some 30 m from the inner rampart and is roughly concentric to it. The scarp is on, or marks the edge of, the gravel cap to the chalk and part of it may be of natural origin. However, it has been utilised and remnants of a bank (Fig. 3 C) can be traced for about 55 m along its southern course. Donachie (1994, 7) suggested this may be evidence for an early univallate phase utilising this natural scarp on the highest part of the hill. Flint finds from the hill top, in trenches II and III (see below), raise the possibility that this earthwork may date back to the Neolithic period, though the finding of Bronze Age metalwork (see above) may suggest a later Bronze Age hill-top enclosure.

The scarp is very irregular in appearance and its edge has been considerably damaged by quarrying into the Tertiary deposits. A similar but more regular ring of cuttings can be seen on the LiDAR plot (Fig. 8) around the equivalent gravel escarpment within High Wood some 350 m to the north east. Given the proximity of Roman roads to the site it is reasonable to assume that some were used to acquire gravel for road metalling. Immediately west of Badbury, pebbles brought up in mole hills show that this metalling still survives as a capping along the chalk agger of the Dorchester Road. The Roman origin of at least some of these features is supported by the discovery of Romano-British pottery in one of the High Wood quarries (Papworth 2009, 209-10) .

A 6 m wide ditch runs along the bottom of Badbury's gravel scarp, particularly on the south-east side where it has been cut into by sub-circular hollows interpreted as the sites of round houses. 28 of these potential hut platforms (one now proved by excavation Trench I this report) were identified during the survey varying from 4.5-10 m in diameter. Several smaller circular hollows up to 5 m diameter may be associated with storage pits (Donachie 1994, 5 and geophysical survey section above).

The hollows dug out for two dew ponds, terraced into the west slope of the interior are still in use for watering grazing cattle (Fig. 3 D&E). They are both clearly shown on the 1887 OS map but only the southern pond is shown on the 1813 enclosure map (DHC D/BKL Woodward Survey Kingston Lacy Estate). Jo Donachie (1994, 4) considered the southern pond to be adapted from an earlier quarry, but that the northern pond had been deliberately created in the nineteenth century.

The three 3.5 m wide concentric circular tree ring enclosure banks on the summit measure 126 m, 96 m and 70 m in diameter. They are considered in more detail as part of the description of Trenches II and III in this report (see below). The earthwork survey demonstrated that the banks overlie linear scarps and hollows from the earlier use of the site (Fletcher 1998).

The Outer Rampart

Between the middle ditch and outer rampart (Fig. 3), there is a broad berm which varies in width from 15-30 m. This enclosure was designed to accommodate the barbican. Unlike the tops of the inner ramparts, the 10-15 m wide outer embankment has an uneven hummocked appearance as though incomplete. It rises up to 1.8 m above the interior and 4.5 m above the base of its flat-bottomed ditch which is 8 m wide.

There are three breaks in the outer rampart. That to the east was to enable access to the gateway and is part of the original design for this rampart. It was built slightly south of the breaks through the middle and inner ramparts and appears to be a defensive consideration to prevent a direct approach, enabling it to be guarded from the ramparts above.

In contrast, the entrance to the west creates a straight access route to the interior. These cuts through the outer and middle ramparts seem contemporary and it has been suggested that they may be Roman in date (RCHM 1975, 63).

Map evidence (DHC D/BKL mic/R/402) shows that the breaks to the south west, through the barbican bank and outer rampart date from the 19th century as they are not present on William Woodward's detailed survey of 1773 (Fig. 2) and the enclosure map of 1813 (DHC D/BKL Woodward survey). The break through the outer rampart is not approached via a level causeway across the ditch, the path here has settled into a backfilled cutting, evidence that the gap here is not original and was poorly constructed.

The substantial berm, separating the middle rampart and ditch from the outer enclosing bank is covered in a profusion of low mounds and shallow hollows, which may be dumps and scoops left from the construction of the defences. Several of the hollows, especially on the south east, have a rounded sub-rectangular shape, measuring up to 17 m in width and are regular enough to suggest they were the sites of buildings. Parallels for such constructions can also be found at Maiden Castle and Whitesheet Hill. Traces of very slight quarry ditches, no more than 13 m in length and up to 8 m wide and 0.3 mdeep, cross the berm at right angles to the defences, possibly defining internal divisions (Donachie 1994, 3) (Fig. 3).

Badbury barrows

Documentary research, earthwork and geophysical survey have identified a linear group of fourteen round barrows aligned north-east to south west scattered across the western slope of Badbury Hill. Two of these V/(a) and W/(b) (Fig. 7) can be seen to have been affected by the construction of the hillfort's defences. This is unusual as hillfort builders seemed to avoid damage to pre-existing burial mounds, for example, at Whitesheet Hill and Battlesbury hillforts in Wiltshire. In these casee the inner ramparts kink outwards to include barrows within the enclosure.

On the west edge of Badbury Rings, barrow (a) (Fig. 7) is a low rise 0.8 m high and 9 m in diameter, it's western third overlain by the outer rampart construction. A possible second barrow (b) is located on the west side of the middle rampart, some 30 m south of the southern entrance to the barbican. Measuring 15 m in diameter from north to south and 9 m from east to west with a maximum height of 1.3 m, its east side has been cut by the outer lip of the rampart ditch. Other barrows in the group have been cut by the construction of the Dorchester Roman road.

External Features

The LiDAR plot demonstrates that the area on the north side of the hillfort has fainter earthworks than those to the west and south (Fig.7). Though earthwork detail is clear on early aerial photographs, linear banks X and Y (Crawford and Keiller1928, 60) and the side banks of the Dorchester Roman road running north east from the quarry G / (j) are now no longer visible. This is due to 1950s turf cutting across this area (AP RAF0040F2158 RAF1935 1311152 Jan 1956). This short-term but very damaging activity offered financial returns to farmers at a time when local householders and developers were willing to buy downland turf for the lawns of Wimborne Minster and elsewhere.

The south side of the hillfort became eroded by vehicular access and was under-grazed in the 1940s-80s but the LiDAR shows little of this. However, it does demonstrate that this area of permanent pasture has actually been arable on several occasions during its history.

The strip of grassland west of the Dorchester Roman road, it seems, has been the least disturbed by cultivation but there has been erosion from its occasional use as a car park and viewing area for the Badbury point to point races. These have been held in the field, down-slope to the west, for over 50 years. During this time, the area will has been disturbed by trackways, latrine pits and post-holes for horse paddocks and marquees. The foundations for the metal scoreboard frame were dug into ground on the north edge of barrow J and also rings of posts (now removed) were placed round the barrows K, J and H in the 1980s to protect them from damage during busy point to point events.

Evidence of Celtic Fields North of Badbury

Faint traces of probable 'celtic' fields demarcated by a linear arrangements of scarps up to 0.2 m high, extend in a north and north west direction for up to 130 m, from the exterior lip of the outermost ditch of the hillfort (Fig. 3; Fig. 8). They appear to be part of a larger axial arrangement extending to High Wood some 400 m to the north east. The LiDAR plot shows further rectilinear boundary banks on this alignment, extending beneath the trees to the wood's northern boundary.

At least two lynchets and a low bank abut and appear to have been cut by the outer ditch of the hillfort, although the considerable amount of degradation associated with tracks around the ditch makes their precise relationship impossible to determine. It is, therefore, still open to question as to whether some of the banks and lynchets on a similar alignment on the inner berm are remnants of a pre-Iron Age landscape or subdivisions associated with the hillfort (Donachie 1994, 5-6).

The Hamworthy Roman Road

The Roman road from Badbury to Poole Harbour (l) (Fig. 7) (se also Fig.s 4 and 8) passes close to the east of the hillfort, some 30 m from the outer ditch. The composition of the agger is markedly different in comparison with Dorchester road, visible only as a slight swelling, up to 10 m in width and 0.3 m high, with slight traces of flanking ditches (Donachie 1994, 6).

Linears X & Y may once have defined the boundaries of a croft or allotment. After scrub clearance in 2002, ridge and furrow was found, cutting across the curve of the Poole Harbour Roman road (l) where it turned north towards the Batts Bed crossroads. The earthworks could be traced north as far as the parish boundary. This group of 'narrow rig' cultivation ridges, typical of the Napoleonic period, is associated with a scatter of contemporary bricks and may be the remains of a cottage or outbuilding which once stood at the south-east corner of this area, though there is no historic map evidence for this. Beside this site was a small causeway, bridging the hedge ditch, which would have given access to Batts Bed field to the north. Further evidence for post-medieval cultivation around Badbury is described below.

One of the lynchets (i) has clearly been cut by a section of the Badbury to Dorchester Roman road which runs obliquely across the field system, on the north west side of the hillfort. Crawford (1928, 59) also noted that lynchet K-P, on the south-west side of the hillfort, had been crossed by the road.

The Dorchester Roman Road

The road itself survives as an impressive agger up to 14 m wide and 1.6 m high although numerous hollows along its course are indicative of quarrying for metalling material (Fig. 7 and Fig. 8). The agger is flanked on both sides by clearly visible side ditches and outer banks, surviving up to 7 m wide and 0.5 m high (Donachie 1994, 6). From outer bank to outer bank the road measures 30 m across. Aerial photography of the Roman crossroads to the north (in a field known as'Batts Bed') demonstrates that the road is broader and later than the Bath road which it crosses. Originally, the Hamworthy Road would have split at a point now occupied by the parish boundary north-east of the hillfort (l). From here, roads were constructed north to Old Sarum, north-north-west to Bath and possibly north-west to Hod Hill if the parish boundary preserves the line (Fig. 1).

At Shapwick, 2 km to the south west, excavation and geophysical survey along the line of the Dorchester road, has enabled the road to be dated to the fourth century. At Crab Farm, it crosses a Roman fort and a large Iron Age and Romano-British settlement, the latter continuing under Shapwick village as far as the ford at the Stour crossing.

Shapwick High Street follows the Roman road, but further north-east it lies under arable with its side ditches clearly visible both on aerial photographs and geophysical survey plots (Papworth 2008, 317). They cross the alignments of a dense array of geophysical anomalies, demonstrating that the builders had the power to drive the new route through the settlement, ignoring the sensitivities of land ownership. Analysis of the survey plot suggests that there was a narrower and earlier road 10-12 m wide before the final phase. Of particular interest is the road's relationship with the 4.5 hectare triple ditched Roman fort. The south-west junction of the road with the fort ditches was excavated in 1995 (Papworth 1997, 357) when road metalling was found to survive where it had sunk into the softer ground of the backfilled ditches. Finds from ditch fillings included fourth-century pottery and this implied a late date for the final phase of the road. This was confirmed in 2004 (Papworth 2004, 186) when a backfilled well was found under the north-west side of the road alignment. The filling contained several early -fourth-century coins as well as contemporary Oxford and New Forest wares. The geophysical survey showed that the fort's entrances were placed at its north-east and south-west corners adjacent to where the road and fort ditches crossed. From this evidence, it seems that a narrower road was cut by the construction of the fort presumably for security and to regulate traffic. This arrangement was later modified when the ditches were backfilled and the road broadened in its final phase. This concept of cutting and then reopening of the road is considered again below.

Dorchester Road Junction with Outer Rampart

Crawford considered the junction of the Dorchester road with Badbury's outer rampart. 'At first sight it might appear that the outer bank of the hillfort had encroached upon, and was therefore later than the Roman road, but a close scrutiny of the air photograph and on the spot shows that this impression is wrong' (Crawford 1928, 59). Donachie (1994,6) also observed that the southern ditch, which has been subsequently utilised as a track, cuts into the hillfort's outer ditch on its south-west corner though the modern track obscures the detail and the sequence of rampart then road is not certain.

It has been argued that the outer rampart (Fig.s.3, 7 and 8) is a late phase of the hillfort, it crosses earlier lynchet earthwork alignments and swings out to enclose the barbican overlapping the burial mound V (unusual for the Iron Age but not for a Roman or later development). It runs for over 30 m alongside and overlooking the Roman road and crosses the alignment of the road's south-east bank. Elsewhere, the road cuts through earlier earthworks, particularly burial mounds, to maintain its integrity but at the outer rampart, the alignment of the south-east bank seems to break to accommodate the rampart rather than cut through it. The fifth- to sixth-century finds in Trench I (see below) provide the evidence for an enhanced significance for the hillfort at this time. This evidence makes possible the supposition that the outer rampart was built as an additional line of defence to guard the road in the sub-Roman period, though careful excavation would be required to test this.

Cutting of the Dorchester Road by the 'Devil's Footprint'

100 m north-east of the road/rampart junction, a deep hollow (Fig. 7) (j) extends on either side of the road alignment, having clearly broken through the side banks. It is up to 0.7 m deep and measures approximately 30 m wide at its north end and 20 m wide at the south where it cuts into the ditch of the hillfort. The feature resembles a chalk pit, of which there are numerous examples in the vicinity and is possibly influenced by underlying geology (Donachie 1994, 6). The LiDAR plot (Fig.s 7 and 8) shows a broad natural hollow upwards of 50 m wide aligned north west to south east visible on both sides of the hillfort and it seems that the excavation takes advantage of this.

The cutting is Crawford's feature G which he also considered to be a quarry cutting the Roman road, although he thought it to be of 'considerable antiquity' because a series of tracks converge to avoid the cutting and pass on its north side. He observed that one of these holloways was cut by the ditch of the round barrow P demonstrating that the track was older than the barrow which he believed was Roman (but see below).

G/(j), known locally as the 'Devil's Footprint', might be viewed as a defensive excavation. The cutting, although irregular along its north-east edge, follows a straight line, at a near right-angle to the Roman road continuing north-west from the outer rampart edge across the road earthworks and as far as the steeper slope, as the land falls away. It creates the effect of a cross-ridge dyke preventing easy access from the Batts Bed crossroads south west to the settlement at Shapwick and the Stour crossing.

This theory is supported by Pitt-Rivers' excavation of the Ackling Dyke at the Dorset boundary, 20km to the north east. Here he investigated the road's passage through the Bockerley Dyke. The dyke originated in the Late Bronze Age- Early Iron Age and Colt Hoare (1821) noted that the Roman road was a later feature as it changed course to pass through the dyke. In addition, Pitt-Rivers observed that the dyke had been made larger at the end of the Roman period. His excavated evidence showed that the road had been blocked and then re-opened again. He found coins of Valens and Honorius sealed under the road metalling (1892, 69) which demonstrated that the changes took place in the fifth century (Bowen 1990, 38-9). Distribution of fifth- to seventh-century burials and finds between Old Sarum and Badbury also indicate that the Ackling Dyke was a strategic routeway along which Saxon expansion was likely to be contested by the Romanised people of Dorset (Eagles 1994, 13-32)

Aerial photography (Crawford and Keiller 1928, 59) and the LiDAR plot (Fig. 7) indicate that the road was subsequently remade after it was cut through at Badbury but over the centuries the construction material seems to have sunk back into the earlier excavation.

A later shallow holloway (k) diverges from the Roman road on the east side of the quarry G/(j), cutting through the north ditch of the road, then continues in a north-east direction for 80 m before being truncated by scarps from later ploughing (Fig. 7) About 100 m east of this, very ephemeral traces of a possible embanked circular pond (m) (Figs 3 & 7), 5 m in diameter and 0.1

m deep lies 50 m to the north west of Badbury's outer ditch (Donachie 1994, 6).

Barrow Group South and West of Badbury

Crawford (1928, 59) considered the barrows (Fig. 7) L, M and N on the, south west edge of the survey area, to be Roman because they were 'erected by the side of the Roman road'. The RCHME earthwork survey (1975, 61) shows N to be oval in plan 16.5 m diameter and 2.2 m high, surrounded by a low bank and external ditch with a redundant chalk pit on its south-west edge. Excavation of this bank and ditch by Peter Fowler (1965, 41-7) demonstrated it was post-medieval in date and overlay the original ditch. A geophysical survey of the three barrows (Papworth 2011, 107-10) demonstrated that N had been cut through by the construction of the Roman road and had originally had a conventional circular barrow ditch and mound. The two barrows to the north east are both 14.5 m in diameter and 2.3 m high, the south-east edges of their ring ditches have been clipped by the road construction. The 1773 survey map (DHC D/BKL Woodward Survey Map PP) shows four barrows here, the site of the smallest and most northerly is now occupied by a small reservoir at a field corner (Fig. 2).

Crawford's R he describes as a large disc barrow but geophysical survey and excavation has proved this to be a Romano-Celtic temple (Papworth 2014) on the west side of its 60 m diameter enclosure wall is barrow S 15.5 m in diameter and 1.4 m high which geophysical survey (Brown and Papworth 2002) has shown to be surrounded by a 20 m diameter ring ditch. The same survey revealed a 10 m diameter ring ditch 30 m to the south and another of the same diameter 20 m to the north, cut by the Roman road. Adjacent to this and immediately north-east is a 15 m diameter ring ditch cut by the road and a further 30 m to the north-east is T which Crawford (1928, 60) describes as a curious long mound of irregular shape. The magnetometry survey revealed this to be another round barrow truncated by the Roman road. The two cut by the hillfort construction V and W have already been mentioned as have K, J and H to the west of the Roman road. Of these K is 10.5 m diameter and 0.7 m high and well preserved but with no quarry ditch visible; J is 13.5 m diameter and 0.8 m high, disturbed by burrowing activity but surrounded by a clear ring ditch which cuts through an earlier holloway. H is an unusually small and well-preserved barrow only 7 m diameter and 0.6 m high with traces of its surrounding quarry ditch visible.

On the south side of the temple R is an irregular earthwork enclosure, defined by an embankment up to 0.8 m high and 6 m wide which forms an enclosure of about four hectares. It follows the line of the Dorchester Roman road on its west side and when RCHME (1975, 61; 31) surveyed this feature it was thought that with R it might define a Romano-British settlement. However, the finds of Roman coins and building debris are confined to R and mole hills and burrows across the enclosed area reveal only struck flints but little else. The bank is most impressive on the east side as it approaches the outer rampart of Badbury but it turns sharply to the west a few metres from the hillfort and from this point becomes a much fainter earthwork 0.2 m high. The earthwork follows a sinuous course to the south west, where it has been clearly levelled and spread by past ploughing. The LiDAR shows the earthworks of parallel curving ridge and furrow crossing over the earthwork. The dog-legging of the bank along the east and south-west sides suggests that it may have been constructed to avoid the boundaries of an existing actively managed 'celtic' field system. It also avoids the temple R and the neighbouring barrow S. Geophysical survey (Brown and Papworth 2002) revealed that the enclosure had a 2-4 m wide external ditch which is not visible as an earthwork on the ground. The precise date and function of the enclosure are unknown though it seems later than the hillfort's outer rampart, the temple and the Dorchester Roman road and therefore while it is of considerable antiquity it is likely to be of fifth-century or later date.

The excavation

Trench I: Rampart edge south of west entrance (ST96269 02983)

Trench I (Fig. 1) was a 6 m square located at the north end of a 20 m by 12 m oval hollow, surveyed by RCHME (Donachie1994) (Fig. 3). The site was 25 m south of the west entrance and the trench was cut against the east slope of the inner rampart. A trench in this position would reveal sealed stratigraphy which had become buried as the rampart decayed. This location is likely to have been a sheltered place where occupation evidence would be found and it was hoped that the earthwork hollow might mark the position of a round house. Research excavations within other hillforts, notably Danebury, Hampshire (Cunliffe 1993), had uncovered good occupation evidence at a similar location.

In contrast to Trenches II and III, this excavation was in open grassland with no visible evidence that

Figure 9: Trench I looking north toward the west entrance. The chalk floor (107) right continues under layers (108) and (109) on the left. The ranging poles have 0.5 m divisions

the buried stratigraphy had been affected by scrub and tree roots or by burrowing animals.

The excavation demonstrated that the best sealed stratigraphy lay on the west side of the trench where the rampart collapse material was deepest, particularly at the south west corner. The excavation demonstrated that the trench was not parallel with the rampart and was skewed slightly into the embankment structure. The stratigraphy was surprisingly shallow towards the east within the hillfort interior.

Trench I: stratigraphic description (Fig.s. 10 & 11)

The turf was lifted and stacked and the topsoil was removed (100). A dark brown loam 0.08 m deep, it contained fragments of plastic including a fountain pen lid, brown and clear bottle glass and halfpenny dated 1874.

This overlay (101), a dark brown clay loam 0.05 m at the top (rampart) west end and 0.1 m at the bottom east end, it contained more plastic and a WWII cartridge case. This overlay a thin 0.05 m thick spread of chalky

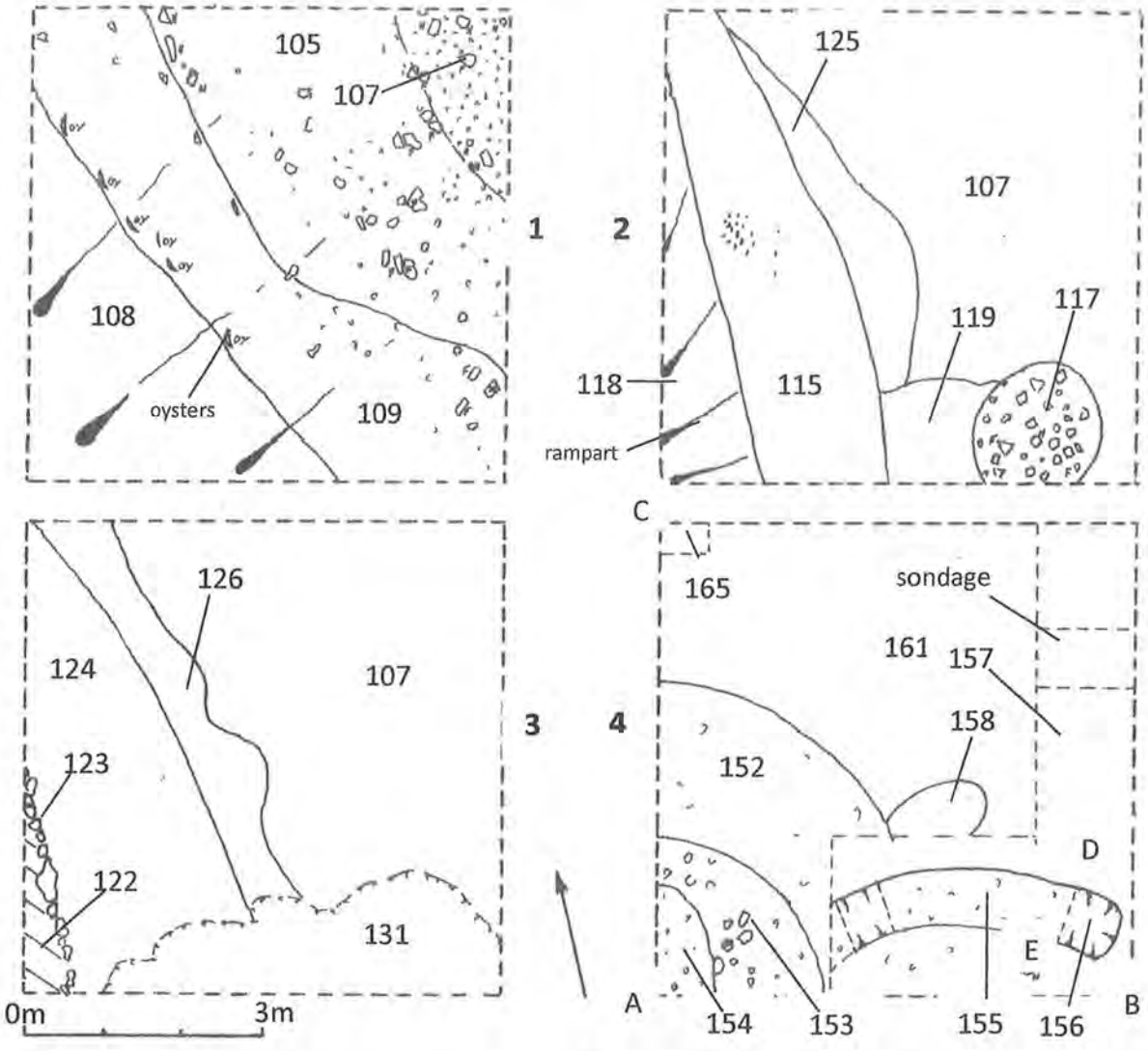

Figure 10: Trench I: four phases of the excavation. 1: is medieval and later; 2: is earlier medieval; 3: Sub-Roman; 4: Iron Age also showing positions of section drawings A-E in Fig. 11.

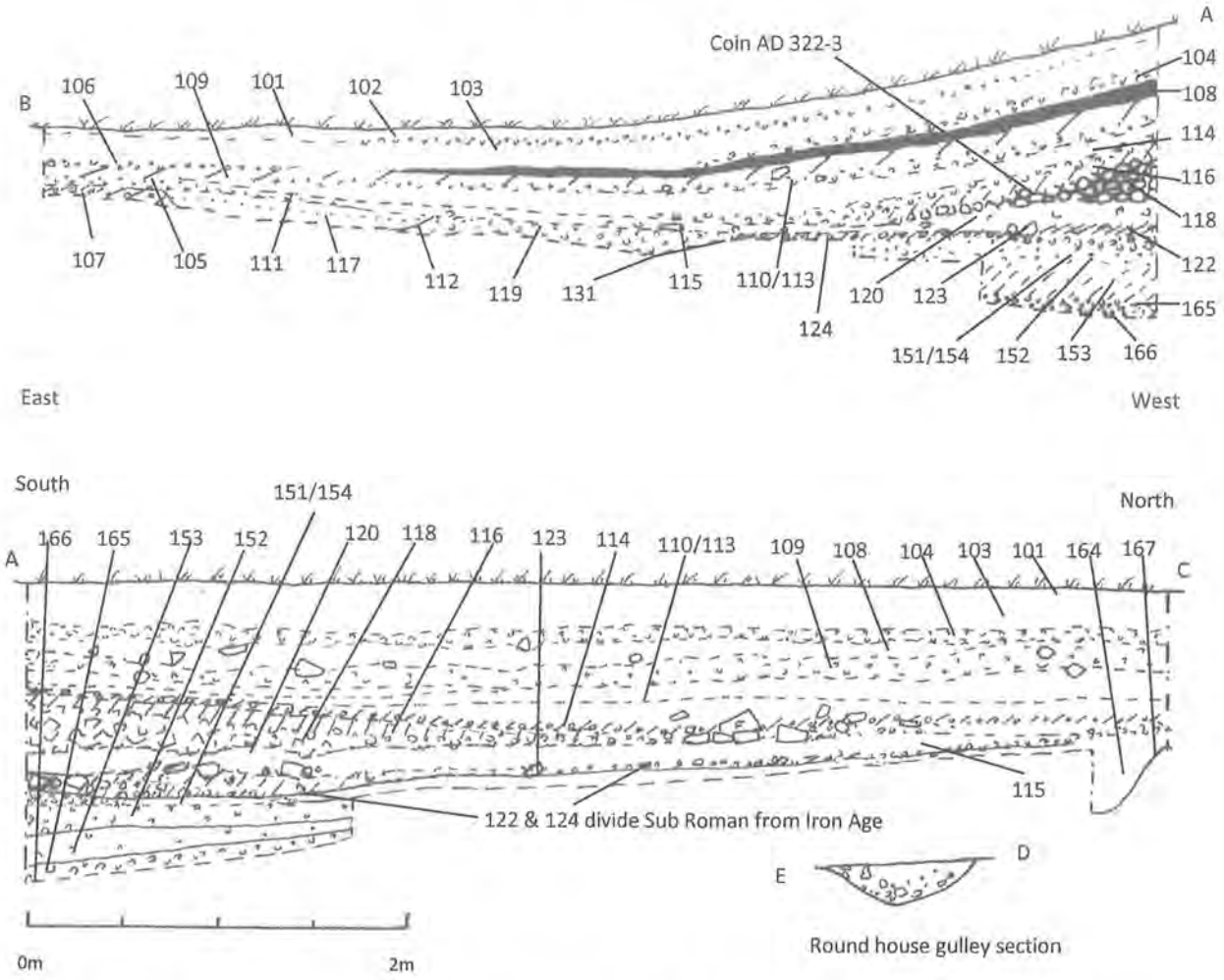

Figure 11: Trench I section drawings showing contexts described in text for locations see Fig.10, plan 4.

loam (102) containing a fragment of brown bottle glass which covered (103), a dark yellow brown clay loam. In the lower eastern third of the trench, the modern loamy deposits were deeper and (103) overlay (106), a dark yellow brown loamy clay. These upper layers were modern deposits with occasional flints and abraded sherds of black LIA and RB pottery mixed with the later finds.

(103) overlay (104) which was 0.2 m below the turf at the west end dipping to 0.3 m deep 1 m from the east edge of the trench, where it faded out over (105) which was exposed here emerging from beneath (104) and continuing to the east trench edge.

(104) was 0.05 m deep, a distinctive dark brown clay loam mixed with very numerous pea-grit fragments of chalk mixed with occasional oyster shells, lumps of heathstone and flint and black pot sherds of IA-RB date. Layer (105) had the appearance of a level yard surface consisting of a concentration of pebbles and lumps of flint and heathstone in a dark yellow brown loamy clay. It will be considered in more detail below as it was of much earlier date than (104) and lay directly on the chalk floor [107]/[124] (Fig.s 10 and 11). Further west, (105) had become sealed by a series of layers which had built up in the lee of the rampart below (104).

Below (104), across the south-west third of the site, was (108), a 0.08 m deep yellow-orange brown clay loam with very numerous chalk flecks and lumps up to 40 mm3 and occasional chunks of tabular flint. A scatter of oysters was found along the north-east lower edge of (108), where (109) emerged from beneath (Fig. 10:1). (109) covered two thirds of the trench with stony yard (105) exposed in the lower north-east corner. (109) was 0.1-0.15 m deep, a dark yellow brown loamy clay with moderate to numerous flint nodules and heathstone lumps 50-300 mm3. Mixed with this were occasional black IA-RB sherds, struck flints, oysters and animal bones.

Below (109) were (110) to the south and (113) to the north. They were both up to 0.1 m deep and essentially the same layer, together covering the south-west half

of the trench, deepest against the west edge of the trench and fading away to the east above (105); as with all these deposits, it derived from the tumble of the degrading rampart. (110)/(113) was a yellow brown loamy clay with very numerous chalk flecks and lumps mixed with numerous lumps of heathstone and flint nodules 100-300 mm3 also occasional lumps of Purbeck limestone and greensand. There were also smudges of yellow sandy material which was interpreted as degraded mortar. Mixed with this were 10-15 fragments of black pottery, flakes of struck flint, animal bone and a fragment of scallop shell.

Below (110)/(113) was (114), a dark yellow brown loamy clay above (116), a lighter layer. Both were up to 0.08 m deep and covered a smaller area exposing more of the floor surface (105) which faded out along a diagonal line from north-west to south-east to be replaced by a more soily layer (115) with occasional small heathstone and flint fragments. This was an in situ occupation layer and will be described below. Below (116), at the west edge of the trench, was a packed chalk layer (118) that extended 1 m east from the south-west corner and continued at an angle to the north north west until fading into the west section 1 m from the north section (Fig. 10:2). At the junction of (116) with (118) was found a coin of Constantine AD 322-323.

(118) was up to 0.15 m deep and contained black IA/RB pottery, fragments of animal bone and struck flint. It overlay (120) which was a dark brown loam equivalent to (115) but given a separate context where it continued under (118). (120)/(115) was 0.15 m deep at the south-west trench corner and gradually became thinner, merged and became stonier, changing into (105) diagonally across the centre of the trench. These layers represent an occupation/yard surface and contained abraded late Roman pottery including part of a New Forest poppy-head beaker, a sherd of Oxford ware, part of a turned shale bowl and a bronze spiral ring (Fig. 19). Patches of charcoal at the base of (115) and overlying a compacted chalk floor [107]/[124] yielded three C14 dates. One dated to the MIA 390-200 BC but the other two yielded closely comparable dates of AD 420-610 and AD 400-570 at 95% probability.

Below (105) was a compacted chalk layer [107] except where the ground had been cut away along the south edge of the trench. In the south-east corner was a shallow pit or eroded area [112] 1.0 m in diameter. It cut [131], another 0.1 m deep cutting traceable for 1.2 m west of [112]. The upper filling of [112] was a yellow-brown loamy clay containing occasional fragments of heathstone and limestone and an ox mandible mixed with occasional struck flint and sherds of black pot (111). This was 0.1 m deep and overlay (117), the lower filling of [112] which was a compacted layer of heathstone lumps 0.1 m deep placed above the cut away chalk surface of (107). The filling of [131], (119), was distinct from (117) containing only occasional fragments of heathstone and Purbeck limestone, an iron nail, and occasional fragments of shell and animal bone (Fig. 10:2).

A chalk surface covered the whole of Trench I, the north-east half was [107] and the south-west [124]. These contexts were divided by a shallow linear feature up to 0.05 m deep and between 0.2-0.3 m wide [126] filled with a light yellow brown chalk loam (125). It was cut away by [131] at its south end. In the south-west corner [124] abutted a line of chalk blocks and flint nodules [123] 0.2 m deep which lay below (120) and was set in a fine grey clay [122]. [122]/[123] together represent a distinct structural feature only visible for 3 m running under the west section and presumably part of a phase of rampart structure. Within [122] were found two fragments of burnt clay with the imprint of wooden staves or wattle, presumably baked daub from a building (Fig. 10, 3).

The floor [124] was 1.0 m below the modern turf surface at the west section and the equivalent chalk surface [107] was 0.4 m below the turf at the east section [107]. Layers [122] and [124] were found to be only 0.05 m deep when removed and proved to mark the division between sub-Roman and Iron Age deposits. Below [124] and [122] was a 0.08 m deep light yellow brown clay loam (151) with numerous lumps of chalk 10-30 mm3 (Fig. 12). It contained Iron Age pottery and some animal bone and metal finds including an iron awl, a copper alloy ring, and a discrete 0.03 m diameter cluster of copper alloy

Figure 12: Trench I looking south east after excavation to chalk floor [124]

rivets (5 mm long by 1 mm diameter) impressed into traces of preserved wood.

(151) covered a layer of chalk lumps 0.05 m deep in a grey to orange brown clay (154) and this like (122)/(123) was a fragment of rampart edge confined to the western edge of the trench. (151) and (154) covered (152), a 0.25 m deep orange brown clay loam with numerous chalk lumps mixed with burnt flint, fragments of animal bone and sherds of black and dark red coarse Iron Age pottery (Fig. 17:1). (152) was the upper filling of a pit or hollow [168] which deepened and sloped towards the south section. (152) was above (153), an orange brown plastic clay with moderate chalk lumps and occasional charcoal flecks and fragments of animal bone. It was 0.12 m deep and overlay (165), a chalky orange brown clay with occasional charcoal flecks, flint flakes and animal bone fragments. This overlay (166) a light orange brown chalky clay which was not excavated.

Below (151) and cut by [168] was (158) a 0.05 m deep orange brown loamy clay with patches of red orange clay and occasional chalk flecks. A baked clay sling stone (Fig. 18) was found in this layer which overlay (159) and (161). Context (159) was a yellow brown loamy clay containing 50% of a Poole Harbour ware LIA bead rim bowl (Fig. 17:3) and was the filling of a shallow oval pit [160] measuring 0.6 m by 0.4 m by 0.1 m deep. [160] cut (161) a mottled layer of orange brown to red brown clay loam which was 0.1 m deep and overlay (157) which was the layer below [107] and appeared to be the natural chalk. A sondage was excavated against the east section to a depth of 1.7 m. The upper 0.8 m was chalk mixed with orange silts and lenses of green fine plastic clay which gave way to a layer of more compacted larger blocks of chalk. There were no archaeological finds though the green clay and sand inclusions seem unusual locally if they were purely geological deposits.

This chalk layer (157) sloped down towards the west dipping below layer (161) and lower stratified deposits. In the south east corner, a 2 m wide and 3.5 m long sondage was excavated to examine these deeper Iron Age deposits against the south section of the trench. (161) and pit [160] overlay (163), an orange brown loamy clay with Iron Age pottery and animal bone fragments. (163) was up to 0.1 m deep above (157). The excavation of (163) revealed that (157) had been cut by a gulley 0.55 m wide and 0.22 m deep [156]. This gulley stopped 0.1 m from the east trench section and followed a curving course for 3 m to the west, [156] then disappeared into the south section 1.5 m from the south-west west corner of the trench (Fig. 10:4).

Two parts of the gulley were excavated: a 0.6 m long section at the east terminus (155) and a 1.6 m long section 1 m further west (162). Both contexts consisted of orange to orange brown clay with numerous chalk fragments. A large Iron Age rim sherd was found in the filling (162). [156] is interpreted as part of a drainage gulley that once surrounded a round house which stood in the hollow to the south of the excavation. The terminal suggests an east facing entrance which would be expected as it is the most common entrance orientation for round houses.

One further feature was excavated against the west section in the north-west corner of the trench below (151). It was a 0.3 m diameter and 0.3 m deep pit [167] filled with (164) a stiff orange brown clay. It contained a lump of burnt heathstone, a large flint flake and two smaller struck flakes. [167] cut chalk (157).

The deepest archaeology was found to be concentrated in the south-west corner of the trench and was not fully excavated.

Concluding Comments Trench I

It seemed that the earthwork hollow chosen for the excavation would be ideal for deep occupation stratigraphy and this would in part be protected and sealed by the degrading rampart edge. Excavations at hillforts such as Maiden Castle (Sharples 1991, 89) and Danebury (Cunliffe 1995) have demonstrated multi-phase Iron Age occupation at similar rampart edge locations.

The scale of the excavation trench was small but it was hoped that extensive occupation evidence might be found dating back to the initial construction of the hillfort. The discoveries, though valuable, did not fulfil this expectation. The finds from the upper modern layers represent chance losses by visitors to the monument, including a cartridge case left perhaps by a member of the local Home Guard who are said to have practiced here during WWII.

Although Iron Age pottery was found in the layers below the modern debris, this was always mixed with Roman material. The finds from the lower deposits included collapsed elements of the rampart. The chunks of heathstone and fragments of mortar, together with a scatter of oysters suggested that there had been a Roman or later walled fortification built on top of the Iron Age embankment.

Time was a limiting factor. From 6 September 2004, three weeks had been set aside for the excavation and by the last day Friday 24 September 2004, only the chalk surface [107]/[124] had been reached and the finds demonstrated that no Iron Age contexts existed down to this level. The trench was backfilled but on May 23rd 2005, following a winter of contemplation, Trench I's spoil was re-excavated from its south-west corner. A 1.5 m square section of the compacted chalk [124] was taken up and it was found to seal the Iron Age deposits. This discovery led to the re-excavation of the trench 17 – 21 October 2005.

However, only the south-west half of the trench had Iron Age features within it, including a small shallow pit [160] and the partially excavated deeper pit [168] in the south-west corner. There was also the northern part of a round house ring gulley with a typical east facing entrance. The estimated outer diameter of the gulley was about 8 m and it is likely that this would have enclosed a round house within a standard later Iron Age size of about 6 m.

The pottery from the site is almost exclusively later Iron Age (see Garvey below) and this is unexpected, one would expect earlier settlement evidence to be found within the hillfort. The latest Iron Age occupation may have been truncated when Badbury was reoccupied and the chalk floor was constructed. The radiocarbon dates and scatter of late Roman finds are an exciting newly discovered element of Badbury's story which will be considered in more detail below.

Trenches II and III: Badbury Summit

The soils of Trenches II and III (Fig. 13) derived from the clays, sands and pebbles of the Palaeocene Reading Beds. The excavation revealed a variety of acid soils along the lengths of each trench and this capping on the summit of Badbury strongly contrasted with the Upper Chalk geology encountered 100 m to the west in Trench I.

In 1984, the late-eighteenth-century circular Scots Pine plantation on the summit of Badbury Rings was replanted. The design included a central stone toposcope with 10 m wide vistas created between the trees to enable views out between the pines into the wider landscape. The plantation blocks between the vistas were fenced to exclude deer and rabbits from eating the saplings and these chicken-wire fence lines were buried to prevent burrowing animals gaining access to the new plantations.

Figure 13: Trench II south east end (0 m) from the toposcope looking north-west. Position of Trench III top right

Trenches II and III were parallel, 8 m apart and followed the lines of these buried fences on either side of the north-west vista from the toposcope. One of the main purposes of the excavation was to demonstrate the damaging effect of the developing tree roots as they grew into the underlying archaeological stratigraphy. This effect was certainly proved and the results of the excavation have led to a phased removal of the pine plantation and surrounding trees.

Trench II (ST96354 03020-ST96389 02292) (Fig. 1)

Trench II (Fig. 14) was on the south-west side of the vista and measured 43.6 m long and 1.0 m wide. The south-east end was the zero point and lay 9 m west of the toposcope. The north-west end lay 12 m from the south-east edge of the most northerly of Badbury's two dew ponds. In the following description, all measurements along the trench are from the zero point at Trench II's south-east end (i.e. the toposcope end). Measurements along Trench III are expressed in equivalent measurements parallel with Trench II.

There are three concentric earthwork banks that encircle the summit of Badbury. They measure between 3-5 m wide and 0.2-0.3 m high and were thought to represent different phases of post-medieval tree enclosure. However, it was possible that they incorporated prehistoric earthworks, particularly the inner enclosure which appeared more irregular and had been dug away by later activity on the north side. Therefore, the excavation provided an opportunity to discover comparative dates for the enclosures. Measured from point zero, the trench sectioned the inner bank from 12-17 m, the middle bank from 26-28 m and the outer bank from 39 m-43 m.

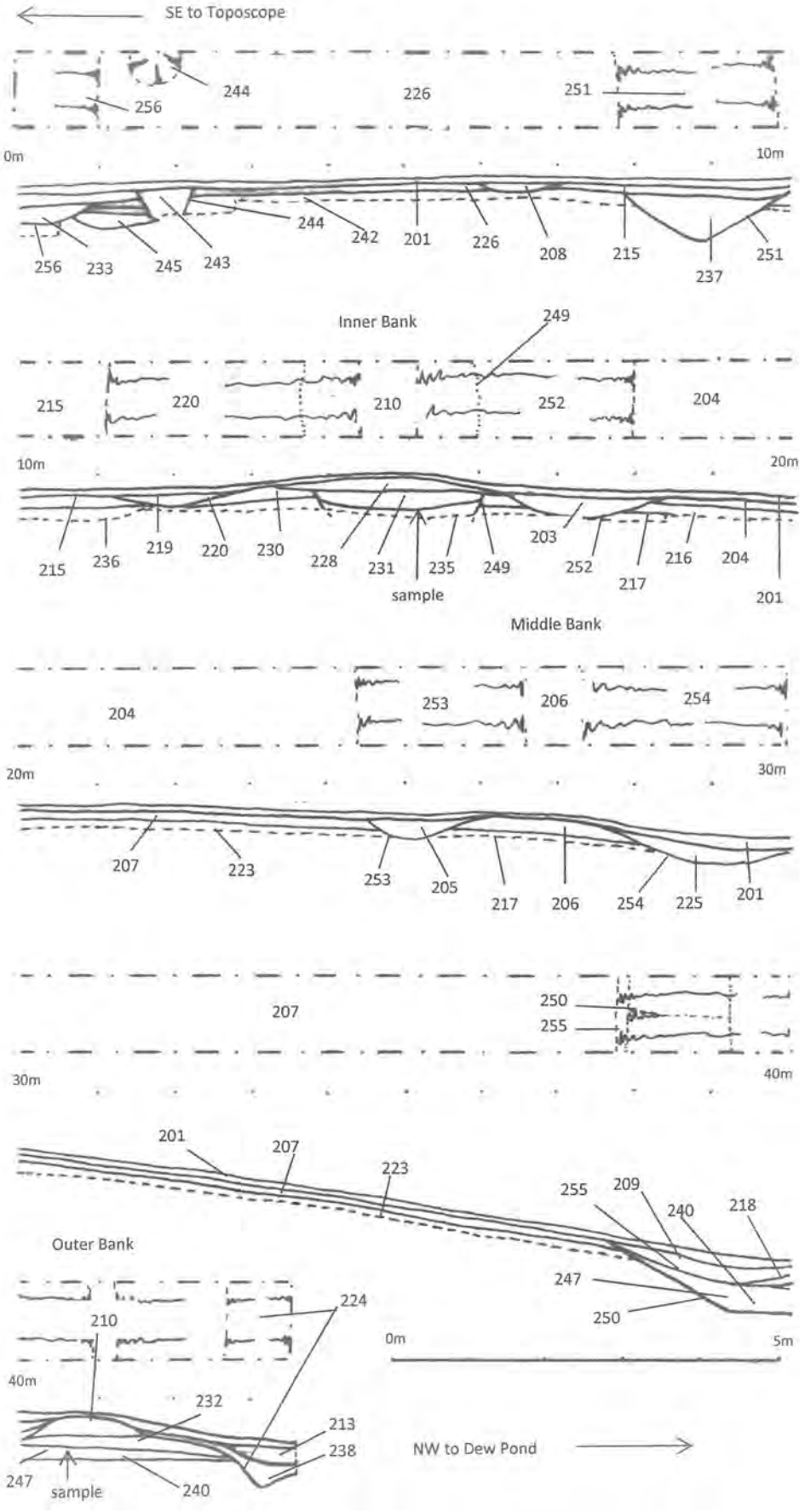

Figure 14: Plan and section of Trench II

Modern

The turf and topsoil layer (200) was up to 0.08 m deep and continued the length of the trench. It was a very dark brown humic sandy loam with moderate pebble inclusions. Within this layer were numerous modern glass and pottery fragments, mainly twentieth century, including whitewares and bone china and these finds may be associated with the construction and use of a timber signal beacon for Tarrant Rushton airfield in the 1940s. Below (200), the surface of the trench was cleaned and context numbers were given to different sections of the trench.

Along the south-west edge of the trench were the remains of the 1984 chicken-wire plantation fence attached to the stumps of the 0.1 m diameter timber posts which supported it. The fence was buried up to 0.15 m deep [202] in an up to 0.1 m wide trench. From 0-43.6 m, was (201), a dark yellow brown loamy sand with numerous pebbles 0.05 m deep which continued across the top of the inner bank and contained numerous pebbles mixed with modern finds including a pearlware jar and modern bottle glass.

From 0-11 m, below (201), was (215), a 0.15 m deep very dark brown sandy loam with very numerous pebbles. Within this was found fragments of a refined whiteware plate and it was cut at 2 m by a 0.4 m diameter post-hole [244] filled with the remains of a timber post in a humic loamy silt (243). At 6.5 m, (215) was cut by [214], a 1.8 m diameter 0.05 m deep chalk and gravel filled hollow and at 11 m, (215) was cut through by [220] which was the south-east ditch for the inner enclosure bank (228)/(231). From 41.5 m to 43.5 m, below (200), was (211), a dark yellow brown sandy loam which overlay (212) on its eastern edge, a modern orange flint gravel path which continued within the area of the trench up to 25 m.

Once the modern overlying layers were removed, the details of the three banks with their ditches were revealed. The inner bank was of two layers. The upper (228) was 0.08 m deep, a dark yellow brown loamy humic sand. This lay above (231), a yellow brown dry humic sand 0.12 m deep. (228) contained a clear glass bottle embossed TABLE SPOONS and (231) contained more glass and a sheet of iron. There were ditches on both sides: to the south-east was a 3 m long and 0.1 m deep depression [220] filled with (219), a black loamy sand with very numerous pebbles and a modern glass fragment. To the north-west was [252] a 2.5 m long and 0.22 m deep ditch filled with (203), a dark yellow brown clay loam which contained clear glass and a plastic comb case.

(206) 26-28 m was the top of the middle bank and was an orange-yellow clay 0.2 m deep which contained two fragments of refined whiteware. The ditch on its south-east side was 1.2 m wide and 0.18 m deep [253] and filled with (205), a dark yellow brown clay loam which included a dark green glass jar fragment. The ditch on the north-west side [254] was 2 m wide and 0.23 m deep and filled by (225) a dark yellow brown silty clay that contained fragments of dark green and clear bottle glass.

The outer bank (210)/(232) was from 40.2-42.5 m. The upper layer was (210), a yellow brown clay and compacted sand mixed with pebbles: this was 0.1 m high and 1.2 m wide and overlay (232) which was 0.2 m deep and 2.5 m wide, a yellow to orange brown compacted sand. The south-east ditch [255] was 2 m wide and 0.28 m deep, the upper filling (209) was a dark yellow brown sandy loam containing dark green bottle glass above (218) a yellow brown compacted sand with no modern inclusions. The north-west ditch [224] was over 1 m wide and 0.6 m deep and cut steeply through the lower bank layer (232). In contrast to the shallow rounded profiles of the other ditches [224] had a V-shaped profile. Its upper filling was (213) which was a 0.2 m deep dark loamy sand with clear and dark green bottle glass. This was above the 0.4 m deep (238) a yellow brown gritty sandy clay with no modern inclusions.

Below (201) and cut by the ditches of the inner [252] and middle [253] banks was (204), a 0.08 m deep yellow brown loamy clay with occasional pebbles with a complete small clear bottle found embedded within it. Similarly below (201) and (212) and cut by the ditches of the middle [254] and outer [255] banks was (207), an 0.06 m deep dark yellow brown clay loam which contained bottle glass, refined whiteware and bone china.

Possible Romano-British

At the south-east end of the trench, below (215), was an 0.25 m deep pit [256] over 1 m in diameter filled with (233) a dark brown to black sand filled with very numerous pebbles. It contained a worn late third century copper alloy coin but no pottery. [256] cut layer (226), a grey to light grey sand with dense compacted pebbles containing three flakes of worked flint.

A sherd of greyware came from (237) the filling of [251], a 2.1 m wide and 0.6 m deep V-profile ditch

found at 9.5 m. This was the only Roman find from the pebbly yellow brown loamy sand which also included 10 struck flint flakes and occasional charcoal flecks. Another small sherd of Romano-British greyware pottery and fragment of ceramic building material came from layer (223) at 30 m. (223) was a yellow brown stiff silty clay below modern deposit (207), cut by the north-west ditch for the middle bank [254]. One other fragment of RB grey-ware was found in layer (240) at 40 m which will be considered below. These small abraded fragments of Roman pottery from (223) and (237) (otherwise containing finds dating from the earlier prehistoric period) and (240) (otherwise Late Iron Age) may be intrusive perhaps included in these layers due to tree root disturbance or burrowing activity.

Iron Age

The outer enclosure bank [210] overlay layer (232) which was cut by the north-west [224] and south-east [255] ditches for [210]. Layer (232) was an ochre to yellow compacted sand with moderate pebble inclusions. It contained lumps of heathstone and 24 worked flints and was 0.25 m thick. It overlay layer (247), a yellow-brown compacted sand with occasional pebbles which was also cut by [224] and [255]. (247) was up to 0.22 m deep and contained a worked flint and a fragment of black Iron Age pottery. (247) was the upper filling of a terrace cut into the hillslope [250] and overlay (239)-(240) which were occupation debris contexts spread across the floor of the cutting.

The terrace [250] cut layer (223) at 37.5 m from the south-east end of Trench II and sloped steeply down 0.6 m to a level floor at 39 m. Fragments of earlier struck flint derived from (223) were found mixed in the Iron Age floor material which continued to the north-west end of the trench at 43.8 m. The Iron Age gravel and clay debris layer below (247) was given three contexts and finds were recorded and collected separately within each. The level floor was (239) but at the extreme west end it was given context number (241) as the floor here had been cut through and separated from (239) by the north-west post-medieval enclosure ditch [224]. The accumulation of debris against the back wall of the cutting was (240). However, all three contexts were made of the same material and part of the same occupation layer and are described as (240) below.

(240) is an important context as it represents an abandoned floor deposit sealed by (247). It was a grey brown to yellow brown gritty clay with very numerous burnt flints and pebbles, burnt clay, charcoal patches and occasional flint nodules. Within this was occupation material including many sherds of undecorated black Iron Age pottery: Eleven were rim fragments and of these 2 were jars (form JC2.1) and 8 were from vertical sided 'saucepan' pots (forms P1 and PA1.0) and of quartzite Poole Harbour fabric Q4 and Q9 (see Garvey below).

The only other contemporary finds were fragments of iron. These came from two objects: three joining fragments were from a sheet of iron SF928 and the other was a twisted cable armlet or torc SF927 (Fig. 19) consisting of two joining fragments included a looped terminal. A radiocarbon date from mature oak recovered from (240) yielded a date of 400-200BC at 95% probability.

The terrace had been cut into the west facing slope of the hill and (240) had accumulated 0.05-0.10 m deep across the floor of the cutting [250] and formed a deeper sloping ramp of debris where it covered the angle between the floor and the slope of the cut. Here, (240) was up to 0.25 m deep. The terrace [250] is likely to have been created to accommodate an Iron Age building but no post-holes were identified in the trench during the excavation. The terrace was found to continue into Trench III (see below).

Earlier Prehistoric

During the excavation, numerous flints were found and it was noted that the deeper layers contained more struck and burnt flints and these finds tended to be small flakes and microliths. However, even the deeper levels had been disturbed by tree roots which prevented distinct radiocarbon and environmental analysis of the contexts. Despite these limitations, an environmental assessment was carried out and samples were taken at 15.4 m and 40.4 m (see Chisholm and Scaife below).

Layer (223) was cut by the Iron Age terrace [250] at 37.5 m and continued south-east as far as 29.5 m where it was cut by post-medieval ditch [254]. It was excavated up to 0.1 m deep and contained 49 struck flakes and burnt flint fragments.From 28.5 m, the context below middle enclosure bank (206) was (217). It was similar to (223) being a yellow to yellow-brown clay mixed with numerous pebbles 10-40 mm3 and occasional large flint nodules and contained 6 struck flakes. This layer continued until 17.8 m where it was cut by inner post-medieval enclosure ditch [252].

From 17 m, the yellow brown pebble rich clay layer continued as (236). At 16 m, it was cut by a 1.2

m diameter pit [249] filled with orange-brown sand layers (231) above (235) with moderate pebbles and occasional lumps of heathstone 50-100 mm3 and a single struck flint. (236) continued as far as 9.5 m where it was cut diagonally across the trench by a 1.25 m wide and 0.6 m deep V-shaped ditch [251] aligned north to south. The ditch filling (237) was a yellow-brown loamy sand with an orange hue containing moderate pebbles and occasional charcoal flecks. Apart from the fragment of RB greyware pottery mentioned above, it contained flecks of charcoal, a fragment of greensand, one of heathstone and 10 flint flakes.

On the south-east side of [251], from 8 m as far as 1 m (where it was cut by RB? pit [256]) was layer (226). This was 0.05-0.1 m deep and consisted of a grey to light grey sand with dense compacted pebbles average 5-10 mm3. It contained 3 struck flints and overlay (242), a 0.1 m deep dark brown sandy silt with densely compacted pebbles. This was found to contain a single struck flint and overlay (245), a dark brown silty sand excavated 0.25 m deep containing numerous compacted pebbles. No archaeological objects were found within this deepest excavated layer which was 0.6 m below the ground surface at the east end of the trench.

Trench III (Fig. 1)

Trench III lay 8 m north and parallel with trench II but was not as extensive. Lack of time meant that the 1 m wide trench covered a smaller area than II and was limited to cutting sections across the middle and outer post-medieval enclosure banks. The eastern trench IIIa (ST96375 03011- ST96371 03015) was 8 m long and matched 20 m-28 m in trench II. The western trench IIIb (ST96367 03018 – ST96356 03026) was 10.5 m long and matched 34.5 m to 45 m in trench II. The equivalent measurements from the toposcope as recorded in trench II will be used in the descriptions of trench III.

Modern

The topsoil and turf (300) in IIIa and IIIb was a 0.05 m deep humic loam. It overlay (301) in IIIb and (302) in IIIa and both were yellow brown clay loams 0.05 m deep. These layers contained refined whiteware fragments of tea cups from (300) and modern glass including 2 complete beer bottles embossed HALL & WOODHOUSE from the local Blandford Forum brewery and another embossed WHISKEY from (302). These finds were mixed with oyster shells, burnt and struck flint and heathstone.

In IIIa from 20 m-24.5 m (302) overlay (309) which was a yellow brown loamy clay up to 0.12 m deep containing struck flint. This overlay (308) which was the spread middle enclosure bank (from 23.5-27.5 m) which consisted of a yellow brown sandy clay with bright patches of yellow and orange clay. The finds from the bank included a small blue glass bottle and a fragment of refined whiteware mixed with burnt and struck flints. The north-west edge of (308) had been spread over the cutting of the north-west ditch (350). Only the south-east edge of [350] was excavated. It contained a yellow brown clay (315) with no diagnostic finds.

In IIIb, from 34.5 m to 39 m, (301) overlay (303), a yellow brown loamy sand 0.1-0.18 m deep. (303) contained clear and dark green bottle glass and was mixed with a fragment of fired clay and also included burnt and struck flint. (301) and (303) overlay (306) which was the outer enclosure bank from 39 m-41 m, made of bright yellow brown clay. It was not excavated.

From 41-42.3 m (301) overlay [351] the recut of the north-west ditch for (306). It was 0.2 m deep with a curving profile, filled with (305) a dark yellow to red brown clay loam. It contained brown, dark green and clear bottle glass mixed with some struck and burnt flint. From 42.5-45 m (301) overlay (304), a 0.08 m deep bright yellow brown clay containing two sherds of refined whiteware including a piece of mochaware tankard. (304) overlay the cutting for the original ditch [352] for outer bank (306). It was filled with (318) a yellow brown clay loam which had been cut by ditch [351]. The glass and pottery finds from these layers overlying and associated with the enclosure banks and ditch fillings can all be assigned to the nineteenth and twentieth centuries.

Roman and Medieval?

In Trench IIIa, from 20 m to 27 m was a yellow brown clay with moderate pebbles and flints (310) and this was sealed by post-medieval layer (309) and middle enclosure bank (308).

(310) was 0.1 m deep and cut by the ditch for the middle modern enclosure ditch [350]. It contained eight fragments of burnt flint, ten of struck flint, a fragment of RB greyware and a sherd of sandy fabric, possibly medieval. (310) also contained a chunk of heathstone and a whetstone of foreign stone, black and fine grained together with four Iron Age rim fragments. One from a hemispherical bowl BC1 and two of upright 'saucepan' pot form PA1.

Iron Age and earlier prehistoric

In IIIb, below (303), on the south-east side of outer enclosure bank (306) were (313) and (314) and on the north-west side was (311) which was cut by [352], the earlier north-west ditch of (306). (314) was excavated 0.1 m deep and was a bright yellow brown clay which extended from the south-east end of the trench from 35 m to 35.8 m. It contained a small fragment of Iron Age pottery. Layer (314) was cut by [353], which was the continuation of Iron Age terrace [250] found in Trench II, although [353] proved to be a shallower feature than [250], being 0.3 m deep rather than 0.6 m.

The upper filling of [353] was (313), a 0.12 m deep yellow brown clay with occasional pebbles. This was excavated from 35.8-39 m where it disappeared below the post-medieval bank (306). No diagnostic finds were recovered from (313). Below (313) was (316) which was a compacted layer of pebbles and occasional larger nodules in a yellow brown sandy clay mixed with a grey silt. This layer was the terrace floor equivalent to (240) within trench II and included 6 struck flakes, fourteen fragments of fired clay and sherds of Iron Age pottery including 3 rims all were upright pot forms P1 although of different fabrics Q4, Q7 and Q9 (see Garvey below). Below (304) and on the north-west side of the outer post-medieval bank (306) and ditch [352], was layer (311), which was cut by [352]. (311) was 0.1 m deep and a bright yellow compacted sandy clay with numerous pebbles and contained 4 struck flakes.

In IIIa, below (310), the earliest excavated layer in trench IIIa was (317) which ran from 20 m to where it was cut by the middle enclosure north-west ditch [350] at 27.5 m. (317) was a yellow brown to dark yellow brown moderately plastic clay containing numerous pebbles and moderate and larger flint nodules with a few fragments of burnt flint and struck flint.

In IIIb, from 43-44 m, a section of (312) was cleaned and partly excavated below (311) and was a bright yellow to yellow brown compacted sand flecked with grey, a struck flint flake was found in this layer.

Concluding Comments Trenches II and III

The change in geology between Trench I and trenches II and III meant that there were contrasting conditions for preservation. The chalk soils in trench I enabled bone and shells to be recovered in contrast to the acid sands, gravels and clays of trenches II and III. However, these acid soil conditions allowed ancient pollen to be preserved. The other contrast was the impact of tree roots on the shallow stratigraphy within the Badbury summit trenches. The deepest and best preserved stratigraphy was found beneath the outer enclosure bank though root disturbance was likely to be a factor here also.

The thin layer overlying the three enclosure banks contained modern plastic discards from the most recent visitors. The impact of the replacement pine plantation and plantation fence lines had added considerably to the disturbance created when the Tarrant Rushton transmitter beacon was erected c.1942. This was anchored by the concrete blocks which are still a feature around the summit. The beer and whiskey bottles may be contemporary with the transmitter's construction and use.

At least one of the enclosure circles should be dateable to the mid-late eighteenth century as the circular pine plantation in the centre of Badbury is clearly shown on William Woodward's map of 1773-4 (DHC D/BKL), but the three enclosure earthworks all produced nineteenth-century glass and pottery both from the ditches and from within the banks. There was no suggestion that there was a prehistoric origin to any of these features although most excavated contexts had a scatter of redeposited prehistoric finds within them.

It was found that the north-west ditch of the outer bank had been recut to build up the bank at some time after its original construction, perhaps in the twentieth century. The key stratigraphic association was seen in II with the outer enclosure bank and flanking ditches overlying and cutting the infilling of an Iron Age terrace cut into the domed slope of the hill. The terrace had been cut through a layer which contained burnt heathstone with flakes of flint and fragments of burnt flint.

The floor of the terrace contained Late Iron Age pottery, burnt clay and charcoal and two iron objects including a torc fragment. It was hoped that good environmental evidence would be found there. However, the radiocarbon dates and the soil analysis demonstrated that the stratigraphy had been affected by later disturbance, particularly root action at the upper levels (Chisholm and Scaife this report). However, the results show an open agricultural Iron Age landscape at the lower levels in contrast to the wooded Badbury of recent centuries.

Two Trench II C14 samples were taken: one sample at 15.4 m to investigate the earlier prehistoric evidence and the other from 40.6 m in the centre of the Iron Age

terrace. The radiocarbon dates demonstrate the need for caution in the interpretation of the Iron Age terrace environmental evidence, whereas the samples from 15.4 can be largely disregarded.

The pottery from the terrace at 40.6 m is later Iron Age but the radiocarbon date is Middle Iron Age 400-200BC at 95% probability. However, this this discrepancy is due to the available sample being from mature oak and therefore already old when burnt. The flint report (Leivers see below) emphasises the disturbed nature of all the earlier prehistoric material. However, the range of the flint technology does provide evidence of activity on the site from the Mesolithic through to the later Bronze Age.

Trench IV Badbury Car Park (centred ST9600 0308)

During the excavation, the north-east end of Badbury Rings car park was resurfaced. The old gravel car park and disturbed soil was stripped by machine using a flat edged bucket down to the underlying chalk. The machine excavation was subject to a watching brief but the area had been previously dug into without record in 1984 when the car park was first created.

The area designated Trench IV (Fig. 15) measured 27 m north-west to south-east by 12 m. The north-east end was the strip of scrub woodland which screens the car park from Badbury and the south-east edge was the fence-line dividing the car park from the Badbury permanent grassland. At the south-west end, the depth of the chalk below the car park surface was 0.1-0.14 m deep. This consisted of 0.05 m depth of car park gravel over 0.02 m of crushed chalk above 0.05-0.07 m of dark brown clay loam. Where it was cut back into the woodland strip edge it was 0.25 m deep. Here the roots and topsoil had covered the 1980s car park surface and the depth above the gravel was 0.1 m.

The whole area was trowelled back to reveal the chalk bedrock apart from the north-east end where deeper soils survived against the wooded area. A total of 98 features were identified from the surface cleaning with 15 of these being clearly modern in origin. Some of the features were likely to be prehistoric or Roman from pottery found in close proximity but there was no time available to fully investigate this area which was quickly covered over with a new car park surface. Significant finds were plotted and all identified features planned at 1:50 (Fig. 8). Observed layers, features and fillings given context numbers 1-99 and 400-424 (described in the archive).

The evidence for previous modern ploughing was seen as parallel narrow soil-filled score marks in the chalk [39]; [74]; [423] and [424]. Of the features plotted, some were natural irregular features and others were modern including a line of regularly spaced fence post-holes [43];[44];[47];[57];[61];[75];[78];[85]. Two large concrete filled post-holes [69] and [70] marked the position of a disused gateway, near the centre of the area.

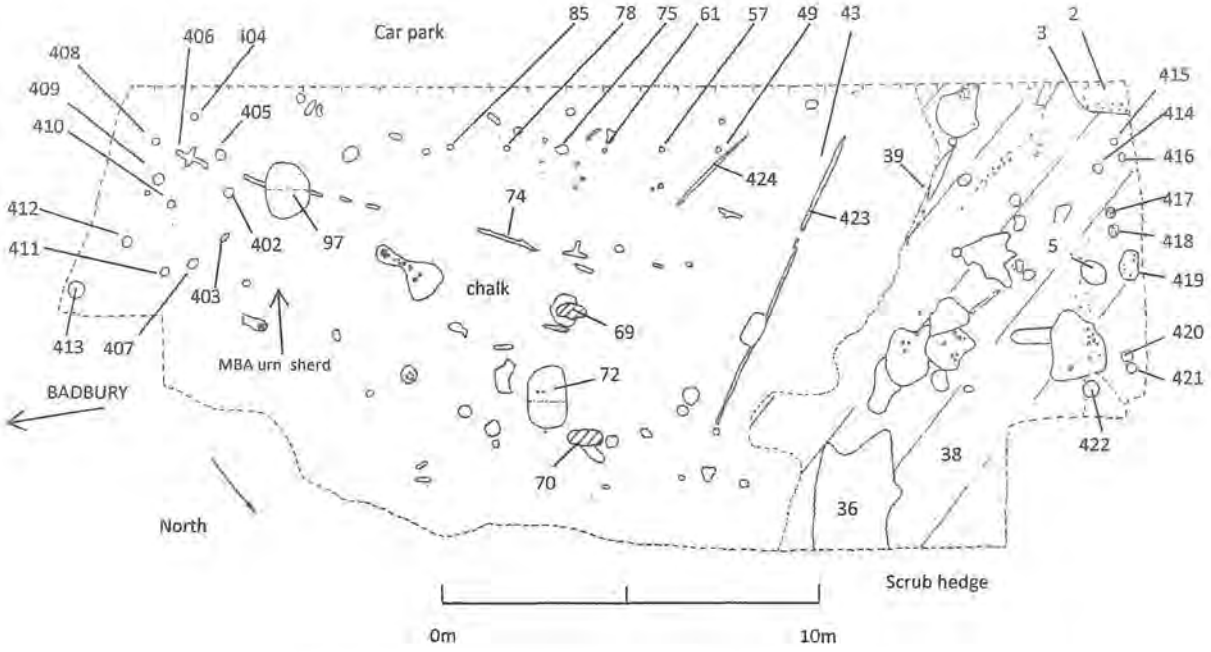

Figure 15: Trench IV plans showing contexts described in text.

Of the features of archaeological interest, no clear pattern emerged from their plan. However, an arc of 10 post-hole sized features [402]-[405] & [407]-[412], 0.2-0.3 m diameter, near the south corner of the area may be contemporary and part of a structure 4 m in diameter. Their fillings included charcoal flecks and chalk and flint fragments. Small pieces of prehistoric pottery were recovered from the surface of [410] and [411]. They were flint tempered and possibly Middle Iron Age. At the east corner of the stripped area, and 2 m from [411] and [412] was another post-hole sized feature [413] which may be associated with the group, a fragment of slag was recovered from its surface. From the centre of this grouping running north-east, traces of a 0.15 m wide gully [406] was traced for 11 m. A small fragment of prehistoric pottery and fragments of burnt flint were found embedded in the filling.

Stratigraphy was best preserved towards the north and west corners of the trench, an area 5 m by 12 m. This included a thin band of compacted chalk (36) overlying a light brown clay loam (38) with flint inclusions. The plan of a pit-sized feature [3] measuring over 1.5 m in diameter was observed in the west corner of the area, its filling (2) contained flint nodules and was one of a number of features that cut through (36) which included an irregular line of 8 post-holes [414]-[421]. Each was between 0.2-0.3 m diameter and continued north-east of [3] running along the north-west side of the stripped area.

Two features were half sectioned. Feature [96] was a shallow oval pit 1.5 m long and 0.12 m deep with four pieces of struck flint and a fragment of quartzite tempered pottery possibly later Iron Age found in its filling. Feature [72] was also an oval pit 1.55 m long and 0.36 m deep containing two pieces of struck flint.

Figure 16: Middle Bronze Age Deveral Rimbury sherd with lug handle from Trench IV

Very few finds were made across the cleaned area but pieces of burnt and struck flint were frequently observed. Occasionally flecks of charcoal and pottery were found on the surface but rarely associated with features. Eleven fragments of pottery were found ranging in date from the Bronze Age to the Medieval period. Nearly all of these were small body sherds apart from one rim fragment with a lug handle found on the chalk surface. It was decorated with three parallel incised lines and was a part of a Middle Bronze Age globular urn (see Garvey below and Fig. 16).

Concluding Comments Trench IV

This cleaned area, although only seen in plan, demonstrates again the density of archaeology around as well as within Badbury Rings hillfort. Other works for the new access arrangements lay beyond the hedge in the pasture to the north-east and involved removing four small hedges planted in the 1980s, widening 10-15 m lengths of two existing trackways by 1 m, creating a new path and re-excavating eight gate posts. The topsoil disturbance involved in this work was accompanied by an archaeological watching brief. The finds from the topsoil included golf balls and twentieth-century glass bottles but nothing of archaeological significance.

Prehistoric pottery

by Ann Garvey

The 2004-2005 excavations produced a total of 687 Iron Age sherds from Trenches I-III weighing 4,719 grams with a mean sherd weight of 6.9 grams (see Table 1) This is a summary of the full report which was submitted as part of an MA dissertation (Garvey 2006).

The pottery was examined to understand chronological sequence by considering form, fabric and aspects of manufacture when compared with other sites in Dorset. Secondly to consider whether the pottery was made locally or imported through trade and exchange. The functional use of the pottery will also be considered.

The assemblage was analysed using the recommended pottery recording system (Prehistoric Ceramic Research Group 1997). The sherds were studied macroscopically using a binocular microscope (x 10 magnification) to identify fabrics and surface treatments.

Table 1. Prehistoric pottery, Trenches I-III

Trench	*Location*	*Site code 112031 -*	*No. of pieces*	*% by no. of pieces*	*weight in grms. of pieces*	*% by weight of pieces*	*mean sherd weight*
Trench I	Inner Rampart	04	363	52.8	2,265	48	6.2
Trench I	Inner Rampart	05	247	36.0	2,096	44.4	8.5
Trench II	Summit	04	69	10.0	326	6.9	4.7
Trench III	Summit	04	8	1.2	32	0.7	4
	Grand Total		**687**	**100.0**	**4,719**	**100.0**	**6.9**

Fabrics

18 fabrics were identified and of these:

One was a oolithic calcareous tempered fabric probably from the Jurassic clays from the west of Dorset. There were five sherds of this type which was 0.7% of the assemblage.

Three were flint tempered fabrics probably locally made 12 sherds of this type were found amounting to 1.7% of the assemblage.

Two were grog tempered fabrics considered to be locally made as the clay matrix is a quartz sand. There were seven sherds of this type which was 1% of the assemblage.

Two were shell tempered fabrics considered to be non-local from the Jurassic clay area such as from Kimmeridge clay/Portland clay. There were nine sherds of this type which was 1.3% of the assemblage.

One was an organic/vegetable tempered fabric probably of local manufacture. There were four sherds of this type which was 0.6% of the assemblage.

Nine were quartz tempered fabrics typical of Poole Harbour manufacture. There were 650 sherds of this type representing 94.7% of the assemblage. The largest quartz fabric total, 362 sherds was Q4 which was 52.7% or the assemblage.

Discussion of Fabrics

This assemblage has been dominated by sandy fabrics and it has been suggested that sandy fabrics become more dominant between the Middle and Late Iron Age fourth-first century BC (Davies 1987, 151; Lancley & Morris 1991, 122). Dominance of sandy fabrics at Late Iron Age sites has also been noted at other sites, such as Eldon Seat (Cunliffe & Phillipson 1968), Maiden Castle (Brown 1991), and Tolpuddle Ball (Laidlaw 1999, 110). Badbury Rings is located on an upper chalk geological area. By looking at the geology of the area surrounding Badbury, it can be used to ask if fabrics were locally acquired or imported from regional sites or further afield (Arnold 1981, 1991).

Arnold has provided a model that states that a potter will normally travel no more than 7 km, a walk of about an hour to obtain a source of clay and never more than 10km to obtain a source of temper. Using this model it is possible to suggest if a particular fabric can be considered as local or non-local (Morris 1994a, 372; Morris 1996, 41-2). Therefore for Badbury pottery to be considered local we would expect flint and quartz fabrics to be dominant. Unfortunately this is also the case for the majority of southern England and therefore it is very difficult to suggest a non local or local resource for flint and quartz fabrics from this site. However, as Q4 is the most dominant fabric within the assemblage, which is known to have been sourced to the Poole Harbour area, it can be suggested that this fabric is non-local and is being brought to the areas by trade and exchange from within the region of Poole Harbour. Production at this time is at the nucleated workshop level of production as has been noted elsewhere (Brown 1991; Davies 1987, 151). The shelly and calcareous fabrics can also be said to be non-local and coming from the Jurassic ridge area possibly from near Wareham. Q12 containing glauconite is considered a non-local fabric and possibly coming from Salisbury.

In summary, it can be suggested that by using fabrics alone, this assemblage falls into the late Middle Iron Age to a Late Iron Age date due to the predominance of sandy fabrics and in particular to the standardisation of one particular fabric Q4 which can be described as a coarser variant of a Durotrigan Poole Harbour fabric (full fabric descriptions and images of magnified fabric thin sections are contained in the archive report).

Forms

There were 65 rims identified, nine of these were too badly abraded to be linked to a specific form. The other diagnostic sherds were two angled sherds and eleven bases. One of these sherds was from a pedestal base, possibly a Gallo-Belgic copy as it is in a Flint fabric

F4 and has an inscribed line on the base to resemble wheel thrown rings similar to those found at Wytch Farm (Lancley & Morris 1991, 123).

Although two complete profiles were present, the majority of sherds were small which made it difficult to identify a specific form.

Based on the ceramic phasing at Maiden Castle, the forms fall into a period from 6D-7A. These forms have a long time span as most forms remained consistent throughout the Middle and Late Iron Ages (Woodward 1999), making it difficult to date this more specifically. However some points can be noted.

Middle Iron Age forms

These are saucepan (PA) vessels and dishes (DA1.1) and were irregularly fired or fired at low temperature (Rye 1981). They were made in sandy fabrics rather than flint fabrics and Q4 is dominant suggesting a date in the later part of the Middle Iron Age. This is similar to Heron Grove where the phase 3 pottery dated to this period (Raymond forthcoming; Valentin 1993, 63-70).

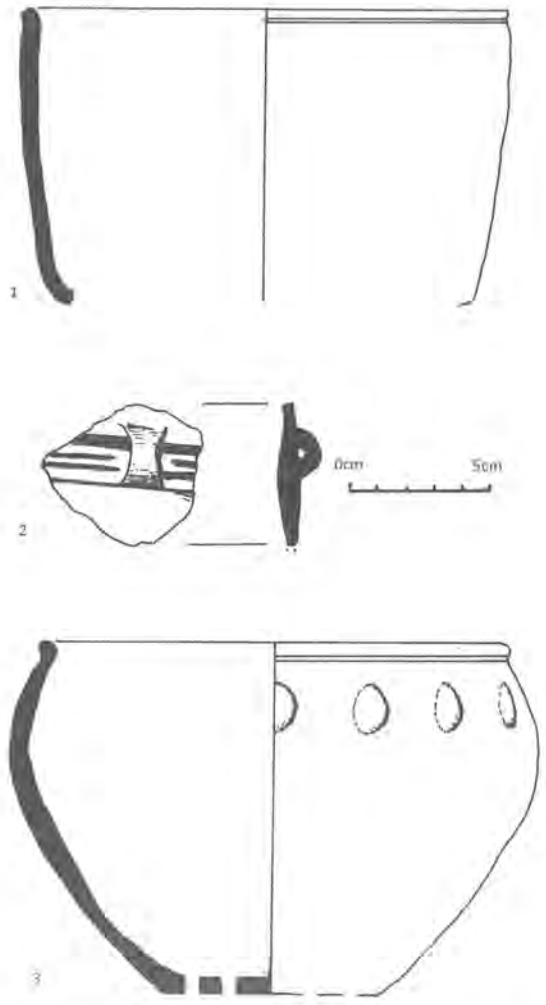

Figure 17: Iron Age pottery featured sherds

Late Iron Age forms

In addition to the PA and DA1.1 forms there were jars, bowls and other types of saucepan vessels and dishes, the most popular being jar type (JC3.0), bowl type (BC3.0) and saucepan type (PB1.0).

The majority of forms found at Badbury occur in phases 6G and 6H at Maiden Castle.

Lisa Brown has discussed that in the period 6H a high proportion of Poole Harbour wares were evident with the majority being jars, specifically JC3, bowls and BC3 forms which were found together with a higher proportion of PB1 saucepan pots (Brown 1991, 196-8).

There were two complete profiles, one BC3 bowl (PRN 264, Fig. 17 no. 3) and one PB1.2 vessel (PRN 238 Fig. 17 no. 1). The BC3 bowl is interesting as it has post firing perforations made into the base. It has been noted that these perforations have been found across southern England in vessels dating from the Middle Iron Age to the early Roman period with the majority being occurring in the Late Iron Age (Seager-Smith 2000, 66). This vessel also has finger-tip decoration just above the shoulder area and corresponds very well with Maiden Castle phase 6G which dates to the early to middle 1st century BC (Brown 1991, 196). Like BC3 vessels PB vessels are found in both 6G and 6H. The height of PRN238 is 10cm which at Danebury was rare for such a vessel (Brown 2000, 90).

Conclusion

By using fabric and form, it has been possible to demonstrate that the Iron Age pottery recovered from within Badbury Rings points to occupation between the late Middle Iron Age and Late Iron Age. This is suggested by the dominance of one particular fabric Q4 which derives from the Poole Harbour region and is a coarse variant of the Dorset BB1 fabric. When compared with the finer Q fabrics (Mepham 2001) found in the Late Iron Age storage pits excavated within the Shapwick settlement (Papworth 1995, 113-5), only 3km the SW, it might be implied that the Badbury fabrics represent occupation in the Late but not Latest Iron Age. When the total size of the excavation trenches is compared with the area of the hillfort any conclusions must be based on the understanding that only a small sample area was investigated. Nevertheless the absence of fabrics dateable to the later Bronze Age and earlier Iron Age is perhaps surprising and of interest.

Earlier fabrics were found in Trench IV outside the hillfort to the west while resurfacing the visitor car park and these are considered below.

Prehistoric Pottery Trench IV

This sample consisted of 41 pieces weighing 185 grams. Only one piece was diagnostic and could be dated to the Middle Bronze Age Deveral Rimbury tradition.

Fabrics

Fabric groups identified were Flint (21), Flint & Shell (2) and Quartz (18) (full descriptions in the archive report Garvey 2006)

Flint

The diagnostic sherd (Fig. 17 no.2 & Fig. 16) was from context 203 and can be paralleled to Bestwell (Ladle and Woodward 2003,273 Fig. 4:1). The lugs relate to Deveral Rimbury IA forms but that the deep incised lines are more akin to IB forms or Type III vessels. Type IA, IB has a distribution area of central Wessex and Type III appears to be a local type of Deveral Rimbury pottery.

Flint fabric sherds from contexts 190; 201;204 and 208 soft fine clay matrix with 30% poorly sorted angular white flint <2 mm were possibly Bronze Age.

Of the flint fabrics, sherds found in contexts 192 and 193 compare with a Shapwick fabrics (Mepham 2001) dateable to the Middle Iron Age. A sherd found in 197 compares with a Badbury fabric (Garvey 2006, 5) thought to be of Middle Iron Age date.

Flint & Shell

In contexts 205 and 206 of undefined date.

Quartz

From contexts 195 and 196 of Q10 fabric possibly of Roman date.

From context 202 of Q11 fabric possibly of Late Iron Age date.

From contexts 191;194 & 207 Q4 fabric Poole Harbour Middle to Late Iron Age fabric.

From contexts 191;199 and 200 a fine sandy fabric with 198 having a red glaze and 199 traces of a green glaze of medieval date.

Conclusion

The pottery surface collection of Trench IV provides evidence of occupation from the Bronze Age through to the medieval period.

Romano-British, medieval and post-medieval pottery

by Lorraine Mepham

Sherds of Romano-British date were found in all four trenches, although most came from trenches I and IV. The total from trench I is, however, biased by the inclusion of 24 sherds from one Oxfordshire colour

Table 2: Composition of the pottery assemblage (number / weight in grammes)

DATE RANGE	WARE TYPE	Tr. 1	Tr. 2	Tr. 3	Tr. 4	Total
LIA/ROMAN	New Forest colour coat	1/2	-	-	1/3	**2/5**
	Oxfordshire colour coat	24/67	-	-	-	**24/67**
	Black Burnished ware (BB1)	4/10	-	-	2/25	**6/35**
	Flint-tempered ware	-	-	-	1/8	**1/8**
	Greyware	3/7	3/8	1/7	5/23	**12/45**
	Grog-tempered ware	-	-	-	2/7	**2/7**
	Limestone-tempered ware	2/32	-	-	-	**2/32**
	sub-total LIA/Roman	*34/118*	*3/8*	*1/7*	*11/66*	***49/199***
MEDIEVAL	E Dorset coarseware	-	-	-	1/3	**1/3**
	Miscellaneous sandy ware	-	-	1/4	-	**1/4**
	sub-total medieval	-	-	*1/4*	*1/3*	***2/7***
MODERN	Bone china	-	8/14	-	-	**8/14**
	Pearlware	-	1/4	-	-	**1/4**
	Refined whiteware	5/9	31/169	7/49	-	**43/227**
	Stoneware	1/6	-	-	-	**1/6**
	sub-total modern	*6/15*	*40/183*	*7/49*	-	***53/251***
	TOTALS	**40/133**	**43/195**	**9/60**	**12/69**	**104/457**

coated bowl (trench I, layer 120). The condition of much of this material is poor, with sherds small and abraded, suggesting a high level of redeposition (mean sherd weight is 4.1 grammes).

Identifiable wares comprise finewares from the Oxfordshire and New Forest production centres, with a likely date range in the later Roman period (3rd/4th centuries AD), and Black Burnished ware (BB1) from south Dorset. One diagnostic sherd in the latter ware comes from a dropped flange bowl of later 3rd/4th century AD date (trench IV, context 1); a second, from an everted rim jar, is not so closely datable (same context).

There are also a few sherds of coarse greywares, probably deriving from more than one source (one of the closest known sources is in the New Forest). Other wares — grog-tempered, limestone-tempered and flint-tempered — are of unknown source, but fabric types suggest a date range in the Late Iron Age or early Roman period.

Two sherds were identified as medieval – one a sandy coarseware of a type widespread across East Dorset from at least the twelfth through to the fourteenth century (trench IV, context 1) and the second a sandy ware of unknown type (trench III, layer 310).

The remaining 53 sherds are of post-medieval date and all are modern types (nineteenth or twentieth century), consisting of pearlware and other refined whitewares, bone china and stoneware. Utilitarian wares appear to be absent, and much of this material represents cups and plates, perhaps representing picnic debris predominantly found in trenches II and III.

Ceramic building material

by Lorraine Mepham

Only a very small quantity of ceramic building material was recovered. Apart from one identifiable modern brick fragment (trench II, inner bank context 228), all fragments are small, abraded and undiagnostic. Some could potentially be of Romano-British date, but this is impossible to confirm from such small fragments.

Mortar

by Martin Papworth

Stratified fragments of mortar were recovered from Trench I the degrading rampart layers (113); (114); (116) and also from the sub-Roman occupation layer (115). These were small fragments of red yellow –ochre coloured mortar containing moderate to numerous large white lime inclusions and may derive from a structure in close proximity such as a wall on the rampart top suggested by lumps of Heathstone and flint in these layers.

Baked Clay

by Martin Papworth and Jörn Schuster

The grey clay layer (122) edged with large flint nodules (123) following the line of the rampart in the south-west corner of Trench I contained 2 lumps of reddish yellow baked clay each about 100 mm in diameter. One had the impression of a wooden rod 2 mm dia. and is likely to have derived from a wattle and daub structure.

SF616: A baked clay slingshot was found in Iron Age context (158) (Fig. 18). It measured 42 mm long by 26 mm and weighed 30gms. It is of ovoid type and pointed at both ends. Examples were found in Late Iron Age contexts at Danebury (for illustrations and discussion see Cunliffe & Poole 1991, 370-371). This type of sling shot may have been used for hunting rather than warfare.

Figure 18: Clay sling shot: SF616 from Iron Age context 158

Glass

by Lorraine Mepham

All of the glass recovered is of modern date (nineteenth/twentieth century), and consists of fragments of bottles and jars in various colours (clear, brown, dark green, bright green). Many of these appear to derive from bottles containing wine or beer or other beverages (one is embossed EIFFEL TOWER LEMONADE, and one with an (illegible) whisky brand). There are also two beer bottles embossed with the local Blandford brewery name HALL & WOODHOUSE.

Stone

by Matt Leivers

A moderate amount of stone was collected from the site, but very little of this material proved on examination to be either worked or utilised. Unworked fragments in heathstone, sandy and shelly limestone and greensand (all locally accessible) have been discarded following quantification (details in archive).

There is one whetstone, in fine-grained sandstone, with a subrectangular profile and a wear groove on one face (layer 310). Four limestone fragments from layer 115 appear to derive from a cylindrical architectural fragment, of which a quarter-section survives (original diameter 260 mm).

Other possibly worked or utilised pieces are restricted to six possible limestone tiles, two of which are burnt (layers 105, 113, 115) and part of what appears to be a rectangular sandstone block (layer 205). A small, irregular pebble has high surface polish and may have been utilised as a burnisher (layer 116). None of the worked or utilised pieces are datable although the finds from 115 have subsequently been C14 dated to the fifth-sixth century.

Worked and burnt flint

by Matt Leivers

Worked flint was recovered from trenches 1-4. The condition of the flint varies considerably, from quite fresh to heavily rolled and/or patinated. Pieces of varying condition and patination were found in the same context, indicating that the majority of the material is residual. The quality of the flint varies but is generally good; the typically thick cortex indicates a chalk source, probably local.

In trench 1, all pieces were recovered from fourth century AD or later layers. Most came from weathered rampart material, and it can be assumed that they relate to pre-enclosure activity on the site. The nature and age of that activity is not clear, as the lithics are limited to flake debitage and a small number of cores and core fragments. Technology is consistently direct hard hammer percussion; flakes tend towards broad and squat; cores and platforms show little preparation. The material is most likely to date from the Late Neolithic to the Late Bronze Age, and need not all be of the same age.

In trenches 2 and 3 the bulk of the assemblage was again residual, primarily in modern disturbance layers. However, in trench 2, 20 flakes and a broken blade were recovered from the fills of pit 249 at the bottom of the stratigraphic sequence, with a further three flakes from layer 236 through which the pit cut. As with the material from trench 1, this group is chronologically mixed: a pair of small blades in pit fill 235 are Mesolithic or Early Neolithic, while the bulk of the material from pit fills 231 and 235 and layer 236 is later, with some pieces exhibiting traits that would not be out of place in Late Bronze Age assemblages. It seems most likely that the material was a background scatter in 236, which entered 249 fortuitously during its backfilling. In layer 310 in trench 3 a similar assemblage of flake debitage was encountered, here lacking the putative early element.

Some other material from trench 2 is earlier than the general Late Neolithic and onwards mix of the bulk of the assemblage. A number of blades and blade-like flakes (from single and bi-polar cores) were recovered from disturbed contexts (primarily twentieth century) which are likely to be Mesolithic or Early Neolithic, although in nearly every instance the proximal ends are lacking and technological details consequently lost. Pieces of this nature came from layer 201 and outer bank context 210.

That manufacture of flint objects was occurring on the site is indicated by core rejuvenation flakes (generally flanc de nucléus), trimming flakes and crested pieces. Flakes from two distinctive nodules in 210 and outer ditch fill 213 indicate that this material need not have moved vary far since its original deposition.

In trench 4 material was recovered from pits 72, 96 and from context 1. In each instance the flint has a very heavy even all-over white patina, and all pieces are somewhat worn. However, two pieces from context 1 refit, and it is likely that this material is a result of knapping in the general vicinity. A later prehistoric date (Late Neolithic onwards) is most probable.

There were 120 pieces of burnt (unworked) flint weighing 3272g. No significant concentrations of material were noted, with a maximum of 17 pieces in any one context (most had only between one and five). The material is intrinsically undatable, and need not be exclusively associated with prehistoric activity.

Shale

by Lorraine Mepham

One shale object was recovered; this is a lathe-turned vessel body fragment, found in layer (115), probably part of a straight-sided or flared bowl (diameter approximately 180 mm), with simple cordoned

decoration. Shale vessels are amongst the less common of the products of the Roman Kimmeridge shale-working industry of Purbeck; they were made, for example, at Ower and Norden (Sunter and Woodward 1987, 171), being more common in the later Roman period (third/fourth century AD). A potentially comparable (although larger) vessel with cordoned decoration was found at Greyhound Yard in Dorchester (Mills and Woodward 1993, Figs 79, 38,p 143).

Metalwork: Coins

by Nicholas Cooke

Two Roman coins were recovered. Both of these are small late Roman copper alloy issues. The first, a 'Barbarous' imitation of an official radiate, was probably minted between AD 270 and AD 296 (pit 256 fill 233). This coin shows signs of fairly bad corrosion on both obverse and reverse, but the stylised engraving on both sides and the irregular flan indicate that it is a copy. Broadly contemporary copies such as these appear to have circulated alongside 'official' coinage, and may have been minted semi-officially in order to make up for shortfalls in the supply of officially minted issues.

The second coin is much better preserved, and only shows slight signs of wear (layer 116). It was minted in Trier by the Emperor Constantine I in AD 322-3.

Neither of these coins are unusual as site finds in Britain, and they may have been accidental losses on the site. Their presence supports the evidence for Roman activity in the area in the late 3rd and 4th centuries AD.

Coin Catalogue

Context 233
Object 549
Metal Cu Alloy
Denomination
Antoninianus Reverse axis 6
Diameter 17 mm
Weight 1.5g
Issuer: Unknown Roman Emperor
Issue date AD 270 - 296
Obverse condition Corroded
Reverse condition Corroded
Obverse Radiate bust r
Reverse Fig. standing l
Mint Unknown
Officina:
Notes 'Barbarous' radiate. Ovoid flan with stylised engraving
References of bust

Context 116
Object 604
Metal Cu Alloy
Denomination
Follis Reverse axis 6
Diameter 20 mm
Weight 2.3g
Issuer Constantine I
Issue date AD 322 - 323
Obverse condition Slightly worn
Reverse condition Slightly worn
Obverse Bust r, laureate, wearing trabea, eagle tipped Reverse Globe on altar inscribed VOT/IS/ XX. 3 sceptre in r hand. CONSTAN TINVSAVG stars above. BEATATRAN QVILLITAS.
Mint Mark: .STR.
Mint Trier
Officina: Second
Notes slightly oval flan.
References
RIC VII, Trier, 369
Reece Periods: 16 - AD 317 - 330
Casey Period: 22 - AD 317 - 330

Other metalwork

by Jörn Schuster & Martin Papworth

The other metalwork comprises, three copper alloy objects and 14 iron objects. All objects have been X-rayed, and both coins and the other copper alloy objects have been cleaned.

Copper Alloy

Apart from the two coins, there three other copper alloy finds were recovered.

SF613 was a group of 5 cu alloy studs or rivets 3-5 mm long by 1 mm dia. recovered with small traces of preserved wood in Iron Age layer (151) representing a fitting of some kind but there was too little surviving to be more precise.

Also from (151) was a cu alloy finger ring SF612 which at its narrowest was 3 mm wide broadening

to a 6 mm wide blank face. Iron Age rings are more commonly of spiral type rather than this circular band.

SF601 was a Romano-British finger ring in two pieces (layer 105), comprising a coiled band, tapering at the terminals and with a decorative central band of two thin strips impressed at intervals to form a 'linked oval' design (Fig. 19). There are possible traces of white metal plating on this central zone. This comes from a Late Roman/sub –Roman context and similar but not exact examples have been found corresponding with type 7 'spiral rings' (Guiraud, H., 1989 195-6)

Iron

Identifiable objects amongst the ironwork comprise five nails or probable nails (layer 2 in IV, layers 107, 113, 115, 116 in I), a short section from the tip of a blade (layer 114), two joining sections from a torc (layer 240); an awl and probable woodworking punch, other objects are unidentifiable fragments.

SF615 is 70 mm long with a square section 3 mm wide narrowing to a point. Found with cu alloy objects SF612 & SF613 in Iron Age context (151) it is similar to awls found at Danebury (Cunliffe & Poole 1991 discussed p.351 and illustrated p.340 Fig. 7.15 see 2.258 & 2.263-5)

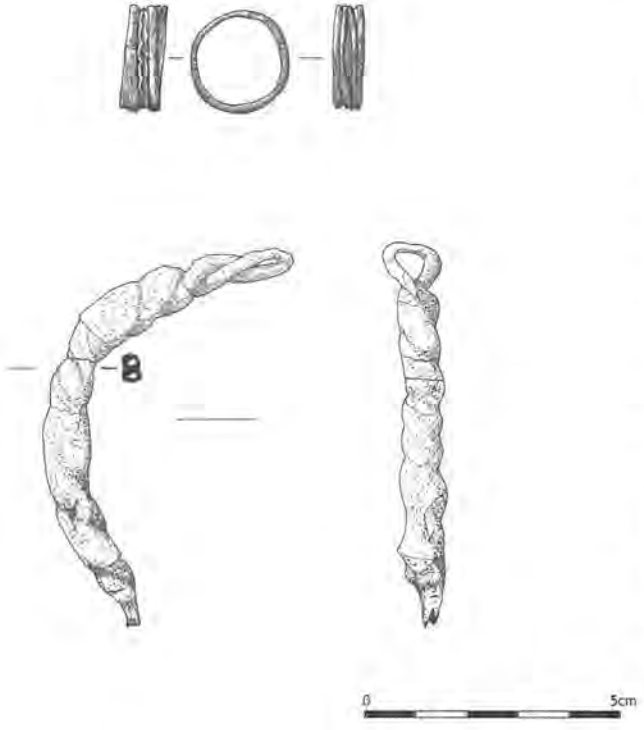

Figure 19: Metalwork: SF601 copper alloy decorated ring from sub-Roman layer 105;
SF927 iron torc from Iron Age layer 240

SF927 & SF928 are joining sections of a probable torc found in Iron Age context (240). It is made from a single circular section strand, bent in two and twisted into a cable, the folded end forming a looped terminal (Fig. 19). The shaft is 8 mm dia. and 75 mm long. A similar torc has been identified from nearby Spettisbury Rings (Hawkes 1940, 112-114). Barry Cunliffe found examples at Danebury (1984, 369 illustration; 371 discussion and comparison with finds from Spettisbury, Llyn Cerrig, Anglesey & Bigbury, Kent) An alternative interpretation for this find may is that it is evidence of slavery at Badbury. This find may be part of a shackle of the type described and illustrated by Manning (1985, 82-4 plate 35, particularly M2-M3 this example similar to type 4 from Hod Hill). Manning suggests that this form of iron twisting is indicative of an Iron Age date.

SF605 from sub-Roman context (105) in Trench I, 60 mm long round section shaft 6 mm at the base broadening to 8 mm and then narrowing to a point found bent and looped round. The flat broad end with a burr indicating that it was struck at this end suggesting that it is a woodworking punch illustrated in Manning (1985).

Animal Bone

by Stephanie Knight

Introduction

A total of 561 bones was recovered. Conjoining fragments that were demonstrably from the same bone were counted as one bone in order to minimise distortion, and therefore specimen counts (NISP) given here may differ from the absolute raw fragment counts. There may also be some discrepancies when bone is fragile may fragment further after initial quantification. No fragments were recorded as 'medium mammal' or 'large mammal'; these were instead consigned to the unidentified category. No attempt was made to identify ribs or vertebrae (except the atlas and axis) to species, although large numbers of these bones were noted where they occurred.

Results

The majority of the bone came from deposits dated as general Romano-British, or late Romano-British. These have been grouped together as 'Romano-British' to create a suitable sample size, as there was very little difference between the two phases. Almost all came from trench 1, with most from contexts 111-116 (weathered rampart material), and the widest range of species in 115 and 116 (the two largest). Relatively

Table 3: Condition of animal bones by phase

	Very Poor	Poor	Fair	TOTAL
Romano-British	205	330	9	544
Post-medieval	12	5	0	17
TOTAL	**217**	**335**	**9**	**561**

Table 4: Taphonomic characteristics of the animal bone assemblage (number of identified specimens rather than raw counts)

	Unid.	Loose teeth	Gnawed	Butchery	Burnt	Measure	Age	Total
Romano-British	458	33	1	13	3	4	23	544
Post-medieval	7	9	0	0	0	0	1	17
Total	**465**	**42**	**1**	**13**	**3**	**4**	**24**	**561**

Table 5: Animal bone species list and percentages (NISP rather than absolute raw counts)

	Horse	Cattle	Sheep/Goat	Pig	Bird	Rabbit	Total identified
Romano-British	2	35	43	3	1	2	86
Post-medieval	0	9	0	0	0	1	10
Total	**2**	**44**	**43**	**3**	**1**	**3**	**96**

few bones were dated as post-medieval (Table 3), and almost all bones of all dates were in poor or very poor condition. This was mainly due to erosion of the bone surface, meaning that surface effects, such as butchery marks or gnawing which are relatively rare (Table 4), may not survive, or may have been obscured by the dried soil that still adhered to some of the bones.

Loose teeth were very common, forming over a third of the identified Romano-British bones and almost all of the identified post-medieval fragments. This was probably the result of complete destruction of the jaw bone after deposition, since often teeth that appear to be from the same animal are found together within contexts. Unidentified fragments were a large proportion of the assemblage, either because the bone had broken into very small pieces or become unrecognisable as the diagnostic features were eroded.

Of the identified bone, sheep/goat is most common in the material as a whole (Table 5), although cattle and rabbit are the only species represented in the post-medieval assemblage, probably because the sample size is so much smaller. Rabbits are seen in both periods and probably originate from intrusive animals that dug into the features in recent years. Apart from this, only domestic animals are present, with horse, pig and domestic fowl in small numbers and cattle and sheep/goat forming the bulk of the identified material.

Relatively few bones could aged or measured, although mainly mature animals were represented (this again may be due to poor preservation favouring older, more robust animal bone elements). One relatively small sheep/goat lower third molar had a reduced third pillar, commonly thought to be congenital variation and frequently seen in cattle and sheep in the Romano-British period.

Several possible helical fractures were seen, and this could indicate splitting the bone for marrow, and chop marks intended to portion the carcass were also observed. A series of sharp cuts along a sheep/goat tibia shaft may have been created during the removal of the surrounding tissue (flesh or ligaments). One large mammal long bone in layer 115 was sawn across, indicating small scale bone working.

Burnt bones were rare, seen in layers 113 and 105, and consisted of small fragments of carbonised and partially calcined fragments that may have been hearth waste.

Shell

by Lorraine Mepham

There is a minimal quantity of marine shell, mainly oyster with a few scraps of scallop (two fragments), cockle (1 fragment) and periwinkle (one complete example).

The oyster includes examples of both right and left valves; in other words, both preparation and consumption waste. The shell is in itself undatable,

but was concentrated in trench I along the lower edge of layer (108) at its junction with (109) and was associated with abraded Romano-British pottery.

Palaeo-Environmental Assessment Report

by Catherine Chisham

This is a summary of the full report which is held in the archive:

The three open trenches were observed by the Wessex Archaeology geoarchaeologist and detailed sediment descriptions and sampling was carried out in two locations along Trench II. Recovery of mollusc samples from the calcareous soils in Trench I also took place but were not processed owing to the known chronology of the sequence.

The samples locations in Trench II were chosen because they were in part protected from recent tree-root disturbance by the construction of the post-medieval ring banks across them.

One sample was taken at 15.4 m below the inner ring bank layer (228) and the other at 40.6 from context below the outer ring bank layer (218). At this location the sample was more deeply buried under soil deposits (232) and (247) filling the Iron Age terrace cutting [250].

At 15.4 the finds were exclusively of prehistoric struck flint within layer (236) cut by a pit [249] filled by layers (231) and (235). It was hoped that an earlier prehistoric environmental profile might be revealed here but the flint report (Leivers above) demonstrates that the finds in (236) were mixed with lithic material ranging in date from the Mesolithic to the Late Bronze Age. Indeed a fragment of Iron in (231) suggests a later date for this context and two C14 dates taken from mature oak charcoal found in (236) yielded dates of 11th-13th centuries AD.

At 40.6 m, context (240) was sampled below (247). (240) was the context lying directly above the cutting [250] of the Iron Age terrace and contained a number of Late Iron Age pottery fragments. Charcoal from this layer produced a Middle Iron Age C14 date. This context proved to be a more reliable environmental sample though both samples contained intrusive elements.

The geoarchaeology and environmental assessments characterised the sediments and depositional environment at the summit of Badbury Rings and provided some context for the archaeological finds. Well-developed brown earth soils were found to have developed over a clay cap with some downslope movement.

A range of environmental remains were recovered from the site, including charred plant remains, charcoal and pollen. Preservation of individual remains was generally good, however serious problems with intrusion were noted including cereal remains and pollen taxa. Bioturbation within the shallow profile was identified as a key influence of the site with root and worm activity common. However, the assessment provided some new environmental data for Badbury.

The charred plant assemblage associated with the Iron Age terrace deposit (240) included a variety of cereal remains, notably emmer (Hordeum vulgare) and spelt wheat (T.dicoccum/spelta), while weed seeds included vetch/tare (Vicia), brome grass (Bromus) and a single seed (supported by the pollen findings) of corn spurrey (Spergula arvensis), examples of which have been found from Iron Age sites both at Hengistbury Head (Nye & Jones 1987) and Wytch Farm (Carruthers 1991). Corn spurrey is commonly found on sandy acidic soils associated with cultivated ground. It has been grown as animal feed and the nutritious oil-rich seeds were made into a porridge for human consumption. At 15.4 m within (236) were found single examples of carbonised wheat, barley and dock seed (Rumex)

The charcoal from the artefact horizons was in good condition with samples up to 3cm in size. The samples from both 15.4 m and 40.6 m were dominated by oak (Quercus sp.), with lesser hazel (Corylus avellana). At 40.6 m, (240) also contained ash (Fraximus excelsior). These common deciduous types would be consistent with an interpretation of domestic hearth fuel collected locally. The charcoal was largely from mature wood with few fragments of twig wood or juvenile wood.

Pollen Analysis

by Rob Scaife

Pollen analysis has been carried out on two soils profiles of Iron Age date within Trench II at 15.4 m and 40.6 m obtained from excavations at Badbury Rings, Dorset. Initially, analysis was carried out to ascertain if sub-fossil pollen and spores are present in these soils and contexts (Scaife 2005). This proved to be the case and, although the data presented here come from this assessment study, useful information on the past vegetation and environment associated with the Iron Age site has been gained.

The Pollen Data

Standard procedures were used for the extraction and concentration of the sub-fossil pollen and spores (Moore and Webb 1978; Moore et al 1991). Pollen was identified and counted from both profiles and pollen diagrams constructed. In the case of Section 15.4, absolute pollen frequencies were extremely high being some millions of grains per ml. whilst numbers in Section 40.6 are at lower orders of magnitude. The palynological characteristics and interpretation of the two profiles are described (Fig.s 20 and 21).

Trench II. Section 15.4.

This sequence was originally suggested as being of Mesolithic date (Wessex Archaeology). However, the character of the pollen sequence seemed incongruous and not comparable with other pollen assemblages of Mesolithic age from this region. Subsequently, the age has been re-appraised by Dr M. Papworth as being Iron Age or later. This is certainly more in accord with the pollen data obtained.

Overall, the assemblages are dominated by herbs with negligible quantities of trees and shrub pollen. The latter include sporadic Betula (Birch), Quercus (oak), Tilia (Lime) and Corylus avellana type (Hazel). Pinus (Pine) has higher values in the top sample (11%) at 32 cm. Herbs are most important and unusually, are dominated by Spergula/Spergularia type (Spurrey; to 58% at 40 cm). Co-dominant are Trifolium type (Clovers; 16%) and Scrophulariaceae (Fig.wort family; 36% at 32cm). In addition there is also a moderately diverse range of other herb types which include Plantago lanceolata (Ribwort Plantain;<1%), P. major (Greater Plantain; <1%) and occasional cereal type pollen in the lower levels. There are only small numbers of spores from ferns with slightly greater numbers of Polypodium (Polypody fern) in the lower samples.

The domiance of herbs shows a very open, probably arable cultivated environment, at least in proximity to the site. This is indicated by cereal pollen and pollen of associated weeds of agriculture. Of particular note are the high values of spergula (corn spurrey?) and Scrophulariaceae of mostly Odontites type, a weed (such as Red Bartsia; O. verna) of arable and disturbed ground. The small numbers of tree and shrub pollen are likely to come from more regional and long distance sources. However, the higher values of pine pollen in the upper level may come from plantations in the late Historic period and thus, some contamination through disturbance may have occurred at the top of the profile.

Section 40.6.

This soil sequence comes from a Middle to Late Iron Age terrace and occupation layer. Numbers and preservation of pollen was much poorer than in profile 15.4. Degraded Lactucoideae (dandelion types) and high numbers of fern spores indicates that differential preservation of these robust taxa has occurred with consequent skewing of the pollen data in their favour.

Pollen from herbs is again dominant with numbers of trees and shrubs generally small. The latter include peaks of Pinus in the upper-most sample (15%) and of Corylus avellana type at 48cm (Hazel; 9%). Herbs are dominated by Poaceae (Grasses; to 25%) with Spergula type (Spurrey; 26%), Lactucoideae (Dandelion types; 28%) and Scrophulariaceae (to 6%). There is also a range of other taxa including Plantago lanceolata, other Asteraceae types and sporadic cereal pollen. There is a substantial peak of Cyperaceae (sedges) at 48cm (27%). Spores of ferns are substantially more important than in the profile at 15.4 m. These include Pteridium aquilinum (Bracken; 23% at base) and monolete (Dryopteris type) forms (to 48%) and occasional Polypodium vulgare.

The pollen assemblages, as with Section 15.4 largely demonstrate an open agricultural environment with occasional oak and hazel pollen probably coming from remaining woodland. This is in accord with data obtained from Section 15.4 and with the environment of this period as seen in other sites across southern England. Similarly, high values of Spergula type pollen and other weeds of disturbed and arable ground similarly suggest that the surrounding area was cultivated. The evident differential preservation of Lactucoideae (dandelion types) and fern spores is a result of the soil being more disturbed through cultivation, from incorporation of older soil containing pollen or longer residence times of robust forms in the soil. The latter is the case with Pteridium in the lower profile. The high numbers of Lactucoideae, although over represented may suggest and earlier phase of grassland/pasture. As with Section 15.4, expansion of pine in the upper level indicates that there has been contamination from recent pollen moving through these well-drained soils or through bioturbation.

Summary and conclusions

Both Iron Age soil pollen sequences show that the environment was open and largely cultivated on, and at least near to the site. Cereal pollen is less well represented in pollen assemblages than are

pastoral taxa. Here, weeds of arable affinity are well represented showing arable cultivation. Whilst on and near site cereal cultivation is probable on these soils, cereal and weed pollen may also be of secondary derivation, that is, pollen liberated during crop processing or from domestic farinaceous waste. Some occasional higher values of tree pollen (oak and hazel) in Section 40.6 may indicate some occasional local tree growth. However, the possibility of contamination via root channel should also be considered and disturbance of the upper levels of these sites may have occurred as evidenced by higher values of pine pollen, probably from historic plantation. Overall, small numbers of tree pollen recovered throughout are considered to be from regional and long distance sources.

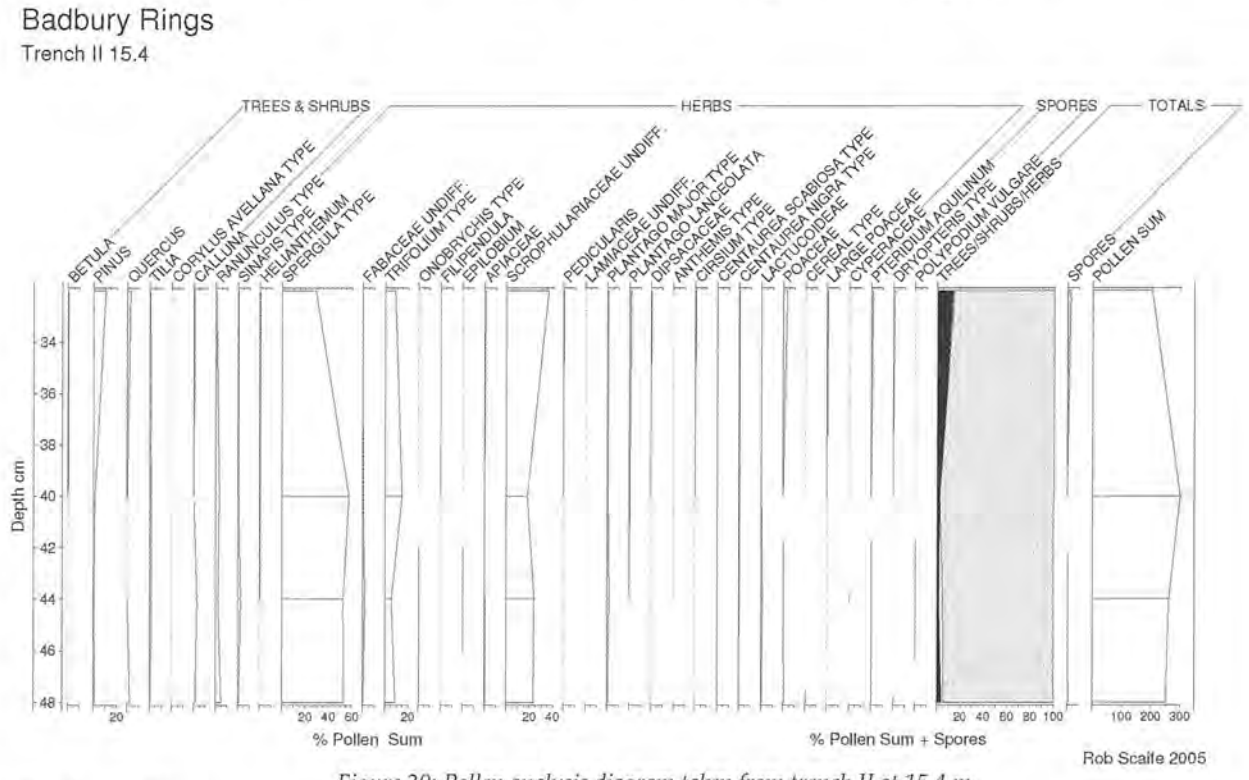

Figure 20: Pollen analysis diagram taken from trench II at 15.4 m

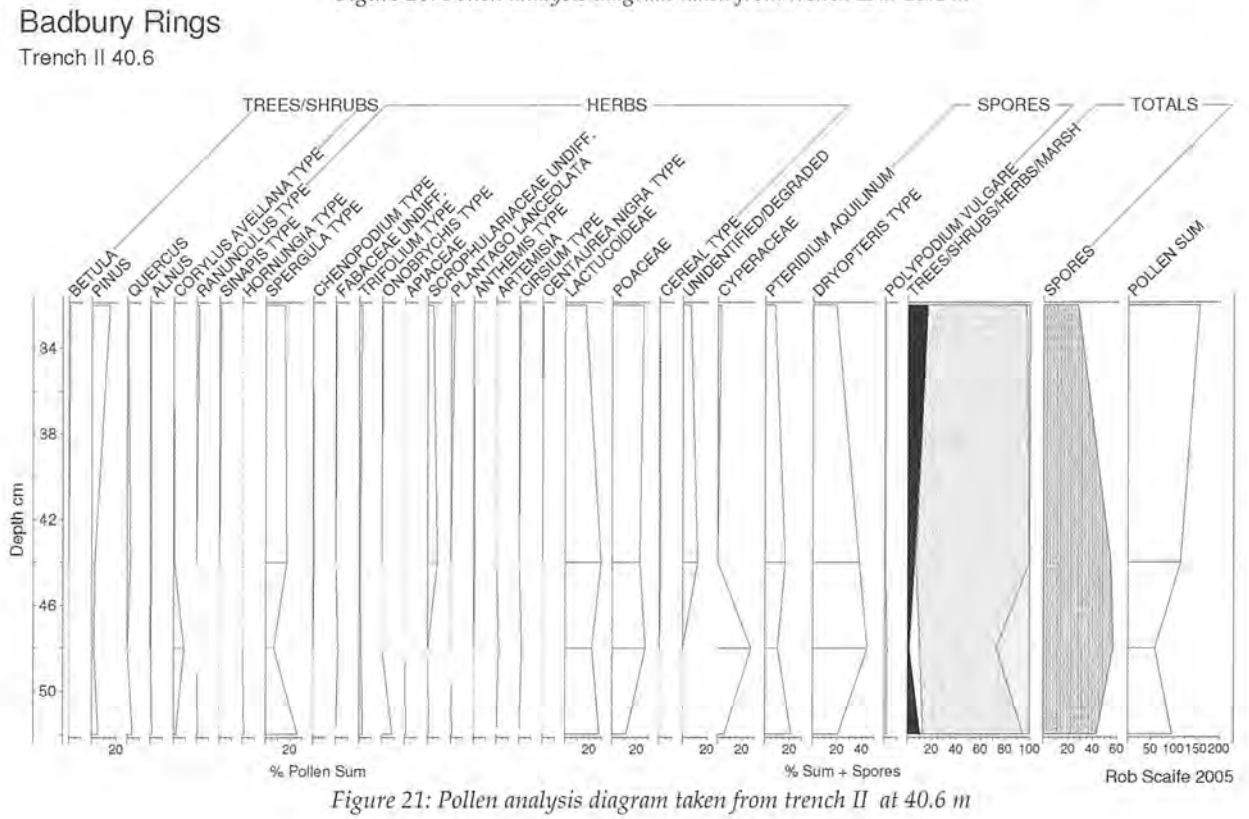

Figure 21: Pollen analysis diagram taken from trench II at 40.6 m

Radiocarbon dates

by Martin Papworth

112031-04, 115A: Trench I context (115):

SUERC-28323 (GU21050): 1540_+ 40BP. Charcoal: unknown type

68.2% probability 430AD (68.2%) 570AD

95.4% probability 420AD (95.4%) 610AD

112031-04,115B: Trench I context (115):

SUERC-28324 GU21051): 2225_+ 40BP. Charcoal: unknown type

68.2% probability 370BC (11.3%) 340BC; 3 10BC (56.9%) 200BC

95.4% probability 390BC(95.4%) 200BC

112031-04, 115C: Trench I context (115):

SUERC-28325 (GU21052): 1580_+40BP. Charcoal: unknown type

68.2% probability 430AD (68.2%) 540AD

95.4% probability 400AD (95.4%) 570AD

Finds from context (115) above chalk floor [124] include late Roman pottery. Although 115B dates to the Middle Iron Age, it is intrusive and 115A and 115C strongly suggest a sub-Roman date for the occupation layer and the chalk floor beneath.

No date possible for sample 118A

112031-04, 118B: Trench I context (118):

SUERC-11489 (GU-14442): 2085_+ 35BP. Bone: No species given

68.2% probability 170BC (68.2%) 50BC

95.4% probability 200BC (95.4%). AD

112031-04, 118C Trench I context (118):

SUERC-11490 (GU-14443): 2275_+ 35BP. Charcoal: Mature Quercus sp.

68.2% probability 400BC (40.4%) 350BC; 290BC (27.8%) 230BC

95.4% probability 400BC (46.0%) 340BC; 310BC (49.4%) 200BC

Only charcoal and bone fragments from this packed chalk context (118) which is the collapsed or reconstructed inner tail of Badbury's inner rampart above occupation layer (120)/(115). A coin of Constantine AD 322-323 was found on the upper edge of (118) below (116). Therefore, given the sub Roman dates 115A and 115C are from the layer beneath (118), samples 118B and 118C represent redeposited material within the rampart make-up.

112031-04, 236 <540> Trench II context (236):

SUERC-11491 (GU-14444): 785_+ 35BP. Charcoal: Mature Quercus sp.

68.2% probability 1220AD (68,2%) 1270AD

95.4% probability 1185AD (95.4%) 1285AD

112031-04, 236 <923> Trench II context (236):

SUERC-11492 (CU14445): 870_+35BP. Charcoal: Mature Quercus sp.

68.2% probability 1050AD (10%) 1080AD; 1150AD (58.2%) 1220AD

95.4% probability 1040AD (95.4%) 1260AD

The layer (236) lies below layer (230) which underlies the nineteenth-century inner bank layer (228). The C14 dates demonstrate that the prehistoric flint finds within this deposit have been redeposited after disturbance in the medieval period or later.

112031-04, 240 <902> Trench II context (240):

SUERC-11493 (CU14446): 2245_+ 30. Charcoal: Mature Quercus sp.

68.2% probability 390BC (23.3%) 350BC; 290BC (44.9%) 230BC

95.4% probability 400BC (29.2%) 340BC; 320BC (66.2%) 200BC

This Middle Iron Age C14 date is from a context containing later Iron Age pottery. This is explained by the sample being taken from a fragment of mature oak, already old when burnt. Of the 4 Iron Age C14 dates from Badbury, this is the only one from an Iron Age context, the other three are redeposited. However, they demonstrate the date-range for Iron Age Badbury already indicated by the ceramic evidence (Garvey this report) i.e. *c.* 400 BC- *c.* AD 10.

Discussion and Conclusion

This has been an opportunity to bring together a broad range of evidence to demonstrate that Badbury hill has been a focus of human activity for over 6000 years. It is unusual to find such a coherent broad ranging body of earthwork evidence in close proximity, allowing the stories of the place to be easily described during a short walk.

The lithic remains on the summits of both Badbury and High Wood demonstrate Neolithic and Bronze Age occupation. The scattered linear group of fourteen round barrows along the west side of the hill show its importance in the Early Bronze Age. The finds of later Bronze Age metalwork and the traces of an enclosure

around the edge of the gravel capping of Badbury suggest an early hill top enclosure preceding the Iron Age hillfort.

The earthwork and geophysical surveys together with the excavated evidence demonstrate that the hillfort was extensively occupied. The finds give a Middle Iron Age but particularly a later Iron Age date for this, a time when the pollen evidence shows a lightly wooded open agricultural largely arable land use. The lack of Early Iron Age ceramic evidence was unexpected but given the small scale of the excavation this does not rule out occupation during this time.

The enclosure on the High Wood summit (Papworth 2008), 500 m east of Badbury, is contemporary but although it probably relates to the hillfort, its function is unclear. It will be the subject of a future publication but at this stage one is limited to saying that a ditch created within a bank suggests containment rather than exclusion.

The Iron Age evidence for the Badbury environs has been examined in detail (Papworth 2008, 277-335) and will be summarised here. What emerges from the archaeology is a well-populated farmed landscape with a diversity of settlement types ranging from small farmsteads to large settlements. Badbury (with High Wood?) at the high centre does not seem to be the dominant settlement focus although its earthworks and lofty location would give it visual prominence.

There are known to be three large settlements, all within 2 km of the hillfort. Sweetbriar Drove, to the south-east contained Early to Late Iron Age pottery but was not occupied into the Roman period (ibid.287-9). Bradford Down to the north east (ibid. 291-296) and Crab Farm (ibid. 315-323) to the south west contained Middle to Late Iron Age pottery and both continued to be occupied throughout the Roman period . Bradford became a farmstead or small villa and Crab Farm expanded to become a small town at the Stour crossing. Analysis of the Iron Age ceramics from these sites (Garvey 2005) demonstrates a pattern seen elsewhere in Dorset of locally dominated production in the Early Iron Age leading to wider imports and then Poole Harbour ceramic domination in the Latest Iron Age. The Early Iron Age assemblage from Sweetbriar (*c.* 600-400 BC) had only 5% of its pottery derived from Poole Harbour kilns; the Middle Iron Age assemblage from Crab Farm (c.400-200BC) had 13%; the Late Iron Age pottery from Badbury (c.150BC-AD50) had 77% and from the Latest Iron Age storage pits within the Crab Farm settlement (*c.* 50BC- AD 100) 98% of the pots were from the Poole Harbour fabrics. This pattern of increasing Poole Harbour dominance, when linked with the south-west series coin distribution, demonstrates the development of a group identity linked to the Durotrigan confederacy of peoples which emerges in the Late Iron Age. The pattern can be seen at other sites such as Hod Hill and particularly Maiden Castle (Papworth 2008, 331-335).

The ceramics and extent of occupation at Crab Farm in the Late Iron Age suggests a scenario where, by the mid-1st century, Badbury was losing population to the more conveniently placed Crab Farm settlement. It seems likely, however, that the hillfort was refortified at the time of the Roman Conquest. At Lake Gates, on the south-east bank of the Stour a 13.4 hectare legionary fortress was established 4km south-east of Badbury. This demonstrates a local population hostile to Roman dominance. A battle at Badbury c.AD 44 is likely to have taken place. The evidence for this is limited to chance discoveries of ballista bolts and a pilum head west of Badbury (Papworth 2014, 256; 267).

Following the conquest, there is little evidence that Badbury was occupied during the Roman period. The activity in the area is limited to the creation of the roads to Hamworthy, Bath, Dorchester and Old Sarum and the development of a Romano-Celtic temple immediately west of the hillfort. This, based on the numbers of south-west series/Durotrigan coins found here, was constructed on top of an original Iron Age sacred site (ibid 2014). The use of the temple throughout the Roman period suggests that Badbury still had a heritage/sacred significance for the local population until the 5th century. After this it was demolished and robbed of its useful building material. Traces of mortar and chunks of heathstone found in Trench I may indicate that some of the temple structure was used to re-fortify Badbury.

The 2004 excavation demonstrated that the hillfort was reoccupied in the late fifth- sixth century. This was surely for security and it is likely that Badbury's strategic location at the Roman road crossroads required some sort of garrison here. The threat is likely to have been from the north-east and east where alien Germanic populations were becoming established. The evidence for this are the cemeteries of warrior Saxon burials associated with burial mounds found at places like Winterbourne Gunner near Old Sarum and Bargates near Chistchurch (Eagles 1994).

A theory has been advanced that suggests that the outer rampart was built at this time both to strengthen

Badbury's defences as well as increase the protection of the massive late Roman Dorchester road. Similarly, the cutting of this main route into Dorset with the 'Devil's Footprint', would fit the sub-Roman fortress hypothesis. However, though the earthwork remains seem to support this view, further excavation would be required to prove and date the suggested sequences of road then rampart and road and cutting.

As with all archaeology, one opened trench unlocks the potential for new lines of enquiry. The 2004-5 excavations were small key-holes into Badbury's vast past. There is so much more to learn.

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I dedicate this to my mentor Peter Woodward who visited the Badbury excavations while we were there.

I want to thank all the many members of the East Dorset Antiquarian Society as well as National Trust volunteers and staff who helped on the excavation during 2004 and 2005. I mention them here in the order each signed the mud stained and now rather battered red site diary. Annie Garvey (our pottery expert), Sue Churchill and Sonia Effingham (planners and section drawers), Alan Hawkins, Peter Sides, Len Norris, Pam Norris, Peter Walker, John & Della Day who managed the EDAS team, Dave Stewart (subsequently for his geophysics), Cara Higgins, Geoffrey Brown (our geophysical surveyor), Ken Standing, Haydn Everall, Phil Colwell, Corinne Board, Mike and Anita Becker, Dean Hind, Gary Edwards, Mike Joyatt, Pam and Derek Bunting, Heather Ruggits, Rachel Leverell, Robert Brotherston, Ian Williams, Henry Cole, Gill Broadbent, Joseph Snape, Anita Hawkins, C. and S. Bungay, Maureen Haughton, Danae Blank, Denise and Keith Alsop, Hannah Whittock. Many thanks to Maggie Foottit (for her drawings of the sling shot and metalwork) and also Harry Manley of Bournemouth University for allowing me to include his LiDAR analysis plots for Badbury.

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THE AUTOR

Dr Martin Papworth has held the post of Archaeologist with the National Trust since the 1980s where he oversees archaeological matters across the South West of England, and carries out research. His particular interest is the later prehistoric period in Dorset.

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George Wickham 1936-2018

George Wickham, my father, who died in March 2018, had a long relationship with Dorset County Museum that became even closer in his retirement. Over the last fifteen years of his life he was a long-standing and committed volunteer at the museum, in particular working with images held by the museum or producing images of its collections. Always fascinated by both photography and new technology (except for mobile phones!) George scanned to an extremely high quality historic images of the county from the museum's photographic archives and recorded digital images of a vast range of the museum's treasures from Hardy's notebooks to Saxon axe-heads. His work enhanced many exhibitions over the last decade including 'Animate!' and 'A Dorset Woman at War' and he was an enthusiastic supporter of the museum's plan to redevelop and bring in new visitors. In his last weeks he was delighted at the arrival of Dippy.

George was born in Cheshire in 1936. After national service in the Royal Signals he moved to York to become a Maths teacher, working at a number of secondary schools. Here he also met and married his wife Shirley in 1962. In 1972 they moved to Dorset for George to take up a teacher training position at Dorset Institute of Higher Education. It was here that he first began his connections with the museum, meeting many of its curators and developing a particular interest in archaeology. When the college closed he went back to school teaching at Shaftesbury School. On retirement he was delighted to have the opportunity to use his skills to help the museum and to immerse himself in the extraordinary collections held there, matching his own very wide-ranging interests which included music, art, trees and architecture. At his funeral, held next door at St. Peter's Church, there was a collection for the museum. This reflected his passionate belief that knowledge, beauty and history were for everyone. He is survived by Shirley, his daughter Judith, myself and his beloved grandchildren Isabelle and Dan. He will be greatly missed both by his family and those at the museum.

Phil Wickham

Elizabeth Maureen Keats 3rd December 1936 to 1st March 2018

Having worked alongside Maureen daily from 1959 until her marriage in 1972, I soon learned what a remarkable person she was. Maureen and her younger sister were born in Kuala Lumpur, Malaya (now Malaysia). Her father, a teacher, met her mother in England in the early 1930s and her mother then went out to Malaya to be married accompanied by Maureen's grandfather. Maureen remembered nothing of her time in Malay, as the family came home on leave in 1938, when she was very young and they never returned, due to the outbreak of war. They went to live in the family home in Knighton in Radnorshire, in mid Wales, while her father returned, alone, to Singapore in early 1940, as an inspector of schools. He would not let his family go with him as he predicted that the Japanese would join the war. His prediction came true and as a member of the volunteer reserve corps, he was taken prisoner at the fall of Singapore. The family had almost no news of him through the war, which he worked on the infamous Burma railway. Her mother only received two cards; the first said simply that he was 'working' and the second that he was 'not working'. It was only in 1945, at the end of war, that they discovered that he had died of dysentery and beri beri in October 1943. Many years later Maureen returned to Malaya with her daughter Mary and visited the place where they had lived outside Kuala Lumpur and the war cemeteries at Kanchanaburi on the railway.

Throughout the war, the family lived in mid Wales. Maureen attended the local school. Children from Birmingham were evacuated to the area and she has memories of how unhappy many of them were and also of the bombers flying over mid Wales, after unsuccessful bombing raids in the Midlands.

After the war, the family moved to London where her mother's family had lived throughout the bombing. They settled in Sanderstead in Surrey, where Maureen's mother returned to teaching. Although her father had been a Methodist and her mother a Baptist, they attended the Congregational church in the village as it was the only non-conformist church. Each suburb only had one non-conformist church and the family would have had to travel to the next suburb If they had wanted to attend a different denomination. She attended Junior Church and the youth club and became a church member.

She started to attend the Congregational Church (which is now DIC) transferring her membership from Sanderstead. She met her future husband Brian, a Winfrith electronics engineer, at church. His wife had died from breast cancer leaving him with two children, Susan and her younger brother Tim. Brian and Maureen married in 1972 and she left work to look after the family. Susan also married in 1972. Then in 1975 Maureen and Brian, themselves, had a daughter Mary.

She started work as Assistant Curator of the Dorset Natural History and Archaeological Society having spent the previous three years reading Natural Sciences and Geology at London University. Her primary work then was on our Natural History and Geology collections and this involved designing a new geological gallery, supporting fieldwork, helping specialists working on the collections, encouraging those experts preparing papers for our annual *Proceedings*. Looking back over annual reports in *The Proceedings* you will get some idea of the diversity of her work.

She came to Dorset without any museum qualifications, so at once she started working for the Museums Diploma which she achieved in 1969, becoming an Associate of the Museums Association and also a Fellow of the Geological Association.

In the museum she began to display the geological collections, which are of more than national

significance. This work included several years giving courses in towns and villages and ten or twenty lectures through the winter evenings, having done a day's work in the museum. This was funded by the University of Bristol's Extra Mural Department. She was a fluent and lively lecturer.

At the same time, she was deeply involved in the planning, and carrying out, of the Society's successful Public Appeal for money to be spent on the museum's Victorian and Georgian buildings after the neglect of the war-time and post-war period. This resulted in raising (in the days before Heritage Lottery funds) a sum the equivalent these days of some two or three million from our members and the people of Dorset. That was when we repaired all the buildings and painted the ironwork of the Victorian Hall in the colours of the 1850 Great Exhibition, from a watercolour of our 1880 architect, G.R. Crickmay.

We were not helped by the weather especially in the Arctic winter of 1962-63 when Maureen spent quite a lot of time, often each day, following further snowfall, up on the museum's roof shovelling snow out of the galleries before it melted under the tiles, froze and melted again in quantities which would have landed on the collections.

Further, Maureen was on the rota for stoking the small domestic boiler which was supposed to heat the whole of the museum which, going full blast, never got the temperature in the museum above 37°F from Boxing Day 1962 to the end of February 1963. Our 75-year-old resident caretaker since 1932, was defeated and retired, and Maureen found herself with another rota, doing some of her work for those six or seven weeks.

Shortly after that, Maureen attended the Triennial Conference of the International Council of Museums in Washington DC and New York with a grant from the Carnegie United Kingdom Trust all expenses paid. Quite a contrast.

Maureen continued to be involved in the next phase of fundraising to build an extension designed by a distinguished museum architect, Michael Brawne, as a result of which we became the Joint Runners-up with Belfast Museum in the first Museum of the Year Award. That building was one of twebnty modern buildings in the South West of England described for its distinction and use. For some thirty years, it was used for meetings and lectures because it could seat at least 180 (often 200) people as well as for temporary exhibitions with careful planning and foresight.

Although that success, for which Maureen worked so hard, was in the year of her retirement, she was able to come back to attend the ceremony for the Award in London and to take part in the television programme.

Finally in the year before Maureen's marriage, following the death of our Honorary Treasurer, Maureen — still Assistant Curator, was asked to administer the finance of the Society which she did with skill and a great deal of hard work — a typical example of her willingness to cope with any emergency, without worrying about the cost to herself.

Someone of Maureen's ability and character was continually missed but it was not long before the one time Assistant Curator became a member of the Society's Council, then the Chairman, and finally President of the DNHAS — a unique resource which no one else has ever achieved, nor will they ever do so.

Roger Peers

DORSET RAINFALL 2018

Rainfall totals across Dorset in 2018 were close to the 1981 – 2010 county average of 925 mm for the fourth successive year.

Rainfall during the 2017/18 winter season was about average but the early Spring was very wet with the added hazards associated with some heavy snow early in March and again in mid-month. There was a trend to drier conditions in the second half of April and this was maintained through much of May.

The early to mid-summer period was exceptionally dry with June the third driest month of any name in records back to 1856. Many stations reported no measurable rain throughout the month and well into July, with the first significant falls in at least eight weeks on the 27th or 28th.

The weather gradually became more unsettled during August before drying out again through much of September and October.

There was a 10% deficiency in expected rainfall in the ten months to the end of October but the much wetter than average November and December more than compensated to produce a 3% excess by Christmas.

The wettest station in 2018 was Cerne Abbas with 1237.6 mm and the driest was Portland Bill with 668.0 mm. The highest daily rainfall total was 53.2 mm recorded at Owermoigne on November 27th.

HIGH 24-HOUR RAINFALL EVENTS IN 2018

Rainfall totals exceeding 25 mm at any of the 55 participating stations were recorded on 19 days during the year compared to 22 days in 2017 and 27 days in 2016. On seven of the days, just five or fewer stations met the criteria. The most widespread events that affected more than 50% of the reporting locations are described below.

22 September

A frontal wave depression close to the English Channel brought widespread and at times heavy rain to our region from dawn and this continued until early evening. The rain was combined with a moderate easterly wind restricting the maximum temperature to around 13C.

The central swathe of the county from Forde Abbey in the west to St. Leonards in the east received close to 30 mm of rain. North of a line from Thornford to Sturminster to Fontmell Magna falls were nearer to 20 mm with similar totals south of the A35 road through the county and over the Isle of Purbeck.
(Milton Abbas 33.0 mm; Melbury Sampford 32.0 mm; West Moors 31.4 mm)

9 November

A frontal system swept rain east across the county during the late afternoon and evening. Wind gusts reached 40–45 mph inland during the mid-evening period.

The highest rainfall totals were reported across central areas and especially towards the Devon and Somerset borders. Much of this area received 25–35 mm of rain within a seven-hour period while to the south totals reduced to 15–20 mm.
(Forde Abbey 37.7 mm; Melbury Sampford 36.9 mm; Evershot 36.8 mm)

27 November

Early frost with air temperatures as low as -3C was short-lived after dawn as increasing cloud associated with an approaching warm front spread rain quickly east. This rain persisted for 6–7 hours, followed later in the day by drier conditions before renewed outbreaks of rain affected all areas overnight.

Close to the coast and over much of north Dorset rainfall totals were close to 20 mm. Most central areas reported 25–30 mm while stations from Forde Abbey in the west to Iwerne Minster, Winterborne Zelston and

Table 1: Monthly Rainfall and Thunder days in 2018

Month	*Rain days >0.2mm*	*Rainfall (mm)*	*1981 – 2010 av. (mm)*	*% of av.*	*Thunder days*
January	22	94.2	97.2	97	1
February	11	55.8	71.3	78	0
March	22	158.5	72.2	220	0
April	15	91.7	62.3	147	3
May	11	45.3	57.6	79	3
June	2	1.3	52.7	2	0
July	7	37.6	51.8	73	3
August	11	64.9	62.8	103	1
September	8	45.1	71.3	63	0
October	11	53.9	109.2	49	0
November	19	163.4	109.3	149	2
December	19	143.7	107.2	134	1
Year	**158**	**955.4**	**924.9**	**103**	**14**

Winfrith Newburgh in the east recorded 30–40 mm and locally more.
(Owermoigne 53.2 mm; Milton Abbas 44.0 mm; Cerne Abbas 38.7 mm)

14 – 15 December

At 0000z on the 15th an occluded front was lying from just off the west coast of Scotland, through the west of Wales and Devon with a warm front approaching Cornwall. Rain reached the west of our county around 0400z with air temperatures close to freezing at its onset and only slowly rising through the morning. During the afternoon the weather became increasingly breezy and mild as the second front came into play.

The associated rainfall was split across two rainfall days by the 0900z or thereabouts observation hour but all fell within 13 hours on the calendar day of the 15th.

All of south and mid-Dorset received more than 25 mm of rain with much of the central area between Abbotsbury and Lulworth north to Cerne Abbas and Blandford collecting close to 40 mm.

A finger of heavy rainfall also extended west from the main area through Litton Cheney to Bridport and Marshwood.
(Owermoigne 45.4 mm; Broadmayne 45.0 mm; Stratton 44.0 mm).

SNOWFALLS

On **January** 16th hail and sleet showers were reported widely in a cool north-westerly airflow. On the high ground around Shaftesbury snow showers during the evening and night resulted in a 2 cm cover by dawn on the 17th.

Many places had snow flurries during the evening of **February** 6th and with temperatures close to freezing, these produced a temporary slight covering. Further wintry showers were reported on the 9th and 11th before a much milder interlude in mid-month.

Over the last three days of the month, high pressure over Scandinavia fed increasingly cold and biting easterly winds across southern Britain with sunny periods and snow showers. The 28th was exceptionally cold with a maximum temperature close to zero Celsius following an overnight low of -7C in rural areas.

March 1st was a truly exceptional weather day for the county for the first day of meteorological Spring. At Dorchester the maximum temperature to 1800z was -3.2C, the first sub-zero day recorded in March in 56 years of records. The cold was accentuated by the easterly wind of Siberian origin, dubbed by the media 'The Beast from the East' gusting to 40 mph creating a severe wind chill. Most areas had some snow flurries early in the day but this was replaced by moderate to heavy drifting powdery snow in the afternoon as a warm front approached from Northern France.

Depths of snow were difficult to measure due to the strong wind and drifting but was generally estimated at 10–20 cms across the county with 23 cm recorded at Shaftesbury. During the evening as the front reached the south coast it introduced just slightly milder air aloft and freezing rain. This rain remained in liquid supercooled droplets despite falling through air close to the surface at about -2C and immediately froze on impact. All surfaces including vertical ones exposed to the east wind were coated in about a 4 mm layer of ice.

Snow showers during the day on the 2nd was replaced by overnight rain as temperatures continued to rise and most of the lying snow had disappeared by the 4th.

After nearly two weeks of mild weather 'The Beast' returned. At 0900z on the 17th the temperature was around 3C, some 10C below the maximum readings of the previous day and continued to edge down throughout the day. The bitter feel was highlighted by a penetrating wind gusting to 40mph and occasional snow flurries. Heavy drifting snow spread west across the county overnight and by the time it had petered out, around midday on the 18th, most places even down to the shore line were blanketed to a depth of 10–15 cm. Over some of the higher ground falls of more than 20 cm were reported with drifts to 1.5 metres.

The maximum temperature on the 18th barely reached zero Celsius, a very rare event in mid-March and there were further outbreaks of light to moderate snow overnight into the 19th with a few more centimetres deposited. The 19th was generally a much quieter day with some afternoon sunshine allowing a short-lived thaw. Frost returned in the evening but by dawn on the 20th the temperature had already recovered to above the freezing level and the snow melt had begun and was generally complete by nightfall on the 21st.

Lying snow was reported on seven days in March and its depth and duration made it the snowiest month in Dorset since December 2010.

The first reports of snow for the 2018/19 season were for sleet and snow showers during the late afternoon and evening of **November** 20th and these turned increasingly to snow overnight. Many places received at least a slight dusting, preserved by the accompanying frost with air temperatures as low as -2C. At Cerne Abbas a cover of about 1 cm was reported.

GENERAL WEATHER SUMMARY 2018

The warming trend continued in 2018 with the mean temperature across Dorset about 0.2C higher than in the previous year and just 0.2C below that of 2014 —the warmest year on record.

The ten warmest years have all occurred since 1989, seven since 2000, including four in the last five years.

Although warmer overall, the year will be most remembered for the two very cold and snowy spells in March. In contrast, the summer period June to August based on day maximum temperatures was the warmest since 1983.

January

The New Year roared in with four very windy days. Storm Eleanor brought winds up to 60 mph inland and 84 mph at Portland overnight on the 2nd. The month overall was mild and breezy with only one or two frosts and both rainfall and sunshine amounts were close to average.

Storm Georgina was responsible for some localised coastal flooding and power outages on the 24th with winds gusting 50–60 mph during the morning.

(HiMax 13.4C Hurn 28th; LoMax 4.2C Blandford 8th; HiMin 10.3C Wimborne 24th. LoMin -3.2C Dorchester 30th; HiRain 22.8 mm Shaftesbury 21st)

February (Coldest since 1996 and driest since 2013)

The month as a whole was drier, sunnier and cooler than usual with the air sufficiently cold at times for showers to fall as snow.

The 14th was a particularly wet day over the south and west of the county with many places here reporting close to 30 mm of rain over a twelve-hour period.

Very cold and biting easterly winds during the last three days brought snow showers to all areas. Temperatures barely rose above 0C on the 28th following an overnight minimum of -7C in places

(HiMax 12.0C Dorchester 17th; LoMax -0.2C Blandford St Mary 28th; HiMin 7.3C Thornford 19th, LoMin -7.3C Dorchester 28th; HiRain 32.6 mm Charminster 14th)

March (Wettest since 1981 and coldest since 2013)

The extreme cold of late February continued into meteorological Spring with the 1st being the coldest March day for at least 60 years. Temperatures remained sub-zero all day with periods of heavy drifting snow. (See snow section)

Ten successive nights of frost were reported between February 22nd and March 3rd before milder air arrived in the second week. The weather remained unsettled with some quite heavy rain at times.

The second brief but quite severe snowy period occurred in mid-month but was soon followed by a return to mild days and frost-free nights.

(HiMax 14.3C Hurn 27th; LoMax -1.0C East Stour 1st; HiMin 8.1C Thornford 12th. LoMin -5.6C East Stour 1st; HiRain 31.3 mm Shaftesbury 30th)

April (Wettest since 2014)

A generally mild and rather dull month and frost-free for the first time since 1972. A very warm spell in the third week saw the mercury rise above 25C widely on the 19th before steadily dropping back to about 10C on the 29th.

It was a wetter than average month overall, largely due to heavy rainfall on the 1st and 9th.

(HiMax 27.9C Blandford St Mary 19th; LoMax 9.0C East Stour 1st; HiMin 12.0C East Stour 18th. LoMin 1.9C East Stour 5th; HiRain 33.4 mm Stratton 1st)

May (Warmest since 2008 and driest since 2012)

The 1st was the coolest day of the month following a slight overnight frost in some rural areas. The month overall was sunnier and warmer than average with nearly half of the days achieving 21C. Both three-day Bank Holiday weekends were very warm, the former was the warmest since 1990, the latter since its introduction in 1965.

Rainfall was below average with the few frontal systems that did affect us mainly arriving at night.

(HiMax 28.8C Blandford St Mary 7th; LoMax 13.5C Dorchester / East Stour 1st; HiMin 16.1C Thornford 29th. LoMin -0.1C Dorchester 1st; HiRain 22.0 mm Bradford Peverell 1st)

June (Driest in Dorset records dating back to 1856 and warmest since 1976)

A warm and largely sunny month and exceptionally dry. There were a few patches of drizzle or showers on a few days but these were very much hit or miss and many stations reported no measurable rain throughout the month.

The last ten days became increasingly warm with virtually unbroken sunshine and mid-afternoon temperatures exceeding 30C in places.

A dust devil was observed in a hay field at East Stour on the 25th.

(HiMax 31.5C Thornford 26th; LoMax 15.6C Dorchester 5th; HiMin 16.4C East Stour 19th. LoMin 5.7C Hurn 22nd; HiRain 3.0 mm Portland Bill 7th)

July (The warmest since 1983)

The weather was mainly dry, sunny and very warm or hot until the 27th. Day maxima were mainly in the high 20's and exceeded 30C in many places on the 2nd, 6th and 8th. Night minima only just fell below 18C in many places on the 2nd and 10th.

An area of low pressure brought the first appreciable rain for eight weeks to all areas overnight on the 28th and persisted for much of the 29th. On the latter date the maximum temperature was restricted to 18C.

(HiMax 33.0C Blandford St Mary 8th;LoMax 17.9C Dorchester 29th; HiMin 17.9C Wimborne / Thornford 2nd. LoMin 9.2C Hurn 18th; HiRain 37.6 mm Stratton 28th)

August

The first week maintained the dry, sunny and very warm theme but from the 8th the weather became rather unsettled but still with some sunshine and warmth to be had between the rainy days. Atlantic low pressure systems spread rain across the whole of the county on the 11th, 15th and 26th. The latter date was especially wet, breezy and cool with many rainfall stations in the north of the county recording their wettest day of the year.

(HiMax 32.1C Wimborne 3rd; LoMax 16.9C Wimborne 12th; HiMin 18.0C Dorchester 23rd. LoMin 3.8C Hurn 25th; HiRain 44.2 mm Shaftesbury 26th)

September

The first five days were largely dry and very warm with air imported from the near continent but a change to an Atlantic influence brought a marked fall in temperature to near average values.

The first significant rain of the month occurred on the 20th courtesy of storm 'Bronagh' and produced wind speeds of up to 55 mph in the west of the county. Many roads were temporarily blocked by fallen trees and there was some disruption on the rail network and to rural power supplies.

On the 22nd the whole area received 15-30 mm of rain accompanied by a cool east wind but dry and sunny conditions returned for the last week.

(HiMax 26.9C Thornford 3rd; LoMax 11.9C Blandford St. Mary 22nd; HiMin 17.6C Wimborne 18th;
LoMin 0.3C Hurn 25th; HiRain 33.0 mm Milton Abbas 22nd)

October

A much drier and sunnier than average month with temperatures mostly a little above average until the final week when north or north-easterly winds brought a marked fall in maxima to between 6–9C and some overnight frosts.

The wettest period was the 11th – 17th with the rain particularly heavy across the north and east of the county on the latter date.

(HiMax 23.3C East Stour 10th; LoMax 6.6C Blandford 27th; HiMin 16.6C Dorchester 13th. LoMin -4.8C Hurn 31st; HiRain 29.1 mm West Moors 13th)

November (Wettest since 2009)

The first half of the month was mild and unsettled with periods of rain alternating with sunny periods and showers.

South-westerly winds backed into the east on the 17th and introduced a colder, rather dull and showery regime. It was cold enough for the showers to fall as snow in places early on the 21st and thunder was reported during the afternoon from Portland and Weymouth.

Heavy rain on the 27th, following an early frost, marked the transition to much milder and windier conditions to end the month.

(HiMax 16.0C East Stour 5th; LoMax 5.7C East Stour 20th; HiMin 12.1C Wimborne 27th;
LoMin -4.9C Hurn 2nd; HiRain 53.2 mm Owermoigne 27th)

December (Wettest since 2013)

The month was generally dull and mostly mild with frequent periods of rain. There was a brief incursion of cooler continental air for a time in the second week and high pressure brought mainly dry and calm conditions for the final week of the year.

There was some heavy rain at times in the first week and especially between the 14th and 22nd when some localised flooding occurred.

(Hi Max 14.7C Hurn 2nd; LoMax 4.6C Blandford St Mary 14th; HiMin 11.3C Wimborne 3rd. LoMin -1.7C Hurn 4th; HiRain 34.2 mm Cerne Abbas 18th)

THUNDERSTORMS

Thunder was reported as heard on 14 days in 2018 compared to 19 days the previous year and the 30-year average of 32 days. The monthly distribution of the thunder days is shown in Table 1.

The summer period was very warm and settled with very little thundery activity, home-grown or imported.

The most widespread storms, reported by more than half of our twenty contributing observers occurred on April 21st and May 26th and affected most parts of the county but were not of great severity.

A thunderstorm at Shaftesbury on April 25th produced 16.8 mm of water in 15 minutes, much of this falling in the form of hail that accumulated to a depth of 5 cms.

On August 10th at West Moors, 17 mm of rain fell in 15 minutes during the early afternoon and 29.9 mm was credited to the day at Wimborne.

Thunder accompanying some of the rain and showers contributed to the high rainfall totals of 33.0 mm and 26.7 mm recorded at Portland and Weymouth respectively on November 23rd.

From the Rainfall Editor
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DORSET RAINFALL 2018

Stations marked * are sites incorporating tipping-bucket auto gauges and have not been included in the compilation of the county averages.

STATION	OBSERVER	Greatest 24hr fall Depth (mm)	Date	Days with rain 0.2mm	25mm	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR (mm)
STOUR BASIN																		
Blandford St Mary	Mr D Vincent	31.7	15/12	193	4	83.0	46.0	154.4	94.4	56.3	1.8	44.4	48.8	51.3	60.1	148.9	147.5	936.9
Compton Abbas *	Environ Agency	33.4	26/8	203	2	91.4	41.0	166.1	82.6	35.6	0.8	19.2	65.0	40.2	60.4	130.8	123.4	856.5
East Stour	Mr R Brown	34.4	26/8	158	2	100.2	41.1	114.0	68.9	40.0	1.9	16.5	74.7	36.6	51.9	124.3	114.2	784.3
Fontmell Magna	Mrs J Westgate	28.6	9/11	163	3	90.8	43.3	158.8	84.3	47.2	0.5	22.1	57.9	38.1	53.0	140.8	122.8	859.6
Gillingham	Mr T Yorke	38.6	26/8	x	x	x	x	x	84.0	47.9	3.7	28.2	91.8	50.7	68.3	145.8	149.5	x
Iwerne Minster	Mr R Benfield	32.6	27/11	149	5	101.1	45.2	178.3	100.0	49.9	0.0	30.2	62.5	51.5	65.8	171.4	140.3	996.2
King Stag *	Environ Agency	31.8	9/11	180	4	77.2	43.6	148.8	80.4	45.4	0.6	21.2	51.4	52.4	62.8	162.2	119.2	865.2
Motcombe	Mr M Rawlins	36.0	26/8	150	3	125.0	60.0	163.0	98.0	59.5	1.0	29.5	78.5	40.5	63.0	145.0	141.0	1004.0
Shaftesbury (Hilltop)	Mr M Yorke	44.2	26/8	187	3	132.7	56.9	171.4	105.3	47.2	2.5	31.4	90.1	53.0	71.3	152.2	134.4	1048.4
Stourpaine	Environ Agency	35.2	27/11	151	5	87.7	45.7	156.0	93.4	51.0	0.1	32.6	53.7	53.9	60.2	166.7	139.3	940.3
West Moors	Mr M Rowley	31.4	22/9	158	3	89.6	39.7	149.1	84.8	30.7	0.3	28.1	68.3	51.3	46.2	135.3	132.0	855.4
Wimborne (Merley)	Mr B Bush	31.3	22/9	166	6	87.9	47.1	157.6	81.1	40.5	2.4	39.2	83.0	62.4	46.6	159.0	147.4	954.2
Winterborne Zelstone	Miss B Hooper	30.5	27/11	120	6	77.0	46.5	154.2	64.5	48.9	0.0	44.3	75.8	48.6	47.8	165.8	144.1	917.5
Witchampton	Mr A Mitchell	30.6	22/9	141	5	88.3	45.2	165.1	93.4	35.7	0.0	39.8	56.5	47.9	52.9	150.9	114.1	889.8
PARRETT BASIN																		
Melbury Sampford	Mr G Jones	36.9	9/11	163	5	77.9	60.3	173.6	114.2	60.6	0.8	45.2	62.8	59.7	68.4	194.5	144.8	1062.8
Stalbridge	Mrs M Paul	28.0	9/11	170	1	99.5	34.1	134.7	63.4	56.8	1.9	19.6	66.0	44.4	53.9	116.7	129.1	820.1
Thornford	Mrs W Morris	33.6	9/11	158	2	81.0	38.6	129.3	77.0	52.1	2.0	28.1	47.4	46.3	64.3	157.2	118.9	842.2

DORSET RAINFALL 2018

STATION	OBSERVER	Greatest 24hr fall Depth (mm)	Date	Days with rain 0.2 mm	25 mm	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR (mm)
FROME BASIN																		
Bere Regis	Environ Agency	28.6	27/11	156	3	105.8	54.9	159.5	75.2	45.1	1.2	33.3	49.8	44.3	59.3	136.4	141.3	906.1
Bradford Peverell	Mr D Oliver	33.9	27/11	170	5	106.5	73.3	178.7	105.7	55.8	1.1	48.6	74.8	42.8	46.1	204.6	159.7	1097.7
Broadmayne	Mr M Ching	31.0	27/11	139	8	130.5	72.0	205.0	88.0	53.0	0.0	42.3	80.0	47.5	61.0	192.0	179.5	1150.8
Cerne Abbas	Mr P Spray	38.7	27/11	173	9	114.9	70.9	197.7	116.6	59.4	2.0	63.4	78.6	55.6	70.5	226.7	181.3	1237.6
Charminster	Mr G Eveleigh	38.7	27/11	155	7	115.4	80.2	189.8	107.5	55.2	1.0	57.3	79.0	43.6	47.4	200.0	167.7	1144.1
Dewlish (Parsonage Farm)	Mr C Britton	31.8	27/11	133	6	101.7	75.3	177.1	87.7	39.6	3.6	45.5	65.5	29.8	34.8	173.5	146.0	980.1
Dorchester	Mr J Oliver	29.1	15/12	166	4	103.9	71.6	175.7	91.9	50.7	0.2	40.9	64.6	45.0	45.5	165.9	169.7	1025.6
Evershot *	Environ Agency	36.8	9/11	193	5	86.4	63.0	169.0	114.2	57.2	3.2	42.8	75.0	55.4	76.8	199.0	148.8	1090.8
Kingston Maurward	Environ Agency	32.3	27/11	162	7	99.5	75.9	180.8	89.4	52.8	0.9	52.7	64.9	48.0	44.5	172.1	164.4	1045.9
Milborne St Andrew (Coles Farm)	Mr A Maitland	36.2	27/11	157	6	93.2	66.9	159.8	89.7	48.7	1.1	57.5	64.9	49.2	43.8	178.2	147.5	1000.5
Minterne Magna *	Environ Agency	33.6	9/11	225	5	93.8	60.0	188.0	108.0	48.4	3.0	47.6	63.2	53.8	66.6	192.0	144.6	1069.0
Milton Abbas	Mr K Battrick	44.0	27/11	147	8	94.5	52.5	157.0	118.5	61.0	2.0	57.5	81.0	58.5	61.0	188.5	164.5	1096.5
Owermoigne	Mr A Hodge	53.2	27/11	152	7	107.7	76.9	175.2	95.1	42.8	0.2	36.5	70.5	53.9	51.1	173.3	164.9	1048.1
Puddletown (Bardolf Manor)	Mr H Wood-Homer	32.1	27/11	152	5	88.9	60.5	180.8	94.7	42.7	1.1	54.2	65.1	47.5	47.1	176.1	153.9	1012.6
Rampisham	Mrs C Parry	34.2	9/11	156	6	89.4	67.6	163.6	109.6	49.0	3.3	38.9	87.1	50.8	74.7	201.7	150.8	1086.5
Stratton	Mr A Keep	37.6	28/7	140	11	102.0	75.5	184.5	114.7	63.9	1.4	55.1	79.3	33.2	52.0	219.0	163.5	1144.1
Sydling St Nicholas	Mr C Legg	41.3	6/11	145	5	89.4	71.2	158.6	93.9	49.8	0.7	37.8	64.8	38.2	63.1	205.7	146.6	1019.8
Wareham (Trigon)	Mr G Sturdy	27.5	13/10	136	1	73.1	40.3	101.8	45.3	35.1	0.6	27.2	40.2	35.9	47.5	118.0	109.2	674.2
AXE BASIN																		
Forde Abbey	Mr M Roper	37.7	9/11	161	6	86.8	59.5	179.5	101.3	42.4	2.0	49.2	63.3	49.5	66.3	211.5	141.2	1052.5
COASTAL STREAMS																		
Bothenhampton	Environ Agency	26.4	15/12	154	1	89.2	48.4	135.1	84.1	31.3	0.0	20.3	59.9	34.1	46.6	174.1	127.6	850.7
Friar Waddon *	Environ Agency	25.6	15/12	177	2	100.5	54.9	152.7	89.0	39.1	0.5	26.9	52.9	42.2	48.6	159.5	146.0	912.8
Nottington	Environ Agency	28.2	23/11	148	1	66.9	52.9	138.9	84.7	30.8	0.7	26.2	51.9	31.1	38.0	101.5	145.0	768.6
Portland Bill (Old HigherLight)	Mrs F Lockyer	33.0	23/11	166	1	75.4	36.2	89.8	59.2	39.2	4.4	18.4	35.4	27.8	42.4	124.6	115.2	668.0
Sutton Poyntz *	Environ Agency	25.3	15/12	180	1	99.6	55.4	151.2	80.5	34.0	0.9	27.0	57.2	39.5	46.0	156.4	152.5	900.2
Swanage *	Environ Agency	27.8	15/12	169	3	82.2	43.2	92.8	59.4	28.4	1.0	27.8	64.6	31.4	43.4	111.2	136.4	721.8
Weymouth	Mr R Poots	26.7	23/11	147	2	80.7	48.4	151.9	77.1	34.6	0.2	27.0	52.6	35.4	44.4	129.6	153.0	834.9
COUNTY AVERAGES				**158**		**94.2**	**55.8**	**158.5**	**91.7**	**45.3**	**1.3**	**37.6**	**64.9**	**45.1**	**53.9**	**163.4**	**143.7**	**955.4**

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Contributing to the *Proceedings*

The *Proceedings of the Dorset Natural History and Archaeological Society* is a traditionally eclectic county journal which welcomes quality submissions on all subjects related to the archaeology, history, fine arts, literature, geology or natural history of the County of Dorset. If you have a query as to whether the *PDNHAS* is the appropriate destination for your article, please contact the Editor to discuss your proposal well in advance.

The *PDNAHS* accepts both full length structured articles, shorter contributions of similar style, and short contributions (e.g. archaeological notes), including obituaries.

The general length for an article should not exceed 7,000 words. However, in some cases, for example archaeological site reports, or reports of environmentally related fieldwork, it is accepted that a longer submission may be appropriate. In these cases, please contact the Editor in advance of submission. Short contributions may also be discussed.

All full papers which are submitted will be overseen by an experienced specialist subject editor and will be independently peer reviewed.

Please note: We use the Harvard system for referencing; we cannot reproduce footnotes.

Submission

We accept papers for the *Proceedings* on a rolling basis. The earlier papers are submitted, the more likely they are to have completed consideration for the next volume; however, as there are likely to be previous submissions already held over, we are unable to guarantee inclusion in a particular volume, should a paper be accepted.

Shorter contributions and reports (e.g. archaeological notes and obituaries) should be submitted by **31 January** in the publication year, for example January 2020 for publication in the 2020 volume.

These deadlines must be strictly adhered to — any contributions submitted late will be considered only for future editions of the *Proceedings*.

We aim to publish during the summer each year. This means that the review process (outlined below) needs to be completed well before. Your co-operation with respect to any deadlines for revisions and checking proofs will be greatly appreciated.

The *Proceedings* has a digital production process. Please send your submissions electronically to the Editor. Emails should include a completed submission form (available on the website) and the typescript of your article attached as separate word processing files, **preferably in Microsoft Word. We cannot accept them in PDF format**. You should include the abstract, your biographical details, and a list of figures as separate Word documents. Each figure should also be submitted as individual original files, not PDFs. Further information on this is included below.

If your submission is too large to email, please contact the Editor as submissions/attachments may need to be sent via Dropbox, WeTransfer or some alternative arrangement. Paper submissions may only be accepted exceptionally by prior arrangement with the Editor.

The Process

Please send all submissions to the Editor_(editor@dorsetcountymuseum.org).You should receive an acknowledgement of your submission within two weeks. Submissions will be checked on receipt for completeness and appropriateness of file formats. If there is an issue with these aspects, you will be contacted and possibly asked to amend what you have submitted.

All submissions are logged and then passed for consideration to the Subject Editors. The Subject Editors are experienced specialists in the particular field into which your submission falls. They will consider the suitability of your submission, and arrange where appropriate for it to be passed to one or more of our panel of reviewers. The reviewer(s) will consider the submission and provide comments and suggestions, which will be communicated to you by the Subject Editor.

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Hinton, D.A. 1994. 'Some Anglo-Saxon charters and estates in south-east Dorset', *Proceedings of the Dorset Natural History and Archaeological Society* **116**, 11-20.

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