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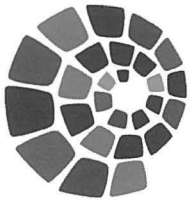
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DORSET NATURAL HISTORY & ARCHAEOLOGICAL SOCIETY

The Dorset Natural History and Archaeological Society came into existence in 1928 with the coming together of the Dorset County Museum (founded in 1845) and the Dorset Natural History and Antiquarian Field Club (founded 1875). The County Museum was Dorset's first conservation body, which was formed in opposition to a plan of Isambard Kingdom Brunel to drive the line of his railway through Poundbury hill-fort west of Dorchester and Maumbury Rings to the east.

The Collection had several homes in Dorchester and Sherborne until the early 1880s when a public subscription headed by the Prince of Wales raised the money to buy the site of the George Inn and employ G.R. Crickmay to design the first part of the present building in High West Street. The museum was opened by the 'father' of British Archaeology, General Augustus Henry Lane Fox Pitt-Rivers on 7 January 1884. In 1938-9, Handel (now Williams) House was added to the property through the generosity of Sir Robert Williams.

Between 1963 and 1978 the Society launched a successful public appeal and the fabric was put in order, heating installed and an extension designed by Michael Brawne was built to provide a multi-purpose gallery for temporary exhibitions, lectures and conferences as well as a new archaeological gallery and schoolroom. All Saints' Church in High East Street, redundant in 1972, was converted to accommodate the largest archaeological reserve collection in the South West.

The Museum flourishes with the devoted support of its many members and volunteers. Membership is open to all. The Society exists to collect, conserve, record and publish the geology, palaeontology, natural history, archaeology, architecture, local history, fine and applied arts, textiles and literature as they pertain to the County of Dorset. These are promoted through displays and exhibitions, lectures and the many events that comprise the annual programme. Dorset has a well-deserved reputation for its archaeology and geology and for its literary figures. The Society's collections are of international importance.

The Society also exists to promote research in these many Dorset-related fields. It publishes this annual Proceedings of academic papers and shorter contributions, reports from archaeological units working in the county and natural history reports. The well-regarded Dorset Monograph occasional series supplements the Proceedings, which allows for the publication of much longer reports.

Over many years the Society has built up an important library housing a comprehensive collection of books, papers, articles, prints and drawings related to Dorset, and a number of rare sources available for research. The Society subscribes to a number of leading archaeology, geology and natural history journals.

The Museum's website at dorsetcountymuseum.org includes information about projects, exhibitions, the collections and forthcoming events. There is also membership, volunteering and fundraising information. The Publications area includes the cumulative index to the Proceedings from Volume 1 to the present together with information on how to order copies of publications and offprints.

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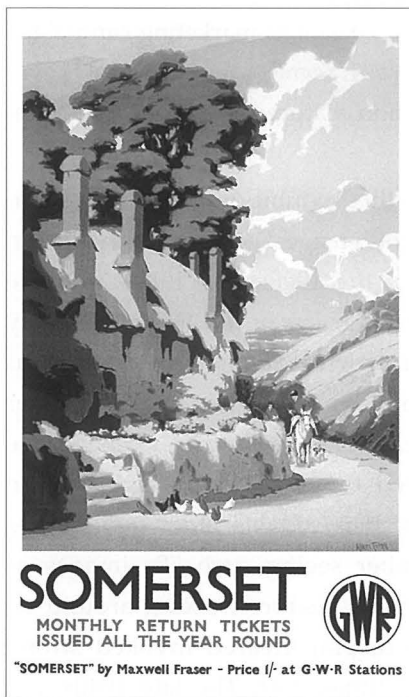
‘Speed to the West’ exhibition at the Dorset County Museum

RICHARD FURNESS

Dorchester hosted a unique display of railway posters during most of 2016 and into early 2017. The County Museum display, which ran from March 2016 to January 2017, was organized by BBC TV’s Antiques Roadshow personality and Museum Trustee Paul Atterbury together with railway poster book author and collector Dr Richard Furness. Under the banner headline “Speed to the West”, the exhibition displayed over 50 original posters from the four West Country counties (Cornwall, Devon, Dorset and Somerset), plus many items of railwayana from the 1950s and 1960s, locomotive models and an extensive collection of holiday ephemera which was produced to promote holidays to the region. The exhibition was formally opened by Eric Knowles, also an expert from the BBC Antiques Roadshow. Paul and Richard

wrote and produced a booklet giving details of all the posters and telling of the history of expresses that used to serve the West Country seaside towns from all parts of the UK. It was the first time such an exhibition had been staged in Dorset and the second largest ever staged in the South-west. Over 17,000 people took the time to visit and view the treasures.

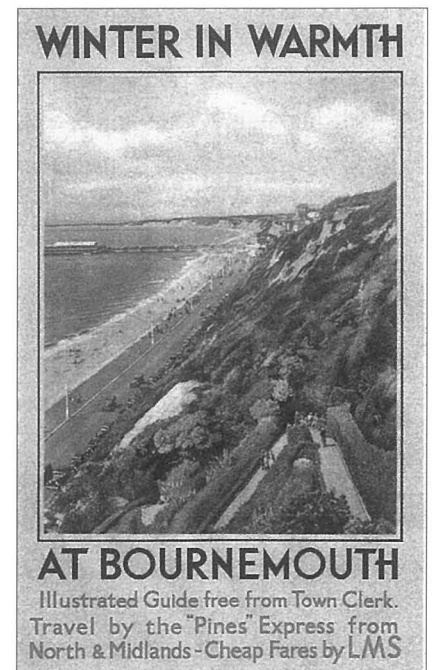
The West Country was predominantly served by the Great Western and Southern Railways (GWR and SR), but ‘The Pines Express’, coming from Manchester, ran over the Somerset & Dorset line from Bath Green Park to Bournemouth Central, promoted by the London Midland and Scottish Railway (LMS): posters from all three companies were displayed, examples being the trio below.



Somerset, GWR, Herbert Alker Trip 1930



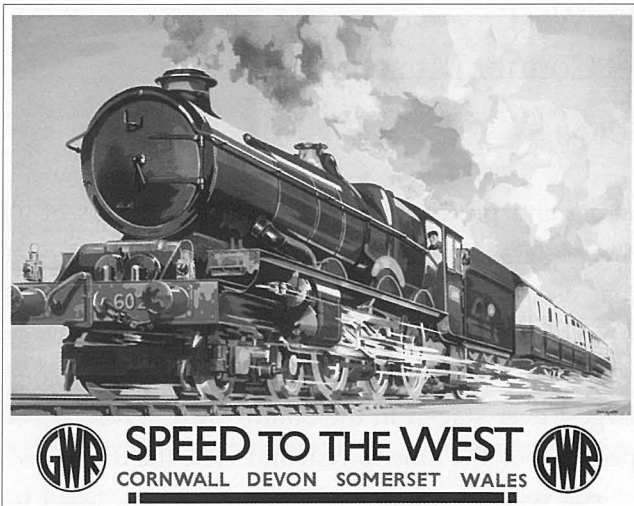
Salisbury, SR, Frederick Griffin 1932



Bournemouth, LMS, Langhammer 1930s

Items were loaned from collectors all over England, and included a rare Poole Lido poster and the Bournemouth poster from that town’s Museum, but the majority came from two well-known collectors. The exhibition took several weeks of careful planning, plus considerable time actually staging the event so

that on walking round the exhibition halls, visitors were taken on railway journeys from cities to the coast using the artefacts displayed. Manufacturer ACE Trains kindly loaned complete 0-gauge models depicting the Cornish Riviera Express (GWR) and the Atlantic Coast Express (SR). The success of the venture



'Speed to the West': Charles Mayo, 1939



'A Vision of the Future', Bryan Evans

was measured by the increase in visitor numbers during 2016.

The famous GWR poster 'Speed to the West' issued in 1939, greeted visitors on arrival. This iconic image was one of the most famous railway posters ever displayed during the twentieth century. It depicts locomotive 6028 King George VI running at high speed. So successful was this image that it was chosen for display in the American British Railways offices in New York City and at selected US stations, using the banner of the Cornish Riviera, instead of Speed to the West. The artist Charles Mayo was actually a GWR employee! Alongside this poster is an original painting of recently-restored GWR King Class locomotive 6023 King Edward I at the head of the Torbay Express in Bristol Temple Meads station about to depart for Paignton and Kingswear. This painting by Portishead-based artist Bryan Evans was commissioned in 2013 to celebrate the restoration of the King and is a hoped-for vision in 2018. It was displayed at the exit from the exhibition.

Many of Britain's famous coastal resorts owe their existence to the railway; typical examples in the south west are Ilfracombe, Newquay, Paignton, St Ives, Swanage, and Weston-super-Mare. At the same time, hitherto inaccessible and thus unappreciated areas of landscape, such as the Quantocks, Dartmoor, the wonderful Jurassic Dorset coast and West Cornwall were made accessible and popular. All this was underlined by the railway poster, a vibrant part of the railway scene from the end of the nineteenth century onwards.

Posters were the 'Internet' of their time, a communications medium full of evocative paintings of

a bygone era, epitomising the romance and efficiency of modern-day holiday travel. Artistic licence allowed the South West's resorts to be displayed in pristine tones. Railway stations became colourful places, decorated with a constantly changing display of posters enticing a fast-growing customer base to travel by train to all parts of the country, but especially to the seaside. The trains themselves featured heavily but so too did hundreds of locations, rural and coastal as marketing campaigns gathered pace after WW1. Some of the best images ever to grace railway station featured the beautiful south-west of England.

The artefacts in this exhibition were chosen to represent the two 'golden ages' of the railway poster, the classic period of the 1920s and 1930s, and the equally exciting post-war era of the 1950s and early 1960s. This was a time when the newly nationalised British Railways maintained the great railway poster tradition by producing glorious images to encourage rail travel. It showed the true beauty of Britain in expansive canvases. It is today's elder generations who fondly remember seeing such 50s images as children. In listening to visitors walking around on opening night, the display clearly invoked strong memories of happy times past. The late 1940s and early 1950s was a time when Britain was throwing off the shackles of post-war austerity and enjoying a new age of social change, economic stability and artistic creativity. An almost equal mix of first and second 'golden era' posters were on display, covering locations from Bristol, all the way down the north coast to Penzance and back along the south coast as far as the Hampshire border.



Two posters from each of the four featured counties. Top row, left to right: Penzance, BR (W), Harry Riley 1952; The Isles of Scilly, BR (W), John S. Smith, 1961; Exmouth, BR (S), Laurence Fish, 1957; Ilfracombe, BR (W), Harry Riley, 1962. Bottom row, left to right: Bristol, BR (W), Claude Henry Buckle, c. 1950; Weston-Super-Mare, GWR?LMS, Claude Buckle, 1947; SWanage, BR (S), Kenneth Bromfield, 1960; Lyme Regis, SR, Alfred Lambert 1926.

Of all the journeys people made during the twentieth century, those setting off from the towns and cities to coast by train are the most fondly remembered? On every summer Saturday, our stations were thronged with people and probably the most vividly recalled are those to Cornwall, Devon, Dorset and Somerset, our glorious south-west. This was an area served initially by a number of smaller train operating companies, but in 1923 economics forced them to merge into four firms, those serving the south-west being the Great Western Railway (GWR) and the Southern Railway (SR).

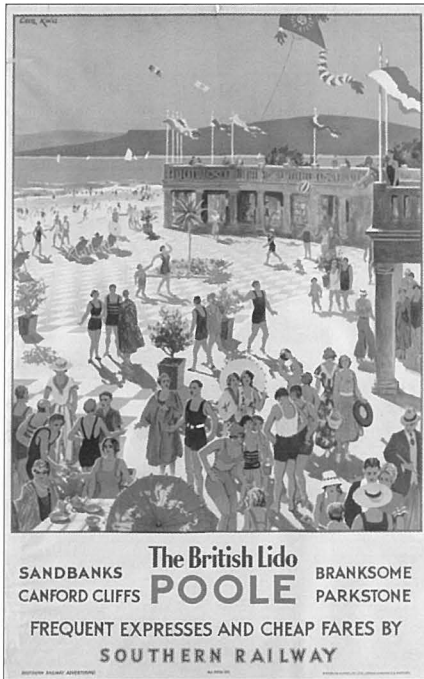
From this point on their publicity machines became more effective and posters more memorable. Towns used to compete to employ the best poster artists of the day, as they sought to gain financial advantage over their neighbours by having their beaches, hotels

and streets full of tourists. The appeal of the West Country is largely as a result of the railways' focus over decades. This market focus resulted in hundreds of posters being commissioned. Today, these posters have a universal appeal to both young and old alike, who are enticed by the beauty and artistic quality of their images. They reflect the historic development of our modern-day Britain and have also become very collectable. Paul Atterbury regularly sees similar items on the Antiques Roadshow.

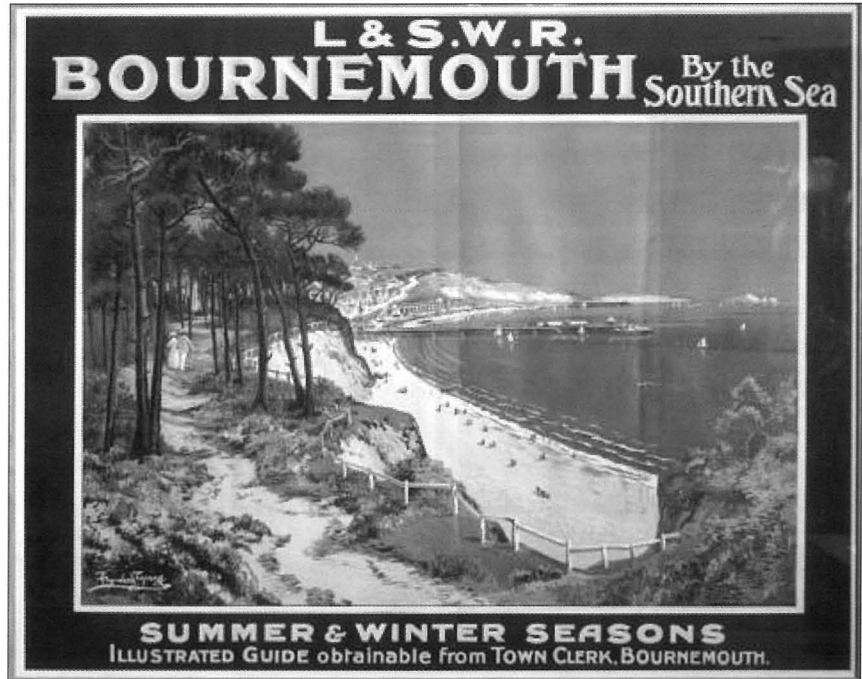
Direct links from London to the whole of the south-west coastline allowed us to 'Speed to the West', a marketing slogan successfully employed by the GWR. The SR's Atlantic Coast Express from Waterloo and the GWR's Cornish Riviera Express from Paddington epitomised holiday rail travel and spawned several iconic images, some included in this exhibition. Other

slogans included 'Glorious Devon' and 'Smiling Somerset', both also featuring in the display. Two local rarities were also included, one of the Poole Lido (below left) and the other of Bournemouth (centre), as advertised

by the London South Western Railway in 1916 at a time when the battles of WWI raged just across the Channel. They sat happily alongside a 2014 computer generated poster showing Weston-super-Mare's brand new pier.



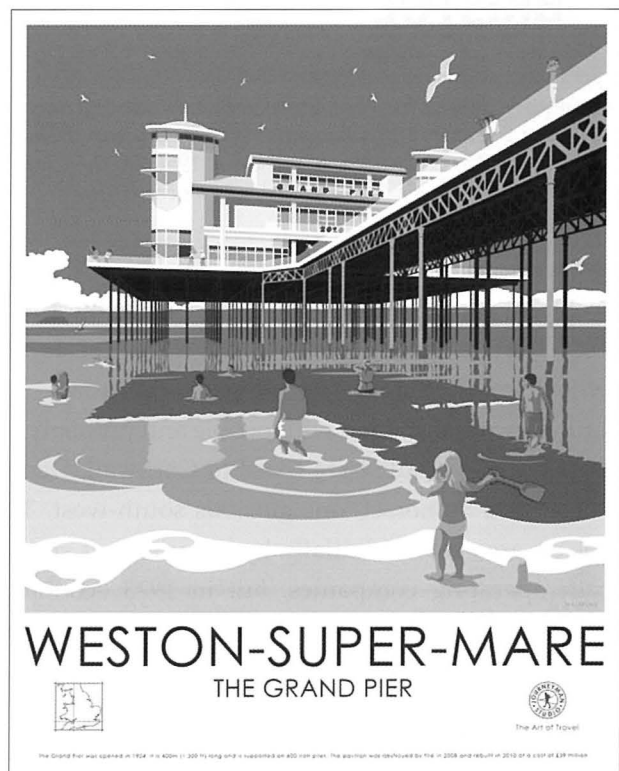
Poole Lido, SR, Cecil King 1929



Bournemouth by the Southern Sea, LSWR. Walter Hayward Young 1916

In bygone times, when there were no computers and photography had not been commercially perfected, posters were the main way messages were passed to passengers and holidaymakers. The use of artist-based posters faded after 1970 and photography replaced paintings, but recently there has been a marked return to artistic images for commercial advertising. The use of computer generated pictures has brought freshness and vividness to modern posters and the right-hand poster above, commissioned to celebrate the 2014 Weston-super-Mare poster extravaganza, shows the Grand Pier in full colourful glory. Created by Manchester-based artist Stephen Millership, it depicts the use of technology in classic advertising.

The following page features a trio of pictures taken on opening day, Friday March 18 2016. It shows one of the exhibition areas, VIP's taking in the nostalgia and the two exhibition organisers (left and right) with Eric Knowles (centre) after the formal opening. Paul and Richard would like to take the opportunity to thank Director Dr Jon Murden and his team for their support, time and attention-to-detail it took to make this a very successful event.



Weston-Super-Mare, The Grand Pier, Stephen Millership 2014



'Fishing the Wreck': the recovery of artefacts from the *Halsewell*, East Indiaman, 1786-2016

PHILIP BROWNE

Abstract

In January 1786, the *Halsewell*, East Indiaman, was wrecked near Seacombe on the Purbeck coast of Dorset. Since then, more than one thousand objects have been recovered from the wreck site but records of these finds and information about their present whereabouts remains fragmentary. This paper addresses that issue and, through a chronological approach, offers a coherent overview. Starting with the earliest salvage attempts by the East India Company and by local people, it goes on to consider the recovery of artefacts from the wreck site by modern divers. Although unable to supply a comprehensive catalogue, the paper describes the range and type of objects recovered, identifies the most significant finds and indicates where some can be seen today.

In January 1786, a ferocious storm drove the *Halsewell*, East Indiaman, onto the rocks between Seacombe and Winspit on the Purbeck coast of Dorset (Fig. 1). The story of what followed is well-known — how quarry men from nearby Worth Matravers saved 74 survivors by hauling them with ropes up a sheer cliff; how Captain Peirce chose to remain aboard the sinking vessel rather than leave his daughters and

the other 'young ladies' in his care; how the disaster became a *cause celebre* that triggered an emotional and artistic reaction, expressed through poetry, painting and theatre; how even King George III and his daughters felt moved to visit the wreck site.

Within hours of striking the rocks, the force of the waves had torn the *Halsewell* asunder. The local vicar, the Reverend Morgan Jones, described how 'the ship



Figure 1: 'The Wreck of the *Halsewell*' by Robert Dodd. (© National Maritime Museum, Greenwich, London)

was so entirely beat to pieces that nothing but the whole ocean covered with her fragments could have persuaded me that she had ever been put together'. In a colourful passage in which he describes seeing a tangle of rigging 'wound up like the entrails of an animal', he lists 'a confused heap of boards, broken masts, chests and dead bodies' on the face of the water 'as far as the eye could see'. (DHC, D/135942)

An East Indiaman of almost 800 tons had been reduced to its constituent parts and anything that did not float was now lying on the seabed in water up to thirty feet deep. As they stood on the cliff top and surveyed the scene of destruction, the people of Worth Matravers must have wondered what the ship had been carrying. Who knew what valuables her hold might contain? The wreck of a huge East Indiaman presented an exceptional opportunity for plunder if only one could get at it.

It was early in the sailing season and the *Halsewell* was outward bound. She was making for the East Indies, not returning with her hold stuffed with merchandise. Her lower decks were filled with 'human lumber', ninety recruits for the Company's militia at Calcutta and possibly some returning lascars. These were the Indian sailors who helped work the ships on the voyage back to England. Disease and desertion often reduced the original crews by up to 20% so lascars were essential to get the ship home safely. Having done so, they would then be shipped back to India. One newspaper reported that seventy lascars, returning to their families, had boarded the *Halsewell*. (*London Chronicle* 1786) If this was correct, none had survived.

More affluent passengers were accommodated in the stern of an East Indiaman, in the great cabin and in the captain's private quarters, known as the roundhouse. On *Halsewell*, this is where the seven young ladies in Captain Peirce's care resided. So, too, did Mr Schultz, a retired merchant who had made a fortune in Calcutta but was obliged to return there to attend to his finances. There should have been other passengers but they had remained ashore when *Halsewell* sailed from the Downs. The failed banker, Robert Graham, and his wife had been delayed by snow. Sir George Staunton had also booked a passage but, at the last minute, had changed his mind. (Meriton & Rogers 1786, 78-9) It was a decision that probably saved his life.

As soon as the ship hit the rocks, some on board thought about saving not only themselves but also their valuables. Mr Clothier, the surgeon, hung a bag of coins around his shoulders. A ship's officer gave a box of diamond rings to a sailor with instructions to return it to his family. The officer did not survive but, incredibly, the sailor carried out the task he had been entrusted with. (*Morning Chronicle* 1786)

Despite the efforts of the quarrymen, at least two-thirds of those on *Halsewell* would lose their lives. Many of the dead were buried in a mass grave near the top of the cliff but others were carried away by the currents and tides. By some quirk of these elements, over the next few days, the shoreline near Christchurch, 25 km away, was strewn with corpses. This was a windfall, or landfall, the local people could scarcely resist. The clothes of the dead were worth salvaging but their pockets might contain items of even greater value. One by one, the dead were stripped of everything they possessed.

The Times (1796) could not contain its disgust. It castigated the 'rapacious plunderers of the sea coast who are so devoid of humanity as to strip the bodies of the dead as soon as the waves have thrown them on the shore'. Despite the efforts of the local gentry, it was impossible to prevent the rapacity of these 'savage shore walkers'. (ibid.) With nothing to identify them, most of those buried at Christchurch Priory were unnamed. Only Captain Peirce's fourteen-year-old daughter and a handful of others would be commemorated with headstones.

Within forty-eight hours of the disaster, news of the shipwreck had reached London and the Company's headquarters in Leadenhall Street. There was shock in East India House as the Directors learned of the loss of their ship and the death of one of their most senior and respected commanders. When they were informed of the death of the young ladies, too, there was said to be not a dry eye in the house. But despite their grief, these same Directors were soon calculating the financial cost to the Company. If any cargo could be recovered, it would go some way to mitigating this loss. Within a week, a Company pilot yacht was dispatched from the Thames with orders to 'fish' the wreck. (*General Evening Post* 1786)

Besides her passengers, *Halsewell* had been carrying goods on behalf of the East India Company. There

were military supplies: boxes of uniforms for the 42nd Highland Regiment, chests of small arms, shot, cordage and other necessities for the army in India. (BL, APAC 1786) Much of this was probably already destroyed but some more robust items might still be saved. There were large sheets of copper, the ship's guns and anchors and, of course, there were chests of silver coin.

By the eighteenth century, rudimentary diving 'machines', developed by men like John Braithewaite and Charles Spalding, had already made it possible for men to work for sustained periods under water. Diving bells and other contraptions could be fed, through a tube, with air from the surface. This enabled a diver to remain underwater for up to an hour, long enough to attach ropes to cannons and other substantial objects. With perseverance and calm weather, much could be salvaged.

At first the weather declined to oblige. Rough seas continued well into January and the Company's yacht could do little more than mark the wreck site with buoys. It was decided to delay sending down any divers until the spring. But such conditions did not deter others. Guided by the buoys the Company had positioned over the wreck, boats from Poole and elsewhere began to converge on the site. At low tide, local people also scoured accessible parts of the shoreline for anything that might have been washed up.

Within a week of the disaster, James Lander, Collector of Customs at Poole Excise, wrote to the East India Company expressing his concerns. He promised to visit 'several places where I am informed large quantities of goods have been taken up and use my utmost endeavours to secure the same'. It would help, he added, if the Company would give him power of attorney because 'some of the goods are in the hands of obstinate people who I suspect will not give them up without such authority'. (BL, APAC, Misc Letters)

What these goods were, James Lander never stated nor do we know how successful he was in persuading 'obstinate people' to hand over what they had taken. It is difficult to estimate how much was now in private hands since almost none of it can be identified with any certainty today.

However, a few objects, said to be associated with the *Halsewell*, are still in the area more than two centuries later. Mr Treleven Haysom of Langton Matravers has a long-barrelled gun which has been in his family's possession for many generations (Fig. 2). This gun is often described as a musket though it may, in fact, be a fowling piece, possibly of French design (Haysom 2017). It was presented to a member of the Haysom family by Nathan Chinchin (1756-1840). The Chinchens have long been associated with local quarrying but Nathan was a Swanage merchant who also owned several boats (TNA, PROB 1840). In 1786, he was thirty years old and his boats may have been among those that unofficially 'fished' the wreck site. On the stock of the gun is a plaque naming the donor and the recipient, Francis Haysom, and stating that the gun came from the *Halsewell*. There is no other evidence to support this assertion and so the true provenance of the gun must remain in doubt but this circumstantial evidence does lend it some credibility. Francis Haysom, a stone mason, was born in Swanage in 1791 so it is unlikely that he was given the gun until well into the nineteenth century.



Figure 2: The Haysom gun, and (below) the inscribed band attached to it (Reproduced with the permission of Ed Cumming)

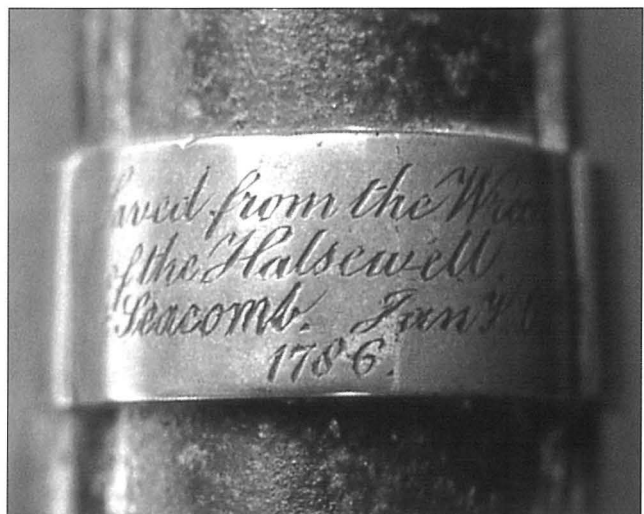




Figure 3: The mirror in St Nicholas Church, Worth Matravers. (Reproduced with the permission of Ed Cumming)

Another object, said to have been salvaged from the *Halsewell*, is a mirror with a coloured glass surround (Fig. 3). It may have belonged to a female passenger. Immediately after the wreck, the mirror was washed ashore and hidden among seaweed. Subsequently, someone searching the shoreline spotted it glinting in the sun. Barnabus Lowe, an Excise man from Winspit, took possession of the mirror but eventually passed it on to John Turner. From the Turner family it was later transferred to a Captain Reed. Finally, he donated the mirror to St Nicholas Church in Worth Matravers (Cumming 2007). For as long as anyone can remember, this mirror has hung inside the church above the entrance door. It is placed high up and is dimly lit but it is possible to make out the decorative panels around the frame.

A third object is currently in the keeping of Langton Matravers museum. This is a cupboard door with glass panels that is said to have come from a cabinet in Captain Peirce's quarters on the *Halsewell* (Fig. 4). For many years, this door was built into a cottage in Swanage until the building was demolished in 1977. It was then presented by a Mr J. Dean to the museum (Saville 2017). As with the mirror, there is little prospect of verifying its provenance. Nevertheless, it



Figure 4: The cupboard door said to be from the *Halsewell*. (Reproduced with the permission of Rodney Alcock)

is a long-held conviction on the part of local people and, as such, cannot be discounted entirely.

Whatever the truth about these objects, salvage efforts continued throughout the summer of 1786. A visitor to the area observed 'a number of boats employed in search of the wreck, which collected, during his stay, several pieces of copper, iron etc. He learned from the men, that an immense quantity of cargo had been, at different times, got up'. (*Morning Chronicle & London Advertiser* 1786)

However, the work was not easy and most freelance treasure hunters seem to have given up within a few months. In June, the *General Evening Post* reported that

The vessels that have been employed over the wreck of the *Halsewell* East-Indiaman, lost near Seacombe last winter, have had little more than their labour for their pains, so they have now desisted, as it appears there are large fissures in the rocks, into which the valuables have probably sunk, never more to be recovered.

(*General Evening Post* 10 June 1786)

Small valuables may well have proved elusive but the Company divers who had returned in the spring enjoyed greater success in recovering larger objects.

One 6-pounder and twelve 9-pounder carriage guns were brought to the surface, along with three large anchors and almost 100 sheets of the valuable copper. *Halsewell's* hold was far from full when she sailed so it had been necessary to carry plenty of ballast. Of this, nearly 300 'pigs' of lead and cast iron were also raised from the seabed. Even the ship's iron oven was recovered. All were conveyed to Poole Custom House for safe keeping by Mr Lander.

In December, the East India Company held an auction in Poole. It was advertised in various newspapers and catalogues were distributed from the New Antelope Inn. Listed with the items already mentioned were casks, barrels and chests; broken muskets, grapnels and iron hoops; cordage, Spanish hides and even stationery. No record survives of how much money was raised by the auction but one can imagine that it was well attended both by those hoping for a bargain and those still fascinated by the disaster. (*Public Advertiser* 1786)

From 1787 to the middle of the twentieth century, the *Halsewell* wreck site was left alone and it was only with the advent of scuba diving that it became practical for local people to search for the wreck once more. In the 1960s, one of the first to rediscover the site was local diver, Bob Wright. He remembers using cannon balls lying on the seabed as way markers to help him locate his position. Together with his brother Denis, he recovered the broken pintle — the large bronze pin or bolt on which the ship's rudder hinged — that is now in the collection of the Dorset County Museum (DCM) (Fig. 5). In 1967 other divers located one of the ship's cannons, as well as coins, cannonballs, lead shot, tackle and glass.



Figure 5: The broken pintle. (Reproduced with the permission of Rodney Alcock)

During the 1960s and 1970s, diving on the wreck was something of a free-for-all, difficult to regulate and almost impossible to monitor what was recovered. Some artefacts found their way to museums but others must have been sold to private collectors or retained by the finders. By the 1990s, the process was becoming more formalized and agreed procedures were being adhered to by most divers.

Towards the end of that decade, a group of divers had coalesced around David Allen and Ian Carruthers, committed to recording their diving activity and combining this with historical research. Following a meeting with the Receiver of Wreck, a *Halsewell* Project group was established in 1999 and a year later pioneered the 'Adopt a Wreck' scheme under the auspices of the Nautical Archaeology Society. This initiative led to a better understanding of the wreck site and the sharing of valuable information.¹

In 1998 a group of UK divers formed the Seadart Divers Association, based in Swanage. In accordance with good practice, everything they recover from the wreck is reported to the Receiver of Wreck at the Marine & Coastguard Agency. With their status as 'salvor in possession', Seadart are authorized to issue a certificate of authenticity with any objects from the *Halsewell* site that they sell. Their website shows some examples (Seadart 2016). In March 2016, a gold mohur, circa 1776, and several other coins from the Seadart collection were auctioned at Duke's of Dorchester (Duke's 2016, 49) (Fig. 6).

Another organisation that has explored the *Halsewell* wreck site comes from further away. Eight divers from the Northampton British Sub Aqua Club

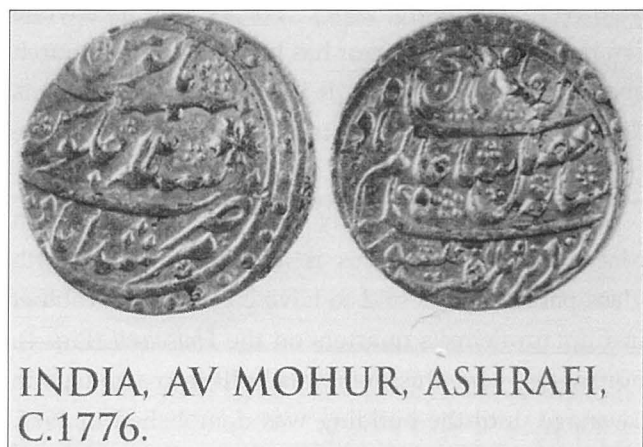


Figure 6: The gold mohur coin, auctioned in March 2016. (Reproduced with the permission of Dukes of Dorchester/ Jonathan Gooding)



Figure 7: *Quilted grapeshot.* (Reproduced with the permission of Ron Howell.)

(NBSAC) first began recovering finds in 1985. An account of their activities over the next five years and images of some of the artefacts they recovered feature on a website maintained by a member of the club. (NBSAC 2016) Significant among these finds is a rare example of quilted grapeshot (Fig. 7). Following the discovery of the 'Salcombe wreck' in Devon, this group discontinued their activity on the *Halsewell*.

A final group of divers worthy of mention is the South West Maritime Archaeological Group (SWMAG). It has fourteen members, including several from NBSAC, all of whom operate within the legislative framework in the UK. The Group works closely with the Receiver of Wrecks, English Heritage and The British Museum. One member of SWMAG is Dave Parham, associate professor and head of Maritime Archaeology at Bournemouth University (SWMAG 2016).

Under Professor Parham's leadership, Bournemouth University carried out the first archaeological survey of the wreck site in 2016. Working in collaboration with the National Trust and the Maritime Archaeology Sea Trust (MAST), it was possible to confirm the position of the site using magnetometer diver searches and record the extent of the wreck to ascertain its complete distribution. A number of small items were also recovered and can be seen on the MAST website. (MAST 2017)

Given the variety of groups and individuals that have dived on *Halsewell* over the last half-century, it is hardly surprising that no comprehensive catalogue of finds exists. Nevertheless, the best starting point is to consult the list of objects reported to the Receiver of Wreck. This is contained within an Excel spreadsheet (Kentuck 2013). Despite the fact that many finds are not reported and, therefore, do not feature on

this spreadsheet, the file records at least 1,400 items relating to the *Halsewell*. These are found within forty-three separate entries, each entry containing multiple random objects, some of them very small. It is beyond the scope of this paper to itemize every object listed on the spreadsheet. However, by grouping objects into broad categories and offering some general statistics, the reader will gain some understanding of the range and quantity of what has been recovered.

One category of object concerns coins of which there is a considerable variety. George III gold guineas, half crowns, shillings and a silver four-penny piece rub shoulders with 89 Spanish 8-reales (Fig. 8), fifteen Dutch lion dollars and a further 130 pillar dollars, some marked 'Carolus III'. There are also silver rupees and a bronze 'Asian' coin. To find such variety on an eighteenth-century Indiaman should not surprise us. Other European trading companies were active in India and currency exchange rates were stable. Whether of Spanish, Dutch or English origin, silver and gold coins were essential ingredients of trade.

Among what might be classified as 'personal items', approximately 50 objects are listed. There are gold and silver buckles, silver brooches, pendants, rings, a gold pocket watch and several winders (Fig. 9), broken jewellery, collar studs, cufflinks and silver plated buttons. There are also toothbrushes, a toothpick and cut-throat razors. There are a further twenty-five items of silver and pewter cutlery including an elegant fruit knife. It is impossible to know how many of these objects were the possessions of individuals on board or were carried as items of trade. Such things were sought after by Europeans living in India and, consequently, would have had a dependable retail value.



Figure 8. *Spanish 8 Reales.* (Reproduced with the permission of Seadart)

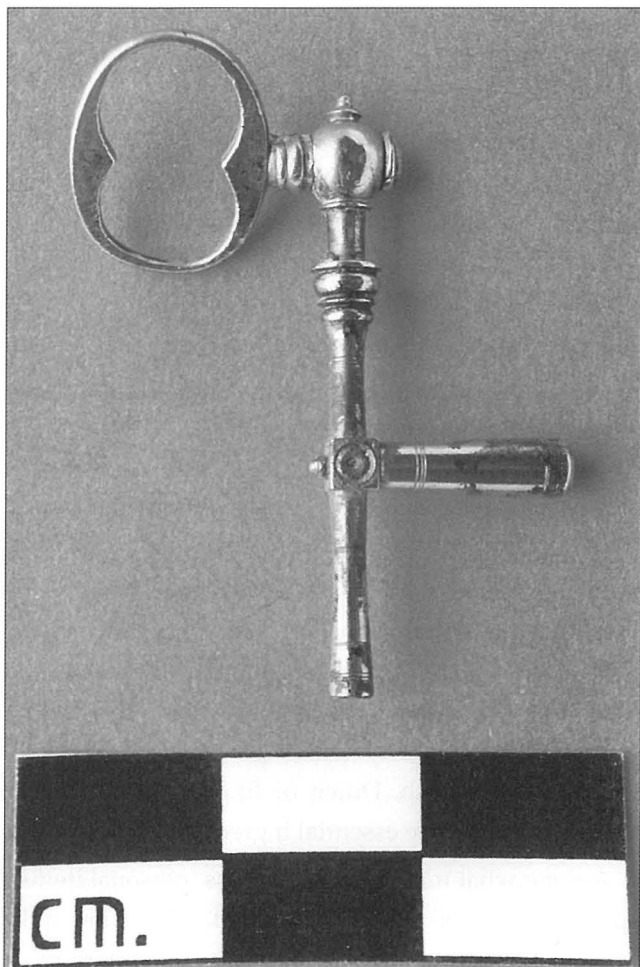


Figure 9: Gold pocket watch winder. (Reproduced with the permission of Ron Howell)

Glassware includes bowls, jars, broken wine bottles, a pane of glass from the stern windows and even a glass flytrap. Then there are furniture fittings such as drawer handles, knobs and hinges, hooks, castors, and brass panels. In total, there are approximately 300 items in this category. It is possible that *Halsewell* was carrying items of furniture to trade but, given the number of furniture fittings recovered, it is likely that some of these were carried loose so that furniture, made locally in India, could be 'Europeanised'.

We know that *Halsewell* was carrying Company recruits and military supplies, including weapons, so it is no surprise to find listed: cannon balls, grapeshot, ramrod guides, trigger guards, musket barrels and the wooden butt of a 'brown Bess' musket with its brass butt pad still attached. More than 300 items fall within this category. In addition, a large number of tunic buttons have been recovered, possibly from the army uniforms that were being transported.

The spreadsheet lists some objects that probably came from the ship itself. Approximately 5 kg of ship's nails

have been recovered, along with caulking tools, pulley wheels, padlocks, cask spigots and barrel taps.

Lastly, there are some objects that are difficult to classify. More than 100 separate pieces of printers' movable type and print spacers are listed, suggesting that the *Halsewell* was carrying supplies for a printing works in India. Also destined for India are some merchants' brass weights, one weighing 3 kg. Finally, there are seven ivory chess pieces. Possibly, these chess pieces are from the same set as those held by the Weymouth and Dorset County museums.² They may have belonged to a passenger or crew member and are a poignant reminder of the human story that lies behind this study.

To see examples of many of the objects described so far, the reader should consult '*Three English East Indiamen Wrecked off the Dorset Coast*' (Cumming 2007) This 'shipwreck trilogy' is an impressive resource that features the *Halsewell*, the *Abergavenny* and the *Alexander* East Indiamen. Edited and compiled by Edward Cumming and available digitally as a CD-ROM, it reproduces primary documentary information about the *Halsewell* as well as many photographs of objects recovered from the wreck. These are categorised according to which group of divers was responsible for finding them.



Figure 10: The sand glass (Reproduced with the permission of Dorset County Museum)

Unfortunately, it is only possible for the public to see a small number of the actual objects themselves. The best displays are at the Dorset County Museum in Dorchester and at Weymouth Museum on Brewers Quay. Other finds from the *Halsewell* can be seen at the Swanage Exhibition Centre and the *Square and Compass* public house in Worth Matravers.

Probably the most iconic object in the collection of the Dorset County Museum is an intact four-hour sand glass from the *Halsewell* (Fig. 10). It was donated to the museum in 1894. When not on display, it can be seen on the website *'Dorset & the Sea: Smuggling & Shipwrecks'* compiled by Linda Poulsen (SWGfL undated). Like the mirror in Worth Matravers church, the sand glass must have been discovered soon after the shipwreck. Given the fragile structure of this glass object, its survival is remarkable. The likely explanation is that it was washed ashore on a cushion of seaweed that protected it like bubblewrap.

Other significant objects in the DCM collection are the broken pintle and some of the chess pieces (Fig. 11) already referred to. There are furniture fittings – hooks, hinges, castors and candle holders – padlocks and cask spigots. There are parts of wine bottles, a spoon and a well-preserved fruit knife. The knife was recovered by Bob and Denis Wright and donated to DCM in 1975. It has a mother of pearl handle and a silver blade (Fig. 12). The manufacturer's mark shows it to have been made by John Winter of Sheffield in 1784. Also in the collection are a number of machine-turned brass alloy (tombac) buttons and an intriguing silver button, engraved with the initials TB (Fig. 13). It is possible that the silver button may have belonged to Thomas Burston, chief mate on the *Halsewell*. This button was recovered by the diver, Wally Hammond, and lent to the museum by David Allen's widow, Mrs Val Read.

At Weymouth Museum, when it reopens after refurbishment, visitors will be able to see a glass bird feeder (Fig. 14), a glass phial, more chess pieces and several well-preserved cufflinks (Fig. 15). One pair of cufflinks is deserving of particular attention. Etched on its surface is the image of a balloon, inflated by hydrogen rather than hot air, with its basket suspended below. Two flags are flying from the basket (Fig. 16).

It is highly probable that the image commemorated a recent, notable event. In 1785 Monsieur Blanchard

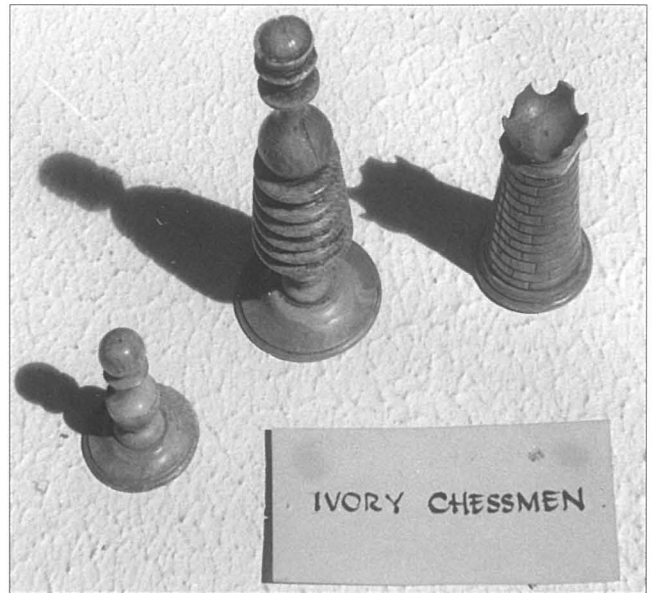


Figure 11: Chess pieces (Reproduced with the permission of Dorset County Museum)



Figure 12: The fruit knife (Reproduced with the permission of Dorset County Museum)



Figure 13: 'T.B.' button (Reproduced with the permission of Dorset County Museum)



Figure 14: The bird feeder. (Reproduced with the permission of Ed Cumming)

and a fellow balloonist had travelled by hydrogen balloon from Kent to France. In effect, this was the first instance of international air travel from the British Isles. It had attracted considerable public interest at home and abroad so objects depicting it would have been in demand. It is possible, therefore, that these cufflinks were destined for the salesrooms of Madras or Calcutta.

Near Swanage Pier, on the ground floor of Marine Villas, there is an exhibition centre devoted to Swanage memorabilia, the local stone industry and maritime history. In one corner, featuring shipwrecks, there is a modest display of artefacts from the *Halsewell*, recovered and donated by local divers. The display case contains lead musket balls, trigger guards and other pieces of musket furniture. There are also some coins, nails and other metal fragments.

A few miles away at Worth Matravers, in the Square and Compass public house is a small private museum, devoted mainly to fossils (Newman 2017). Contained within the museum is a wall-mounted display of objects found locally and thought to have come from the *Halsewell*. The display includes pewter



Figure 15: Cufflinks (Reproduced with the permission of Ed Cumming)



Figure 16: Balloon cufflink (Reproduced with the permission of Ed Cumming)

spoons, furniture handles, musket trigger guards and scouring-stick holders, various ship's fittings and some buttons.

Just outside the Square & Compass is the barrel of a small 2-pounder gun. This gun was said to be "recovered from the sea off the Isle of Purbeck" in the mid-1970s (LePard 2002, 112). If it was originally on the *Halsewell*, it will not have formed part of the ship's regular armaments but may have been among the military supplies she was carrying. On Hedbury Quarry, near the wreck site, is another larger gun barrel (Fig. 17). It is much corroded, having evidently been in the sea a long time. The barrel has a bore of 120mm



Figure 17: Cannon on Hedbury Quarry (Reproduced with the permission of Ed Cumming)

and may be from one of *Halsewell's* 9-pounder guns. Although this is the most likely explanation, attempts to confirm such a link have proved inconclusive, so far (BU 2017, 10).

Occasionally, the catalogues of auction rooms list other items, claiming to be from the *Halsewell*. In 2006, a William and Mary single drawer side table was auctioned in Tetbury, Gloucestershire. It contained a label stating that it had also been saved from the *Halsewell*. An image of this table can be found on the Shipwreck Trilogy CD-ROM (Cumming 2007).

It remains to be seen if any more *Halsewell*-related objects come to light. When researching my book, *The Unfortunate Captain Peirce and the Wreck of the Halsewell* (Browne 2015)³, I paid particular attention to the private trade that was being carried on her final voyage. I knew that Richard Peirce had invested heavily in merchandise that he hoped to sell on his own personal account when he reached Calcutta. I discovered that he was taking stationery, paintings and engravings, artists brushes and paints, concave razors, ladies dresses, shoes and stockings and a considerable investment in silver shoe buckles set with diamonds. The shoe buckles had been obtained on sale-or-return from Bourne & Hawkins jewellers in Cheapside. Their loss would result in a court case that would cause the widowed Mrs Peirce much emotional and financial distress. (TNA, KB, 1791) Finally, Captain Peirce had been entrusted with a ceremonial silver sword to be delivered to a Captain Cathcart on behalf of the East India Company (Saletore, 280).

As far as I am aware, this sword, the diamond-encrusted shoe buckles and most of the other items in Peirce's private trade are still undiscovered. And they are likely to remain so. Erosion from the Portland stone cliffs is ongoing (West 2010) and it is thought that rock falls have covered much of the wreck site and buried what lies beneath. However, the 2016 survey by the University of Bournemouth may yet lead to fresh discoveries. It is possible that, in the future, the *Halsewell* will have more secrets to reveal.

ACKNOWLEDGEMENTS

The author is grateful to the following people for their help in correcting several inaccuracies, providing photographs and for their advice and support in general: Rodney Alcock, Jessica Berry, Ian Carruthers, Edward Cumming, Ron Howell, Dave Parham, Linda Poulsen, Reg Saville, Bob 'Seadart' and Peter Woodward.

ENDNOTES

1. The successor to the *Halsewell* Project group is the Weymouth Land & Underwater Nautical Research (LUNAR) Society which won the 2005 'Adopt A Wreck' award for its work on another East Indiaman, the *Abergavenny*.
2. Following the book launch of *The Unfortunate Captain Peirce and the Wreck of the Halsewell* (Browne 2015) in December 2015, the chessmen were displayed together in a temporary exhibition at the Dorset County Museum.
3. *The Unfortunate Captain Peirce and the Wreck of the Halsewell 1786* was reviewed by Jill Minchin (2016) in Volume 137 of the *Proceedings of the Dorset Natural History and Archaeological Society*.

ABBREVIATIONS

APAC	Asia, Pacific & Africa Collection, British Library
BCN	Burney Collection Newspapers
BL	British Library, St Pancras, London
BU	Bournemouth University
DCM	Dorset County Museum
DHC	Dorset History Centre
KB	Court of Kings Bench
MAST	Maritime Archaeology Sea Trust
NBSAC	Northampton British Sub Aqua Club
PROB	Prerogative Court of Canterbury
SWGfL	South West Grid for Learning
SWMAG	South West Maritime Archaeology Group
TNA	The National Archive

REFERENCES

Archives

- BL, APAC, Court Minutes, B102, 21 Feb 1786.
BL, APAC, Miscellaneous Letters, E/1/78 letter by J. Lander dated 13 Jan 1786
DHC, D/135942 Rev Morgan Jones account of the wreck, 1786.
TNA, KB122/596 Court of King's Bench, Bourne and Hawkins v Peirce, 1791.
TNA, PROB 11/1932/76, will of Nathan Chinchin, 1840.

Primary Sources – Printed

- BL, BCN:
General Evening Post, No 8143, 12-14 January 1786
General Evening Post, No 8208, 10 June 1786
London Chronicle, No 4548, 12 January 1786
Morning Chronicle, No 5205, 19 January 1786
Morning Chronicle & London Advertiser, No 5400, 5 September 1786
Public Advertiser, No 16404, 18 December 1786
The Times, No 331, 16 January 1786
Meriton, H. & Rogers, J., 1786. *A Circumstantial Narrative of the Loss of the Halsewell*, 8th edn, William Lane, London.

Secondary Sources

- Browne, P., 2015. *The Unfortunate Captain Peirce and the Wreck of the Halsewell, East Indiaman, 1786*. The Hobnob Press, Gloucester.
Bournemouth University & MAST, 2017. *Geophysical and Diver Survey Report on the HEIC Halsewell for the National Trust, Purbeck Interim report*. MAST, London.
Cumming, E. (ed.), 2007. 'Three English East Indiamen Wrecked off the Dorset Coast'. [CD-ROM]. MIBEC Enterprises, London.
Duke's Auctioneers, 2016. *Coins and Militaria: Thursday 10*

March. Duke's, Dorchester.

- Haysom, T., 2017. Conversation with Philip Browne, 20 January.
Kentuck, A., 2013. E-mail to Philip Browne, 19 November.
Le Pard, G., 2002. 'A cannon from the sea off Purbeck'. *Proceedings of the Dorset Natural History and Archaeological Society* **123**, 112-13
Saletore, B. (ed), *Fort William Correspondence 1782-1785*, Vol IX. British Library, London.
Saville, R., 2017. Conversation with Philip Browne, 27 January.

Online Sources: Websites

- Maritime Archaeology Sea Trust [online]. Available at <http://www.thisismast.org/eeic-halsewell.html> [Accessed 1 February 2017].
Newman, C. [online]. Available at <http://squareandcompasspub.co.uk/index.php/fossil-museum.html> [Accessed 1 March 2017].
Northampton British Sub Aqua Club [online]. Available at <http://www.respondsites.co.uk/halsewell/> [Accessed 2 February 2017].
Seadart Divers Association [online]. Available at <http://www.seadart.net/index.html> [Accessed 2 February 2017].
South West Grid for Learning *Dorset & the Sea: Smuggling & Shipwrecks* [online]. Available at http://dorsetsea.swgfl.org.uk/html/galleries/shipwrecks/s_halsewell.htm [Accessed 15 February 2017]
South West Maritime Archaeology Group [online]. Available at <http://www.swmag.org> [Accessed 3 February 2017].
West, Ian, 2010, [online]. Available at <http://www.southampton.ac.uk/~imw/Winspit-Seacombe.htm> [Accessed Feb 2017]

The development of Dorset's harbours in the fourteenth and fifteenth centuries

MARK FORREST

Abstract

The harbours of Poole, Melcombe Regis, Weymouth and Lyme Regis all suffered from plague, French raids and storm damage in the late fourteenth and early fifteenth centuries. Their decline had a negative impact on the economy of the whole of Dorset and their recovery in part depended upon economic conditions elsewhere in the county. There was a shift from wool exports to cloth in the period 1350-1500 and Poole was a better situated harbour than Melcombe Regis and Weymouth for this altered trade pattern, resulting in the transfer of Staple Port status from Melcombe to Poole in 1433. Community cohesion and external investment in infrastructure benefited Poole and Lyme Regis and their absence at Melcombe Regis and Weymouth contributed to their much slower recovery.

Introduction

The changing economy of Dorset in the fourteenth and fifteenth centuries has received little attention and no major studies focus upon the county's development in this period. The coastal towns and overseas trade in particular have received little attention compared with adjacent counties (Childs 1997, 272-73). Several important archaeological reports and town histories have summarised the printed sources without drawing comparisons between the towns or examining unpublished manuscripts (particularly Penn 1980; Horsey and Jarvis 1992; Crump 2015, Smith 1948; Sydenham 1839). The rise and fall of the fortunes of Dorset coastal towns reveals changes within the economy of the county and region and assist in explaining economic trends elsewhere in the county. The Dorset chalk downs consistently received particularly high tax rebates for the fifteenth and tenth in the mid fifteenth century, while those in Marshwood and Blackmore Vales were consistently low, and the coastal towns Lyme Regis and Melcombe Regis received some of the highest national reductions (Forrest 2017, 443-44). Examination of rural communities through the comparison of manor court rolls, accounts, rentals and poll tax returns for selected places has revealed a tentative chronology for the contraction of settlements on the chalk downs (Forrest 2013, 68-82). But, this evidence is not available for the majority of villis, nor does it reveal the exogenous pressures and opportunities that arose through wider trading networks.

The economy of medieval Dorset was mixed and varied; there was good quality arable in Blackmore Vale, wool was produced throughout the county and sheep flocks increased, from the early fifteenth century,

on the high chalk downs running from Cranborne chase in the north-east to Eggardon in the south-west and back along the coast to Purbeck (Taylor 2004, 110-25). The wooded hills of Marshwood Vale in the west were more suited to dairying. Heaths in the south-east and far west, at Canford, Wareham, Winfrith and Powerstock, provided open pasture and timber. Cloth production was centred on Sherborne from 1400 or earlier, while Bridport was a national centre for rope production, Purbeck marble was used as far afield as Westminster Abbey, but the trade in Portland stone appears to have ceased as demand contracted after 1350 (Betty 1970, 46; Pahl 1961, 143-46). The salt pans in Poole bay added to the variety of production within the county and presumably supplied domestic fisheries (Keen 1988, 25-8). In this mixed economy a range of arable and manufactured products were available for export and coastal trade.

For much of the fourteenth century and into the fifteenth Melcombe Regis was a Staple Port, responsible for the collection of customs on wool and other goods under the direction of a Controller appointed by the Crown. Poole, Lyme Regis, Wareham, Lulworth, Weymouth and Charmouth, but not Bridport, were all classified as sub-ordinate creeks reporting to the Controller in Melcombe. Occasionally the Devon creeks of Seaton and Ottermouth were also included within the orbit of the Dorset Staple Port. In 1433 the office of controller of customs and the Staple Port status was removed from Melcombe Regis to Poole where it remained into the sixteenth century (DHC DC/PL/A/1/5/1).

The most significant exports throughout the fourteenth and fifteenth centuries were wool and cloth which are reported in the enrolled customs accounts.

These provide an overarching set of summary records through which Dorset's exports can be examined over a long period (Carus-Wilson and Coleman 1963, 1-18; Jenks 2004-2013). The accounts provide county summaries of the quantities of wool, cloth, wine and other goods upon which duty was paid with occasional reference to the individual harbours through which the trade passed. Wool and cloth were the principal exports for which the surviving customs accounts are summarised in figure 1. Wool was exported in large quantities before the Black Death, although for much of the first half of the fourteenth century the customs were farmed, or leased to a collector who paid a set fee and retained any additional profits, and returns were not audited at the Exchequer. The survival of only a couple of isolated accounts between 1350-70 makes it impossible to track the immediate impact of the plague on wool exports. The decline of exports in the 1380s and 1390s marks a period of local crisis that caused problems for all of the Dorset harbours, discussed below, and thereafter the gradual contraction in wool

exports during the fifteenth century is similar to trends in adjacent counties.

Nationally exports of cloth experienced a considerable slump between 1440 and 1480 (Hatcher 1996, 237-72). In the major centres of production in Wiltshire the cloth industry followed this pattern (Hare 2011, 202-11). However, at this time there was some slow growth in Devon manufacturing (Kowaleski 1995, 24-7). In Somerset there was growth in production in rural communities, but to some extent this is counter balanced by decline in some towns (Hare 2003, 173-79). The Dorset harbours probably exported cloths produced in all three counties, but the Devon trade was mainly through Exeter, Totnes, Dartmouth and Plymouth, while the Wiltshire cloths were usually exported through Southampton and later London. Dorset's principal trade is likely to have been in cloth produced within the county and a share of the enormous quantity produced in south and east Somerset (Gray 1924, 30-32).

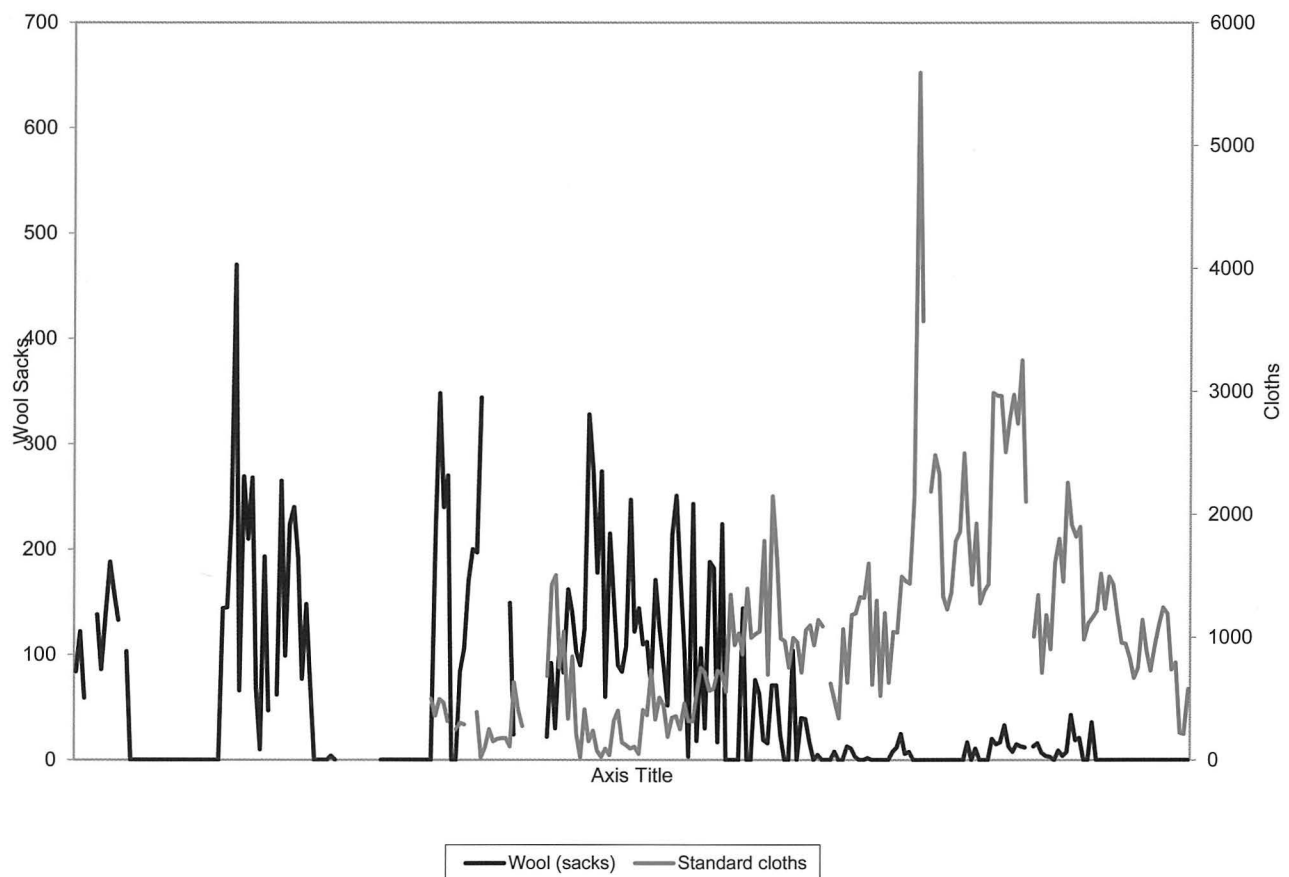


Figure 1. Exports of wool and cloth through Dorset harbours 1280-1547. Figures from Carus-Wilson and Coleman England's Export Trade, supplemented by additional material from Jenks Enrolled Customs Accounts. Note that Melcome Regis did not have the right to oversee the wool custom for the whole period 1287-1433: during the years 1294-1314, 1341-1343 and 1353-1374 the exports from the Dorset harbours were accounted at Southampton or Exeter, 1343-1350 all ports were farmed for a set fee and no accounts were returned.

The Dorset Harbours 1280-1370

The particulars of account maintained by the customs controllers provide some details of Dorset wool exports before 1350 (TNA E122/102/2-6) (Map 1). In the early fourteenth century some trade was conducted by masters and merchants from the west with ships arriving at Dorset harbours captained by men from Chepstow and Bristol, carrying wool owned by merchants from the west coast including Cardiff and Beaumaris. Melcombe was the home harbour for most Dorset captains with twelve ships in the customs accounts between 1314 and 1325. Other English masters were based in Lyme Regis, Wareham, Brownsea Island and Southampton. Cherbourg is the only French harbour from which ships visited Dorset. This is a small sample, but it is reasonable to assume that, before the Black Death, Melcombe Regis was the most significant Dorset harbour, that there was considerable contact with Bristol and that Cherbourg was the most important continental trading partner besides Calais.

The relationship between the Dorset harbours and northern France was always critical to their prosperity. While the wool trade was managed through the Port

of Calais, cross Channel carriers maintained a constant exchange of commodities, the enrolled accounts record goods valued between £100 and £500 imported annually, principally from France. Trade and prosperity flourished in times of peace, but the loss of trade in times of war was compounded by the additional expenses arising from the burden of supplying ships and men for expeditions and retaliatory raids. Swanage, Studland, Herston and Whitecliff in east Purbeck as well as the Isle of Portland were successful in their pleas for rebates from the ninth following French raids in 1338 or 1339 during which Portsmouth and Southampton were also attacked (Page 1908, 185).

The relative importance of wool and commodities passing through the different Dorset harbours in the fourteenth century is difficult to assess, in part because for much of the fourteenth century Dorset's exports were accounted with those from Southampton or Exeter. Analysis of the destinations of ships carrying wine from Bordeaux shows that Dorset harbours imported much less than Devon, but Melcombe Regis, and particularly Lyme Regis and Wareham



Map 1. Origins of ships paying customs duties on wool and cloth in Dorset harbours 1314-1325 (blue, sample size 55 ships) and 1377-1404 (red, sample size 66 ships). Source: Dorset particulars of account in the E122 class at The National Archives

imported significant amounts: 61 ships left Bordeaux for Dorset in 1307-09 and 1310-11, whereas 178 were destined for Devon and 31 for Cornwall (Childs 1997, 278). The enrolled accounts show that Melcombe Regis exported 77 sacks of wool in the year 1348 before the plague arrived (Jenks 2005, 410). At Melcombe Regis and elsewhere linen cloth, wine, raw materials and manufactured goods arrived on incoming vessels: the goods of aliens to the value of £171 were imported at Lyme Regis in 1347, although the summary accounts do not describe what these good were (Jenks 2005, 392).

In the first half of the fourteenth century Lyme Regis and Melcombe Regis were considered the principal Dorset harbours. This was recognised in 1286 when the new town of Gotower was planned on the south side of Poole bay and the burgage plots were granted with the same rights and privileges 'enjoyed by the merchants of Lyme Regis and Melcombe Regis' (CPR 1893, 217). Gotower did not become established: Poole had already begun to replace the Anglo-Saxon walled town of Wareham as the main harbour in the east of the county. Poole began to establish itself as an independent harbour from 1252 when a charter granted the burgesses all manner of liberties and free customs including their goods free from toll and the right to elect six burgesses and a port reeve (DHC DC/PL/A/1/1/1; Sydenham 1839, 154-59; Smith 1948, 130-50). Wareham was swiftly eclipsed and does not appear in the lists of harbours to which wine was exported from Bordeaux after the Black Death (Childs 1997,

278). In 1334 the Dorset harbours were prosperous: Melcombe Regis was second only to Shaftesbury in the county assessment of the fifteenth and tenth, and this was paid by a relatively small number of wealthy taxpayers, presumably the merchant elite (Fig. 2). Lyme, Weymouth and Wareham ranked sixth, seventh and eighth, again with relatively small numbers of taxpayers making large contributions. In 1334 Poole was assessed at £2 6s. for the fifteenth and tenth: a quarter of the assessment for Melcombe and a third of that for Lyme; it was clearly the least significant of the three harbours. But, it enjoyed some continental trade: in 1347 the customs officers accounted for goods of alien merchants to the value of £174 passing through the harbour and in the same year 141 sacks of wool were exported from Poole, Wareham, Swanage and Lulworth (Jenks 2005, 392).

In the immediate aftermath of the plague the Dorset harbours continued to export large quantities of wool: over 150 sacks in 1350, 63 sacks and 507 sacks in two accounts enrolled during 1351, 147 sacks in 1366 and 435 sacks in 1367 (Jenks 2005, 418 and 480). These accounts provide no indication of the harbours from which the wool was exported. An absence of evidence to the contrary suggests that all of the harbours shared in this relatively prosperous period. Melcombe Regis was clearly regarded as an expanding centre in 1365 when, in addition to the wool custom, it gained control of the cloth custom which had previously been managed from Southampton (Carus-Wilson and Coleman 1963, 8-9).

<i>Towns and boroughs ranked as 1334 assessment with 1523 rank in brackets</i>	<i>1334</i>	<i>1523-1525</i>
Shaftesbury (3)	£20 0s. 0d.	£59 11s. 7d.
Sherborne* (4)	£11 3s. 0d.	£32 11s. 0d.
Bridport (6)	£9 19s. 5d.	£18 18s. 2d.
Melcombe Regis (10)	£9 10s. 0d.	£6 3s. 2d.
Dorchester (2)	£9 4s. 4d.	£76 16s. 8d.
Lyme Regis (8)	£8 10s. 0d.	£10 10s. 6d.
Weymouth (11)	£6 10s. 0d.	£4 8s. 10d.
Wareham (5)	£6 7s. 0d.	£26 11s. 6d.
Poole (1)	£2 13s. 10d.	£92 16s. 1d.
Blandford Forum (7)	£2 3s. 0d.	£18 12s. 10d.
Corfe Castle (9)	£2 3s. 0d.	£7 11s. 2d.

Figure 2. Sums payable by Dorset boroughs and Sherborne in 1334 and 1523-1525. ¹ These two taxes were assessed by different methods are not directly comparable. However, the ranking order of the towns is indicative of their relative prosperity at the point of assessment.

*Sherborne includes the assessments for Abbots Fee, Newland and Houndstreet

The Crisis Period 1348-1410

The chronicles of the Franciscans of Kings Lynn and the monks of Malmsbury Abbey report that the Black Death entered England first through Melcombe Regis on the ships of Gascon merchants (Horrox 1994, 63). The consequent demographic decline was likely to have been at least as severe in the Dorset coastal towns as in the manorial communities for which there are records (Forrest 2010.1, 3-13).² From 1377 until 1388 the bailiffs of Melcombe Regis repeatedly petitioned that the town had been burnt by the enemy, causing great impoverishment and the 'withdrawal of many inhabitants' (TNA SC 8/19/922-4 and SC 8/125/6206). The town was particularly vulnerable because it was located on an isolated promontory (Dorset County Council 2011.1, 27-28). It also had to contend with disputes with Weymouth which punctuated the history of the settlements on opposite sides of the river Wey. Always uneasy neighbours a dispute over ownership of the channel arose in 1367 as Weymouth sought to appropriate a greater share of the trade by charging tolls upon any vessel entering the mouth of the river (CPR 1912, 444). To add to Melcombe's difficulties the customs officials, who might have taken a lead in resolving such disputes, instead milked their offices and in 1395 a commission inquired as to misappropriation of customs by the customer Richard Laton in all of the Dorset harbours. The remaining population was unable to pay the fee farm which in 1388 was cancelled for seven years and thereafter reduced. Successive petitions to Parliament during the heavy taxation imposed by Henry IV and Henry V, through the fifteenths and tenths, saw the town's assessment reduced first from £9 10s. 0d. to 13s. 4d. and then to 3s. 4d. (CPR 1903, 170; PRO 1907, 74; TNA E179/364/135).

Lyme Regis had been granted three years keyage for the repair of the Cobb in 1344, ensuring that it was in good condition on the eve of the plague (CPR 1902, 217). But, by March 1377 an inquiry found that only twenty-nine tenements remained inhabited and paid a rent of £3 11s. 3d., diverse tenements, although ruinous, still yielded £1 18s. 1d., but seventy-seven tenements with an annual value of £3 18s. 0d. had been recently destroyed by the sea and a further seventy-one, with rents of £4 4s. 4d. remained vacant from plague and depopulation (TNA SC6/832/22). Nine tenths of the

properties in the town stood empty and two thirds of the rents could not be collected. Destruction by the sea presumably included landslips in the surrounding unstable cliffs and the loss of part of the town to coastal erosion as well as damage to the Cobb (Dorset County Council 2011.2, 26-7).

In 1377 Lyme had not been subjected to hostile raids, but in 1405 the burgesses claimed that it 'was so wasted and burned by the attacks of the sea and the assaults of the King's enemies and frequent pestilences that scarcely a twentieth part of it is now inhabited or occupied, whereby the present inhabitants are poor and few and not sufficient to pay the farm or tenth or a twentieth part thereof' (CPR 1905, 510; PRO 1909, 202; PRO 1910, 140). No doubt there was some exaggeration by the burgesses and Crown enquiries were not given to accepting such claims at face value. When the fifteenth and tenth was reduced from £9 10s. 0d. to 6s. 8d. and the fee farm from £8 to £1 it was as the result of a rigorous inquiry that found 'many tenants and inhabitants have left the town and merchants and others who used to come there have withdrawn' (CPR 1909, 202). The rebates achieved by Lyme Regis and Melcombe Regis were extraordinarily high. The Welsh border towns devastated by Owen Glyn Dwr received much smaller rebates, which were granted following extensive scrutiny, and quickly reduced as they recovered (Watt 2008, 59-72). The reductions allocated to the two Dorset harbours were sustained until the general rebate was made to compensate for changes in economic circumstances in 1433 and from this date they continued to be allowed in addition to Dorset's proportional allowance from the national reduction. Andover, in Hampshire, is one of a handful of towns that received a similar rebate in 1433, when the town burnt to the ground, but its allowance was halved in the next grant, whereas the rebates for Lyme Regis and Melcombe Regis were sustained into the following century (Forrest 2017, 444). By this national measure these towns experienced unprecedented difficulties which resulted in a decline in their circumstances more severe than anywhere else in southern England.

Poole, naturally sheltered from the open sea, appears to have escaped storm damage in the late thirteenth century. However, the town was subject to a damaging raid by French and Spanish forces in 1405, chronicled by Gutierre Diaz de Games, the biographer

of the expedition's commander Pero Nino (Evans 2000, 50-52). At this date Poole was clearly known on the continent as a base for traders, pirates and pilgrims: it had a substantial warehouse and munitions store which was used as a strong point during the assault (Childs 1997, 283). The raid is not mentioned in any English sources: it probably did not cause sufficient damage to warrant external assistance and as Games's account makes clear several communities along the south coast were attacked in the same raid; including Portland which appears to have suffered more serious damage. Communities all along the south coast considered themselves vulnerable in the late fourteenth and early fifteenth centuries.

Reconstruction, 1410-1460.

Bridport tried to attract some of the ships that were unable to use Lyme Regis and Melcombe Regis. It is the only Dorset harbour with a substantial set of records relating to reconstruction. Formerly a significant harbour in the thirteenth century and a centre of rope production it continued to have maritime contacts. In 1393 Letters Patent were issued allowing the town to retain part of its portage duty towards construction costs (DHC DC/BTB/N/3). A considerable amount of money was raised locally, in part by indulgences granted by the archbishops of Canterbury and York as well as by local bishops and by preaching in Dorset and other counties in the south-west (DHC DC/BTB/N/4-9). The fundraising, supported by the clergy, extended over southern England for several years, John Greyve was appointed as chief collector in Kent and Essex in 1447 and he replaced a sub-collector in the West Country the following year (DHC DC/BTB/N/10). No doubt the local fishing trade increased, as may the town's share of the coastal trade, but the new harbour failed to capture a share of the import and export market and ships from Bridport are only mentioned twice in the late-fifteenth-century customs accounts (TNA E122/120/3). The different distribution of taxation among communities in Bridport compared with other coastal towns may reflect the dominance of a class of artisans rather than merchants (Forrest 2010.2, 27-47).

The documents relating to fundraising for construction at Bridport supplement a limited range of evidence for infrastructure at the other harbours. At Melcombe Regis and elsewhere the court leet oversaw the most basic equipment of the harbour such as pulleys and ropes for loading cargoes, but

not major structural projects (DHC, DC/WM Sherren papers, partially translated in RCHMan 1876, 576-580). With reduced trade and small populations the Dorset harbours struggled to raise the local taxes that developed towns like Hull and New Romney (Kowaleski 2000, 470). Clerical assistance in construction was necessary when the burgesses failed to fund and organise more substantial reconstruction projects: in 1446 the Dominican friars were granted a piece of land measuring 1000 feet by 600 feet to construct a jetty and tower from the profits of the customs collected by the controller at Poole (CPR 1909, 438). They had only established a house in Melcombe Regis in 1418, it was the last Dominican Friary founded in England and was created because the town contained no other church or religious institution: a mark of its temporal as well as spiritual poverty (Page 1908, 92). At Lyme Regis the importance of the Cobb to the laity is highlighted in later documents through its appearance in testamentary bequests: the widow Isabel Fossyn left 6s. 8d. to the church and 6s. 8d. to the Cobb in 1508 (DHC DC/LR/J/4). In 1488 John Baker left one tonne of iron jointly for repairs and to the fraternity of the Virgin Mary, implying that the fraternity had the maintenance of the Cobb within its remit, and perhaps as its primary purpose (TNA PROB/11/8/148).

Physical descriptions of the Dorset harbours and their construction are few. At Lyme archaeological excavation has revealed oak piles driven into the sea bed and in-filled with local stone taken from the adjacent cliffs and beaches (Keystone 1994, pt.2, 7-10). This archaeological evidence closely parallels the image of the harbour in a pictorial description of the Dorset coast and the description provided in a petition submitted to Henry VIII in August 1533 (BL Cotton MS Augustus I.i.31). The petition states that, although the town had previously maintained the Cobb by the use of timber piles with an infill of stones, a further two thousand oaks and four thousand loads of stone were required to properly make good the sea defences (TNA E163/10/22). The signatories to this document; Nicholas Wadham, Giles Strangways, William Courtney, Thomas Arundell and Thomas More were the most powerful gentry voices that could be called upon for advocacy in West Dorset. These local land owners, whose economic interests were at risk, suggested that a hinterland of twenty to thirty miles would suffer from the loss of the harbour as well as the ships that would not have a safe anchorage on the forty miles of coast between Exmouth and

Portland. Clearly, the burgesses and merchants in the various harbours were unable to carry out major reconstruction, and perhaps general maintenance, from their regular income, instead relying upon charitable support and the waiver of Crown dues. Throughout the fifteenth century Melcombe Regis and Lyme Regis were almost excused from national taxation and the fee farm payable to the Crown.

The burgesses of Poole were apparently able to rebuild the essential structures of the town to good effect immediately after the raid in 1405 without clerical assistance. The substantial Wool Chamber, also known as the Woolhall or Kingshall, which served for many years as the central warehouse was largely constructed in the early fifteenth century and adjacent buildings appear to have been constructed around the same date and of equally high quality (RCHM 1970, 204; Horsey 1992, 6 and 34-48). The Wool Chamber was leased by the borough from the manor together with the tolls and petty customs for an annual rent of £21 13s. 4d. in 1507 and £26 13s. 4d. the following year (SC 6/HenVII/1234 and SC 6/HenVII/1235). Canford manor, either through its own income or the wider resources of the Crown, was able to finance the construction of this enormous and costly building and this may be the principal reason that Poole was able to reconstruct and expand. In 1433 a pragmatic decision was made to shift the customs port from Melcombe Regis to Poole (DHC DC/PL/A/1/5/1). Presumably, news of Melcombe's squabbling with Weymouth, and its inability to maintain the infrastructure necessary for merchant shipping, had reached Westminster where receipts from customs had failed to recover from the problems of the late fourteenth century. The Crown's interest in port towns and its appointment of salaried officers stimulated investment so the relocation of the customs head port must have accelerated the rise and decline of the two towns (Kowaleski 2000, 472). The same grant gave Poole a licence to fortify itself against future raids, which again it was apparently able to achieve with no external funding. The safe anchorage within the bay offered better protection from both storms and raids and was a considerable advantage for Poole over Melcombe Regis: in March 1438 a commission required the ports of southern England to bring ships to Poole on St George's day to convey troops to Calais (CPR 1907, 149 and 197).

Despite becoming the customs port for Dorset, and an assembly point for continental expeditions, Poole was still a small town whose judicial, administrative and economic ties to Canford Magna manor

occasioned a series of disputes relating to boundaries and jurisdictions (CPR 1907, 276, 311, 496 and 567)³ Poole was not sufficiently large or wealthy to entirely break from the control of the large and powerful manor which was frequently in royal hands. Its growth from a small hamlet to a significant port was remarked upon by John Leland, visiting in 1542, who recognised that much of the town had been constructed within living memory and that the older inhabitants could remember when these built up areas were covered in sedge and rushes (Chandler 1993, 137-38).

The extent to which trade was disrupted by the problems of Melcombe Regis, Poole and Lyme Regis may be seen in the particulars of account of the customs officers in the late fourteenth and early fifteenth centuries (TNA E122/102/8, E122/102/10, E122/102/12, E122/102/20). The origins of the ships entering the Dorset harbours was different to those that arrived in the early fourteenth century: while before the Black Death most masters came from Melcombe Regis or Cherbourg, the late-fourteenth-century trade was dominated by ships from harbours in other English counties including Dartmouth, Plymouth and Southampton. Weymouth replaced Melcombe Regis as the primary Dorset harbour [see map 1]. Trade involving masters from the Channel Islands expanded throughout the south-west in the late fourteenth century and they appear for the first time in the Dorset accounts; presumably replacing the Cherbourg masters and acting as intermediaries with France (Childs 1986, 45-46). Several ships still arrived captained by masters from as far afield as London and Portugal, but the Bristol contacts are no longer in evidence.

The late-fourteenth- and early-fifteenth-century particulars of account have not survived in sufficient numbers to enable conclusions to be reached about the relative importance of different categories of imports and exports. But, it is clear from the enrolled accounts that there was a significant drop in wool exports during the 1380s and 1390s which recovered by around 1400 (Carus-Wilson and Coleman 1963, 75-119). The loss of the two most important Dorset harbours must have had a substantial, disruptive impact on the Dorset producers who were concentrated on the high chalk downs running in a wide band from Cranborne Chase south-west towards Bridport and back along to coast into Purbeck. Wool production in the county had been significant before the Black Death and there are signs that it increased in the late fourteenth century.

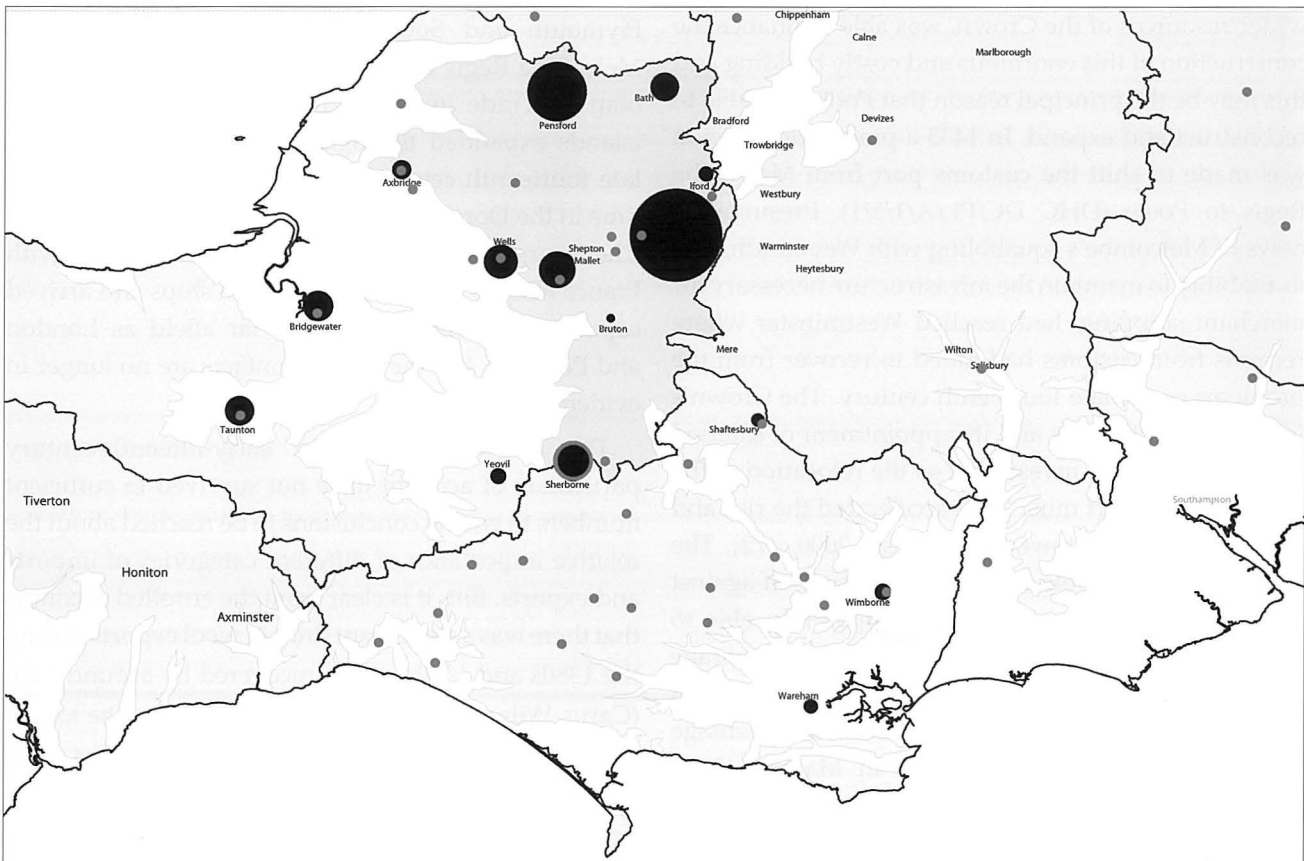
Large flocks remained on the demesnes of Abbotsbury Abbey and on the Arundell estates centred on Winfrith Newburgh where isolated accounts record several thousand sheep managed across a network of manors (Cousins, 2013 198-215. Sloane 1997, 32-38). Peasants on several chalk upland manors merged small unprofitable tenements and switched from arable to wool production during the first half of the fifteenth century (Forrest 2013, 72-73).

Cloth Trade and Production, 1400-1500

Wool that was not destined for export was made into cloth. Dorset has almost no Poll Tax returns so there is no evidence for the geographical distribution of occupations involved in cloth working in the late fourteenth century. An isolated aulnage account for Dorset cloth in 1400 records duty paid on 578 cloths at Sherborne, thirty-nine at Weymouth, thirty-one at Dorchester, eight at Bridport and five at Blandford. The next available set of aulnage accounts comes from the 1460s. These have all the problems associated

with them that were highlighted by Carus-Wilson: the account for 1466 is copied for 1467 and that for 1468 is copied for 1469 and 1470 (Carus-Wilson 1929, 114-23. TNA E101/344/1 and 7). It is however likely that those for 1466 and 1468 were based upon actual, albeit flawed, assessments. In the 1466, the majority of Dorset cloth was still produced around Sherborne (530 cloths), but Wareham (270), Wimborne (255) and Shaftesbury (170) had also become significant centres, in 1468 Sherborne was again the largest producer (260 cloths), then Shaftesbury (180), Wimborne (160) and Wareham (110), no aulnage was recorded at Dorchester and Weymouth in either year and the whole county accounted for 1921 cloths in the two years. The Dorset production is dwarfed by the quantities recorded in Somerset where the three leading towns recorded 4710 cloths: Frome (1020 cloths in 1466 and 1300 in 1468), Pensford (540 and 940) and Shepton Mallet (510 and 400), just over half the county's total of 9250 cloths (the totals for 1466 and 1468 are combined in map 2).

During the fifteenth century there is no common pattern of cloth production in adjacent counties. In



Map 2. Aulnage towns and Cloth Workers recorded in the CCPs.

Black circles indicate the quantity of cloth in Dorset and Somerset aulnage accounts, 1466 and 1469.

Red circles indicate origin of cloth workers (clothier, clothmaker, dyer, fuller, embroiderer, weaver) named as defendants in cases brought in the Court of Common Pleas. Including both workers from Dorset and other counties named in Dorset cases and Dorset cloth workers named in cases brought in other counties. All places 1-6 defendants, except Sherborne 31 defendants. Selected terms 1460-1500

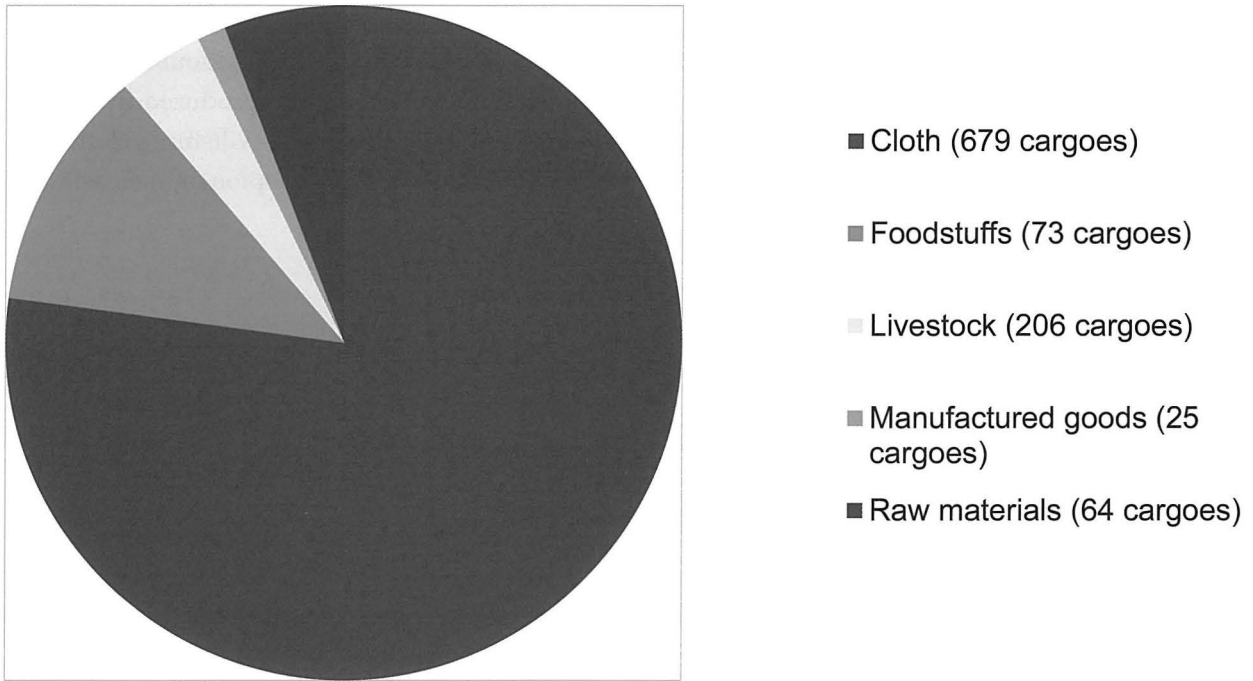


Figure 4: Relative values of categories of cargo exported from Dorset harbours, 1466-1503. Note this sample is taken from only those quarters where the cargoes are divided by harbour (yellow in figure 3).

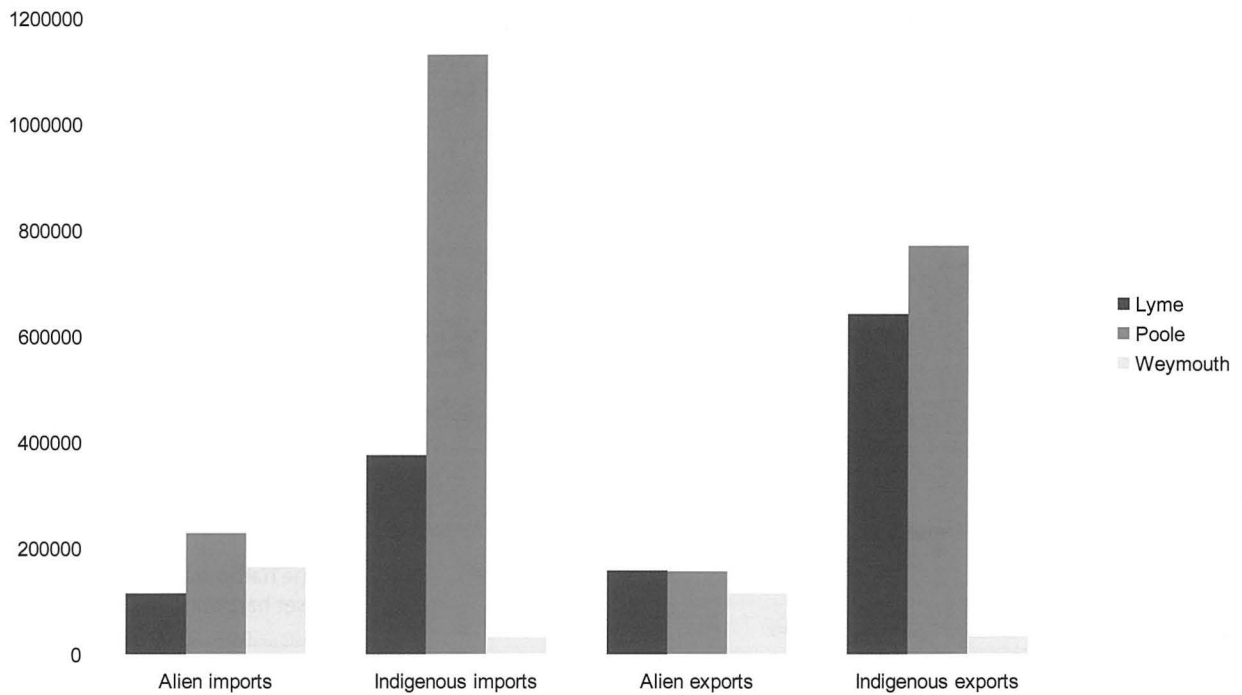


Figure 5: Value of cloth imported and exported from Dorset harbours by alien and indigenous merchants, 1466-1503. Taken from those accounts where the harbour of entry/exit is specified

Some identifications of the workers and producers engaged in the cloth trade in Dorset can be made from the Court of Common Pleas. A sample of eighteen terms, representing 54 months, between 1460 and 1499 includes 111 cloth workers who were defendants in cases brought in Dorset or workers from Dorset who were defendants in cases brought in other counties (see map 2). This is not a very large sample, it provides a good indication of the distribution of those workers involved in cloth production and trade in Dorset, but not of the amount of cloth produced in different towns. Seventy-two defendants were from Dorset, of these thirty-one were from Sherborne: the one town which can certainly be identified as a major centre of production, while no other town contained more than six. Twenty-three defendants from Somerset made up the majority of workers from other counties. Spread over a wide area their distribution highlights the general regional shift from large urban centre to the countryside and small towns which is first observed in Somerset (Hare 2003, 174-77). The three defendants from Berkshire and one from Gloucestershire demonstrate that the Dorset cloth trade extended northwards, while only one from west Devon and five from Hampshire indicate that the cloth trade from these counties probably did not extend into Dorset. That only seven defendants were from Wiltshire demonstrates the likelihood that the trade links from that county were generally with Southampton or London. There was also a shift of imports of Portuguese wine, as well as exports of Wiltshire cloth, from Southampton to London (Childs 2013, 118).

The brokerage books of Southampton record the duties paid by carriers leaving the city and from them the patterns of internal trade can be reconstructed. In 1443-44 two carriers went to Sherborne, six to Wimborne, four to Poole and none to any other Dorset location, whereas twenty-six went to Reading and thirty-nine to Newbury in Berkshire, the trading network from Southampton was clearly to the north rather than the west (Coleman 1960, endpaper map and table). Similar low numbers setting out for Dorset destinations were recorded in 1447-49, 1477-78 and 1527-28 (Harwood 2008, xvii-xxii; Lewis 1993, xx-xxiii; Olding and Stevens 1985, xviii-xix). To the west Exeter supplied a substantial hinterland, but commercial activity was relatively restricted and Dorset importers

did not favour the port in the late fourteenth century (Kowaleski 1995, particularly 250-52 and 274-78)

Overseas trade, 1460-1500

In 1478-1482 London dominated overseas trade and accounted for 60.9% of the national total, Poole and the Dorset harbours accounted for 2.2%, considerably less than Southampton (7.7%), similar to Exeter and Dartmouth (3%) and the eastern ports Ipswich (2.1%) and Boston (2.8%) (Kowaleski 2000, 476-478). London had increased its share of the overseas cloth trade consistently from the early fourteenth century, but not consistently at the expense of all provincial ports: between the 1430s and the first decade of the sixteenth century London's trade grew from 40% to 60% of the national total, in the same period Dorset's grew from 1.8% to 3.2% and Devon's from 2.6% to 10.2%, whereas Southampton's fell from 19.3% to 12.9%. Medieval overseas trade can be measured with some accuracy, the central accounts provide an almost complete set of evidence for the fourteenth and fifteenth centuries (Fig. 1), the local customs particulars of account are patchy, but provide more detail of trade patterns and commodities (Fig. 3). Overall the system of customs collection from the late fourteenth century is generally regarded as efficient and the figures from the accounts represent the actual volume of trade: customs rates were low, penalties for smuggling were severe and evasion was a relatively limited (Carus-Wilson 1967, 8-9).

The Dorset particulars of account produced by the customs controllers survive in some numbers after 1460 and from this date it is possible to examine imports and exports passing through the county's harbours in some detail (Fig. 3). The surviving particulars of account record 1,641 ships using Dorset harbours between 1460 and 1503 (TNA E122/119/2, 4, 5, 7-13, 15, 16, 18-20, E122/120/2-4 and E122/176/27). Within this period there are accounts for all or part of 142 months, or approximately 20 per cent of all imports and exports. In the majority of accounts all of the ships are listed under the head port, but the entries for forty-two months are divided into the harbours where the ships actually loaded or disembarked their cargoes. The customs accounts provide the name and type of each vessel, the name of the master, the master's home harbour, the names of the merchants with cargoes on

board, the value of the cargoes or the customs duty payable on them and the date of arrival or departure.

By mapping the home harbours it is possible to reconstruct the county's trading network, although not the source or destination of those goods that were imported and exported (Map 3). Not all trade was with the master's home ports 309 journeys were undertaken by vessels from the Channel Islands which were clearly not the origin of, or destination for, the cargoes that they carried. Rather the Channel Islanders provided a shipping service between merchants and markets in England and France (Childs 1986, 44-58). Occasionally, it can be seen that the master of an incoming vessel carried a distinctively local product, such as Cornish fish, Breton iron and salt and Guernsey conger eels (Childs 1997, 275 n.14). The great majority of incoming and out-going vessels were from the Dorset harbours and close destinations across the Channel in Brittany and Normandy. Additionally, a small number of ships came from destinations further afield such as Bristol, London, Calais, Spain and the Low Counties. This pattern of trade with close cross channel harbours is similar, albeit less pronounced, pattern is observed at Cornish, Devon and Hampshire harbours in the same period (Childs 1997, 274-77).

There were links between particular harbours in Dorset and their counterparts on the continent. In the customs particulars of account in which ships are divided between harbours thirty-three from Reville arrived or departed from Lyme compared with only nine using Weymouth and just six using Poole; twenty ships from Alderney entered or left Poole while only two came to Weymouth and none to Lyme Regis. When John Leland visited Lyme in 1542 he found that it had a particular association with Morlais (Chandler 1993, 131). Presumably, these associations resulted from the familiarity of individual masters with certain harbours and business networks developed between those masters and the local merchants. In his will dated 1 January 1556 Robert Rogers, a merchant of Poole with goods overseas, whose father came from the adjacent parish of Corfe Mullen, instructed guardians to look after his sons Robert and William and to send them 'beyond the sea to learn the language', during which time they would also have established social and business contacts (TNA PROB/11/37/513).

Masters favoured particular harbours and very rarely did a master use more than one Dorset location to load or disembark their goods. While a considerable volume of trade was carried along the coast by English vessels the ships that arrived from the continent did not drop off parts of their cargo in two or more harbours, nor did they vary their harbours between voyages. The links between harbours might include several members of the same family: over several generations the Padard and Havyland families only used Poole while the Dare and Danyell families only used Lyme Regis. A part of their apprenticeship as masters may have been to learn the channels and currents at certain locations in England and on the continent as well as establishing contacts with the local merchants.

Larger vessels did not usually put in to the Dorset harbours, this was by choice rather than physical restrictions: the *Mary of Lyme Regis*, recorded at 230 tons was impressed by the navy in 1451 (Childs 1997, 281). Smaller ships carrying cargoes worth less than £10 were carried by most vessels and passed frequently across the Channel: in the surviving accounts between the years 1460 and 1503 there were 393 arrivals which carried cargoes worth less than £10, 256 with cargoes valued £10- £50 and 145 on which cargoes were valued £51-£100, frequent voyages with small cargoes is a pattern found along the south coast (Childs 1997, 277). In the same period fifty-seven ships with cargoes worth over £100 arrived while only forty-two departed, perhaps this suggests that some of those with more valuable cargoes were destined for other counties and put in to the Dorset harbours as a response to poor weather or other potential threats. Generally, merchants and masters with large, high value cargoes did not see the Dorset harbours as favoured places for import or export.

In those particulars of account with separate sections for each harbour 1027 cargoes departed and 1730 arrived on ships for which the harbour of arrival or departure is known with more incoming vessels carrying multiple cargoes. This represents approximately 5% of all cargoes carried between 1460 and 1503. More than half of the cargoes arrived and departed from Poole, Lyme accounted for around a quarter of arrivals and a third of departures and Weymouth a sixth of each category. Melcombe does not appear as a listed harbour. Sixty-four ships masters

gave Weymouth as their home harbour while only eight named Melcombe — fewer than the fourteen fishing boats from Mousehole in Cornwall.

The various products imported and exported have been divided categories (fig. 4, based on Kowaleski 1993, 25). Dorset ran a trade deficit: the county imported more cloth, foodstuffs (including wine) and raw materials than it exported, with only livestock providing more exports. However, English coastal trade, was reckoned to account for between 60% and 80% of overall trade at Exeter in the late fourteenth and early fifteenth centuries and at similar levels at Southampton in the fifteenth century (Kowaleski 1995, 224-32; Hicks 2015). It is likely that much of the trade that passed through Dorset's harbours was in locally produced stone, salt, cloth and grains which found markets in other English counties and were not recorded in the particulars of account for imports and exports.

Cloth was the most significant category of exports with the great majority of the trade in the hands of indigenous merchants rather than aliens (fig. 5). The cloths were almost all narrow cloths, cloths without grain and kerseys, all standard woollen cloths, similar to the varieties exported from south and east Devon in the late fifteenth century (Kowaleski 1995, 232-38). The value of the exports from the three principal harbours, Poole £3,850, Lyme £3,332, and Weymouth £615 reveals that the Poole and Lyme merchants exported cargoes of a broadly similar value, whereas the cloth trade from Weymouth was around one sixth of that passing through each of the other two harbours.

The small group of indigenous Lyme merchants exported cloth worth over £2,700, four times the value of the cloth exported from the same harbour by alien merchants which was worth £660. At Poole the indigenous merchants dominated the cloth export trade to an even greater extent, their cargoes were valued at £3,200, while aliens only accounted for cloths worth £650. At Weymouth the situation was reversed with aliens exporting cloths worth £480, while the indigenous merchants managed less than one third of this amount with cargoes worth only £140. Lyme may have drawn upon a hinterland of cloth producers in towns like Honiton, Axminster and Tiverton in east Devon and Taunton in south Somerset as well as local Dorset suppliers. The Poole merchants had a hinterland within Dorset around Wareham,

Wimborne and Shaftesbury as well as the more established cloth producing areas in Sherborne and Somerset. Weymouth was not the most convenient harbour from which to export cloth as it was the least accessible from the cloth producing areas.

The Norman and Breton linen and hemp cloths that entered Dorset's harbours were of greater value than the woollen cloth that was exported. The indigenous merchants of Lyme brought in cloth worth three times the value of alien imports. At Poole the indigenous merchants dominated the import trade to a greater extent than at Lyme with cloths worth five times the value the alien imports. Once again the value of trade passing through Weymouth was much lower than other two harbours and aliens imported five times the value of cloths imported by indigenous merchants. Poole merchants imported cloth worth over £6000, Lyme Regis merchants cloth imports were worth over £4000, and Weymouth less than £1000. Presumably, the same hinterland that provided the cloth to Lyme and Poole for export provided the trading network to distribute the continental linen inland. The smaller volume of linen imported to Weymouth reflected its smaller hinterland. The status of the cloth merchants active in the harbours shows a clear difference between the communities. Poole and Lyme Regis had a small core of indigenous merchants who dominated the import and export trade. These merchants can also be found holding the offices of mayor, churchwarden, bailiff and keyman in the towns where they were burgesses and witnessed each other's wills. At Weymouth and Melcombe Regis the trade was largely in the hands of alien merchants who can not be demonstrated to have held any role in the wider social network of the community.

Besides cloths other exports were less significant and particular to individual harbours: tin exported from Lyme, occasional grains from Weymouth and Poole in crisis years, horses exported in large numbers from Poole and particularly from Weymouth. The value of horses was low relative to other cargoes and they may represent the need of masters to fill their holds rather than return without a cargo. Roughly twice as much wine came into Weymouth than Lyme and roughly twice as much again into Poole, presumably reflecting local demand: Weymouth retained some important consumer markets at Dorchester, Abbotsbury, Maiden Newton and Cerne Abbas, Poole was well placed to

supply Wareham, Wimborne Shaftesbury and perhaps Sherborne, whereas the west Somerset and east Devon markets were probably served by merchants from Exeter and Bridgewater. (Childs 1997, 278-80). Fish were imported in considerable quantities at Poole and Weymouth, but not at Lyme Regis, the expanding western fisheries extended to include the Lyme fleet who supplied their town with freshly caught fish, whereas the piscators arriving at Weymouth and Poole from Devon, Cornwall and the Channel Islands carried fish preserved on board which were subject to duties (Kowaleski 2003, 213-21). Passengers were no doubt a useful supplementary cargo for merchants making regular crossings, although their economic impact is difficult to assess. Licences for ships from Poole to transport pilgrims to the shrine of St James in Compostela provide an indication of links with northern Spain which is largely absent from the customs accounts (Childs 1997, 282-285). Although there were clear Iberian contacts the trade recorded in both the customs accounts and the archaeological assemblage is negligible (Watkins 1994, 48-49; Horsey and Jarvis 1992, 63).

Conclusions

Melcombe Regis and Lyme Regis were both devastated by plague, storm damage and French raids at the end of the fourteenth century. The Lyme merchants acted collectively to repair the Cobb and rebuild the town. It was only through this collective effort that Lyme was able to regain the trade that had transferred to the Devon harbours at the end of the fourteenth century. Lyme had a natural hinterland in west Dorset, east Devon and south Somerset and, importantly, this hinterland included Sherborne and areas of Somerset and Devon in which cloth production increased during the fifteenth century. In addition to cloth it also had a mixed agrarian base within Marshwood Vale, a commercial fishing fleet and significant trade in the import and export of raw materials. Lyme Regis took a long time to recover from the crises of the late fourteenth century. Not until the 1460s does the Court of Common Pleas contain a significant number of cases relating to debts involving the towns merchants and artisans. Its importance to the local economy is highlighted by the most significant local landowners signing the petition for assistance in reconstructing

the Cobb in 1533.

By contrast Melcombe failed to re-establish itself as a significant harbour. The grant of land and customs duties to the town's Friars to rebuild the key in 1446 appears to have little effect and few ships were recorded as using the harbour by the end of the century. Some of the traffic which had come to Melcombe transferred across the river to Weymouth, but this harbour did not attract the indigenous merchants who gathered at Lyme and Poole. Weymouth retained a small hinterland of towns and religious houses which provided a market for continental goods, but, once cloth replaced wool as the principal Dorset export, this hinterland did not produce goods that were required on the continent so the ships that brought in linen, wine and fish returned with low value cargoes of horses. The closest markets in Portland, Wyke Regis and Dorchester remained on the critical list of Dorset places receiving the highest rebates to the fifteenth and tenth, in part because their wider hinterland of the chalk uplands was depopulated and had shifted its focus from arable to wool production.⁴ The merchants and burgesses failed to combine their efforts towards reconstruction and instead squabbled constantly until the towns were finally amalgamated by a "charter of union" in 1571 (Crump 2015, 79-83).

Poole was the main beneficiary of the temporary decline in the fortunes of Lyme Regis and the contraction of Weymouth and Melcombe. It was a secure harbour and well placed to take advantage of the growth in the cloth industry in east Dorset and Somerset. The reductions to the fifteenth and tenth are low in the adjacent hundreds as well as along the river Stour towards the cloth producing areas to the north around Shaftesbury and Sherborne. The ranking order of payments by towns for the 1523 Lay Subsidy compared with their positions in 1334 clearly illustrates the relative rise in the wealth of Poole and the decline of Weymouth and Melcombe Regis (fig. 2). The aulnage accounts and Court of Common Pleas provide an indication of the distribution and relative importance of the centres for the cloth industry within the county. The aulnage paid in Dorset towns and the high volume of woollen cloth exported through Poole and Lyme indicates that significant quantities were produced locally and that they were important to the economy of the county. Poole was quicker to

recover than the other harbours, perhaps the damage from raids was less severe, certainly there was less storm damage and Canford manor provided capital for reconstruction. When Poole was granted the status of Staple Port in 1433 the dye was cast; the increase in trade was accelerated by the presence of royal officers, and merchants and ships' masters from the Channel Islands found a town in which they could trade without coming into conflict with established continental merchant interests. The fortunes of late medieval Weymouth, Melcombe Regis, Lyme Regis and Poole depended upon the ability of their inhabitants to react to changing circumstances as entrepreneurs and as communities.

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ENDNOTES

- 1 Glasscock, R. E. *The Lay Subsidy of 1334* (Oxford, 1975), Stoate, T. L. *Dorset Tudor Subsidies Granted in 1523, 1543 and 1593* (Bristol, 1982). The places listed are those classified as boroughs paying a tenth in 1334 and Sherborne, which did not have borough status, and has been included due to its size and importance in the cloth industry.
- 2 Several town histories and archaeological reports state that plague mortality was higher in Dorset's coastal towns than in other towns and villages. However, I have found no evidence to support this assertion.
- 3 In 1439 Robert Whittingham treasurer of Calais was granted the customs from "the manor of Canford and port of Poole there unto belonging" and there was a clear belief that there was still an association between the two. When the town farmed the office of supervisor of weights and measures in 1503 a substantial annual payment was due to the Canford court leet and this link was only severed when Poole was granted the status of a county borough in 1568. The lords of Canford Magna still attempted to assert their rights over the town, and the profits of its trade resulting in boundary disputes occasioning costly litigation into the nineteenth century.
- 4 Dorchester increased in prosperity in the sixteenth century as greater bureaucracy, created by the revolution in Tudor administration, increased the importance of the county town.

BIBLIOGRAPHY

Abbreviations

- BL British Library
CPR Calendar of Patent Rolls preserved in the Public Record Office
DHC Dorset History Centre
DNHASMS Dorset Natural History and Archaeological Society, Monograph Series
HMSO His/Her Majesty's Stationery Office
PDNHAS Proceedings of the Dorset Natural History and Archaeological Society
RCHM Royal Commission on Historical Monuments
RCHMan Royal Commission on Historical Manuscripts
TNA The National Archives

Secondary Works

- Betty, J. 1970. *The Island and Royal Manor of Portland*, Bristol University, Bristol.
- Carus-Wilson, E. M. 1929. *The aulnage accounts a criticism*, *Economic History Review*, New series 2, 114-123.
- . (1967) *The Overseas Trade of Bristol in the Later Middle Ages*, 2nd edn Merlin Press, London.
- Carus-Wilson E. M. and Coleman, O. 1963. *England's Export Trade, 1275-1547*, Clarendon Press, Oxford.
- Childs W. R. 1986. 'Channel Island Shipping as Recorded in the English Customs Accounts, 1300-1500' in Jamieson A. G., (ed.), *A People of the Sea: The Maritime History of the Channel Islands*, Methuen, London.
- . 1997. 'Commercial Shipping of South-western England in the Later Fifteenth Century', *Mariner's Mirror* 83, 44-58.
- . 2013. *Trade and Shipping in the Medieval West: Portugal, Castile and England*, Porto: Fédération Internationale des Instituts d'Études Médiévales, Textes et Études du Moyen Âge 70.
- Cousins, D. 2013. 'The Monasteries and Monasticism in Late Medieval Dorset', PhD, University of Winchester.
- Crump, J. 2015. *Medieval Weymouth: Growth and Decline*, YouCaxton, Oxford.
- Forrest, M. 2010a. 'The Black Death in Dorset: The Crisis of 1348-1349', *PDNHAS* 131, 3-13.
- . 2010b. 'The Distribution of Taxation in Southern England: New Evidence from Surrey, Middlesex and Dorset', *Southern' History* 31, 27-47.
- . 2013. 'Economic change in late medieval Dorset: an analysis of evidence from the Lay Subsidies', *PDNHAS* 134, 68-82.
- . 2017. 'Economic change in the southwest: an analysis of the reductions to the Lay Subsidies', *Economic History Review*, New series 70, 423-51.

- Gray H. L. 1924. 'The Production and Exportation of English Woollens in the Fourteenth Century', *Economic History Review* 39, 30-32.
- Hare, J. 2003. 'Pensford and the Growth of the Cloth Industry in Late Medieval Somerset', *Proceedings of Somerset Archaeology and Natural History* 147, 173-79.
- . 2011. *A Prospering Society: Wiltshire in the Later Middle Ages*, University of Hertford Press, Hatfield.
- Hatcher, J. 1996. 'The Great Slump of the Mid-Fifteenth Century' in Britnell R. and Hatcher J. (eds), *Progress and Problems in Medieval England*, 237-72, Cambridge University Press, Cambridge.
- Hicks, M. (ed.) 2015. *English Inland Trade, 1430-1540: Southampton and its Region*, Oxbow, Havertown.
- Horrox, R. 1994. *The Black Death*, Manchester University Press, Manchester.
- Horsey I. P. and Jarvis K. (eds) 1992. *Excavations in Poole 1973-1983* DNHASMS 10, Friary Press, Dorchester.
- Keen, L. 1988. Medieval Salt Working in Dorset, *PDNHAS*, 109, 25-28.
- Keystone Historic Consultants, 1994. *The Cobb: Report to West Dorset District Council*, in two parts, Exeter.
- Kowaleski, M. 1995. *Local Markets and Regional Trade in Medieval Exeter*, Cambridge University Press, Cambridge.
- Kowaleski, M. 2000. 'Port Towns in England and Wales' in Palliser, E. (ed.) *The Urban History of Britain* 1, Cambridge University Press, Cambridge.
- . 2003. 'The Commercialisation of Sea Fisheries in Medieval England and Wales', *International Journal of Maritime History* 15, 21-221.
- Page, W. 1908. *The Victoria History of the County of Dorset*, 2, HMSO, London.
- Pahl, J. 1961. 'The Rope and Net Industry of Bridport', *PDNHAS* 82, 143-46.
- Penn, K. L. 1980. *Historic Towns in Dorset*, DNHASMS 1, Friary Press, Dorchester.
- Soane, J. 1997. 'The Decline of Feudalism, 1347-1541' in Keen, L. and Carreck, A. (eds), *The Historic Landscape of Weld: the Weld Estate*, Lulworth Heritage Ltd, East Lulworth.
- Smith, H. P. 1948. *The History of the Borough and County of the Town of Poole* 1, Looker, Poole.
- Sydenham, J. 1839. *The History of the Town and County of Poole*, Whittacker and Co., London.
- Royal Commission on Historical Monuments (1970) *An Inventory of the Historical Monuments of the County of Dorset*, 2(ii), HMSO, London.
- Taylor, C. 2004. *The Making of the English Landscape: Dorset*, 2nd edn, Dovecote, Wimborne.
- Watkins, D. R. 1994. *The Foundry: Excavations on Poole Waterfront 1986/7* DNHASMS 14, Friary Press, Dorchester.
- Watt, H. 2008. "'On account of the frequent attacks and invasions of the Welsh": The effect of the Glyn Dŵr rebellion on tax collection in England', in Dodd and Biggs (eds), *The Reign of Henry IV: Rebellion and Survival, 1403-1413*, 59-72, York Medieval Press, York.
- Dorset County Council (2011a) *Dorset Historic Towns Project: Lyme Regis: Historic Urban Characterisation*. Available from <https://www.dorsetforyou.gov.uk/article/392180/Lyme-Regis---historic-towns-survey> [Accessed 19/11/2016]
- Dorset County Council (2011b) *Dorset Historic Towns Project: Weymouth: Historic Urban Characterisation*. Available from <https://www.dorsetforyou.gov.uk/article/402664/Weymouth-and-Melcombe-Regis---historic-towns-survey> [Accessed 19/11/2016]

Printed sources

- Chandler, J. 1993. *Leland's Itinerary: Travels in Tudor England*, Alan Sutton, Stroud.
- Coleman, O. 1960. *The Brokerage Book of Southampton, 1443-1444, vol.1*, Southampton Record Series 4, Southampton.
- Evans, J. 2004. *The Unconquered Knight: A Chronicle of the Deeds of Don Pero Nino, Count of Buelna, by his standard bearer Gutierre Diaz de Games*, Boydell, Woodbridge.
- Harwood, W. A. 2008. *The Southampton Brokerage Book, 1447-1448*, Southampton Record Series 42, Southampton.
- Kowaleski, M. 1993. *The Local Customs Accounts of the Port of Exeter, 1266-1321*, Devon and Cornwall Record Society, Exeter, 36.
- Jenks, S. 2004-2013. *The Enrolled Customs Accounts*, List and Index Society volumes 303, 306, 307, 313, 314, 319, 324, 334, 341, 344, 345 and 348, List and Index Society, Kew.
- Lewis, E. A. 1993. *The Southampton Port and Brokerage Book of Southampton, 1448-1449*, Southampton Record Series, 36, Southampton.
- Olding, T. E. and Stevens, K. F. 1985. *The Brokerage Books of Southampton, 1447-8 and 1527-8*, Southampton Record Series, 28, Southampton.
- Public Record Office, (1893) *Calendar of the Patent Rolls preserved in the Public Record Office: Edward I, 2, 1281-1292*, London, HMSO.
- Public Record Office, 1902. *Calendar of Patent Rolls preserved in the Public Record Office: Edward III, 6, 1435-1445*, HMSO, London.
- Public Record Office, 1912. *Calendar of Patent Rolls preserved in the Public Record Office: Edward III, 13, 1364-1367*, HMSO, London.

- Public Record Office, 1903. Calendar of Patent Rolls preserved in the Public Record Office: Henry IV, 1, 1399-1401, HMSO, London.
- Public Record Office, 1905. Calendar of Patent Rolls preserved in the Public Record Office: Henry IV, 2, 1401-1405, HMSO, London.
- Public Record Office, 1909 Calendar of Patent Rolls preserved in the Public Record Office: Henry IV, 4, 1408-1413, HMSO, London.
- Public Record Office, 1910. Calendar of Patent Rolls preserved in the Public Record Office: Henry V, 1, 1413-1415, HMSO, London.
- Public Record Office, 1907. Calendar of Patent Rolls preserved in the Public Record Office: Henry VI, 3, 1436-1441, HMSO, London.
- RCHMan, 1876. *Fifth report of the Royal Commission on Historical Manuscripts. Part I : Report and appendix*, HMSO, London.

Manuscript sources

The British Library

- Cotton MS Augustus I.i.31 Map of the coast of Dorset from Poole harbour to Lyme Regis, 1539-1540

The Dorset History Centre

- DC-BTB/N/3-11 Grants of pontage, indulgences and alms to finance for the reconstruction of Bridport harbour, 1393-1449
- DC-LR/J/4 Will of Isabel Fossyn of Lyme Regis, 1508
- DC-PL/A/1/1/1 Charter granting rights to the burgesses of Poole, 1248
- DC-PL/A/1/5/1 Letters Patent granting Poole the status of a Staple Port and license to fortify the town, 1433
- DC-WM Sherren papers (uncatalogued), including court rolls of the borough of Melcombe Regis, 15th century.

The National Archives

- E 101/344/1 Dorset aulnage accounts, 1399-1402
- E 101/344/7 Somerset and Dorset aulnage accounts, 1431-1471
- Particulars of account produced by the customs officers in Melcombe Regis and Poole 1314-1503:
- E122/102/2 (1314), E122/102/3 (1316), E122/102/4-5 (1318-1322) and E122/102/6 (1325), E122/102/8 (1377-1379), E122/102/10 (1378-1380), E122/102/12 (1381-1384), E122/102/20 (1403-1404), E122/119/2 (1460-1461), E122/119/4 (1461-1462), E122/119/5 (1463), E122/119/5 (1463), E122/119/7 (1465-1466), E122/119/8 (1466-1467), E122/119/9 (1469), E122/119/10 (1468), E122/119/11 (1467-1468), E122/119/12 (1471-1472), E122/119/13 (1471), E122/119/15 (1472), E122/119/16 (1478-1479), E122/119/18 (1482), E122/119/19 (1483), E122/119/20 (1483-1484), E122/120/2 (1486), E122/120/3 (1487-1488), E122/120/4 (1492), E122/176/27 (1503).
- E 179/364/135 Writ confirming Melcombe Regis tax reductions 1453.
- E 163/10/22 Petition to the Crown regarding encroachments of the sea at Lyme Regis, 1533-1534.
- PROB/11/8/148 Will of John Baker of Lyme Regis, 1488.
- PROB/11/37/513 Will of Robert Rogers of Poole, 1556.
- SC 6/832/22 Bailiff's account, Lyme Regis, 1379-1381.
- SC 6/HenVII/1234 Reeve's account for Canford manor, 1507
- SC 6/HenVII/1235 Reeve's account for Canford manor, 1508
- SC 8/19/922-4 Petitions to the Crown regarding impoverishment of Melcombe Regis, 1378-1379.
- SC 8/125/6206 Petitions to the Crown regarding impoverishment of Melcombe Regis, 1378-1388.

Kindling the Fire from Heaven: Protestantism in Dorchester before the Great Fire

CHARLES CORNISH-DALE

How quickly Protestantism took root in Dorchester we can only guess. In the sixteenth century the town had no great reputation as a centre of reformation; it was Poole that was said to have contained 'the first that in that part of England were called Protestants'.

(Underdown 1993, 17)

Central to the story of David Underdown's book, *Fire from Heaven*, is his claim that between the accession of Elizabeth I, in 1558, and the Great Fire of 1613, which destroyed most of the town, Dorchester was essentially an unregenerate place. Home to just a few zealous Protestants, it was otherwise part of a broader Dorset scene 'much infected with recusancy' and 'popery' — a culture 'festive' but not fervid for the Word of God. And so the town's sudden transformation into 'the most Puritan town in England' was all the more sudden and all the more transformative: a revelation conducted through the preacher John White, and received and implemented with popular enthusiasm and support.¹

By 1600, claims Underdown, 'few, if any, of the governors of late Elizabethan Dorchester seem to have had any vision of an alternative to the way their community, and its problems, was run' (Underdown 1993, 23). One of these governors was George Trenchard. He was variously a justice of the peace and then sheriff of Dorset, and MP for Bridport, Dorchester and, finally, the county. The Trenchards hailed from Wolveton House, to the north of Dorchester, and had been among the central cast of local politics for some time. George's grandfather had been one of the commissioners for church goods, local officials appointed during the reign of Edward VI to survey goods and plate in advance of its confiscation and sale. His father, Thomas, who was high steward of Dorchester, had married into the notable Horsey family of Clifton Maybank, the serene manor house where the poet Thomas Wyatt had died. Despite noting that George appears to have been an enthusiast for reform — or at the very least, a keen-nosed hound of Dorset's remaining Catholics — Underdown still means him to be included among his fellow governors, who lacked a godlier vision of their community.

Pursuing Catholic recusants county-wide, Trenchard also raised concerns about the lax conditions that allowed 'papists [to] live at ease' in the common jails. His highest-profile targets were missionary priests, owing to their role as direct agents of the pope and fomenters of sedition, especially after a series of plots that had elicited savage penalties in response. His most famous discovery would come at Easter 1594, when he rooted 'blessed' John Cornelius out of Chideock Castle, a notorious den of popery. Cornelius was then taken to Wolveton for confinement and examination before his execution, which was of course widely publicised. Other of Trenchard's deeds, especially his role organising and coordinating local defence during the Armada crisis, received somewhat less publicity; although they surely watered the reformed faith far more than did the blood of a single aged priest (Lloyd 1967, 94, 118-21).

These facts about Trenchard are well known. But other, potentially more revealing, facts about him have managed to go unnoticed, even by Professor Underdown. Significant enough, certainly, to complicate his portrayal of Trenchard, these unnoticed facts must also complicate his wider narrative about the town; in 1600, Dorchester was perhaps not quite so unregenerate, nor its governors quite so lacking in moral vision, as he has claimed.² The main evidence consists of a series of sermons preached in Dorchester in 1585 by the minister William Chubb, a returning native of the town. Both concern aspects of God's temple: the first, its building; the second, 'what the temple is'. It is uncertain whether Trenchard commissioned the sermons, but when they were printed the next year, and again the year after, each edition was dedicated to him in the same fulsome terms (Chub 1585a). The praise lavished on him, and other evidence, including Chubb's other published

works and a few surviving biographical fragments, reveal that Trenchard was perhaps as keen a patron of sermons as any of Dorchester's later godly governors. More substantially, it would appear that as early as the 1580s an alliance between magistracy and ministry — between the secular and the ecclesiastical arms of government — was in embryonic form in the town, and with important links beyond it. Trenchard's place within this embryo alliance is confirmed by another dedication, also unremarked until now (Mayo 1591). Whether or not any of this falsifies the central premise of *Fire from Heaven*, it does indicate, at the very least, that long before a chandler's tallow 'blazed up' and out of control one August afternoon, that later godly fire was already being kindled.

*

About William Chubb, the preacher, far less is known than about George Trenchard. It is in the dedicatory preface of the two printed sermons from Dorchester that Chubb's birthplace is revealed: 'the Towne of Dorchester, my native towne', he writes. Otherwise, there are a scattering of references to William Chubbs in ecclesiastical registers. The appointment, on 17 October 1572, of a William Chubb as rector of Norton-sub-Hamdon, in Somerset, is listed in the register of the bishop of Bath and Wells, as well as his deprivation, some three years later, on 13 May 1575.³ On 22 February 1582, a 'Willimus Chubb', master of arts, was licensed as a preacher, according to the register of the archbishop of Canterbury, Edmund Grindal.⁴ The reference to the preacher's qualification, master of arts, leads nowhere: to no record of a William Chubb at either Oxford or Cambridge during the sixteenth century, apart from a William Chubbes who was the first master of Jesus College, Cambridge, in 1497 and died in 1505 (Venn and Venn 1922, 336). The register of the bishop of Bath and Wells provides another clue: a record of the death of a William Chubb who was vicar of Frome, also in Somerset, on 9 September 1597.⁵ Were these three William Chubbs one? The vicar of Frome who died in 1597 was undoubtedly the author of the Dorchester sermons: the dedicatory preface to the printed editions closes with the words, 'Written in Froome Zelwood, the xii. of December. 1585', and the preface to another of Chubb's printed works, a more substantial spiritual guide, was also written from there, again in 1585 (Chub 1585b). It is quite possible,

indeed probable, that Dorchester's Chubb was the preacher licensed by Grindal, and there is even some reason to believe he had also been the rector of Norton-sub-Hamdon. The proximity of the two livings is suggestive. Even more so is Norton's patron: in 1572 it was Adrian Stokes, the second husband of the deceased Lady Frances Brandon, the duchess of Suffolk.⁶ Stokes appears, by all accounts, to have been 'earnest in religion', and he served on a number of local commissions to enforce church attendance and discover recusants, and on Parliamentary committees on religion and Church government. If Stokes had sought to install a godly minister, the younger Chubb of Dorchester may have proved too hot in his convictions: the deprivation, three years later, could easily have been for some act of nonconformity.⁷ Until 1580, Frome Selwood was also in the patronage of another, even more prominent, reformer: Sir John Thynne the elder, the builder of Longleat House. Thynne had been a close ally of Edward Seymour, the earl of Somerset and lord protector between 1547 and 1549, and it was from him that he had purchased the manor and advowson of Frome Selwood.⁸ A pattern?

Pattern or no, if the William Chubb who preached the Dorchester sermons had first been installed at Norton-sub-Hamdon, on the border of his native Dorset, and ejected soon after, the force of his ejection had not been all that great; for he had come to rest barely thirty miles away, and comfortably, it would seem, with the patronage of a powerful family to cushion him. For that soft landing he would later thank Thynne the elder's son, also John, in another dedicatory preface, discussed below.

It is not entirely clear from the preface to the Dorchester sermons whether Trenchard actually commissioned them or simply provided the impetus or inspiration. The courtly tactfulness and circumlocution, while customary of such a preface, are something of a hindrance in this regard. Because of Trenchard's desire for 'the exercising of preaching' in Dorchester, and on account of his 'liberality for the furthering, continuing and establishing thereof', Chubb was

not onely moved with a comfortable minde for my native country, to see the prosecuting of so good a purpose, but was also bent upon the same argument to preach these two Sermons

following, which as well in thankfulness for your proceedings, as in signification of mine unfained goodwyll, I humbly present unto your worship.

So Chubb may have taken some opportunity, if he were visiting Dorchester, to lend his oratorical talents to Trenchard's campaign for an enhanced preaching ministry; or he may have been invited for that purpose, either by Trenchard or another Dorchester worthy.

Sermons were often printed after their delivery (Blench 1964; Wabuda 2002). In this case, it is unclear who paid for the printing. Chubb may have had the sermons printed as a gift to Trenchard, to court his favour, if it had not already been won completely, or to cement an existing friendship – or, indeed, to thank him for an invitation to preach. Another of Chubb's sermons was printed and dedicated as a gift to William Paulet, the third marquess of Winchester, by whose patronage and friendship Chubb also appears to have benefitted.⁹ The printing was a

signification of that hartie good will and grateful affection I owe your L. which I would to last so long in memoriall, as my selfe and my poore familie have occasion to use your L. great favour, alreadie assured to our continuall comfort and stay (Chubb 1587).

Paulet's, interestingly, is a name that features only once in *Fire from Heaven*, and then only by his title and in passing: Dorchester was careful to elect clients of the marquess to Parliament, after the death of the second earl of Bedford, the then-prevailing magnate, in 1585 (Underdown 1993, 8-9).

So it was through both the marquess's considerable influence and also the continuing patronage of the Thynne family that Chubb was kept in 'continuall comfort and stay', and by the time he preached the Dorchester sermons, he already had a good reputation upon which to build. In the same year as the Dorchester sermons were printed, Chubb was author to *The true travaile of all faithfull Christians*, a spiritual manual for the lay reader, of the same genre as Arthur Dent's hugely popular *Plain Man's Pathways to Heaven* (although unlike the *Plain Man's Pathways*, *The true travaile* does not take the form of a dialogue among a small cast of characters, but is divided into a series of prayers and disquisitions on basic questions of the faith).¹⁰ He dedicates the work to John Thynne,

the son of John the elder, now deceased, and hails in the preface the 'continuall favoure I have found at your handes (right worshipfull) especially of late in London, as well by writing as by your personall travel'.

This 'favoure', 'writing' and 'travel' must have consisted of written recommendations or introductions, and it is possible that Chubb actually met Trenchard through his patron. Sir John Thynne the elder, at least, had a connection with the Trenchards, if at a single remove: in 1540 he had bought from Sir John Horsey (of Clifton Maybank) the former Augustinian priory that would become Longleat House.¹¹ Equally or more likely, Chubb could have met Trenchard through William Paulet: Trenchard and Paulet were both trustees of Dorchester's grammar school, and engaged in a number of other charitable ventures together.¹² Nevertheless, given that Chubb and Trenchard were both natives of Dorchester – maybe contemporaries, although no evidence of Chubb's age exists – they could just as easily have met in school, the town square or one of Dorchester's parish churches as in London or elsewhere. They could even have met at Wolveton itself, where Trenchard was known to invite radical ministers to dine, among an otherwise rather motley crew of dinner guests, including Sir Walter Raleigh – the 'atheist' – on one occasion (Lloyd 1967, 254-58).¹³

Returning to the preface of the Dorchester sermons, no further details of Trenchard's 'liberality for the furthering, continuing and establishing' of preaching in Dorchester are given, but it seems reasonable to assume that he was, at the very least, paying for visiting preachers like Chubb, even if not Chubb himself in this instance, or instead paying for supplementary preaching from the town's resident clergy. Visiting preachers were far from unknown in the county in the 1580s, even the 1570s. In 1571, William Kethe, a Marian exile who had recently preached for a time in the Minories, a hothouse of nonconformity in London, was brought to the quarter sessions at Blandford, where he gave an inflammatory sermon against traditional pastimes – church ales and Sunday sports (Kethe 1571).¹⁴ The corporation of Wimborne Minster began to pay for lectures by visiting preachers in 1576-77, when a preacher visited from nearby Piddle, and it continued to pay for itinerant sermonising until the end of the 1580s, by which time a lectureship – a dedicated preaching position with its own yearly

stipend — had been established.¹⁵ Apart from Chubb's two sermons, the earliest printed evidence of visiting preachers at Dorchester comes from 1613, the year of the Great Fire, when William Jones preached a Christmas Day sermon on the subject of 'the mysterie of Christes Nativitie' (Jones 1614). Underdown notes that preachers from the surrounding area were visiting Dorchester earlier than this; although he provides neither names nor dates (Underdown 1993, 27).

Trenchard could, however, have gone further and established a permanent lectureship, like Wimborne's (see Seaver 1970). By 1600 Dorchester definitely had one, with a Mr Lougher as lecturer (Underdown 1993, 27).¹⁶ His preaching would have supplemented, or been intended to supplant, what preaching there was in the town's three parish churches: the purpose of lectureships was more often than not to meet a need for preaching that the parish clergy — generally educated to a lower standard than lecturers, who were university graduates without fail — could not meet themselves (Ryrie 2013, 351-62). The desired form of preaching was sometimes described as 'painful' preaching, for the emotions and feelings it was intended to arouse, as well as the efforts to which the preacher himself went in service of arousing them; the preacher Robert Bruce, for instance, 'made always an earthquake upon his hearers, and rarely preached but to a weeping auditory'; he is alleged even to have brought James I to tears (Ryrie 2013, 354). The imputed deficiency in the preaching of Dorchester's resident ministers was not remedied until 1606 and the arrival of John White as rector of St Peter's and Holy Trinity (there was only one rectory for the two parishes). The origins of the lectureship occupied by Mr Lougher are unclear, but Trenchard is a credible candidate for founder: as wealthy as godly. It was certainly not uncommon for individuals, in addition to corporations or groupings, to establish lectureships; although lectureships established by societies of Puritans, such as the Feoffees for Impropriations, have tended to receive more attention from historians, especially during the period of Laud's archiepiscopate, when many were either curtailed or entirely suppressed (see for instance Bremer 2012, 84-6).

There are further clues. In the preface to the Dorchester sermons, Chubb makes what can only be a telling comparison, by likening Trenchard to Josias,

the Biblical king. Why Josias? Because, in Chubb's own words:

in him was first found lyberality, in disbursing money toward the building of [the temple of God], then wisdom in appointing godly overseers to see it well doone, and last of all care, in having skilfull workmen to doo it.

Chubb was not the first to link the matter of further reformation in England with Josias. The 'most worthy president' of Josias had loomed large in the minds of reformers since the reign of King Edward VI, who like Josias had been called to kingship as a minor (Edward at nine, Josias edging him at just eight). The comparisons began in advance of Edward's coronation. According to Diarmaid MacCulloch, Edward already 'came to the throne in the guise of two different boy-kings': the child himself and Josias (MacCulloch 1999, 62; Alford 2004, 100-101). Cranmer placed especial emphasis on Edward's supremacy over the church in his realm, a supremacy inherited from his father, Henry VIII, and alike to the young Biblical king's. A commemorative medal struck for the coronation, with Edward as 'defender of the faith', featured inscriptions in Latin, Greek and — most instructively of all — Hebrew. The comparisons with Josias only continued, intensified with the sweeping reforms of Edward's short reign. Soon, it became almost impossible to think of one king without the other, especially in later memory: 'thoughts about the achievements of his reign', writes Margaret Aston, 'in particular his abolition of papal idolatry and destruction of images, automatically prompted associations with Josiah' (Aston 1995, 37). The famous painting 'Edward VI and the Pope' (c. 1575, unknown artist) — an allegorical scene in which a deathbed-ridden Henry VIII points to his young successor, seated confidently in the centre and surrounded by kneeling courtiers, while the Pope and his followers are laid low in the foreground and scenes of iconoclasm are visible through a window right of centre — makes the comparison all but explicit by mimicking depictions of Josias in contemporary woodcuts and Bible illustrations (Aston 1995, 37-50). Josias, and other Biblical figures such as Hezekiah, would remain important precedents, especially for those who sought to continue the reformation of the Church and society after the 'settlement' of 1559, even as the contemporary English monarchs who might

have arrogated those precedents to themselves chose instead to minimise the connections. In the early 1640s, for instance, the iconoclast William Dowsing, who pulled down images raised by the fellows in the chapel of Pembroke College, Cambridge, looked to Josias in defence of his actions, nor was he unusual in finding in Josias such a 'sense of mission' (Aston 2016, 39-40). It is safe to say, then, that Chubb was invoking a recognisable figure of the time: a Biblical mirror of latter-day reformer-kings and -governors. The comparison suggests a great endeavour undertaken with real purpose and conviction, by a figure in whom great hope and trust is placed. For most godly Protestants, there were few greater endeavours or hopes in which to trust than the founding of a lectureship to spread God's word.

Like William Jones's later sermon, Chubb's two sermons may have taken place in All Saints church, in the east of the town. All Saints was the poorest of Dorchester's three parish churches, followed by Trinity, in the west, and then St Peter's, in the centre (Underdown 1993, 14). Both the style and the subject matter of the two sermons are important evidence: the style is demotic, the subject matter basic, at least for an accomplished preacher and learned man such as Chubb. All Saints' mass of poor were precisely those we might imagine — with an unavoidable dash of what E.P. Thompson described as 'the enormous condescension of posterity' — to have needed, or at least to have been identified as needing, the most basic instruction in the faith, in language 'both simple and perspicuous fit both for the peoples understanding and to express the maiestie of the spirit'.¹⁷

In the first sermon, God's temple — 'that place wherein the name of the Lord should alwaies be glorified' — stands as a metaphor; for like many of the godly, Chubb was careful to maintain that God 'dwelleth not in Temples made with stone'. The fear of idolatry — of undue reverence — was such among some godly Protestants that even churches, as places of routine devotion, came under suspicion, and Chubb states at one point that the great mistake of the Jews had been to put their trust in the temple of the Lord (i.e. the Temple in Jerusalem), but not in the Lord himself — in other words, to treat the Temple as an idol (Ryrie 2013, 317-29). The temple Chubb meant, rather, was oneself, and this sermon is a basic injunction to live

'a godly lyfe', without 'feigning holiness'. 'Feigned holiness' is precisely what Satan uses to deceive the weak and ignorant — Chubb's very audience, indeed. He rails against the Pharisees, who

did observe the whole Law in outward shewe, they fasted they truly thythed mynt, annise, and commin, what culd the world see in them, but the whole body of godlines, but yet Christe, who knoweth the secrets of all harts, said they were hipocrits & dissemblers.

He then rails, unsurprisingly, against 'Papists' and medieval religion: 'And I praye you what greate shewe of godlines, charity, humility, chastity etc. was there seene in our Papists, in al their actions here in England, and els where'. As for William Kethe, who had preached at Blandford some fifteen years before, Papistry is linked to idleness and immorality, to the persistence of festive culture, revelry and irreverence. As well as this danger from the past, comes a new one 'in these last daies' — that is, during the prelude to the Second Coming — for 'we see a great many lip Gospellers', godly Protestants who say one thing but do another.¹⁸

Yet the individual person, the individual temple, is also a synecdoche or part for the whole: the temple of God is also society — body and body politic. Now Chubb issues a number of admonitions to the powerful. 'I am perswaded the small care & great ease that our cheefe builders have, is the cause that the worke goeth not forwarde'. Chubb reserves particular scorn for magistrates, prelates, patrons and 'usurers' who claim to be morally inviolate because they themselves commit no offenses, and yet allow them to be committed by others on their behalf. Nobody is above the work of building God's temple, and men he compares, in a familiar image, to the limbs of a body, which must serve 'in unity of spyrite',

so, every man in his vocation & calling, some in preaching true religion, some in reforming manners, some in teaching a godly lyfe, and every man in shaping something or other for the building of true holines, if they vary or fall at square, they do greatly hinder the building. [All] that wyll bee sounde, and sufficient builders, must laye theyr foundation upon Gods worde.

The second sermon, 'shewing what the Temple of God is', continues the theme and horror of idolatry.

As Jesus cast the sellers out of the temple, so should we expel such abuses — such idols — from our own bodies, ‘which are more holy than buildings of stone’: discord, self-love, love of the world and especially ‘carnal plesure, which is such a detestable desire of the flesh, as corrupteth knowledge, defileth the conscience, deformeth the soule, imprisoneth the mynde, and polluteth the members’. Chubb explains each ‘most horrible Idol’ in turn, with suitable examples.

This theme then gives way to an explanation, in simple terms, of one of the central doctrinal differences between medieval Catholicism and England’s new reformed religion: *sola fide* or justification by faith alone. In medieval Catholicism, or rather its popular manifestation, it had been possible for everybody to move closer to salvation through good works, such as the endowment of a chantry or a payment towards the repair of the fabric of the parish church (see for instance, Burgess 1988). Not so for the Protestant: ‘We are bought for a price [...] Christ Jesus, purchased by his precious bloodshedding’. Mankind, being fallen, is incapable of redeeming itself through its own works. Only through the life, Passion and Resurrection of Jesus Christ, and the individual Christian’s faith in Jesus, can salvation be won:

we had been a filthy and polluted temple, if we had stooede of our selves, and depended on our owne power without this gift of grace, but because we have access through faith into this grace, having apprehended grace, the spirit of God doth worke mightily in the faithfull beleever.

Having established the absolute primacy of the true Christian’s faith in Jesus — ‘Christ sayth, Without me ye can doo nothing’ — Chubb deals, in syllogistic fashion, with one of the less tractable problems raised by the doctrine, which concerns free will. Free will, Chubb argues, is an illusion: because we belong to Jesus, who has purchased us, we cannot have free will; for if we had free will, we would be free from him, and therefore not his. The force of this commercial metaphor, in a commercialising society, may have been rather novel — or not. ‘Bought by his bloode’, we must ‘glorify God’, even though we ‘can not make recompence for the smallest things that we have had already, and doo dayly receive’. To glorify him, we can only and must, like the heavens and celestial bodies, follow our ‘natural course and order’, shunning the

behaviour of mere beasts. A succession of animal metaphors for such sins as lust, greed, ‘subtlety’ and envy follow.

These sermons, then, are not like those of the ‘High Anglican’ bishop Lancelot Andrewes, with their close Latin readings and elaborate, if rather frivolous, wordplay (in one famous sermon, Jesus’s name, ‘Immanuel’, becomes ‘Immanu-hell’, the place where those who deny Jesus will end up), nor do they much resemble the sermons of, say, John Donne. Nor, indeed, are they much like Chubb’s other published sermon, dedicated to Sir William Paulet. But a comparison with it is nonetheless apt, if only to reveal just how much Chubb might tailor material to audience and purpose.

The sermon was originally delivered at Paulet’s residence at Tidworth, Hampshire, but not in the presence of the marquess himself, who was convalescing elsewhere at the time. Present were ‘the Right Honorable Lady Marques your wife, your Honorable daughters, your friends of worship, & your loving household’. The topic of the sermon, suitably enough, was ‘Affliction in general, with the reward thereof’: Paulet was to see his illness, according to Chubb, as ‘some sweete crosse’ to keep him in pious memory of God and of Jesus, ‘by whose bloodie stripes we are saved’. The illness was, presumably, a temporary one: Paulet did not die until 1598. (The subject of affliction may also have had a certain piquancy for the Lady Marques, estranged from her husband and forced to endure the continuing shame of his private life with his mistress, Jane Lambert, who would bear him a total of four illegitimate sons.) The content of the sermon also differs greatly from the two Dorchester sermons: the subject is more developed, the structure more complicated, the length double; taking the place of the popular proverbs are knowing references to and long quotations from a number of Classical poets and writers, including Virgil, Horace, Ovid, Juvenal and ‘Tully’ (a common diminutive for Marcus Tullius Cicero). Although these quotations are all translated immediately by Chubb, the expectation was clearly that the audience would have recognised not only the authors but the particular quotations too, especially the more sententious ones. In delivery, the quotations may not have been translated at all.

Further confirmation of Trenchard’s status as a beacon to the godly in Dorset before 1613, and of

his role in supporting local preachers, is provided by another preface; although it is not that of a sermon or sermons like Chubb's, but of a written tract. Written in 1591, *The Pope's Parliament*, by John Mayo, contains a dedication to Trenchard every bit as gushing as Chubb's (Mayo 1591).¹⁹ Mayo appears to have been, or to have become, the rector of Cattistock, Dorset, if he was also the John Mayo who delivered two later printed sermons, one on the importance of Lenten fasting — by no means a popular practice among Puritans — the other on the religious duty of strict obedience to civil government — by no means a popular practice among Puritans either (Mayo 1609 and 1624). The preface to *The Pope's Parliament*, however, puts Mayo at this point safely within the parameters of godly culture: the preface begins with two long paragraphs on the 'soveraigne antidote' of scripture, which 'hath in it such a secret and hidden manna'.

By the time of *The Pope's Parliament*, Trenchard had of course done his exemplary service to the Protestant nation, and the preface and the content of the tract itself are tailored both to flatter him for his 'fervent and forward [...] defence of the realme against forreine invasions' and to supply another necessary lungful for the, by then, raging inferno of English anti-Catholicism (Larkin 2014, chapters four and five, for instance). The tract is divided into two parts, both of which concern the apocryphal papacy of Pope Joan, who was said to have reigned in either the ninth or the eleventh century (Rustici 2006). Mayo sees Pope Joan, in rather the same manner as the defeat of the Armada, as a 'miraculous token [...] sent of the Lord, to the subversion of poperie, and to the utter confusion of that purple whore', the eponymous parliament being a council of despair in which the pope and his followers meet to express their 'great choler and indignation [...] at the name of Pope Ioane'.

The preface contains a number of unmistakable echoes of Chubb's Dorchester sermons. Had Mayo read them himself? He writes:

Everie one must further (as farre foorth as he can) the building of Gods Temple. If he can not bring gold, silver, or precious stones, he must bring minima quaeque, pelles & caprarum pilos, the least things he hath, skins, and the haire of Goates. We must not be idle in Gods great harvest, neither secure in these perilous times.

With the same noble purpose as Chubb had in mind, Mayo also seeks the benefit of Trenchard's patronage and protection. Unlike Chubb's, however, Mayo's dedication is almost certainly an attempt to create a new relationship, rather than consolidate a pre-existing one.

Using a telling phrase, as telling perhaps as Chubb's invocation of Josias, Mayo chooses to call Trenchard a 'saint'. Those whose enemies labelled them 'Puritans' generally preferred to refer to one another using a number of terms, including 'the godly', 'gospellers' or 'hot gospellers', 'professors' of true religion, and 'saints'; although 'saints' could also be used, like 'Puritans', 'precisians' and 'scripture men', as a term of derogation (Collinson 1983a).²⁰ Mayo's use, of course, was anything but derogatory. Trenchard was 'the Saint to whom in heart I owe most dutifull devotion'; for he was

such a fautor and friend of vertue and good literature, such a furtherer and favourer of true Christian religion, and of the preachers and ministers thereof, and so wise, well affected, and given everie kind of wayes, that I should rather embeazle, then illustrate your condign prayse.

Such effusions might well have raised an eyebrow from Chubb — after all, it was just as possible to make idols of men as of buildings — but Chubb could not have denied the necessity of the cause, especially the favouring of preachers, on account of which Mayo poured them forth.

By themselves, Chubb's Dorchester sermons cannot be read as a 'manifesto' or 'plan' for wholesale reformation, despite the admonitions made to the powers-that-were. Even so, it should not be supposed that Chubb was not performing a vital part of that totalising mission by seeking to educate Dorchester's — and Underdown's — unregenerate: popular education was vital not just in the early stages of the Reformation, during the break from medieval religion, but remained a general concern as much for those who sought further reformation, as for those who wished merely to see the Church of England maintained against the twin extremes of Puritanism and Popery (Heal 2005, 257-304). Underdown's comment about the lack of vision among Dorchester's earlier governors is also at best misleading — if not disingenuous. By the time of Chubb's sermons, the

model for John White's Dorchester was already well established and being put into effect, most notably in East Anglia. Neither Trenchard nor anyone else had to invent from scratch a vision of a godly society, only to look elsewhere: the model was Geneva and the Biblical 'city on a hill', and in the 1580s in places like Bury St Edmunds and Norwich, magistracy and ministry were coupling vigorously to beget their own little Genevas — although not without a good deal of contention and controversy. William Burton, a preacher who was forced to leave Norwich in 1589 after an ill-advised sermon, later reminisced of his tenure there:

Oh the heavenly harmony and sweet amitie that then was amongst you from the highest to the lowest! The magistrates and the ministers imbracing and seconding one another, and the common people affording due reverence and obedience unto them both.²¹

The Dorchester sermons really must be taken together with Chubb's other printed works, because only then is there revealed not merely a preacher preaching, but also the existence of a wider alliance for reform within town, county and region — local governors patronising and supporting the same godly minister, commissioning sermons whether in households or parish churches. Within the pages of these works, Trenchard, and the Paulet and Thynne families all stand in direct relation to Chubb and also to one another. The formation of such networks or societies was a hallmark of the godly throughout this period. They have been described by William Hunt as a 'mutual aid society, sharing both material and spiritual resources', and he noted that they displayed a strong tendency towards endogamy, with membership of their ranks tempering class consciousness (Hunt 1983, 232). These networks, like solar systems, always had particular centres of gravity, and when the historian comes to map them, he or she must often apply the principle popularised as 'six degrees of separation', which becomes instead 'degrees of preacher X' — as for Chubb's network — or 'degrees of layman or laywoman Y'.²² Another godly network, but with a laywoman as its central star, can be traced at Wimborne Minster, albeit at a later date than Chubb's network. Working outwards from the will of a local gentlewoman, Mary Gundry, a group taking in churchwardens and members of Wimborne's

corporation, local preachers, MPs and even the famous Puritan mayor of Exeter, Ignatius Jurdaine, is revealed.²³ These people intermarried and supported one another through deprivals, difficulties and death: acting as executors of one another's wills and fulfilling religious provisions such as the administering of doles, annuities and gifts, and exchanging death's head rings and other religious jewellery as tokens of remembrance.

In his study of Exeter between 1540 and 1640, Wallace MacCaffrey used a microbial metaphor to describe the first stirring of Puritanism in the city: 'Only very late in our period', he wrote, 'does the yeast of Puritan enthusiasm begin to ferment in Exeter' (MacCaffrey 1975, 25). Another such comparison may not be amiss here either. For as with the so-called 'fairy rings' of fungus that spread across lawns, the sudden bloom belies the subterranean work that produced it — the slow and patient spreading of filaments, the creation and consolidation of linkages. In Dorchester, this underground-work should be attended to as much as the bloom that followed, however great the contrast between them.

REFERENCES

- Alford, S. 2004. *Kingship and Politics in the Reign of Edward VI*, Cambridge.
- Aston, M. 1995. *The King's Bedpost: Reformation and Iconography in a Tudor Group Portrait*, new edn, Cambridge.
- . 2016. *Broken Idols of the English Reformation*, Cambridge.
- Blench, J.W. 1964. *Preaching in England in the Late XVth and XVIth Centuries*, Oxford.
- Botfield, B. 1858. *Stemmata Botevilliana: Memorials of the Families de Boteville, Thynne and Botfield, in the Counties of Salop and Wilts*, London.
- Bremer, F.J. 2012 *Building a New Jerusalem: John Davenport, a Puritan in Three Worlds*, London.
- Brigden, S. 1982 'Youth and the English Reformation', *Past and Present* 95, 37-67
- Burgess, C. 1988. "'A Fond Thing Vainly Invented": An Essay on Purgatory and Pious Motive in Late Medieval England' in S.J. Wright ed. *Parish, Church and People: Local Studies in Lay Religion, 1350-1750*, 56-84, London.
- Chubb, W. 1585. *Two fruitfull and godly sermons preached at Dorchester in Dorsetshyre, the one touching the building of Gods temple, the other what the temple is*, London.

Hardy and Heritage Project with the University of Exeter

ANGELIQUE RICHARDSON AND HELEN ANGEAR

'Hardy and Heritage' is an Arts and Humanities Research Council-funded collaborative PhD project with the University of Exeter and Dorset County Museum which aims to create a digital database of the letters written to the poet and novelist, Thomas Hardy (1840-1928). The collection of over 5,000 letters forms part of Dorset County Museum's Thomas Hardy Memorial Collection, the largest Hardy collection in the world, recently selected for the UNESCO UK Memory of the World Programme register. While the letters from Hardy are in print (and have been available online since 2012), this collection is unpublished.

Working with Exeter's digital humanities team, this project involves digitization of the correspondence to create a remotely accessible online database of a selection of the letters. Supported by a collaborative doctoral award from REACT and Dorset County Museum, the work will provide new contexts for reading Hardy and educational initiatives will focus on encouraging students to engage with cultural heritage, using archives and a selection of transcribed letters to enhance learning in schools and colleges. This is in collaboration with the learning group of the Thomas Hardy Steering Group (partners include Dorset County Museum, Exeter, The National Trust, Bath Spa University, Dorset County Council, Dorset Area of Outstanding Natural Beauty, Kingston Maurward College and the Thomas Hardy Society).

Correspondents include prominent writers (e.g. Grant Allen, J.M. Barrie, Browning, Havelock Ellis, George Egerton, Gissing, Kipling, T.E. Lawrence, Levy, Meredith, Charlotte Mew, Ezra Pound, Siegfried Sassoon, Wells, Woolf), artists and illustrators (e.g. Augustus John, George du Maurier, Helen Paterson), musicians (e.g. Elgar, Holst) and actors (including Gertrude Bugler), as well as charitable and political organisations, family and fans. The correspondence reveals Hardy's involvement in a global network, engaged in a range of debates including on art, education, female emancipation, war and animal welfare.

The Principal Investigator and Supervisor for this project is Professor Angelique Richardson, with PhD student Helen Angear. Helen's research examines proximity and distance in postal correspondence, with particular emphasis on the role of letter-writing within the context of friendships with other historically significant individuals.

Project updates

Digitisation

We have now completed digitisation of the main collection of letters in the Hardy archive. This is a significant achievement as there were over 5,000 letters and each side has been photographed individually. There is one additional selection labelled 'Birthday Letters' to photograph and include in the alphabetical sequence. There are also letters in the Lock collection that will be photographed when the new Digital Humanities Lab opens at the University of Exeter later this year. In the meantime we are working on preparing the images for database access.

Text-encoded transcripts

So far seventy-five letters have been transcribed as a test sample using software that allows xml encoding to be used. By September 2018 some 100 letters will be made accessible to visitors at DCM via the installation of a workstation in the Hardy gallery

Conferences and research seminars

In October 2016 Helen Angear attended the Discovering Collections, Discovering Communities (DCDC) conference run by the National Archives and Research Libraries UK (RLUK) where she delivered a paper with Graham Fereday and Hannah Petrie from Exeter's Digital Humanities research team. Full information about the conference and access to a recording of the presentation can be found at <http://dcdconference.com/dcdc16-papers/>

The paper, entitled 'Reviving epistolary conversations: Linked Data and dialogic approaches to letter collections', examined the benefits of taking

a dialogic approach to connect single author archives. Letters are traditionally stored and published separately, yet greater understanding comes from reading letters in overlapping pairs. Correspondence is a developing area within the TEI (Text Encoding Initiative), and by combining text markup with a Linked Data approach, we can document and describe entities (such as people, places, and events) found within a single author's letters to connect our data with those of other organisations, both within and outside academia. This creates new research pathways enabling users to explore collections in more serendipitous ways.

Helen Angear also gave a paper at an international conference in Krakow which raised awareness of the project and the research emerging from this. A version of that paper was given as part of the Hardy Talks series in July 2017.

Angelique Richardson and Helen Angear gave a research paper at the University of Exeter, 'Hardy's correspondents: TEI, Linked Data and dialogic approaches to letter collections', as part of a research seminar in the Department of English. They also gave a talk on the project at the Study Day on *The Woodlanders* organised by the Thomas Hardy Society in collaboration with the University of Exeter and the British Society for Victorian Studies in April 2017. This included a transcription workshop.

Outreach work

In the last two years Angelique and Helen have worked with various schools to demonstrate how the letters can be used in line with curriculum needs:

- Poole Grammar School contacted DCM last summer and Helen Angear attended their Yr 9 Victorian Day, delivering workshops to 60 pupils across three sessions. This has developed into an ongoing partnership and Helen will deliver similar sessions at the event this year. Their Yr12 students also took up one of the new learning offers at DCM to enhance their study of *Tess of the D'Urbervilles*.
- Mullion School participated in a week of sessions to prepare their Year 9 students for new curriculum content at GCSE level, in line with recent government-led changes. Using Hardy's

interest in animal welfare as the theme, we have developed resources that use nineteenth- and early twentieth-century non-fiction texts, including key letters sent to Hardy, to engage students. The materials have now been adapted to form a new learning offer at DCM.

- Exeter College has become actively involved in the project, with students from the International Baccalaureate and A level programmes taking part in sessions that highlight the benefits of using archive material to enhance Hardy studies.

DCM learning offers

Angelique and Helen have liaised with DCM's Education Officer Emma Talbot and pilot work with schools and colleges in the South West has now been adapted to form three separate learning offers at the Museum. These aim to meet curriculum needs at key stages 3-5. Further details will be added to the DCM education page. The first session ran in July 2017.

Additional engagement work

Angelique and Helen have worked with Helen Gibson and Andrew Leah on plans for the new Hardy Gallery, drawing out research themes and ensuring that educational opportunities are embedded in the new displays.

The project's Twitter account is @HardysPostbox and Twitter interest has been growing steadily. As well as promoting events, some of the tweets contain quotations from the letters sent to Hardy, while others highlight features of the culture of nineteenth-century letter-writing. Tweets are often accompanied by photographs from the collection.

To find out more about the project visit the Hardy and Heritage website: <http://hardyrespondents.exeter.ac.uk/tag/thomas-hardy/>

[1] a [upper part] <i>Begins 'An' a'ter tha'd a gid God thanks'</i> (Harvest Huome. The vust Piart. The Supper, lines 13–40)	390822	144	54
a [lower part] A Christmas invitation (title and lines 1–4)	381220	201	86
b [whole page] Whitsuntide an' Club wa'ken (title and lines 1–33)	390523	88	25
[2] a [whole page] The Huomestead (complete)	390926	221	95
b [upper part] <i>Begins 'An while the trees do stan, that grow'd'</i> (The girt wold House o' mossy Stuone, lines 79–94)		269	122
b [lower part] The happy daes when I wer young (title and lines 1–20)	400109	194	82
[3] a [upper part] <i>Begins 'Oh speak to martals ...'</i> (The happy daes when I wer young, lines 21–38)	400109	194	82
a [lower part] Keepen up o' Chriss'mas (title and lines 1–20)	391226	202	87
b [whole page] Teaken in Apples (complete)	391003	161	65
[4] a [whole page] The girt Woak Tree that's in the Dell (complete)	390117	55	9
b [upper part] A Christmas invitation (complete)	381220	201	86
b [lower part] The Mâid var my Bride (complete)	390718	220	94
[5] a [upper part] Bob the Fiddler (complete; see Fig. 1)	391017	65	15
a [lower part] Martin's Tide (title and lines 1–4; see Fig.1)	391128	168	70
b [whole page] The girt wold House o' mossy Stuone (title and lines 1–37)		266	122
[6] a [whole page] <i>Begins 'His miares long vlexy vetlocks grow'd'</i> (Uncle out o' debt ..., lines 15–24)	400312	225	97
b Blank page			
[7] a [whole page] <i>Begins 'I've a pud var friends & I'll vine a peair'</i> (Uncle out o' debt ..., lines 55–84)	400312	226	97
b Blank page			
[8] a Summer Evemen Dance (complete) [Half-page fragment]	390725	133	50
b <i>Begins '... var to zet / [The milk in an'] a vew things muore / Wer al' a' carr'd the day avore'</i> (Liady-day an' ridden house, 51–70) [Half-page fragment]	390328	46	3

Summary of contents:

16 poems (or parts of poems) in the broad form of the dialect, one of which (54) was also copied by hand Q, all in the first collection.

Dates of publication in DCC range from 20 Dec 1838 (86) to 12 Mar 1840 (97).

TABLES 2A AND 2B: PAGES FROM B. 207. 1 IN BLUE INK ('HAND Q')

Column 1 in these tables supplies a number for each of the four sides in each pamphlet. The other columns are as in table 1.

2a: Pamphlet 1

[1] [whole page] Harvest Huome. The vust Piart. The Supper (title and lines 1–24)	390822	144	54
[2] [upper part] <i>Begins 'An uncle wi his elbows out'</i> (Harvest Huome. The vust Piart. (lines 25–40)	390822	145	54
[lower part] Second piart. What tha' done ater supper (subtitle and lines 1–8; main title missing)	390905	146	55

[3] [whole page] <i>Begins</i> 'Oone scrap'd away wi' merry grin' (Harvest Huome. Second piart. What tha' done ater supper (lines 9–32)	390905	146	55
[4] Blank page			

2b: Pamphlet 2

[1] [whole page] Woodcom Fieast (lines 1–32)	390214	52	7
[2] [upper part] <i>Begins</i> 'Zome [yearly?] dā' ve a broke between' (Woodcom Fieast, lines 33–50; see Fig. 2)	390214	53	7
[lower part] The Huomestead (title and lines 1–12; see Fig. 2)	390926	221	95
[3] [upper part] <i>Begins</i> 'I got a gearden var to dig' (The Huomestead, lines 13–32)	390926	222	95
[lower part] In the stillness o' the night (title and lines 1–8)	400227	195	83
[4] [upper part] <i>Begins</i> 'An then at evemen I da goo' (In the stillness o' the night, lines 9–24)	400227	196	83
[lower part] Blank			

Summary of contents of tables 2a and 2b:

5 poems (or parts of poems) in the broad form of the dialect, one of which (54) was also copied by hand P, all in the first collection.

Dates of publication in DCC range from 14 Feb 1839 (7) to 2 Feb 1840 (83).

Set 2

Manuscripts handed down through Barnes's family

This set of manuscripts is made up of a series of seven exercise books containing poems written by hand, with multiple alterations reflecting different stages of composition, and some loose leaves inserted originally at the back of a book containing poems in Standard English, but now taken out and catalogued separately in their own right. The current catalogue numbers of the seven exercise books, with their former numbers in parentheses, are as follows: B. 179 ('M.SS. Book No. 1'), B. 188 ('MSS. No. 3'), B. 189 ('Book No. 4'), B. 190 ('M.S. No. 5'), B. 192 ('MSS No. 6'), B. 193 ('M.S. Book No. 7'), and B. 254 ('M.SS Book No. 2'); the loose leaves, now catalogued as B. 2012. 37, were originally placed at the back of B. 180 (inscribed, on the cover, 'W. BARNES | Book | A', and inside the front cover, in a later hand, 'White Vellum Book. A').

Neither their earlier book numbers nor their current catalogue numbers reflect the probable order of composition of the individual books. If, however, the books were filled one after another; if a new book was not started until the previous one had been filled; and if the poems in each were written sequentially

from front to back (except where there is evidence to the contrary); it should be possible to deduce their probable order of composition. If the books were

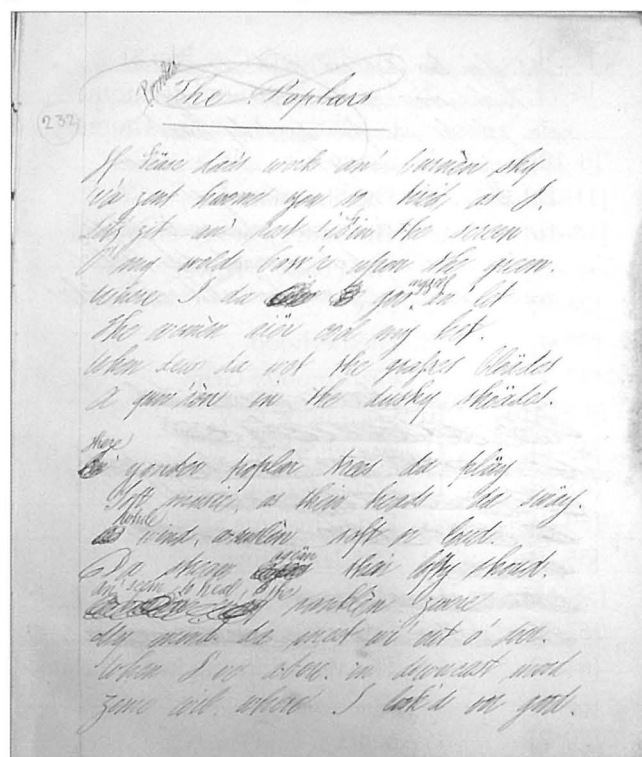


Figure 3: The beginning of 'The Poplars' (B. 254 [1], DCM), the fourth of Barnes's poems to appear when he resumed publication in DCC in 1856 after a twelve-year break

indeed filled in this way, it must be true that all poems in an individual book would have been written before the date of publication of the last poem in that book, even when some of the poems earlier in the book were not published until later; and, further, that all the poems in one book would have been written before the date of publication of the first poem to be published in the next book, even when this latter antedates that of the last poem to be published in the earlier book. If these assumptions are accepted, the books will have been filled, and the poems in them written, in the order in which they are arranged in the tables below.

TABLES 3–9

The columns in these tables present information in the following order:

- 1 the page number in the manuscript book (in square brackets if the pages are not numbered)
- 2 the position of the poem within the book
- 3 the title of the poem as it appears in the manuscript, with the published title (as it appears in *WBCP*) in square brackets where there are significant differences in wording, and with a diary date for any poem on which Barnes notes in a diary that he was working on a particular day
- 4 the date of first publication (in the form *yymmdd* for poems appearing in *DCC*, *yymmxx* for those in journals or magazines which do not give the day of publication, and '1862' or '1863' for those in one of the editions of the second or third collections of *Poems of Rural Life in the Dorset Dialect*)
- 5 the page in the first edition of the collection of *Poems of Rural Life in the Dorset Dialect* on which the poem (or extract) begins (or the second edition, designated '.ii.', if the poem is not included in the first)
- 6 the editorial number of the poem in *WBCP*.

TABLE 3

B. 254 (MS Book 2)

Grey cover. Page dimensions: c.16.5 x 19.5 cm. Pages not numbered. No leaves missing.

Left-hand page at front: 'List of Poems in this Book' in a later hand in blue ink.

[1–3]	1	The Poplars (See Fig. 3)	561009	2.67	161
[4–7]	2	The bit o' ground at huome [= Eclogue: John an' Thomas]	560911	2.170	218
[8–10]	3	Fancy	581021	3.68	291
[11–13]	4	The Shy man	570709	2.129	195
[14–16]	5	The better vor zee-èn o' you	581111	3.125	335
[17–25]	6	The Leädy's Tower	570903	2.27	143
[26–9]	7	Pity	581209	3.127	336
[30–4]	8	Faetherhood	570115	2.33	144
[35–8]	9	Gruffmoody Grim	570226	2.188	226
[39–44]	10	Gammony Gäy	570507	2.195	229
[45–6]	11	Angels by the door	570514	2.157	210
[47–9]	12	Out at Plough	570326	2.166	215
[50–4]	13	Ridèn hwome at night	570924	2.90	173
[55–7]	14	Mindèn House	570611	2.51	153
[58–61]	15	Herrenston	570416	2.164	214
[62–3]	16	Day's work a-done	570820	2.15	137
[64–5]	17	The Water Spring in the Leäne	570528	2.66	160
[66–9]	18	The Scud	570702	2.48	152
[70–2]	19	Seats	570618	2.117	189
[73–6]	20	The viër-zide	571224	2.72	165
[77–83]	21	The waggon a-stooded	580211	2.17	139
[84–5]	22	Vo'k acomèn into church	580225	2.158	211

[86–9]	23	Haÿmeäkèn nunch time	570625	2.7	134
[90–1]	24	A Life	590210		236
[92–6]	25	Wheat	570813	2.176	220
[97]	26	False friends-like	570910	2.147	204
[98–101]	27	Wayfeärén	580701	2.109	185
[102–4]	28	Nanny Gill	571015	2.200	231
[105–8]	29	Ellen Brine of Allen-burn	580114	2.23	141
[109]		[Blank page]			
[110]		'Wear out the wold oones vust': 1 line of verse (or a title?) at the back of the book, followed by the titles of ten poems, some crossed out; no two consecutive lines of verse.			

Summary of contents:

29 poems, all in the modified form of the dialect.

Twenty-five of the poems are included in the second collection, three [numbers 3, 5, 7] in the third; one [no. 24] in neither.

Dates of publication in *DCC* range from 11 Sept. 1856 [2] to 10 Feb. 1859 [24].

Date of publication in *DCC* of the last poem in B. 254 [29]: 14 Jan. 1858.

Date of publication of the first poem to be published in the next book (B. 179): 17 Dec. 1857.

Assumed date of composition of all poems in B. 254: before 17 Dec. 1857.

TABLE 4

B. 179 (MS Book 1)

Red cover. Page dimensions: c.18.5 x 22.8 cm. Pages numbered in a later hand. No leaves missing.

'List of Poems in the M.S. Book (Red Cover) by William Barnes' in a later hand on a loose leaf inserted at the front of the book.

Opening stanza of 'Praise o' Do'set' in fancy script, in a different hand, on a separate small piece of paper at the front of the book.

[1]–5	1	Riddles	580826	2.12	136
6–9	2	Bleäke's house in Blackmwore	571217	2.81	169
10–12	3	Married peäir's Love-Walk	580107	2.150	206
13–14	4	Jessie Lee	580513	2.136	198
15–17	5	Dobbin dead	580429	2.184	224
18–19	6	The thorns in the geäte	580422	2.155	209
20–2	7	True Love	580624	2.137	199
23–5	8	The beän vield	580610	2.139	200
26–8	9	A Wife a-praised	580722	2.152	207
29–30	10	Open vields	581014	3.53	279
31–3	11	Blackmwore Mäidens	580805	2.1	131
34–5	12	The Wife a-lost	580812	2.154	208
36–7	13	The little worold	590217	3.122	332
38–9	14	Two and Two	590505	3.62	286
40–2	15	The beäten paeth	580916	3.103	318
43–6	16	My love is good [pp. 44–5 blank]	581202	3.108	321
47–50	17	Ruth a-ridèn	581007	3.105	319
51–3	18	Sha'sbury Feäir	580930	3.101	317
54–6	19	Don't ceäre	581118	3.111	325
57–61	20	John Bloom in Lon'on	581216	3.130	337
62–5	21	Praise o' Do'set	581028	2.206	235
66–8	22	Zummer Winds	581230	3.33	265
69–70	23	Fall-time ('The gather'd clouds, a-hangèn low')	581125	3.78	300
71–2	24	Heedless o' my love	590127	3.109	322

Summary of contents:

24 poems, all in the modified form of the dialect.

Twelve of the poems are included in the second collection, twelve in the third.

Dates of publication in *DCC* range from 17 Dec. 1857 [2] to 5 May 1859 [14].

Date of publication in *DCC* of the last poem in B. 179 [24]: 27 Jan. 1859.

Assumed date of composition of all poems in B. 179: before 27 Jan. 1859.

Date of publication of the first poem to be published in the next book (B. 192: 3 Mar. 1859) does not affect this outcome.

TABLE 5

B. 192 (MS Book 6)

Mottled multi-coloured cover, predominantly various shades of brown. Page dimensions: c.18.5 x 22.5 cm.

Pages numbered in a later hand. No leaves missing.

'List of poems in this book, Marked N^o. 6 on flyleaf' in a later hand on a smaller loose leaf inserted at the front of the book. The numbering in this list (not followed below) omits the two poems in StE on the first page and the six at the back

1	1	Englyn: 'Of ev'ry wrongful word and <i>deed</i> ...' [StE translation from Welsh, upper half of page]		
1	2	Charm rhyme, Cadwynawal: 'In swelt'ring <i>day</i> , with sky <i>serene</i> ...' [StE translation from Welsh, lower half of page]		
2		[Blank page]		
3-7	3	The Pillar'd Geäte	590317	3.38 269
8-10	4	Treat well your wife	590512	3.47 275
11-14	5	Grammer acrippled	590303	3.16 254
15-16	6	Grief an' Gladness	590407	3.20 310
17-18	7	Blessèns a-left	590811	3.77 299
19-21	8	Turnèn things off	590331	3.118 330
22-3	9	The wind in oone's feäce	590602	3.64 288
24-5	10	The Flood in Spring	590901	3.14 252
26-7	11	The Betwattled rhymer	590728	3.ii. 239
		[= The Young Rhymer Snubbed]		139
28		[Blank page]		
29-30	12	Changes ('By time's a-brought the mornèn light')	590804	3.112 326
31-2	13	Kindness	590721	3.114 327
33-5	14	Daniel Dwythen The Wise chap	590519	3.117 329
36-7	15	The lew o' the rick	590908	3.63 287
38-40	16	Tweil	590922	3.68 290
41-2	17	The Turnstile	590616	3.124 334
43-5	18	The fair market maid	590915	241
46-7	19	Woakland dell	590818	240
48-9	20	Hawthorn Down	590630	3.52 278
50-1	21	Zunday	590714	3.37 268
52-3	22	Lindenore	590623	3.44 273
54	23	Tokens	590707	3.65 289
		[29 blank leaves; then (starting from the back of the book, turned the other way up) the six StE poems listed below, arranged in this list from the back forwards, as in the MS book]		
64	24	'O she's a girl of winsome face' [untitled poem in StE = 'My Love Is Good', <i>WBP</i> ii. 902]		

62-3	25	Lizzie [StE]
60-1	26	My dearest Wife [StE]
58-9	27	My dearest Julia [StE]
57	28	'The waning days that wear so small From summer, through the brown-leav'd fall ...' [single 8-line stanza (numbered 3) from an unidentified poem in StE; possibly from a draft of 'Fall' ('The waning days now waft us on From world-enlight'ning summer gone' (WBP ii. 666-7)]
55-6	29	Do good [StE]

Summary of contents:

29 poems, of which twenty-one [numbers 3-23] are in dialect and the other eight in StE.

Of the twenty-one dialect poems eighteen are included in the third collection; one [11] was included in 1869 but neither 1862 nor 1879; the other two [18 and 19] were not included in any of the three collections.

Dates of publication in *DCC* of the dialect poems range from 3 Mar. 1859 [5] to 22 Sept. 1859 [16]: all the dialect poems appeared in *DCC* in 1859.

Date of publication in *DCC* of the last published dialect poem in B. 192 [23]: 7 July 1859.

Assumed date of composition of all dialect poems in B192: before 7 July 1859.

Date of publication of the first poem to be published in the next book (B188: 15 Aug. 1861) does not affect this outcome.

TABLE 6

B. 188 (MS Book 3)

Greeny-grey-buff cover. Page dimensions: c.16 x 19.3 cm. Pages numbered in a later hand.

Leaves missing as specified below.

Left-hand page at front: 'List of the Poems in this book - (17)' in a later hand.

1-4	1	Childern's childern	610815	3.30	262
5-7	2	The Castle ruins (See also B.2010.96.7)	611107	3.18	255
8-9	3	The Hollor Woak	620313	3.29	261
10-11	4	Fall Time ('Now the yollor zun, a-runnèn')	610926	3.79	301
12-13	5	Snowy night (See also B.2010.96.5)	620403	3.94	313
14-16	6	Woone smile mwore	611212	3.1	243
17-18	7	Leaves a-vallèn (See also B.2010.96.4)	620417	3.75	297
19-20	8	The Widow's House (See also B.2010.96.3 and B.2010.96.16)	611003	3.81	303
21-3	9	The Love child	611128	3.50	277
24-5	10	The Lark	620227	3.8	247
26-7	11	The Child an' The Mowers	611121	3.49	276
28-9	12	What John wer a-tellèn his mis'ess out in the corn-ground (See also B.2010.96.8)	620320	3.54	280
30-1	13	Times o' Year (See also B.2010.96.14)	611010	3.56	282
32-5	14	The wheel routs (See also B.2010.96.13)	620327	3.72	295
36-7	15	The two churches	620220	3.9	248
38-40	16	The Mill Hwome [= Naighbour Playmeätes]	611024	3.6	246
41		Blank page (following three leaves torn out)			
42-4	17	Hedger (See also B.2010.96.15)	620410	3.12	250

Summary of Contents:

17 poems, all in the modified form of the dialect.

All seventeen poems are included in the third collection.

Dates of publication in *DCC* range from 15 Aug. 1861 [1] to 17 Apr. 1862 [7].

Date of publication in *DCC* of the last poem in B. 188 [17]: 10 Apr. 1862.

Date of publication of the first poem to be published in the next book (B 190): 5 Dec. 1861.

Assumed date of composition of all poems in B. 188: before 5 Dec. 1861.

TABLE 7

B. 190 (MS Book 5)

Mottled cover with alternate black and beige diagonal stripes. Page dimensions: c.15.7 x 19.6 cm. Pages numbered first by Barnes (omitting some pages), then in a later hand; the later numbering is used below. Leaves missing as specified below.

Right-hand page at front: 'List of Poems in this book – (24)' in a later hand.

1–2	1 The Echo	611205	3.3	244
[3]	2 Lwonesomeness	611219	3.93	312
4–5	3 I'm out o' door (See also B.2010.96.6)	620213	3.88	309
6–7	4 Slidèn [last stanza missing] [Two leaves torn out, containing the end of 'Slidèn' and the beginning of 'Woak Hill']	620109	3.91	311
8–9	5 Woak Hill [title and first 3 stanzas missing] [About 11 leaves torn out]	620306	3.10	249
10	6 Shop o' meatweare [One leaf or more torn out; lost material includes the title and first two stanzas of 'Bad News']			502
11	7 Bad News [last two stanzas only] [About 10 or 11 leaves torn out]	1862	3.123	333
12–13	8 Walkèn hwome at night			503
14–16	9 The Knowl			504
17–20	10 A wish acome true (See B.2010.92 for a type (ii) MS)	671003		484
21–3	11 At the door (<i>MM</i>) [One leaf torn out before the title and cancelled first stanza of 'Hill or Dell']	6410xx		471
24–5	12 Hill or Dell			505
26–30	13 Dan an' Jeäne			506
31–3	14 Hwome (<i>MM</i>) [= The Little Hwomestead]	6410xx		473
34–6	15 Fellowship (<i>MM</i>) (Diary date 16 Mar. 1864)	6411xx		474
37–8	16 Air an' Light (Diary date 18 Apr. 1864)			507
39–40	17 Meldon Hill (Diary date 16 Apr. 1864)			508
41–2	18 Soft Sounds (Diary date 5 Nov. 1864)			509
43–4	19 The Vaïce ov Hwome			510
45–7	20 The Vire zide Chairs (Diary date 27 Jan. 1865) [Two leaves torn out; on the stub of the first missing leaf, at right angles to the normal text, is written 'D.C.C. Winter weather' = 498 (Diary date 31 Jan. 1865), published in <i>DCC</i> 9 Jan. 1868]			511
48	21 My Love agrowen			512
49	22 Vorgetting and minding [One leaf torn out]			513

50–2	23	Come an meet me wi' the childern on the Road		514
53–4	24	The lost little Sister	670912	481
55–6	25	Black an White		515
57–8	26	Do my voreelders know o' me?		516
		[Press cutting headed by hand 'Eggerdon Sepr 81']		
		[12 lines of titles and other jottings inside back cover, beginning with 'Picken o scroff'		
		(crossed through with a single horizontal line)]		

Summary of contents:

26 poems, all in the modified form of the dialect.

Six poems are included in the third collection [1–5, 7]; seven [1–5, 10, 24] were first published in *DCC*; three first appeared in *MM* [11, 14, 15]; fifteen remained unpublished at Barnes's death.

Dates of publication in *DCC* or *MM* range from 5 Dec. 1861 [1] to 3 Oct. 1867 [10] (or, if 'Winter Weather' was on one of the leaves torn out after [20], the latter date would be 31 Jan. 1868).

Date of publication of the last published poem in B. 190 [24]: 12 Sept. 1867.

Date of publication of the first poems to be published in the next book (B 189): 1863.

Assumed date of composition of the first 24 poems in B. 190: before 1863.

TABLE 8

B. 189 (MS Book 4)

Mottled green and black cover. Page dimensions: c.18 x 22.6 cm. Leaves missing as specified below.

Several poems partly or wholly revised as detailed below and written on separate pieces of paper stuck into the book over the original versions.

'List of Poems in this book' in a later hand on a separate page at the front of the book.

1–2	1	Work a-vield			517
3–4	2	The May tree	1863	2.ii.105	182
5–6	3	When we that now ha' childern, wer childern			518
7–8	4	Moonlight on the door	1863	2.ii.206	232
9	5	['Tis wind that do weaft on the clouds']			519
10–12	6	Zickness			521
13–14	7	The Bwoat	1863	2.ii.170	216
15–17	8	The turn of the Days	1863		227
18–19	9	Vrom Hinton (<i>MM</i>)	6410xx		472
20–1	10	By Naighbour's Doors			522
22–5	11	Work an' Wait (See also B.193.[14])			541
26–9	12	Over sea, to settle (A revised and shortened version, in the modified form of the dialect, of 126, 'Eclogue: Emigration') [One leaf or more torn out]			468 [126]
30–3	13	Lewth [stuck in on smaller medium-blue paper (c.16.2 x 20.2 cm), with cancellations on opposite pages]			523
34–5	14	Between Haÿmeäkèn an' Harvest [last two speeches (lines 28–36) inserted on a half-page of light-grey paper (c.15.8 x 12.6 cm), glued in at the top only; the earlier version can be seen when the inserted half-page is lifted]			524
36–43	15	Huome's a Nest [two versions, one stuck in on a four-leaf booklet of lightish-blue paper (c.17 x 21.5 cm, pp. 36–9), before the cancelled version (40–3)]			525

44-5	16 Which Road?		526
46-7	17 Mother o' Mothers		527
		[second stanza stuck in on a half-page of light-grey paper (probably the same as that for 524, cut or torn to a slightly different size, c.15.8 x 10.9 cm); only its bottom right-hand corner can be lifted to reveal the earlier version]	
48-9	18 Things a-vallèn		528
50-3	19 The Mornen Moon		529
		[lines 17-34 stuck in on medium-blue paper (c.16 x 20.2 cm, evidently the same as that for 523, with part of the width lost in the binding)]	
54-5	20 Jaÿ a-past (MM)	6405xx	470
		[Three leaves torn out]	
56-7	21 Aputten the church to rights		530
58-9	22 Angry wi a naighbour Before an echo	671212	494
		[= John Brine Angry...]	
		[stuck in on white paper (c.16.7 x 21.2 cm) at the end of the book, before the flyleaf]	

Summary of contents:

22 poems, all in the modified form of the dialect.

Four poems were included in the second edition of the second collection (1863) but not the first [2, 4, 7, 8]; two appeared in *MM* in 1864 [9, 20]; one appeared in *DCC* in 1867 [22]; the remaining fifteen were unpublished at Barnes's death.

Several poems are wholly or partly rewritten on originally separate pages afterwards stuck into the MS book [13, 14, 15, 17, 19, 22].

Dates of first publication range from 1863 [2, 4, 7, 8] to 12 Dec. 1867 [22].

Date of first publication of the last poem in B. 189 [22]: 12 Dec. 1867.

Date of publication of the first poem to be published in the next book (B 193): some time in June 1867.

Assumed date of composition of all poems in B189: before 30 June 1867.

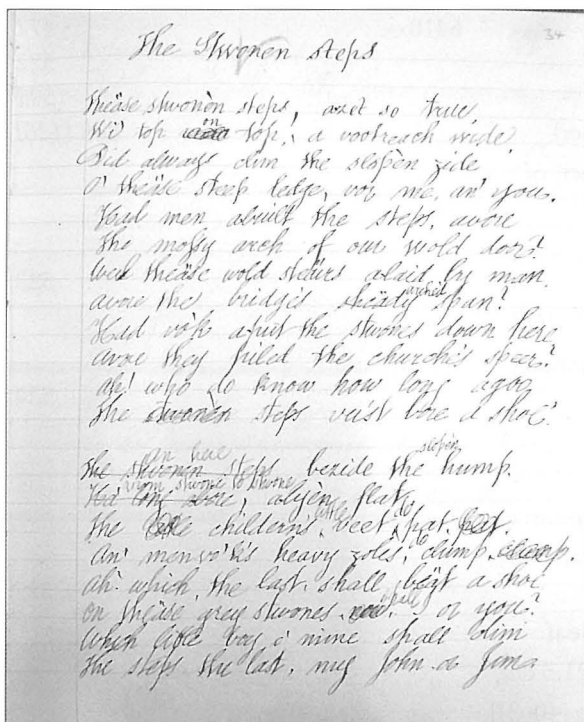


Figure 4: The beginning of 'The Stwonon steps' (B. 193 [18], DCM), one of the twenty-nine poems in this MS book that were not published during Barnes's lifetime

TABLE 9

B. 193 (MS Book 7)

Mottled multi-coloured cover, predominantly various shades of brown. Page dimensions: c.18.2 x 22.7 cm.

Leaves missing as specified below.

'Metres': various unnamed scansion in WB's hand on flyleaf, followed by a blank page.

'List of poems in the M.S. Book, marked N^o. 7 on flyleaf': in a later hand on a smaller loose leaf inserted at the front of the book.

1	1	The zun a-lightèn eyes a-shut [Two leaves torn out; several lines on the stubs of the missing pages begin 'Ah' or 'Oh']		531
2-3	2	Twice a Week		532
4	3	Clouds	680116	499
5-6	4	Sheep in the sheäde (<i>Hawk</i>)	6706xx	475
7-8	5	The String Token		533
9-11	6	What vrom? Sung before an echo		534
11-12	7	Beguiled		535
13-14	8	Awaïten vor the Spring		536
15-17	9	The Wind a-pläyèn round [Two leaves torn out]		537
18-19	10	The Spears about the Pool		538
20-1	11	The Sister and Brothers (See B.2010.91 for a type (ii) MS)	670905	480
22-3	12	Borrow and Lend [Two leaves torn out]		539
24-5	13	Vew evenèns alike		540
26-7	14	Work and Wait (See also B.189.[11])		541
28	15	The wold Clock		542
29-31	16	Up the Hill [= On the Hill, DCC]	671017	486
32-3	17	The Dream [= The Mother's Dream; <i>Hawk</i> then DCC 15 Aug. 1867]	6708xx	476
34-5	18	The Stwonen steps (See Fig. 4)		543
36-7	19	Bench by the Gearden Wall (Diary date 3 July 1866)		544
38	20	All still (Diary date 3 July 1866)		545
39-41	21	Changes [= Changes [II], 'What changes John beyond our thought'] (Diary date 3 July 1866)		546
42-3	22	Not vur to goo		547
44-5	23	Zing together oonce mwore		548
46-7	24	['Aar was a clouk Ee-marieet to a slouk'] Taken Mutatis mutandis from a Song in the Old English speech of the Barony of Forth Co Wexford		549
48-9	25	['Casteale Cuddes Lamentation vor loss o' his cuck aat was ee-took bee a vox'] Taken, Mutatis mutandis, from a Song in the Old English of the Barony of Forth Co Wexford		550
50-1	26	The Wind up the stream (<i>Hawk</i>)	6709xx	479
52	27	The Drove (A revised version, in the modified form of the dialect, of 129)		469 [129]
53	28	The Parrick		551
54-5	29	The yield path	671226	496

56–61	30	When we wer young together (See B.2010.93 for a type (ii) MS)	671121	491
62–3	31	Well to do		552
64–5	32	The broken mug [= The Broken Jug]	671031	488
66	33	Lowshot light	670926	483
67	34	Green	671024	487
67–8	35	Happy Times		553
69–70	36	By the mill in Spring		554
71–2	37	The Wind at the door	670829	478
73–4	38	Shellbrook		555
		[Top halves of two successive leaves torn out; the next poem (556) is on the lower half of the first; the lower half of the second (unnumbered) is blank]		
75	39	['The burdock leaves upon the ledge'] [= 'A Brisk Wind', <i>WBP</i> i. 566]		556
76–7	40	The skittish Maidens [= The Surprise]	670919	482
78	41	The Dog wi' me (Diary date 20 July 1867)	670822	477
79–80	42	Two-peärt Zingèn (See B.2010.90 for a type (ii) MS)	671128	492
81–2	43	Melhill Feäst		557
83–4	44	['The length o the days ageän do shrink'] [= 'The Fall', <i>WBP</i> i. 570]	671010	485
85–6	45	The Stream-Zide	671107	489
87–8	46	The Bars on the landridge [= The Bars on the Ridge]	680130	500
88–9	47	Aridèn		558
90–3	48	The hufflen wind [= Winter A-Comèn] (Diary date 30 Oct.1867)	671205	493
94–5	49	White and Blue (Diary date 30 Oct. 1867; see B.2010.89 for a type (ii) MS)	671114	490
96–7	50	White in the night (Diary date 11 Nov. 1867) [About six leaves torn out]	671219	495
98–99	51	Every way pleasing [StE]		
100	52	The Stormwind [StE] [Two leaves torn out; 'Shelvinghay' is written on the stubs of each of the missing leaves at right angles to the rest of the text. For the complete StE poem see <i>WBP</i> ii. 793–4.]	680910	
101–2	53	The Oak [StE = 'The Old Oak', <i>WBP</i> ii. 875–6]	690429	
103	54	'When Woodcombe to you no more is near' [StE = a version of 'About to Part', <i>WBP</i> ii. 853–4] [Three or four leaves torn out before the flyleaf]	680514	

Summary of contents:

50 poems in the modified form of the dialect; 4 poems in StE at the end.

All fifty of the dialect poems postdate the third collection; eighteen were first published in *DCC* and three in *The Hawk* (one of these three [17] appearing more or less simultaneously in *DCC*); the other twenty-nine remained unpublished at Barnes's death.

Dates of first publication range from some time in June 1867 [4] to 30 Jan. 1868 [46].

Date of first publication of the last dialect poem in B193 [50]: 19 Dec. 1867.

Assumed date of composition of all dialect poems in B. 193: before 19 Dec. 1867.

Of the four poems in StE at the end, the last was published in *DCC* on 14 May 1868; it may accordingly be deduced that all four were composed before 14 May 1868.

Set 3

Manuscripts in the Bernard Jones bequest

These manuscripts appear to be of two distinct types: (i) the majority, in several instances incomplete, in poor condition, with writing often faint and difficult or impossible to read, but valuable in preserving what appears to be the earliest surviving draft of the poem; (ii) a small group of six that are neatly laid out, with the appearance of fair copies, relatively well preserved, and easily read.

In several instances Set 3 provides the only surviving manuscript of the poem (or a part of it) in dialect; in all others there is another manuscript in one or other of the exercise books in Set 2 (see the summaries at the ends of tables 11a and 11b).

It will be apparent from the illustrations accompanying the tables that there are some marked differences in handwriting amongst the manuscripts of Barnes's poems. Some of these differences may doubtless be ascribed to the illness Barnes suffered late in 1854, as described by his daughter Lucy:

The autumn of this year is marked by a very painful illness, articular rheumatism, which kept William Barnes in bed in a critical state for a month, from the end of November till Christmas. It left a very trying result behind it, the muscles of the hand remained so cramped that for some time he could not hold a pen in the usual way, but wrote with his fist. He had great fears that he would never regain the full use of the hand, but though in course of time he obtained more power over his fingers, his handwriting was never again so free and legible as it had been; its curious up and down pointed style becoming more strongly marked. (Baxter 1887, 158–59)

Other differences, however, may support the suggestion noted under 'Set 1' above that not all of the surviving manuscripts were written by Barnes himself. The handwriting in the various manuscripts calls for a more detailed examination than is possible in the space of this article: it will be the subject of a separate study currently in preparation.

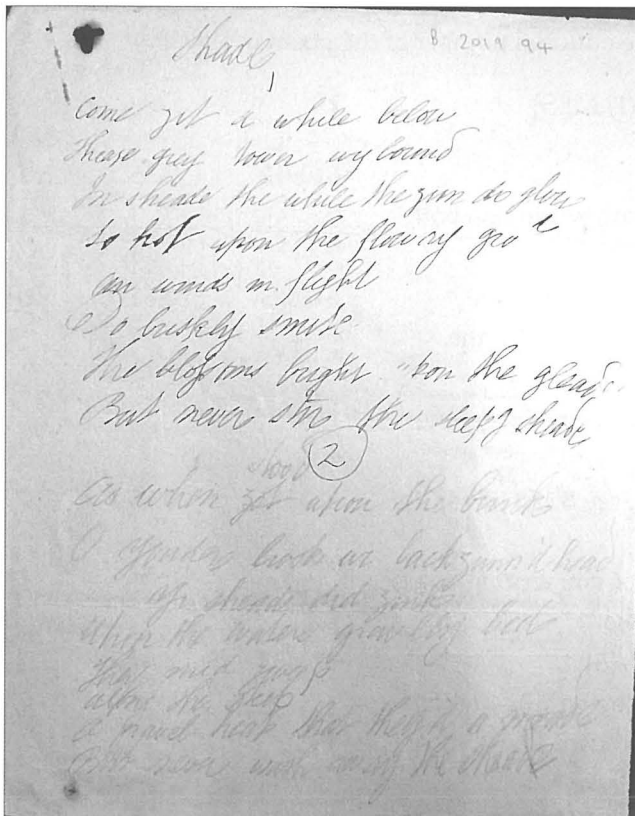


Figure 5 (Type i): The first two stanzas of 'Shade', a draft version of the poem later retitled 'Sheades' (B. 2010. 94, DCM)

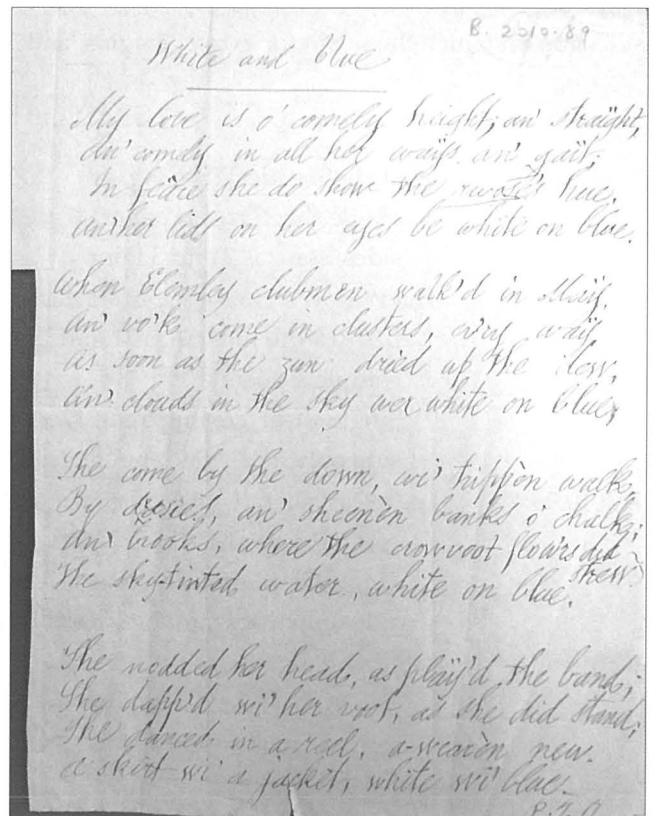


Figure 6 (Type ii): The first four stanzas of 'White and blue' (B. 2010. 89, DCM)

TABLE 10

Column 1 in this table gives the DCM's current catalogue number, column 2 the title of the poem as it appears in the manuscript, and column 3 the editorial number of the poem in *WBCP*.

B.2012.37 (loose MS pages originally at the back of B. 180)

B.2012.37.1	Cwold Harbour Two separate sheets, each written on one side only; p.1 = 20.4 x 24.4 cm, p. 2 = 19.4 x 24.7 cm.	559
B.2012.37.2	['In Fall tide I overheard'] [= 'Fall Tide', <i>WBP</i> ii. 948–9] A single sheet folded in half to give four sides (each <i>c.</i> 20.5 x 32.2 cm), with writing on the outer sides only; 560 added at the end.	561
B.2012.37.2	['Be ground vull dry and blue the sky'] [= 'When the Feast Do Come Round', <i>WBP</i> ii. 948] Follows at the end of 561 , on the same page.	560

Summary:

Three poems in the modified form of the dialect, all apparently unfinished or unrevised; none published during Barnes's lifetime.

TABLES 11A AND 11B (B. 2010 BERNARD JONES BEQUEST)

In these tables the poems are arranged in the order of their catalogue numbers, which have no relation to their date of composition or publication. Column 1 gives the DCM's current catalogue number, 2 the title of the poem as it appears in the manuscript, 3 the date of first publication, 4 the page in the first edition of the collection on which the poem (or extract) begins, and 5 the editorial number of the poem in *WBCP*.

11A [TYPE (I) MSS]

B.2010.94	Shade [= Sheädes] (See Fig. 5) Single sheet, cream paper, 17 x 21.6 cm; writing on both sides; stanzas 2 and 3 faint	610912	3.55	281
B.2010.96.3	The Widow's House (Untitled; last 2 stanzas only; see B2010.96.16 for stanzas 1 and 2, and B.188 [8] for the complete poem) Single sheet, cream paper, 17 x 21.2 cm; writing on one side only; fairly faint but all legible	611003	3.81	303
B.2010.96.4	Leaves a-vallèn (Untitled; stanza 1 only; see B.188 [7] for the complete poem) Single sheet, greyish paper, 17.2 x 21.4 cm; writing on one side only; very faint but mainly legible	620417	3.75	297
B.2010.96.5	A Snowy Night (Untitled. See also B.188 [5]) Single sheet, cream paper, 17 x 21.6 cm; writing on both sides, almost entirely faded away in the middle of most lines	620403	3.94	313
B.2010.96.6	I'm out o' Door (Untitled; stanza 1 only; see B.190 [3] for the complete poem) Single sheet, grey paper, unevenly torn across foot, 15.5 x 13.5 to 14.8 cm; writing faded away in parts (esp. at top and left); arithmetical calculations written on reverse	620213	3.88	309

B.2010.96.7	The Castle Ruins (Untitled; stanza 5 only; see B.188 [2] for the complete poem) Single sheet, cream paper, unevenly torn across foot, with marks at left suggesting it was torn from a book bound by a wire spiral, 18.2 x 9.5 to 11.8 cm; writing on one side only, very faint but mainly legible	611107	3.18	255
B.2010.96.8	What John Wer A-Tellèn His Mis'ess (Untitled; last stanza only, very faint; see B.188 [12] for the complete poem) Single sheet, cream paper, raggedly torn across foot, 16.9 x 20.5 cm; writing on one side only, faint but all legible	620320	3.54	280
B.2010.96.9	The Mill Hwome [= Naïghbour playmeätes] (See also B.188 [16]) Single sheet, grey paper, folded in half to give four sides, each approx. 17 x 20 to 21 cm; writing on all sides, very faint apart from title (added later?) and final four lines, but mainly legible; each page crossed through with single diagonal line	611024	3.6	246
B.2010.96.10	Zummer Stream (Untitled; lines 1–18 only) Single sheet, cream paper, approx. 16.4 x 21 cm, with curved tear at top left corner already present before writing added (on one side only); middle of some lines faded and barely legible	1862	3.44	270
B.2010.96.11	Went vrom Hwome (Untitled; lines 1–20 only) Single sheet, cream paper, uneven at left, 15.9 to 14.1 x 21 cm; writing on both sides; lines 17–20 faint but legible	1862	3.83	305
B.2010.96.12	Vull a Man (Untitled) Single sheet, grey-blue paper, folded in half to give four sides, each c.16.7 x 20.7 cm; sides 2 and 3 have blank tables in red in lower half; side 4 has one word only, 'Wound', in bottom right-hand corner at right angles to main text	611017	3.4	245
B.2010.96.13	The Wheel Routs (Untitled; stanzas 1 and 2 only; see B.188 [14] for the complete poem) Single sheet, cream paper, 17.1 x 21 cm; writing on one side only; first and beginning of second stanza very faded and barely legible; both stanzas crossed through with single diagonal line	620327	3.72	295
B.2010.96.14	Times o' Year (Untitled; stanzas 2 and 4 reversed; see also B.188 [13]) Single sheet, greyish paper, 11 x 17.2 cm; writing on both sides; lines 1–18 crossed through with single diagonal line; lines 19–24 very faded in middle with some words illegible	611010	3.56	282

B.2010.96.15	Hedger (See also B.188 [17]) Single sheet, grey paper, folded in half to give four sides, with 3rd and 4th torn off just above halfway; sides 1 and 2 = 17 x 21.1 cm, sides 3 and 4 = 17 x 10.4 to 11 cm; writing on first three sides only; first stanza very faint but mainly legible; stanzas 1–3 crossed through with single diagonal line; title added later?	620410	3.12	250
B.2010.96.16	The Widow's House (Stanzas 1 and 2 only, identified in pencil in a later hand; see B2010. 96.3 for stanzas 3 and 4, and B.188 [8] for the complete poem) Single sheet, cream paper, 16.9 x 21 cm; writing on one side only, fairly faint in parts but legible	611003	3.81	303

Summary:

14 poems (or parts of poems) in the modified form of the dialect, all in the third collection.

Dates of publication range from 12 Sep 1861 [B.2010.94] to the issuing of the third collection in 1862 [B.2010.96.10 and 11].

In four instances (poems 245, 270, 281, 305) B.2010 provides the only surviving manuscript of the poem (or a part of it) in dialect; in the other ten there is another manuscript in one of the exercise books.

11B [TYPE (II) MSS]

B.2010.87	A Lot o' maïdens a-runnèn the vields Small 6-page (12-side) booklet, grey paper, 10 x 16.1 to 16.3 cm, hand-sewn with string (now broken) at left edge; title separated by a single horizontal line; beginning of each new speech asterisked; curly bracket at right used on some pages to mark speeches that extend beyond one line	1862	3.128	338
B.2010.89	White and blue (See Fig. 6; see also B.193 [49]) Single sheet, grey paper, folded in half to give four sides; about 1 cm cut off vertically at left of front page from about a third of the way down; 3rd and 4th sides cut off horizontally at the same point, a third of the way down; writing on first and third sides only; sides 1 and 2 = 16.7 cm wide at top, 16 cm wide at foot x 21 cm high; sides 3 and 4 = 16.7 x 7 cm; title separated by a single horizontal line	671114		490
B.2010.90	Two-peärt zingèn (See also B.193 [42]) Single sheet, grey paper, 16.7 x 21 cm; writing on one side only; title and each stanza separated by a single horizontal line	671128		492
B.2010.91	The sister and brothers (See also B.193 [11]) Single sheet, grey paper, 16.6 x 21.2 cm; writing on one side only; title and each pair of speeches separated by a single horizontal line	670905		480
B.2010.92	A wish a-come true (See also B.190 [10]) Single sheet, cream paper, 17.2 x 21.4 cm; very fragile—almost torn in half horizontally where formerly folded; writing on one side only; title separated by a single horizontal line	671003		484

- B.2010.93 When we wer young together (See also B.193 [30]) 671121 491
 Cream booklet, 3 pages = 6 sides, 16.9 x 21.2 cm; writing on
 one side only; title and each stanza separated by a single
 horizontal line

Summary:

6 poems in the modified form of the dialect, one in the third collection, the other five in neither. Dates of publication range from the issuing of the third collection in 1862 [B.2010.87] to 28 Nov 1867 [B.2010.90].

In one instance (poem 338) B.2010 provides the only surviving manuscript of the poem in dialect; in the other five there is another manuscript in one of the exercise books.

ACKNOWLEDGEMENTS

I am very grateful for the generous assistance of Jon Murden, Marion Tait, and Jenny Cripps at the DCM, without whose help this work would not have been possible. I wish to thank also my colleague Ken Ruthven for his helpful suggestions at various stages in the preparation of the work reported here.

REFERENCES

- 1844: Barnes, William. 1844. *Poems of Rural Life, in the Dorset Dialect: With a Dissertation and Glossary*. [First Collection, first edition.] George Simonds, Dorchetsr; John Russell Smith, London.
- 1862: Barnes, Willam. 1862. *Poems of Rural Life in the Dorset Dialect. Third Collection*. [First edition.] John Russell Smith, London.
- 1863: Barnes, William. 1863. *Poems of Rural Life in the Dorset Dialect. Second Collection. Second Edition*. John Russell Smith, London.
- 1869: Barnes, William. 1869. *Poems of Rural Life in the Dorset Dialect. Third Collection. Second Edition*. John Russell Smith, London.
- 1879: Barnes, William. 1879. *Poems of Rural Life in the Dorset Dialect*. [First, Second, and Third collections in one volume.] C. Gegan Paul, London.
- Baxter, Lucy ['Leader Scott']. 1887. *The Life of William Barnes: Poet and Philologist*. Macmillan, London.

DCC: *The Dorset County Chronicle*.

DCM: The Dorset County Museum.

Hawk: *The Hawk: A Monthly Hover from the Vale of Avon. Centrally representing, and delegate of, Three Counties. Hampshire, Dorset, Wilts*. W. Wheaton, Ringwood.

MM: *Macmillan's Magazine*.

PDNHAS: *Proceedings of the Dorset Natural History and Archaeological Society*

WBCP: *The Complete Poems of William Barnes*. 2013–. Ed. T. L. Burton and K. K. Ruthven, 3 vols. Oxford University Press, Oxford.

WBP: *The Poems of William Barnes*. 1962. Ed. Bernard Jones, 2 vols. Centaur, London.

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Tom Burton is Emeritus Professor of English at the University of Adelaide, author of *William Barnes's Dialect Poems: A Pronunciation Guide* (2010), and co-editor (with K. K. Ruthven) of *The Complete Poems of William Barnes*, 3 vols (Oxford University Press, 2013). The first two volumes of his audio recordings of Barnes's dialect poems, in the pronunciation of their own day, are freely available online at <<http://www.adelaide.edu.au/press/titles/barnes-vol-1/>> and <.../barnes-vol-2>; the third volume is currently in press.

Mary Anning's Commonplace Book

THOMAS W. GOODHUE

Abstract

One of the commonplace books (albums) kept by the fossil hunter Mary Anning (1799–1847) recently has been made available on-line and soon will go on display at the Lyme Regis Museum. Some sources of the material she copied into this Fourth Notebook have recently been identified and analyzed, providing fresh insight into what she was reading and thinking near the end of her life.

Although Mary Anning (1799–1847) found fossils that have graced natural history museums in many nations and fueled the growth of palaeontology, her writing remains little known. About 100 of her letters have been identified but most remain unpublished. She kept at least three commonplace books that have not been found, but her Fourth Notebook provides some rare glimpses into what she was reading and thinking late in life. Once part of Richard Owen's library and later in the Sherborn collection at the British Museum (XXXVII/2), it is now among the Lang papers at the Dorset County Museum. It has been made available on-line recently (URL: www.lymeregismuseum.co.uk/lrm/wp-content/uploads/2016/11/Mary-Annings-Commonplace-Book.pdf) and is scheduled to go on extended display in the new Mary Anning Wing of the Lyme Regis Museum in June 2017.

The volume, probably compiled sometime during the 1840s, reveals a woman of many interests. She copied

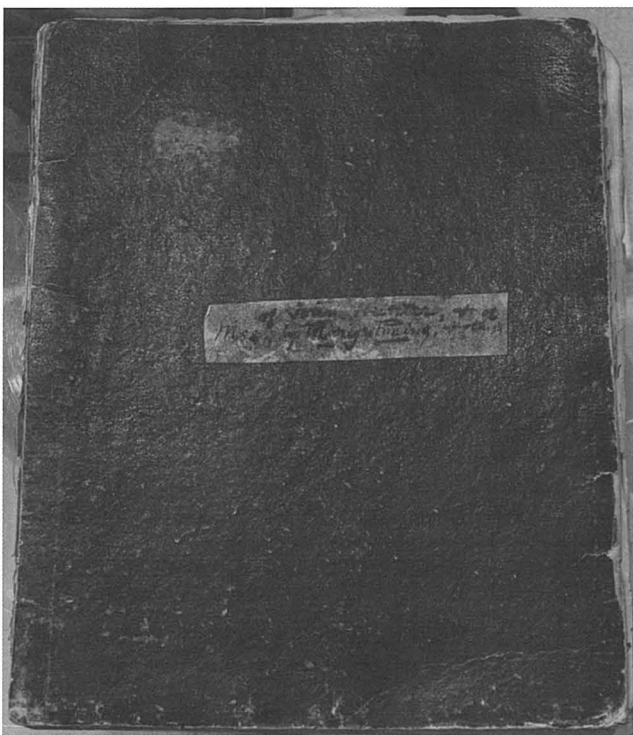
prayers, poems, and more than three pages of notes on astronomy, the latter an excerpt from *Ambrose and Eleanor, or The Adventures of Two Children Deserted on an Uninhabited Island*, Lucy Peacock's English adaptation of Francois Ducray-Duminil's children's book *Lolette et Fanfan*. Nothing in this commonplace book comes from later than the 1820s, however, thus providing few clues as to when she may have kept this notebook.

William St. Clair (1990) argues that during the Romantic Era these commonplace books (which later would be called albums) became so popular that they constitute a revived literary form of the manuscript miscellanies of the sixteenth and seventeenth centuries. There were few published anthologies at this time and books were too expensive for most readers to collect many volumes: 'If you love a poem, there is no substitute for having your own copy, even if you have to do the copying yourself.' (St. Clair 1990, 9). Most of these notebooks, apart from those kept by naval officers on long voyages, he notes, were kept by women (St. Clair 2004, 224–29). We can be fairly certain that Mary reflected at length on any essay or poem that she took the time to copy and she prayed herself any prayer she bothered to transcribe.

Disappointed in love herself, she began this Fourth Notebook with a poem by George Gordon, Lord Byron. Devastated and humiliated when his wife left him, and suffering unrequited love for a fifteen-year-old page, Byron wrote 'January 22nd 1824. Messalonghi. On this day I complete my thirty sixth year' as he prepared to fight (and die) for Greek independence:

'Tis time this heart should be unmoved
Since others it hath ceased to move,
Yet though I cannot be beloved,
Still let me love.'

Byron's poetry already was a staple of women's commonplace books during the Romantic Era. St. Clair (1990, 10–11; 2004, 224–29) reports that 'I do not think I have seen a single album of the 1810s or 1820s



Mary Anning's fourth notebook

... NAMES XXXVII/2

Woman

And what is woman? was she not made of the same flesh & blood as lordly Man? yes; and was destined doubtless, to become his friend, his helpmate in his pilgrimages, that nearly not his slave, for is not reason that? we not her claims - To share redeeming love is great? True she was first in sin but oh poor woman, remember, that she who came to love a ruined world was born of woman! woman seems through all the sacred scripture more (My I say more? yes - for I think this truth can be established by the sacred records) more than even man the object of his pure benevolence. And woman when his own disciples fled - I left him! And attend his cross, they were his constant followers; And woman too were honored with the message given by the bright ambassadors of Heaven, forth from the hallowed tomb, the angel spoke and bade them hear the wondrous news to Peter - & the rest

It is not thus the Gospel speaks
 To those who cease from sin,
 The soul Messiah's fold that deeks
 Is ever welcomed in.
 And say not that my guilt is great -
 I know I feel it true,
 But while I groan beneath its weight
 I hope for pardon too.
 Beyond the reach of grace divine
 Myself I have not thrown,
 And once at least to guilt like mine
 My Lord has mercy shown.
 When such a wandering, sheep as I
 Was unto Jesus brought
 And all the wail & wailing
 A rigid sentence sought;
 As the people need he would not break,
 Although I was bruised sore,
 The gentle words the Saviour spoke
 Were, Go, and sin no more!

Sample pages from Mary Anning's fourth notebook

Faunal and floral response to the dredging of a River Frome floodplain ditch, (Dorset, UK)

PATRICK D. ARMITAGE, JON A.B. BASS, JACK W. COLEMAN,
JOHN I. JONES, TANIA L. KAPLAN

Abstract

Floodplain meadows adjacent to the River Frome (Dorset UK) were subject to an agri-environment scheme designed to encourage beneficial management practices with the uptake of options designed to improve the environmental quality of ditches. The Rushton Ditch was dredged from source to mouth in October 2015 with vegetation removed from both banks. The recovery (taxon richness) of macroinvertebrate and plant communities was followed between November 2015 and September 2016 at six sites along its length. The September results were compared with those from a survey carried out in September 1998. Macroinvertebrate taxon richness and abundance increased with time at all sites but at different rates. Both parameters showed a significant relationship with % cover of submerged and emergent plants. By September, vegetation re-established along the whole ditch but plant taxon richness was lower than in 1998. In September 2016 the macroinvertebrate communities of none of the sites was classified as of very high conservation value in contrast to the situation in September 1998 when three sites fell into this category. It is concluded that the HLS scheme would have benefitted from improved communication between landowners and stakeholders and closer adherence to ditch management guidelines.

Introduction

The River Frome is the westernmost example of a major chalk stream in Great Britain. The main river rises in chalk but 25 km from its source flows through tertiary deposits of clay, sands and gravels. The section between Dorchester and Wareham includes both chalk and tertiary deposits and was designated a Site of Special Scientific Interest (SSSI) in 1998, incorporating an area of fen and floodplain meadows.

Floodplains and their associated habitats, especially groundwater, wet fens, mires, cut-off meanders and ditches, and ephemerally-filled depressions, are one of the most endangered natural ecosystems in Europe (European Environment Agency 2016). Ditches have been shown to be important ecosystems (Whatley 2014) containing diverse invertebrate assemblages which include taxa that are not found in surrounding river systems and contribute to the overall biodiversity of floodplains (Armitage et al., 2003; Williams et al., 2003; Verdonschot et al 2011, Hill et al. 2016). Dredging is important for the maintenance of ditch communities of conservation value. Ditch invertebrate communities change with salinity, hydrosereal successional stage and geographic location (Drake et al. 2010) highlighting the importance of studying the impacts of dredging across different regions and locations.

The Environment Agency and Natural England are working together with their partners to enhance

and maintain environmental quality. Land managers are helping to deliver targets through uptake of agri-environment schemes such as Countryside Stewardship, where farmers are paid to deliver conservation measures.

In 2015 a Higher Level Stewardship (HLS) scheme was implemented at East Stoke Meadows in the River Frome floodplain (Fig. 1) to support more active and environmentally beneficial management practices. One aspect of this work was the management of ditches of very high environmental value to provide a variety of species-rich stages of natural succession. These ditches remove water in wet periods and retain it during dry periods and increase connectivity between water bodies, but have not been managed for at least twelve years and were densely overgrown and functioning inadequately.

Aquatic habitats in East Stoke meadows and environs have been the subject of a number of studies on macroinvertebrate and plant communities (Armitage et al. 2001, Armitage et al. 2003, Armitage & Tapia 2015/2016). These studies predate the 2015 HLS scheme and one in particular (Armitage et al. 2003) describes a survey of the invertebrate fauna and flora of one of the main ditches in the area, the Rushton Ditch. This earlier survey took place in 1998. Data were collected in September, a month when biodiversity is likely to be highest (Higler & Verdonschot 1989, Armitage et

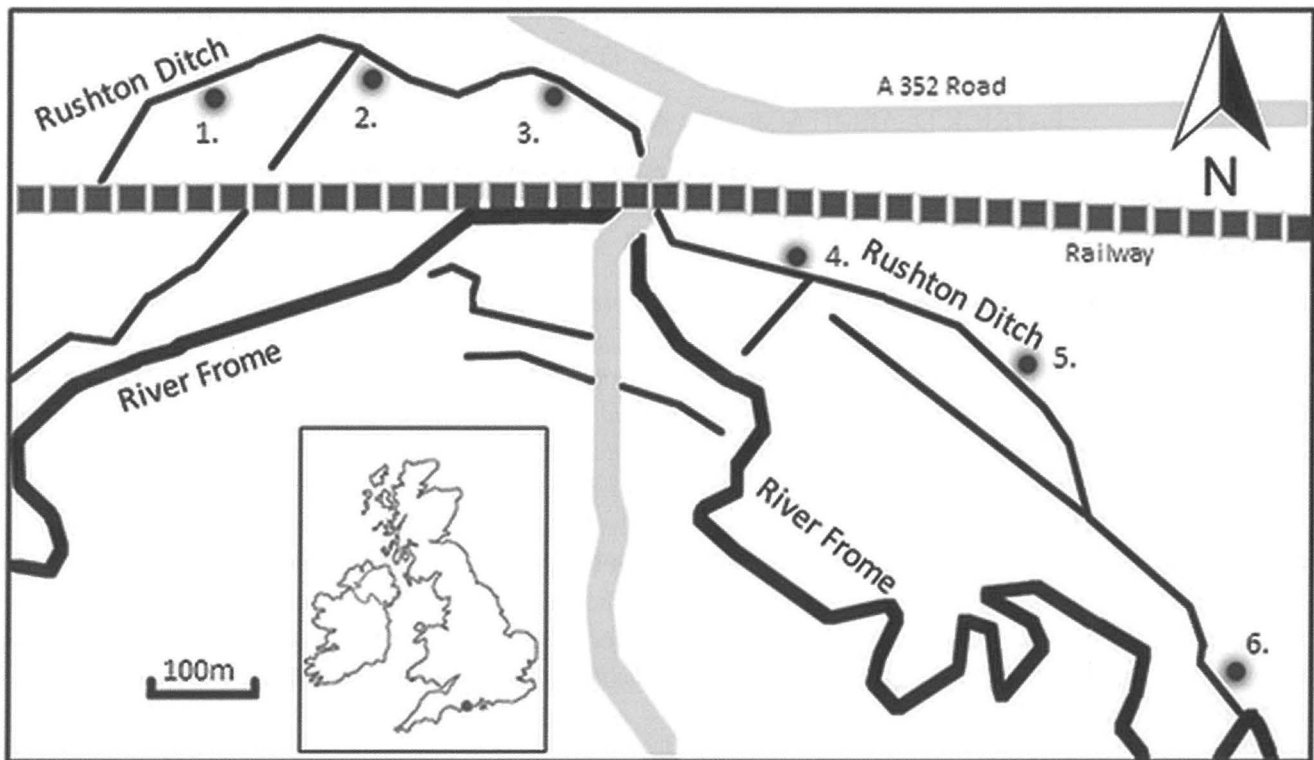


Figure 1: Location of sites 1- 6 on the Rushton Ditch (NGR - SY 86768 87080 - SY 87746 86525)

al. 2001). In 1998, the ditch had been dredged about eight years previously. In September 2015 the ditch had not been dredged for about twelve years. In both cases a mature community had developed and this together with the fact that there have been no radical changes in ditch management or land use in the preceding twelve-year period make comparison with the situation in 2016 appropriate. The results therefore provide a baseline against which we can compare the impacts of the 2015 intervention. HLS schemes and other conservation measures incorporating aquatic habitats are frequently initiated but there is little information on their effects (Sutherland et al. 2004). In this case the availability of historic data can place the interventions in context and provide essential knowledge of the process of succession post-dredging.

Study Area and Methods

Rushton Ditch is fed by seepage from a small area of oak wood to the north and marshland to the west and runs for 1.5 km through pasture to the south and some arable and riparian woodland to the north, before joining the River Frome. During flood periods the lower Rushton Ditch receives water from the River Frome. Water in the ditch was characterised by low pH, conductivity and nutrient levels in the upper reaches with a slight increase in these parameters in the lower section (Table 1). Water chemistry appeared to have changed little between 1998 and 2016 although levels of Nitrogen and Phosphorous were lower in 2016.

In October 2015 the Rushton Ditch was dredged with a long reach excavator from source to mouth

Location	Sites 1-3		Sites 4-6	
Year	1998	2016	1998	2016
pH	5.87	6.20	6.11	6.53
Conductivity ($\mu\text{S cm}^{-1}$)	297.00	229.06	372.00	254.89
N03 (mg N L^{-1})	0.64	0.16	3.21	1.02
Total phosphate (mg P L^{-1})	0.016	<0.01	0.069	0.014
Chloride (mg L^{-1})	34.77	36.40	32.72	34.10

Table 1: Water chemistry based on spot samples collected in September/October in 1998/2016 in the upstream (1-3) and downstream (4-6) sections of Rushton Ditch



Figure 2: Dredging just upstream of Site 5

using specific guidelines (Buisson et al. 2008). Previous to dredging the ditch had a varied profile from source to mouth. In general the excavation followed the prescribed guidelines as regards profile and distribution of spoil but due to local factors both banks were dredged (Fig. 2) with the result that all vegetation was removed from the entire length of the ditch contrary to guidelines. However, the pre-dredging profiles were maintained.

Macroinvertebrate communities were sampled in November 2015, and in February, April, June and September 2016 at six sites along the ditch, matching 6 of the sites sampled in 1998 (2,4,8,10,12,16). Fauna was collected using a 15 s sweep-net technique (Wright et al.,

1992). The net (900-micrometre mesh, 230x255 mm frame, 275 mm bag depth) was swept through vegetation and lightly into the substratum to cover all available habitats. Samples were sorted live and the macroinvertebrates preserved in 70% alcohol for later identification. Most faunal groups, with the exception of true flies (Diptera) and worms (Oligochaeta), were identified to species where suitable keys and life history stage allowed. Flora was surveyed in September 2016 at all six sites using % cover (MTR survey methodology, Holmes et al. 1999). The taxonomic level of identification was standardised to facilitate comparison between years.

Results

Taxon Richness and abundance

Following the October 2015 dredging, samples taken in November showed low taxon richness at all sites. Abundance was more variable. Throughout the sampling period the numbers of taxa recorded on each sampling occasion generally increased at all sites, despite some variability between November and April. The only exception was the *Lemna minor* dominated Site 3 where the numbers of taxa changed little over the whole period. Species accretion rates were however, high at all sites and showed no sign of reaching an asymptote (Figure 3). Seasonal changes in faunal composition were marked (Figure 4).

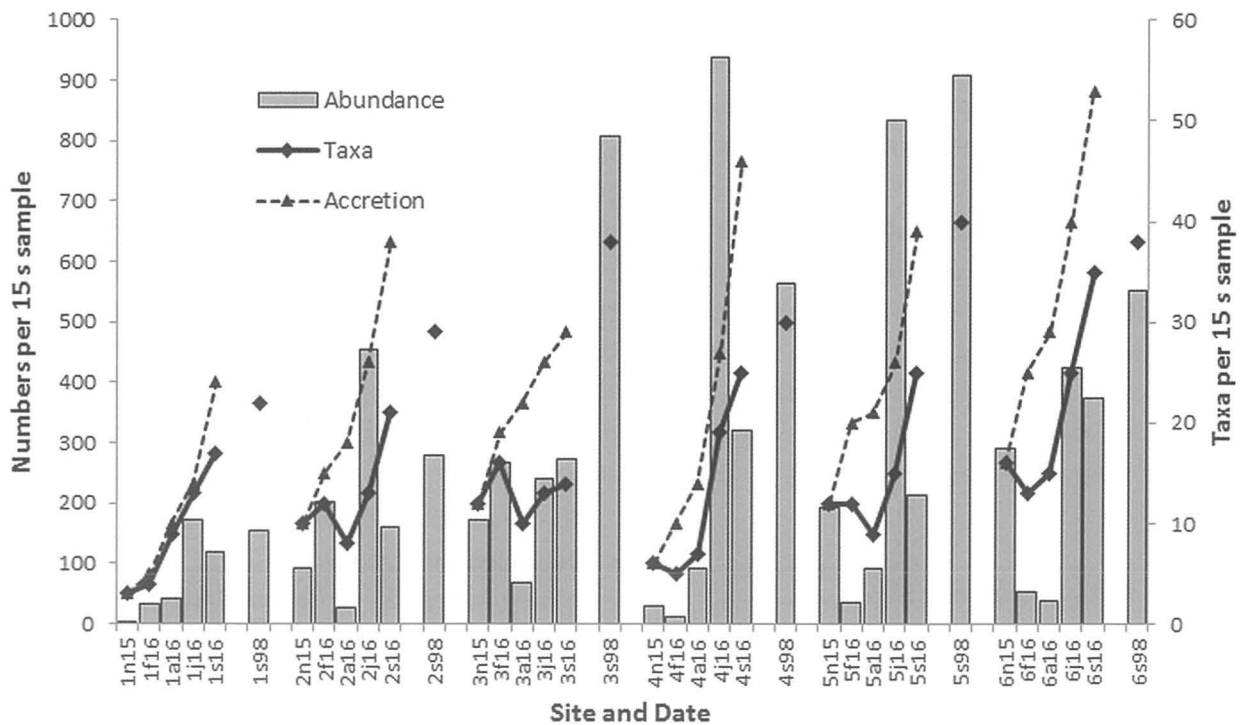


Figure 3: Changes in abundance, number of taxa and species accretion at all sites on all sampling occasions (site codes - site number, month, year). September 1998 values set apart

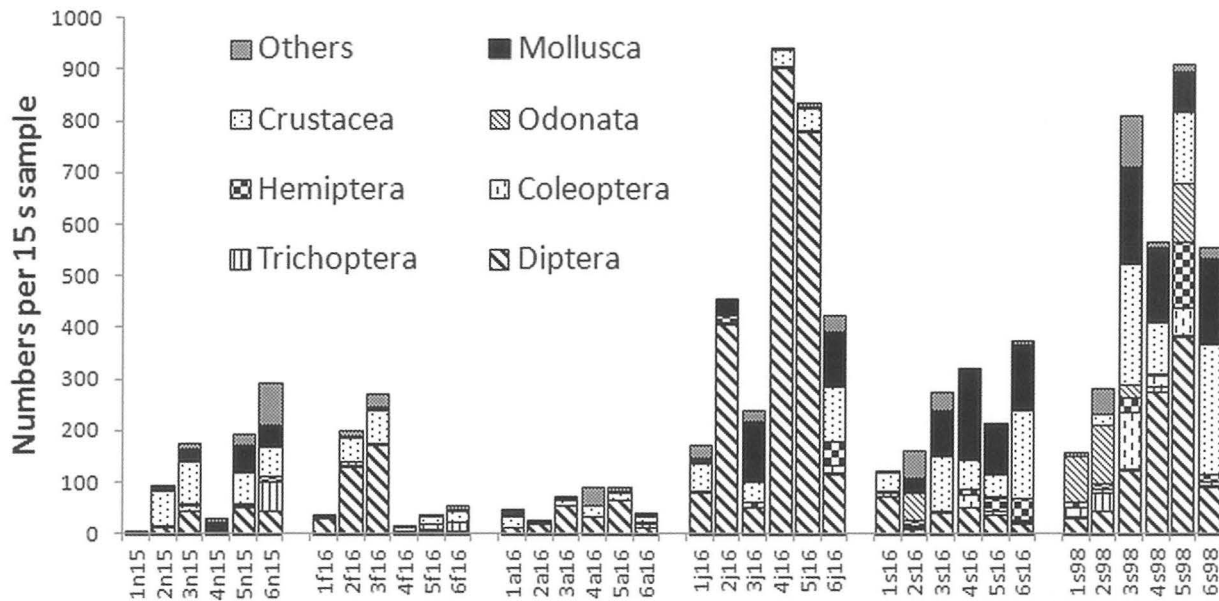


Figure 4: Seasonal changes in faunal composition at 6 sites on the Rushton Ditch

The statistical significance of site/season differences in abundance and taxon richness was examined. The Shapiro-Wilk test was used to confirm that data were normally distributed after \log_{10} transformation. Statistical tests were then conducted using Microsoft Excel 2010 and R-Studio (2015). ANOVA showed significant differences in the numbers of taxa and abundance between months (F 11.4, $p < 0.001$, df 5; F 6.808, $p < 0.001$, df 5; respectively). Post hoc Tukey HSD tests showed significant differences ($p < 0.001$) in the number of taxa between September 1998 and all post dredging seasons except September 2016. Taxa and abundance differences between sites were not significant.

Correlation and regression analyses of the measured variables (width, depth, pH, conductivity, and % cover of macrophytes) showing the highest positive significant relationships were between number of taxa and % cover of macrophytes (R^2 0.464, F 16.174, $p < 0.0001$, df 34), abundance also revealed a significant but slightly lower relationship (R^2 0.154, F 4.199, p 0.0273, df 34).

September 1998 vs September 2016

Despite clear evidence of recovery from dredging over the study period, taxon richness and abundance in September 2016 was lower than in September 1998. In total 131 taxa were recorded from the six sites in the

September samples in the two years. Of these, 32 were found only in 2016 and 56 only in 1998. 43 taxa were common to both years. Faunal composition (Fig.4, Table 2) shows some inter site variability in both abundance and taxonomic composition but notably, taxon richness of beetles (Coleoptera) and water bugs (Hemiptera) was higher in 1998 than in 2016 (30/13, 18/12, respectively). True flies (Diptera) were less abundant in 2016 but water snail (Gastropoda) abundances were similar in the 2 years.

In September 1998 a total of 41 plant taxa was recorded (23 aquatic, 18 riparian) compared to 30 taxa (22 aquatic, 8 riparian) in the 2016 survey (see Appendix 1 for list). The numbers of taxa recorded at each site (Fig. 5) showed some variability but riparian vegetation was generally less diverse in 2016. At Site 6, riparian taxa were absent both pre- and post- dredging but 2016 saw an increase in the number of aquatic taxa including the appearance of the stonewort *Nitella flexilis* (Characeae) which is frequently associated with disturbed freshwater habitats (Wade 1999).

The similarity of both plant and invertebrate communities in September 1998 and 2016 was examined using the Sorensen Index on presence/absence data (Table 3). The higher the index the greater the similarity between the 2 years. Sites 1 and 2 were the least similar for both plant and faunal communities but none of the inter year comparisons approach the

Sites/Grps	1s98	1s16	2s98	2s16	3s98	3s16	4s98	4s16	5s98	5s16	6s98	6s16
Gastropoda	0	0	0	1	3	1	1	3	3	3	6	5
Crustacea	0	3	2	1	2	3	3	2	3	2	3	4
Odonata	3	2	3	3	3	2	0	0	2	1	1	1
Hemiptera	6	1	6	4	8	0	2	4	5	6	6	8
Coleoptera	6	0	5	2	8	0	8	6	11	4	7	2
Trichoptera	1	1	4	2	1	0	2	0	2	0	1	3
Diptera	3	8	8	4	5	3	10	7	10	6	5	6
Others	3	2	1	4	8	5	4	3	4	3	9	6
Total	22	17	29	21	38	14	30	25	40	25	38	35

Table 2 The numbers of taxa in major groups at all 6 sites in September 1998 and September 2016

	Plants				Invertebrates			
	Sorensen	1998	Both	2016	Sorensen	1998	Both	2016
1	0.286	4	2	6	0.205	18	4	13
2	0.191	12	2	5	0.320	21	8	13
3	0.500	5	7	3	0.423	27	11	3
4	0.471	8	8	10	0.327	21	9	16
5	0.357	12	5	6	0.400	27	13	12
6	0.500	1	4	7	0.438	22	16	19
T	0.5714	20	21	9	0.4943	56	43	32

Table 3 Taxon occurrence and community similarity (Sorensen Index) for plants and fauna at the 6 sites sampled in September 1998 and 2016 and for all sites combined

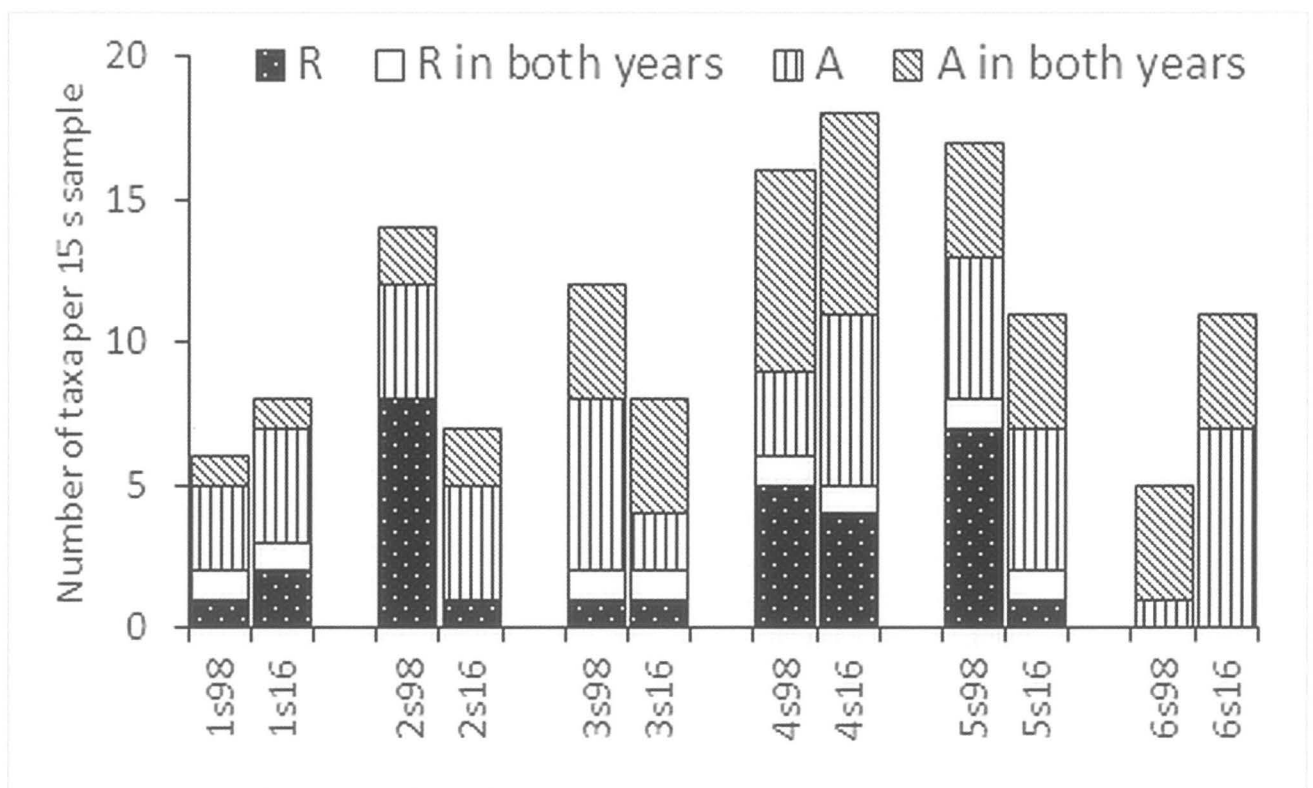


Figure 5: The number of Riparian (R) and Aquatic (A) plant taxa at the 6 sites sampled in September 1998 and 2016

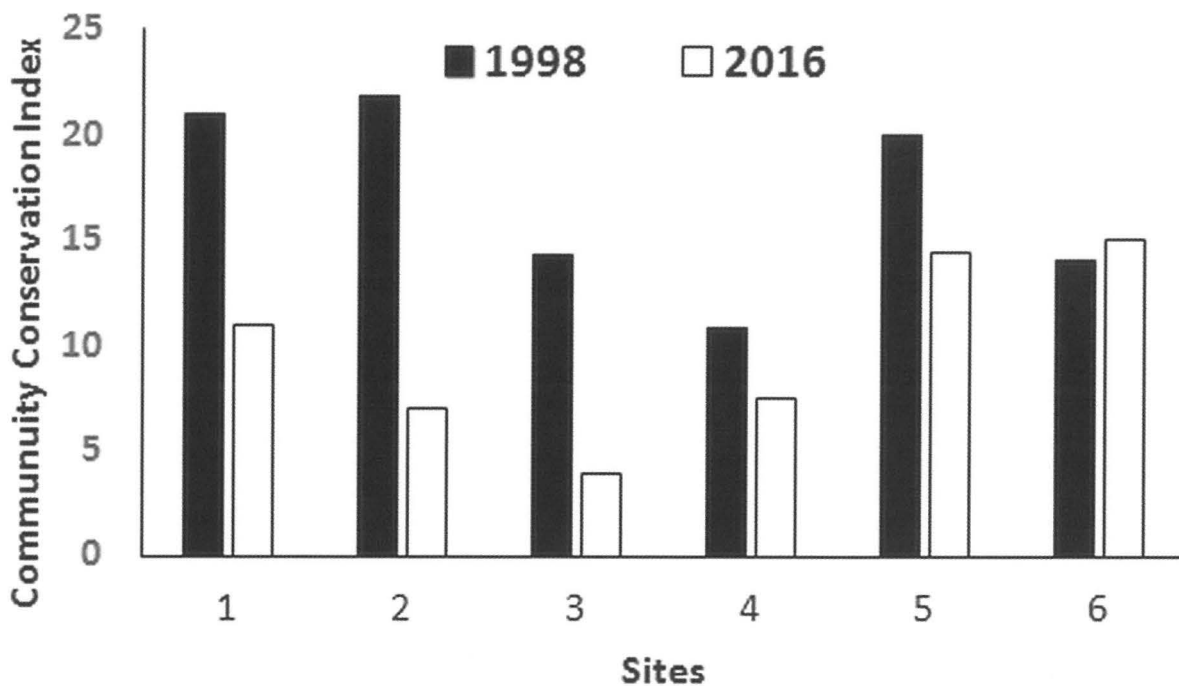


Figure 6 :A comparison of Community Conservation Index values based on macroinvertebrate data from September samples in 1998 and 2016

levels of similarity observed in unstressed aquatic habitats in other areas where indices of 0.6-0.7 are regularly observed. Data from the River Tees (Armitage 2006) and unpublished data from a nearby site on the River Frome sampled over a 10 year period showed inter year similarities averaging 0.63. The plant and invertebrate communities at individual sites in Rushton Ditch do not approach these levels but this may simply indicate a more variable community structure in ditch habitats compared with rivers.

Management and legislation issues frequently make assessment of habitat value a requirement through the use of score systems or indicators. We used a readily available and published system (Chadd & Extence 2004) which provides conservation scores for most UK aquatic invertebrates. These scores are used to calculate a Community Conservation Index (CCI) which takes into account community richness and the relative rarity of the species present. We compared September 1998 values for CCI with those obtained in September 2016 (Fig. 6). Index values at 3 sites sampled in September 1998 were placed in the *Very High Conservation Value* Band. In September 2016, none of the sites were classified in this band and values at all sites except site 6 were appreciably lower than in 1998. Taxa found only in September 1998 and only in 2016 are listed in Appendix 2. 8 Regionally Notable and Notable species (sensu Chadd & Extence 2004)

were recorded in 1998 September samples (6 beetles, *Stictonectes lepidus* *Gyrinus urinator* *Gyrinus aeratus*, *Anacaena bipustulata*, *Laccobius sinuatus*, *Berosus affinis* and 2 true flies *Dixella attica*, *Simulium angustitarse*). In 2016 only *Gyrinus urinator* was recorded in September but 2 further species, the beetle *Hydraena testacea* and the caddis larva *Brachycentrus subnubilus* were found in February at sites which had received River Frome floodwater in January.

Discussion

The implementation of this agri-environment scheme would have benefited from greater initial communication between stakeholders within the area. This would have brought to light the fact that there was already an extensive body of work on the floodplain which would have helped inform practical management decisions. Also there was no attempt to set up a monitoring programme to test the effects of the HLS scheme and while this is a common occurrence in many agri-environmental schemes it was simply a fortuitous accident that the research body actually on the floodplain became involved in this study. Nevertheless early involvement has provided a unique opportunity to follow events post-dredging.

The recovery of macroinvertebrate communities was slow to start following the removal of aquatic and riparian plants, but by April plant cover had



Figure 7: Site 4 post-dredging in February 2016.



Figure : Site 4 in September 2016 showing extensive re-growth of vegetation.

increased and with it faunal diversity. However, there was some variability between sites which may be partially attributed to bank profile, which can affect the site's aquatic and riparian plant structure which in turn will influence the development of the invertebrate community. (Painter 1999, Armitage *et al* 2001) for example site 4 (NGR SY 87256 86940) with the shallowest profile supported both the highest diversity of plants and Coleoptera (Figs 7 & 8). Other factors will have influenced recovery, notably the removal of all vegetation at the top site and lack of potential colonisers from upstream. Site 2 although severely dredged, quickly developed a dense macrophyte cover of *Potamogeton polygonifolius* presumably originating from propagules from an undredged tributary ditch. The 3 most downstream sites were affected by flood water from the River Frome in January and this accounted for some lotic species appearing in samples, notably the caddis larvae *Anabolia nervosa*, *Halesus radiatus*, *Brachycentrus subnubilus* and the riffle beetle *Elmis aenea*. The extreme flows in the ditch during the flood period further scoured the ditch substratum and drastically reduced abundance of invertebrates. Water chemistry has changed little since 1998 and is unlikely to have influenced recovery rate.

Immediately after dredging it seemed doubtful that recovery would be rapid, since, contrary to accepted ditch management protocols (Willing & Killeen 1999, Buisson 2008) and the HLS specifications the whole ditch was dredged at one time and vegetation was removed from both banks. Also at some sites too much of the bed was removed. However sufficient plant propagules remained for a relatively rapid colonisation of the sites and associated increase in the numbers and variety of macroinvertebrates.

Despite the observed recovery it was clear that diversity of both plants and animals had not reached levels recorded in 1998. This is not unexpected and Hingley 1979 noted the absence of some taxa (leeches, mayflies and Isopoda) 12 to 22 months after ditch 'clearance'. Workers in the Netherlands (Boeyen *et al* 1992, Twisk *et al* 2000) noted that although dredging had a positive effect on species richness, optimum values were recorded 2 to 3 years after the disturbance.

A prime objective of the HLS scheme was to create a variety of species-rich stages of natural succession. This ideally would consist of a rolling programme of dredging so that there were always ditches at different stages of development. However in this case all the remaining ditches in the East Stoke floodplain were dredged in September 2016, in the same manner as in 2015 (whole length of ditch and vegetation removed from both banks) thereby removing potential sources of colonising macroinvertebrates.

Conclusions

1. Although management of ditches in the East Stoke floodplain was necessary, implementation of the scheme would have benefitted from better communication between landowners and stakeholders and awareness of existing published information on the area.
2. Stricter adherence to best practice guidelines regarding dredging would have lessened impact on the ditch.
3. Phase 2 of the scheme (dredging of remaining ditches) should have been delayed by a year to preserve existing ditch habitat as a source of colonising organisms.

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REFERENCES

- Armitage, P.D. and Tapia, G. 2016. 'Pioneering communities in winter' *Freshwater Biological Association Newsletter*, **67**, 14-16.
- Armitage, P.D. 2006. 'Long-term faunal changes in a regulated and an unregulated stream – Cow Green thirty years on' *River Research and Applications*, **22**, 947-66.
- Armitage, P.D., Lattmann K., Kneebone N. and Harris I. 2001 'Bank profile and structure as determinants of macroinvertebrate assemblages - seasonal changes and management' *Regulated Rivers: Research and Management*, **17**, 543-56.
- Armitage, P.D., Szoszkiewicz, K., Blackburn, J.H. and Nesbitt, I. 2003. 'Ditch communities: a major contributor to floodplain biodiversity' *Aquatic Conservation: Marine and Freshwater Ecosystems*, **13**,165-85.
- Boeyen, J.H., Beljaars, C.N., van Gerve, R. 1992. 'Vergroten van waterdiepte in sloten heeft een positief effect op de waterkwaliteit' *H2O* **25** (nr.16), 433-40.
- Buisson, R. S. K., Wade, P. M., Cathcart, R. L., Hemmings, S. M., Manning, C. J. and Mayer, L. 2008. 'Drainage channel biodiversity manual: Integrating wildlife and flood risk management' Association of Drainage Authorities and Natural England, Peterborough.
- Chadd, R. and Extence, C. 2004. 'The conservation of freshwater macroinvertebrate populations: a community-based classification scheme' *Aquatic Conservation: Marine and Freshwater Ecosystems* **14**, 597-624.
- Drake, C. M., Stewart, N. F., Palmer, M. A. and Kindemba, V.L. 2010. 'The ecological status of ditch systems: an investigation into the current status of the aquatic invertebrate and plant communities of grazing marsh ditch systems in England and Wales. Technical Report' Buglife – The Invertebrate Conservation Trust, Peterborough.
- European Environment Agency 2016. 'Flood risks and environmental vulnerability - Exploring the synergies between floodplain restoration, water policies and thematic policies' EEA Report No 1/2016
- Higler, L.W.G. and Verdonschot, P.F.M. 1989. 'Macroinvertebrates in the Demmerik ditches (The Netherlands): The role of environmental structure' *Aquatic Ecology*, **23**, 143-50.
- Hill, M., Swaine, J., Wood, P., Chadd, R. and Morris, N. 2016 'Aquatic macroinvertebrate biodiversity associated with artificial agricultural drainage ditches' *Hydrobiologia*, **776**, 249–60.
- Holmes, N.T.H., Newman, J.R., Chadd, S., Rouen, K.J., Saint, L. and Dawson, F.H. 1999. 'Mean Trophic Rank: A User's Manual RandD Technical Report E38', Environment Agency of England and Wales, Bristol pp145
- Painter, D. 1999. 'Macroinvertebrate distributions and the conservation value of aquatic Coleoptera, Mollusca and Odonata in the ditches of traditionally managed and grazing fen at Wicken Fen, UK' *Journal of Applied Ecology*, **36**, 33-48.
- R Studio Team, 2015. *R Studio: Integrated Development for R*. RStudio, Inc., Boston, MA, URL <http://www.rstudio.com/>.
- Shaw, R.F., Johnson, P.J., Macdonald, D.W. and Feber, R.E. 2015. 'Enhancing the Biodiversity of Ditches in Intensively Managed UK Farmland' *PLoS ONE* **10**(10), 1-19.; e0138306. doi:10.1371/journal.pone.0138306
- Sutherland, W.J., Pullin, A. S., Dolman, P.M., and Knight, T.M. 2004. 'The need for evidence-based conservation' *TRENDS in Ecology and Evolution* **19**, 305-308.
- Twisk, W., Noordervliet, M.A.W. and ter Keurs, W.J. 2000. 'Effects of ditch management on caddisfly, dragonfly and amphibian larvae in intensively farmed peat areas' *Aquatic Ecology* **34**: 397–411.
- Verdonschot, R.L.F., Hanneke, E. Keizer-Vlek, C.M. and Verdonschot, P.F.M. 2011. 'Biodiversity value of agricultural drainage ditches: a comparative analysis of the aquatic invertebrate fauna of ditches and small lakes' *Aquatic Conservation: Marine and Freshwater Ecosystems*. **21**, 715–27.
- Wade, P.M. 1990. 'The Colonisation of Disturbed Freshwater Habitats by Characeae' *Folia Geobotanica and Phytotaxonomica*, **25**, 275-78.
- Whately, M.H. 2014. 'A House of Cards – Patterns of aquatic invertebrate diversity in agricultural ditches' PhD thesis. University of Amsterdam.
- Williams, P., Whitfield, M., Biggs, J., Fox, G., Nicolet, P., Bray, S. and Sear, D. 2004. 'Comparative biodiversity of rivers, streams, ditches and ponds in an agricultural landscape in Southern England' *Biological Conservation*, **115**, 329-41.
- Willing, M.J. and Killeen, I.J. 1999. 'Anisus vorticulus - a rare and threatened water snail' *British Wildlife*, **10**, 412-418.
- Wright, J.F., Blackburn, J.H., Westlake, D.F., Furse, M.T. and Armitage, P.D. 1992 'Anticipating the consequences of river management for the conservation of macroinvertebrates', in Boon, P., Petts, G. and Calow, P. (eds) *River conservation and management*, John Wiley and Sons Ltd., Chichester, 137-149.

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APPENDIX 1

The occurrence of Aquatic and Riparian plant taxa recorded in September samples in 1998 and 2016

Aquatics	1998	2016	Riparian	1998	2016
<i>Glyceria fluitans</i>	4	1	<i>Persicaria hydropiper</i>	3	3
<i>Phalaris arundinacea</i>	4	3	<i>Juncus effusus</i>	3	2
<i>Apium nodiflorum</i>	3	2	<i>Lythrum salicaria</i>	2	2
<i>Callitriche obtusangula</i>	3	0	<i>Scophularia auriculata</i>	2	2
<i>Potamogeton natans</i>	3	1	<i>Galium palustre</i>	2	0
<i>Sparganium erectum</i>	3	5	<i>Mentha aquatica</i>	2	0
<i>Alisma plantago-aquatica</i>	2	5	<i>Juncus articulatus</i>	1	1
<i>Callitriche stagnalis</i>	2	3	<i>Carex riparia</i>	1	0
<i>Eleogiton fluitans</i>	2	0	<i>Hydrocotyle vulgaris</i>	1	0
<i>Glyceria maxima</i>	2	1	<i>Hypericum tetrapterum</i>	1	0
<i>Lemna minor</i>	2	2	<i>Lotus uliginosus</i>	1	0
<i>Myosotis scorpioides</i>	2	0	<i>Lycopus europaeus</i>	1	0
<i>Potamogeton polygonifolius</i>	2	2	<i>Myosoton aquaticum</i>	1	0
<i>Agrostis stolonifera</i>	1	4	<i>Poa palustris</i>	1	0
<i>Cladophora</i>	1	0	<i>Rumex obtusifolius</i>	1	0
<i>Elodea canadensis</i>	1	1	<i>Salix aurita</i>	1	0
<i>Glyceria declinata</i>	1	1	<i>Symphytum officinale</i>	1	0
<i>Glyceria pedicellata</i>	1	0	<i>Urtica dioica</i>	1	0
<i>Nuphar lutea</i>	1	1	<i>Ranunculus repens</i>	0	2
<i>Phragmites australis</i>	1	1	<i>Carex remota</i>	0	1
<i>Polygonum amphibium</i>	1	0	<i>Bidens cernua</i>	0	1
<i>Ranunculus flammula</i>	1	0	Total Taxa	41	30
<i>Rorippa nasturtium-aquaticum</i>	1	2			
Diatoms	0	1			
<i>Juncus bulbosus</i>	0	4			
<i>Myriophyllum spicatum</i>	0	1			
<i>Nitela flexilis</i>	0	2			
<i>Spirogyra</i> sp.	0	4			
<i>Veronica anagallis-aquatica</i>	0	2			

APPENDIX 2

The occurrence of 'scoring taxa' used to calculate the Community Conservation Index in September samples from 1998 and 2016

	Only in 1998	Only in 2016
Flatworms - Tricladida	<i>Dugesia tigrina</i>	
Leeches - Hirudinea	<i>Glossiphonia complanata</i>	<i>Helobdella stagnalis</i>
Snails - Gastropoda	<i>Valvata piscinalis</i> <i>Bithynia tentaculata</i> <i>Stagnicola palustris</i> <i>Gyraulus albus</i>	<i>Potamopyrgus antepodarum</i> <i>Lymnaea stagnalis</i>
Mayflies - Ephemeroptera	<i>Centroptilum luteolum</i> <i>Baetis scambus</i>	<i>Ephemera danica</i> <i>Nemurella picteti</i>
Dragonflies - Odonata	<i>Anax imperator</i> <i>Enallagma cyathigerum</i>	
Water Bugs - Hemiptera	<i>Hydrometra stagnorum</i> <i>Velia caprai</i> <i>Gerris gibbifer</i> <i>Notonecta obliqua</i> <i>Notonecta glauca</i> <i>Sigara venusta</i> <i>Sigara scotti</i> <i>Hesperocorixa castanea</i> <i>Corixa punctata</i>	<i>Apheolcheirus aestivalis</i> <i>Notonecta maculata</i> <i>Sigara falleni</i> <i>Sigara semistriata</i> <i>Hesperocorixa linnaei</i>
Beetles Coleoptera	<i>Noterus clavicornis</i> <i>Hyphydrus ovatus</i> <i>Stictotarsus 12pustulatus</i> <i>Graptodytes pictus</i> <i>Stictionectes lepidus</i> <i>Hydroporus palustris</i> <i>Hydroporus erythrocephalus</i> <i>Dytiscus marginalis</i> <i>Gyrinus aeratus</i> <i>Ochthebius minimus</i> <i>Anacaena lutescens</i> <i>Anacaena globulus</i> <i>Anacaena bipustulata</i> <i>Helophorus brevipalpis</i> <i>Helophorus minutus</i> <i>Helophorus grandis</i> <i>Hydrobius fuscipes</i> <i>Laccobius striatulus</i> <i>Laccobius sinuatus</i> <i>Berosus affinis</i>	<i>Agabus bipustulatus</i> <i>Agabus sturmii</i> <i>Laccobius bipustulatus</i>
Caddisflies Trichoptera	<i>Plectrocnemia conspersa</i>	<i>Goera pilosa</i> <i>Beraeodes minutus</i> <i>Sericostoma personatum</i>
True flies Diptera	<i>Simulium angustitarse</i> <i>Dixella attica</i>	<i>Dixa nebulosa</i> <i>Dixella aestivalis</i>

Re-examination of a teleosaurid specimen in the Society's collection

DAVIDE FOFFA

The Dorset County Museum hosts various palaeontological collections from the local geological Late Jurassic formations. In June 2015, while I was visiting the Society's marine reptile collection, my attention was drawn to a rare teleosaurid specimen on display in the Jurassic Gallery. This specimen (DORCM G.03939) was collected in 1980 by Mr. Paul Ensom (at the time assistant curator at the museum) from the south flank of Nothe Gardens, Weymouth (Dorset). It now labelled 'Marine Crocodile Lower Jaw (*Teleosaurus* sp.)' from the 'Corallian Group' (~160 Mya: Oxfordian, Late Jurassic) (Fig. 1) in the Jurassic gallery at the Museum.

Teleosaurids were a group of semi-aquatic crocodylomorphs, superficially resembling, but only distantly related to, modern crocodylians. Whilst teleosaurids are not rare findings in Early and Middle Jurassic formations, in the UK they become

increasingly rare in Late Jurassic deposits in contrast to their abundance in continental Europe. Indeed only few fragmentary specimens are known from British Oxfordian and Kimmeridgian formations. In particular, this apparent decline starts in the Middle-Late Oxfordian, the first stage of the Late Jurassic. This interval is known as the 'Corallian Gap', and it is depleted of vertebrate materials: this stage marks a period of dramatic environmental changes, potentially linked with a major marine faunal turnover.

In this regard, DORCM G.03939 is particularly important because it represents the first mandibular/cranial material referable to the clade Teleosauridae found in the Oxfordian. Although it is currently not possible to identify it to species level, several diagnostic features testify that the specimen belongs to a derived group of large-bodied and macrophagous/durophagous

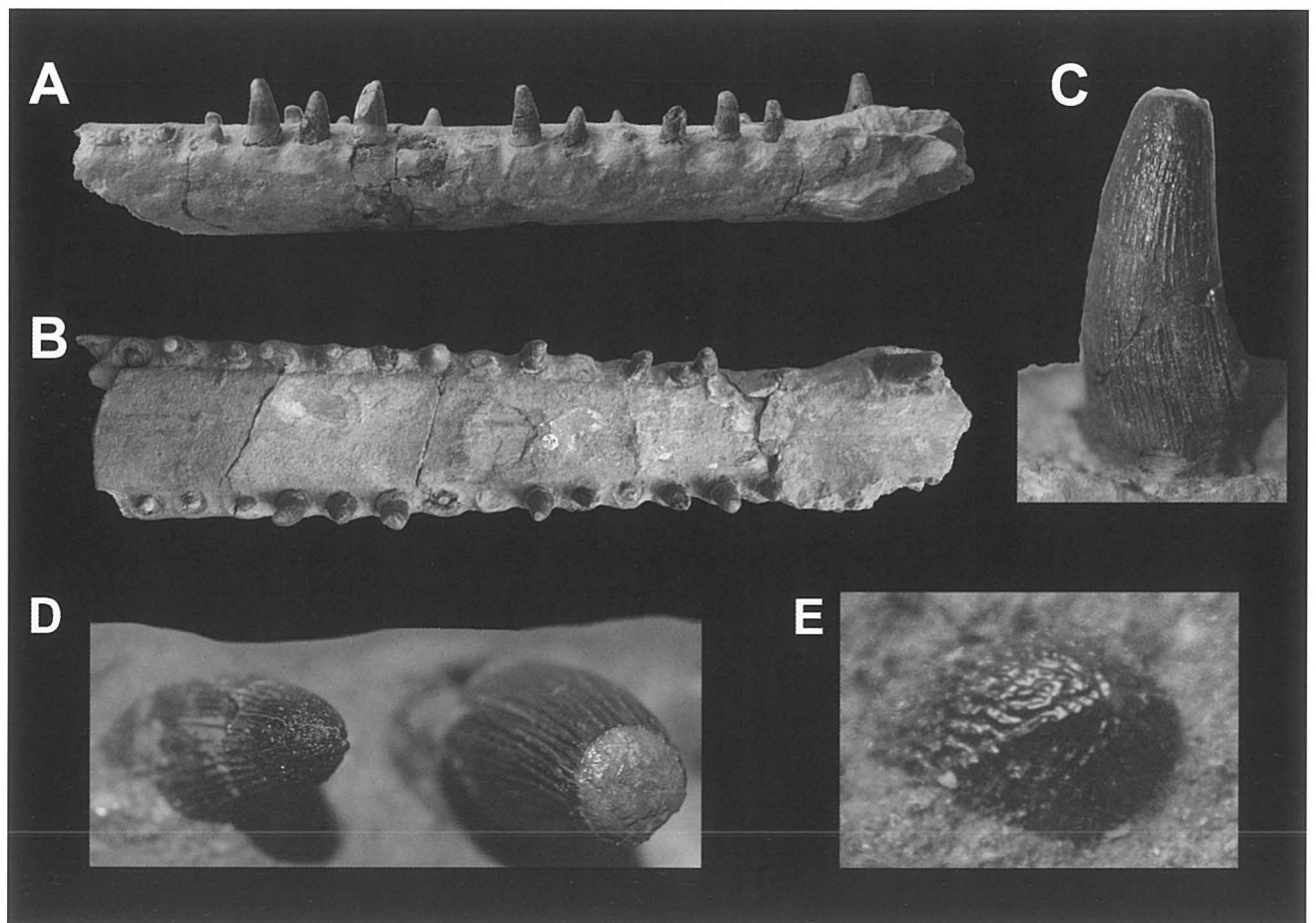


Figure 1: DORCM G.03939 '*Steneosaurus*' cf. *obtusidens*. A, right lateral view; B, dorsal view; C–E, detail of the dentition. C, characteristic ornamentation pattern on the 4th dentary tooth; D, rounded crown apex and warned crown (16th–17th dentary teeth); E, denticles on the apex of 3rd dentary tooth

teleosaurids ('*S.* *obtusidens* + *Machimosaurus*) (Young *et al.*, 2014; Johnson *et al.*, in press).

Luckily, the members of this group are easily distinguishable from other teleosaurids because of their derived cranio-mandibular features. In particular, observations on pointed dentition, gracile snout morphology, and comparisons with similar extant crocodylians (such as gharials and false gharials) suggest that most teleosaurids were predominantly piscivorous. Conversely, '*S.* *obtusidens* and *Machimosaurus* depart from this body plan in having shorter, robust snouts and characteristic round and denticled teeth, well suited for crushing hard tissues such as bones or turtle carapaces (Fig. 1C,-E, D). DORCM G.03939 falls into this last category, as suggested by the robust structure of the preserved mandible, and the orientation and features of the dentition (Young *et al.*, 2014; Foffa *et al.*, 2015; Johnson *et al.*, in press). The high tooth count of the preserved length of the mandible is closer to '*S.* *obtusidens* than *Machimosaurus*. However, in absence of more diagnostic features the specimens cannot be definitely assigned to either taxon, so it has, therefore, been referred as to '*Steneosaurus*' cf. *obtusidens* (Foffa *et al.*, 2015).

The story of this specimen is intriguing and nicely exemplifies a common saying in palaeontological studies: many discoveries happen in museums. Other specimens in the Society's collection are now being actively subjected to detailed studies. They represent an invaluable resource for the local heritage and international palaeontological community.

REFERENCES

- Foffa, D., Young, M.T. and Brusatte, S.L., 2015. 'Evidence of macrophagous teleosaurid crocodylomorphs in the Corallian Group (Oxfordian, Late Jurassic) of the UK', *PeerJ*. DOI 10.7717/peerj.1497
- Johnson, M.M., Young, M.T., Steel, L., Foffa, D., Smith, A.S., Hua, S., Havlik, P., Howlett, E.A. and Dyke, G. *in press*. 'Re-description of '*Steneosaurus*' *obtusidens* Andrews, 1909. an unusual macrophagous teleosaurid crocodylomorph from the Middle Jurassic of England', *Zoological Journal of the Linnean Society*.
- Young, M.T., Hua, S., Steel, L., Foffa, D., Brusatte, S.L., Thüring, S., Mateus, O., Ruiz-Omeñaca, J.I., Havlik, P., Lepage, Y., Andrade, M.B., 2014. 'Revision of the Late Jurassic teleosaurid genus *Machimosaurus* (Crocodylomorpha, Thalattosuchia)', *Royal Society Open Science*, 20141:140222. DOI:10.1098/rsos.140222.

The Upper Bathonian and Callovian stages (Middle Jurassic) as exposed near Corscombe, Dorset

JOHN G. HUXTABLE & MARK H. HANLEY

Abstract

In order to obtain the present site conditions at Ryewater Farm, Corscombe, a Site of Special Scientific Interest that presents an important chronostratigraphical location for the Bathonian/Callovian Stage boundary, a new review was undertaken. The purpose of the fieldwork was to determine any new taxonomic data as well as record the present conditions at the site, which is subject to land slippage. Although finding that extensive slippage prevented access to much of the site, this negative outcome was itself positive by providing an update of the prevailing environmental conditions. Unexpectedly, a new section was found nearby that exposed both the Lower and Upper Cornbrash, which enabled new records of the stage boundary to be compiled that were more complete than those previously obtained from the intermittent stream exposures. The new section should remain accessible for future research of this important location. The SSSI should continue to be monitored for new taxonomic data, whenever conditions allow.

Introduction

The location known as Ryewater Farm is both a Site of Special Scientific Interest and a Geological Conservation Review area, the former taking account of the natural farming policy of the owner, Plantlife. Situated c. 2 km north of the village of Corscombe, West Dorset (Grid Reference ST 512 064) (Fig.1), it is

a notified reserve on account of its diverse biological interest, promoted by an 'old method' farming policy, with no fertilizers other than natural biodegradation. The wealth of species of plants combined with the natural environment has led to a flourishing mammal fauna and many species of butterfly. The wooded stream valley lies in the base of a narrow syncline,

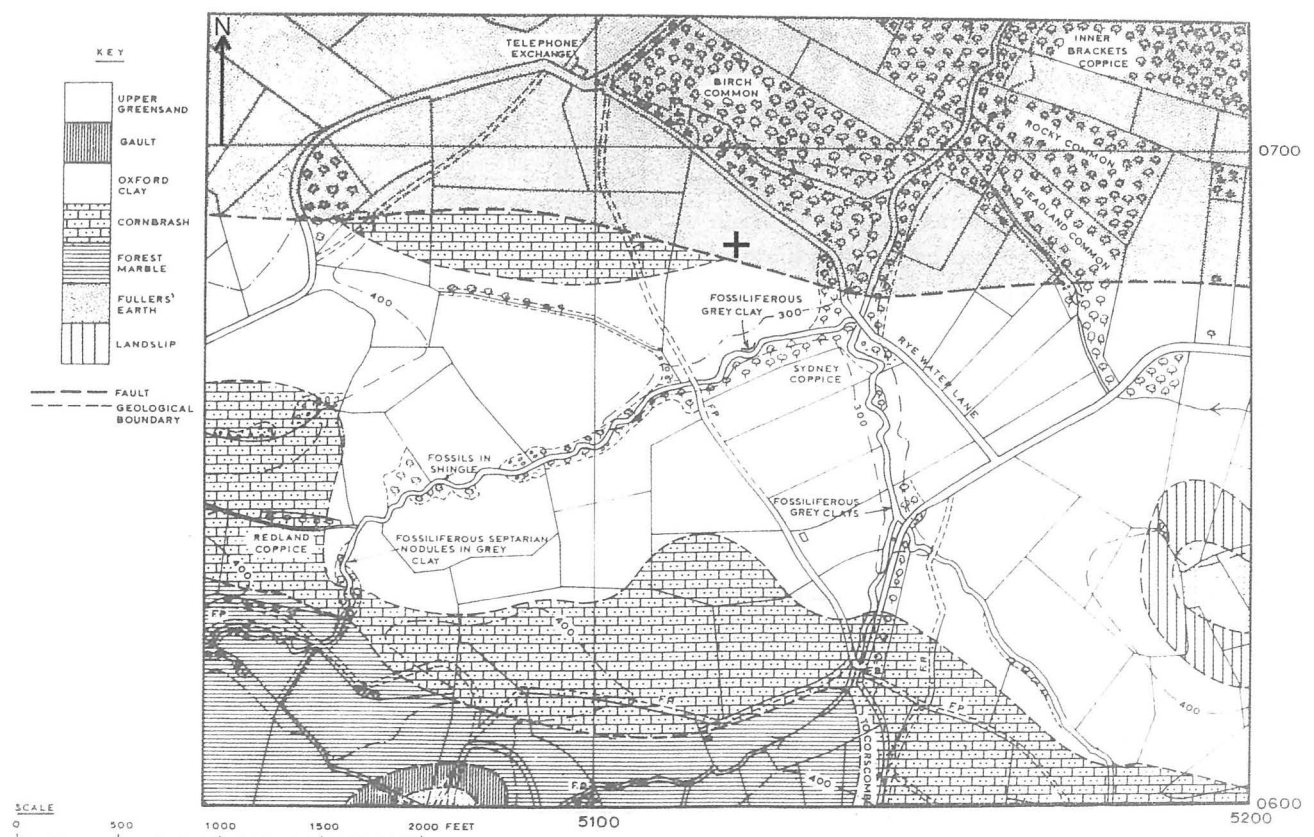


Figure 1. Location map of the described area. Position of the Cornbrash section is marked by a plus sign (+). Reproduced from original map in Cope and Cox (1970). Copyright DNHAS

with the stream banks and floor exposing intermittent sections of the Cornbrash Formation and the Clay and Sand members of the Kellaways Formation. The lowest part of the Oxford Clay Formation may be present (Page in Cox *et al.* 2002). The streams display extensive shingle-banks when water levels are low. As the glacial ice-sheets did not extend so far south for them to be the source of these banks, periglacial conditions extending southwards beyond the ice sheet are accepted as responsible for the formation of 'head' deposits containing periglacially derived fossil specimens, together with abundant flint and various rock types. It is these accumulations of shingle that provide most of the ammonites, often within mudstone/limestone nodules.

All of the fossil material collected and mentioned in this paper has been donated to the Dorset County Museum, Dorchester. Accession numbers are shown for each specimen mentioned below: these are prefixed by DORCM.G. in the museum collection.

Description of site

The Ryewater streams, often fast-flowing after heavy rains, erode the overlying drift and alluvium which cover the soft clays that form the steep sides to the streams, and consequently the area is highly susceptible to landslip. Over the last decade, the exceptional rains have transformed the landscape since the last visit by one of us (JGH). Access to most of the stream sections has become impossible, with fallen trees and accumulated debris compounding the encroachment of the clays and creating numerous dams, which in turn have caused the water to back up forming deep lagoons. With the limited access to the sections, little detail could be added to that previously reported (Cope *et al.* 1970; Page in Cox *et al.* 2002). The areas of low water yielded abundant specimens of *Gryphaea* sp. (15200, Fig. 4C), but ammonite evidence was poor, with a fragment of *Cadoceras* sp., most likely from the Kellaways Clay Member, and the inner whorls of a *Macrocephalites* sp., indicative of the Upper Cornbrash. Of most interest was an ammonite found in a shingle bank in the western stream. Its morphology appeared to be close to *Proplanulites*, so was submitted to J.K. Wright for further examination. Based on the coarse, bold primary ribs and the overall sculpture of the secondaries, all features confirmed the specimen as *Proplanulites* cf. *majesticus* (Buckman) (15199, Fig. 4B), indicating the Gowerianus Subzone of the Kellaways Clay. Other fossil fauna was sparse because of the prevailing conditions, only two belemnite guards

being found along with a bivalve fauna including *Catinula* cf. *knorri*, *Pleuromya* sp., *Modiolus* sp., *Oxytoma* sp., and a trigonid impression. These were all *ex situ* and indicated a faunal mix of both Cornbrash and Kellaways age.

New section of the Cornbrash Formation

To the north of the Ryewater Reserve, the adjacent farm had undertaken groundworks that had exposed a substantial section in the Cornbrash Formation, which is usually obscured by surface soil and clays. The section at the eastern end of the known occurrence of this formation as shown in Fig.1, is over 50 m in length, with an average height of 5.2 m: the approximate boundary between the two members is indicated in the photograph by the hammer head (Fig. 3). This formation was subdivided by Page (1989) but is considered to be of uncertain status (Barron *et al.* 2006); therefore, we have reverted to the formal subdivisions of Lower and Upper Cornbrash members. A simplified lithostratigraphical table (Fig. 2) illustrates the mid-Jurassic succession.

STAGE		ZONE	SUBZONE	STRATA	
OXFORDIAN	LOWER	Cardioceras cordatum	C. cordatum	UPPER OXFORD CLAY	
			C. costicardia		
			C. bukowskii		
		Cardioceras mariae	C. praecordatum		
			C. scarburgense		
CALLOVIAN	UPPER	Q. lamberti	Q. lamberti	MIDDLE OXFORD CLAY	
			Q. henrici		
		Peltoceras athleta	K. spinosum		
			K. proniae		
				K. phaeinum	
	MIDDLE	Erymnoceras coronatum	K. grossouvrei	LOWER OXFORD CLAY	
			K. obductum		
		Kosmoceras jason	K. jason		
			K. medea		
	LOWER	Sigaloceras calloviense	S. enodatum	KELLAWAYS FORMATION	
			S. calloviense		
		Proplanulites koenigi	K. galilaei		
K. curtilobus					
K. gowerianus					
Macrocephalites herveyi		M. kamptus	CAYTON CLAY FM		
	M. terebratus	UPPER CORNBRASH			
	K. keppleri				
BATHONIAN	UPPER (PART)	Clydoniceras discus	C. discus	LOWER CORNBRASH	
			C. hollandi		

Figure 2. A simplified lithostratigraphical table of the mid-Jurassic strata to be found or anticipated within the area of the Ryewater Reserve



Figure 3. Photograph of a typical part of the Cornbrash section. The approximate junction of the Lower and Upper Member is indicated by the hammer head

Description of lithology and fauna

There are no marked changes between the lower and upper members of the Cornbrash Formation. Primarily consisting of a series of bioclastic limestones, in part they are sub-nodular and intensely bioturbated so that the strata are poorly bedded. Some lenses of a fine-grained, bluish coloured limestone occur. Both members appear homogeneous, the boundary between them being almost inconspicuous, but some subordinate lithologies may be more common in one or other member, e.g. seams of a sandy marl appear to be confined to the Upper Cornbrash Member, whilst occasional muddy partings were observed in the lower part of the section. Overall, the rock is generally bluish-grey when fresh, but yellowish-brown when weathered. The more marly seams are often heavily peloidal and full of shelly patches, from which a few echinoids were obtained. Determination of the boundary between the members was indicated by a change in brachiopod taxa. No evidence was found of

the lower boundary with the Forest Marble Formation. With no obvious stratified bedding, no accurate measurement of the southerly dip was possible, but allowing for localised landslip, we estimate a low angle dip of <10 degrees.

The Cornbrash has long been known for its abundant, shelly fauna, which is dominated by brachiopods and bivalves. Ammonites are, by comparison, quite rare. For that reason, brachiopods were used for identifying the two members. However, it is ammonites that provide the basis for the standard zonation: *Clydoniceras discus* (Sowerby) and *Macrocephalites herveyi* (Sowerby) for the Lower and Upper Cornbrash respectively. Some further refinement is recognised, with the Lower Cornbrash divided into two faunal biozones based on the contained brachiopods: a lower zone with *Cereithyris intermedia* (Sowerby) and an upper one with *Obovothyris obovata* (Sowerby). These are of late Bathonian age. The Upper Cornbrash is of early Callovian age, but we were able to recognise only one

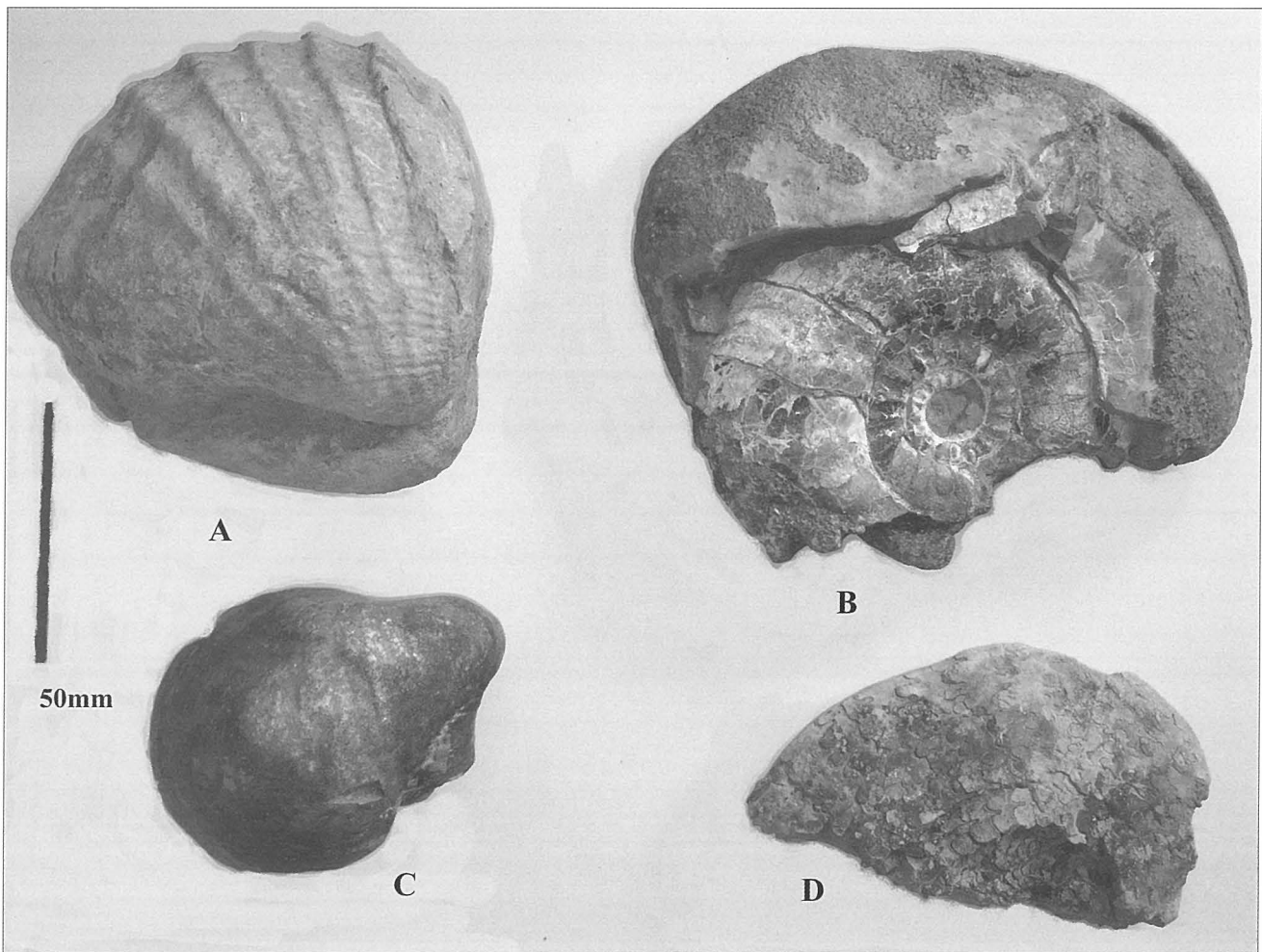


Figure 4. A, *Pholadomya* (*Bucardomya*) *lirata*; B, *Proplanulites* cf. *majesticus*; C, *Gryphaea* sp.; D, *Clydoniceras* cf. *discus*

of the two biozones of the upper part, identified by the brachiopod *Microthyridina siddingtonensis* (Walker), indicating the lower of the two. Despite considerable searching, we could not locate a specimen of *M. lagenalis* (Douglas & Arkell), the usually common indicator of the upper biozone. However, as noted above, the stratigraphical nomenclature of the succession is based on ammonites. The subzones are, in ascending order, *Keplerites* (*K. kepleri* (Oppel), *Macrocephalites terebratus* (Phillips) and *M. kamptus* (S.S. Buckman). We have included the third species as it is recorded from the reserve streams. Page (in Cox *et al.*, 2002, 55) placed this within a new unit, the Cayton Clay Formation, replacing the older term 'Clays-of-the-Cornbrash'. These and other faunal details are described elsewhere (Cope *et al.* 1970; Page in Cox *et al.* 2002, 54–7).

The fossil material collected provided no new data. They are consistent with previous records, as noted below.

Lower Cornbrash Member

Of the estimated total thickness of the section, this part of the formation was measured at c. 2.8 m. Fragments of *Clydoniceras discus* occur, together with abundant specimens of the brachiopods *Cereithyris intermedia* (15204), *O. obovata* (15216–18) with occasional *Kallirhynchia* sp. (15209) and *Kutchirynchia* sp. (15207). The figured specimen of *Clydoniceras discus* (15201, Fig. 4D) is qualified (cf.) because no ribbing is visible. Owing to poor preservation, we cannot be sure if it is an example of *C. douglasi* (Arkell), the holotype of which was described and figured from Corscombe by Arkell (1951, 41, pl. 111). Echinoids are scarce, only poorly preserved fragments of *Acrosalenia* sp. (not collected), *Nucleolites clunicularis* (Phillips) (15202) and a rarer taxon, *Pseudosorella elongata* (Cotteau & Triger) (15203), having been found. The abundant bivalves were mostly poorly preserved, some determinable only to genus, but included *Pholadomya* (*Bucardiomya*) *lirata* (J.Sowerby) (15198) (Fig. 4A), *Pleuromya* *calceiformis*

(Phillips) (15210), a species usually attributed to this nominal genus although the morphology would suggest the genus *Machomya*, so further research is required for clarification (Noel Morris, pers. com. Oct. 2016), *Ceratomya* sp. (15206), and *Thracia* sp. (15213).

Upper Cornbrash Member

This was seen to a thickness of c. 2.4 m, with a turf covered bank some metres inland from the edge of the section that appeared to be the weathered remains of the succession, but from which no fossils were found. From this Upper Cornbrash part of the section, we recovered the biohorizon index brachiopod *Microthyridina siddingtonensis*, but despite much searching, the usually abundant brachiopod index *Microthyridina lagenalis* (Douglas & Arkell non Schlotheim) could not be found.

The bivalve fauna is in a similar state of preservation to that of the lower member. The specimens collected were determined as *Pholadomya* (B.) cf. *lirata* (15219), *Gresslya* sp. (15211), *Cercomya* cf. *pinguis* (Agassiz) (15214) (we use the qualifier as this species may be a junior synonym of *C. undulata* (J. de C. Sowerby) (Noel Morris, pers. comm. Oct. 2016)), *Radulopecten* sp. (15208) and *Modiolus bipartitus* (J. Sowerby) (15221)

Conclusion

The Ryewater streams presented no new features due to prevailing conditions, but observations at a number of exposures confirmed the incompletely exposed Cornbrash Formation in the bed of the streams. Of most importance is that this location reveals the Bathonian/Callovian boundary, which has been recognised as one of the most complete in Britain, as well as the best (subject to prevailing conditions) permanent exposures of the Kellaways Formation (Page in Cox *et al.* 2002, 54) The Lower Cornbrash here was previously only assumed to be of latest Bathonian age, so the presence of *Clydoniceras* cf. *discus* in the described section provided confirmation of this. In the absence of ammonite evidence for the Upper Cornbrash, we have used the brachiopod biozones as described above, to determine the junction between the Lower and Upper Cornbrash members, as shown in Fig. 3, although the lack of bedding meant this undulated considerably.

Although not well known, this SSSI affords the opportunity, if conditions allow, to review exposures that are of international importance, particularly the

Lower Callovian sequence with recognisable Callovian ammonites. Together with the new Cornbrash section, the location provides potential reference exposures for members not permanently available elsewhere in Britain, as observed by Natural England (SSSI Notification; as amended).

ACKNOWLEDGEMENTS

We are grateful to the charity Plantlife for permitting our visit and also thank Joe Costley (Reserves Officer) for additional details. We acknowledge the permission by the landowner, Adge Diamond, Gaffer Farm, to access the new Cornbrash site. For their help in identifying various specimens, we thank Dr Mike Howarth (Ammonoidea), Dr Andrew Smith (Echinoidea), Dr Noel Morris (Bivalvia) (all Natural History Museum, London, retired) and Dr Zoe Hughes, Dept. of Palaeontology, Natural History Museum, London. We thank the reviewer, Dr John Wright (Royal Holloway, London University) for his recommendations and corrections, which much improved the presentation and accuracy of this paper, also for his detailed identification of the specimen of *Proplanulites*.

REFERENCES

- Arkell, W.J. 1951-58. *A Monograph of English Bathonian Ammonites*. The Palaeontographical Society, London.
- Barron, A.J.M., Lott, G.K., and Riding, J.B. 2006. *Stratigraphical framework for the Middle Jurassic strata of Great Britain and the adjoining continental shelf*. British Geological Survey Research Report **RR/11/06**.
- Cope, J.C.W. and Cox, B.M., 1970. A Kellaways Beds locality in North Dorset. *Proceedings of the Dorset Natural History and Archaeological Society* **91**, 120–22.
- Cope, J.C.W., Duff, K.L., Parsons, C.F., Torrens, H.S., Wimbledon, W.A., and Wright, J.K. 1980. *A correlation of Jurassic rocks in the British Isles. Part Two: Middle and Upper Jurassic*. Geological Society, London, Special Report **15**.
- Page, K.N. 1989. A stratigraphical revision for the English Lower Callovian. *Proceedings of the Geological Association*, **100**, 363–82.
- Page, K.N. in Cox, B.M. and Sumbler, M.G. 2002. Ryewater, Corscombe, Dorset. In *British Middle Jurassic Stratigraphy, Geological Conservation Review Series* **26**, 55–7.

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DORSET ARCHAEOLOGY in 2016/15

Watching Briefs

Dorset County Football Association, Blandford Close, Hamworthy, Poole

A programme of archaeological observation and recording was undertaken by Bournemouth University's archaeological consultancy (BUARC) as a condition of planning approval during the conversion of a grassed football pitch to an artificial surface at Dorset County Football Association County Ground, Blandford Close, Poole (NGR SY 9998 9058). The watching brief was carried out intermittently throughout June and July 2016. The development entailed the reduction of the existing ground levels by a maximum depth of 0.5 m. In general the impact on the archaeological resource was minimal as only the uppermost levels of the topsoil were removed across the majority of the site. Natural sand and gravel deposits were only observed towards the north western extent of the site due to the general downward gradient of natural from NW to SE in an area measuring approximately 1600 m².

Three shallow ditches were identified in this area cutting the natural gravels and extending beyond the limit of the site, two of which ran NNE-SSW parallel to each other and approximately 2 m apart. One of the ditches could be traced for 48 m across the site, while the other was evident on the surface for a further 44 m, both preserved *in situ* beyond their excavated areas. Both features may be contemporary with pottery recovered from one of the ditch fills, suggesting a post-medieval date. Their location and orientation correlate with a previous field boundary recorded in an Ordnance Survey map from the 1890s and this may represent the flanking ditches of a hedgerow. A third ditch located to the NW corner of the site ran N-S. A field boundary is identified on the Ordnance Survey map running on a similar alignment and can be traced up until the 1920s when the field was opened up for the newly appointed 'recreation ground'. In addition the Roman road, to the SW, is also projected to run on a similar alignment. There is, therefore, potential for this feature to be associated with the Roman road. However, the lack of diagnostic cultural material makes interpretation uncertain.

Jonathan Monteith, Bournemouth University

21 Blandford Road, Potters Arms, Poole

Archaeological observation and recording was undertaken by Bournemouth University's archaeological consultancy, (BUARC) as a condition of planning approval at 21 Blandford Road, former Potters Arms Public House, Poole (SZ 0037 9023) during demolition, site clearance and ground reduction, and foundation groundworks associated with the redevelopment of the site. The project was carried out in October and November 2016.

Modern features, including walls and services, relating to the recently demolished structures were recorded during site clearance and ground reduction works. Two possible ditch termini, a gully and a linear ditch feature were identified during the groundworks. Pottery sherds characteristic of Wareham/Poole Harbour sandy fabric were retrieved from one of the ditches and are typical of the Late Iron Age and Romano-British vessels of this area. In addition, a red brick-built well was recorded cutting made-ground layers which has been interpreted as Victorian. In total seven post-medieval and early-modern made-ground layers were recorded across the site sealed by a tarmac surface.

Jonathan Monteith, Bournemouth University

New dwellings at Colliton Street, Dorchester

In August 2016 Bournemouth University's Archaeological Consultancy (BUARC) carried out an archaeological watching brief during the groundworks phase of their housing development on the site of a former Stratton House Campus car park, off Colliton Street in Dorchester (NGR SY 6913 9080).

The foundation trenches were shallow and mainly impacted upon modern overburden deposits although where deeper extraction did occur, for example, to install services, investigative digging was carried out. Also around a buried fuel tank that was discovered on the site. As deep excavation was not extensive, disturbance of the earliest deposits and features present on the site was minimal.

All of the archaeological deposits and features identified are post-medieval and modern.

Seventeenth-century pottery was recovered and this provides a date for the earliest activity, including a probable well in the north-western area of the site, remains of a wall and stone surface and other associated deposits. A second well was also found to the east of the site. Remnants of wall foundations attest to the presence of multiple buildings prior to 1880, as no buildings are shown on historic mapping beyond this date. The foundations for the new buildings were deliberately kept shallow to avoid deposits related to a Roman building found in close proximity to the site during a trial trench evaluation undertaken in 2011 by Context One.

Jon Milward, Bournemouth University

REFERENCE

Tabor, R. 2012. 'Stratton House Campus', *PDNHAS* 133, 105-6.

Evaluations

15a West Borough, Wimborne

An archaeological evaluation, comprising two trenches, was carried out by Bournemouth University's archaeological consultancy (BUARC) in June 2016 at the request of Christchurch and East Dorset Councils in response to a planning application for a proposed development to the rear of Dickens House, 15a West Borough, Wimborne Minster. Dickens House is Grade II listed and located within the Wimborne Minster Conservation Area on the western side of West Borough (NGR SU 0088 0014).

Both trenches contained a series of post-medieval made-ground layers as well as possible garden soil above the natural gravel. Due to the lack of artefactual evidence it was not possible to date any of the features identified during the evaluation, however the stratigraphic evidence suggests that the features all relate to post-medieval use of the site.

The 1847 Tithe Map shows a 'house, yard and garden' owned by a Revd Percy Newall, but with no evidence of a rear building range. The 1900 Ordnance Survey map of Wimborne (surveyed in 1885) shows Dickens House connected to a linear range of buildings at the rear of the plot, and the same configuration of buildings is also evident in the 1953 mapping. A wall recorded in Trench 1 would appear to correspond with the building located along the southern boundary of

the plot, while the wall foundation located in Trench 2 aligned with the linear range along the northern boundary of the site.

A small assemblage of animal bone and late-thirteenth- to fourteenth-century pottery was recovered from a pit in Trench 2, at a depth of 0.85 m from the present ground surface, however it was evident that this pit truncated the made ground layers of the site which are clearly post-medieval, and is therefore much later in date. The pottery is interpreted as being *ex situ* and therefore does not provide a secure date for this layer or pit. The presence of thirteenth- to fourteenth-century pottery may, however, be indicative of earlier archaeological features in the vicinity.

Jonathan Monteith, Bournemouth University

Survey

Borough Gardens, Dorchester

A geophysical survey, comprising ground penetrating radar, resistivity and magnetic surveys, was carried out by Bournemouth University's archaeological consultancy (BUARC) in November 2016 as part of a comprehensive archaeological assessment of the bowling green in Dorchester's Borough Gardens.

A number of discrete dipolar responses correlating to ferrous material were recorded across the area, many of which undoubtedly represent the presence of modern features. Analysis of the historic mapping revealed that many of these anomalies aligned positively with garden features. There is some indication from the results of the resistance survey that the triple ditch system of the Roman town defences, which cross the site running roughly N-S, may also be present.

Jonathan Monteith, Bournemouth University

2015

Watching Briefs

57 High Street, Wimborne

Archaeological observation and recording was undertaken by Bournemouth University's

archaeological consultancy (BUARC) between February 2015 and December 2016 as a condition of planning approval on land to the rear of 57 High Street, Wimborne (SZ 0103 9995), formerly the site of the Bell Public House. The site is within the Wimborne Minster Conservation Area.

Cutting the post-medieval and early-modern layers a series of pits and one possible ditch were identified towards the north-western area of the site. These were interpreted as representing the remains of a probable drainage ditch, possible refuse pits and a modern cut relating to a drainage system. Towards the southern extent of the site a pit and a possible refuse deposit were also recorded. All identified features are thought to date to the eighteenth and nineteenth centuries.

A total of 67 artefacts were recovered from the site, including ceramic fragments of pottery; tile and brick, as well as bone, metal and stonework. Of the total assemblage, twenty-four artefacts were recovered from dump deposits or made-ground layers which could represent residual displacement not associated to any particular archaeological feature. The remainder were from secure contexts and date to the eighteenth and nineteenth centuries.

Animal bone from the site included cattle, pig and sheep/goat, making up over 54% of the identified species. Dog and horse bones were also recovered, with the latter accounting for 42% of the assemblage from a single refuse pit. Butchery was observed on bones from cattle, pig and horse and these are in keeping with post-medieval trends with a number of heavy chops being recorded.

Jonathan Monteith, Bournemouth University

Land at Junction of Blandford Road and Norton Way, Poole

Archaeological observation and recording was undertaken by Bournemouth University's archaeological consultancy (BUARC) in March 2015 as a condition of planning approval on land at the junction of Blandford Road and Norton Way, Poole (NGR SZ 0035 9025). Ground clearance, groundworks and excavations associated with foundation footings and new services were monitored as part of the project.

A series of post-medieval and modern made-ground layers were recorded across the site, as well

as one large pit of late post-medieval date. In addition to post-medieval pottery and glass from the large pit, two flint flakes were recovered, both of which exhibited fissure marks on the ventral face. The largest flake (measuring 45 mm in length) had been damaged at the proximal end and showed potential evidence of retouching on both sides. The second, smaller flake (measuring 24 mm in length), had a clear striking platform and prominent bulbar scar with cortex present at the distal end.

Jonathan Monteith, Bournemouth University

36-41 Glyde Path Road, Dorchester

In June 2015, Bournemouth University's archaeological consultancy (BUARC), undertook an archaeological watching brief in respect of a change of use of former offices to residential accommodation. The site was located to the rear of nos 36 – 41 Glyde Path Road, Dorchester and was one of several sites within the overall redevelopment of the Stratton House Campus former Council Offices (NGR SY 6913 9080).

The watching brief was carried out during the groundworks associated with landscaping, new garden wall foundations and the installation of utility services. Typical urban post-medieval deposits, including stone wall foundations and drainage features, were recorded across the site. No evidence for medieval deposits was recorded, however, mixed garden soils were recorded in Trench 4 and any medieval features may have been concealed within these deposits.

The density of Romano-British deposits and features recorded close by during an earlier trial trench evaluation on the site were not paralleled, probably due in part to the relatively shallow depth of these groundworks. Natural subsoil was recorded in Trenches 4 and 5 where deeper excavations were carried out. In both of these trenches, in addition to the post-medieval features a small number of features containing Roman pottery were identified, although these could not be securely dated due to the high level of disturbance, and the probable contamination of Roman deposits with post-medieval pottery.

Jon Milward, Bournemouth University

Evaluation

Sutton Road, Weymouth

An archaeological evaluation was carried out by Bournemouth University's archaeological consultancy (BUARC) in January 2015 at 112 Sutton Road, Sutton Poyntz (SY 7049 8326) to provide additional information on the archaeological potential of the site ahead of a planning application. The site is within the Sutton Poyntz Conservation Area and Area of Outstanding Natural Beauty. Two trenches were hand excavated to a depth of 1.2 m.

Two inhumation burials, a child and an adult, were identified in the southernmost trench, while a single adult burial, with at least three complete ceramic pots, was identified in the northernmost trench. Soil layers above the burials also contained sherds of pottery dating to the Romano-British period. A total of 59 sherds of pottery (weighing 1044 g) were recovered. A carinated bowl with long vessel walls and slightly inturned rim was recorded in one of the graves, with a form which is probably a copy of Samian form Dragendorff 29 dating from the first century AD to the early second century AD.

The presence of human burials in two separate locations on the site strongly suggests that this area was part of a Roman cemetery. The full extent of this cemetery is not known although archaeological investigations to the immediate north of the site at 116 Sutton Road did not uncover Roman archaeological deposits (Tatler 2008). Roman occupational deposits were found to the immediate south of the site in the grounds of the Springhead public house, however human burials were not recorded in this area (Brading, 1998). Human burials dating from the late Iron Age and Romano-British periods have been identified at several sites in the area. Two inhumation burials were recorded during an excavation prior to the construction of a water treatment works at the north end of Sutton Road (Rawlings and Watson, 1993). It is believed that during the Roman period Sutton Poyntz was part of an estate, extending from the downs to the sea (Powell 2005) and managed from the large villa at Preston, 1 km to the south of the site. Several springs are known within the vicinity of the site, including that from which the river Jordan rises, as well as springs at the end of Coombe Valley Road in Preston. Springs would almost certainly have had ritual significance. A

further cemetery is recorded at Jordan Hill, also dating to the latter part of the first century AD, where over 80 burials and an associated fourth-century Roman temple were identified in the mid nineteenth century. A hoard of over 4,000 bronze coins recovered near Jordan Hill in 1928 may represent offerings at the shrine there. Other Roman remains nearby include a Romano-British villa at Preston, north of Jordan Hill, while there was also a small Roman port to the west at Radipole, on the river Wey. The frequency of burials within the vicinity of the site and in the surrounding landscape, alongside the strong association with temples relating to strong religious traditions, implies that the area was generally important throughout the Roman period as a burial site.

REFERENCES

- Brading, R. 1998 'Sutton Poyntz, Springhead Public House' *Proceedings of the Dorset Natural History and Archaeological Society* **120**, 114.
- Powell, B. 2005 'Stealing away like Time; Archaeology and the River Jordan, Sutton Poyntz. Salisbury'. Wessex Archaeology Ltd.
- Rawlings, M. and Watson, K., 1993 'Sutton Poyntz' *Proceedings of the Dorset Natural History and Archaeological Society* **115**, 153-55.
- Tatler, S. 2008 'Proposed Dwelling at 116 Sutton Road, Sutton Poyntz, Weymouth' *Proceedings of the Dorset Natural History and Archaeological Society* **129**, 192.

Jon Milward, Bournemouth University

Christchurch Magistrates Court Site

An archaeological evaluation was carried out by Bournemouth University's archaeological consultancy, (BUARC) in October 2015 at a proposed development site at Christchurch Magistrates and Police Station, Bargates, Christchurch (SZ 1554 9297), part of which falls within the Christchurch Central Conservation Zone.

A previous archaeological evaluation, comprising three trenches, was carried out by Wessex Archaeology in 2005 which recorded four post-holes interpreted as medieval or earlier. Artefacts recovered, although unstratified, included a Mesolithic flint bladelet core

(8500 – 4000 BC) made on a gravel cobble, as well as post-medieval stonewares, Verwood-type earthenware and a coarse redware vessel.

A total of six trenches, focusing on the grassed areas to the south and east of the Magistrates Court, the car park at the south-eastern extent of the site and the allotments/rear garden plots behind 43 Barrack Road, were excavated. Comparison of the trench locations with historic mapping identified a number of buildings and other features that relate directly to the archaeological remains encountered within the evaluation trenches. A trench excavated within the rear garden plots behind 43 Barrack Road at the north-western extent of the site (Trench 1) was located where historic maps show a series of strip fields, presumably a relict system of medieval or post-medieval agriculture. Two pits truncating subsoil in this trench were interpreted as representing post-medieval or modern refuse pits.

Trenches located across the back of buildings fronting onto Barrack Road, specifically nos. 39 and 29/31 respectively shown on historic mapping, Trenches 2 and 3 respectively, uncovered the remains of a basement with a concrete surface that is likely to represent the former back yard of the property. Remains of seven walls, including three compact gravel foundation walls, and two made-ground layers were also recorded in this area. Several phases of construction were recorded representing at least two buildings apparently oriented at right angles to Barrack Road, probably representing former numbers 29 and 31.

In the area south-east of the existing police station, which on historic maps appears to lie within former gardens behind the Barrack Road properties, a large volume of made ground, some two metres above the level of the adjacent car park, was recorded (Trench 4). This material was associated with the construction of the police station and court, evidence of which can be seen as tipped layers within the trench. Two pits and a contemporary ditch were identified, the latter containing a single abraded rim sherd of twelfth/thirteenth century cooking pot. This represented the earliest securely dated feature identified during the project and suggests that medieval deposits survive beneath later post-medieval features in this area, and perhaps generally across the site.

At the western extent of the site within the Pit Site car park a substantial concrete base and pipework at the centre and south-eastern extents of Trench 5 suggest that they were associated with a structure with provision of utilities and foul/grey water drainage, probably relating to a relatively modern building associated with the operation of the car park, such as a toll booth or toilet block.

At the north-eastern extent of the Pit Site car park, a further trench (Trench 6) was positioned in an area spanning buildings between the former Silver Street and Spicer Street, south-east of Bargates. Substantial foundations were recorded suggesting the presence of basements, while a ditch orientated on a northwest-southeast alignment may represent land or plot divisions within this area of the site. Although six sherds of twelfth- to thirteenth-century pottery were recovered from this feature, its exact date remains uncertain due to the presence of eighteenth-century sherds also recovered during the excavation. It is possible that the earlier pottery is from the ditch while the later ceramic material is from a later sealing deposit.

Jonathan Monteith, Bournemouth University

Walford Farm, East of Cranborne Road, Wimborne

Archaeological works involving the Strip, Map and Sample excavation was carried out by Bournemouth University's archaeological consultancy (BUARC), on land at Walford Farm, east of Cranborne Road, Wimborne (NGR SU 0118 0100).

The project, undertaken between August and November 2014, was the first of two phases of archaeological mitigation for a proposed residential development. The second phase of investigation was carried out by Wessex Archaeology to the west of Cranborne Road in 2015, where a relatively large area of Late Saxon and medieval rural settlement evidence was recorded. Previous investigations in relation to the site included a geophysical survey of the entire proposed development area, east and west of Cranborne Road, undertaken by Pre-Construct Archaeology in 2012. Following this a trial trench evaluation was conducted by BUARC in 2014, with additional geophysical survey being carried out in response to the significant amount of

medieval archaeology identified on the western side of Cranborne Road. The Strip, Map and Sample excavation focused on three areas of archaeological activity. These areas, Areas A – C, were highlighted as being of high archaeological potential following the 2014 trial trench evaluation.

Area A

A large number of pits and post-holes of Late Bronze Age/late Iron Age date were identified in Area A, representing three possible domestic structures surrounded by a large enclosure ditch. A total of 218 post-hole type features were recorded in this area.

Structure 1, A roundhouse, was recorded on the most elevated area of the site on a relatively flat plateau, with a diameter of approximately 15 m. The building comprised a total of twenty-one post- and stake-holes with a four-post entrance facing ESE. The holes formed an 'inner' and 'outer' ring of features, forming a curving alignment. The majority of the pottery was recovered from the four entrance post-holes, and included thirty-three sherds of Late Bronze Age or Early Iron Age sherds. It is worth noting that five of the post-holes contained Iron Age pottery including five Mid to Late Iron Age sherds and two transitional Iron Age to Roman pottery sherds. The southern half of the structure showed post-medieval disturbance.

Structure 2 was identified in the eastern area of the site, and comprised a number of shallow post-holes. The southern extent of the structure had been substantially disturbed by a post-medieval field boundary ditch. Eleven post-holes and a narrow linear slot trench defined the area of the structure and contained a single sherd of Late Bronze Age or Early Iron Age pottery.

Structure 3 comprised six post-holes forming a circular structure, covering an area measuring c. 14.5 m², with a further eight post-holes to the immediate north forming a curving alignment measuring c. 23 m in length, potentially representing a windbreak structure. An additional eight post holes were revealed to the immediate south of this curving structure, with no obvious pattern, but they are likely to be associated. A total of twenty-two late prehistoric pottery sherds were recovered from two of the post-holes.

The enclosure ditch was rectangular in plan,

varying in width and depth across its exposed length. The ditch was variously V-shaped in profile, with a series of three fills, showing evidence of primary silting and secondary build-up of material, possibly from an associated bank. A total of 99 sherds of Late Bronze Age or Early Iron Age pottery was recovered from the primary layers, with a further 97 sherds being recovered from the secondary layers. Three axe-thinning flakes, which had been removed using a soft hammer, and an end scraper, which was made on a hard hammer-struck flake, were also recovered from these layers. A total of 101 sherds were recovered from the tertiary/uppermost layers.

Two areas of intercutting pits, post-holes and linear features were recorded towards the central area of the site, possibly representing an area of refuse pits and associated features.

The majority of the pottery assemblage from Area A was broadly of late Bronze Age/early Iron Age date, with the fabrics being predominantly flint-tempered or sandy wares. Calcareous and grog-tempered fabrics were recovered in very small quantities. Most of the features that produced larger groups of pottery included both flint-tempered fabrics and sandy wares, indicating contemporaneity of fabrics. A total of 188 pieces of worked flint was recovered, the majority of which is debitage, mostly hard hammer-struck, with little evidence of platform preparation. Recognisable tool types included a multifacially worked core, an awl, four axe thinning flakes, four bladelets, several end-scrapers, an end- and side-scraper, four blade-like flakes, three blades, and one further blade which had been retouched into an end-scraper. An Early Neolithic dihedral burin and a leaf-shaped arrowhead were recorded, while the remainder of the tools are Late Neolithic / Early Bronze Age.

Area B

Area B was located at the bottom of a shallow slope adjacent to a natural watercourse. The previous trial trench evaluation project identified a layer of alluvial or colluvial material which contained a number of sherds of Bronze Age pottery and a distinctive early Neolithic 'trumpet' lug sherd of pottery, along with 910 grams of burnt and struck flint flakes.

Further investigation in Area B identified two shallow linear features either side of a modern field

boundary, a shallow pit and spread of material. The linear features were orientated NNW/SSE and ran parallel to the existing modern field boundary. A single Early Neolithic end scraper was recovered from one of these features, however no other cultural material was identified. Pottery recovered from Area B comprised a total of 112 sherds which were almost entirely of medieval and post-medieval date.

Area C

During the initial stripping of this area two flint hand axes were uncovered in the surface material of a small circular pit. Both axes were elongated, with faceted side diagnostic of the Mid to Late Neolithic period. No other finds were recovered from this shallow feature.

Two further pits were also identified in this area, one of which contained a large amount of charcoal and *in-situ* burning. A total of thirty-one sherds of pottery were recovered from Area C. The majority of this assemblage was unstratified, having been recovered from topsoil and the surface of the site during the stripping process, and was predominantly of medieval date. A single sherd of Iron Age/Romano-British sandy ware from the Poole Harbour industries, seven flint-tempered prehistoric sherds and a single sherd of fine Poole Harbour medieval fabric, with a buff-coloured ware with green glaze, were included in the assemblage.

Jonathan Monteith, Bournemouth University

Shaftesbury Lane, Blandford Forum

Context One Archaeological Services Ltd carried out a programme of archaeological monitoring and recording on land at Shaftesbury Lane, Blandford Forum (centred on ST 88966 08091) between November 2016 and January 2017. A range of multi-period features is recorded in the vicinity, most notably a prehistoric enclosure c. 100 m to the north. There are no records of any previous archaeological activity on the site although a mound is recorded along the eastern boundary which was identified through aerial photography. This is no longer extant and remains unidentified. No visible archaeological features or deposits of archaeological interest were encountered during development excavations and no finds were observed or recovered.

Clare Randall, Context One Archaeological Services

Bridport Literary and Scientific Institute, 51 East Street, Bridport

Context One Archaeological Services Ltd continued the programme of historic building recording and archaeological monitoring and recording at the Bridport Literary and Scientific Institute, 51 East Street, Bridport (centred on SY 46779 92922) which began in 2015. The works in 2016 comprised the recording of historic features exposed during the removal of modern additions to the building, including the identification of blocked fireplaces, windows and doors. This helps elucidate the appearance and spatial organization of the original building prior to later adaptations. Archaeological monitoring was carried out of a deep excavation in the basement floor of the building however no archaeological finds, features or deposits were found. A full report of the building recording will be compiled following the completion of site works in 2017.

Cheryl Green, Context One Archaeological Services

Bridport Museum, Bridport

Context One Archaeological Services Ltd was instructed to carry out a programme of archaeological monitoring and recording at Bridport Museum (centred on SY 46607 92823) during limited groundworks relating to the modernisation of the museum. Bridport Museum is a Grade II* Listed building (HE ref. 1227857, The Castle Museum and Art Gallery) and lies within the Bridport Conservation Area.

Despite the location within the historic core of Bridport, and the sixteenth-century origins of the building, no archaeological features or deposits were observed relating to this early period. There was also no evidence of a fire in 1876 and the subsequent restoration work. However, the limited nature of the groundworks does not preclude the possibility that archaeological remains survive beneath the building elsewhere although in the areas observed, the surfaces rested directly onto natural clay.

Stuart Milby, Context One Archaeological Services

Church of St Mary the Virgin, Charminster

In January 2016, Wessex Archaeology undertook an archaeological watching brief during repair works at the Church of St Mary the Virgin, West Hill, Charminster (SY 67930 92693). An undated layer of levelling material containing scattered fragments of bone and a coffin handle was observed beneath

the lifted floor. The broken top of a brick crypt was just visible in the north aisle and a lead coffin with an unfrogged red brick surround was observed in the south aisle. The lead coffin was at a slight angle suggesting it may have been previously moved. The lead coffin was left *in situ* but encased with a steel mesh to protect it. In an area monitored outside the church, a modern pipe and soakaway were uncovered, as well as a grave cut with further fragments of human bone in a soil layer. All fragments of human bone were reburied on site.

Ashley Tuck, Wessex Archaeology

Evaluation Trenches within the North Paddock, Max Gate, Dorchester

On 31 August 2016, three evaluation trenches were excavated within the enclosed area of grassland immediately north of Max Gate House and Garden. This area is used by the gardeners and is occupied by store sheds and fruit cages. It was proposed to create a visitor car park here. The Max Gate National Trust property is now known to occupy the eastern half of a Middle Neolithic enclosure discovered in the 1980s during road construction (Smith 1997). Bronze Age features as well as Iron Age and Romano-British burials have been found on the property since Thomas Hardy first developed the site (Hardy 1890).

Each trench was 0.5 m square and was excavated to chalk bedrock. Trench A was to the NW of the field (SY 70478 89995), trench B to the SE (SY 70488 89972) and trench C to the SW (SY 70467 89969).

They demonstrated that the land had been heavily ploughed down to 0.3 m below the surface and finds ranging from prehistoric flint to early twentieth-century were mixed together. Between 0.30-0.35 m, within A and B, was a band of brown chalky loam between the plough soil and the chalk and this contained small fragments of Romano-British black coarse ware and an abraded sherd of Samian. Within trench C the disturbed soil continued to the chalk.

The Dorchester Holy Trinity parish tithe map of 1840 (NA IR 30/10/77) shows the area, later occupied by Max Gate, marked out with a dotted line as plot 501, part of a large field divided into arable plots. Max Gate was designed by Thomas Hardy and lived in by the author from 1885. The newly built house with its garden is shown on the 1st edition 25-inch O.S map surveyed in 1886 (published 1889). The northern paddock was enclosed and added to the property at some time between the 1901 and 1928 OS surveys.

This evaluation has demonstrated that the surface stratigraphy has been disrupted by cultivation up to the twentieth century but it is known that highly significant prehistoric and Roman archaeological remains exist where features cut into the chalk bedrock (Bellamy 2014).

REFERENCES

Bellamy P. 2014. 'Max Gate, Allington Avenue, Dorchester: Archaeological Observations and Recording during the construction of a new sewer July 2013', *Terrain Archaeology* unpublished report for the National Trust.

Hardy, T. 1890. 'Some Romano-British Relics found at Max Gate, Dorchester', *Proceedings of the Dorset Natural History and Antiquarian Field Club XI*, 78-81.

Smith, R. *et al.* 1997. 'Excavations Along the Dorchester Bypass, Dorset', 1986-8, *Wessex Archaeology Report 11*, 27-48.

Martin Papworth, National Trust

Park Farm, Gillingham

A watching brief (ST 82089 25541) by Cotswold Archaeology revealed two undated sandstone walls.

Simon Sworn, Cotswold Archaeology

Foundation inspection trenches, Bottle Knap Cottage, Long Bredy

Bottle Knap Cottage is a thatched building which contains earlier seventeenth-century elements and is constructed of local oolitic limestone and blocks of chalk. The cottage occupies part of the shrunken medieval village of Long Bredy and is likely to overlie the remains of earlier buildings.

Over time, colluvial soils have built up against the east wall and the cottage floors are at a lower level. This has caused damp problems requiring better drainage.

On 14 November 2016, three 0.6 m square evaluation trenches were dug against the east external wall where a footpath runs along the back of the cottage. The north trench (SY 56956 90333) was 5 m south of the north-east corner of the cottage and was dug to a depth of 0.95 m below the ground surface. The north face of a rubble limestone wall aligned NW-SE and running under the line of the cottage wall was found at a depth of 0.25 m to 0.80 m. It indicates the remains of an earlier building constructed on a different alignment. No diagnostic finds were recovered in association with this structure.

Martin Papworth, National Trust

Sackmore Lane, Marnhull

In November 2016, Wessex Archaeology excavated three trial trenches on land off Sackmore Lane, Marnhull (ST 77615 19240), ahead of proposed residential development.

The trial trenches identified Romano-British linear features, some of which correlated with geophysical anomalies suggesting a ditched enclosure in the south-east of the site. Some Middle Iron Age pottery was also found unstratified in the same locality. Small quantities of worked flint suggest limited prehistoric activity and four sherds of medieval pottery were found in the subsoil. The excavation of five geological test pits was also monitored without positive archaeological result.

Ashley Tuck, Wessex Archaeology

Evaluation trenches in advance of biomass boiler, Kingston Lacy House Stable, Pamphill

On 29 September 2016, four 1 m square trenches were excavated along the line of a proposed pipeline running from the staff car park (ST 97676 01347 trench A), east along the north side of the stable courtyard area as far as the north side of the education room within the service range (ST 97823 01296).

Trench A revealed part of the footings of a brick and concrete building below a 0.2 m deep deposit of gravel. The structure is likely to be mid-twentieth century but no records of it are known and it does not appear on historic OS maps.

Trench B (ST 97728 01357) was on the north side of the path verge above the slope down to the main visitor car park. Chalk was 0.2m deep below turf here and no significant finds were made. This ground appears to have been cut away as part of the 1980s car park landscaping.

Trench C (ST 97840 01324) was on the lawn NE of the Stables restaurant. Here the ground to a depth of 0.75 m, consisted of late-nineteenth-century debris relating to 1880s landscaping associated with the construction of the stable block. This overlay a layer of sandy loam containing some prehistoric struck flint. This lower layer was excavated to a depth of 0.1 m but the bedrock was not found.

Trench D (ST 97808 01314) was in the shrubby area NW of the service range. Here again the ground consisted of sandy loam mixed with building debris including brick, clay tiles and fragments of Purbeck limestone roof slates and mortar. Pottery mixed with

the debris indicated that it dated to the nineteenth century and continued to a depth of 0.8 m below the surface.

Many thanks to Dave Stewart and Gill Broadbent for their assistance during this work.

Martin Papworth, National Trust

Evaluations trenches in overflow car park, Kingston Lacy House, Pamphill

On 29 February 2016, three 1 m square archaeological evaluation trenches were excavated in the south-east corner of the Kingston Lacy House overflow visitor car park (ST 9757 0137).

An area measuring 8 m east/west by 6 m north/south was due to be dug out to insert a new sewage tank immediately north of an existing tank. The evaluation trenches were excavated to examine the archaeological deposits that would be affected by this development.

All three trenches demonstrated that the area had been heavily ploughed in the past and this had disturbed the archaeological stratigraphy down to 0.25-0.3 m. Below this the ground was undisturbed by modern agriculture but in the NW trench **A** (ST 97571 01371) the bedrock had been cut into for a service trench during the twentieth century and then ploughed again. In the central trench **B** (ST 97576 01369) there was a narrow band of soil, 0.05-0.08 m deep, which contained occasional prehistoric flint but it was in trench **C** (ST 97677 01366) that the archaeology was best preserved with a sandy band of soil containing exclusively patinated prehistoric struck flint 0.3-0.35 m deep above the natural chalk and sand bedrock (the chalk and Tertiary geology deposits meet and coalesce across Kingston Lacy Park). Although these finds are probably Neolithic or Bronze Age in date (no flints with secondary working were recovered), these finds are not unusual as similar scatters of flint finds are usually encountered across the Kingston Lacy Estate. These were stray artefacts with no occupation features encountered during the excavation. Therefore the installation of the sewage tanks proceeded. However, the work was covered by a watching brief on 16 March during which no additional significant finds were made.

Many thanks to Dave Stewart and Gill Broadbent for their assistance during this work.

Martin Papworth National Trust

Toby's, 1 Bimport, Shaftesbury

Context One Archaeological Services Ltd (COAS) carried out targeted historic building recording at Toby's, 1 Bimport, Shaftesbury (ST 86140 23075) in June 2016. The building is Grade II Listed (List entry number: 1108756). The property of 1 Bimport dates from c. 1835 and occupies the site of Lord Arundel's c. 1590 town house. The historic building recording relates to the second floor, which is being converted into flats. Recording was required as a condition of Listed Building Consent to record the adaptations to the building which reflect its supposed former 'industrial' activities. It has formerly been suggested that these activities may relate to the manufacture of buttons.

The historic building recording concluded that the large attic within the south-west wing of 1 Bimport was utilized for light industry. This was most likely to have been as a warehouse as opposed to any manufacturing, with the cottage industries of button-making (together with cloth, silk and leather making) replaced by the mechanized industries of the Midlands and the north of England by the early to mid nineteenth century. If the attic was originally intended for any of these purposes, this was short-lived and no evidence remains to indicate what this may have been. Instead, several indicators strongly point towards it being a storage facility, initially accessed from what appears to be an adjoining office but which at some point was given separate access from the first floor. The remaining attic rooms are domestic, with remnants of wallpaper and a couple of fireplaces.

Cheryl Green, Context One Archaeological Services

Archaeological excavation south of Priory Farm crossroads, Shapwick, Kingston Lacy Estate

On 15 June 2016, a trench for a fibre optic cable was excavated by hand within the area of the Crab Farm Romano-British settlement close to the line of the Badbury to Dorchester Roman road (ST 94335 02025). Since 1990, fieldwalking, geophysical survey and excavation have revealed the extent of this settlement which underlies Shapwick village and the fields to the NE (Papworth 2011, 160-163).

The field was south of the Priory Farm crossroads and lay within the angle formed by Park Lane on the north and High Street to the west. It is one of the few fields in the settlement area that has remained as long-term permanent pasture and contains clear rectilinear earthworks.

The trench was 0.35 m wide and excavated by hand from the hedge boundary SW to the telegraph pole in the NW corner of the field. This was a distance of 9.6 m along a near level route. The chalk bedrock was found to be 0.46 m from the ground surface.

The results of the excavation were disappointing as it was hoped that this investigation within an unploughed field would yield well-preserved Romano-British structural remains that are lacking within the arable fields. Although there were Roman objects recovered from the trench, none of the deposits were Roman in date.

Historic maps show that this part of the field seems to have remained undisturbed for almost 300 years but the jumbled nature of the finds below the turf and topsoil suggested that the ground was heavily disturbed in the earlier eighteenth century. This caused prehistoric flint, and pottery from the Romano-British, medieval and sixteenth to eighteenth centuries to be mixed. One pit was found to cut the chalk half way along the trench but this was not fully excavated and no diagnostic finds were recovered from its upper filling.

REFERENCE

Papworth, M. 2011. *The Search for the Durotriges*, The History Press, Stroud.

Martin Papworth, National Trust

13 Church Street, Wareham

Archaeological observation and recording at 13 Church Lane, Wareham (SY 924 873) was carried out in June 2016. No archaeological features were encountered.

Lilian Ladle, Bournemouth University

17-19 Church Street, Wareham

Archaeological observation and recording at 17-19 Church Lane, Wareham (SY 924 872) was carried out during June and November 2016; these cottages date to 1878. Evidence for an earlier building of late-eighteenth-century date was located under the present structure. This consisted of two brick-built vaults, most probably the remnants of a cellar.

Lilian Ladle, Bournemouth University

Land adjoining 10 Cow Lane, Wareham

Archaeological observation and recording was carried out in April 2016 on a plot of land on the corner of Cow Lane and Mill Lane in the western quarter of Wareham

(SY 922 874) prior to the redevelopment of the site for housing. Two pits were recorded, one undated and the other of probable medieval date. The footings of an early-eighteenth-century cottage, laid out parallel to Mill Lane and demolished in 1937 were revealed.

Lilian Ladle, Bournemouth University

2 East Walls, Wareham

Archaeological observation and recording at 2, East Walls, Wareham (SY 926 873) was undertaken in November 2016. A consistent black humic soil was encountered in the footing trenches which were 1.60 m deep. There were no archaeological features.

Lilian Ladle, Bournemouth University

Land adjoining 1 Wyatt's Lane, Wareham

In March 2015 an archaeological evaluation was undertaken on land adjacent to 1, Wyatt's Lane, Wareham at its junction with East Walls (SY 926 873). This small plot lies west of the terminal of the Eastern rampart of the Saxon 'Walls'.

A single trench measuring 10 m by 1.6 m was excavated; this was parallel to the line of the earthwork. A single feature was recorded comprising an east-west orientated ditch, set at right angles to the 'Walls'. This was encountered at a depth of 1.4 m below present ground level. Its width was approximately 2.5 m and the depth was in excess of 1 m. Finds including pottery, animal bone and large chunks of limestone, indicate that it was infilled during the eleventh/twelfth centuries. The topsoil which sealed this feature was a homogeneous artefact-free, black humic earth consistent with centuries of gardening activities.

Lilian Ladle, Bournemouth University

Empool Water Treatment Works, West Knighton

Context One Archaeological Services Ltd carried out a programme of archaeological monitoring and recording at Empool Water Treatment works, West Knighton (from SY 73353 88011 to SY 74155 87844) over seven days between March and June 2016.

Earthworks of medieval field boundaries and ridge-and-furrow cultivation have been recorded in the fields through which a new water pipe was being run, and although these had probably been levelled by ploughing, it was considered that remains were likely to survive below ground. Despite this, no visible archaeological features or deposits of archaeological

interest were encountered and no finds were observed or recovered.

Orlando Prestidge, Context One Archaeological Services

Chickerell, Weymouth

An evaluation (SY 6442 8092) by Cotswold Archaeology revealed Roman boundary and drainage ditches and pits. Evidence of medieval or post-medieval ground consolidation was also revealed.

Joe Whelan, Cotswold Archaeology

East Chickerell, Weymouth

In May 2016, Wessex Archaeology carried out a trial trench evaluation on land proposed for a housing development at East Chickerell, Weymouth (SY 65184 80511).

Forty trenches were located across six fields, targeting both geophysical anomalies and apparently blank areas. Features and deposits containing Romano-British material appeared to form two concentrations of activity. Most of the ditches revealed in these areas are likely to have formed components of field systems or enclosures. However, the quantity and character of cultural material recovered from some ditches and spreads are suggestive of a degree of contemporary settlement activity in the immediate area. A very small assemblage of residual pottery and worked flint, and a tree-throw hole of possible Bronze Age date provided the only traces of prehistoric activity. A lime kiln, shown on late-nineteenth-century maps and detected by geophysical survey, was also recorded.

Ashley Tuck, Wessex Archaeology

Land off Putton Lane, Chickerell, Weymouth

Context One Archaeological Services Ltd (COAS) carried out an excavation at Putton Lane, Chickerell, Weymouth (centred on SY 64877 80471) between March and September 2016 following a programme of archaeological monitoring and recording in 2015. The site sits within an area of medieval strip lynchets and to the north of earthworks associated with the deserted settlement of Putton.

Excavation identified the remains of a series of stone buildings on a west facing slope. A stream (now part of a culvert) ran at the base of the slope on the west and south sides of the cluster of buildings. These buildings appear to have formed the core of the medieval manor of Podington (which became Putton). Documentary evidence from 1333 refers to a 'capital

message and land', implying a substantial residential building. The buildings investigated include a cross-passage house with a large porch addition, which overlay an earlier stone structure. A further large building was possibly residential, or perhaps a barn, whilst a smaller structure on an east-west alignment might have served as a private chapel. The majority of datable material implies occupation from the thirteenth to fifteenth centuries, whilst the building appears to have been deliberately demolished and most re-usable materials removed from the site.

Clare Randall, Context One Archaeological Services

Bottom Plain Cable Route, Wareham St Martin

A watching brief (SY 91210 87350) by Cotswold Archaeology encountered no archaeological remains.

Jeremy Clutterbuck, Cotswold Archaeology

Cuthbury, Wimborne Minster

In April–May 2016, Wessex Archaeology undertook archaeological evaluation ahead of proposed residential development at Cuthbury, Wimborne Minster (SZ 00400 99950).

Nine out of 16 trenches contained archaeological remains, with those remains found in two of the three areas of the site. Most of the remains are of Late Bronze Age date, but a little worked flint may be Neolithic. Later occupation is evidenced by a medieval pit and small quantities of pottery.

In the west of the site (area A) the features were all undated, though one ditch is thought to relate to a post-medieval field boundary, and a pit containing

fired clay and burnt flint may be prehistoric in date. In the centre of the site (area B), there was a concentration of small circular pits and where excavated these contained Late Bronze Age finds; a ditch and two gullies were also identified. A potential *in situ* urned cremation burial was uncovered and recorded, but not excavated. Some other unexcavated pits could potentially represent further cremation graves. A deeper pit containing small quantities of medieval artefacts provides evidence of later activity. Trenches in the south-east of the site (area C) did not contain any archaeological remains.

Ashley Tuck, Wessex Archaeology

'Tanglewood', Winterborne Stickland

On the 5 October 2016, as a condition of planning consent, Wessex Archaeology monitored groundworks associated with the construction of an extension to the residential property of 'Tanglewood', Winterborne Stickland (ST 82972 04388). No archaeological features, deposits or finds were recorded.

Ashley Tuck, Wessex Archaeology

Broad Mead Quarry, Worth Matravers

An archaeological watching brief was carried out at Broad Mead Quarry, Worth Matravers (SY 984 785) in August 2016. No archaeological features were recorded, however small numbers of worked and burnt flint and a sherd of Middle Iron Age pottery suggest prehistoric activity in the vicinity.

Lilian Ladle, Bournemouth University

Results of an Archaeological Excavation at Pound Lane, Wareham

JON MILWARD (BUARC)

Abstract

An archaeological watching brief on an unassuming site in Wareham evolved into an excavation with the discovery of significant features and deposits, including a stretch of Wareham castle's eleventh-century moat. Finds recovered from moat fill deposits, and from stratigraphically later features, suggested that this section of the earthwork had been deliberately backfilled by the fourteenth century. A phase of activity on the site, dated to the later medieval period was represented by fragments of buildings (Structures 1 & 2) and pits. The most significant find from this phase was a partially preserved pottery kiln (Structure 3) – possibly the first of this date to be recorded in Dorset. A hiatus in activity on the site after the fourteenth century supports the widely held view that Wareham suffered economic stagnation and urban contraction during the later medieval period (Penn 1980). Post-medieval building remains, cess pits and other back yard features attest to renewed activity from at least the seventeenth century. The last domestic buildings to have existed on the site were demolished during the Second World War and the area was used by the local council for various purposes, including a depot for refuse collection trucks and a car park.

Bournemouth University's archaeological consultancy (BUARC) was appointed by Renaissance Retirement Ltd to carry out an archaeological watching brief during their construction of sheltered apartments on a former council car-park at the junction between Pound Lane and West Street

in Wareham (Fig. 1). Immediately adjacent to the site are the west gate through the Anglo-Saxon fortifications and medieval motte and bailey castle precinct, but it was outside of the area designated as a Scheduled Monument to preserve and protect these features.

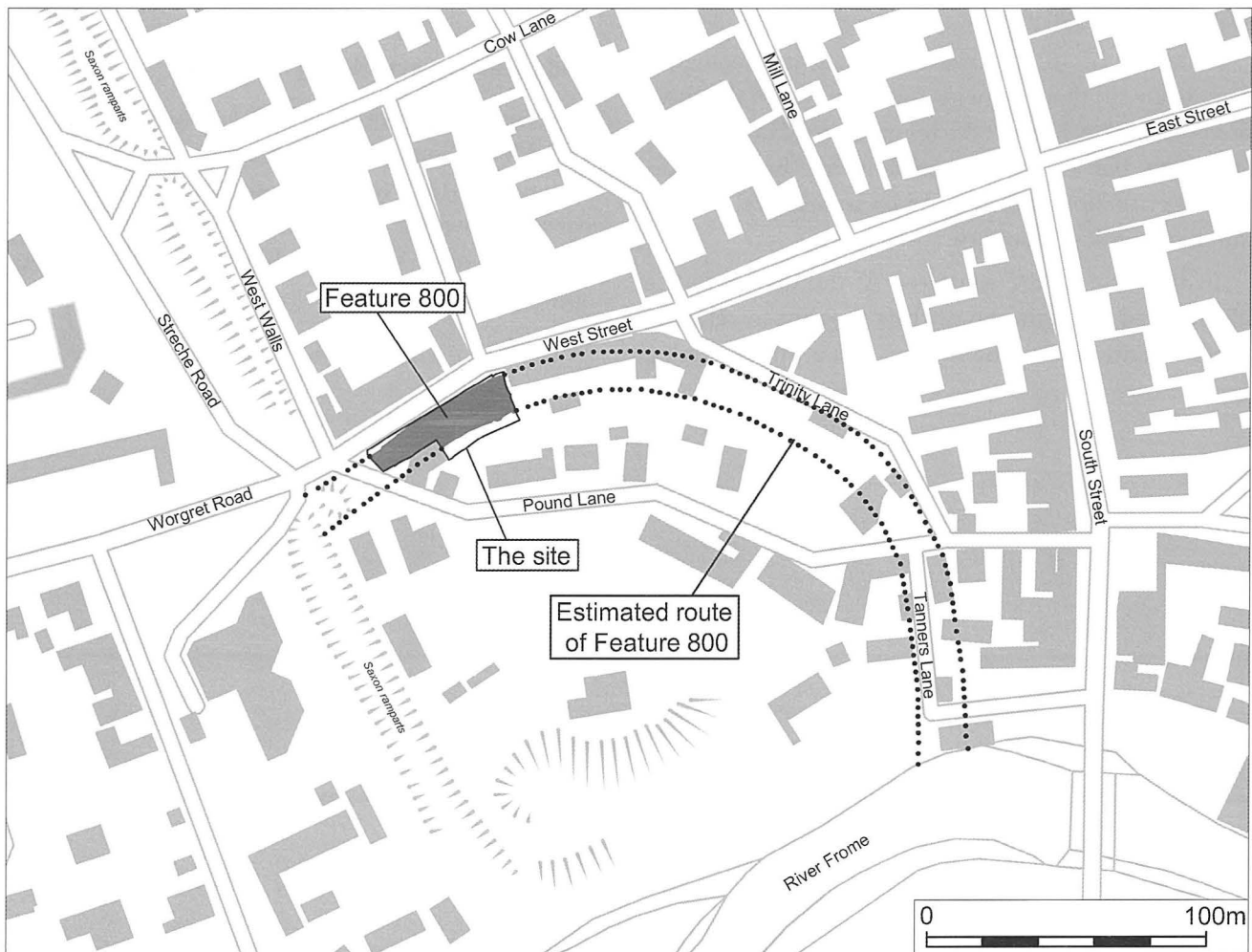


Figure 1: Location of site with location of feature 800 highlighted

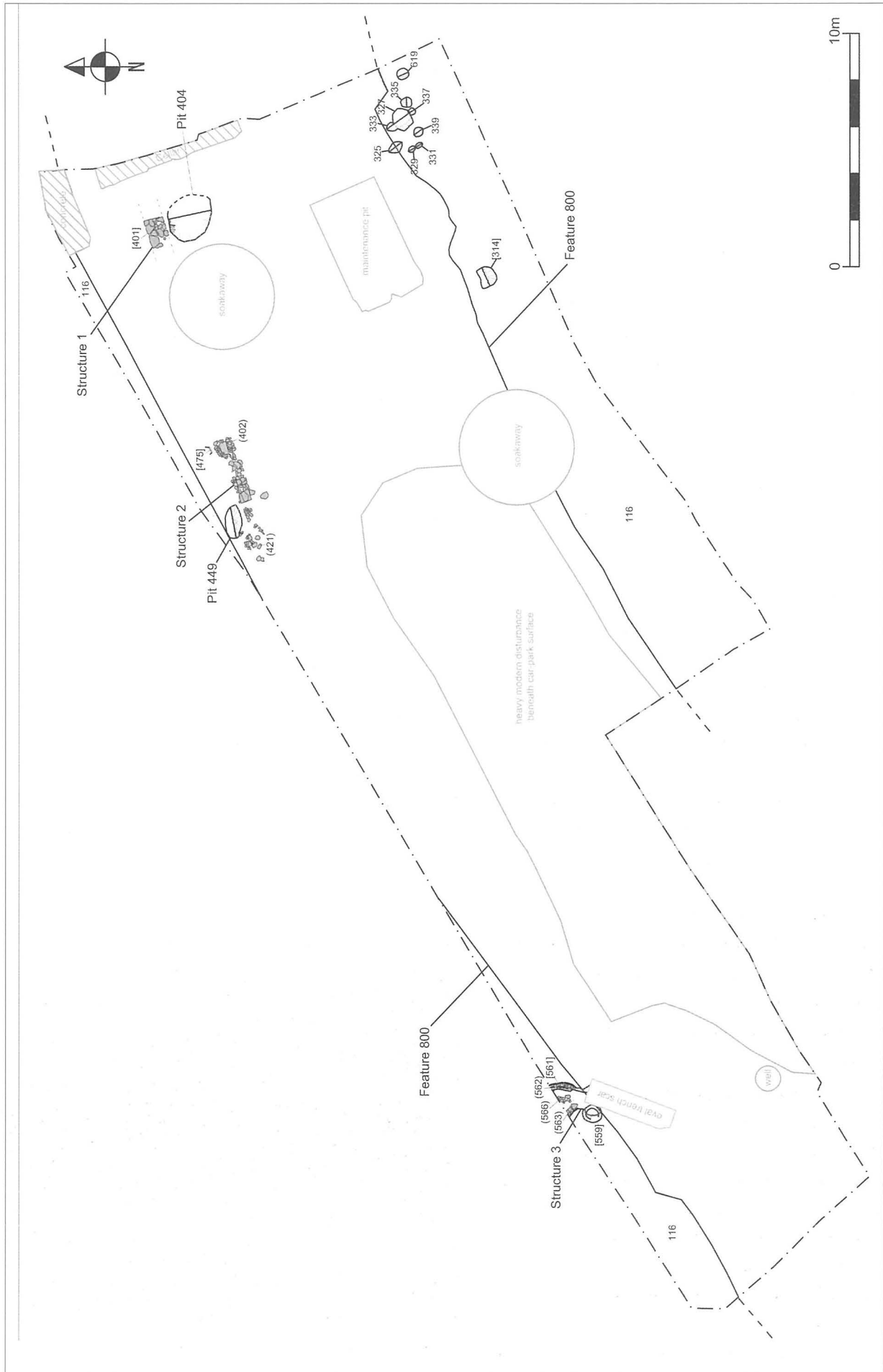


Figure 2: Excavation area with medieval features highlighted

A small team of archaeologists were on site for the duration of the development ground works, which were undertaken between February and April 2015. Towards the start of the project, when the extent and importance of the archaeological deposits and features on the site was recognised, a methodology in-line with an archaeological excavation was adopted. From this point onwards any mechanical excavation on the site was controlled by the lead archaeologist and conducted in a systematic manner that was dictated by the site stratigraphy and archaeological features rather than the requirements of the developer. By the time the ground works were finalised an area measuring 770 m² had been reduced by between 1.25 – 1.65 m below the former ground surface.

During the excavation archaeological features and deposits spanning the eleventh to twentieth centuries AD were identified and recorded. The earliest feature (800) dominated the site and was so substantial, covering approximately 80% of the excavation area, that sterile geological sand deposits (116) were only present along its southern side and in the NE and NW corners of the site (Fig. 2). Feature 800 was linear in form with a width of at least 16 m and, although its length and route can only be speculated beyond the boundary of the excavation area, the feature does appear to have influenced the layout of the local street plan. The route is believed to extend from just south of the west gate through the ramparts, along the west end of West Street, then down Trinity Lane and Tanners Lane to the River Frome on the south side of the town (Fig. 1). The same route has previously been conjectured as the path of Wareham Castle's outer defensive moat (RCHME 1970) and this is almost certainly the identity of the feature that was identified during this project.

Due to the large scale of feature 800, the ground works undertaken on the site only impacted upon its uppermost fills. In the NE corner of the excavation area an investigative test pit was dug into feature 800 beyond the maximum depth of the development ground works. The test pit followed the sloping side of the feature to an additional depth of 1.4 m and provided further information on the backfill sequence, as well as providing dating and environmental evidence. The test pit proved the moat had a depth

in excess of 2.1 m and further investigation, including probing with an auger and Ground Penetrating Radar (GPR) survey suggested the depth of the feature extended beyond 4.5 m.

Many different fill deposits were identified within feature 800 and with the exception of one, which lined the sides of the feature and formed slowly under natural circumstances, all other deposits represented deliberate backfilling. The backfill deposits varied in scale and comprised either soil, clean gravel or a mixture of these materials. The deposit that lined the sides of the feature was also the earliest fill identified; it was 20-30 cm thick and contained late eleventh-century pottery. The pottery from the later backfill deposits spanned a late eleventh to fourteenth-century date range. These deposits were not laid in uniform horizontal layers, rather a sequence of tip lines between deposits were observed sloping in many different directions. The earliest backfill deposit identified at the NE end of the site consisted of re-deposited clean natural sand and gravel. This layer appeared to be formed into a wide ridge across the moat, perhaps to form a temporary crossing point. The succeeding fills were banked up on either side of the gravel ridge and comprised large alternating dumps of soil and gravel (Fig. 3), presumably deposited in a coordinated effort to backfill this part of the moat and reclaim the land for alternative use. A similar arrangement of fills, with evidence of a corresponding temporary crossing ridge was identified at the SW end of the site. It was also recorded that the south-westernmost upper fills of the moat contained a large quantity of slag. One layer, in particular, was almost entirely of slag and flint.



Figure 3: Feature 800, facing towards NE end of excavation area.
Scale = 1 m

The late eleventh-century date for the moat construction alluded to by the results of this archaeological investigation fits the general consensus that Wareham Castle was founded shortly after the Norman conquest — as the town was already a royal borough and had an association with an important harbour (RCHME 1970) and figured prominently between 1138 and 1142. The apparent backfilling of the moat by the fourteenth century also corresponds with the general assumption that the castle had been abandoned by the thirteenth/fourteenth centuries. Historic records tell us that from 1154 the castle was held by the earls of Gloucester but was confiscated by the Crown in 1199. Previous archaeological investigations imply that the keep appears to have stood until at least the middle of the twelfth century (Renn 1960) but results of this project suggest the backfilling of the moat may have occurred sometime later, possibly after the castle was passed back to the earl of Gloucester in 1216 (Penn 1980). Disuse of the castle may have been a staged process, undertaken over a considerable period of time. It is postulated, however, that the moat was backfilled quite quickly and that the majority of the fills identified during this project were deposited as part of a coordinated effort to fill the earthwork, and the material used was largely derived from demolition of an associated bank and from elsewhere within the castle precinct.

The only features in addition to the moat which could also date to the early medieval period were a cluster of nine small refuse pits (325, 327, 329, 331, 333, 335, 337, 339 and 619) and an isolated pit (314) that were recorded in the SE corner of the excavation area (Fig. 2). These features contained very similar fills and four of the pits; 314, 327, 335 and 339 contained pottery dating to the late eleventh century. The pits that did not contain pottery are dated by association. As pit 325 cut the edge of the moat, the pits therefore collectively stratigraphically post-date it which means they were either cut through bank material or the bank was built slightly farther back from the edge of the moat. They may have been associated with the construction of the bank — possibly part of a revetment or a later attempt to stabilise or repair an area of slope that had subsided.

Following the backfilling of the moat, and possibly when it was still visible as a shallow earthwork, the archaeological evidence suggests the area of the site was utilised for potentially both domestic and industrial

uses. A small number of features were found that post-date the backfilling of the moat and appear to relate to a broad phase of activity that occurred during the fourteenth century.

Pit 404 was a large feature that cut into the fill of the moat to a depth well below the limit of the development ground works. The pit was approximately 2 m wide at the surface and may have been round or oval-shaped in plan, with the W side of the pit being well-defined and rounded while the E side was not well defined. The pit had moderate sloping convex sides to a depth of 0.7 m and then steep flat sides to a depth beyond 1.4 m, which was the maximum depth it was excavated to. A total of fourteen fills were identified in the section of pit 404 that was excavated and these appeared to be deliberately deposited in relatively quick succession. These fills contained a range of pottery, the majority of which has been dated to the fourteenth century.

Both Structures 1 and 2 were remnants of stone building foundations and these were both orientated ENE-WSW, different to the orientation of West Street and therefore presumably pre-dating its layout. Structure 1 was built at the same stratigraphic horizon and partially over pit 404 after it had been backfilled. This wall/foundation remnant (401) was preserved to a height of two courses; it was 0.9 m wide and 1.3 m long as it had been truncated at either end by modern features. The masonry identified as Structure 2 (402 and 421) was a mixture of sandstone and heathstone, it was 2.9 m long and 0.85 m wide and within a foundation cut (475), that was straight in plan with no evidence of a return at either end, although these may have been truncated away (Fig. 4). An oval-shaped hearth pit (449), found in the immediate vicinity of the masonry was also probably part of the same phase of activity.



Figure 4: Structure 2. Scale = 2x1 m

Another significant feature that was recorded during these archaeological investigations was a fourteenth-century pottery kiln that was found at the west end of the site (Structure 3). The feature had a characteristic figure-8 shape, orientated roughly N-S with a fire pit at the S end and the remains of a firing chamber at the N end (Fig. 5). Despite being heavily truncated by modern disturbance a small quantity of *in situ* burnt material derived from firing events was identified against the undisturbed N and W sides of the firing pit cut as well as in the flue area between the fire pit and firing chamber.



Figure 5: Structure 3 (kiln) Scale = 1 m

The firing chamber was partially sunken into the ground and contained within a pit with steep concave sides and a flat base measuring 0.4 m deep and >1.5 m x >1.25 m in plan (561). The pit was probably oval-shaped in plan, although it was not exposed in its entirety and approximately half of it is still preserved beyond the NW side of the excavation area. All above ground evidence of the firing chamber structure had been removed, however, *in situ* remains of this feature were preserved below ground, within the pit. Rather than being uniform in character there were differences between the composition of the masonry on either side of the firing chamber pit, potentially indicating that they were not part of the same phase of construction. The preserved masonry lining the east side of the feature had a stone core adhered together and lined on either side with clay (562) and this is believed to be part of the original design. The masonry against the west side of the structure was also made of large stones but these were not adhered together or lined with clay (563) and this is believed to be a

later modification/repair, although this could not be proven stratigraphically. A partially preserved clay base was recorded in the bottom of the firing chamber and sealing the clay base was a very thin layer of soil, upon which a masonry pillar had been formed out of stone and clay centrally within the firing chamber (566). This pillar was presumably associated with a reconfiguration of the internal structure of the firing chamber that was not part of its original design.

The former voids of the firing chamber were filled with demolition/backfill deposits which collectively yielded a large amount of pottery. This pottery has been assessed and two fabrics are represented: a total of 503 sherds of glazed fine ware were recovered as well as a total of forty-six sherds of a similar, although generally coarser, fabric.

Following the events of the fourteenth century there appears to have been a hiatus in activity on the site and it was during this time that large soil overburden deposits, which were recorded over feature 800 and the fourteenth-century features, began to accumulate.

Buildings, presumably domestic properties, were built along West Street in phases from the seventeenth century and these were dated by the cess pits found in their back yard areas. The buildings were represented by the preserved remnants of their foundations which did not inform a great deal about their character other than confirm their general dimensions. One building, which had existed at the NE end of the site, had a cellar and this had been backfilled with rubble at least a century ago. During the Victorian period a number of out-houses were built and one of these was associated with an attractive cobble stone surface (Fig. 6). Other



Figure 6: Victorian cobbled yard surface. Scale = 2x1 m

features of domestic nature were also recorded across the site and these reflect activity up to the 1940s. During the Second World War as part of a defensive scheme the buildings at the W end of West Street were demolished to widen the road and improve vehicular access. The site was ultimately taken over by the Town Council and over the years has served a number of purposes including a maintenance depot for refuse collection trucks and a car park.

The results of this project have contributed significantly to our knowledge of the development of Wareham, particularly during the medieval period. The castle moat has been positively identified and the application of both intrusive and non-intrusive investigative techniques has yielded information about its scale and character, and finds evidence to date both its construction and demolition. A well-defined phase of activity which occurred after the backfilling of the moat alludes to this area of Wareham being a defined industrial zone with evidence for

metallurgy and pottery production occurring in close proximity to each other. The pottery kiln found on the site is particularly interesting and provides lots of avenues for further research. There is a regional paucity of evidence for pottery production during the late medieval period and evidence that Wareham was a centre for production during this period now seems likely. Analysis of the pottery assemblage recovered from the kiln is yet to be undertaken and the results of this will form the basis of a future submission to the *Proceedings*.

REFERENCES

- Penn, K.J. 1980. *Historic Towns in Dorset*. Dorset Natural History and Archaeology Society, Monograph 1.
- RCHME 1970 *An inventory of historical monuments in the County of Dorset Vol. 2: south-east*. HMSO, London.
- Renn, D.F. '1960. The Keep of Wareham Castle', *Medieval Archaeology* 4, 56-68.

Earthwork enclosure at Arbor Hill, near Gillingham — ST 833 294

JOHN SHEPHARD

These earthworks were discovered when a member of a small research team from the Gillingham Local History Society was investigating lost place-names in the area of the former Gillingham Forest. A map or 'Plott' of the forest dated 1624¹ showed a feature called Olde Castle on Arbor Hill near Lawn Cross Roads to the north-east of Gillingham. Neither of these place names appear on any editions of the maps published by the Ordnance Survey though their positions on the ground could be determined with reasonable accuracy by using a copy of the 1624 *Plott* as a layer in image

editing software, which was scaled and superimposed on top of satellite photography. Only when it was realised that there was also lidar coverage for the area was it possible to understand the full significance of what the early surveyors had noted on their map.

What clearly showed up on the 1m DTM lidar imagery was an oval shaped earthwork (Fig. 1) on the tip of the promontory known on the old map as Arbor Hill. The bank and ditch are recognisable as a darker and lighter colour respectively on lidar. These features can be readily identified in the north-eastern

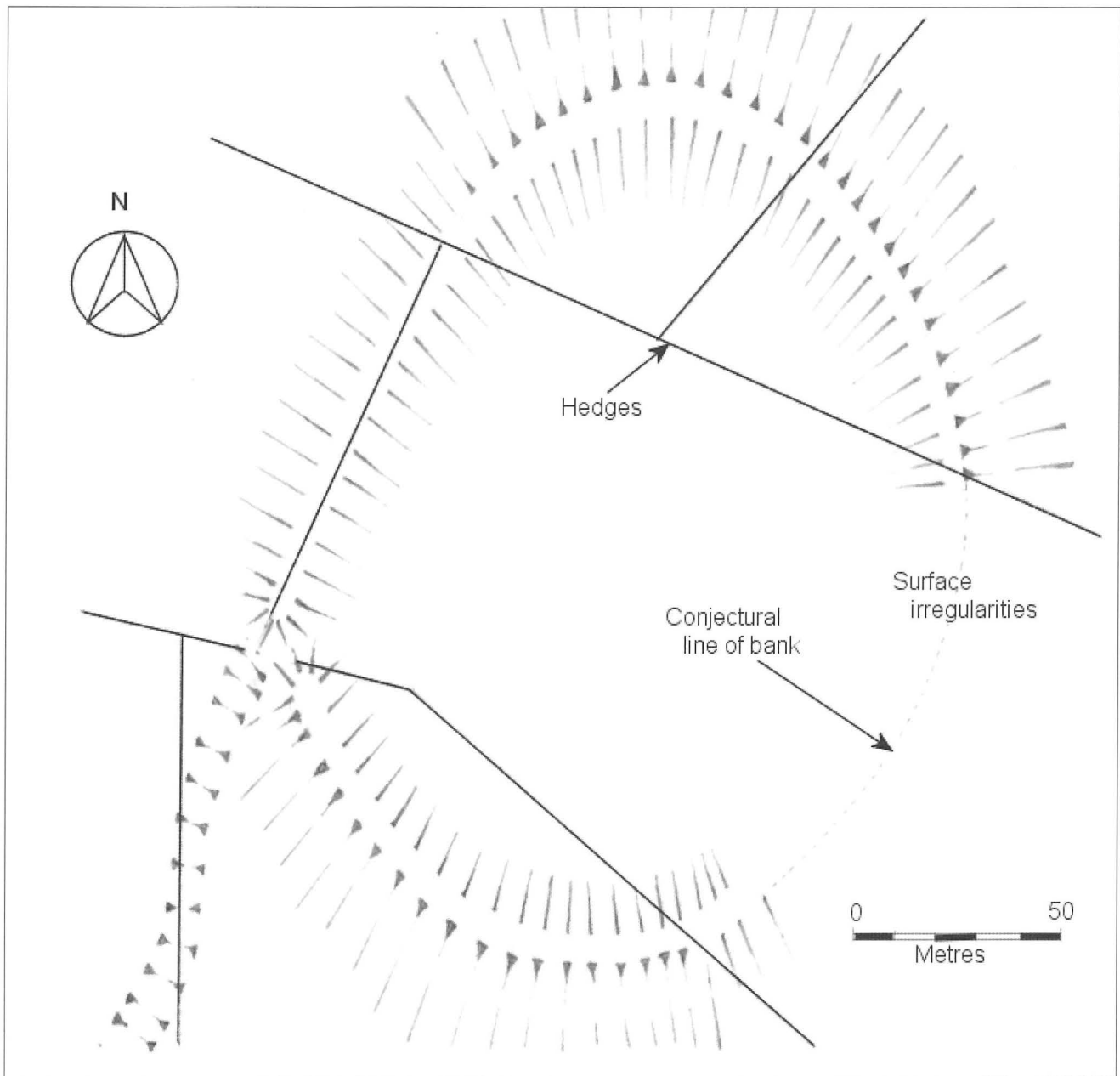


Figure 1: Earthwork Enclosure, Arbour Hill, Gillingham

and south-western segments of the oval, but can only be traced with the eye of faith in the south-eastern section. With the benefit of what is shown on lidar it is just possible to pick up faint traces of these features in some places on satellite imagery as well, but it would be very easy to miss them by looking at the satellite pictures in isolation.

Subsequent field walking revealed a bank of just over a metre high in the best preserved areas, with outer ditch and no more than a slight dip on the inner side. The earthwork measures 150 m across at narrowest point by 210 m lengthwise and it stands at an elevation of 110 m. The area enclosed amounts to 2.7 ha (6.8 acres). The course of the bank becomes difficult to follow on the western side as it is obscured by an overgrown hedge. On the south-eastern side it is hard to detect any trace of a bank at all at ground level (though the grass was quite long at the time of inspection), but lidar does show some patterning in this area suggesting irregularities in the ground surface. These could have been caused by the plough; records show parts of the hill were used for arable in the tithe survey of 1841. It has also subsequently been discovered that a local antiquary, Thomas Thompson, had come upon the site in 1869 and dug some of the ground apparently in the hope of finding 'castle' walls and structures². The surface irregularities may be due to his explorations.

Another notable element is what would appear to be a lengthy, well beaten track or causeway leading into the monument on the south-west side, the top part of which can be seen in Fig 1. This shows up very clearly on the lidar image and can be traced to a distance of 240 m in the general direction of Gillingham. Apart from this there is no visible evidence of causeways interrupting the other surviving sections of bank.

An interesting feature of the area in which the monument is located is the prevalence of place- and field-names with the 'harbour' element. Not only was the promontory itself called Arbor Hill, but Thompson reported that a now disused and much overgrown section of lane leading from Pimperleaze Road and terminating at a field boundary to the rear of the earthworks was known to local people in the nineteenth century as Harbour Lane. Fields called Great Cold Harbour and Little Cold Harbour at the time of the tithe survey are a short distance away near Longmoor Farm.

Until ground survey work or excavation is carried

out on the site, the date of the earthwork must remain a matter of speculation. The position on a promontory is not uncommon in Neolithic causewayed enclosures in southern Britain and the area enclosed fits within the range of such monuments of 0.4 to 3.0 ha cited by Historic England (Oswald 2011). The fact that this particular earthwork apparently has no causeways at intervals through the bank need not necessarily rule out its inclusion as a monument of this type according to the same source. This dating would accord with other finds in the Gillingham area, namely a supposed Neolithic occupation site discovered in the course of constructing a swimming pool near Bay Bridge in 1912 (Howe, 1983, 14) and a long barrow at Slaughtergate on the western side of the town. On the other hand, perhaps an Iron Age or Romano British date would be more likely; there are striking similarities with enclosures of this date on Cranbourne Chase which are similar in size and have associated trackways (RCHME, 1975, 64 – 72)³. There is also equally good evidence of an established Romano British community around Gillingham as attested by finds in the Common Mead Lane area and a rescue excavation in the vicinity of Maple Way (Moore & Ross, 1989, 57 - 70; Porter, 2011, 10 – 14).

ENDNOTES

- 1 Dorset History Centre ref. D 1366
- 2 Recent research on the unpublished Stephens Papers lodged in Gillingham Museum. I am most grateful to Dr John Porter for bringing this to my attention.
- 3 See in particular Sixpenny Handley no 19 Woodcutts Common settlement site and no 25 an unfinished Hill-fort at Mistlebury Wood.

REFERENCES

- Howe, C. 1983. *Gyllas Hometown*, Gylla, Gillingham.
- Moore, W.F. and Ross, M.S. 1989. 'Investigations at Common Mead Lane', *Proceedings of the Dorset Natural History and Archaeological Society* 111, 57 - 70.
- Oswald, A. 2011. *Introductions to Heritage Assets, Causewayed Enclosures*, Historic England online publication <https://content.historicengland.org.uk/images-books/publications/iha-causewayed-enclosures/causewayedenclosures.pdf/>
- Porter, J. 2011. *Gillingham, the Making of a Dorset Town*, Hobnob Press, Gillingham.
- RCHME 1975 *An Inventory of the Historical Monuments in Dorset*, Vol 5, East. HMSO, London.

Late Saxon/Medieval activity west of Cranborne Road, Wimborne, Dorset

PIOTR ORCZEWSKI

In 2015 Wessex Archaeology carried out an excavation on land to the west of Cranborne Road, on the northern outskirts Wimborne Minster, Dorset, which revealed evidence for Late Saxon/medieval settlement and enclosure. A broad tenth- to fourteenth-century date range is suggested by the ceramic evidence, although the settlement was dated mainly to the tenth- to twelfth-century period.

The excavation was the final stage of a programme of works relating to a 26.4 hectare development site. Earlier geophysical survey (Pre-Construct Archaeology 2012) and trench evaluation (Bournemouth Archaeology 2014) had identified a number of zones of high archaeological potential. Three areas to the east of Cranborne Road (Areas A–C) were excavated by Bournemouth Archaeology (Bournemouth Archaeology 2015), while three to the west (Areas E South, E North and F), which are summarised in this report, were excavated by Wessex Archaeology (Wessex Archaeology 2016). The following is a brief summary of the results; full publication will follow next year.

The Wessex Archaeology excavations covered 2.2 hectares centred on NGR SU 010 009. Area E South lay on fairly level ground 200 m north of the River Allen, while Area F was near the top of a gentle slope that rises to the north. The natural deposits consisted of yellowish silty clays and sands overlying gravels. There was limited evidence for prehistoric activity on the site. Residual worked flint was recovered, including some of Mesolithic date, and a shallow pit (5521) on southern edge of Area F contained Neolithic pottery and worked flint. Another pit (5059), in the southern part of Area E South, contained a sherd of Early Iron Age pottery along with a small amount of animal bone and charcoal. A few pieces of residual Romano-British pottery and tile were recovered from later features. Most of the features were of Late Saxon/medieval date,

and comprised a spread of pits and other discrete features, and at least two phases of ditched enclosures, concentrated towards the eastern side of the site.

A number of features in Area E South, including two wells and a spread of pits, may be Late Saxon (pre-Norman Conquest) in date. Some contained sherds of limestone- and flint-tempered pottery which, of all the pottery types recovered, are the most indicative of a Late Saxon date. Others were stratigraphically earlier than at least the second phase of enclosures (or were similar in form and content to those that were stratigraphically early). A number contained charcoal-rich deposits, burnt clay and slag. Three pits had associated lengths of gully forming 'lollipop-shaped' features, the function of which is unclear; an iron knife was recovered from one of them. Well 5304, which was 1.5 m in diameter at the top and over 1.6 m deep, had a step approximately half way down, below which the shaft was rectangular. Several post-holes and stake-holes around the top of the well suggested some kind of structure, possibly a shelter. Well 5049 was augered to a depth of over 2 m.

The two phases of rectangular enclosure were arranged adjacent to, and followed the slightly curving north–south line of Cranborne Road, in Areas E South and E North. They did not appear to extend as far as Area F, 100 m to the north, although this area was set back over 40 m from the present road and so it may have lain west of any enclosures immediately flanking it. It is likely that many of the discrete features recorded inside these enclosures were contemporary with them, but few could be confidently assigned to one or other phase.

The first phase, comprised two tiers of wide (up to 80 m) but relatively shallow (up to 25 m) enclosures together extending back up to 50 m from the present road, although the eastern sides

of the enclosures fronting the road lay outside the excavation. There were a number of post-holes in these enclosures, including one group (7032) which might represent a rectangular structure aligned parallel to the road; others are likely to represent fence lines and similar structures rather than buildings. The insubstantial remains of other timber structures may have been completely truncated by later agricultural activity. It is unclear whether a number of short lengths of gully, perpendicular to the road within the eastern set of enclosures, belonged to this or the later phase, but they appear to partition the enclosures into a series of smaller units.

The second phase of enclosures saw the modification and enlargement of the first-phase enclosures, and the addition of a third tier to the west, so that they now extended up to 85 m back from the road. One of the rear enclosures, the whole of which was exposed, was over 90 m long (north to south) and 40 m wide. It had a 3.5 m wide, west-facing entrance at its south-west corner opening onto the unenclosed land to the west. There was evidence that a number of the second-phase ditches had been recut, some on more than one occasion, suggesting that this phase of enclosure may have been of longer duration than the first phase.

Together the evidence suggests substantial and sustained settlement along the western side of Cranborne Road in the Late Saxon and early medieval periods. It was probably rural in character, although industrial activity was represented by three possible ironworking features in Area E South, and the recovery of a moderate quantity of iron smelting slag. The features were all shallow, and moderately heavily burnt on their base and sides; two were of 'figure of 8' shape, and the third subcircular.

It was not established whether there was similar settlement on the opposite (eastern) side

of the road. An identified area of potential (Area D) opposite the northern end of Areas E South was not further investigated, and no comparable evidence was found in Area A at the north of the development site (Bournemouth Archaeology 2015). However, the roadside settlement may have lain beyond the town of Wimborne, whose minster was established in the middle Saxon period, and which developed its urban form during the Late Saxon and medieval periods. The absence of later medieval activity on the site reflects a similar situation recorded to the south-west of the minster where a series of earthworks, including a hollow-way, subsidiary roads and house plots, are visible in fields known as the Leaze. Small-scale excavations there revealed post-holes, pits and ditches dating to the twelfth and thirteenth centuries (Field 1973), but the area was abandoned following the Black Death in 1348.

REFERENCES

- Bournemouth Archaeology, 2014. 'Land at Walford Farm and West of Cranborne Road, Wimborne, Dorset: archaeological evaluation'. Bournemouth University (unpublished report 00108-02).
- Bournemouth Archaeology, 2015. 'Land at Walford Farm, Wimborne, Dorset: archaeological strip, map and sample: post-excavation assessment report'. Bournemouth University (unpublished client report, ref. 0121-02).
- Field, N.H. 1973. 'The Leaze Wimborne. An excavation in a deserted medieval quarter of the town', *Proceedings of the Dorset Natural History and Archaeology Society* 94, 49–62.
- Pre-Construct Archaeology, 2012. 'Archaeological Geophysical Survey, Land at Wimborne, Dorset'. Pre-Construct Archaeology (unpublished report).
- Wessex Archaeology, 2016. 'Land West of Cranborne Road, Wimborne, Dorset: post-excavation assessment report'. Wessex Archaeology (unpublished report 110550.02).

The Durotriges Project 2016: an interim statement

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Introduction

Bournemouth University's Durotriges Project began in 2009 as a programme of archaeological fieldwork designed to investigate native and Roman settlement across Dorset and central south-western Britain. The project contains three major research strands: to examine the transition from 'Durotrigian' (native) occupation to a more securely 'Roman' form of settlement footprint; the nature of Durotrigian culture patterns and their survival into the Roman period; the extent of Romano-British cultural influence into the fifth and sixth centuries AD (the sub- and post-Roman period). All fieldwork undertaken as part of this project forms the core of undergraduate archaeological training at Bournemouth University, and is entirely funded and facilitated by the Department of Archaeology, Anthropology and Forensic Science in the Faculty of Science and Technology. From the very beginning fieldwork has been conducted by university staff and students as well as members of the public participating on the Durotriges Big Dig field school, students and pupils from other universities, sixth form colleges and schools as well as local volunteers.

In 2016, the project continued and expanded the third major stage of archaeological investigation at Winterborne Kingston, near Bere Regis in Dorset. Primary fieldwork had earlier focused upon an Iron Age banjo enclosure and a Later Iron Age Durotrigian cemetery (Russell *et al.* 2014) whilst phase two of the project had examined a Later Bronze Age settlement, a small, stone-built Roman villa and a sub-Roman longhouse associated with a range of agricultural features, including corn drying/malting ovens and a small enclosed cemetery (Russell *et al.* 2015). These phases of excavation, although successful in mapping and recording the nature and form of Later Bronze Age, Early Iron Age, Later Roman and sub-Roman rural settlement, had largely failed to locate or record much in the way of Later Iron Age activity other than burials. To this end, phase three of the survey and ground intervention commenced in 2015 to the south-east of the banjo enclosure and villa, where aerial

photographs, taken in the spring of 2012, revealed an area of significant archaeological activity.

Within the area identified, geophysical survey (fluxgate gradiometry) further indicated the presence of a series of roundhouse gullies, measuring on average between 10 and 15m in diameter, together with linear ditches and possible pits. Two areas were selected for limited ground intervention in 2015, both subsequently revealing parts of a densely occupied zone with at least sixteen roundhouses, all dating to the mid Iron Age, being located (Russell *et al.* 2016). The number and density of structural remains suggested a significant period of occupation, one that seemed all the more unusual in that it did not appear to have been defined by an enclosure ditch or boundary.

In an attempt to better define the extent and form of prehistoric occupation at Winterborne Kingston two additional areas, to the immediate south of those examined in 2015, were excavated in June and July 2016 (Fig. 1). These excavations targeted in particular the chronology and phasing of Iron Age roundhouses, the full extent and nature of additional agricultural and industrial activities and the possible form taken by identified ditch-systems, some of which may have originally formed the limit to occupation.

2016 season results

Seven ditch systems were exposed and investigated within the two transects (identified as trenches D and E: Fig. 2), five of which proved to be Later Bronze Age, the remaining two being Later and sub-Roman in date. The Bronze Age systems may originally have been constructed as forms of linear boundary, such as cross-ridge dykes, cutting across the plateau, defining and segregating zones of pasture/agriculture and more intensive areas of settlement, further controlling access by means of structured points of entrance. None of the ditches identified either had their origins in the Iron Age or appeared to have been actively maintained during this later period. That the Bronze Age ditch systems were still visible in the Iron Age, being only partially backfilled at this time, is apparent

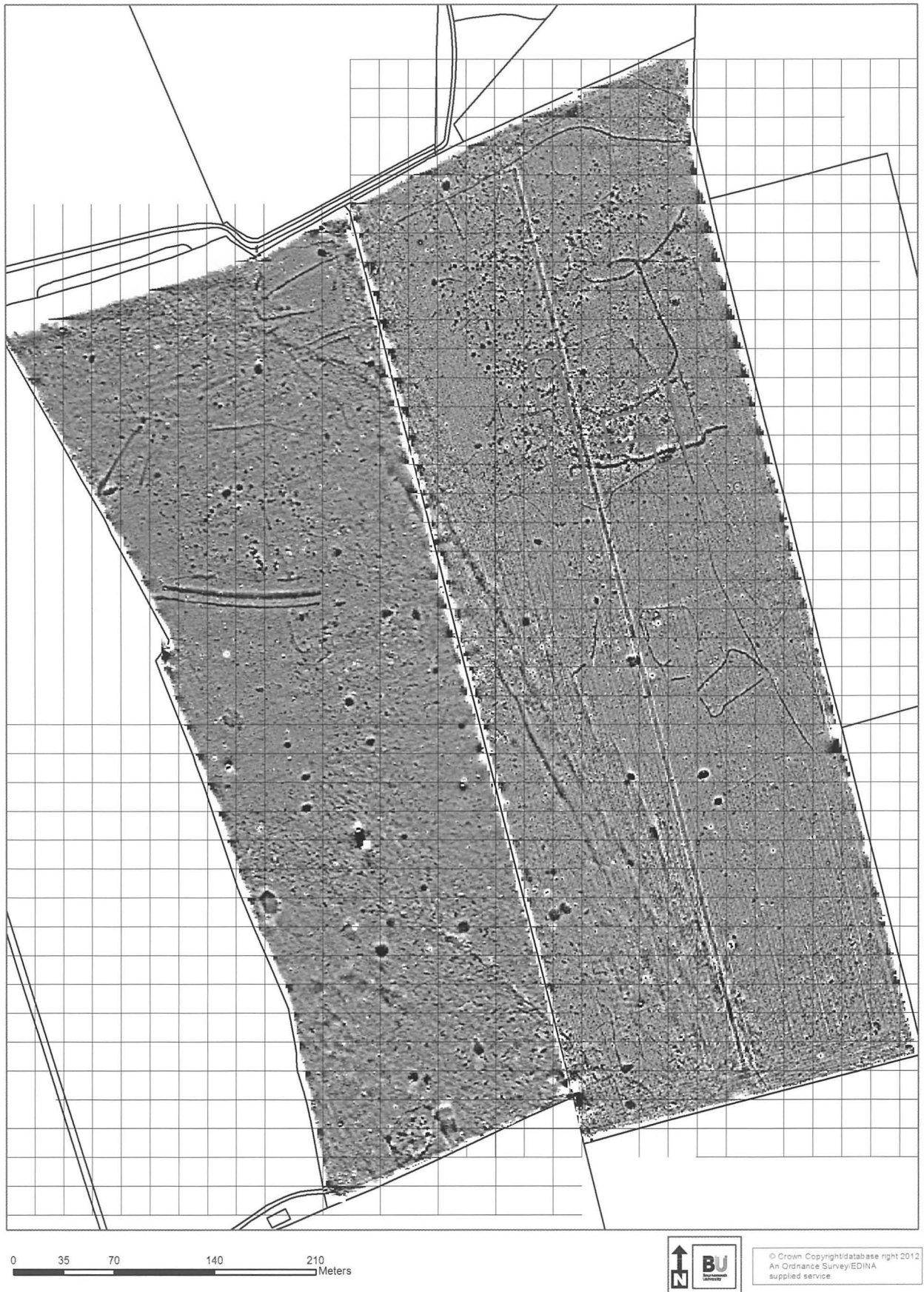


Figure 1: Winterborne Kingston - a fluxgate gradiometry plot of the settlement area prior to excavation (position of trenches D and E marked) conducted by Dave Stewart for Bournemouth University in 2015. The dark lines indicate ditches and ring-gullies, the smaller dark spots indicate pits, while the larger maculae are quarry pits (Bournemouth University)

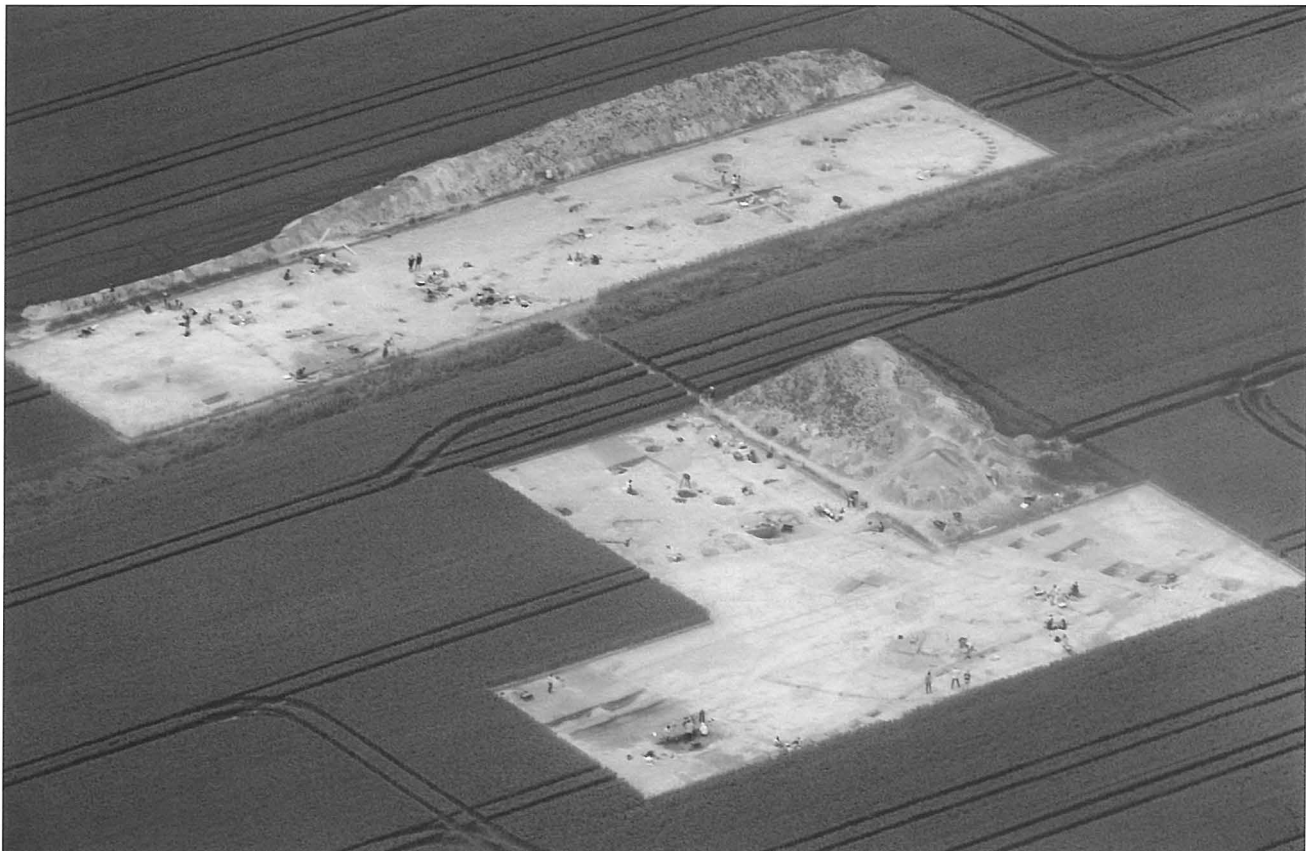


Figure 2: An aerial photograph, looking west north-west, showing the two main areas of archaeological investigation in 2016. Trench D is in the foreground and Trench E in the background (Jo and Sue Crane)

from the number of burials from this later period that were placed within and around them (Fig. 3).

A series of seven adult bodies, male and female had been laid down within shallow, oval graves. These broadly conformed to the distinctive style of Durotrigian burial (Papworth 2008, 82-6), skeletons lying predominantly on their right side with their heads to the east, facing north, legs flexed in foetal positions (Figs 4 and 5). The grave goods identified comprised two Black Burnished Ware pots placed in the vicinity of the head and shoulders, one of these being a locally produced example of a Gallo-Belgic type butt beaker, a large drinking vessel of a type manufactured more commonly in the early half of the first century AD (Fig. 6). Unusually, in two cases, pairs of burials were set directly one above the other. These later internments appear to have been intentionally placed over the previous occupants as the earlier burials were not disturbed in any way by the later burials.

The process of feature targeting, Later Iron Age and Early Roman burials being deliberately placed within the partially backfilled remains of long-abandoned monuments, has been noted already at the Early Iron Age banjo enclosure excavated at Winterborne Kingston, to the north-west of the present site, between

2009 and 2011. Here, at some point between AD 20 and AD 90, the interior area of the enclosure gave way to organised forms of burial, a series of sixteen bodies being recovered archaeologically (Russell *et al.* 2014). Such deposition, with burials set down inside and close to the entranceway of a long defunct monument, also occurred at Maiden Castle (Wheeler 1943, 357-58) and Spettisbury Rings (alternatively known as Crawford Castle: Akerman 1859, 188; Gresham 1939), hillforts which appear to have been largely abandoned by the start of the first century BC (cf. Sharples 1991, 116). Perhaps the appropriation of disused hillforts, banjo enclosures and Later Bronze Age boundary ditches for burial was a major defining element of Durotrigian culture, such groups rewriting the significance and meaning of earlier monuments, claiming them as their own.

One Middle Iron Age roundhouse, the outer limit of which was defined by a shallow gully, of similar size and orientation to those uncovered in the previous year, was revealed in 2016 as were the partial remains of a sequence of at least two post-built Later Bronze Age or Early Iron Age roundhouses. Fourteen cylindrical pits, measuring between 0.6 and 2.5 m in depth were also excavated. As has been noted (previously Russell



Figure 3: The excavation of two Later Iron Age (Durotrigian) crouched burials set down within the fill of a Later Bronze Age ditch (feature 782) in Trench E (Miles Russell)

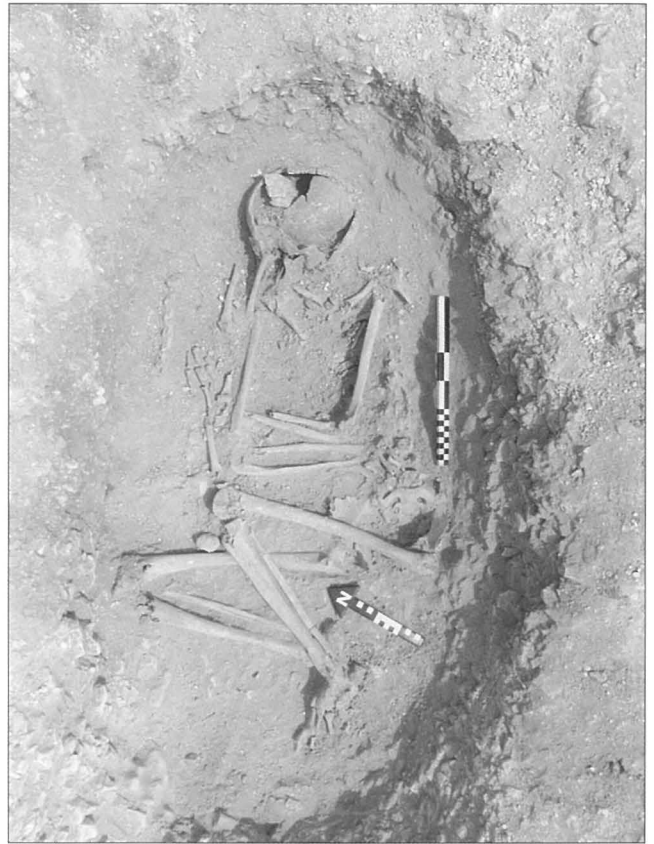


Figure 4: A formal, Durotrigian style crouched burial from Trench E (feature 787) dating to the mid early first century AD (Miles Russell)



Figure 5: A formal, Durotrigian style crouched burial from Trench D (feature 348) dating to the late first century BC or early first century AD (Miles Russell)

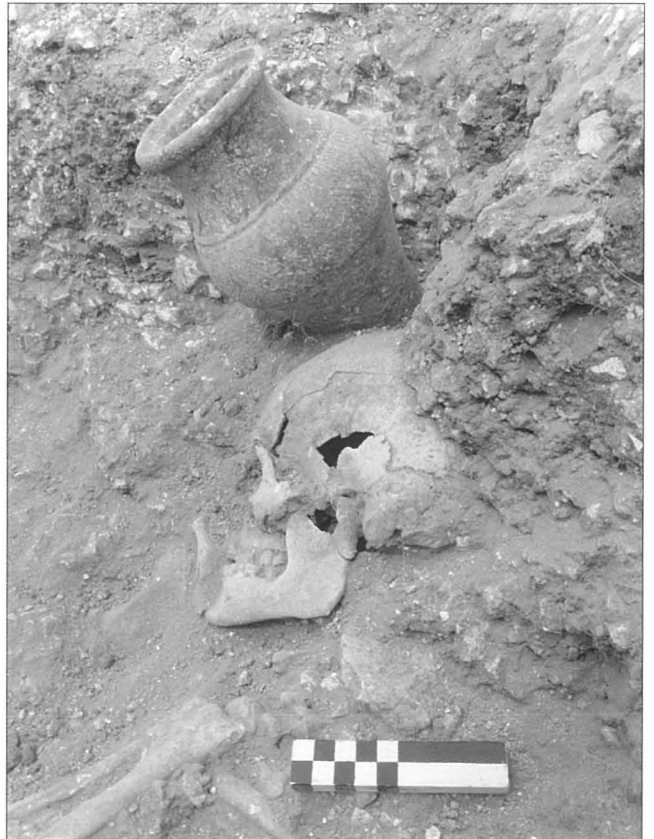


Figure 6: A locally-manufactured Gallo-Belgic style butt beaker of the early half of the 1st century AD from a Durotrigian style grave (feature 966) in Trench E (Miles Russell)

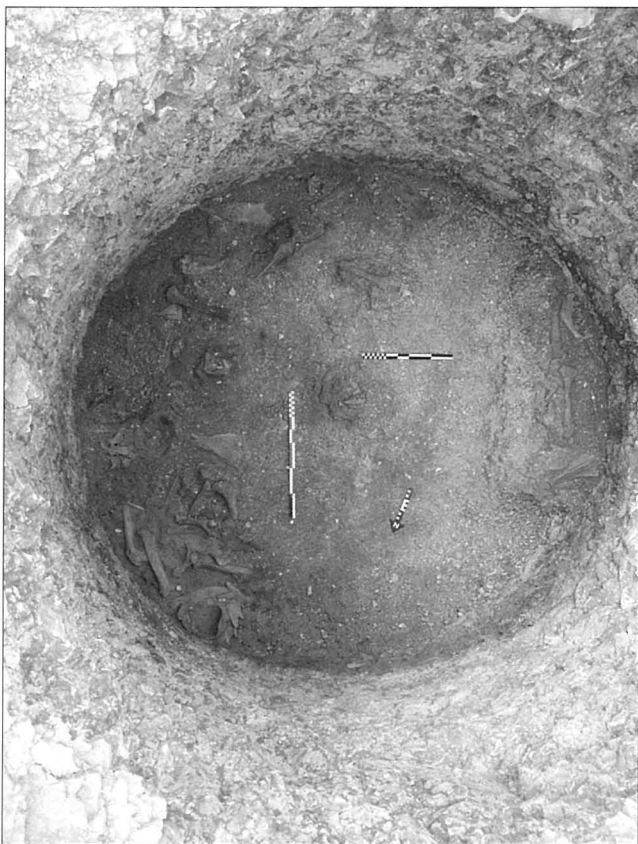


Figure 7: Mixed body parts of horse, cattle and sheep, including some partially articulated limbs and feet, from the basal deposits of an Iron Age pit (feature 039) in Trench D (Miles Russell)



Figure 8: Two articulated horse torsos from the basal deposits of an Iron Age pit (feature 749) in Trench E (Miles Russell)



Figure 9: A Late or sub-Roman T-shaped corn-drying / malting oven from Trench D, looking south east. Scale divisions 0.5 m (Miles Russell)

et al. 2014, 219), the term 'storage pit' is usually applied to such features although no definitive evidence as to the nature of storage has been found. Presumably, if intended as functional elements within the settlement area, such pits may have held dairy produce, in the manner of a cold store, or grain, each pit acting as a silo containing the surplus produce of a single agricultural cycle. The majority of pits examined in 2016 contained a combination of Iron Age domestic refuse together with more formally-placed deposits of animal bone (Fig. 7). The animal bone deposits, although broadly similar to those uncovered in all previous seasons of work at Winterborne Kingston, included some new variants such as the deposition of two articulated horse torsos (Fig. 8).

An area of late-, or post-Roman farming settlement, comprising at least five sunken feature style terrace-cuts, possibly representing small-scale buildings or areas of agricultural activity, such as threshing floors, were also examined (Fig. 9) together with associated corn-drying or malting ovens, and at least one extended coffin burial, dating from *c.* AD 300-450. This zone of later Roman settlement complements the areas of sub and post-Roman activity examined in all previous phases of excavation at Winterborne Kingston (Russell *et al.* 2014; 2015; 2016).

Settlements and water supply

One aspect of the prehistoric and Roman occupation that has yet to be fully resolved is the extent to which the settlements were sustainable in terms of access to water supply. No evidence of water harvesting systems has been recovered in the course of the project, although this does not rule out the possibility of the collection of rainwater from roof tops which might have satisfied demand for part of each year. Rainwater supply is subject to annual seasonal fluctuations and for permanent settlement to be viable, a more reliable water source would have been vital. Much of the settlement evidence from the site is situated within 200 m – 300 m south and east of Peat Hill, an eminence that is capped by a Bronze Age tumulus (SY 851 996) at 120 m OD, the summit of which is a useful reference point from which to map potential water supply options. The most obvious source for the regular supply of water would be the so-called River Winterborne that runs in a valley 1 km downslope of Peat Hill. Such a distance inevitably poses some obvious logistical difficulties, a problem further compounded by the fact that the river (or more correctly stream) is today largely dry throughout the summer months (hence ‘winter’ borne: Mills 1998a, 156-57, and 1998b 384). Contamination from riverside settlement and animal grazing is an additional disadvantage if water from rivers and streams is used for human consumption.

Freshwater springs presumably would have provided a more satisfactory source of water.

Modern maps show two springs (or ‘wells’) within easy reach of the settlement sites identified during the course of the project. Using the Peat Hill tumulus as a reference point, the springs are situated just beyond and north-west of the parish boundary with Winterborne Whitechurch, the first being 320 m north-north-west (SY 850 999); the second spring being 847 m to the west-south-west at East Farm Dairy House (SY 843 994). This second spring is accompanied by a pumping house indicating that as a water source it has viability as a modern resource. Arguably, it is these springs, and perhaps others yet undetected, that made human settlement possible across all of the Durotriges Project sites.

Further work is being planned for phase 4 in fields to the immediate west of the site excavated between 2015 and 2016, in order to further clarify the extent, nature and chronology of the prehistoric, Roman and post Roman settlement activity at Winterborne Kingston.

ACKNOWLEDGEMENTS

The archaeological investigations were funded and resourced throughout by Bournemouth University. Special thanks must go to the landowner Rebecca Hill and her family for their considerable help and support throughout the project, to Jo and Sue Crane for their aerial photographs of the site before and under excavation, and Ian Darke and Clive Gibbs for their help in bringing the site to our attention from the identification of key surface concentrations of metalwork and other finds. Thank you also to those involved at all levels of site management, survey, post-excavation management, trench direction and assistance especially Derek Pitman and Alan Whitaker (recording); Damian Evans and Kerry Barrass (finds); Dean Burnard (equipment); Julie Gill, Sally-Ann Green and Norman Stock (administrative support); Mark Maltby (animal remains); Karina Gerdau-Radonic, Martin Smith and Nivien Speith (human remains); as well as all the supervisors, student and field school participants, volunteers and visitors. The interpretation of the site has benefited from discussion with, and views of, Mark Brisbane, Tim Darvill, Bruce Eagles, John Gale, Martin Green, Ciorstaidh Hayward-Trevarthen, Tony King, Lillian Ladle, Claire Pinder, Clare Randall, Julian Richards and Caroline Wells.

REFERENCES

- Akerman, J. 1859. ‘Some antiquities discovered at Spettisbury, near Blandford, Dorset’. *Proceedings of the Society of Antiquaries London* 4, 188-91.
- Gresham, C. 1939 ‘Spettisbury Rings, Dorset’. *Archaeological Journal* 96, 115-31.
- Mills, A. 1998a. *Dorset Place-names*. Newbury: Countryside.
- . 1998b. *English place-names*. Oxford University Press.
- Papworth, M. 2008. *Deconstructing the Durotriges: a Definition of Iron Age Communities within the Dorset Environs*. British Archaeological Report 462.
- Russell, M., Cheetham, P., Evans, D., Hambleton, E., Hewitt, I., Manley, H. and Smith, M. 2014. ‘The Durotriges Project, phase one: an interim statement’. *Proceedings of the Dorset Natural History and Archaeological Society* 135, 217-21.
- Russell, M., Cheetham, P., Evans, D., Gerdau-Radonic, K., Hambleton, E., Hewitt, I., Manley, H., Smith, M. and Speith, N. 2015. ‘The Durotriges Project, phase two: an interim statement’ *Proceedings of the Dorset Natural History and Archaeological Society* 136, 215-22.
- Russell, M., Cheetham, P., Evans, D., Gale, J., Hambleton, E., Hewitt, I., Manley, H., Pitman, D. and Stewart, D. 2016. ‘The Durotriges Project, phase three: an interim statement’ *Proceedings of the Dorset Natural History and Archaeological Society* 137, 173-77.
- Sharples, N. 1991 *Maiden Castle*. Batsford, London.
- Wheeler, R.E.M. 1943. *Maiden Castle*. Society of Antiquaries Report 12. Oxford University Press, Oxford.

Toller Porcorum: a post-medieval 'wetland' management landscape at Woolcombe, Dorset

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Abstract

Woolcombe Farm became the subject of archaeological excavations during 1966-69 following investigations by the resident Austin family earlier in that decade. The initial field programme was directed by George Rybot, however, Rybot's ill-health brought the project to an end after three seasons. A new programme of survey and excavation was established by Alan Hunt of the Dorset Institute of Higher Education (now Bournemouth University) in 1984 and this continued on an annual basis until 1992. This paper gives details of an archaeological assessment and fieldwork that was carried out in the vicinity of the farmhouse at Woolcombe by Bournemouth University in 1997. Taking into account the findings of the 1997 fieldwork, the authors indicate the potential for future investigations at this medieval settlement site (IH).

Resumen

Las primeras excavaciones en Woolcombe Farm tuvieron lugar entre 1966 y 1969, tras las llevadas a cabo anteriormente por la familia Austin, dueña entonces de las tierras. George Rybot fue el director de la primera campaña que terminó, tres años después, debido a sus problemas de salud. En 1984, Alan Hunt, del Instituto de Educación Superior (en la actualidad Universidad de Bournemouth) organizó un nuevo programa de prospección y excavación que se prolongó hasta 1992. Este artículo detalla una evaluación arqueológica y excavación realizadas en 1977 por la universidad de Bournemouth, en las proximidades de la casa de campo de Woolcombe. Teniendo en cuenta los hallazgos de la excavación de 1997, los autores consideran que hay potencial para futuras investigaciones en este asentamiento medieval (AGR).

Zusammenfassung

Woolcombe Farm war Gegenstand archäologischer Ausgrabungen in den Jahren 1966-69, die Untersuchungen der ansässigen Familie Austin folgten, welche in vorangegangenen Jahren desselben Jahrzehnts stattgefunden hatten. Die ursprüngliche Feldarbeit wurde von George Rybot geleitet, endete jedoch aufgrund seiner schlechten Gesundheit nach der dritten Saison. Ein neues Begutachtungs- und Ausgrabungsprogramm wurde im Jahr 1984 von Alan Hunt des Dorset Institute of Higher Education (jetzt Bournemouth University) aufgenommen und bis 1992 jährlich fortgesetzt. Die vorliegende Ausarbeitung präsentiert die Einzelheiten einer archäologischen Beurteilung und Feldarbeit, welche 1997 von Bournemouth University in der nahen Umgebung des Bauernhauses durchgeführt wurden. Unter Berücksichtigung der Funde aus der Feldarbeit von 1997, verweisen die Autoren auf das Potenzial zukünftiger Untersuchungen dieses mittelalterlichen Siedlungsplatzes (JF).

Archaeological Background

Woolcombe is listed in the Domesday Book of 1086 (Morris 1983 56, 50 and 57, 8); it is also afforded a short entry in the Royal Commission on Historical Monuments, Dorset (1952, 253). Formal archaeological fieldwork at Woolcombe Farm commenced in 1966 under the direction of George Rybot. Part of the Rybot archive has been lost, but a competent analysis of the remainder was published by Poulsen (1984, 75-81). From 1984 Alan Hunt directed a further nine seasons of investigation by the Dorset Institute of Higher Education (later Bournemouth University) that were recorded in a number of annual interim reports (Hunt 1985-1993 inclusive).

The Austin family, the owners of Woolcombe Farm, sold the property by 1996 and the land holding was divided. A field called Lower Bottom, which included the source of the Woolcombe stream and the site of medieval settlement, became detached in ownership from the farmhouse. Woolcombe farmhouse was converted into a non-agricultural dwelling and the new owner's plans to develop it were the subject of an archaeological evaluation and a watching brief in 1997 (Fig. 1). It is the results of the 1997 programme of fieldwork that are the focus of this paper. Reference to earlier fieldwork will be limited to essential background context.



Figure 1: Woolcombe farmhouse south elevation, 1997, showing (to the right) the single storey byre with white painted wall-scar that denotes the area that was shared with the demolished bottling plant (Bournemouth University)

Site location

Woolcombe Farm lies in the bottom of a valley approximately 13km (8 miles) to the north-west of Dorchester and close to the southern boundary of Toller Porcorum parish (SY 554 954 and *ca* 170 m above ordnance datum). A spring rises 63 m to the south-west in the field known as Lower Bottom and this is the source of the Woolcombe stream which runs to the north of the farmhouse (Fig. 2). This stream is a tributary of the River Hooke, formerly the River Toller (Mills 1998, 145), which comprises part of the watershed of the River Frome.

Geology

The geology of the Woolcombe area is complex. Eggardon Grit (to the south-east of the farm), Cann Sand (Upper Greensand), Shaftesbury Sandstone and Zig-Zag Chalk are types that can be encountered. The Woolcombe farmhouse building is situated upon a superficial deposit of Head Clay, Silt, Sand and Gravel (Natural Environment Research Council 2016; Bloodworth 1990, 3). Archaeologically, it is not always easy to establish clear boundaries between these geological types which can be prone to overlap. A ruined lime kiln is situated *c.* 167 m north-west of the farmhouse, and the surrounding fields contain a number of chalk quarry pits (Table 1). These pits provide useful reference points in an otherwise diverse geological area.

Outline Archaeology of Woolcombe Farmhouse 1966-1992

Some *ad hoc* excavations had been carried out in the immediate vicinity of Woolcombe farmhouse

(Standing Building 1 or SB1) during the 1960s by the Austin family, then owners of the farm. George Rybot and Alan Hunt continued and extended these investigations which are described under their trench numbers as follows:

Hunt III

This trench was also known as Austin Site 1 (Hunt 1985, 158). It was situated in the north-east angle of the farmhouse where it was cut into an earthen platform upon which the present house stands (SB1; Fig. 2). Two parallel walls of separate phases were exposed. The later wall was wider than the first with evidence of a doorway marked by roughly dressed stones for which a seventeenth-century date was suggested. Both phases were considered to be earlier than the present farmhouse building which also originates from the seventeenth century but which incorporates two stone windows possibly re-used from an earlier building (RCHME 1952, 253; Poulsen 1984, 77; Hunt 1985, 157).

Hunt VI

Excavated in 1986, this trench was located 4 m north of the farmhouse and adjacent (immediately east) of Standing Building 3 (SB3) which was described as comprising at least six structural periods dating from the sixteenth to seventeenth centuries (Fig. 2). Although at present an outbuilding (1997), SB3 clearly originated as part of a higher status structure (Hunt, 1986, 173; 1992b, 176). The excavated evidence from Trench VI included:

1. A chalk wall on the same alignment to those in Trench III and dated as late medieval, possibly the foundation of a timber-framed building (Hunt 1987, 187).
2. A layer of redeposited (Upper) Greensand thought to be the latest in a 'series of layers' of a building platform associated with the north range of the farmhouse in the second half of the seventeenth century (see Hunt III above and Hunt 1987, 187).

The Kitchen Garden, Subsite VI (or 6)

The Kitchen Garden adjoins the south-east end of the farmhouse (Fig. 2). This area was originally designated Subsite VI but here it is referred to as Subsite 6 in order to distinguish it from the nearby Trench VI. The resident Austin family reported the presence of chalk walls 'at no great depth' in this area (Hunt 1985, 157

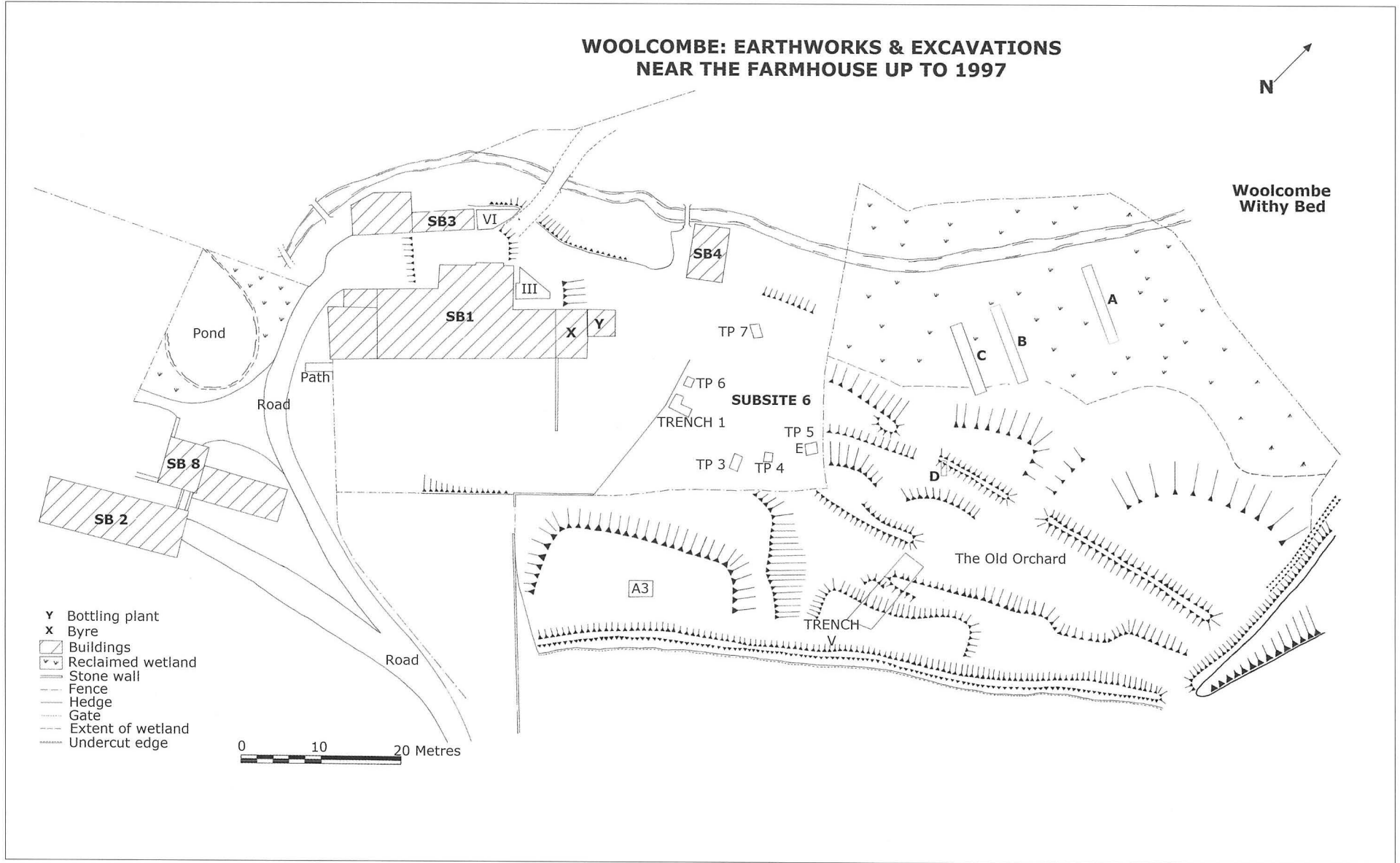


Figure 2: Plan of Woolcombe farmhouse SB1 and its immediate environs as marked. SB3 is the multi-phase building to the left (west) of Trench VI, SB4 is the ca 1840s cider mill next to the Woolcombe stream (Gonzalez Ruiz for Bournemouth University)

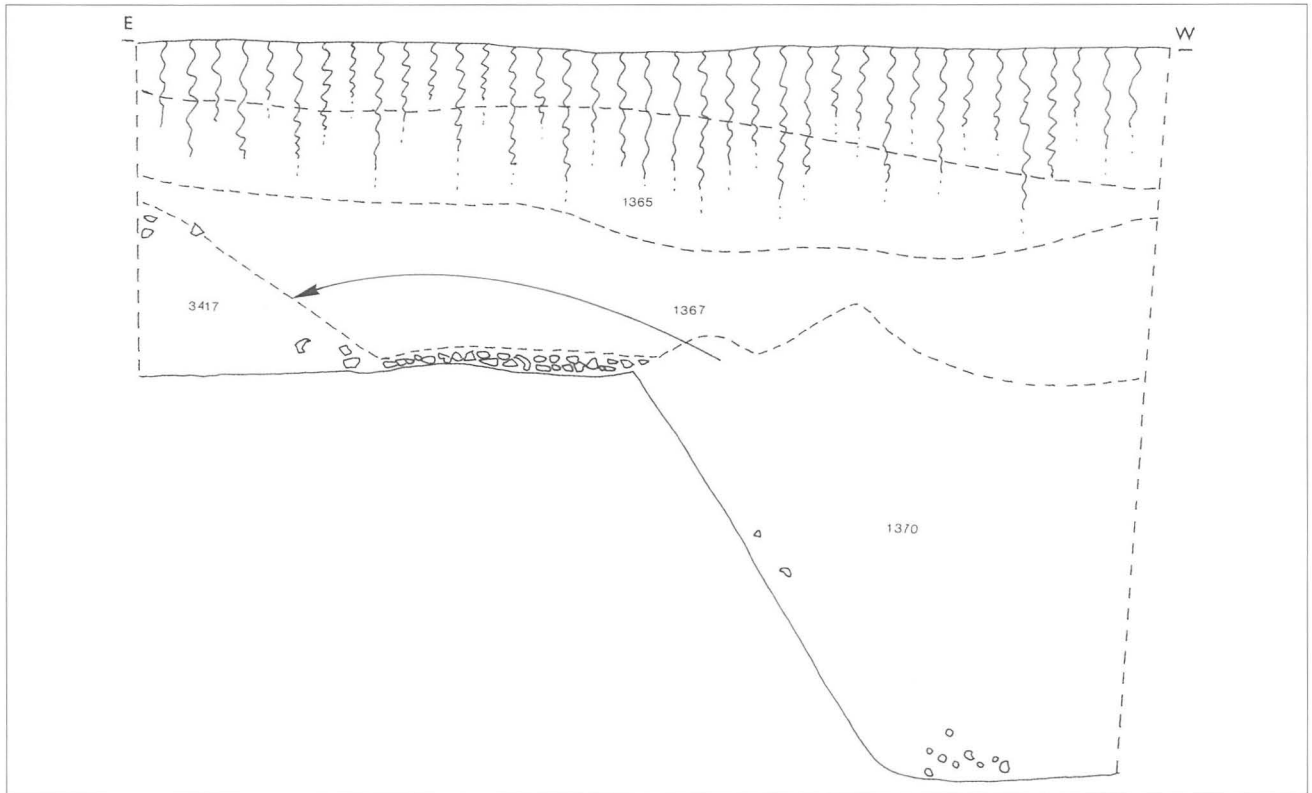


Figure 3: Section drawing of Test Pit 3 (1991). Context numbers: 3416 possible metalled surface; 3417 redeposited natural containing worked flint; 1365 topsoil; 1367 make-up layer; 1370 fill of ditch; 3340 cut of possible Bronze Age boundary ditch [drain trench] (BU 057 WF Sub-site VI, TP 3, Sheet 396, Section 271)

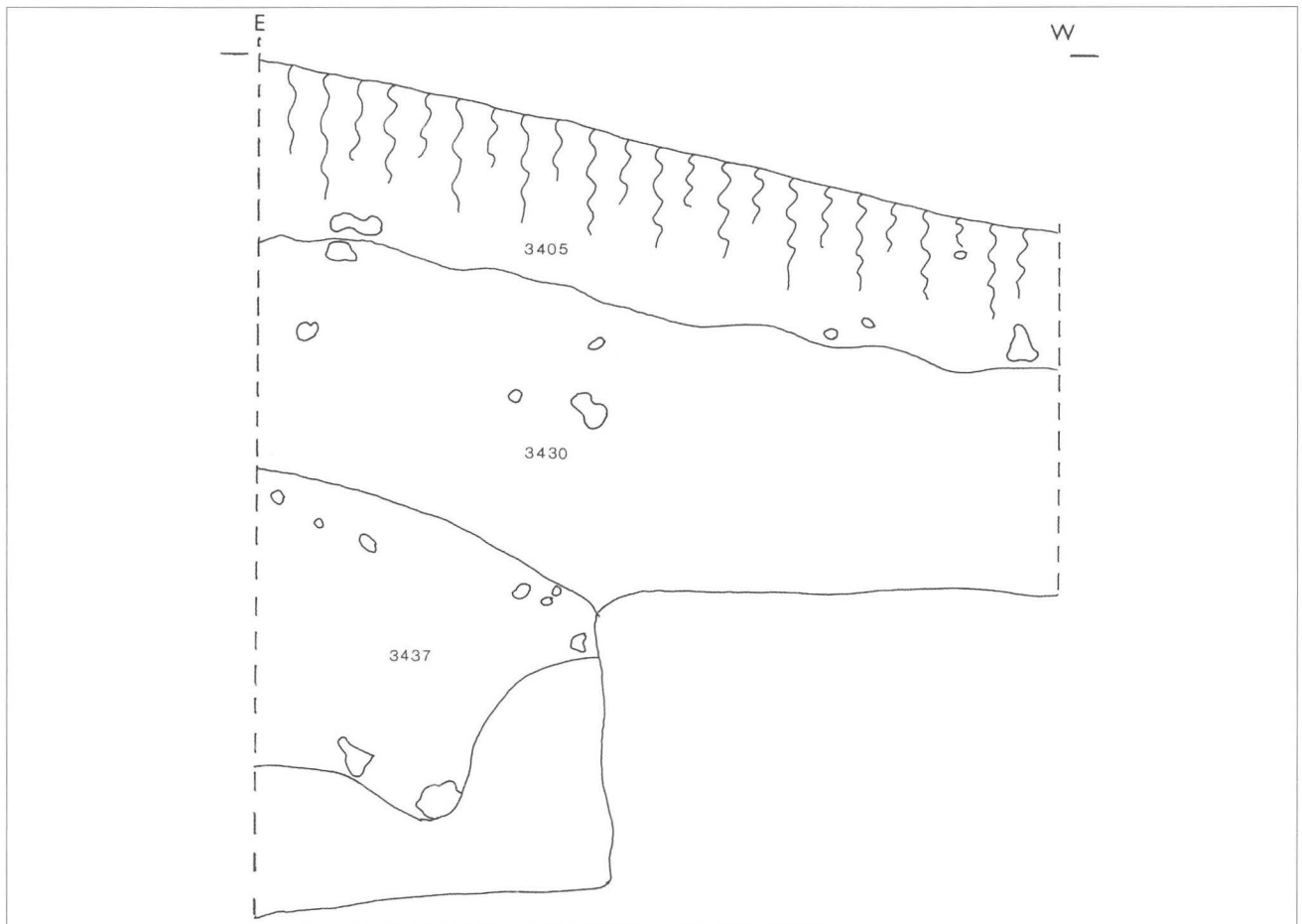


Figure 4: Section drawing of Test Pit 5 (1991). Context 3437 probably represents a former pipe trench with shallow gully for a section of clay field drain pipe (BU 057 WF Sub-site VI, TP 5, Sheet 401, Section 273)

and 159; Hunt 1992b, 176). During the 1991 excavation season one trench (Trench 1) and six test pits (TPs 2-7) were excavated in this area. In Test Pit 3 a possible post-hole was observed at the western end. A 'roughly metallised surface of flints' was also recorded. Test Pits 3 to 5 revealed a ditch associated with flints that were provisionally dated as Bronze Age (Figs 3 and 4; BU archive 057, director's site notebook 1992, 21-4). A 'later' unspecified soil deposit included a few sherds of possible 'late Saxon' pottery (Hunt 1992b, 176).

The Old Orchard (Austin Trench 3 and Hunt Trench V)

The Old Orchard occupies an area of land that extends east to south-east of the farmhouse. North of this plot, the Woolcombe stream runs towards the southern boundary of Woolcombe Withy Bed. The area of the Old Orchard is defined by two linear earthbanks, the more northerly of which is much reduced. The southern earthbank carries a hedge. Within the Old Orchard (between the earthbanks) is a number of earthworks which resemble house or garden platforms (Fig. 2). Two excavations took place here prior to 1997.

1. Site A3 was the work of the Austins *ca* 1972. The trench was situated on a platform where 'the goose house' had once stood. Undated roof tiles' not seen by later excavators, were recovered (Hunt, 1985: 157).
2. Trench V (excavated in 1984 and 1985) was situated some 30m north-east of A3 (Hunt, 1985, 157 & 1986, 173). The trench cut across two earthen platforms but no structural evidence was found. The limited finds of abraded pottery did not indicate a firm date for these features.

The Old Orchard excavations were inconclusive but it should be noted that this area is interrupted at its west end by the Kitchen Garden which is known to contain archaeological features (see above).

Archaeological Evaluation and Watching Brief, 1997

In 1997, the new owner's aspirations to develop the Woolcombe farmhouse site prompted an archaeological evaluation (targeted excavation) and a watching brief in response to the requirements of the planning process. These investigations were

contracted out to Bournemouth University (Hewitt 1997a; 1997b). The following paragraphs in this section are a precis of the principal results of these limited field programmes. Trenches A, B, and C were all set out to the north-east of the farmhouse in an area that was the proposed site of a pond (Fig. 2). Context and feature numbers are given in brackets as appropriate (see also Table 2). Feature numbers are prefixed by the letter 'F'.

Trench A (Figs 2 and 5)

Trench A measured 10.0 m x 1.2 m and was set out north-south. A sandy loam topsoil (001) sealed a sticky subsoil of mixed Upper Greensand, clay and weathered flint fragments (002). Within this mixed deposit, chalk rubble drains (F1, F2) were visible running east-west across the trench in two places (hereafter Type 1 drains). Undisturbed drains of this type were found to be in working order when sectioned. At right angles to the Type 1 drains, a second drainage system had been laid out made up of continuous sections of ceramic pipe of a buff to cream fabric (F4). Each drain section measured *c.* 300 mm long x 110 mm wide, the bore being 80 mm. The fabric of the pipe contained grog inclusions and these are referred to here as Type 2 drains. The southerly (up-slope) Type 1 drain had been disturbed and apparently replaced by a ceramic pipe drain of a different sort (Type 3). This time the fabric was a consistent orange colour and much harder than Type 2. Dimensions measured as 300mm x 130 mm, 96mm bore (F3). The action of laying-out this drain had disturbed not only the southern chalk drain but also the adjoining Type 2 arrangement, some of which had been removed. A *sondage* was cut into the subsoil which revealed a layer of saturated organic material that consisted of tree roots and other plant remains. (Hewitt 1997a, 15-16).

Trench B (Figs 2 and 6)

This trench (10.0 m x 1.2 m) lay parallel with, and west of, Trench A but approximately 3.0 m further to the south. The topsoil (011) was identical to that of Trench A but towards the south it contained a concentration of unabraded *ca* late eighteenth- or early nineteenth-century potsherds of Verwood type, most of which had an internal green lead glaze. These sherds represented more than one pot. The subsoil was also similar to that encountered in Trench A, and it sealed

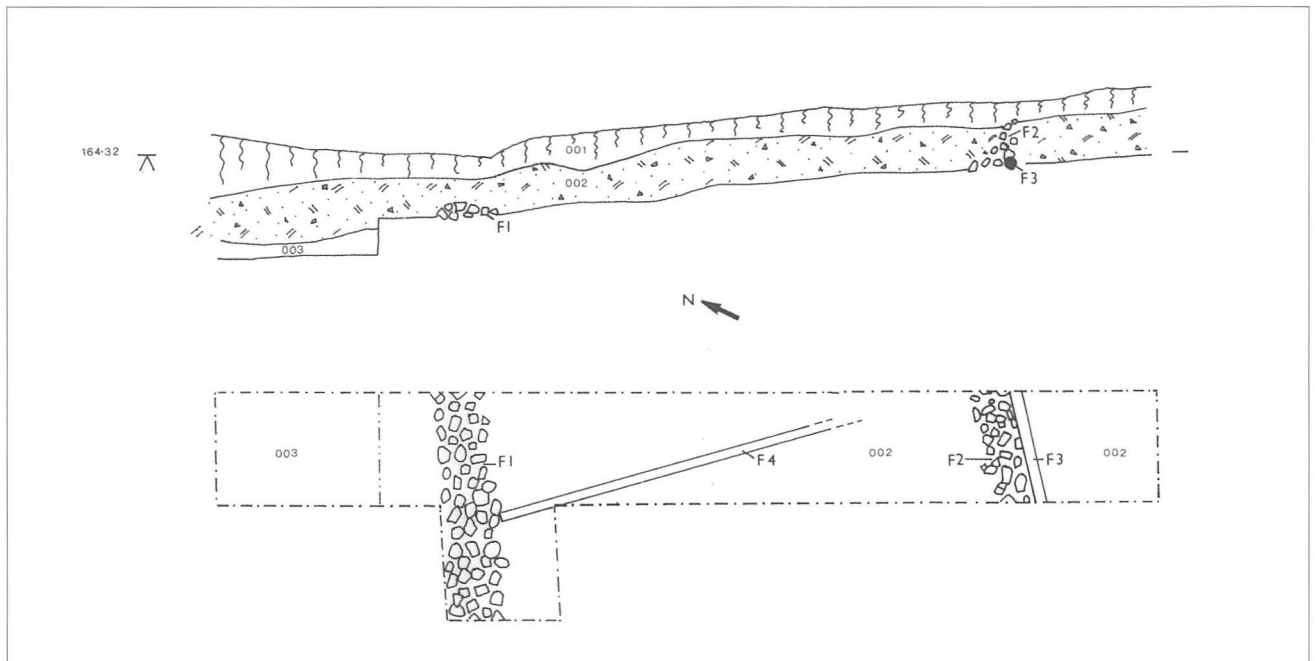


Figure 5: Trench A (1997) west-facing section and plan. F 1 and F2 are Type 1 field drains, F4 is a Type 2 drain and F3 a Type 3 drain. Context 003 is organic material at the base of the sondage (Hewitt 1997a, 28)

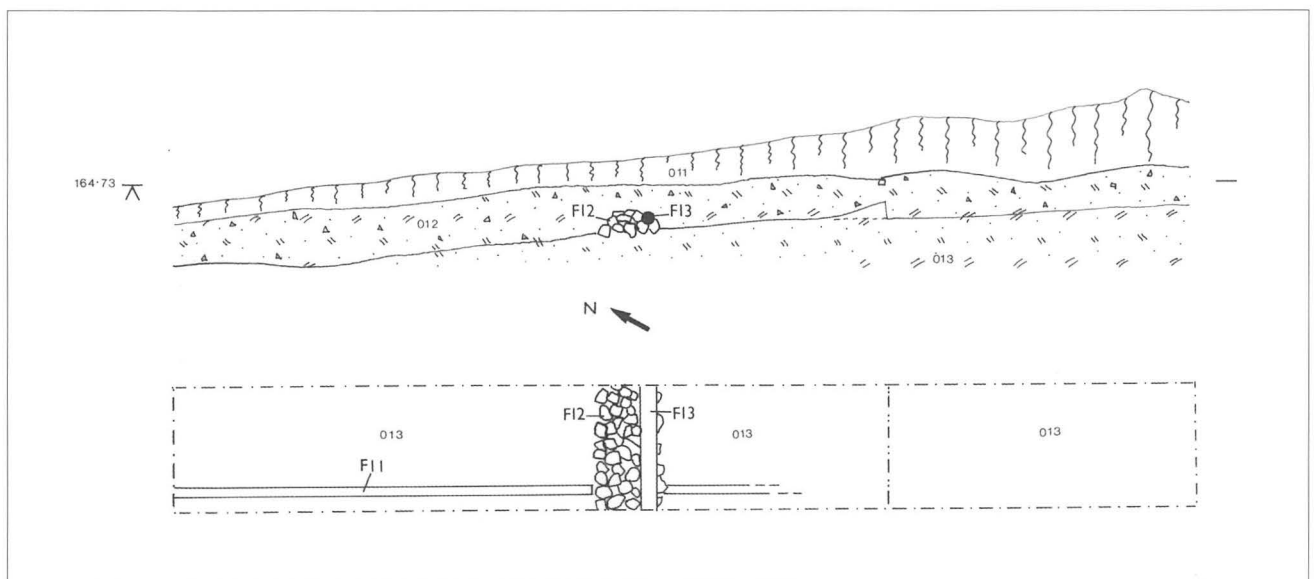


Figure 6: Trench B (1997) west-facing section and plan. F11 is a Type 2 drain, F12 is Type 1 and F13 Type 3 (Hewitt 1997a, 29)

a section of Type 1 drain near to the mid-point of the trench continuous with the northern section of Type 1 drain in Trench A (F12). The Type 1 drain had been disturbed and over-laid by a Type 3 drain (F13). A Type 2 drain (F11) ran north-south along the trench but was absent from the southern third of the cut (Hewitt 1997a, 16-17).

Trench C (Figs 2 and 7)

Trench C lay south of B and parallel to it but was 1.0 m shorter in length. The topsoil (021) remained

consistent with that of the other trenches and contained a few fragments of pottery similar to that described in Trench B. The course of the southern Type 1 chalk rubble drain was found to continue from Trenches A and B, but in Trench C it appeared to be undisturbed by Type 3. At the north end of the trench, the usual subsoil gave way to a cleaner version of Greensand with flints (024). A sondage at this point revealed that context 024 sealed a deposit of organic material (025) similar to that noted in Trench A (Hewitt 1997a, 17).

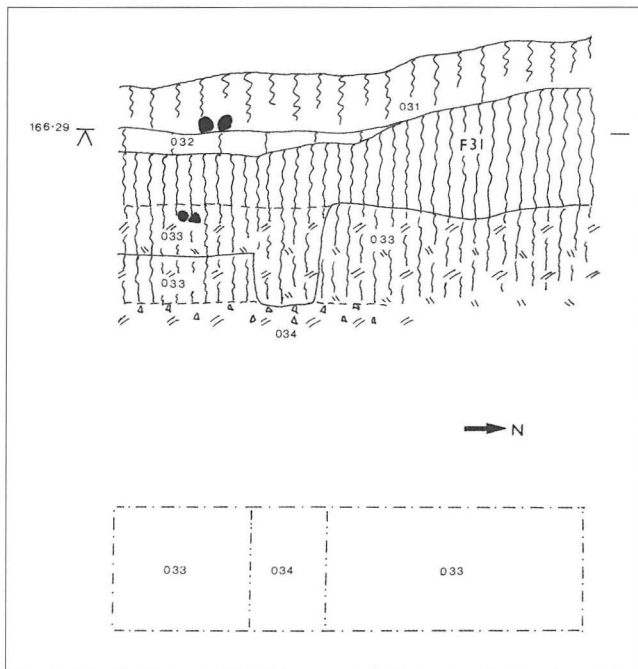


Figure 7: Trench D (1997) east-facing section. F31 is the earthbank. An apparent cut into context 033 might represent the source of the bank material (Hewitt 1997a, 31)

Trench D (Figures 2 and 7)

Measuring 2.0 m (north-south) x 0.5 m, this trench was cut into the reduced northern earthbank boundary of the Old Orchard (F31). The purpose of the trench was to produce dating evidence for this boundary feature and consequently only the south side was excavated. The boundary material was a silty clay loam which contained four abraded sherds of medieval pottery and post-medieval green bottle glass. This pattern of mixed period finds was repeated throughout the soils that were sealed by the bank material. In the last of these layers (033) post-medieval bottle glass, animal bone and a gun flint were associated with a single fragment of medieval sandyware. This mix of materials of various periods suggests a post-medieval date for the bank. Beneath context 033 was a natural layer of Upper Greensand with sharp weathered flints (034) similar to that observed in Trenches A, B and C (Hewitt 1997a, 17-18).

Trench E (Figs 2 and 9)

Trench E was set out on the eastern edge of the former Kitchen Garden (Fig. 2). In 1991, Bournemouth University had excavated a Trench and five test pits in this area, then designated Subsite 6 (Hunt, 1992, 13; 1992b, 176; BU archive 057 site notebook 1991, 21-22). Features identified in Test Pits 3 and 5 had been

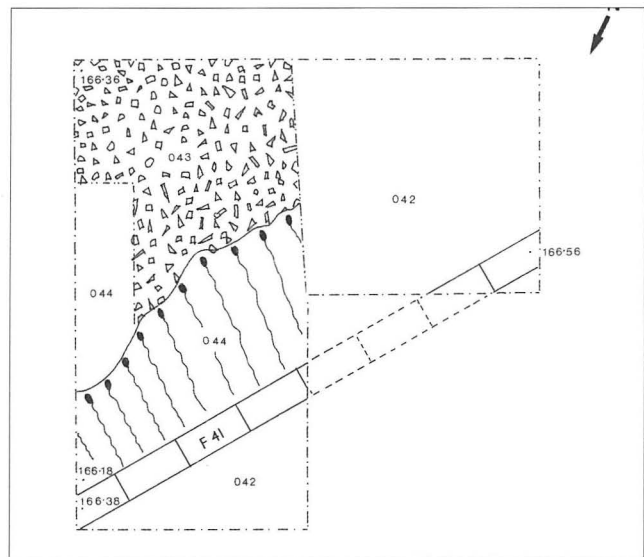


Figure 8: Trench E (1997) plan. F41 is a Type 3 field drain that lies within a drainage trench. Context 043 is a layer of natural flint gravel that has been cut by the drainage trench (Hewitt 1997a, 32)

tentatively dated as prehistoric on the evidence of flint debitage that was associated with a ditch (Hunt 1992b, 176; Figs 3 and 4). In order to clarify this issue, Trench E was located on a north to south slope, east of the 1991 Test Pit 5 (Fig. 2; Hewitt 1997a, 18).

In the southern (up-slope) area of Trench E the topsoil sealed a residual subsoil which in turn, covered a packed layer of sharp flint. The flint fragments had been formed by weathering, but were too sharp (unworn) to represent a trackway or house floor. Removal of a sample of this flint material to a depth not exceeding 0.1m revealed undisturbed Upper Greensand/clay below. Down-slope (northwards) was a distinct north-east / south-west boundary of the flint layer where this horizon had been cut away. This interruption represented the edge of a north-east/ south-west ditch within which lay a Type 3 field drain (F41). It was apparent that the course of the ditch also crossed into the former Test Pit 5 of 1991 and therefore the feature in the 1997 Trench E is identical to the ditch noted there six years earlier (Hewitt 1997a, 19).

The Farmhouse, east range watching brief

In 1997, development of the farmhouse included the demolition of a 1980s bottling plant at the north-east end of the farmhouse range. Demolition work revealed that part of the north-east elevation of the farmhouse byre which previously had been obscured



Figure 9: The east elevation of Woolcombe farmhouse in 1997 showing the ground floor byre wall. The white-painted area to the right of the downpipe and window represents the area adjoined by the former bottling plant. This part of the wall seems to have been made good and it is supported by a brick buttress (Bournemouth University)



Figure 10: Site of bottling plant (1997). The course of the Type 3 field drain is visible to the bottom centre of the photograph (Bournemouth University)

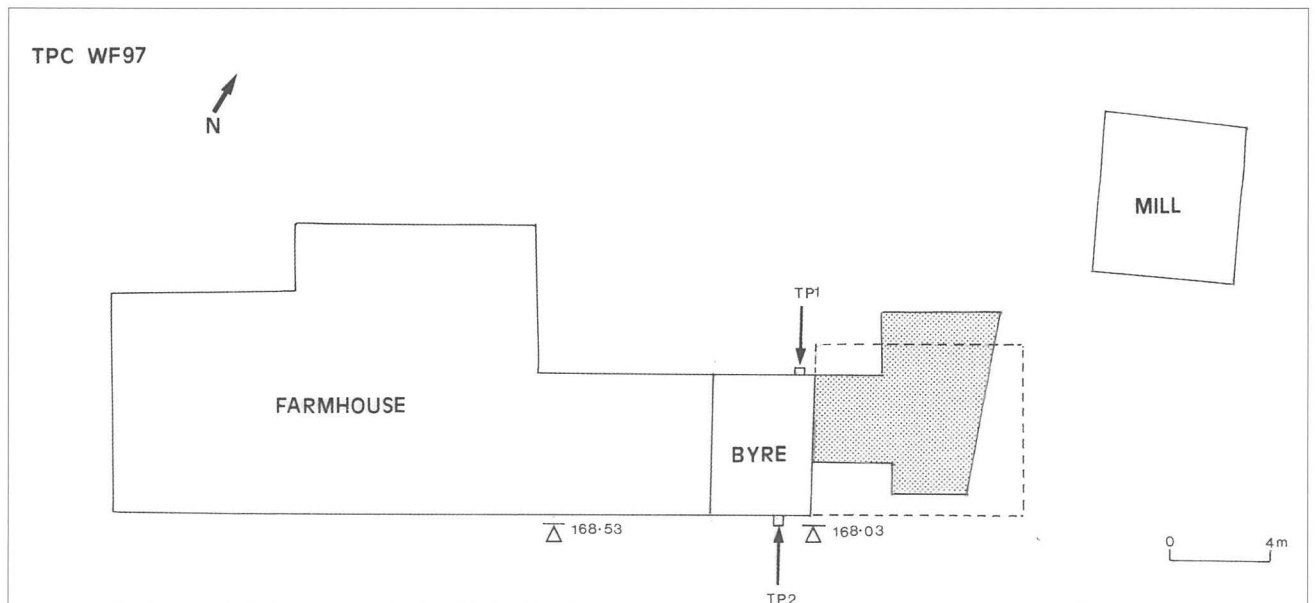


Figure 11: Footprint plan of Woolcombe farmhouse (1997). The site of the bottling plant is shaded, the dashed line shows the approximate area of new building foundations (see Figure 12) (Hewitt 1997b, 19).

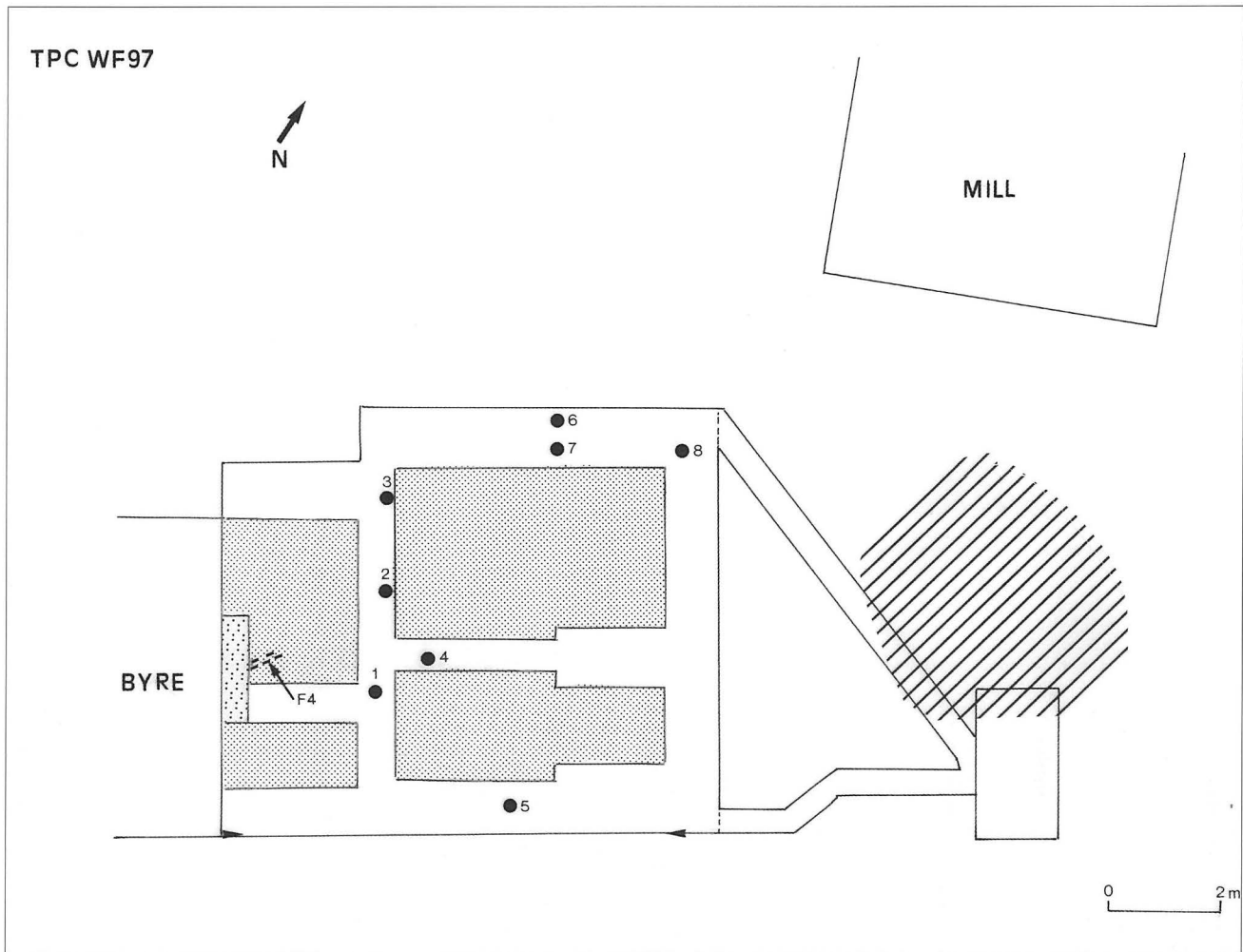


Figure 12: Woolcombe farmhouse (1997) plan of new foundations on bottling plant site. Numbered dots 1 to 8 are the locations of the remains of hardwood posts within the new foundation trenches. F4 is a Type 3 field drain. The shaded zone to the right is the site of a former cess pit (Hewitt 1997b, 20)

by the bottling plant (Fig. 10). The wall of the byre was of generally poor construction below the gable, and significant cracks were in evidence that had required the construction of a brick buttress to prevent collapse. This south-east wall had been partially rebuilt on at least one occasion. The south quoin comprised various materials from brick at the base to dressed stone and finally irregular stones near to the wall cill (Hewitt 1997b, 10 and 12).

Construction of a new residential extension on the site of the bottling plant entailed the removal of its concrete floor and this revealed a layer of modern building rubble into which was cut the foundation trenches for the new building. At 167.15 m AOD, the digging of the foundations revealed a ceramic field drain (Type 3). This drain ran from the brick buttress of the byre north-eastwards towards the Woolcombe stream (Fig. 11). Sections of the drain were missing

and it is probable that these were removed during the construction of the bottling plant. At Lower levels, and down to foundation base (166.63m AOD), the soils were much disturbed; Upper Greensand predominated, but continuous natural horizons were hard to find. There was a paucity of artefacts, these being limited to two out-of-context, unabraded sherds of green glazed post-medieval pottery (Hewitt 1997b, 11).

As part of the recording process, a 24.0 m base line was extended eastwards from the south-east corner of the farmhouse. Along this line, levels were plotted at 2.0 m intervals from zero (platform at 166.63m OD). This procedure revealed the contours of a building platform upon which the demolished bottling plant had been constructed (Fig. 12). Beneath this platform, was undisturbed Upper Greensand that was heavily

waterlogged. These wet conditions had preserved the remains of an arrangement of eight hardwood posts, typically, *ca* 0.25 m in diameter, though numbers 6 and 7 measured not much more than 0.15 m. These posts were observed within the foundation trenches only; similar posts are likely to have been concealed within unexcavated areas of the building footprint. Three of the stumps were removed from their post-holes and found to be *ca* 0.3m in residual length (Fig. 13 numbers 2, 6 and 8). The posts had been packed into their holes with chalk lumps, perhaps sourced from a disturbed Type 1 field drain. The packing of post 6 included a sherd of green glazed post-medieval pottery sealed at sufficient depth as to preclude any possibility that it was intrusive. The visible tops of the stumps were rotten and fibrous (Fig. 14). Further inspection revealed that the posts



Figure 13: The bottling plant site (1997). Two of the remnant hardwood stumps (Figure 13 nos 2 and 3) can be seen within the new foundation trench (Bournemouth University)

were fashioned from axe-felled tree trunks with little attempt at finish other than the removal of branches and shoots. The post-holes had been cut into the natural Upper Greensand and, for general reference, the base of number 2 was measured as being 166.36m AOD (Hewitt 1997a, 11-12).

The groundworks confirmed that the demolished bottling plant sat on an artificial platform that comprised modern building rubble and loamy re-deposited soils, possibly associated with the former Kitchen Garden.

Discussion of the Archaeological Evidence

Woolcombe Farmhouse: the environmental context

The Woolcombe stream rises to the west of the farmhouse and follows a course that lies within 25 m to the north. From here the stream, continues eastwards through the Woolcombe Withy Bed (Fig. 2). The soils in this valley or coombe include Head Clay and this combination of heavy soils and spring water make for generally wet conditions that have presented a challenge to those who have farmed at Woolcombe. The excavated evidence from Trenches A, B and C included deposits of organic material which suggests that the Woolcombe Withy Bed once extended further to the west, towards the farmhouse. Indeed, it is possible that the site of the farmhouse was the result of clearing the withy bed in order to create a settlement site (an assart). Given these conditions, a medieval moated site of Wilson's 'valley moat' class would have been a logical consequence of a settlement of gentry status in this location (1985, 12). However, fieldwork to date has revealed no evidence of a moat. Nonetheless, water management must have been a high priority for the medieval and later tenants of Woolcombe. The evidence of this need for water management is described in the paragraphs that follow.

Building platforms

Woolcombe farmhouse stands upon an earthen platform that is probably of medieval date (Hunt 1987, 187). This platform has been traced to the north-west through to north-east of the farmhouse. The 1997 excavation and watching brief also established that a platform was constructed to accommodate



Figure 11: Footprint plan of Woolcombe farmhouse (1997). The site of the bottling plant is shaded, the dashed line shows the approximate area of new building foundations (see Figure 12) (Hewitt 1997b, 19)

the construction of the 1980s bottling plant although this later platform was of rubble construction. This late example of a building platform exemplified the need for such features in a wetland environment: beneath the concrete floor of the bottling plant and the rubble building platform was found a stretch of Type 3 field drain sections. Below the Type 3 drain was an arrangement of eight wooden posts that were preserved in a waterlogged anaerobic environment. These posts represented the remains of a building that was not constructed upon a platform and which may have been prone to rot as a consequence. Building platforms were created to prevent, or limit, an ingress of water into the building above and this principle is well demonstrated by the archaeology at Woolcombe farmhouse.

As late as 1902, the cultivation of cider apple trees occupied The Old Orchard and beyond into an area north and west of Woolcombe farmhouse and north of the Woolcombe stream (Landmark Information Group, County Series 1:2500 1902). The

management of apple cultivation in waterlogged soils was potentially problematical and the creation of flat terraces upon which the trees were planted may have been a response to this challenge. Three examples of these terraces were examined during the course of the excavation of Trenches A3 and Hunt V and none produced evidence of occupation which seems to confirm their function as horticultural features. Neither of these trenches produced evidence that determined whether any of the Old Orchard terraces pre or postdated the three types of field drain schemes (see below), consequently it is not possible to suggest a relative date for their construction.

Field drainage schemes

In simple terms, the need for field or under-drains was to reduce or control the moisture content within the soils. In 1997, field drainage schemes of Woolcombe Types 1 to 3 were identified in Trenches A, B, C and E and it was clear from the excavated evidence that none of these underdrainage types was mutually

contemporary in date. The excavation within a single trench of three field drainage types is rare. It is therefore important to understanding the the Woolcombe site that dates should be attached to each of these types of field drain.

Type 1 drains, chalk-filled trenches, were the most primitive form of field drain to be identified at Woolcombe. The chalk fill of the Type 1 drains would have been available from the several chalk pits that have been identified to the north and west of the farmhouse (Table 1). These early chalk field drains belong to a group of similar types that are generally referred to as 'hollow drains' examples of which include trenches filled with faggots, stones, shells and gravel (anon, March 1974, 3). Armitage *et al.* give details of drainage trenches filled with horn cores which they date to the seventeenth or eighteenth centuries (undated, 408-12). If the Type 1 Woolcombe drains are ascribed a similar date range, then it is feasible that they belong to the seventeenth century when the present farmhouse was built (RCHM(E) 1952, 253). For field drains to work effectively it is necessary for them to deliver the excess water from the fields to a stream or artificial water course that removes the water from the site. Straight water courses fulfil this function with the greatest efficiency and for this reason meandering natural streams were usually straightened (canalised) in order to produce the desired effect (Smith 2013). Figure 2 illustrates that the Woolcombe stream was canalised just below the cider mill (SB4) to the north of Trenches A, B and C.

It should be noted that the Austin family had observed chalk walls 'at no great depth' in the Kitchen Garden (Hunt 1985, 157 and 159, Table 2, Site 3; Hunt 1992, 176). Here it is argued that what the Austins had seen was Type 1 chalk field drains that run straight and would be easily mistaken for walls. Re-examination of the 1991 excavation photographs has revealed the course of a probable chalk rubble drain (Type 1) in Trench I, just a few metres east of the farmhouse (BU Archive 057 Sub-site V1 (6); Fig.14).

Type 2 and Type 3 field drains can be broadly dated with more certainty. Clay field drains of several types

were produced and an illustrated inventory of many of the available forms has been produced (Ministry of Agriculture Fisheries and Food undated). In 1845 Thomas Scragg invented a machine for extruding clay into cylinder pipe forms for kiln firing (Robinson 1986, 79). Woolcombe Type 2 drains were not, with certainty, extruded and this type of drain, being hand-formed, more comfortably belongs to the first decades of the nineteenth century. Statutes of 1826, 1839 and 1840 exempted from duty 'bricks' that were made expressly for land drainage provided that each item was stamped DRAIN (Anon. March 1974, 3). The Type 2 drains were not stamped therefore suggesting that they predate the 1826 statute.

Type 3 field drains were formed by machine extrusion. Although unstamped, duty was no longer chargeable after 1850 (Anon. March 1974, 3). Taking these details into account, it is reasonable to suggest a *terminus ante quem* of 1850 for the Type 3 drainage scheme. Agricultural depression from *ca* 1890 to the 1930s brought about a decline in the laying out of new field drainage networks (Robinson 1986, 79) which suggests that Type 3 Woolcombe field drains are not later than the end of the nineteenth century. It was a series of Type 3 drain cylinders that sealed the setting of wooden posts that was discovered beneath the floor of the bottling plant. A working hypothesis is that the posts represent the former location of a cart shed or general purpose store that was destroyed when the Type 3 drains were laid out.

Drainage trenches

Regardless of drain type, underdrainage schemes required linear trenching in order to facilitate the laying out of the hollow drain fill, such as chalk, or for the clay drain pipes. Such trenching creates a distribution of upcast which, in the case of Woolcombe, would have included gravel and Upper Greensand. Distributions of these materials were noted during the excavation of Trench A (context 2), Trench B (context 12) and Trench C (context 034). In all cases, these deposits were associated with field drainage trenching. The findings in Trench E were similar but here the profile of a drain trench was also noted (Fig. 9).

'Redeposited Greensand' was also noted during the excavation of Trench VI in 1986 where it was associated with a 'narrow chalk wall' (Hunt 1987, 187). In the light of the evidence from the 1997 evaluation, an alternative interpretation is that the features noted in Trench VI represented a chalk field drain and upcast derived from the digging of associated drainage trenches.

Earthbank boundaries of the Old Orchard

It is not clear whether or not the two earthbank boundaries within The Old Orchard were a feature of the post-medieval wetland management scheme. The constraints of the archaeological evaluation brief did not allow the time or resources for detailed excavation of either feature and examination was limited to the earthbank section in Trench D. Finds sealed by the bank material indicated that the feature dated to the seventeenth century or later, but it was not possible to determine whether the two earthbanks sealed or were cut by any or all of the three field drain types. Had this been the case, then a relative date for the earthbank could have been suggested.

Metalled surfaces

In 1997, two features were prominent in Trench E; an horizon of sharp flints and a field drainage system. The layer of flints is natural gravel (Natural Environment Research Council 2016) but it was cut through and the spoil redeposited when field drains were laid. This flint layer has been noted in earlier excavations in the Kitchen Garden area (Sub-site 6) where, in Test Pit 3 (context 3416), it was described as a possible metalled surface. It is probable that it was this natural deposit of flints that was recorded in Trench I, Subsite 6 (1991), as a 'roughly metalled surface of flints' (BU Archive: WF91; Sheet 396, Section 271, context 3416; Fig. 14). This surface had been cut by a drainage ditch, an observation also made during the 1997 excavation of Trench E. It is also clear that the ceramic field drain in the nearby Trench E (Fig. 9) crossed into the 1991 Test Pit 5, and probably into Test Pit 3 too. In both cases the edge of a ditch feature was observed. In fact, the section drawing of Test Pit 5 (BU Archive 057, Sheet 401,

Section 271) shows a scoop in the natural of just the right size to accommodate a length of 130mm diameter pipe (Fig. 4). In places where the natural gravel had been disturbed by digging, the loosened and redeposited stones had the potential to resemble flint scatters that were variously interpreted.

Conclusions

The 1997 evaluation and watching brief demonstrated that the land broadly to the east of Woolcombe farmhouse was a spring-fed wetland with water management features that can be dated to the seventeenth century and later. Evidence for medieval settlement is scarce and essentially limited to occasional potsherds that are without meaningful context. Since archaeological investigation in this area of the former farm holding is more limited than in Lower Bottom to the west of the farmhouse, it is important to re-evaluate such evidence as is available in order that it might serve to inform any future opportunities to carry out fieldwork at Woolcombe.

The Woolcombe Kitchen Garden (Fig. 2) was a comparatively late enlargement of a smaller garden plot. The County Series 1: 2500 map shows that the extended garden, which included much of Alan Hunt's Subsite 6 and the 1997 Trench E, did not exist until the early twentieth century or later. Therefore, the greater part of the Kitchen Garden had once formed part of the Old Orchard and, as a result, it had been disturbed by Type 3 field drains as revealed by Alan Hunt's test pits 3 and 5, and confirmed in 1997 by Trench E.

The archeological evaluation and watching brief of 1997 made a small but important contribution towards understanding the settlement and land use history of Woolcombe Farm. However, this limited fieldwork programme does not clarify the pattern of medieval settlement in Lower Bottom, to the west of the farmhouse which, in the context of Dorset, remains an important medieval site that awaits further research and field investigation opportunities.

Table 1: Chalk pits and other principal features in the vicinity of Woolcobe farmhouse, Toller Porcorum

<i>Feature</i>	<i>Direction from Woolcombe farmhouse</i>	<i>Linear distance from Woolcombe farmhouse</i>	<i>OS 10-figure map reference</i>
Chalk pit	North-east	122.54 m	SY 55629 95458
Chalk pit	South-south-west	195.36 m	SY 55292 95246
Chalk pit	South-south-west	195.74 m	SY 55471 95238
Chalk pit	West	439.01 m	SY 55024 95163
Chalk pit	West	463.06 m	SY 55026 95123
Lime kiln	North-west	166.96 m	SY 55297 95438
Spring	West	62.7 m	SY 55329 95397
Pond	West	31.32 m	SY 55359 95403

Table 2: Woolcombe excavation contexts 1997 (Hewitt 1997a, 42)

<i>Context</i>	<i>Description</i>	<i>Trench</i>
001	Topsoil	Trench A
002	Clay/Greensand/flint	Trench A
003	Organic material	Trench A
011	Topsoil	Trench B
012	Clay/Greensand/flint	Trench B
013	Greensand	Trench B
021	Topsoil	Trench C
022	Silty loam	Trench C
023	Clay/Greensand/flint	Trench C
024	Greensand/flints	Trench C
025	Organic material	Trench C
031	Topsoil	Trench D
032	Sandy loam (same as 022?)	Trench D
033	Clay loam	Trench D
034	Greensand/flints	Trench D
041	Topsoil	Trench E
042	Silty clay?	Trench E
043	Flints	Trench E
044	Greensand/clay	Trench E

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REFERENCES

- anon. March 1974. 'History of Field Drainage, *Hendon and District Archaeological Society Newsletter* 37. Available from:
www.hadas.org.uk/newsletter-037-march-1974. Accessed August 2016
- Armitage, P. and Iwens, J. Undated. *Early Agricultural Land Drains in the former parishes of Edmonton and Enfield*. [online] Archaeology Data Service. Available from:
www.archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-457-1/dissemination/pdf/vol03_15_408_415.pdf . Accessed July 2016.
- Bloodworth, A.J. 1990. *Mineralogy and Petrography of borehole samples taken from landslipped Gault Clay, Shaftesbury, Dorset*. Report no WG/90/36, Natural Environment Research Council (NERC).
- Bournemouth University *Woolcombe Farm 1984-1992*. Archive no. BU057.
WF1991 Site notebook
WF1991 Sub-site VI (6) Trench 1, Sheet 342, Plan 317
WF1991 Sub-site VI (6) Trench 1, Sheet 392, Plan 323
WF1991 Sub-site VI (6) TP3, Sheet 396, Section 271
WF1991 Sub-site VI (6) TP5, Sheet 401, Section 273
WF1991 Context records: Sub-site VI (6) Trench 1 TPs 1 to 7.
- Crossley, D. 1990. *Post-Medieval Archaeology*, Leicester University Press, Leicester.
- Green, F.H.W. 1980. 'Field under-Drainage before and after 1940', *Agricultural History Review* 28 (2) 120-23.
- Hewitt, I. 1997a. *Woolcombe Farm, Toller Porcorum, Dorset: an Archaeological Assessment and Evaluation (Part Two: Evaluation)*. Bournemouth University, Poole.
- . 1997b. *Woolcombe Farm, Toller Porcorum, Dorset: an Archaeological Watching Brief*. Bournemouth University, Poole.
- Hunt, A.M. 1985. 'Woolcombe Farm', *Proceedings of the Dorset Natural History and Archaeological Society* 106, 155-59.
- . 1986. 'Woolcombe', *Proceedings of the Dorset Natural History and Archaeological Society* 107, 172-73.
- . 1987. 'Woolcombe', *Proceedings of the Dorset Natural History and Archaeological Society* 108.
- . 1991. *The Woolcombe Project 1990*. Archaeological Reports, Second Series, no 2. Bournemouth Polytechnic.
- . 1992a. 'Woolcombe', in J. Gale (et al.) *The Woolcombe Project 1991*, 10-14, Bournemouth University, Poole. .
- . 1992b. 'Woolcombe' *Proceedings of the Dorset Natural History and Archaeological Society* 113, 175-8.
- Landmark Information Group 2016a County Series map 1:2500, Dorset, first edition 1888. Coverage: Woolcombe Farm, Toller Porcorum Dorset. [online] Edina Digimap. Edinburgh University. Available from: <http://www.edina.ac.uk/digimap> . Accessed July 2016.
- Landmark Information Group 2016b County Series map 1:2500, Dorset, first revision 1902. Coverage: Woolcombe Farm, Toller Porcorum Dorset. [online] Edina Digimap. Edinburgh University. Available from: <http://www.edina.ac.uk/digimap> . Accessed July 2016.
- Landmark Information Group 2016c County Series map 1:2500, Dorset, 1972. Coverage: Woolcombe Farm, Toller Porcorum Dorset. [online] Edina Digimap. Edinburgh University. Available from: <http://www.edina.ac.uk/digimap> . Accessed July 2016.
- Mills, A.D. 1998. *Dorset Place-names, their origins and meanings*. Countryside Books, Newbury.
- Ministry of Agriculture, Fisheries and Food. Undated. *Field Drainage Tiles and Pipes*. [online] Collections Gateway. Available from: http://www.collectionsgateway.org.uk/collections/8/field-drainage_tiles.pdf .
- Morris, J. 1983. *Domesday Book: Dorset*, Phillimore, Chichester.
- Natural Environment Research Council (NERC) 2016. *Geological Map Data* 1:10,000. Coverage: 354012, 94761 to 556788, 96039. Available from:
www.edina.ac.uk/roam/geology . Accessed August 2016.
- Ordnance Survey, April 2016. Coverage: Woolcombe Farm, Toller Porcorum, Dorset. [online] Edina Digimap. Edinburgh University. Available from:
www.edina.ac.uk/digimap. Accessed July 2016.
- Phillips, A.D.M. 1969. 'Underdraining and the English Claylands, 1850-80: a Review', *Agricultural History Review*. 17, 44-55.
- Poulsen, J. 1984. 'Excavations on a Medieval Settlement at Woolcombe Farm, Toller Porcorum 1966-1969'. *Proceedings of the Dorset Natural History and Archaeological Society* 105, 75-81.
- RCHM(E), 1952. *County of Dorset, West i*. London, Her Majesty's Stationery Office.
- Robinson, M. 1986. The extent of farm under-drainage in England and Wales, prior to 1939. *Agricultural History Review* 34 (1), 79-85.
- Smith, N. 2013 *Introductions to Heritage Assets: Water Meadows*. London. English Heritage / Historic England.
- Sturgess, R.W. 1966. The Agricultural Revolution on the English Clays. *Agricultural History Review* 14, 104-21.
- Wilson, D. 1985. *Moated Sites*. Aylesbury, Shire.

Lines of enquiry: Linear organisation of the High Lea Farm Bronze Age barrow cemetery

GERALD A. BENNETT & JOHN GALE

Abstract

Previous published fieldwork at High Lea Farm, Hinton Martell, Dorset, found an unusual spatial arrangement of a Bronze Age cemetery in which seventeen ring ditches lay in three lines, converging on a large, elaborated barrow, which lay on the near horizon, as seen upwards from the others. This arrangement was investigated since it may indicate an astronomical alignment to the Winter Solstice sunset, a possibility that has rarely been considered in British Bronze Age barrow cemeteries.

Two possible explanations were explored. First, a suggestion that the large barrow 'pointed' towards a prominent hill, because that hill was an especially significant place to the constructors of the cemetery, was tested by collecting data about the locations of monuments and find spots in the 400km² around the cemetery, and then examining these in a GIS to see whether they clustered by the hill. The second explanation, that the arrangement was aligned to the Winter Solstice sunset, was tested using computation and a theodolite horizon survey.

Support was found for both explanations, leading to consideration of the potential for astronomical factors to contribute to understanding the organisation of such cemeteries and, more generally to landscape archaeology.

Introduction

The purpose of this study is to explore the meaning of an enigmatic arrangement of round barrows discovered by the intensive investigation of a barrow cemetery. It is concerned with the remains of a barrow cemetery in a field at High Lea Farm, situated on the eastern side of the valley of the River Allen between Hinton Martell and Witchampton. The remnants of a round barrow in the field (known as 'Kings Close') had long been recognised (e.g. Grinsell 1959, 115) and afforded scheduled protection. Crop marks visible in aerial photographs had suggested the presence of ring ditches indicating at least 9 more round barrows (Grinsell 1982 42). Gale and colleagues surveyed Kings Close using multiple geophysical methods, and found, in addition to the scheduled barrow, the presence of sixteen ring ditches, implying the presence of the remains of round barrows (Fig. 1) (Gale et al. 2004, Gale, Laver, and Russell 2007, and Gale, Hewitt, and Russell 2008). Excavations of two barrows (HLF4 and HLF3, using the nomenclature of Gale et al. 2007) found that their remnants had been almost destroyed by ploughing. Only the two largest barrows, HLF1 and HLF9, had escaped such very severe damage, presumably because of their size and bulk, with diameters of 39m, double that of the 19 m median of the others. HLF1 and HLF9 were also both positioned at opposing headlands of the field, where they would

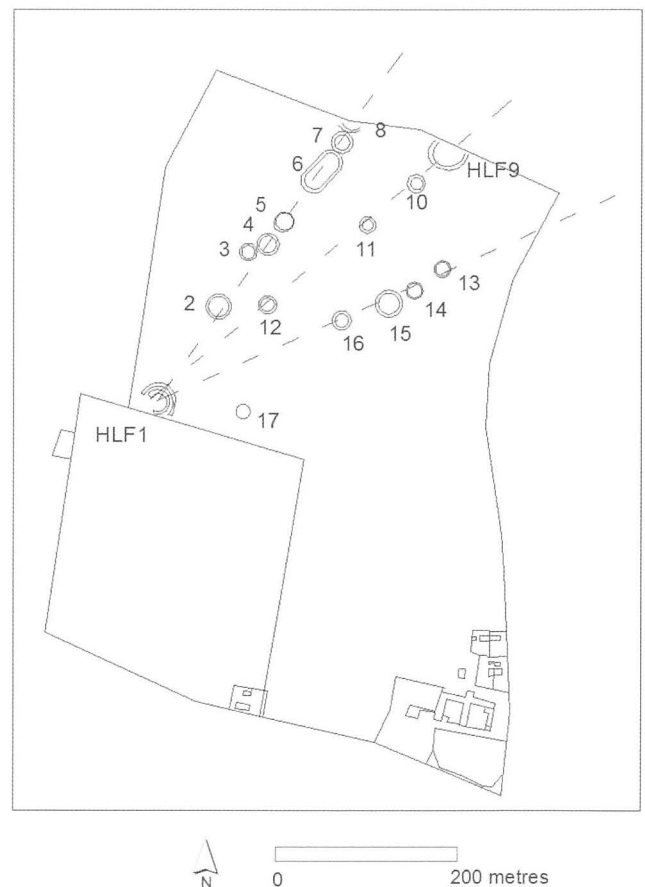
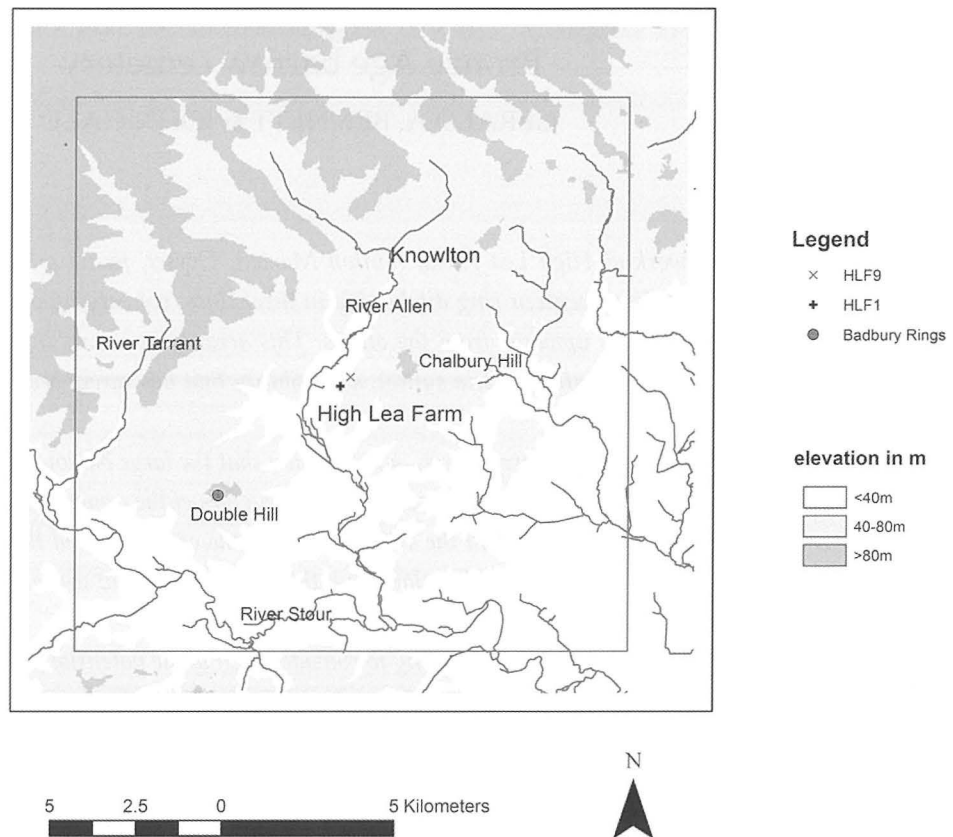


Figure 1: The ring ditches identified at High Lea farm from geophysical survey, together with dashed lines indicating suggested linear arrangements. This figure is a redrawn and amended version of Figure 6 from Gale, Laver, and Russell 2007, 102, the amendment being the addition of lines. Original is copyright of the Dorset Natural History and Archaeological Society

Figure 2: The locations of the two High Lea Farm barrows of particular interest, and other places discussed in this article, including the double hill, on which Badbury Rings and High Wood stand today, Chalbury Hill, the most visually dominant hill as seen from High Lea, and Knowlton, the centre of a large complex of Neolithic and Bronze Age monuments. The inner box contains the study in which the locations of monuments and find spots were examined for evidence of clustering. The map was (along with Figures 4 and 5) created using Terrain50 data from the Ordnance Survey. Contains OS data © Crown copyright and database rights 2016



be likely to receive less damage from ploughing. A comprehensive excavation of HLF9 discovered the remains of a turf mound, some 1 m in height, capped by a layer of chalk debris likely to be about at least 0.6m thick. Beneath the centre of this mound was a burial pit, approximately rectangular in shape, containing two cremations. The primary burial was radio carbon dated to 1948 – 1747 cal. BC (95% confidence) 3524 +/- 38 BP UBA 18003. The whole burial mound was enclosed by a circular ditch.

The spatial arrangement of the barrows formed three approximately straight lines, converging on HLF1 (Fig. 1). The northern line from HLF8 consisted of eight barrows, the central line from HLF9 consisted of four barrows, and the southern one from HLF13 consisted of four. Barrow HLF17 seems to be an outlier. HLF1 stood on a higher part of the field which acts as a near horizon to that below, and would have visually dominated the view from the other barrows in that direction. It was also the most elaborate barrow, encircled by a double ditch. The far horizon behind HLF1 was dominated by a double hill, 4.7 km away, the lower part of which is now covered by High Wood and the higher part is now surmounted by Badbury Rings, a multivallate Iron Age hillfort (Fig. 2).

Understanding the arrangement of the barrows in visual terms

It is proposed that the spatial organisation of the cemetery highlights the view between the two larger barrows, upwards from the lower one (HLF9) to the higher, more elaborate one (HLF1) and the double hill beyond.

The first reason for proposing this is the visual prominence of HLF1 over the others, standing proud on the near horizon above them, against the far background of the double hill. Conversely, from HLF1 the other barrows would have fallen visually well below the NE horizon, 3km distant, and would not have stood out in the same way. This is apparent from observation today from the sites of these barrows. From the visual prominence of HLF1 is inferred the primacy of the view from the other barrows up towards it.

The pattern can also be expressed quantitatively by computing the altitude from one location to a second, this being the angle, relative to the horizontal plane, of the line of sight of the second location from the first. The altitudes of the top of HLF1 as seen by a person at ground level at the three terminal barrows, were, from HLF8 0.5°, from HLF9 0.4°, and from HLF13 0.1°.

These calculations assumed that the top of mound of HLF was 1.6 m above ground level, like that of HLF9. Conversely an observer standing at ground level at HLF1, looking down to the tops of the mounds of these barrows below it, saw them with negative altitudes (HLF8 -0.5° , HLF9 -0.3° , HLF13 -0.2°). From HLF1 the horizon behind each of these barrows was much higher than the top of the barrow (with altitudes of 0.3° for that behind HLF8, 0.7° for that behind HLF9, and 1.5° for that behind HLF13). The altitude of the horizon was higher than that of the barrow in each case (HLF8 0.8° higher, HLF9 1° higher, HLF13 1.7° higher). These calculations assumed that the tops of the smaller mounds HLF8 and HLF13 was 1m above ground level, and that for HLF9 was 1.6m. The above calculations and those following were carried out on Ordnance Survey map data using the *GETDEC* programme (Version 4.00, Ruggles 2002). The altitude of the horizon in each point was computed using the *Horizon* programme (Smith 2014).

Secondly, looking downwards from HLF1 the three lines of barrows would have splayed out in different directions: looking upwards from the terminal barrows the lines converge in one place, directing vision towards it. This direction of vision is most evident from the other large barrow, HLF9, from which the other two lines of barrows defined an area pointing upwards from each side, to HLF1, and it is argued here that this implies that the view up from HLF9 to HLF1 is the most important in the cemetery.

A further reason is that observers at the sites of each of the three terminal barrows would have seen HLF1 against different backgrounds: only one, at HLF9, would have seen HLF1 framed against the double hill. An observer at HLF8 would have been seen HLF1 to the south of the hill, while one at HLF13 would have seen it to the north of the hill. The azimuths (horizontal compass bearings) of the centre of HLF1 and the northern and southern edge of the double hill visible from the sites of each of the terminal barrows are; for HLF8 216.4° (221.8° to 228.2°); for HLF9 228.5° (222.8° to 229.6°); and for HLF13 244.4° (223.9° to 230.6°). The fact that only the view from HLF9 foregrounds HLF1 against the double hill is inferred as supporting that this is the primary visual axis of the cemetery.

It is suggested that HLF1 and HLF9 are the most

important barrows because they are the largest. This interpretation draws on findings that larger, more conspicuous, barrows in Dorset tend to be constructed in higher places (Peters 1999). Round barrows were often constructed in visually strategic locations, from which they could be seen from afar. This is taken to show that these are the two major barrows in the cemetery and that their visual relationship is of major importance.

In addition, a key aspect of the architecture of HLF9 is oriented towards HLF1 and the double hill. The longer axis of the burial pit below it is oriented in a very similar direction to that of the central line of barrows, pointing towards HLF1. Examination of the measured plan made during excavation showed this to be $222^\circ / 42^\circ$, and this was confirmed by theodolite measurement of contemporary marking of the outline of the surface of the pit (Figure 3). This orientation is towards the southern end of the double hill, about 6° south of HLF1, as seen from HLF9. Excavation of the two other barrows found no burial pits, and so offers no evidence relevant to direction. This inbuilt orientation is taken as further evidence of the primary importance of the view from HLF9 to HLF1.

Taken together these five reasons are taken as the basis for arguing that barrows HLF1 and HLF9 are the most important, and the view up from the latter to the former and the hill behind is the primary visual axis of the cemetery.

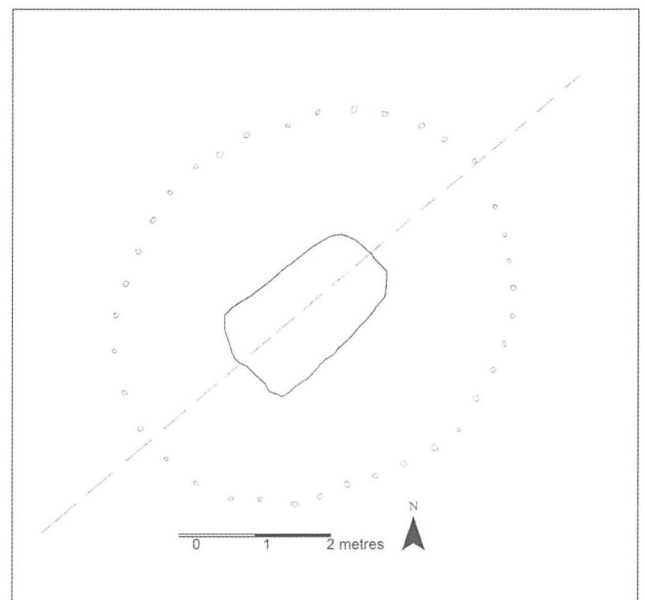


Figure 3: The azimuth of the longer axis of the burial pit beneath the centre of HLF9 (represented by the dashed line) is 222° or 48° . The pit is shown here surrounded by the remains of post holes

Suggested explanations for the arrangement of the barrow cemetery

This argument, that the barrows were organised to highlight the view from HLF9 to HLF1 and the double hill behind it, provokes two mutually compatible explanations of the arrangement. First, did it demonstrate that the double hill was salient to the constructors of the barrow cemetery? Secondly was it related to the fact that the Winter Solstice sunset at that time occurred against the hill? These suggestions are now explored.

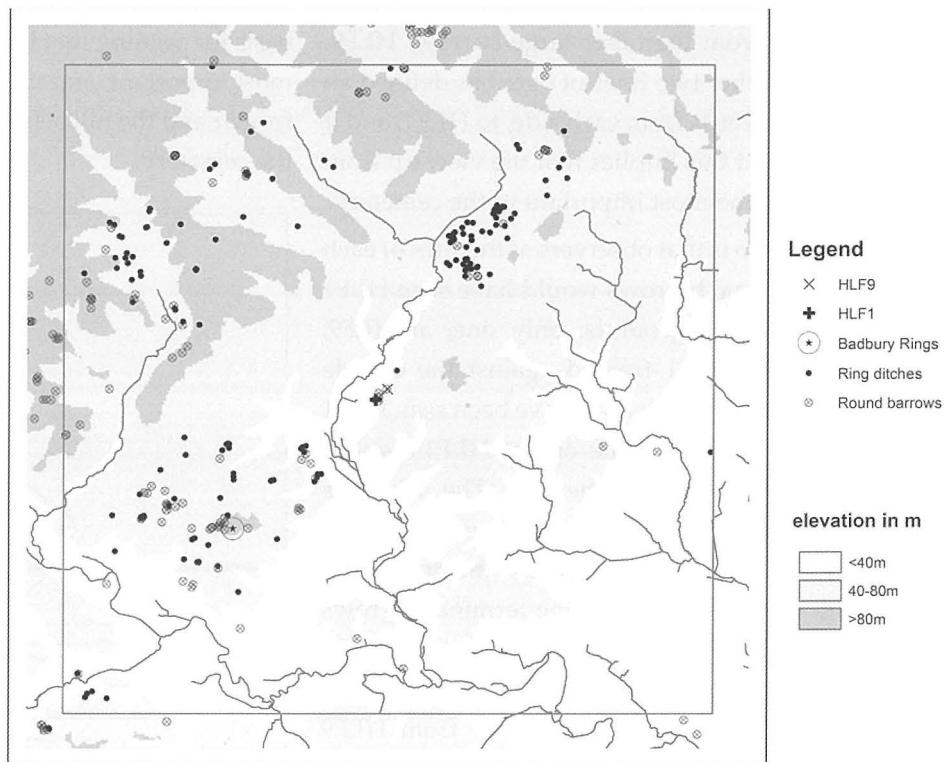
Was the double hill a significant place during or prior to the Bronze Age?

It is possible that the alignment indicated that the double hill was a particularly significant place for the constructors of the barrow cemetery. If this were so, it might be expected to be apparent in either a clustering of activity there, signified through the presence of monuments, or finds of objects, or, more ambiguously, in a completely sterile area surrounded by indications of activity. This idea was tested by creating and analysing a dataset of locations of monuments and find spots dating from periods up to and including the Bronze Age. The search area was a square 8 km in

each cardinal direction from HLF9, 256km² in area. An additional zone of 2 km around the study area (144 km² in area) was added to reduce the possibility of failing to notice clusters that straddle the boundary of this area, so-called 'edge effects' (Conolly and Lake 2006, 91). The systematic search process accessed data from the National Record of the Historic Environment (NRHE) through the *Pastscape* website (Historic England 2016). The locations of monuments and find spots were plotted on a Geographical Information System (ArcGIS 10.0) and the distributions were examined visually for each prehistoric period separately, to assess whether there was any clustering around the double hill.

No such clustering was apparent in the 34 lithics from the Palaeolithic or the 44 from the Mesolithic, nor in the 12 long barrows, 6 pits, 6 henges, and 27 lithic find spots of the Neolithic. In contrast, there was a distinct cluster of the 169 Bronze Age round barrows and 174 ring ditches, particularly on the west of Badbury. There were also clear clusters on the east side of the Allen valley around Knowlton, and on higher ground to the north and west of the headwaters of the River Tarrant (Fig. 4). The hill was also surrounded by a particularly rich cluster of Bronze Age find spots and

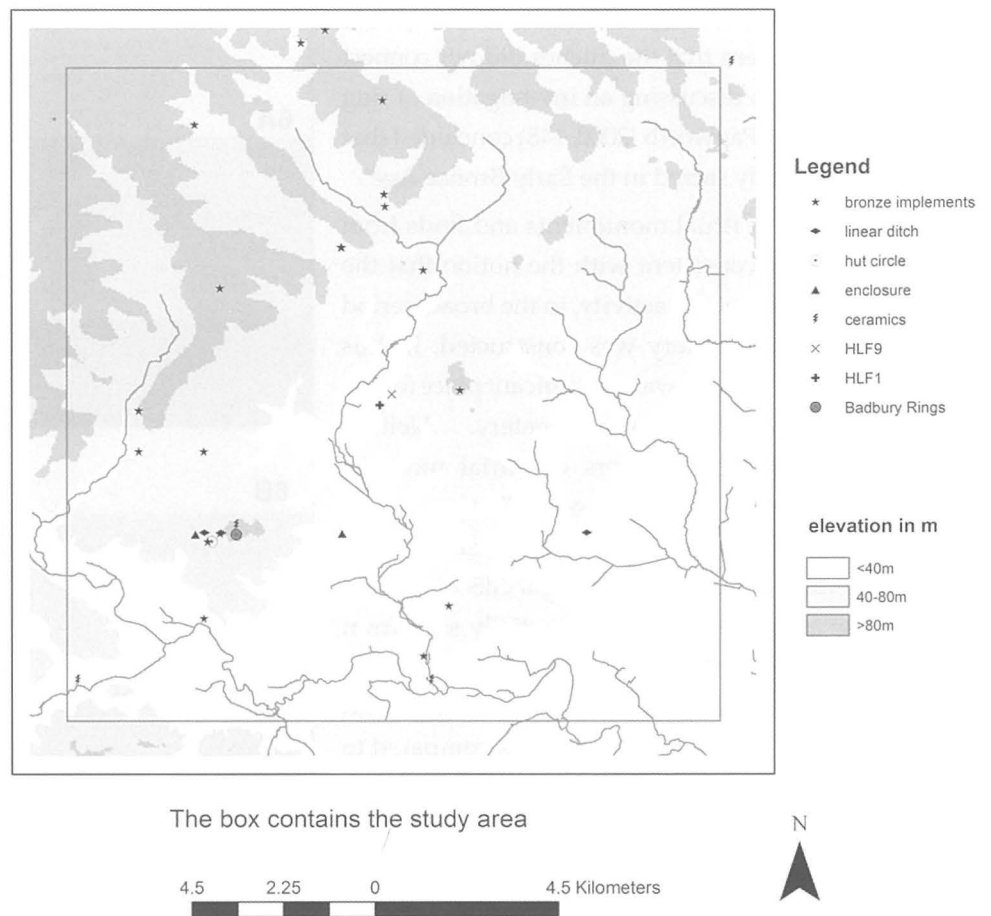
Figure 4: The locations of barrows and ring ditches in the study area are illustrated, as well as those in an exterior buffer zone (to guard against misleading edge effects). The three main clusters can be seen at Knowlton, around the double hill, and on higher ground to the West and North of the head waters of the River Tarrant. This data (and data in Figure 5) is taken from the National Record of the Historic Environment maintained by Historic England



The box encloses the study area.



Figure 5: The locations of find spots of Bronze Age metal implements and ceramics are depicted, together with the locations of structures dated to the Bronze Age, including linear ditches, a hut circle, and an enclosure. This illustrates a notable cluster of variety of Bronze Age remains to the west of the double hill



other monuments (Fig. 5), richer than those elsewhere in the study area. This included ceramics, a hut circle, an enclosure (Papworth 1992), a Middle Bronze Age rapier (Oliver 1936, 27) and a substantial palisaded linear ditch which probably marked land boundaries (Gingell and Dawson, 1987).

of finds, together with funerary monuments, implies that the area around the double hill was a significant place for both ritual and practical purposes. Unfortunately, these finds offer few direct dates that would allow temporal comparison between them and the construction of the cemetery at High Lea Farm.

A finding of relevance to possible artefacts in the prehistory of the Badbury area is the results of an excavation of a portion of the Bronze Age linear earthwork alluded to above, which was found 550m to the southwest of the ramparts of Badbury Rings (Vacher and Vacher 1965, Gingell and Dawson 1987). This Bronze Age palisaded bank and ditch, probably part of a continuous boundary ditch, was subsequently overlain by an Iron Age bank and ditch, which was itself enlarged prior to the Roman invasion. Beaker pottery was found in adjacent small pits and Iron Age pottery and a Roman ballista bolt

were found in the enlarged Iron Age bank. This shows how Neolithic and Bronze Age constructions and monuments in this significant area were reworked, and possibly destroyed, in subsequent periods, and may be underrepresented in the current palimpsest of remains.

The search employed did not include data from the 'National Trust Historic Buildings, Sites, and Monuments Record Register' (NTHBSMR) which includes details of other finds from the area around the double hill, arising from the active involvement of the National Trust archaeologist responsible for the Kingston Lacy Estate. The reason for eschewing this source was that this might bias the results towards greater reporting, which may reflect greater opportunities for finding artefacts and the vestiges of monuments, rather than an actual greater prevalence. The NTHBSMR recorded a wider range of finds than the NRHE such as a bronze palstave found at Badbury (Papworth and Smith, 1988), an early Bronze Age inhumation (Papworth 1999) and five further stretches of linear ditches typical of the Bronze Age, found close to Badbury. Bowen's (1990) survey of linear ditches around Cranborne Chase described the area around

Badbury as the second largest block in Dorset (p. 12), with a notable pattern that the ditches did not connect with the hillfort. In discussing an investigation of ring ditches at Badbury Papworth (2000, 148) concluded that 'the area was already sacred in the Early Bronze Age'.

The clustering of ritual monuments and finds from the Bronze Age is consistent with the notion that the double hill was a focus for activity, in the broad period when the barrow cemetery was constructed. It thus supports the notion that it was a significant place for the constructors of High Lea barrow cemetery. Neither of the other two large clusters of burial mounds, around Knowlton and in the upper Tarrant valley, was clearly visible from High Lea (as determined by direct observation and by examining a GIS viewshed, showing the area that could be potentially seen from HLF9). Conversely, the most prominent hill visible from High Lea, Chalbury Hill, 1.5 km to the North East, (with an altitude of 1.9° from HLF9, compared to the 0.6° of the double hill) shows only two signs of use during the Bronze Age, in the form of a Late Bronze Age urn containing a cremation and a reported set of bronze chisels. The nearest evidence of a funerary monument to Chalbury Hill is a ring ditch 1.5 km to the west. Within that distance from the centre of Badbury there are 18 ring ditches and 15 round barrows. Thus, the largest and most visually dominant hill, as seen from High Lea, is almost devoid of traces of Bronze Age activity, while the double hill has a high density of such traces. The organisation of the cemetery, pointing towards Badbury, is much more likely to be due to the special significance of Badbury, rather than the physical prominence of the hill.

Does the organisation of the cemetery point towards the Bronze Age Winter Solstice sunset?

Viewed from HLF9, HLF1 stood against the double hill near the point where the Winter Solstice sunset occurred during the Bronze Age, and where it occurs today. Each point on the horizon viewed from a specific location corresponds to a value of astronomical declination. The value of declination can be calculated from knowledge of the latitude of the location of the observer, the azimuth of the point on the horizon as seen by the observer, and the altitude of the point as seen from the position of the observer. Values of declination for celestial events occurring on the horizon are known. That for the last gleam of

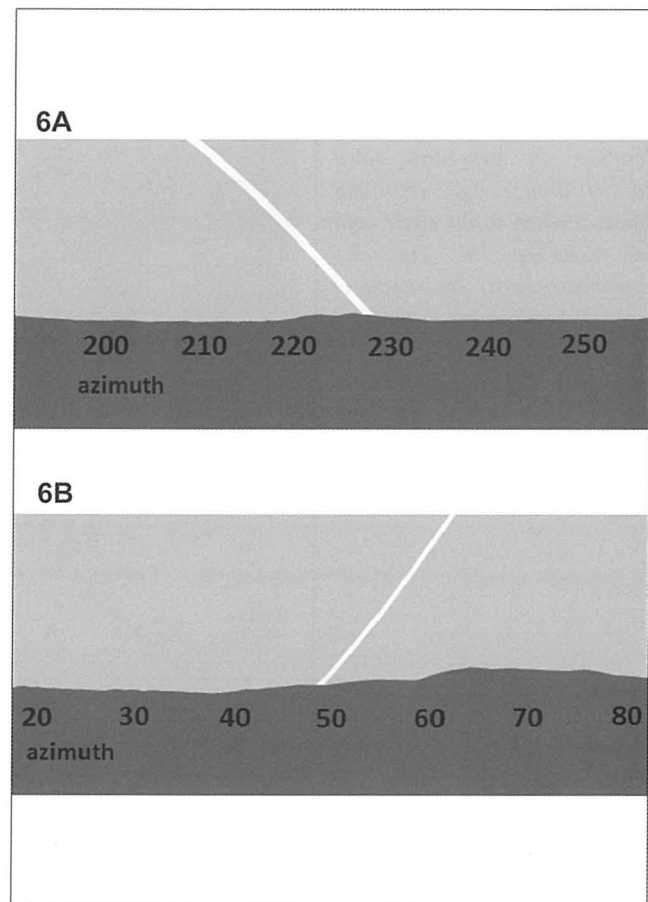


Figure 6: Two dimensional profiles of (6A) the summer solstice sunrise as seen from HLF1 in 2000 BC, at an azimuth of 50.8° and a declination of 23.7° and (6B) the winter solstice sunset as seen from HLF9 in 2000 BC, at an azimuth of 230.4° and astronomical declination of -23.7° . Each image is marked with positions of azimuths at 20° intervals. They were created with the software *Horizon* developed by A.G.K. Smith, © A.G.K. Smith and created with *Terrain 50* data from Ordnance Survey. Contains OS data © Crown copyright and database right 2016

the sun at the 2000BC Winter Solstice sunset is -23.7° : that for the equivalent in 2000AD, -23.2° (Ruggles 1999, p 57). Preliminary calculations were made using Smith's (2014) *Horizon* programme, which produces two-dimensional and three-dimensional models of horizons from digital models of the landscape (in this case based on Ordnance Survey *Terrain 50* data). These computations suggested that the sunsets corresponding to declinations of -23.7° and -23.2° would occur (to an observer at HLF9) at azimuths of 230.4° and 231.5° respectively (Fig. 6). On this basis, at about the date that this barrow cemetery was constructed, a person standing at the base of HLF9 could have seen HLF1 silhouetted centrally against the double hill, near the point where the most southerly sunset of the year crossed the horizon, before it started moving northwards again during the following days

and weeks. The results of computational models are suggestive and benefit from testing through direct observation.

Therefore, an attempt was made to verify the position of the 2015 Winter Solstice sunset by direct observation on the two clear evenings on December 22 and 24 but these were thwarted by low lying cloud.

A subsequent horizon survey of the appropriate part of the horizon as seen from the central barrow surface of HLF9 was carried out using a theodolite, following procedures recommended by Ruggles (1999, pp 164-171) and Prendergast (2015). The results were used to calculate the declination of points on the horizon to establish those associated with the values of -23.7° and -23.2° .

The survey found that the points close to the declinations of interest occurred in a treeless area just by the northern edge of Badbury hill, that ranges from azimuth of 230.2° to 232.42° (depicted in Fig. 7). The positions of sunsets within this area were interpolated in each case by calculating the proportion of declination range from each side of this area, and translating that into the proportion of the azimuth range from each side of the area. This assumes that these two measures are completely correlated, which may not be precisely correct, but, in the case of a smooth slope, is probably sufficiently accurate. The interpolated azimuth for the 2000 BC sunset was 231° and that for the AD 2000 sunset was 232° . These are depicted in Fig. 7. The predicted position of the Winter Solstice sunset in

2000 BC was very close to the northern edge of double hill, whilst that in AD 2000 should now be visible at just to the north of this, above a lower point between the Badbury hill and a small hillock to the north of it (NGR 396536,103667). The predicted position of the Winter Solstice sunset in AD 2000 can be confirmed or disconfirmed by direct observation during a solstice period when visibility allows. From these analyses an observer at the site of HLF9 in 2000 BC would have seen the sunset 4° north of HLF1 rather than above it.

These observations suggest that the line of barrows from HLF9 to HLF1 was aligned on a central point of the double hill about 4° south of point at the edge of the hill where the Winter Solstice sun set at the time when these barrows were constructed. The annual southward movement of the daily sunset stopped and then reversed when it reached the edge of the hill close to where barrows were aligned on it.

Might this directionality indicate the reverse, an alignment from HLF1 towards HLF9 and the 2000 BC Summer Solstice sunrise on a prominent spot, analogous to Badbury, in the North East? The projection of the lines from HLF1 towards and beyond HLF9 (azimuth approximately 48°) and the other two terminal barrows (HLF8, azimuth approximately 36° ; HLF13 azimuth approximately 64° degrees) were examined. These three lines were compared with the point on the horizon where the first gleam of the Summer Solstice sunrise would have been visible from HLF1 in 2000 BC. The astronomical declination of that

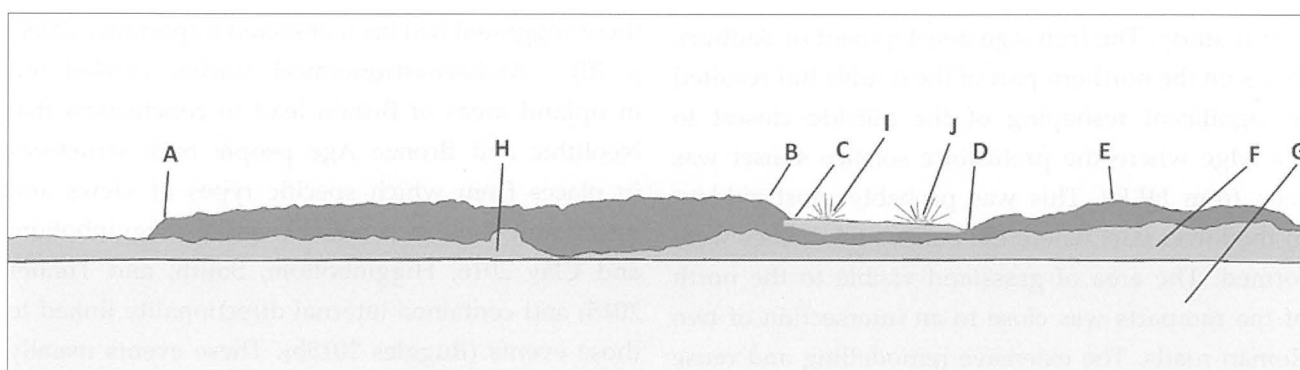


Figure 7: The results of the theodolite horizon survey performed along the southwest horizon visible from the centre of barrow HLF9. The positions marked, together with their azimuth and astronomical declination are: A top of southern point of the tree-covered double hill 223.2° , -27.4° ; B top of the northern point of the tree-covered double hill 230.0° , -24.11° ; C the edge of the base of the northern edge of the tree-covered double hill 230.2° , -24.1° ; D The northern edge of the tree-free open area sloping downward from point C 232.4° , -23.0° ; E The summit of the tree-covered hillock (at NGR 396536,103667) 233.3° , $-22.3.0^\circ$. Feature F depicts the hedge at the western edge of Kings Field, enclosing the barrow cemetery, by the near horizon. Feature G depicts parts of Kings Field. Point H depicts the approximate centre of HLF1 at NGR azimuth 226.9° . Point I marks the location of the last gleam of the midwinter solstice sunset in 2000BC, as calculated from a theodolite horizon survey (azimuth 230.4° , declination -23.7°). Point J depicts the location of the last gleam of the midwinter solstice sunset in 2000AD, calculated from a theodolite horizon survey (azimuth 231.5° , declination -23.2°).

point is 23.7 degrees (Ruggles 1999, p 57) which, using the *Horizon* model, would have corresponded with the point on the horizon with an azimuth of 50.8 degrees. This is not close to any prominent position (Figure 6), nor to any nearby sites which might *a priori* have been posited, such as the Neolithic complex of Knowlton, or Pentridge Hill, which has been observed to play a pivotal visual role for the Dorset cursus (Tilley 1994, chapter 5). This provides no support for the notion that the arrangement of barrows indicates an alignment from HLF1 to the Summer Solstice sunrise. The evidence provides much stronger support for an alignment on the Winter Solstice sunset.

Discussion

These results support the notion that the spatial organisation of barrows 'pointed' towards the double hill, with HLF1 acting as a foresight to viewers at HLF9, fairly close to the southern pivotal point of the sun's annual movement, and in a locale rich in ritual monuments constructed at around the same time as High Lea cemetery. The evidence that the double hill was a place of major significance to Bronze Age people strongly supports the view that at the time some of them built the High Lea cemetery they orientated it towards this place that they probably regarded as sacred. On that basis, the time consuming, effortful, and intentional construction of the cemetery is unlikely to be random.

The modern landscape has changed since the Bronze Age and some of these changes are relevant to this study. The Iron Age development of Badbury Rings on the northern part of the double hill resulted in significant reshaping of the hillside closest to the edge where the prehistoric solstice sunset was seen from HLF9. This was probably most evident in the lower part where the banks and ditches were formed. The area of grassland visible to the north of the ramparts was close to an intersection of two Roman roads. The extensive remodelling and reuse of the area around the hill may have destroyed evidence of earlier use of the site. The Vachers' (1965) discovery, described above, that a Bronze Age ditch and bank south west of Badbury Rings was enlarged and extended twice during the Iron Age emphasises this possibility. Excavation of other major Dorset hill forts such as Maiden Castle (Sharples 1991),

and Hengistbury Head (Barton 1992, Cunliffe 1987) has revealed traces of use extending back to the Neolithic, and to the Mesolithic, and Palaeolithic in the case of Hengistbury Head. A Mesolithic tranchet axe was found at the hillfort closest to Badbury, Buzbury Rings (Palmer 1970, 173). This pattern of long term use and reuse of sites on which hillforts were built might also apply to Badbury. The double hill has not been extensively excavated, and the evidence available for activity prior to the Iron Age might underrepresent this. The clustering of a variety of finds, together with the barrows and ring ditches, implies that the double hill was a significant area for both ritual and settlement during the Bronze Age, with the possibility that it had been a significant place in the landscape before then.

The fact that there may have been significant reshaping of some aspects of the landscape emphasises the difference between this study and most archaeoastronomical studies in the British Isles, which, with notable exceptions, have been carried out in mountainous regions in Scotland and Ireland in which the details of the horizon have not changed significantly over millennia. One exception, near High Lea Farm, is the recognised midwinter solstice sunset alignment seen from the northern end of the southern component of the Dorset Cursus, at Bottle Brush Down (Green 2000, p 61). From this point the sun can be seen setting into a long barrow in the centre of the cursus on Gussage Cow Down, a location which Woodward's review of the prehistoric activity there suggested had been of sacred importance (2000, p 70). Archaeoastronomical studies carried out in upland areas of Britain lead to conclusions that Neolithic and Bronze Age people built structures in places from which specific types of views and astronomical events would be visible (Higginbottom and Clay 2016, Higginbottom, Smith, and Tonner 2015) and contained internal directionality linked to those events (Ruggles 2015b). These events usually involved predictable lunar and solar movements across the horizon, and structures pointed towards them with a fair but not precise degree of accuracy (e.g. Ruggles 1999 p.74). These conclusions are all relevant to the current study. In this case the solstice sunset was visible against a far horizon, and this limit to the movement over the year was marked by

the clear edge of a hill. The structure of the barrow cemetery had a large-scale pattern emphasising the south-westerly view from one extensive barrow to another, approximately reflected in the orientation of the burial pit in HLF9. The barrow HLF1 could be considered as functioning as a manmade foresight for observation from HLF9.

The vestiges of the severely damaged smaller barrows that were excavated could give no indication of alignment in any direction. It is possible that evidence confirming or disconfirming the hypothesis put forward here has survived in the form of the direction of a burial pit in the remains of HLF1. If such existed it might be readable by the means of non-destructive geophysical survey involving the most sensitive caesium gradiometry, which was utilised on HLF9. The evidence considered here supports the notion that an astronomical factor was involved in the organisation of the cemetery. The alignment was close rather than exact, which is not unusual in alignments from prehistoric Britain. Respecting the Winter Solstice sunset, albeit inexactly, is compatible with the notion of respecting the importance of the double hill, and doing both together may have enhanced the meaning of the cemetery.

Within archaeoastronomy Ruggles (1999, p156) has argued that one example of a credible orientation may be a chance occurrence, and therefore the case that it is an intentional alignment could be assessed more robustly by testing for its occurrence in many similar sites. Hence the strong argument for programmes of testing sets of similar monuments, such as has been carried out into recumbent stone circles (Ruggles 1984, Ruggles and Burl 1985). This is a strong argument, but not without limitations such as its inapplicability to unique sites, such as Stonehenge, and the fact that sets of similar sites in different landscape settings often gives a range of results. This lack of strict uniformity in direction has provided creative tension, leading to revisiting assumptions about how monuments were used. Examples of this include questioning about where the users of recumbent circles might have stood (Henty 2015), or whether monuments defined a view across which celestial events would move, rather than indicating a single alignment (Silva 2015). There has been little examination of astronomical

factors in the arrangement and location of British barrow cemeteries; indeed, influential reviews of barrows (e.g. Woodward 2000, Last 2007) do not include this topic. Studying barrow cemeteries, like that at High Lea, would provide a context for the current study, and might prove productive. The vestiges of High Lea cemetery were only uncovered through extensive fieldwork. If similar types of patterns existed elsewhere they might require a similar amount of effort to identify them, and therefore the failure at present to identify similar arrangements may not imply that the current case is unique. It may also reflect archaeologists' lack of knowledge of, or interest in, astronomical factors, which could be understandable in the light of lack of training in the appropriate techniques, as well as notorious controversies in archaeoastronomy, and its association with New Age enthusiasms.

Regarding this perspective as a possibly fruitful one, which could be easily applied, could result in greater insights into the rationale of prehistoric structures. A contemporary example comes from the development, by a team of leading research archaeologists, of a theory about the location of Stonehenge based on an astronomical alignment of parallel periglacial and other landform features (Allen et al 2016). Given the everyday familiarity of preindustrial societies with the celestial phenomena and their movements, the extensive evidence from all inhabited continents that people have built structures to indicate or use these phenomena (Ruggles 2015a, *passim*) is not surprising. With the current ready availability of practical tools, such as the *Horizon* programme, archaeologists might find that considering astronomical factors to be easier and more productive than it was in the past.

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REFERENCES

- Allen, M.J., Chan, B., Cleal, R., French, C., Marshall, P., Pollard, J., Pullen, R., Richards, C., Ruggles, C., Robinson, D., Rylatt, J., Thomas, J., Welham, K. and Parker Pearson, M. 2016. 'Stonehenge's Avenue and "Bluestonehenge"', *Antiquity* **90**, 991–1008.
- Barton, R.N.E. 1992. *Hengistbury Head, Dorset. Volume 2: The Late Palaeolithic and Early Mesolithic Sites*, Oxford University Committee for Archaeology, Oxford.
- Bowen, H.C. 1990. *Archaeology of Bokerley Dyke*, HMSO, London.
- Conolly, J., and Lake, M. 2006. *Geographical Information Systems in archaeology*, Cambridge University Press, Cambridge.
- Cunliffe, B. 1987. *Hengistbury Head, Dorset. Vol.1, The prehistoric and Roman settlement, 3500BC-AD 500*, Oxford University Committee for Archaeology, Oxford.
- Gale, J., Cheetham, P., Laver, J., and Randall, C. 2004. 'Excavations at High Lea Farm, Hinton Martell, Dorset: an interim report on fieldwork undertaken during 2002-3', *Proceedings of the Dorset Natural History and Archaeological Society* **126**, 160–166.
- Gale, J., Hewitt, I. and Russell, M. 2008. 'Excavations at High Lea Farm, Hinton Martell, Dorset: A third interim report on fieldwork undertaken during 2006-7', *PDNHAS* **129**, 105–114.
- Gale, J., Laver, J. and Russell, M. 2007. 'Excavations at High Lea Farm, Hinton Martell, Dorset: an interim report on fieldwork undertaken during 2004-5', *PDNHAS* **128**, 100–106.
- Gingell, C.J., and Dawson, R.J. 1987. 'An Earthwork near Badbury Rings in Dorset', *PDNHAS* **109**, 65-78.
- Green, M. 2000 *A Landscape Revealed: 10,000 years on a chalkland farm*, Tempus, Stroud.
- Grinsell, L. V. 1959. *Dorset Barrows*, Dorset Natural History and Archaeological Society, Dorchester.
- . 1982. *Dorset Barrows: Supplement*, Dorset Natural History and Archaeological Society, Dorchester.
- Henty, L. 2015. 'An examination of the divide between archaeoastronomy and archaeology' in Silva, F., and Campion, N. (eds.) 2015. *Skyscapes: The Role and Importance of the Sky in Archaeology*. Oxbow Books, Oxford.
- Higginbottom, G., Smith, A.G.K., Tonner, P. 2015. 'A re-creation of visual engagement and the revelation of world views in Bronze Age Scotland', *Journal of Archaeological Method and Theory* **22**, 584-645.
- Higginbottom, G., and Clay, R. 2016. 'Origins of standing stone astronomy in Britain: New quantitative techniques for the study of archaeoastronomy', *Journal of Archaeological Science: Reports* **9**, 249–58.
- Historic England, 2016. *Pastscape - information on England's archaeology and architecture*. Historic England, London. Available from <https://pastscape.org.uk/> [Accessed 4 July 2016].
- Last, J. (ed.) 2007. *Beyond the grave: new perspectives on barrows*. Oxbow Books, Oxford.
- Oliver, V.L. 1936. 'Bronze Age rapiers and swords from Dorset', *PDNHAS* **58**, 26-29.
- Palmer, S. 1970. 'Some Mesolithic sites in North Dorset', *PDNHAS*, **91**, 173-74.
- Papworth, M. 1992. 'Excavation and survey of Bronze Age sites in the Badbury area', *PDNHAS* **114**, 48-76.
- . 1999 'Kingston Lacy, High Wood inhumation', *Proceedings of the Dorset Natural History and Archaeological Society* **121**, 155-58.
- . 2000. 'Evaluation excavation, Badbury Romano-Celtic temple. Interim report', *PDNHAS* **122**, 148-150.
- . 2011. *The Search for the Durotriges : Dorset and the West Country in the Late Iron Age*, The History Press, Stroud.
- Papworth, M., and Smith, D. 1988. 'A palstave from Shapwick', *PDNHAS* **109**, 123.
- Peters, F. 1999. 'Farmers and their ancestral tombs: A study of the inconspicuous barrows of central Dorset and their relationship with the secular landscape', *PDNHAS* **121**, 37-48.
- Prendergast, F. 2015. 'Techniques of field survey', in Ruggles, C. L. N. (ed.) 2015. *Handbook of Archaeoastronomy and Ethnoastronomy*, Springer, New York.
- Ruggles, C.L.N. 1984. 'A new study of the Aberdeenshire Recumbent Stone Circles, 1: Site data.' *Archaeoastronomy* **6**, S105-132.
- . C.L.N. 1999. *Astronomy in prehistoric Britain and Ireland*. Yale University Press, New Haven.
- . 2002. *GETDEC Version 4.00*. Downloaded from Clive Ruggles Homepage [online] Leicester, Leicester University. Available from: <http://www.cliveruggles.net/> [Accessed 10 January 2008].
- . (ed.) 2015a. *Handbook of Archaeoastronomy and Ethnoastronomy*, Springer, New York.
- . 2015b. 'Analysing orientations' In Ruggles, C. L. N. (ed.) 2015 *Handbook of Archaeoastronomy and Ethnoastronomy*, Springer, New York.
- Ruggles, C.L.N., and Burl, A. 1985. 'A new study of the Aberdeenshire Recumbent Stone Circles, 2: Interpretation.' *Archaeoastronomy* **8**, S25-60.
- Sharples, N. 1991. *Maiden Castle: Excavation and Field Survey 1985-86*, English Heritage, London.
- Silva, F. 2015. 'The view from within: a 'time-space-action' approach to megalithism in central Portugal' In Silva, F., and Campion, N. (eds.) 2015. *Skyscapes: The Role and Importance of the Sky in Archaeology*. Oxbow Books, Oxford.
- Smith, A. G. K. 2014. 'Horizon (Version 0.13)', Available from: <http://www.agksmith.net/horizon/>, [accessed 12 June 2015].
- Tilley, C. 1994. *A phenomenology of landscape: paths, places and monuments*. Berg, Oxford.
- Vacher, F.de M., and Vacher, H.L. 1965. 'Excavation of an earthwork near Badbury Rings, Dorset' *PDNHAS* **11**, 101-2.
- Woodward, A. 2000. *British barrows: A matter of life and death*. Stroud: Tempus.

Survey and excavation of a long barrow with secondary burial on Race Down, Tarrant Launceston, Dorset

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Abstract

In March 2003, it was noted that rabbit burrowing had uncovered possible human remains close to the centre of Race Down long barrow. In order to determine whether the bones were human and/or of forensic interest, the School of Conservation Sciences (now the Department of Archaeology, Anthropology & Forensic Science), Bournemouth University, carried out a limited investigation on behalf of Dorset Police and the landowner, Defence Estates. The spoil heap of the rabbit burrow was excavated and this process revealed other displaced human bones, including long bones. A human osteologist examined the recovered bones and determined that the disturbed remains were human and ancient. Consequently, Dorset Police concluded that, although the remains were human, they would not be carrying out a criminal investigation due to the antiquity of the remains.

In March 2004, a small excavation team from Bournemouth University returned to the site to fully recover any *in situ* human remains, together with recording the burial context and stratigraphy. A wider topographic survey of the long barrow was also carried out. This paper reports on the results of this field survey and excavation.

Site Location & Description

Race Down neolithic long barrow (a designated Scheduled Ancient Monument; No. 86/33578) is situated on the eastern side of Race Down (NGR ST 92940884), part of a chalk ridge which runs parallel with the River Tarrant (Fig. 1; Pl. 1). It is the only

long barrow listed by L.V. Grinsell occurring within the parish of Tarrant Launceston (1959, 81), although another long barrow occurs 800 m to the northwest in the neighbouring parish of Tarrant Hinton (Telegraph Clump Long Barrow; NGR: ST 9228 0933). The Royal Commission on Historical Monuments surveyed the

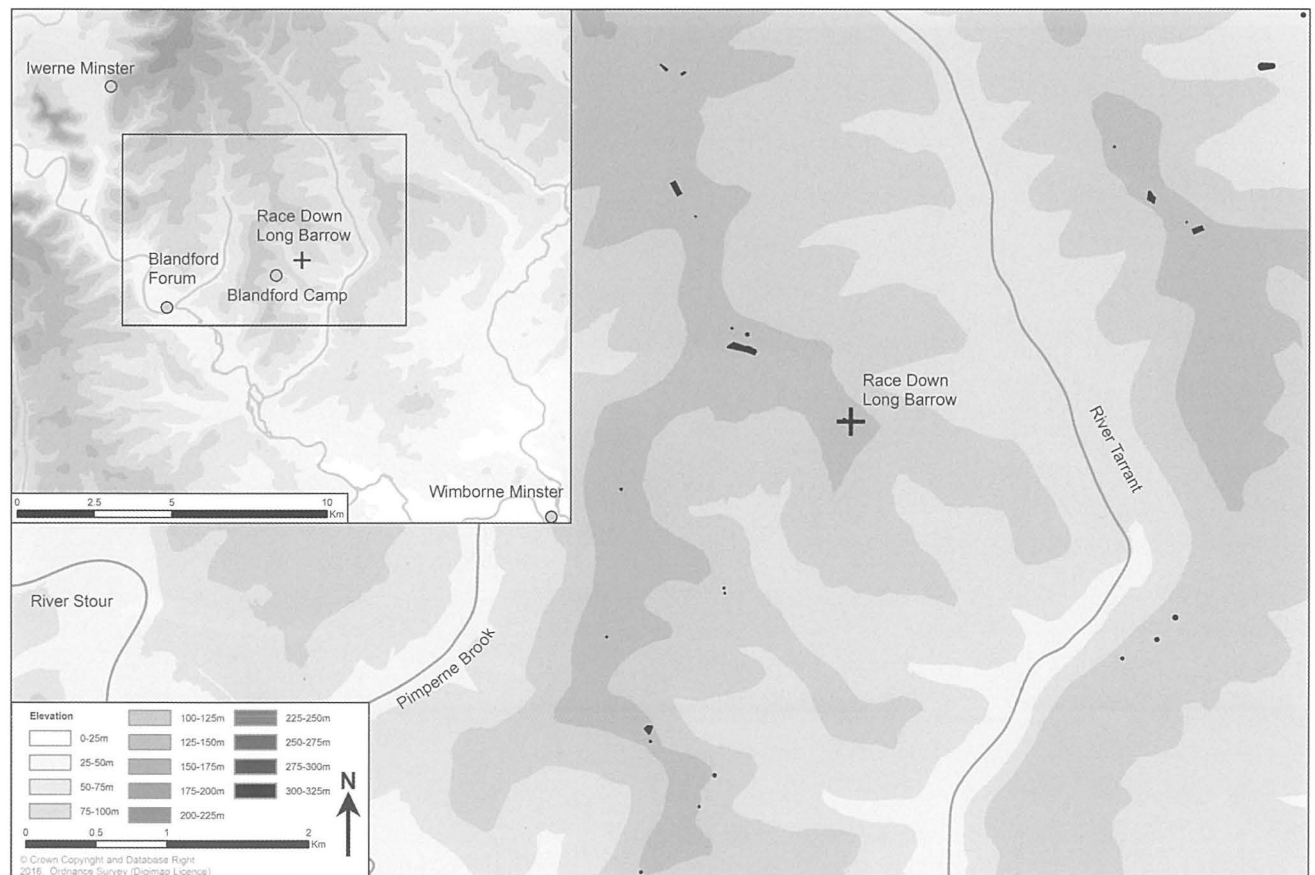


Figure 1: Location of Race Down long barrow, also showing Neolithic and Bronze Age barrows on either side of the Tarrant valley

barrow in the 1970s and recorded it as being 35 m long and 15 m wide (1977, 106). It was possibly opened in 1840 by J.H. Austen, who found an extended

inhumation 0.75 m from the top that was interpreted as an intrusive deposit (i.e. post-dating the construction of the long barrow) (Grinsell 1959, 81).



Plate 1: Race Down long barrow looking west. Note stumps from recent tree felling



Plate 2: Rabbit burrow spoil on top of Race Down long barrow

Cartographic evidence indicates that the place name 'Race Down' is derived from the use of the ridge plateau, where the monument is located, as a racetrack for horses. However, by 1880 the race track appears to have become disused and a rifle range had been established on the southern flank of the ridge (Ordnance Survey, 1888). Dudley Stamp's 1930s Land Utilisation Survey (1935) shows the monument within a coniferous woodland plantation, but by the mid-twentieth century the barracks of Blandford (Army) Camp surrounded it (Ordnance Survey, 1961). The barracks were later demolished (Ordnance Survey, 1976) although remnants of the conifer trees were only removed from the summit of the long barrow at the beginning of the twenty-first century (authors' field observations).

Excavation

The aim of the archaeological investigation was to determine the date, circumstances of deposition, and context of the inhumation that was first observed as having been disturbed by rabbit burrowing at Race Down long barrow in March 2003 (Plates 1 and 2).

A 2 m x 3 m trench was located over the partially exposed bones on the south-western flank of the long barrow (Fig. 2). Approximately 0.08 m of topsoil (context 001) overlay the outer shell of the barrow that comprised a degraded chalk layer (context 002). The chalk layer had a maximum thickness of 0.45 m and was cut by feature 001, interpreted as a

roughly rectangular grave. Orientated east-west, the grave (F001) was 2.0 m long, 0.65 m wide, with a maximum depth of 0.45 m (Fig. 3). The grave (F001) contained one inhumation burial, extended west-east (with the head to the west). The entire left side of the skeleton was missing, having been disturbed by rabbit burrowing (Fig. 4). No other artefacts were recovered although an iron stain considered to be the remains of a knife was noted adjacent to the right femur. The grave cut extended down into a layer

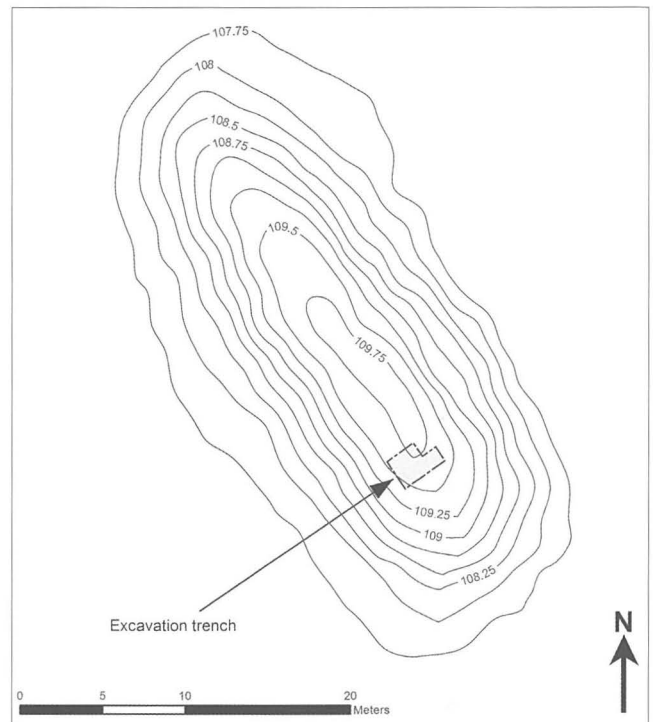


Figure 2: Location of excavation trench

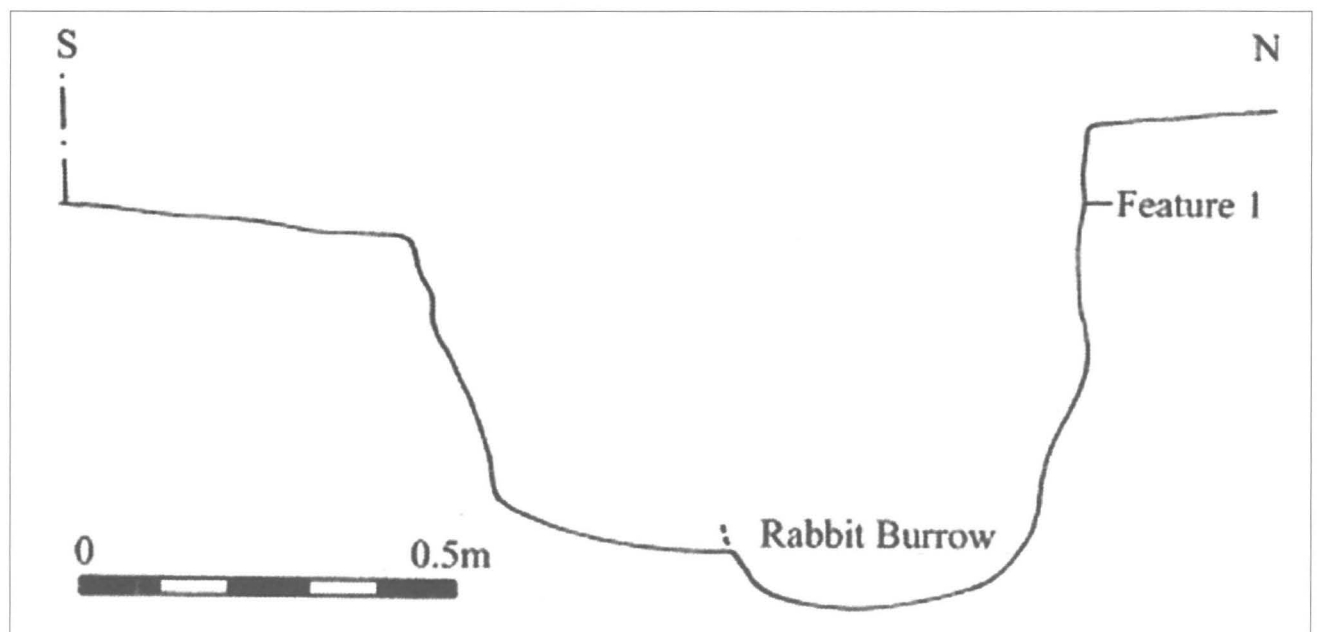


Figure 3. Cross-section of grave cut. Drawn at 1:10 scale

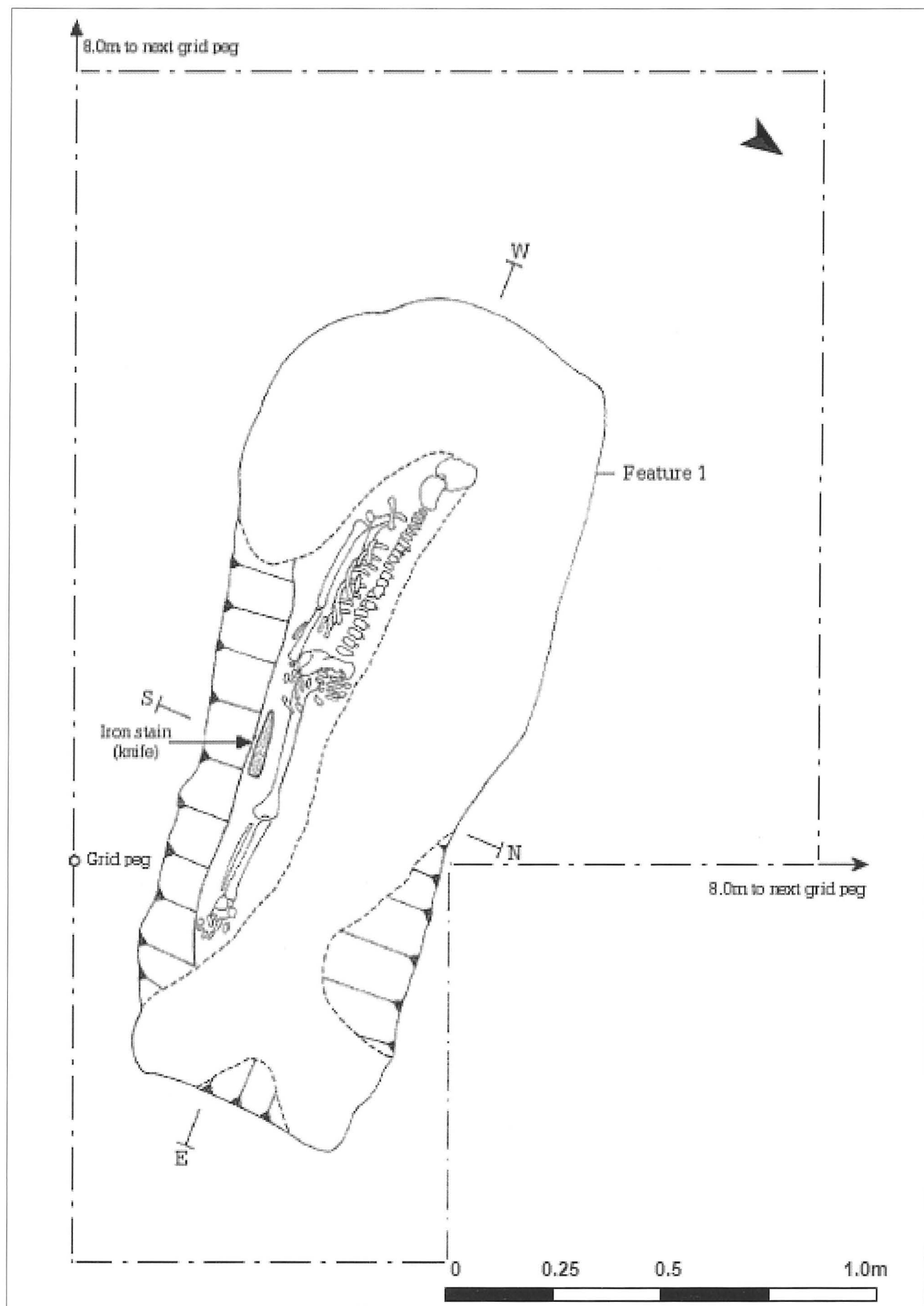


Figure 4: Plan of grave showing skeletal remains and rabbit disturbance

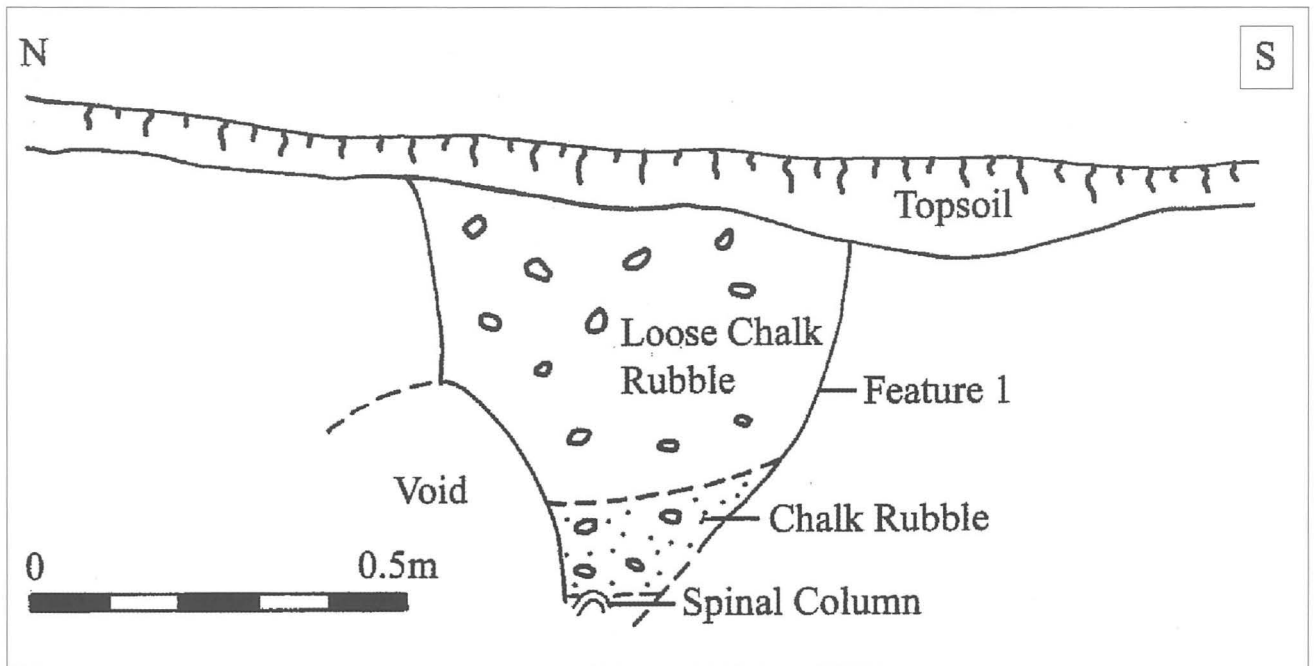


Figure 5: Schematic interpretation of grave fill. Drawn at 1:10 scale

consisting of silty clay loam (context 004) interpreted as barrow matrix which had been highly disturbed by rabbit burrowing (Fig. 5). The skeletal material was recovered and taken to Bournemouth University for further analysis and conservation.

Topographic Survey

The long barrow and its immediate vicinity were surveyed using a Leica SR530 differential Global Positioning System (GPS). Nearly 2000 unique topographic points (each with a three-dimensional accuracy of ± 3 cm) were collected in WGS84 format and were later converted to British National Grid coordinates (OSGB36) using Ordnance Survey RINEX data. The resulting data were gridded and interpolated in *Golden Software Surfer V.8* to produce a 3D surface plot (Fig. 6).

The results of the topographic survey indicate that the barrow was constructed on a north-west / south-east orientation. It is approximately 2 m high, 37 m long and has a maximum width of 17 m, which tapers to a width of 13m at the north-west end (Figs 7, 8 and 9). The shape and size conform to the group of long barrows commonly referred to as trapezoidal (or “wedge” shaped), where the wider end faces roughly east, an alignment that is assumed to have cosmological implications (Field 2006, 69). The profile along the barrow length indicates that the south-eastern end is the higher, a general pattern recognised in other trapezoidal barrows (Ashbee 1984, 19), and possibly emphasising the importance of the

eastern end of the barrow. Along the south-western side of the barrow a shallow ditch could be seen. The ditch did not show on the opposite length, although the ground surface is generally lower here. This is probably the remains of the quarry ditch that was dug at the time of the long barrow’s construction and since then has been gradually backfilled by natural and/or anthropogenic activity. Without further excavation little more can be determined.

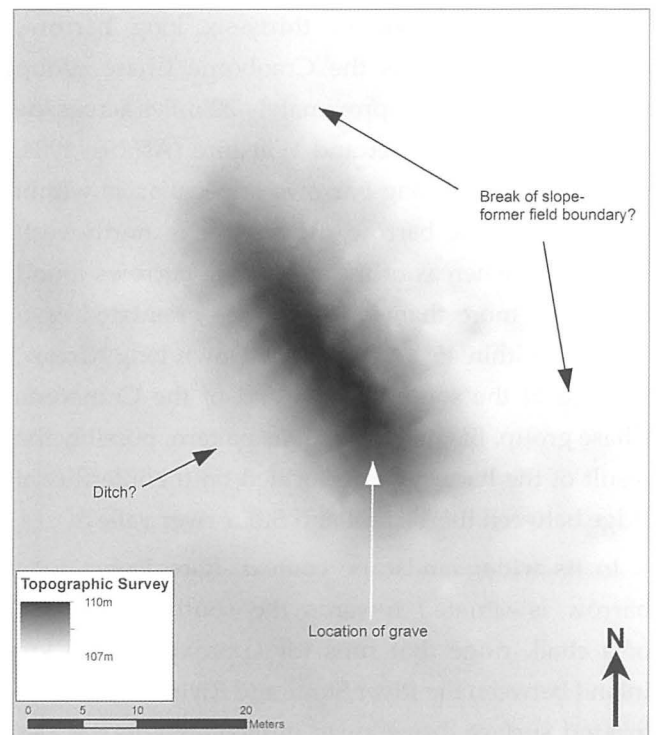


Figure 6: Interpreted topographic surface elevation plot

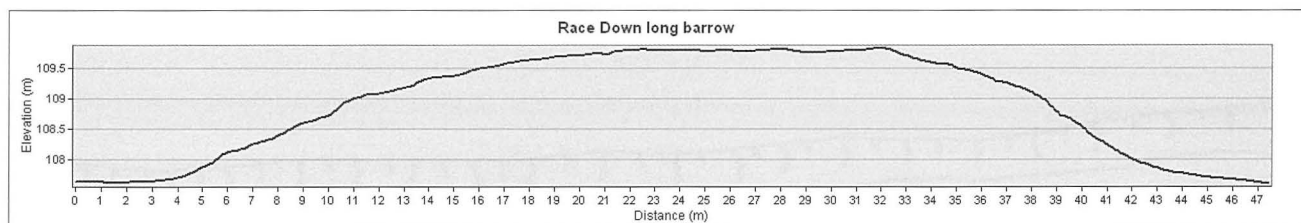


Figure 7: Longitudinal profile of long barrow (NE to SW)

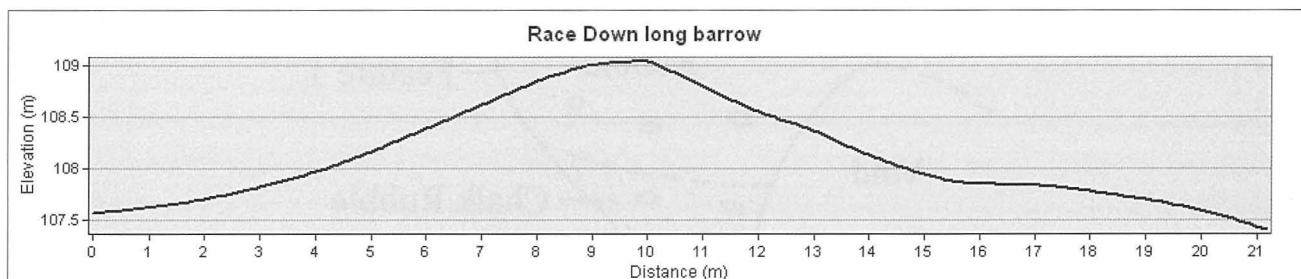


Figure 8: Cross section profile across long barrow (NW end, W to E)

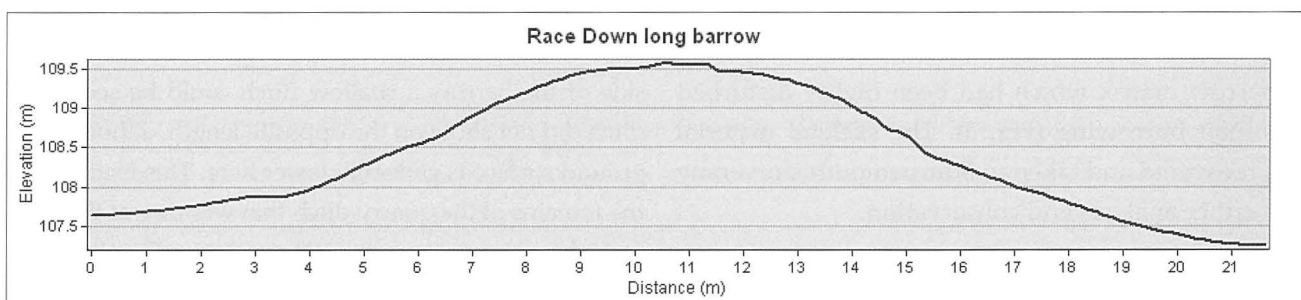


Figure 9: Cross section profile across long barrow (SE end, W to E)

Race Down is one of thirty-six long barrows collectively known as the Cranborne Chase group which stretches for approximately 20 miles across the chalk upland of Dorset and Wiltshire (Ashbee 1984, 9). This group of long barrows is peculiar as within it the dominant barrow orientation is north-west/south-east, whereas of the other long barrows found in Britain, more than four-fifths are orientated east-west (or within 45° of this). Race Down long barrow, situated at the south-western end of the Cranborne Chase group, fits this anomalous pattern, possibly the result of the barrow being located on the interfluvial ridge between the Tarrant and Stour river valleys.

In its wider landscape context, Race Down long barrow is situated towards the south-eastern end of a chalk ridge that runs for approximately 8 km inland between the River Stour and River Tarrant. The ground surface drops away immediately to the east of the long barrow (on about the 108 m contour line)

with the barrow orientated parallel with this break of slope. It is unclear from the survey if this is a localised change in height, but evidence from Ordnance Survey contour data indicates that the barrow is located where there is a general topographic change from the ridge top to the valley side. Gale (2003, 34-35) has noted the vast majority of long barrows are found on, or slightly to one side of, ridges allowing them to dominate the landscape and be seen from long distances away. Woodward (2000, 138-139) has studied the landscape positions of long barrows on the South Dorset Ridgway, and has suggested that varying angles of inter-visibility between different long barrows and other contemporary monuments could have played an important role in the siting and ceremonial use of the monuments. Further analysis of the barrow's relationship with the natural topographic and other contemporary monuments is outside the scope of this paper, but may provide useful insights as part of a future research project.

Skeletal analysis and dating

The skeletal remains were analysed by Dr Patricia Furphy. Approximately 50% of the skeleton was present within the burial context with much of the left side of the remains missing (with the exception of the left hand and the distal radius). The majority of the remains suffered post-mortem damage in the form of breaks and loss of bone around the right knee and foot which appears to be as a result of animal activity.

Skeletal analysis indicated that one individual was represented within the burial, aged between 10-11 years at time of death. Estimating the sex of the individual was not possible as the dimorphism between males and females occurs around the time of puberty and this individual has not yet reached that stage of development.

There was no indication from the bones recovered of the cause or manner of death, and there is no indication of pathology or disease. Trauma was, however, noted on the first metacarpal of the right hand in the form of an ante-mortem fracture. A 2 cm region of new bone growth and callus formation was seen on the midshaft of the metacarpal, consistent with healing (Roberts and Manchester 2001) causing the bone to look slightly swollen on the lateral section when compared with the left metacarpal. The fracture may have occurred as a result of direct force to the specific location of the hand, a fall, or an underlying pathology which weakened the bone making it more susceptible to fractures (Ortner 2003).

A sample of clavicle was submitted for C14 dating by Rafter GNS Science, New Zealand, using an Accelerator Mass Spectrometer. The result, 1511 ±20 BP, (NZA-32571) calibrates to cal AD 440-610 at the 95% confidence limit (2σ), and cal AD 530-610 at the 90% confidence limit. The result was calibrated using the curve of Reimer *et al.* (2004) used in OxCal v4.05 (Bronk Ramsey 1995; 2001). The calibrated date range cited in the text is that for 95% confidence and is rounded outwards to the nearest 10 years following the form recommended by Mook (1986). The ranges given are derived from the probability method (Stuiver & Reimer, 1993). The radiocarbon probability distribution clearly shows the result is more likely to be the second half of the sixth century AD.

Discussion

The radiocarbon date of the skeleton and the possible association with an iron knife indicate that the inhumation was an Anglo-Saxon (early medieval) secondary insertion into the earlier, neolithic, long barrow. There was no evidence that the grave had been opened before and it is therefore unlikely that the inhumation is the one discovered by Austen in 1840 (Grinsell 1959, 81). As such, it appears that the long barrow has at least two intrusive inhumations.

The west / east orientation of the grave and the supine position of the skeleton are typical of Anglo-Saxon burial practice, and knives are near-ubiquitous items in 'Anglo-Saxon' furnished graves of all periods (Lucy, 2000, 58). The poor preservation of the knife is unfortunate as no comments can be made on its typology.

The re-use of neolithic monuments is rare, with only thirteen examples known in the country (Lucy 2000, 126), three of which occur in Dorset (Grinsell 1959 & 1982). A close parallel exists with the neolithic bank barrow at Maiden Castle, from which Tess and Mortimer Wheeler exhumed a skeleton tentatively dated to the late sixth century (Wheeler 1948, 78-79). In both the Race Down and Maiden Castle cases, the skeletons were buried in shallow graves, with the head to the west. The burial at Maiden Castle was accompanied by a *seax* (or long knife), also located adjacent to the thigh. A second skeleton recovered from the Maiden Castle bank barrow, initially thought to date from the neolithic, but radiocarbon dated to 1345 ± 80 BP (*c.* AD 635), was also excavated by the Wheelers (Wheeler 1948, 78-79). This skeleton, which was male, 1.63m tall and aged between 25 and 35 at death had evidence of extreme trauma on the head, face, right arm and lower body. Brothwell (1971, 240) suggested that these wounds either caused the individual's death, or were inflicted immediately post-mortem, and were perhaps the result of superstitions about the dead and fear of the supernatural. No evidence of trauma was identified on the skeleton recovered from Race Down so further inferences cannot be made about the death or burial rite of this particular individual.

More common is the re-use of Bronze Age barrows for Anglo-Saxon burials and Lucy (2000, 126) calculates a total of 140 examples nationwide. Three

kilometres to the east of Race Down, on the other side of the River Tarrant, excavation of a number of round barrows on Launceston Down revealed the presence of seven 'Anglo-Saxon' burials, these being identified as belonging to a distinct group of burial sites within north-east Dorset dating to the sixth and seventh centuries (Piggott and Piggott, 1944, 47-80; Green *et al.*, 1983, 57; Eagles, 2004). Green *et al.* (1982) viewed the burials on Launceston Down as family groupings, and if the skeleton recorded by J.H. Austen (Grinsell 1959, 81) at Race Down is assumed to be a secondary intrusive burial, taken together the two may be interpreted as being part of a family group.

Evison (1968) has argued that these burial sites, together with others found at Bokerley Dyke and Woodyates, represent the western limit of the group of pagan Saxons centred in the Avon Valley and Salisbury area. Eagles (2004) has suggested that the evidence now points to an Anglo-Saxon (early medieval) 'bite' into former Durotrigian lands west and south-west of Bokerley Dyke that occurred during the sixth century, penetrating along both Ackling Dyke and the River Stour. The late sixth-century date and location of the Race Down burial on the interfluvial ridge between the Stour and Tarrant rivers probably makes it part of this hypothesised intrusion and associated burial culture.

The re-use of prehistoric earthworks for early medieval inhumations is characterised by two different themes. Smith and Brickley (2009) suggest that structures such as long and round barrows were regarded as fearful or otherworldly places and where the socially excluded might be placed. As such, they may have been used for the burial of execution victims, such as the skeleton recovered from Maiden Castle (Brothwell, 1971, 240). Reynolds has noted that two thirds of known execution sites of the early medieval period are associated with prehistoric or post-Roman barrows, the remainder being located upon linear earthworks (1999, 108). All excavated sites appear to have been positioned on boundaries, presumably reflecting the desire to banish outcasts to the geographical limit of a specific territory, in places, such as prehistoric barrows, that afforded a commanding view within sight of important road or river (Reynolds 1999, 109). Williams (1997; 1998) has argued that the practice of placing burials in existing

earthworks is a way legitimising an immigrant community's ancestral links to the distant past, and Bonney (1976) has suggested that pagan Anglo-Saxon burials occur on, or near to, boundaries of estates or parishes possibly in the hope of causing such boundaries to receive protection by the spirits of the dead.

The skeletal remains recovered from Race Down long barrow appear to be an early medieval interment probably dating from the second half of the sixth century. These types of interments are rare in neolithic monuments, with few other scientifically dated examples known. Further work may involve the commissioning of a project to scientifically date other secondary interments recovered from prehistoric monuments to determine when they were buried and to try and to further our understanding of this burial practice.

REFERENCES

- Ashbee, P. 1984. *The Earthen Long Barrow in Britain* (2nd edition). Norwich: Geo Books
- Bonney, D. 1976. 'Early Boundaries and Estates in Southern England', in Sawyer, P.H. *Medieval settlement. Continuity and Change*, Edward Arnold, London.
- Bronk Ramsey, C. 1995. 'Radiocarbon calibration and analysis of stratigraphy: the OxCal program', *Radiocarbon* 37, 425-30.
- . 2001. 'Development of the radiocarbon program OxCal', *Radiocarbon* 43, 355-63.
- Brothwell, D. 1971. 'Forensic aspects of the so-called Neolithic skeleton Q1 from Maiden Castle, Dorset', *World Archaeology* 3, 233-41.
- Eagles, B. 2004. 'Britains and Saxons on the eastern boundary of the *Civitas Durotrigium*', *Britannia* 35, 234-40.
- Eagles, B. & Field, D. 2004. 'William Cunnington and the long barrows of the River Wylye', in R. Cleal & J. Pollard (eds), *Monuments and Material Culture; papers in honour of an Avebury archaeologist: Isobel Smith*, 47-69, Hobnob Press, Salisbury.
- Evison, V.I. 1968. 'The Anglo-Saxon finds from Hardown Hill', *Proceedings of the Dorset Natural History and Archaeological Society* 70, 232-40.
- Field, D. 2006. *Earthen Long Barrows*, Tempus, Stroud.
- Gale, J. 2003. *Prehistoric Dorset*, History Press, Stroud.
- Green, C., Lynch, F. & White, H. 1982. 'The Excavations of Two Round Barrows on Launceston Down, Dorset (Long

- Crichel 5 and 7), *Proceedings of the Dorset Natural History and Archaeological Society* **104**, 39-58.
- Grinsell, L.V. 1959. *Dorset Barrows*, Dorset Natural History and Archaeological Society, Dorchester.
- . 1982. *Dorset Barrows Supplement*. Dorset Natural History and Archaeological Society, Dorchester.
- Lucy, S. 2000. *The Anglo-Saxon Way of Death*, Sutton, Stroud.
- Mook, W.G. 1986. 'Business meeting: recommendations/resolutions adopted by the twelfth International Radiocarbon Conference', *Radiocarbon* **28**, 799.
- Ortner, D. J. 2003. *Identification of Pathological Conditions in Human Skeletal Remains*. 2nd edn. UK: Academic Press. London.
- Ordnance Survey, 1888. *Dorset. First Edition. (Sheet 25-NW)*. 1:10560.
- Ordnance Survey, 1961. *Sheet ST90*. 1:25,000.
- Ordnance Survey, 1976. *Sheet ST90NW*. 1:10,000.
- Reimer, P.J., Baillie, M.G.L., Bard, E., Bayliss, A., Beck, J.W., Bertrand, C., Blackwell, P.G., Buck, C.E., Burr, G., Cutler, K.B., Damon, P.E., Edwards, R.L., Fairbanks, R.G., Friedrich, M., Guilderson, T.P., Hughen, K.A., Kromer, B., McCormac, F.G., Manning, S., Bronk Ramsey, C., Reimer, R.W., Remmele, S., Southon, J.R., Stuiver, M., Talamo, S., Taylor, F.W., van der Plicht, J. & Weyhenmeyer, C.E. 2004. 'IntCal04 Terrestrial radiocarbon age calibration, 0–26 Cal Kyr BP', *Radiocarbon* **46**, 1029–058
- Pigott, S., & Pigott, C.M. 1944. 'Excavations of Barrows on Crichel and Launceston Downs, Dorset', *Archaeologia* **90**, 47-80.
- Reynolds, A. 1999. *Later Anglo-Saxon England*, Tempus, Stroud.
- Roberts, C. and Manchester, K., 2001. *The Archaeology of Disease*, Sutton.
- Royal Commission on Historical Monuments (England). 1977. *Dorset*. Volume IV, *North*. Her Majesty's Stationary Office, London.
- Scheuer, L. and Black, S., 2000. *Developmental Juvenile Osteology*, Elsevier, London.
- Smith, M.J. and Brickley, M.B. 2009. *People of the Long Barrows: Life, Death and Burial in the Earlier Neolithic*, History Press, Stroud.
- Stamp, D. 1935. *Land Utilisation Survey*. Geographical Publications, London.
- Stuiver, M. & Reimer, P.J. 1993. Extended 14C data base and revised CALIB 3.0 14C age calibration program. *Radiocarbon* **35**, 215–30.
- Wheeler, R.E.M. 1948. *Maiden Castle, Dorset*. Reports of the Research Committee of the Society of Antiquaries of London no.12, Oxford.
- Williams, H. 1997. 'Ancient Landscapes and the Dead: the Reuse of Prehistoric and Roman Monuments as Early Anglo-Saxon Burial Sites', *Medieval Archaeology* **41**, 1-32.
- . 1998. 'Monuments and the Past in Early Anglo-Saxon England', *World Archaeology* **30** (1) 90-108.
- Woodward, A. 2000. *British Barrows. A matter of Life and Death*. Tempus, Stroud.

Interim Report on Druce Farm Roman Villa, Puddletown (SY 7330 9540)

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A fifth season of work was carried out between May and September 2016. Investigations concentrated on features outside the villa complex which were located to the south and east. These are marked on the geophysical survey (Fig. 1) and comprised ditches, an enclosure and a large midden deposit.

Ditches and midden deposit south of the villa

An area measuring 20 m by 13 m was cleared to the south-east of the major ditches enclosing the Roman Villa. Approximately 0.3 m of topsoil was removed by a back-acting excavator and at this level, building debris in the form of ceramic roof tiles was observed. The site was then hand-cleaned and subsequent features were excavated and recorded.

The earliest feature comprised a north-south linear ditch with an average width of 1.8m and a depth of 0.90m. This ditch continued into the meadow beyond the excavation and had a recorded length of 8m. It was located 3.5m south of the western enclosure of the villa complex and appeared to be part of an entrance into this. One of the sections produced the upper part of a very large horse skull which displayed evidence of pole-axing and was tightly wedged on the base of the section. The skull lay on a deposit of pottery which had a date range of Late Iron Age to c. AD 70, implying very early infilling of this feature which must have been cut in the middle of the first century AD. A small oval pit lay to the west of this entrance. The fill contained ironworking slag, ceramic oven lining and pottery of similar date to that in the ditch fill and must have been associated with some of the earliest ironworking activities on the site.

At a later date, a further ditch, orientated east-west, was set out at right angles to the early enclosure and had similar dimensions with an average width of 1.55 m and a depth of 0.75 m. This ditch was parallel to the southern enclosure of the villa and was cut by two north-south ditches comprising a short length (6 m) with an average width of 1.7 m and depth of 0.6 m and immediately next to this a narrower ditch with a width of 0.6 m and a depth of 0.5 m; this ditch also continued south into the field beyond the excavation. The fills of these ditches were complex, those of the shorter ditch were characterised by domestic waste

consisting of pottery fragments and animal bone as well as building debris comprising large fragments of limestone and ceramic roof tiles. A large quantity of mortar was recorded, some pieces retaining evidence of paint. The upper part of a horse skull had been placed in the narrower ditch.

Overlying these ditches was a roughly triangular-shaped midden deposit measuring 8 m wide by 5.4 m with a maximum depth of 0.6m which was removed in spits varying from 0.1 m to 0.20 m. The fill was consistently dark brown clay loam frequently containing charcoal pieces and was characterised by very large amounts of waste which appear to have been episodically 'dumped' and eventually levelled. The building material consisted of flint nodules, broken ceramic roof tiles and floor tiles as well as limestone chunks from buildings as well as roofs. The domestic waste was dominated by pottery fragments broadly dating from the first to the fourth centuries. The assemblage contained local Black Burnished wares as well as finewares from the New Forest and Oxford industries. In addition, continental material included amphorae fragments and samian sherds. Animal bone was distributed throughout the midden. Other items included broken quern fragments, slag and iron objects, mostly nails. Nine coins (mostly fourth-century) were recorded. Among the metalwork was a complete spoon, a first-century-AD dolphin-type brooch, a complete plaited bracelet and fragments from several other brooches and bracelets.

A total of twenty coins were recorded on this part of the site, most dating from the third and fourth centuries. However, a worn *As* of Claudius (41-54 AD) is the earliest coin found to date.

It would seem that when the ditch systems went out of use, this area was used as a refuse dump where building material from villa renovations and everyday household waste was regularly deposited. Post-excavation analysis of the finds will refine this initial dating sequence.

Ditch and enclosures systems south-east of the villa

A north-south orientated 'hooked' ditch parallel to the eastern enclosure of the villa was located on the geophysical survey. Ten sections were excavated

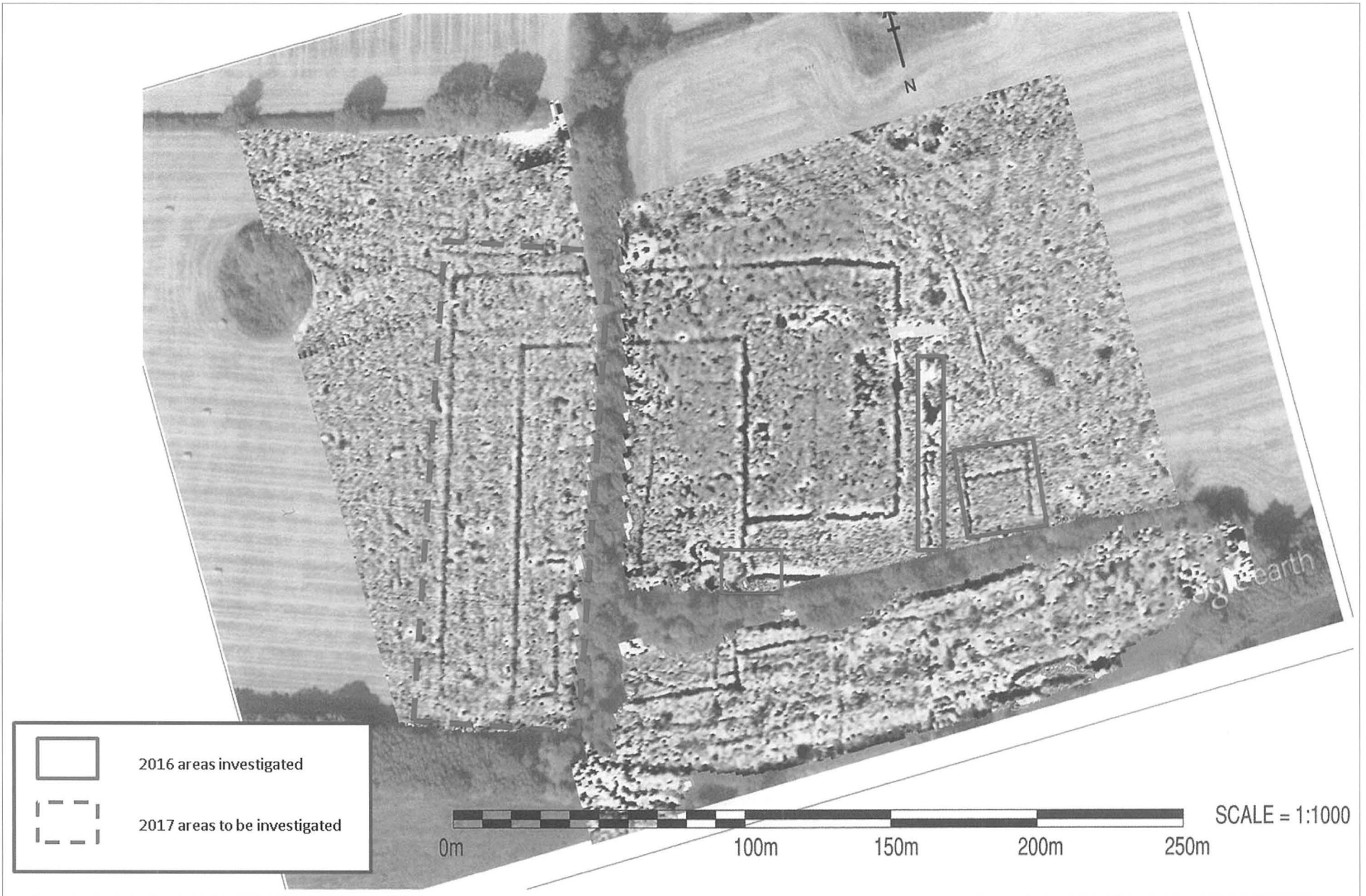


Figure1: Druce Farm Roman Villa: excavation areas 2016 and proposed area of investigation for 2017

through this feature. The width varied from 1.6 m to 0.65 m and the depth from 0.85 m to 0.2 m. The discrepancy in depths is accounted for by the deeper deposits of topsoil on the southern extremity of the field. The fills were consistently charcoal-rich and yielded large amounts of slag including hearth bottoms and oven linings, suggesting the clearance of debris from ironworking activities in the vicinity.

A rectangular enclosure was located approximately 7 m to the east of this linear. It measured 35 m by 26 m and was divided into two by an east-west ditch. The southern part of this feature was not located and is presumed to lie underneath the field hedge.

Four extant ditches were investigated and a total of fifteen sections were excavated. The westernmost north-south ditch had an average width of 1.2 m and a depth of 0.4 m; five sections were excavated and all had a similar mid-brown loam fill. Pottery was retrieved from all sections and fragments of South-East Dorset Orange Wiped Ware (SEDOWW) imply an infilling in the later fourth to early fifth centuries. This ditch had a northern terminal which was not excavated. The parallel ditch on the eastern side of the enclosure had an average width of 1.75 m and a depth of 1 m and two sections were excavated. A cow skull was recorded at the base of one of the sections but was left *in situ*. The southernmost east-west ditch with an average width of 1.25 m and a depth of 0.6 m joined the two north-south ditches and was 8 m from the northern ditch of the enclosure. Two fills were recorded in the four excavated sections and there were few finds compared to those from the other ditches. The northernmost ditch was the most complex. It was approximately 20 m long and terminated at the west, creating a gap in the enclosure. It turned at a right angle to meet with the eastern ditch and it is likely

that these two ditches were cut at the same time. Five sections were excavated; the average width was 1.5 m and the depth was 0.7 m and all cuts had two distinct fills. A very large quantity of building debris in the form of limestone roof tiles and a complete floor tile covered part of the surface of this feature and was deposited after the ditch had been infilled. All sections were finds-rich with large amounts of pottery and one section produced the lower and upper parts of a horse skull which had been placed side by side on its base.

Conclusions

This season's work confirms that demolition debris and household rubbish was not only deposited in the enclosure ditches around the villa, but was also used to fill other ditches and enclosures as they went out of use.

The finds are currently with specialists; this report is based on observations made during initial post-excavation finds sorting. The excavations were back-filled and the site was levelled prior to its return to pasture in the late autumn of 2016.

Future work

Work in 2017 will concentrate on features recorded on the geophysical survey in the field immediately to the west of the villa complex.

ACKNOWLEDGEMENTS

We would like to thank the Ridout family who continue to generously support this project. A huge amount of work was achieved by a 'core group' of 24 volunteers who worked over the summer. Bernard Cox and his nephew are thanked for returning the site back to pasture.

The Sherborne coin mould — a case of a fake antiquity?

GORDON LePARD

One of the more unusual objects in Sherborne Museum is a small object described as a coin mould (1968/167). It consists of a fragment of a stone slab, approximately 110 mm x 65 mm x 33 mm, polished smooth on one face. It appears to be one half of a mould as, visible on the smooth face are four indentations showing the obverse of a coin or token which are linked to enable the liquid metal to flow between them. There is an additional hole which appears to be the socket for a peg to locate the other half of the mould.

The four 'coins' all have heads with a radiate crown, clearly based on third-century Roman coins. They are surrounded with a series of letters, most of these are not reversed. No words can be made out with any clarity, and there is no apparent similarity between the four 'coins' apart from a group of three letters to the left of the head. These read SHe or possibly SNe. The 'coins' form two pairs, they are precisely circular, one pair are one inch in diameter, the other 7/8 inch in diameter.

According to a note in the museum, the mould was reportedly found lying in the ditch of Sherborne Castle.

The mould is almost certainly of post-medieval date as imperial measurements have been used. The maker was clearly unfamiliar with making cast objects as the letters have not been written mirror fashion. Unfortunately no parallel to the mould, or the 'coins' has been found. There are several possibilities as to its function.



Figure 1: The Sherborne coin mould

A mould for making token money: token coins have been made on several occasions in English History, whenever the supply of official coins was inadequate. Siege money, particularly during the English civil war, and in the late seventeenth and late eighteenth centuries. The readable letters could be intended as a mint mark for Sherborne, and the recorded find spot might suggest that it was associated with the siege of Sherborne Castle. However the 'coins' are unlike any recorded token or siege money.

A mould for making gaming tokens: gaming tokens, in the form of adapted coins are common in the late eighteenth and nineteenth centuries. However as with token coins there are no known gaming tokens that are like the 'coins'.

There is another possible solution, a pseudo-antiquity, in this case it is pretending to be a mould for civil war token money. The idea that someone might fake such an item may seem outlandish but there might be a connection to one of the most curious episodes of Sherborne's history.

In 1911 a carved bone was 'found' by some boys from Sherborne School with, apparently, a carving of a prehistoric horse on it. It was initially claimed as a rare example of Palaeolithic art from Britain, then doubt was cast on its authenticity and the controversy rumbled on throughout the twentieth century until the 1990s when it was finally shown to be a fake (Gibb 1997). Could it be possible that the mould is another fake from the same hand? Deliberately placed in a context where it might be found and assumed to date from the English civil war, after all Charles Dawson, who faked Piltdown Man, managed to get fake Roman tiles, made by him, 'discovered' in the excavations at the Roman Fort at Pevensey (Walsh 1996).

REFERENCES

- Gibb, J.H.P. 1996. A Sherborne bone of contention *Proceedings of the Dorset Natural History & Archaeological Society* 118 31-34.
- Walsh J. 1996. *Unravelling Piltdown- The Science Fraud of the Century and its Solution*, Random House, USA.

Portable Antiquities Scheme 2016

CIORSTAI DH HAYWARD TREVARTHEN

In 2016 there were 1,223 finds recorded in 1,073 records for Dorset on the Portable Antiquities Scheme database (finds.org.uk/database)

The finds were recorded by the Dorset Find Liaison Officer (FLO) and other FLOs, volunteers and self-recorders (under the PAST explorers initiative funded by the Heritage Lottery Fund in partnership with the British Museum). Dorset is now very fortunate to have six regular volunteers assisting the FLO and four finders who record their own finds on to the database. Overall, the Dorset records added in 2016 are the work of 17 PAS staff members and 20 volunteers.

Of the finds recorded in 2016, approximately 49.5% were of Roman date, 17.5% medieval, the post-medieval material accounted for 18%, 8 % were of Neolithic to Bronze Age date, 2.5% dated from the Iron Age and 1.5% from the early-medieval period. The remaining 2.5% range from Palaeolithic to Mesolithic. Less than 1% of finds were of uncertain or modern date.

In addition to this material, a number of potential Treasure finds were reported as required under the Treasure Act 1996 (revised). In 2016 there were 40 cases including coin hoards of Iron Age, Roman, and post-medieval date, fragments of a Bronze Age gold bracelet, a small group of Middle Bronze Age Palstave axes, medieval and post-medieval finger rings, silver thimbles and cufflink elements. Both the Priest's House Museum and Garden and the Dorset County Museum continue their interest in acquiring Treasure items where funding allows. A number of previous acquisitions are on permanent or temporary display in both Museums.

Finds of prehistoric date were well represented in the database for 2016 and below are two of some interest.

An Early Bronze Age copper tanged knife or dagger dating to c. 2300 – 2500 BC, found in East Dorset (Fig. 1). The blade and tang are both thin with a rectangular cross section. The tang tapers very slightly into a rounded end. The blade is a slightly irregular pointed oval shape and tapers to a rounded tip. The missing handle has left a faint trace in the surface corrosion as an ogival arc on the hilt. Similar objects are recorded in PAS database records HESH-7C7854, LANCUM-3BEC10, NCL-093B77, SUR-38BFA5. Peter Reavill (FLO Hereford & Shropshire) comments that this example takes the national corpus to around 44 and that this is the fifth example on the PAS database (pers comm). PAS database record number DOR-FCCD7E.

A complete small bifacially-worked cordate handaxe of the Lower to Middle Palaeolithic (c. 800,000 to 40,000 BC) from Tarrant Keynston (Fig. 2). It is of dark grey chert with a thick pale grey recortification and low-gloss patina. Flaked all over using a soft hammer to form a fully circumferential mid-line cutting edge which is straight on one side but slightly curved on the other. The tip is slightly thinned and there is an 's' twist to the butt. It has a pointed oval cross section and overall the axe is cordate in shape. There is no appreciable 'rolling' or post-depositional abrasion of flake scar ridges and much of the original dressed edge survives intact. There is very minor post-patination damage to the extremities of the tip and butt. PAS database record number DOR-A33686.



Figure 1: DOR-FCCD&E – Bronze Age copper knife

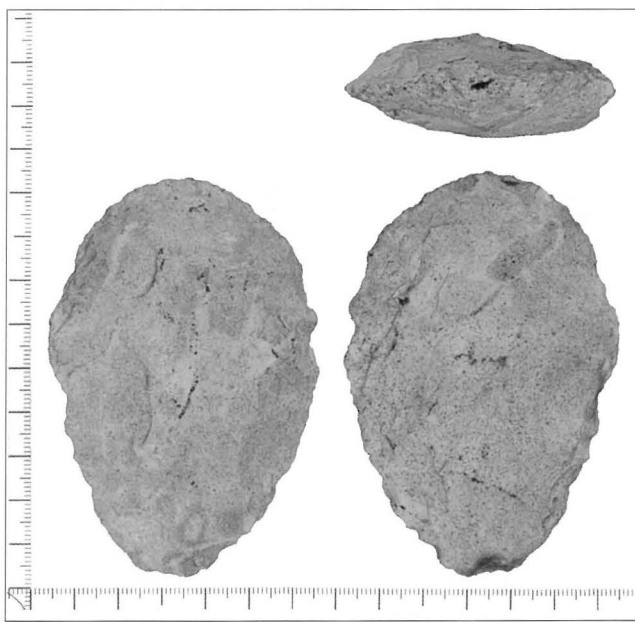


Figure 2: DOR-A33686 – Palaeolithic handaxe

Alan Collins

1928-2016

Alan Collins, sculptor and university professor, is probably best known for his life-size religious sculpture; his work in Guildford cathedral, his 'Minerva', close to Southwark cathedral, and his work for the Seventh-Day Adventists, having become a lifelong enthusiast after hearing the Australian evangelist Thomas Bradley.

Alan Rodney Collins was born in Beddington, a small Surrey village, on 15 August 1928. As a schoolboy he displayed precocious talent and, at the age of 16, enrolled at the Wimbledon School of Art where he studied under Freda Skinner whose predilection for religious carving and letter-cutting were to prove a significant influence. Whilst at Wimbledon, Collins won a scholarship to the Royal College of Art where, at Burlington House, his work was soon appearing in various exhibitions.

Collins excelled both as a sculptor of figurative pieces, and as a teacher. During this period he produced his celebrated pieces for Guildford Cathedral including the gilded copper weathervane, weighing around a ton. He was later commissioned to create the beautiful Portland stone memorial to John F. Kennedy at Runnymede, which includes carved wording of the declaration of freedom from President Kennedy's inaugural speech in 1961. He never used models for his sculptures — his figures were created

purely from his imagination. He taught figure-drawing and sculpture at colleges in England and moved to the USA in the latter half of the 1960s where he taught at several universities associated with the Seventh-Day Adventists church. Whilst still living in England, Collins created the now famous emblem for the church — the Three Angels of the Apocalypse. He considered his sculptures as means to a higher end describing them as 'silent sermons'.

Earlier in the decade, and before moving to the States, he worked at Elizabeth Muntz's summer school at Chaldon Herring, Dorset. This summer school served as a cultural hub for many artists who feature in the collection of the Dorset County Museum including Elsie Barling, Frances Hodgkins, David Brynley, Norman Notley, Valentine Ackland, Sylvia Townsend Warner and Gertrude Powys.

Alan Collins married his first wife Jeanne Fuegi in 1954 and they had a daughter, Marianne and a son, Mark. Jeanne died in 1992, and he married Aliki Athanasiou Girvas Snow in 1993. After his retirement from sculpting, Collins moved to Bridport, Dorset in 2013 and died on 18 — October 2016 at the age of 88. He is survived by his widow, children and step-children.

David James and Linda Roberts.



Dr Kenneth Scott Painter

1935-2016

Kenneth Painter, who died unexpectedly at home on 14 May 2016, was not a member of our society, nor did he live in Dorset. But he made a very significant contribution to the extraordinary discovery of Britain's most important Roman mosaic, 'one of the most remarkable of all the figured polychrome pavements that Britain has so far yielded' (Toynbee 1963, 116, an assessment which still holds true): this, and the circumstances of the pavement's uncovering, recording and lifting, together with Painter's excavations deserve mention because otherwise, a complete narrative and important contextual details would not have been recorded.

On 13 September 1963, the well-known working blacksmith at Hinton St Mary, John White, telephoned Roger Peers, the Society's Curator and Secretary, to tell him that he had found a Roman mosaic on land that he had bought from the Pitt-Rivers estate at Hinton St Mary. John White mentioned that he had seen Roman mosaics in Libya, where he had served in the R.A.F. during the Second World War.

Peers drove up to Hinton immediately and saw that Mr White had uncovered a very small area of what turned out to be a corner of the panel of the Bellerophon on Pegasus roundel. This had probably been saved from damage by a narrow metal water pipe, just an inch above the pavement, which John White had hit and treated carefully, as he dug what was intended to be a post-hole for his daughter's stable. The mosaic had been found without twentieth-century damage.

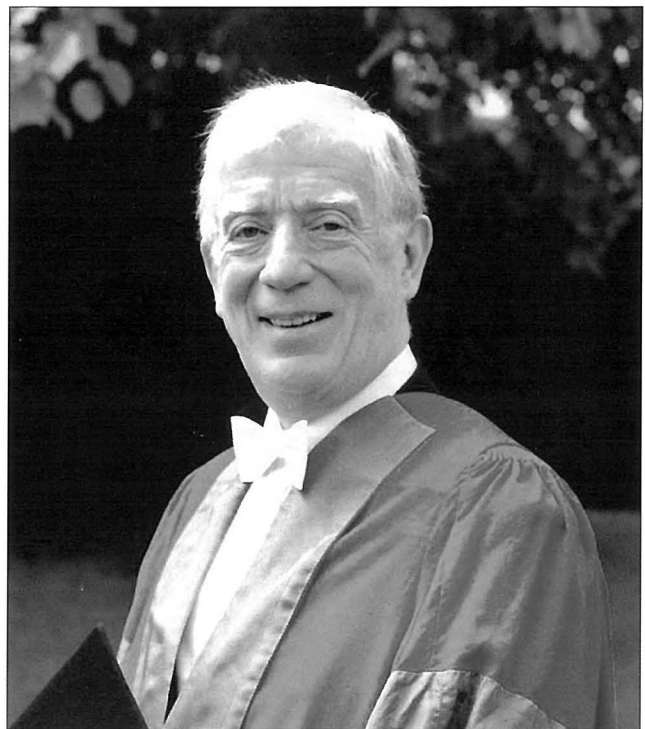
Immediately, Peers and White discussed the possibility of a full-scale excavation, lasting several weeks, with the inevitable publicity which would result. From the start John White carefully thought the matter over and concluded that the excavation could go ahead, provided there would be no work on Sundays. He explained that he and his family were devout Baptists, and that Sunday should be a day of rest.

The work went on for six, fortunately dry, weeks. No-one, not even members of the family were even allowed to visit on Sundays, and

some, who had not checked beforehand were turned away once the bust of a 'fair-haired, clean shaven man with dark, rather penetrating eyes', interpreted by Professor J. Toynbee, of Cambridge, possibly to be that of Christ, had been uncovered. In consequence, John White, when the excavation team returned one Monday morning, had displayed a board with the first verse of the well-known hymn 'When morning gilds the skies/ My heart awaking cries/ May Jesus Christ be praised!'

In October, with special advice, the mosaic was bedded down, so that it was protected until discussions about its future were completed.

In 1964 discussions at the British Museum, led by Professor Ian Richmond, who was acting as consultant to the Society, the Director and Principal Librarian of the Museum, Sir Frank Francis, with the Society's President, Professor Ronald Good, and Peers, came to the conclusion that, in those days the money was not available in Dorset to display the mosaic on site or to remove it to the Dorset County Museum. So the British Museum asked John White if he would be prepared to sell the mosaic, to be lifted at the B.M.'s expense. To this eventually, after much thought, he agreed in



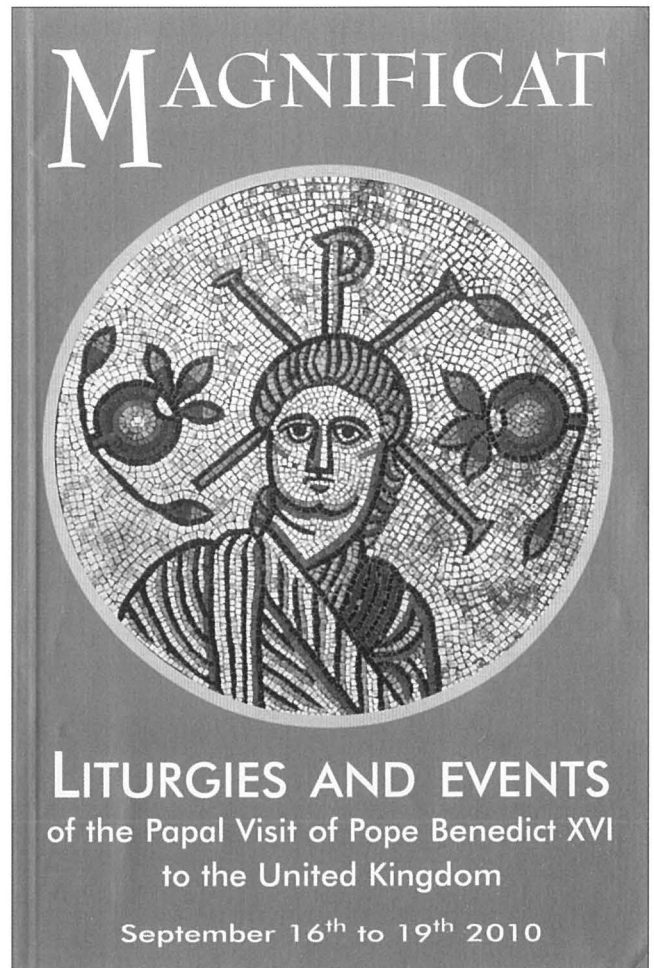


the spring of 1965, and the pavement was lifted during the summer and re-laid in the newly-built Prehistoric and Romano-British galleries.

The mosaic was described and discussed by Jocelyn Toynbee in these *Proceedings* (85(1963), 116-21) and in the *Journal of Roman Studies* (54(1964), 7-14). Kenneth Painter, for the British Museum, undertook excavations to elucidate the context of the mosaic: these were published speedily (*PDNHAS*, 86 (1964), 150-54; *British Museum Quarterly*, 32 (1967), 15-31). He supervised the lifting of the mosaic and described how this was done in these *Proceedings* (87 (1965), 102-3).

The mosaic remained a major interest for Painter, and with his amazing eye for detail he published a stunning interpretation of the design as being conceived as the decoration of a ceiling (*Antiquaries Journal*, 56(1976), 19-54).

Alas, the pavement is no longer displayed entire at the top of the B.M.'s main staircase, and its future is being discussed. The bust of Christ was used for a 39p postage stamp issued on 15 June 1993, and on the cover of *Magnificat: Liturgies and events of the Papal Visit of Pope Benedict XVI to the United Kingdom. September 18th to 19th 2010*. On 15 October 2011 the Dorset Archaeological Committee arranged a special evening event in the Dorset County Museum, at which Roger Peers and Professor Roger Ling, chairman of the Association for the Study and Preservation of Roman Mosaics, described the discovery and excavation and the mosaic's importance. It was



a delight that members of John White's family were able to attend these presentations.

Kenneth Painter was appointed to the curatorial staff in the British Museum's Department of British and Medieval Antiquities in 1960. He spent the rest of his career in the B.M., appointed a Deputy Keeper in 1974 and retiring in 1988. He was active in the affairs of the British Archaeological Association of which he was appointed Vice-president in 1997. For the Society of Antiquaries, having been elected a Fellow in 1965, he served as a distinguished Secretary from 1970 to 1972. He was awarded the society's William Frend medal in 1985 'in recognition of contributions to the study of the archaeological and the material remains of the early Christian Church' and given the society's medal for 'outstanding service' in 1996.

Roger Peers and Laurence Keen

Other obituaries have been published in The Times on 15 June 2016, and by Laurence Keen (Journal of the British Archaeological Association, 169 (2016), 123-5).

Giles John Romanes MA FRCS, FRCOphth DOMS

1918-2016

In Memoriam: eye, earth, flight and steam

Giles John Romanes was born 8 December 1918 in Dublin. He grew up in Essex, and after school at Eton, went up to Pembroke College, Cambridge and St Mary's Paddington. He worked as a registrar in Plastic Surgery, then as a consultant Ophthalmic Surgeon. After qualifying he acquired his first traction engine, — at one point he had a total of five. As a child he had witnessed traction engines being used on the land in Essex during the 1920s and 1930s, and so was determined to be part of the steam preservation movement. Later when he moved to Dorset he learnt to fly, thus satisfying another

passion. All three qualifications were achieved with 'flying colours': professional recognition in the Royal College of Surgeons, a pilot's licence and a wide recognition (by those who knew it) of the knowledge needed to drive and maintain agricultural steam engines.

After working in Sussex, Giles and the family moved to Dorset in 1960 to Portesham House in the village of Portesham, where he became a well-known and highly respected Consultant Ophthalmic Surgeon at the Weymouth Eye Infirmary, a founding father of the National Traction Engine Trust (member number 00002 and serving as president on occasion) and an accomplished pilot for aerial photography. Thus eye, flight and steam became three of the great passions of his life. From flight came yet a fourth,



Eye: Giles John Romanes FRCS, FRCOphth, ocular surgeon as pilot ready for flight (photo: Francesca Radcliffe, July 1992).

Earth: The soil marks at Mount Pleasant, West Stafford, from the north; Neolithic and Bronze Age enclosure, barrows and much else, with Conquer Barrow clad in trees upper right; flight undertaken by Giles and Francesca on 28th February 1998 (photo: Francesca Radcliffe).



Flight: Giles's airplane, a Piper Vagabond, parked on the airfield above Little Bredy (photo: Francesca Radcliffe).

Steam: Giles Romanes training volunteer members of the Society on the Hayden Princess at Kingston Maurward College, Summer 1996.

aerial photography, of which he was an essential partner in recording the archaeology of Dorset, and it is in this last that Giles made the most important contribution to recording the county's past, giving him an additional reason, not that he needed one, to fly the necessary hours every year to renew his pilot license. The photographer Francesca Radcliffe became his long-flying partner as the eye behind the lens, a partnership born of two enthusiasms of two singular persons.

In 1988 I (Francesca Radcliffe) first heard of Giles Romanes and his passion for flying when I was walking in thick fog with a friend — also an old friend of Giles's — across a field above Little Bredy. We almost hit a large sign warning of 'LOW FLYING AIRCRAFT', and my friend, pointing to something invisible in the gloom, informed me that there was a hangar there, sheltering a tiny plane belonging to the distinguished eye surgeon Giles Romanes. I must confess I found that hard to believe. But a few weeks later I did meet Giles and he confirmed it was indeed his Piper Vagabond which was kept in the hangar, and that when the wind conditions were favourable he would take off from that 'airfield'. But, this was only possible when the field was free of grazing sheep! It took not a little courage for me to ask if he would take me on a short flight, as my great interest at the time was to see what archaeological features looked like from the air. I knew there were plenty in Dorset!

Little did I know that that first flight would renew Giles's interest in archaeology, and would be followed by many more. Soon, opportunities arose for me to accompany him on a number of short flights over west Dorset to photograph all the archaeological sites I could detect. He often told me that in the past he had also flown Roger Peers, Peter Woodward and other archaeologists in his Piper Vagabond aeroplane to photograph archaeological sites and excavations. It is thanks to Giles, his great patience, flying skills, and willingness to let us accompany him on archaeological photographic expeditions that between 1989 and 2005 I joined him on a number of sorties and so was able to take approximately 10,500 aerial photographs of archaeological sites of all periods across Dorset. These photos now form part of the Dorset Photographic Record in the Dorset County

Museum. Some revealed new sites while many have been plotted and mapped to reveal new structures on known sites, providing new interpretations and insights to our understanding of Dorset's past, particularly the prehistoric period. Many have been used in publication, not least in the *Proceedings*, the Monograph Series and the *News Letter* of the Society. Giles was instrumental in helping to build what he, and I, believed would remain an important record of Dorset's archaeology from the air in the last decade of the twentieth and the beginning of the twenty-first centuries.

Steam was in Giles's roots in Essex with the agricultural steam engines, he knew from farm work in the 1930s to 50s. As these were clearly to be superseded in the post-war years by machines driven by oil and the internal combustion engine, Giles with others decided to celebrate the sad passing of the Steam Revolution in agriculture with a rally at Appleford (then in Berkshire) on the banks of the Thames in 1953. This rally was the first cornerstone of his reputation in steam. He became known as 'Doc' Romanes in steam circles, and the rally was the first collaborative event of many that signalled the need to form the National Traction Engine Trust, of which Giles was founding Member 000002. The event at Appleford included a traction engine race, still celebrated in archive recordings of *Pathe News*, in which the commentator identifies engine competitor 10 as that owned, Registration GRX 400, and driven by Doctor Romanes. In time races became a thing of the past as the old engines became rare and expensive, but Giles continued with steam and his small traction engine Goliath was housed at Portesham House. He was often seen around the village driving Goliath and giving rides at the village fete, or buzzing overhead in his aeroplane.

In 1995 the Council of the Society agreed to accept the largest and heaviest acquisition, ever taken into the Museum Collections — the 7NHP (Nominal Horse Power) 12.5 ton General Purpose Steam Traction Engine, 'Hayden Princess', owned by the late Jack Miles, haulier, of Charminster, Dorchester. This acquisition, DORCM R1996.62, took a leading role in the Man and Land Exhibition on the Museum's Anniversary Exhibition. (*News*

Letter 5, September 1996). Quietly Giles first became a volunteer with, and very quickly consultant and mentor to, the then assistant curator (Peter Woodward) to help form a group to sustain and maintain, in Giles's terminology, 'this museum artefact'. In his own careful way Giles engineered this engine's wonderful survival for the Society and Museum, and succinctly defined in his own words (428) the formation (1965) and structure of the Society's Traction Engine Group. (Romanes, 2005). This was his parting shot in the year when he dug up the roots he had developed in Dorset to move to Kent; a move quietly intimated as permanent, and confirmed with his resignation of his Society Membership, as he 'could not have divided loyalties'.

Guided by Giles the Society Traction Engine Group accomplished much. He made the 'Hayden Princess' easier to handle, for old men and new recruits, spending many hours fitting a new regulator valve between the boiler and the engine, a special balanced design by Mr Hamish Orr-Ewing, who agreed to construct one with Giles made-to-measure to a steam-tight fit (*News Letter 60*, December 1998). Giles instigated the boiler re-tubing together with a satisfactory Hydraulic Pressure test, and later, a Steam test (1999). With his guidance the Museum Traction Engine Group became an institutional member (no. 13553) of the National Traction Engine Trust. Giles was a founder member of the NTET, and was elected President again in 2000 (*Society Annual Report 2000*). He also gave instruction for and validation of traction engine skills, for members of the group as 'certificated' drivers and steersmen.

The Society, with this framework, was able to safely and profitably run a marvellous machine of steam with Giles's hope that one day it might be placed on permanent display in an enlarged Dorset County Museum 'as an important focal point in instruction for schools and others about agricultural practice and economy during the 19th and 20th centuries. In this way it might, *in situ*, become an earner for the Museum' (Romanes 2005).

We will always remember Giles for his great kindness, friendliness, impish sense of humour, his sense of fun and great concern for others. Giles attracted tales, myths and yarns in his traction engine days and in just being out and about in Dorset. Giles died on 14 April 2016, and his life was celebrated at a memorial service in Kent at St Mary the Virgin, Chiddingstone on 9 May 2016. The reading and address signalled the two greatest joys of Giles's life: flight and steam. The reading was the famous sonnet, *High Flight*, written by Spitfire pilot John Gillespie Magee in 1941, 'Oh! I have slipped the surly bonds of Earth, And danced the skies on laughter-silvered wings', and the Address by Andrew Semple, the President of the National Traction Engine Trust, and Giles's grandson, Tim Ventham. Tim and his brother Mark continue to drive and steer Goliath at venues, including the Great Dorset Steam Fair.

Giles had many facets and is remembered by many for driving a very small plastic Reliant Kitten or a Smart Car that could undertake U-turns in the middle of Great Western Road; inventing a collapsible stainless-steel beer mug (a limited edition for friends); and for his charm that inevitably led to an adoring gaggle of ladies at the footplate of 'Goliath' hanging on his every word on 'the working of steam'. Giles was always in the flow and could invariably identify his *milieu* and element. Thus Giles, for us, will be remembered in the sense of the deeply-rooted alchemy of the four primary elements; earth, air, fire and water – for Giles Romanes represented in eye, earth, flight and steam. Dorset and the *Dorset Natural History and Archaeological Society* have much to thank Giles for.

Francesca Radcliffe and Peter J. Woodward

BIBLIOGRAPHY

- Romanes, G. J. 2005. 'The Museum's Steam Traction Engine', *DNHAS News Letter 75*, Autumn 2005, Dorchester.

BUTTERFLY REPORT 2016

Bill Shreeves

Dorset Butterfly Records Officer

2016 a very bad year for both Dorset and UK Butterflies

There can be no doubt that 2016 was a very bad year for Dorset butterflies. All the wide range of different sources for sending in records show that the numbers of butterflies counted were well down on 2015. This was true of the biggest source, the total count of Dorset Butterflies on transect walks (worst count since 2012), the Dorset Butterfly Web site (especially significant as it has been growing in popularity among recorders), the annual Big Butterfly Count (lowest since 2012), records sent in on special electronic recording sheets, iRecords (also especially important as that has been growing in popularity), the Wider Countryside Recording Scheme (lowest count since 2012), Living Records and data sent in on paper (this has in any case been declining as more people use computers). Some consolation was provided that it was not only Dorset that suffered in 2016. The report of the UK Butterfly Monitoring Scheme said that 2016 was the fourth worst year for butterflies since UKBMS started in 1976.

Why 2016 was such a bad year

Why it was such a poor year, however, is at first glance, very hard to determine. The temperature and rainfall data from the Fontmell Magna Weather Station which has always been used for our reports would seem to suggest a very good year. July was the only summer month which fell below the 37 year average mean and that was only by 0.2 degrees. Rainfall was below the 37 year average for every summer month except June. Why would butterflies not flourish in warm and dry conditions? Part of the explanation may lie in the average sunshine figures, collected for 21 years at the Fontmell weather station, which show May, June, August and September at well below the average hours of sunshine. The only exception month was July which just managed the average. Sunshine is as important for butterflies as warmth and June is very much a key month when a large number of species which are double brooded, need dry warm and sunny weather to make the transition. June 2016 with over 18 mm of rain above the average, only average warmth, and sunshine 3.2 degrees below average was not helpful.

A further explanation for why 2016 was such a poor year comes from recent research by the University of East Anglia, Butterfly Conservation and the Centre for Ecology and Hydrology. Crunching up a mass of data between 1976 – 2012, it concludes that extreme winter warmth has had a detrimental effect on over 50% of the species studied no matter whether they went through winter as eggs, larvae, pupae or adults. The Fontmell weather station recorded the winter 2015-16 as 1.7 degrees above its 37-year average. The 2015-16 winter for England and Wales was the warmest since 1910. As the research found that only 2 (Wall and Holly Blue) of the species studied received any positive effects from very warm winters, it seems very likely that Dorset's poor results in 2016 owed a lot to the warm winter of 2015-16.

Dorset's 5 'Winning' Species

The species which were winners or losers can best be sorted out by using the Transect data from the 64 Dorset walks completed in 2016. Winners can be defined as those species which improved by over 50% on over half the walks by over 50% on 2015 and/or the annual average count since the walk began. Conversely the Losers were species which on over half the walks declined by over 50% on 2015 and/or the annual average count since walks began. In keeping for such a poor year there were 5 winning species and 18 losing. No Dorset species managed to improve on over half the Transect walks both by over 50% on 2015 and on their annual average counts. Essex Skipper, on over 63 % of its 16 walks, managed to improve over 50% on its annual averages. However too much must not be read into this since the problem of sorting out Essex from Small Skippers on busy transect walks is not an easy one to solve if a walker hopes to finish a walk by 3.30pm. That leaves 3 species which managed to improve on over half their walks by over 50% on just 2015. Top of this group and therefore Dorset's Butterfly of 2016 was the Red Admiral which improved by over 50% compared to 2015, on 63% of the 64 walks which recorded it. The count of 2,490 on the Transect walks was the third highest since the huge count of 6,692 back in 1996. The walk with the highest count for 2016 was Hethfelton Wood with 225. A most interesting development is the way in which records of Red Admirals in the months of October – March, outside the Transect walking season, have been on an

upward trend from 30 in 1995 to 260 in 2016 with a record of 362 in 2014. These days there is no month lacking a sighting of a Red Admiral. The runners up were the **Small and Large Whites** with 55% and 53% of their sites improving by over 50% on 2015. Their total counts, however, got nowhere near those for 2013 and it was not an especially good year for either. Walkers at Wareham Walls with a Large White count of 194 and even more so at Durlston East with a Small White count of 419, must nevertheless have been aware that they were being invaded. The fifth 'winner' only emerged from a statistical peculiarity with the count of **Silver Spotted Skippers** at Fontmell Down, the site of Dorset's last surviving colony. There was a recovery from the zero count of 2015 to a grand count of 4 in 2016 which could be called growth but only from a small base.

Dorset's 18 'Losing' Species

The numbers of 5 'winners' were completely overshadowed by the 18 'losers'. Of these there were 4 really bad cases where species from over half the sites normally recording them fell by over 50% on both 2015 and their annual averages. It is interesting that 3 of these were multiple brood species likely to be damaged by the very unfavourable June weather. The **Brown Argus** experienced its lowest count since 2012 and 100% of its sites were well below their annual average counts. It was alarming that just one site, Ballard Down with a count of 150, provided over half the Dorset transect walk total of 261. The **Small Tortoiseshell** continued the decline from a brief period of recovery in 2014 to its lowest Dorset transect count since 2012. Of the 62 sites which recorded it in 2015-16 79% fell to over 50% below their annual averages and 64% to over 50% below 2015. Although the **Small Copper** did improve its total count a little, this was its third year in succession as a 'loser' with 76% of its 50 sites well below their annual averages and 52% below 2015 total counts. There is some evidence that there was a good third brood in October/November after transect walking ended but how this might feed into 2017 is unknown. The fourth bad case was the **Clouded Yellow**, not quite a native species apart from evidence that its caterpillars overwinter on the Boscombe under-cliffs. Another poor total migrant count on the walks means that it has now been 10 years since the last major Clouded Yellow migration year in 2006.

A massive number of 13 species, only equalled back in 2008, dropped over 50% on their annual averages on a majority of sites. Only 4 of these are multi-brooded and could be explained by the poor June weather of 2015. The **Common Blue** has never before appeared in the 'loser' category and had a terrible year with 78% of its 58 sites registering above 50% declines on their annual averages. The total count on the walks was the lowest since 2012. In many cases it was the second brood which did poorly. Also doing badly with 76% of its 17 sites ending up with over 50% declines was the **Adonis Blue**. The walk total of 2,071 looks even worse beside the count at Ballard Down which at 1,305 was over half. Two other multi-brooded species which also experienced high percentage declines on their annual averages were **Small Heath** (63% of 46 sites) with its lowest count since 2008 and **Wall** (60% of 25 sites) also with its lowest since 2008. The second brood of Small Heaths emerges in early August and so the young caterpillars might well have suffered from the wet and sunless June. Whether the warm winter of 2015-16 could already have damaged the numbers is hard to work out because in southern England not every egg laid develops into an adult in the same year. This sometimes leads to the strange situation that 3 generations of caterpillars may be in winter hibernation together. If that had happened in the warm winter of 2015-16 it could have dealt a severe blow to Small Heath numbers in 2016. The research on the effects of warm winters showed that the Wall was one of the exceptions and could derive benefit from them. The Dorset walk totals show a progressive decline from record peaks in 2013-14 to the lowest count since 2007 in 2016. The wet sunless June placed between the first and second broods in 2016 could have been a decisive factor.

The remaining 9 'losers', with counts well below their annual averages, were all single brooded. One of these, the **White Letter Hairstreak**, is only regularly recorded from Alners Gorse. It has mainly arboreal flight patterns which disqualify it from accurate transect recording. Another, the **Painted Lady** is a migrant and like the Clouded Yellow, had a poor year. The walk data now shows a 7-year run of low numbers since the last big migration year in 2009. The records on the Dorset website reveal an amazing start to 2016 of 8 seen in January and another 2 in February.

After that just 4 in May was followed by a 100 in June, dropping to 8 in July. August and September only totalled 102. In a good Painted Lady year migrants in May/June are able to breed rapidly to build up to a much bigger number in late summer. Clearly the poor sunless weather made this impossible. Disastrously 100% of the 11 sites for Chalkhill Blue suffered big losses on their annual averages. This is the fifth year in succession that Chalkhills have been in the loser category and their numbers tumbled down to one of their lowest counts ever. The wet cold weather in June when the young larvae, feeding at night, need to grow quickly for emergence in mid July would have played an important part. However something much more serious must have been happening. All the colonies in West Dorset represented by sites like Cerne Giant, Hogcliffe South Field and Lankham Bottom have now lost their Chalkhill Blues. Sites in North Dorset though still recording low numbers have never recovered from their most recent slumps. Only in Portland is the species doing well. Proper research is urgently needed to explain what is happening. After steadily building up numbers since the low point of only 7 counted on its 9 sites in 2012, the White Admiral crashed again down to 22. Altogether 78% of its sites recorded well below average numbers. It is possible that the real status was concealed by the poor summer sunshine which confined flight even more than usual to the upper canopy well beyond the reach of Transect walkers. However a reconstruction of the life of the 2016 cohort of White Admirals suggests that the weather was a big factor. Back in July 2015 the below average sunshine and temperature would have restricted the amount of egg laying on dangling honeysuckle in half shade. Between October 2015 and March 2016, while the young caterpillars were hibernating in shelters made out of a honeysuckle leaf, the weather was above average in both warmth and rainfall and probably not beneficial to survival. In June 2016, when the caterpillars needed to grow as rapidly as possible to escape predation, the rain was above average and the sunshine well below. Even in July when the White Admirals were at the chrysalis stage sunshine and temperature were below average. With no butterfly national health service to rely on, life was certainly stacked against the 2016 White Admiral cohort! It is a pleasure to report that in spite of all this the first White Admiral to be seen in Duncliffe wood

since 2005 was counted and photographed and the first White Admiral to be found anywhere near Lytchett Matravers was seen and photographed in a garden!

Further species which suffered from big losses on their annual averages were Grayling (71% of 14 sites), Dark Green Fritillary (60% of 20 sites), Marsh Fritillary (57% of 14 sites) and Large Skipper (53 % of 60 sites). In all 4 of these species it is the caterpillar stage which has to endure the winter and, as we have heard from the recent research, warm winters such as 2015-2016 were not helpful. Grizzled Skipper, with over 50% declines on 70% of its 20 sites, is unusual in spending 9 months as a chrysalis between July and April. Just to add a final touch to a very poor year, Green Veined White managed to slip into the 'loser' category through declining by over 50% on its 2015 count on 51% of its 61 sites.

UK and Dorset 'Losers' roughly the same

It is interesting that the 2016 report from the UK Monitoring Scheme, with much more sophisticated statistical methods than we have available in Dorset, uncovered a very similar list of 'losers'. In UK Grizzled Skipper, Wall, Grayling and White Admiral all fell to their lowest population levels on record. Small Copper experienced its 3rd worst year and Small Heath, Small Tortoiseshell and Common Blue also had a very bad year. The UK report added Meadow Brown (third worst year since 1976), Gatekeeper (second worst) and Peacock (very bad) to the losing group. In Dorset, Gatekeeper and Peacock narrowly missed getting into the 'losing' group' but Meadow Brown was clear. It may be significant that the Chalkhill Blue's desperate year 2016 in Dorset was not mirrored in UK.

Absence of Unusual Migrants in 2016 Dorset

These reports usually end with comments on unusual sightings of migrants. This part of the report has always given the recording officer a certain degree of agony as these days it is becoming impossible to determine whether a migrant is genuine or a release, accidental or deliberate, from a breeding cage or even a substitute for confetti in a fashionable wedding. As already mentioned, neither of our regular migrants, Clouded Yellow and Painted Lady, performed well in 2016. It is sad to say that there has only been one report of an unusual migrant. This was a Long Tailed Blue seen on 12 September near the Portman Ravine,

Boscombe Cliffs by Michael Skelton. So 2016 was very poor in comparison with the excitement of 2015's 3 Long Tailed Blues, Monarch, Continental Swallowtails and Map butterflies, the latter apparently escaping out of the back of a car. The best we can do for 2016 is the story of a rather tattered female **Purple Emperor** photographed by the Brett family on a buddleia in their garden at St Ives, near Ringwood on 8 August. We can only speculate on how she came to be there. A very long flight from the only certain Dorset colony of Purple Emperors on Cranborne Chase seems unlikely especially as very few were recorded there in 2016. Known Wiltshire and New Forest colonies are equally distant. Smart money would be on a local breeding release but Purple Emperors are known to be occasional wanderers and their colonies can be quite secretive. So all we can do is to dream on and watch out to see what might turn up in 2017.

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Last but not least thanks to the Dorset Butterfly Conservation Computing team:

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GET INVOLVED

We need help with the ever growing task of organising butterfly records. Please get in touch if you are interested.

Sending in Records

Data is needed urgently from 2017-19 which will be part of the next 2015-19 5 year atlas. Use **one** of the following methods and avoid sending in data for more than one:

1. Paper records preferably on an official recording sheet to be sent to and obtained from Bill Shreeves, 5, Butt's Mead, Shaftesbury, Dorset. SP7 8NS. 01747 852587.
2. Electronic records on official forms obtained from and sent to w.shreeves@btinternet.com
3. The Dorset Butterfly Web Site (www.dorsetbutterflies.com). Go to Recording: Get Involved: Submit your sightings,
4. Living Records at the Dorset Environmental Records Centre (www.derc.org.uk): go to Living Records. DERC records are sent to Dorset Branch of Butterfly Conservation and ours are sent to them.
5. Other data schemes from which we now have arrangements to collect Dorset data: iRecord, Bug Alert, Butterfly Conservation Garden Records which can now be entered on line (www.gardebutterflysurvey.org) and British Trust for Ornithology Garden Butterfly Records. If you send your records to any of these make sure you don't duplicate them by using any of the other methods.

Getting a Rapid Report back on each season

Go online to Dorset Branch of Butterfly Conservation (www.dorsetbutterflies.com) where you can find recent sightings and get details of the 4 special Dorset regional meetings in February/April which report on the previous summer's butterfly records, and also see the results of the previous 5 year Atlases as they are released.

GENERAL WEATHER SUMMARY 2016

John Oliver

The mean temperature for 2016 across Dorset was slightly down on the previous year and about 0.7C below that of 2014 — the warmest year on record. Even so, the figure of 10.8C was 0.4C above the 30-year average.

There were a few stormy days with inland gales, notably in February and March but overall it was the calmest year in a quarter of a century.

Sunshine amounts for the whole year were close to the norm with the sunniest conditions, relative to the average, in March, August and November. The duller months were September and especially June.

January (Second wettest since 1995)

The first ten days of the month were generally mild and influenced by deep areas of low pressure that spread their frontal bands of rain, heavy at times across the county. South-westerly or westerly winds prevailed and were strong on the 7th and 9th with inland gusts in excess of 40mph.

Temperatures dropped back to a little below average from the 11th as the wind veered north-westerly, but the coldest weather of the month occurred 16th - 20th in a lighter easterly airflow. Night minima of -5C to -7C was reported widely on the latter date.

Heavy overnight rain on the 21st/22nd marked the transition to very mild conditions that was to prevail for the remainder of the month. It was windy at times in the last week with gusts again exceeding 40mph. (HiMax 13.7C Hurn 31st; LoMax 2.0C Dorchester 19th; HiMin 10.1C E. Stour / Blandford 27th; LoMin -7.6C Dorchester 20th; HiRain 32.7 mm Forde Abbey 1st)

February

The mild and unsettled westerly regime persisted throughout the first ten days of the month and it was particularly windy from 6th - 8th with inland gusts of over 50mph.

The weather became temporarily colder mid-month as the wind became north-easterly behind a 'low' that moved east along the English Channel overnight on the 12th. The 13th was a cloudy, windy and raw feeling day with the temperature remaining close to 4C throughout. The night of the 16th was the coldest of the month.

Rain on the 17th was persistent, although not particularly heavy and was followed by a week of much milder air, notably the 21st with the mercury approaching 15C in the north of the county.

Temperatures dropped back during the last few days to near average values and it was mainly dry with some overnight frosts.

(HiMax 14.9C Thornford 21st; LoMax 4.4C Blandford 13th; HiMin 10.6C Blandford 21st; LoMin -5.9C Dorchester 16th; HiRain 40.8 mm Forde Abbey 6th)

March (Wettest since 2008)

There were many pleasantly sunny days during the month and maxima was generally close to normal.

Where skies remained clear, some overnight frosts occurred and overall night temperatures were about 1C below normal.

Most places reported some rain or showers on the first four days and it was particularly windy on the 2nd with gusts to 50mph. Low pressure moving into the south-west of England brought heavy overnight rain on the 8th and in its wake produced a gust of 54mph at Dorchester around 1200hrs on the 9th, combined with a temperature of just 6C.

Pressure continued to rise for several days from the 10th and all places were dry until the 24th. Day temperatures were generally close to average during this period but where skies remained clear overnight some frosts developed. Overcast conditions on the 18th following a frost resulted in a bleak and chilly day.

The month ended mild and frost free. The 25th was truly spring-like with almost unbroken sunshine and the early afternoon temperature climbed to 16C. Just three days later, storm 'Katie' deluged the county overnight into the 28th with more than 25 mm of rain in six hours and wind gusts of 60mph.

(HiMax 16.1C Wimborne / Thornford 25th; LoMax 6.0C E.Stour 18th; HiMin 8.1C Thornford 26th; LoMin -4.3C Blandford 8th; HiRain 40.0 mm Minterne Magna 27th)

April

A fairly average month in terms of temperature and sunshine but despite being unsettled, rainfall was below normal. Across the north of the county the 10th was the wettest day with around 15 mm of rain whereas to the south it was the 14th at nearer to 10 mm.

The lowest and highest day temperatures were both reported in mid-month and it was cold enough on the 26th for sleet and graupel showers. The coldest night of the month produced quite a sharp late frost on the 28th with a reading as low as -3C in the countryside.

(HiMax 18.6C Wimborne 13th/ Hurn 21st; LoMax 8.7C E.Stour 9th/Dorchester 22nd; HiMin 9.3C Wimborne 15th; LoMin -3.1C Hurn 28th; HiRain 19.2 mm Shaftesbury 15th)

May (Warmest since 2008)

An unsettled month with no prolonged period of dry weather. Much of the rain was showery in nature, some of them heavy and accompanied by thunder. The mean temperature was about 1C above the average with the main warm periods 5th - 13th and 26th - 31st. Sunshine amounts were near average and where skies remained clear overnight, especially during the first week, temperatures fell close to freezing.

(HiMax 24.3C Blandford 8th; LoMax 12.3C Dorchester 2nd; HiMin 16.0C E.Stour 9th; LoMin -3.1C Hurn 28th; HiRain 33.0 mm Rampisham 11th)

June (Unusually dull and the wettest since 2012)

The first ten days of the month were dry and warm with sunny periods. Thereafter temperatures dropped back to near the June average and rain fell almost every day to month end. Some of the rain was heavy and thundery mid-month with some lightning damage reported. The 19th was generally overcast with drizzle or light rain at times and this became persistent and heavy during the overnight period across many parts of the county with more than 30 mm recorded in some places.

(HiMax 27.7C Wimborne 5th; LoMax 14.2C Blandford 1st; HiMin 16.1C Wimborne 23rd; LoMin 7.2C Hurn 24th; HiRain 54.0 mm Charminster 16th; Total sun hours 116, 58% of av. Hurn)

July (Driest since 1999)

Despite pressure being only one millibar above the average and sunshine a little below par, it was a remarkably dry month. Many stations reported less than 3 mm as their wettest day. There are often exceptions to a general rule and on the afternoon of the 11th a succession of slow moving, torrential thundery showers developed over the higher ground around Shaftesbury. Here, more than 40 mm of rain

produced some flash flooding. At East Stour 18.5 mm was collected.

Temperatures overall were just above average due to a very warm or hot period from the 16th – 23rd.

During this period maxima peaked above 30C well inland and night minima in the high teens Celsius. The 19th was the hottest July day since 2006.

(HiMax 33.2 Wimborne 19th; LoMax 17.8C Dorchester 2nd; HiMin 19.9C Thornford 20th; LoMin 6.9C East Stour 6th; HiRain 41.8 mm Shaftesbury 11th)

August (Warmest since 2003)

The exceptional dryness of the previous month was soon forgotten as light rain on the afternoon of the 1st became persistent and heavy during the evening. Many parts of the county recorded falls in excess of 25 mm. At Dorchester the total for the day of 41.7 mm was the highest recorded in August since 1986.

With building pressure, the period from the 3rd – 17th was generally dry and warm with periods of sunshine and light breezes. The remainder of the month maintained the warm theme by day and night but was more unsettled with showery rain at times, sometimes accompanied by thunder.

(HiMax 30.6 Wimborne 24th; LoMax 16.9C Dorchester 1st; HiMin 17.8C Wimborne 25th; LoMin 6.0C Hurn 9th; HiRain 53.5 mm Owermoigne 1st)

September (Warmest since 2006)

A pleasantly warm but cloudier than usual month with mainly light breezes. There was general rain on the 3rd, the night of the 4th and on the 10th and also at times during the last week. In between there was a good deal of dry weather but with showers or thunderstorms that produced some localised heavy falls of rain.

The warmest and sunniest weather occurred between the 5th and 15th with afternoon temperatures peaking in the mid-20's Celsius.

(HiMax 27.3C Wimborne 7th; LoMax 16.1C Dorchester 26th; HiMin 18.6C Wimborne 8th; LoMin 5.0C Dorchester / Blandford 23rd; HiRain 49.9 mm Wimborne 15th)

October (Driest since 2007 and coolest since 2012)

Temperatures were fairly uniform throughout the month and overall slightly below the average. The

warmest days occurred in the first week and on the 31st.

With pressure generally high it was a very dry month and sunnier than usual with Hurn reporting 126 sunshine hours – an excess of 19%. The wettest day across the county was the 15th.

(HiMax 18.7C Wimborne 3rd / Hurn 31st; LoMax 10.8C Dorchester 23rd / Thornford 24th; HiMin 12.4C Wimborne 29th; LoMin 0.3C Hurn 22nd; HiRain 45.9 mm St Leonards 15th)

November (Coldest since 2010)

Temperatures were near or a little below average during the first part of the month with some slight night frosts. The weather was fairly unsettled with rain at times but amounts were not large. The period from the 12th – 19th became very mild – notably the 15th when the temperature rose from a dawn base of at least 10C to 16C quite widely.

Deep low pressure systems brought heavy rain and a drop in temperature to near normal values from the 18th to 22nd before a steady build in pressure ensured a dry final week of the month.

Clear and calm conditions by day and night allowed frost to persist in sheltered places throughout the 29th and 30th.

(HiMax 16.4C Wimborne 15th; LoMax 2.8C Thornford 30th; HiMin 12.0C Blandford 15th; LoMin -6.6C Hurn / Dorchester 30th; HiRain 58.3 mm Shaftesbury 21st)

December (Highest atmospheric pressure and driest since 1991)

The first week was dry and rather cold with some sunshine although amounts were dependent upon the clearance of any fog and rather stubborn low cloud. The last week was also mainly dry and cold with less in the way of fog and more sunshine.

The middle fortnight was rather unsettled and milder but with persistent high pressure amounts of rain were small.

(Hi Max 14.4C East Stour 7th; LoMax 0.8C Blandford St Mary1st; HiMin 11.8C Thornford 9th; LoMin -7.1C Hurn 1st; HiRain 9.0 mm Milton Abbas 10th / Forde Abbey 15th)

DORSET RAINFALL 2016

John Oliver

Over most parts of Dorset the total rainfall in 2016 was very close to the 1981 – 2010 county average but there were some large monthly excesses and deficits.

The first six months of the year were generally quite wet with rainfall 34% above the average for the period. July and December were exceptionally dry and the last six months overall produced only 68% of expected rainfall.

The wettest station in 2016 was Dewlish with 1178.4 mm and the driest was Portland Bill with a total of 655.8 mm. The highest 24-hour rainfall total of 58.3 mm was recorded on 21 November at Shaftesbury.

Apart from a few wintry showers in March and late April the year was snow-free for most of the county. The only exception was a short period of snow during the late evening of 4 March that produced a brief covering in the Cerne Abbas area and a 3 cm blanket on cars and grassed areas around Shaftesbury. This survived in patches until the next morning.

Dry spells of at least ten successive days occurred in most places in mid-March and early June and from 3 – 16 August and around 23 November – 7 December.

HEAVY RAINFALL EVENTS IN 2016

Rainfall totals exceeding 25 mm at any station were recorded on 27 days during the year compared to 20 days in 2015 and 19 days in 2014. On 12 of the days, just five or fewer stations met the criteria. The four most widespread events that affected more than 50% of the reporting locations are described below.

8 March

The day dawned clear and frosty in many places but cloud quickly invaded from the southwest with occasional light rain or drizzle soon following. Late in the evening the wind increased ahead of frontal rain associated with a low pressure system (992mbs at 2400hrs GMT) over the Bristol Channel.

The overnight rain was heavy with more than 25 mm reported from all parts of the county except the extreme northwest where the yield was around 18 mm.

Across central areas from Stratton to Owermoigne in the south, north-eastwards to Tarrant Monkton

Table 1: Monthly Rainfall and Thunder days in 2016

<i>Month</i>	<i>Rain Days .0.2 mm</i>	<i>Rainfall (mm)</i>	<i>1981-2010 av. (mm)</i>	<i>% of av.</i>	<i>Thunder days</i>
January	23	187.3	97.2	193	2
February	16	84.2	71.3	118	1
March	12	100.5	72.2	139	6
April	16	59.6	62.3	96	1
May	14	67.8	57.6	118	4
June	16	74.8	52.7	142	6
July	7	10.5	51.8	20	1
August	11	57.5	62.8	92	2
September	16	83.0	71.3	116	5
October	8	47.6	109.2	44	2
November	14	118.9	109.3	109	1
December	13	30.3	107.2	28	0
Year	166	922.0	924.9	99	31

and Witchampton the rainfall total was over 30 mm. (Milton Abbas 38.0 mm; Puddletown 37.9 mm; Owermoigne 33.9 mm)

27 March

Storm 'Katie', a developing low pressure area to the west of Ireland (975mbs 0000hrs GMT 27th) deepened further over the next 24 hours as it moved to Cornwall (971mbs 0000hrs GMT 28th).

The associated overnight rain amounted to about 15 mm in the Purbeck area but over most of the south and east of the county 20 – 30 mm was registered. The heaviest rain was reported northwest of a line from Forde Abbey to Sydling to Milborne St Andrew, Stourpaine and Compton Abbas and within this zone there were general falls of 30 – 40 mm. Four stations reported this day the wettest of the year.

A little thunder was also reported (early hours 28th) from the Blandford and Milborne St Andrew area.

The storm was named in advance for its potential to create damaging winds and large waves. Gusts of more than 75mph were reported along the coast with some breaching of sea defences. A gust of 57mph was recorded in Dorchester (0400hrs GMT 28th) — the highest recorded during the year. There were many power outages across the county, mainly affecting villages where consumers were served by local overhead lines.

(Minterne Magna 40.0 mm; Shaftesbury 37.3 mm; King Stag 35.8 mm)

1 August

The synoptic weather chart for 2400hrs GMT showed a complex series of fronts over southern England linked to a depression (993mbs) well to the west of Ireland.

Occasional light rain during the afternoon became persistent and heavy across the whole of the county through the evening.

The highest totals were reported along an approximate ten-mile strip running parallel with the coast from West Bay to Swanage. Across this swathe of south Dorset falls exceeded 40 mm with the exception of the southern tip of Portland where 24 mm was recorded. Elsewhere, totals were generally 25 – 35 mm. At thirteen sites this was the wettest day of the year.

(Owermoigne 53.5 mm; Winterborne Steepleton 46.6 mm; Church Knowle 45.3 mm)

19 – 21 November

The morning of the 19th was mainly dry with sunny periods before cloud and outbreaks of rain arrived from the southwest during the afternoon. The wind strengthened and the rain intensified during the evening as 'Angus', the first named storm of the season approached. Its position was just to the south of Cornwall at 2400hrs (966mbs) and as it tracked northeast it created a pressure fall of 18 millibars in 4 hours from 2200hrs. A rapid rise in pressure of 17 millibars in 4 hours commenced at 0400hrs (20th).

In the Dorchester area the strongest wind gusts (42mph) occurred in the first two hours of the rising pressure phase.

Every reporting station in the county received at least 25 mm of rain, credited to the 19th, with the exception of Portland (17.2 mm). This was the wettest day of the year at twenty-three stations with totals widely in the range of 30 – 40 mm.

(Kingston Maurward 51.0 mm; Cerne Abbas 44.8 mm; Charminster 43.3 mm)

Sunny periods through the morning of the 20th was followed by increasing cloud during the afternoon ahead of further rain, heavy at times, that arrived in the evening and continued overnight.

Many places collected another 20 – 30 mm of rain and at Owermoigne 42.4 mm was measured.

Yet another low pressure system moved towards the southwest of England on the 21st to be centred (982mbs) just to the south of Weymouth at 2400hrs. Again, there were periods of moderate to heavy rain or showers. At Shaftesbury a further 58.3 mm was recorded.

The cumulative rainfall total for the county averaged over the three days amounted to 78 mm.

(Owermoigne 104.8 mm; Cerne Abbas 98.3 mm; Shaftesbury 98.1 mm)

THUNDERSTORMS

Thunder was reported as heard on 30 days in 2016 compared to 13 days in 2015 and 52 days in 2014. December was the only month totally thunder-free and March produced the highest incidence. (See Table 1)

Most of the thunder reported (twenty-four observers) was associated with short-lived and localised heavy showers, containing just one or two 'flashes and bangs'. There were however, three days when thunder activity was widespread, namely 16 June, 27 August and 15 September.

16 June

Thunder was reported across most parts of the county at various times during the morning, afternoon and evening with some lightning damage to properties. Associated rainfall was varied and while many places recorded just a few millimetres there were pockets of intense rain that resulted in localised surface water flooding.

Charminster 54.0 mm; Stratton 50.0 mm; Bradford Peverell 37.4 mm)

27 August

There was thunder in parts of NW Dorset around breakfast time but the main storm activity of the day was developing in the Lyme Bay area around 1000hrs GMT. Over the next couple of hours the storm drifted northeast to affect south-western, central and north-eastern parts of the county with frequent lightning. A property was struck at Bradford Peverell.

(Stratton 30.2 mm; Cerne Abbas 26.4 mm; Bradford Peverell 20.9 mm)

15 – 16 September

Thundery activity spread north from the Channel to affect primarily central and east Dorset around midnight with frequent lightning and some intense rainfall. Houses were struck at Bournemouth and Christchurch where there was also serious localised flooding. At West Moors 30.4mm of rain fell in eighty minutes and at Swanage 31mm fell in an hour.

(Wimborne 49.9 mm; Winterborne Zelstone 45.6mm; Swanage 38.6mm)

DORSET RAINFALL 2016

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		Days with		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR (mm)	
		Depth (mm)	Date	0.2mm	25mm														
STOUR BASIN																			
Blandford St Mary	Mr D Vincent	36.7	19/11	205	5	205.2	74.2	107.7	66.0	79.0	66.6	10.2	55.4	80.5	39.7	118.5	36.0	939.0	
Compton Abbas *	Environ Agency	34.4	1/8	230	5	161.6	94.8	104.2	66.2	49.8	110.6	23.6	66.2	75.6	51.4	103.8	29.2	937.0	
East Stour	Mr R Brown	33.7	1/8	186	1	115.5	67.0	83.0	62.3	43.6	81.9	30.0	64.7	57.5	37.5	99.6	20.4	763.0	
Fontmell Magna	Mrs J Westgate	34.9	27/3	183	3	137.9	83.4	97.8	61.9	50.0	77.3	15.3	58.0	57.3	46.0	103.7	22.2	810.8	
Gillingham *	Environ Agency	30.6	1/8	215	3	107.6	69.4	85.8	62.8	51.8	51.4	17.6	65.4	48.2	35.0	90.0	24.2	709.2	
Iwerne Minster	Mr R Benfield	35.7	19/11	172	5	160.9	99.5	108.6	67.3	58.4	66.6	14.1	55.0	64.7	44.3	113.7	24.7	877.8	
King's Stag *	Environ Agency	35.8	27/3, 19/11	211	4	137.8	77.2	100.2	61.0	86.8	52.2	9.2	57.8	63.6	38.6	108.4	24.2	817.0	
Lytchett Matravers	Environ Agency	42.7	19/6	160	5	201.9	69.3	101.4	68.4	78.9	91.6	8.0	49.2	79.2	40.2	102.2	31.7	922.0	
Motcombe	Mr M Rawlins	31.0	27/3, 19/11	160	5	132.0	78.4	95.1	70.8	54.3	98.2	15.3	71.6	73.8	51.0	110.9	24.1	875.5	
Shaftesbury (Hilltop)	Mr M Yorke	58.3	21/11	178	8	157.5	86.0	113.8	85.3	59.8	125.2	55.1	82.3	78.3	56.0	136.8	33.7	1069.8	
St Leonards	Environ Agency	45.9	15/10	154	8	192.4	67.4	98.5	57.7	68.9	58.9	6.6	41.8	93.8	55.0	106.2	29.5	876.7	
Stourpaine	Environ Agency	33.1	19/11	171	4	179.8	89.4	100.8	59.0	60.7	47.7	10.6	47.5	60.1	37.4	108.4	27.4	828.8	
West Moors	Mr M Rowley	41.1	19/11	163	4	176.3	65.7	89.9	47.7	73.8	56.3	6.1	40.6	99.6	45.0	102.7	27.9	831.6	
Wimborne (Merley)	Mr B Bush	49.9	15/9	183	4	205.9	80.2	96.7	63.9	59.4	65.0	8.8	46.4	117.3	48.5	94.5	31.5	918.1	
Winterborne Zelstone	Miss B Hooper	45.6	15/9	124	5	173.4	61.7	85.6	36.5	62.5	40.1	6.1	50.5	116.1	48.7	93.2	25.8	800.2	
Witchampton	Mr A Mitchell	35.4	19/11	143	5	204.8	66.8	106.2	55.6	61.4	68.2	4.7	52.1	66.9	38.9	93.8	25.9	845.3	
PARRETT BASIN																			
Melbury Sampford	Mr G Jones	39.6	19/11	168	3	189.1	98.0	101.2	58.4	87.7	59.8	7.1	37.3	94.0	44.8	124.6	39.5	941.5	
Stalbridge	Mrs M Paul	36.4	19/11	191	3	122.5	73.5	91.9	63.1	49.3	83.9	10.4	55.8	60.0	41.4	114.4	21.0	787.2	
Thornford	Mrs W Morris	33.0	19/11	154	4	126.6	86.0	94.1	54.4	60.6	83.0	6.0	39.4	59.9	39.6	103.7	22.1	775.4	

DORSET RAINFALL 2016

STATION	OBSERVER	Greatest 24h fall		Days with rain		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR (mm)
		Depth (mm)	Date	0.2mm	25mm													
FROME BASIN																		
Ansty	Mrs A Stevens	41.5	19/11	177	6	193.9	88.2	98.7	59.9	90.6	45.2	8.5	58.7	58.2	41.6	127.7	34.0	905.2
Bere Regis	Environ Agency	33.4	26/1	150	5	213.0	73.1	103.5	66.3	79.2	53.1	4.8	46.4	92.1	42.8	107.4	30.3	912.0
Bradford Peverell	Mr D Oliver	40.1	19/11	178	7	211.5	89.4	103.9	55.8	62.2	96.2	7.9	77.3	93.3	63.5	134.8	32.4	1028.2
Broadmayne	Mr M Ching	45.0	1/8	144	5	174.5	83.5	77.5	45.0	60.5	90.5	5.0	78.0	98.0	50.0	128.0	31.5	922.0
Cerne Abbas	Mr P Spray	44.8	19/11	176	11	237.7	124.6	114.7	68.0	82.8	69.9	13.5	79.5	89.8	70.3	143.1	42.4	1136.3
Charminster	Mr G Eveleigh	54.0	16/6	155	9	222.8	94.9	110.1	55.3	59.7	121.7	8.0	63.8	104.2	55.8	139.5	32.0	1067.8
Dewlish (Parsonage Fm)	Mr C Britton	37.5	19/11	177	7	229.5	115.1	143.2	91.3	110.8	74.0	11.6	60.8	98.4	50.6	145.2	47.9	1178.4
Dorchester	Mr J Oliver	41.7	1/8	174	7	206.6	87.6	94.3	51.2	59.6	75.6	6.2	66.6	99.4	51.4	134.2	33.9	966.6
Evershot *	Environ Agency	36.4	19/11	216	4	197.8	107.6	108.2	68.6	87.0	73.0	12.8	50.6	102.6	46.8	115.0	38.4	1008.4
Kingston Maurward	Environ Agency	51.0	19/11	166	6	212.9	81.3	102.9	48.0	55.8	94.0	6.7	56.0	88.4	43.4	139.5	33.0	961.9
Milborne St Andrew (Coles Fm)	Mr A Maitland	38.4	19/11	187	5	226.5	88.1	112.7	65.3	76.4	51.4	10.7	49.6	72.8	43.3	117.6	35.1	949.5
Minterne Magna *	Environ Agency	40.0	27/3	225	5	185.6	110.8	122.4	62.0	86.4	73.6	11.4	46.4	83.0	48.2	109.4	37.6	976.8
Milton Abbas	Mr K Battrick	40.0	19/11	164	8	250.0	103.5	132.5	68.4	79.5	58.0	10.0	57.8	85.9	47.3	134.8	48.0	1075.7
Owermoigne	Mr A Hodge	53.5	1/8	166	7	185.9	76.0	108.1	60.4	63.2	89.6	3.6	81.4	95.1	50.7	151.4	33.6	999.0
Puddletown (Bardolf Manor)	Mr H Wood-Homer	40.4	19/11	157	5	216.3	76.9	112.4	71.6	70.0	57.8	6.0	51.7	81.4	42.8	128.3	31.9	947.1
Rampisham	Mrs C Parry	35.5	19/11	195	9	204.9	101.5	111.7	70.6	87.9	70.5	19.4	50.7	116.9	51.8	125.6	38.4	1049.9
Stratton	R Searle / A Keep	50.0	16/6	172	10	220.4	91.4	104.7	60.8	73.2	127.2	9.3	88.7	92.6	69.5	138.5	21.8	1098.1
Sydling St Nicholas	Mr C Legg	36.2	19/11	151	7	210.8	114.1	106.0	61.5	68.4	64.9	15.0	49.0	47.2	54.1	113.0	24.8	928.8
Wareham (Trigon)	Mr G Sturdy	27.2	19/11	149	1	149.0	47.2	77.3	39.5	79.8	64.8	2.8	35.0	68.8	33.6	87.3	25.7	710.8
AXE BASIN																		
Forde Abbey	Mr M Roper	40.8	6/2	170	6	205.8	102.4	102.3	51.3	103.1	65.2	3.8	44.7	84.1	45.0	136.7	30.0	974.4
COASTAL STREAMS																		
Bothenhampton	Environ Agency	32.3	19/11	163	5	155.3	86.9	73.4	47.1	59.4	59.8	11.2	51.9	81.0	54.3	112.7	13.1	806.1
Church Knowle	Environ Agency	45.3	1/8	147	4	184.5	82.0	84.8	53.0	55.5	92.1	3.6	63.6	96.5	39.5	107.6	37.5	900.2
Friar Waddon *	Environ Agency	44.0	1/8	198	5	165.0	76.8	94.8	53.0	62.0	85.2	6.6	74.4	94.0	50.6	117.6	25.8	905.8
Nottingham	Environ Agency	35.0	1/8	171	4	145.7	59.2	77.9	44.1	60.2	72.3	6.2	57.6	68.5	45.7	104.1	20.9	762.4
Portland Bill (Old Higher Light)	Mrs F Lockyer	23.8	1/8	167	0	135.2	59.0	63.0	32.4	40.6	64.2	2.6	40.6	56.4	48.6	87.8	25.4	655.8
Sutton Poyntz *	Environ Agency	40.4	1/8	200	3	133.2	58.6	79.0	46.2	53.8	76.0	4.4	61.6	79.8	40.6	114.0	22.8	770.0
Swanage *	Environ Agency	43.4	1/8	177	2	165.8	64.8	86.6	37.6	35.0	106.4	5.4	57.0	110.6	46.4	90.4	35.4	841.4
Weymouth	Mr R Poots	38.4	1/8	155	4	151.2	50.1	86.1	42.0	62.3	77.1	6.0	62.8	81.8	31.7	120.1	22.1	793.3
COUNTY AVERAGES				166		187.3	84.2	100.5	59.6	67.8	74.8	10.5	57.5	83.0	47.6	118.9	30.3	922.0

Rainfall

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