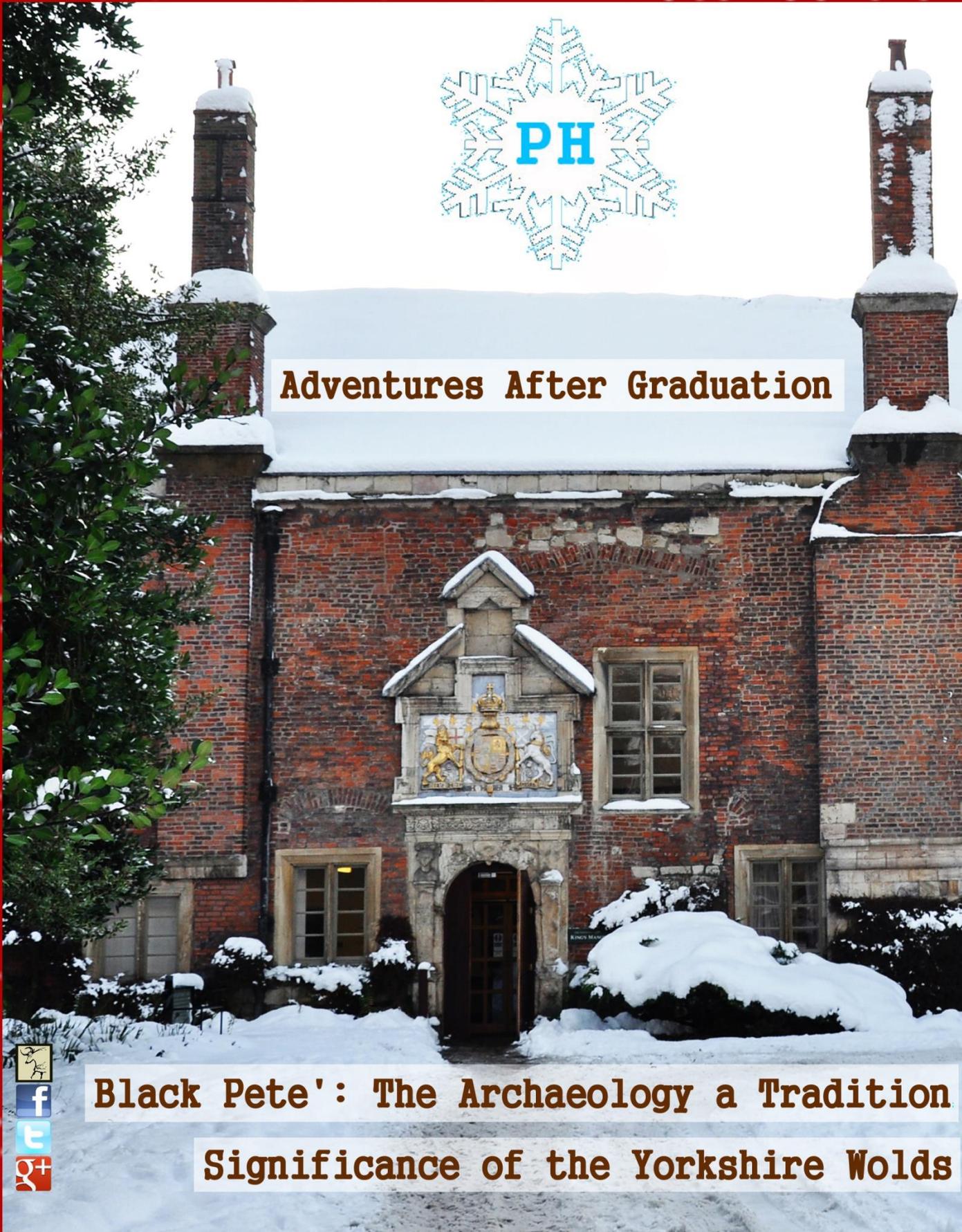# The Post Hole

The student-run archaeology journal

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Adventures After Graduation

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Black Pete': The Archaeology a Tradition

Significance of the Yorkshire Wolds

Acknowledgements

Front cover: The King's Manor, University of York (Image Copyright: Matt Cornock)

Editorial Team

Editor in Chief

Emily Taylor

editor@theposthole.org

Managing Editor

Rianca Vogels

publicity@theposthole.org

Submissions Editor

Taryn Bell

submissions@theposthole.org

Editor

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Editor

Lucy Wheeler

Creative Design Editor

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Contents of Issue 33

Editorial: A community within archaeology

As we draw closer to the end of the year, we look back on what has been achieved and has happened within the archaeological world, in order to step into the New Year. This year saw a number of exciting finds, including the discovery of Richard III under a car park in Leicester, and the great loss of one of our most loved archaeological faces, Mick Aston. This great loss was felt across the globe, and campaigns and support demonstrated on this scale show how archaeology and related courses create and maintain a community. This community is what keeps archaeology alive whilst allowing it to grow and expand. In a constantly changing world, archaeology must develop as a discipline but also a pursuit – as something to enjoy. As part of this community, we share a love and passion for archaeology. However, we also discover ourselves as individuals. Archaeology helps us grow in understanding and experience, but most importantly, understand ourselves in time and space, marked for future generations to refer to.

So, you may ask, what does *The Post Hole* have planned for the future? Well, now that the new team is set in place and this, our second issue, is released, we have a number of new ideas planned. Have you dug somewhere exciting this summer? Have you discovered an exciting artefact you wish to share with the world? Do you have a photo you love of an experience, a site or a view related to the archaeological world? If so, *The Post Hole* is pleased to announce our first ever *The Post Hole* Image Gallery Competition. This image competition will run between this issue and February's Issue 35, the deadline is the 25th of February. The photo can consist of anything related to archaeology and must be uploaded to us via our website before the deadline. The winner will get a special mention in the following issue, their image featured on the next issue's front cover and they will receive a *Post Hole* poster with their image on. More information will be posted shortly on our website and Facebook page.

Secondly, *The Post Hole* is putting out a call for Public Relation Officers across the globe. Are you interested in becoming part of *The Post Hole* team? Do you love archaeology and want to expand this publication to a wider audience? This is an exciting opportunity, one not to be missed! If so, please email editor@theposthole.org for further details.

This issue brings you a wide range of articles, differing in topic. In our first article, **Rianca Vogels** explores and justifies the Dutch tradition of 'Black Pete.' This interesting and thought provoking article draws on current debates circulating today in The Netherlands, whilst exploring Christmas traditions. Relevant to this festive season, it is an interesting read, creating an appreciation for the traditions of different cultures during the Christmas holidays.

Dr Cath Neal considers the significance of the Yorkshire Wold's landscape, combining contrasting theories, settlement and burial evidence. Neal's article touches on a number of subjects and allows an overview of the Yorkshire landscape to be explored, setting itself up for future research or debate.

The use of Photogrammetric models for the recording of archaeological features by **Robert P. Barratt** argues for their importance in the future of archaeology. The history of these methods and the programmes required are tested on Bronze Age and Romano-British sites, Ham Hill and Caerau. This well-rounded argument compares the limitations and methods alongside traditional methods.

Jonathon Foster provides us with a dynamic and stimulating article involving an archaeological investigation into the deserted medieval villages of eastern Yorkshire. The need for further research is explained, however, Foster's article combines aerial photography and ordnance survey maps to explore the distribution of deserted medieval villages and how they have been perceived in the past.

Finally, **Keneiloe Molopyane** provides us with a detailed account of life, and adventures, after graduation. Molopyane's exciting biographical account demonstrates how one may end up journeying down a different career path to that which they had previously expected, resulting in many great memories and experiences. Molopyane's article reminds us to make the most of every opportunity we get, because we never know where it might lead to in the future.

Christmas is a time to rejoice with friends and family and on behalf of the team, we wish you a very Merry Christmas and a Happy New Year. Don't forget over this festive period, if you find you have a spare minute between eating mince pies, opening presents and celebrating with all the family, *The Post Hole* is still eager to receive your submissions. Please email any submissions to Taryn Bell at submissions@theposthole.org, and for our latest news follow us on **Twitter, Facebook** and **Google+**.

Merry Christmas and a Happy New Year!

Emily Taylor

(Editor-in-Chief of *The Post Hole* - **editor@theposthole.org**)

'Black Pete'; the archaeology of a Dutch tradition

Rianca Vogels [1]

[1]Department of Archaeology, University of York, The King's Manor, York, YO1 7EP

Email: rv534@york.ac.uk

As an archaeology student, you learn to look at life from a different perspective. Though my personal interest lies within the distant past, recent developments have led me to apply my archaeological training on my *own* past. As a foreign student living in York, the connection to what is happening in my native country, the Netherlands, isn't what it used to be, due to how busy student life is. However, that changed recently when the UN allegedly declared that they would start an investigation into 'Zwarte Piet' (Black Pete) (ANP a & b, 2013), Saint Nicholas' companion in the Dutch tradition of Sinterklaas, celebrated on the 5th of December, as they had received racism complaints from people living in the Netherlands. I started researching the issue and reading international newspapers or even UK news stories, which enraged me, even more. Below you will find the real explanation as to what this 'Sinterklaas' celebration is, the history behind the man, a brief evaluation of the tradition's history, a look into the origins of Black Pete, the problems that have been surfacing in the Netherlands for at least a decade now, and finally Sinterklaas' connection to Santa Claus.

Sinterklaas, as he is known in the Netherlands and Belgium, is no stranger to other parts of Western Europe, with French and Germanic counterparts. But who is this man, and who are his companions? Where does the tradition come from, and what connection is there with Santa Claus? Originally I thought that it would be a difficult task, trying to gather information without having access to a Dutch library, but I found out I was heavily mistaken.

What is 'Sinterklaas'?

Figure 1. *The arrival of Sint (*http://www.blikopnieuws.nl/bericht/206902/sinterklaas-op-tijd-aangekomen-groningen*).*

Every year at the end of November there is a big parade aired on national television, so that all children can experience the arrival of the Saint and all his Petes into the country via his steamboat from Spain. During their time in the Netherlands, they will gather information on all the children, whether they have been good or bad, and write their findings in the Saint's big book. The old tales tell of Black Pete putting the naughty children in his big bag, in which he normally carries the presents, to take them back to Spain for punishment. During the time that he is in the country, children can experience him in several ways. At home, one shoe is left in a room other than the bedroom, preferably near a fireplace, radiator or window. The story states that the Saint and his Petes will walk on all the roofs to gather their information. In order to be kind, the children will leave glasses of water and carrots, for the Saint's horse, and drawings, so the Saint and his Petes can take a break, and leave some sweets (Figure 2).
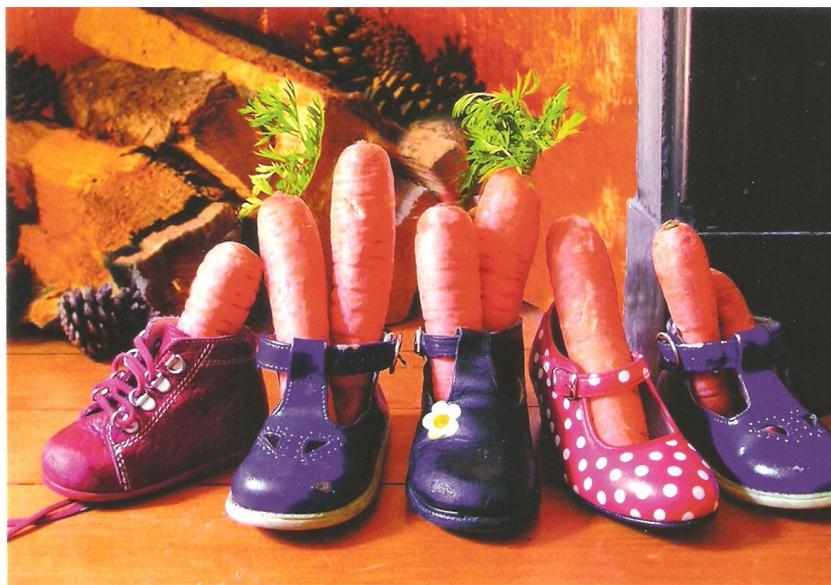
Figure 2. *A classic example of Schoenen zetten* (http://cardcetera.wordpress.com/2011/11/12/sinterklaas-actie-2-sets-kaarten-winnen/)

Another way is to have him visit schools, clubs or any other kind of social gathering. Here, the children will be in one big space when the Saint and the Petes enter; all of them get candy, and are one by one called forward to the Saint. He then reads from his book and tells the child when he or she has done well in the last year and when they've been naughty (this list is provided by the organisers of the event). After this, the child is given a small present. There are also private house visits.

When the children reach the age at which they know he doesn't really exist, the visits and the mysterious gifts are replaced with a 'surprise' evening (using the French pronunciation sur-pri-se), similar to Secret Santa, the only difference being that the presents are bestowed in a specially crafted fashion representing the receiver of the gift, including a unique poem describing the receiver and the gifts. This normally takes place on the fifth of December.

As a young child, I watched the big parade, put out my shoe and partook in the school and home celebrations, and the surprise evenings. I was even lucky enough to be a Black Pete myself for one weekend. In general the Saint is regarded as a very wise, old and kind man. Black Pete however, is regarded as a bit of a clown, but also as quite scary, for it is he who punishes the naughty children (it is not a real punishment, more of a threat that is spread).

This special time of year doesn't just see the Saint and his Petes arrive. Long before they even enter the country, special sweets reach the shops: chocolate letters, good as shoe presents, 'schuimpjes' and all kinds of 'speculaas', pepernoten, chocolate money, and different kinds of marzipan. (My apologies to all non-Dutch speakers, but most of the names of these sweets have no English equivalent.) These are the things I look forward to most now, but the child inside me still puts out her shoe!

Who is Sinterklaas?

Sinterklaas is based upon Saint Nicholas, who was a bishop in 4th century Myra, modern-day Turkey (Anon n.d.); he was known for his generosity and kindness to poor people and children. Saint Nicolas became a patron saint for sailors and small businesses across Europe as his story spread. Unfortunately there are not many sources available regarding when the people in North-West Europe started the tradition, although all the sources seem to agree that it was sometime in the Middle Ages (Boer-Dirks 1993).

While researching the history behind the festive traditions, I have only been able to find one source that looks into the history of both characters in such a way that sheds some light on it.

Boer-Dirks (1993) indicates that the precise beginning of these traditions is unknown. The first mention of them dates to the 14th century. The main source of information comes from manuscripts. A manuscript from 1470 has the oldest known image of Saint Nicholas, and a manuscript from 1498 shows the Saint with three boys. However, no mention of a companion is made for centuries to come.

One of the difficulties of researching the tradition is due to the reformation, which caused a lot of upheaval in the Netherlands and the destruction of large amounts of source material. However, evidence of these traditions remains today, including complaints from people not agreeing with the fact that a festive family day is celebrated on a Catholic Saint's day. These complaints now serve as very precious firsthand accounts into the celebrations of that time. One source, a pastor from Gouda in 1658, gives a detailed account of the practices in the Dutch houses on the evening in question. The pastor mentions the Saint, and how it is wrong to deceive the children like this, however no mention is made of a companion (Boer-Dirks 1993).

The in-depth research into the origins of Sinterklaas begins in the 19th century. Although it was known that the Saint was based on an actual living person from the 4th century, the deeper meaning was sought by some in the pagan past. German researchers explained the festivities as being related to pagan celebrations of the god Wodan. One of the Grimm brothers placed the origin of both Saint and companion in the pre-

Catholic times of the north, as with the arrival of Christianity, the pagan feasts were outlawed and in this way, the people were still able to hold on to their own traditions. This would explain the sometimes scary appearance of Black Pete, as the Saint would represent Wodan, and Pete one of his cronies. Sources dating from the same period, but from the Netherlands, also follow this path, though hardly mentioning Black Pete (Boer-Dirks 1993).

The responses from Catholic sources that come forward to the research mentioned above, are not pleasant, claiming that he is a representation of the devil. The evidence that this is based on is rather thin; they say that there are some surviving images of the saint with a chained devil at his feet, and this devil is black. However this depiction is not just reserved for Saint Nicholas, but was used several times in the Netherlands' medieval past with both white and black devils, and doesn't continue on in more recent history (Boer-Dirks 1993).

A more recent explanation for the Saint's companion claims that Black Pete is one of the African child slaves he has rescued during his life (Scheer 2013). On the other hand, one would be inclined to think that if that should be the case, it should have been mentioned in earlier sources, or even within the research conducted by Boer-Dirks (1993).

Could the final explanation just be a contemporary answer in a racial sensitive matter? Another contemporary story is that Black Pete is black due to the fact he spends most of his time going up and down chimneys, so that essentially he could be of any race or colour, but is so dirty that it is not visible. This last explanation sounds more like an excuse than anything else.

Figure 3. *Sint and Piet.* A cartoon image of Sint and Pete (http://2.bp.blogspot.com/-GU2Wd9j2eew/UJZHGdI4EwI/AAAAAAAAB9k/BKZqMTOiAOY/s1600/sint%20en%20piet.jpg).

None of the reasons mentioned above explain the presence or appearance of Black Pete. Boer-Dirks (1993) comes closest when she discusses the earliest mention of Black Pete arising in the late first half of the 19th century. These days it is normal that the Saint makes a house-visit, but in the sources there is no mention of

this, nor in the paintings or images that are produced. The earliest mention of this dates from 1831, but later researchers do not mention it, which results in Boer-Dirks (1993) concluding that the house-visits began in the first half of the 19th century. These home-visits almost go parallel with the first explicit mention of Black Pete. The earliest depiction of Black Pete is that of a brown boy in 16th century Spanish costume, although he originally remained nameless for quite some time. From the second half of the 19th century, the Saint's companion becomes a standard part of the imagery and by the end of the century he even has the name Pete. Boer-Dirks (1993) believes that is due to the invention of the house-visits – the Saint is depicted as an affluent man, who in those times had servants. The first depiction of Black Pete is therefore as a groomsman. The origins of Black Pete coming into play have to be considered. As far as I am aware, slaves were never a part of society in the Netherlands, not taking Roman times into consideration. There were many different layers in society, but personally I have never heard the word slave mentioned when speaking of the history of the Netherlands, in the Netherlands. I will not delve into the position that the Netherlands played within the slave trade, as that would be a completely different kind of article.

Sinterklaas today

Non-Dutch people seem to have a problem with the tradition of Sinterklaas, which can be really confusing to Dutch people. Black Pete was never meant to be racist or even discriminative; however, people perceive him that way. To say that the problems with this tradition are something of the last decade, or maybe even the last century, would be incorrect, as discussed above with the complaints from the pastor from Gouda. Even a simple search online would indicate that different cultures living in the Netherlands don't always appreciate or understand our tradition (Helsloot 1996; Simons 1996, 1998; Grimes 2005). It seems that at any given time in the history of the tradition, someone seemed to have a problem, and many changes have been made to accommodate those that do not agree. For example in the late 19th to early 20th century Sinterklaas was accompanied by one male Black Pete (Schenkman 1907). He is now accompanied by hundreds of Petes, both male and female. Not only has Pete multiplied, there is now a Pete-School, where the Petes learn how to wrap presents and throw candy. There has even been delegation, as there is a navigation-Pete, a package-Pete, a pepernoten-Pete etc. In the end it turned out that it was not the UN that declared an investigation, but people working within a voluntary department of the UN who do not agree with the tradition and support the idea that 'Zwarte Piet is racisme' (Black Pete is racism). It started a big debate in the Netherlands of huge proportions, as the Facebook page 'Pietitie,' to save Black Pete reached over 1 million likes within 24 hours which is quite a feat for a country of only 17 million people (RTL Nieuws, 2013). This year, the Saint made his normal entry into the country with his Petes, the only difference being that they were not wearing their big hooped earrings. Slowly but surely the tradition is changing, which indicates that the Netherlands accommodates all cultures that reside there, and still wants to hold strong to the values and principles of tolerance which made the country such an international refuge and success in the international trading market.

Sinterklaas vs. Santa Klaus

Most non-Dutch people confuse Sinterklaas with Santa Claus; both festivities are celebrated in the Netherlands. However if you want to know the difference between the two, just ask about, any young child will tell you that they are not the same person, as Sinterklaas lives in Spain and Santa Klaus on the North Pole, although both characters are based on the same saint. Whilst carrying out the research for this article, I have learned that Dutch people had a hand in creating Santa Claus. A long time ago, the Dutch had a colony they called New Amsterdam, which most people know today as New York. The Dutch colonists wanted to keep the Dutch spirit going, in the sense of freedom of speech, religion and tolerance. However, celebrating a Catholic Saint did not seem to fit that picture, so the date and the appearance of the Saint was adjusted and a jolly 'fat' man was created who went by the name Santa Claus (Helsloot 1996; Grimes 2005).

Figure 4. *Sint and Santa* (http://www.textilia.nl/Nieuws/gfk_sinterklaas_wint_van_de_kerstman-121204150000#.UpOzCeLY_cw)

Conclusion

Black Pete is a relatively new companion to Sinterklaas, however this does not make him less loved and appreciated, as my young niece and nephew will be able to vouch for, as well as many other children in the Netherlands. His origins might be vague, but never intended to hurt anybody, resulting in changes and possibly more, to his/her appearance over the next few years, which will hopefully be accepted. However I believe that if Black Pete stays, no one will make too much of a fuss (the founders of 'Black Pete is racism' excluded). There is a connection between Saint Nicholas, Sinterklaas and Santa Claus; however, they are not one and the same person. Despite what will happen, I know one thing for sure: I will keep loving the festivities surrounding the tradition, and the food that accompanies it. No matter what happens, to me, it will always be Sinterklaas and Zwarte Piet!

If you wish to discuss this issue, please try and uphold the Dutch values of respect for freedom of speech, religion and tolerance.

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Considering the significance of the Yorkshire Wolds landscape

Dr Cath Neal[1]
[1]Department of Archaeology, University of York, The King's Manor, York, YO1 7EP
Email: cath.neal@york.ac.uk

The chalk Wolds of East and North Yorkshire comprise a lightly settled rural landscape dominated by agricultural activity and they are the northernmost expanse of English chalk, forming an arc between the Humber Estuary and Flamborough Head (Figure 1). The Wolds rise steeply from the Vales to the north and west, and more gradually from the plain to the east, to a maximum height of 200m above ordnance datum, covering an area of 1350km². The area is characterised by deeply incised dry valleys and low rolling hills (Figure 2). There is a general absence of surface watercourses on the Yorkshire Wolds, with the Gypsey Race the single exception, and even this is seasonal in places. There are geological contrasts in this region, with the soft drift of Holderness, the chalk Wold ridge and the sandstones of the North Yorkshire Moors compressing a wide range of landscape diversity into a relatively small area (Roberts and Wrathmell 2000, 47).
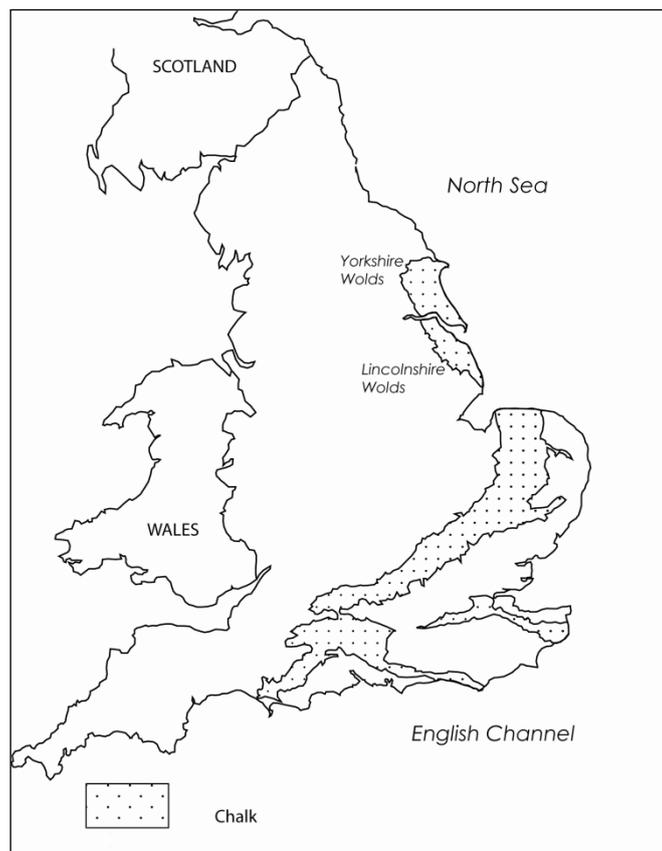
Figure 1. *Distribution of chalk in England* (after Stoertz 1997).

The distinctive inverted 'L- shape' of the Yorkshire Wolds, results largely from the folding of the chalk that took place during the Tertiary period, and this resulted in the shallow syncline that forms the Lincolnshire and Yorkshire Wolds (Catt 1987, 13). Towards Holderness in the east, the chalk dips below substantial

Quaternary deposits and towards the west. For example, in the Vale of York, there are a series of older Triassic rocks (Catt 1987, 16). Towards the centre of the syncline the chalk is c.500m thick but at its southern limit is anything from 50 to 230m thick. Drift deposits are rare on the Wolds and are restricted to two units of glacial till occurring in Holderness and the lower part of the Wolds dip-slope (Catt 1987, 16).

This concentration of prehistoric monuments on the Yorkshire Wolds has led to comparison with prehistoric Wessex. In addition to the barrows, linears and cursus monuments, there are exceptional features from other periods of time such as square barrow cemeteries, ladder settlements, chariot burials, villas, deserted medieval villages and Anglian cemeteries. An assessment of the Yorkshire archaeological resource has found that the Wolds landscape contains large volumes of artefacts representing all categorised periods of time from the Neolithic onwards (Roskams and Whyman 2008).

Figure 2. *Dry valley at Fairy Dale* (Image Copyright: C. Neal).

The richness of archaeology is evident due to the lack of concentrated modern settlement that would potentially destroy or mask archaeological features, although arable intensification and deep ploughing does pose a considerable threat. Despite the history of archaeological study, the region has not benefited from a rigorous programme of environmental work and the palaeoenvironmental context of the archaeology itself is relatively unknown. In addition to this, a lack of understanding of landscape processes within the dry valleys on the Yorkshire Wolds has been problematic for scholars from both the earth sciences and archaeology for a long while (Lewin 1969, 3; Foster 1985, 206; Hayfield and Wagner 1995, 49; Manby *et al.* 2003, 113).

'Wold' is thought to derive from Old English 'wald', meaning wood and is usually applied to lightly spread woodland, often described as 'wood-pasture', with little or no plough land (Fox 2000, 51). Woodland itself is rarely mentioned specifically in Domesday and so it is suggested that 'wald' may have been derived from the Latin 'gualdus', referring to land rights over marginal areas that were in royal control but had common access

rights (Fenton Thomas 2005). It is thought that some areas of ancient woodland survived into the seventeenth century and that several of the Scandinavian place names, including the deserted medieval villages of Argam and Skali, mean 'on a seasonal basis', indicating a transhumant mode of settlement (Fox 2000, 52). Evidence from text, but also focused on the regionally unusual chalk, emphasises the marginal character of the Yorkshire Wolds landscape for settlement, and there is a continuing debate about the possible continuity of settlement in the area since prehistoric times. Whilst we recognise the concentration of prehistoric monuments, we have limited understanding of the locus of broad human activity: whether this was concentrated around the monuments themselves, and the nature of their relationship to the wider landscape (Bradley 2002, 41).

In addition to prehistoric and historic period landscape modification, significant landscape changes have influenced the topography of the Yorkshire Wolds during the last century. The chalk grassland, which was once the predominant mosaic vegetation, now covers just 1.3% of the Wolds due to an increase in arable land during the twentieth century, and also because of changes in the methods of farming as part of agricultural intensification (English Nature 1997, 3). Although there has been significant habitat loss, many man-made habitats such as disused quarries, disused railway cuttings and scree surfaces now provide typical grassland habitats, demonstrating the complex relationship between people and the places they modify. Sparse woodland is present here with calcareous ash woods, shelter belts and dale head plantations, but habitat diversity is considered low due to the farming methods employed. The use of agricultural chemicals and widespread re-seeding has led to a 35% loss of calcareous grassland habitat during the 1980s alone (English Nature 1997, 9). There remain, however, twenty Sites of Special Scientific Interest (SSSIs) on the Wolds, testifying to the importance of this landscape for ecological and environmental heritage and equilibrium. The hawthorn hedgerows, resulting from Parliamentary Enclosure (1750–1850), are now being removed because of intensification and this is considered, by some, a return to an earlier open landscape character.

A combination of agricultural and central water abstraction has lowered the water table and caused spring-flow reduction, thereby lowering the levels in seasonal streams or winterbournes. Additionally, water quality, in this substantially agricultural area, is easily contaminated by the use of the chemicals associated with agricultural intensification, such as farm effluent, pesticides and leachates (English Nature 1997, 15). There has been the widespread loss of dewponds (man-made ponds lined with layers of quicklime, straw, clay and chalk rubble), with an estimated 80% of the total number falling out of use between the 1950s and 1980s (English Nature 1997, 11).

The nature of the pre-Quaternary landscape of northern England is difficult to establish due to successive regional ice sheets and large-scale glacial erosion during the Pleistocene. Despite significant research into the pre-Pleistocene evolution of northern England, there are still many more questions than answers about the overall development of the north during the Tertiary period (Huddart and Glasser 2002, 29). The cliffs at

Sewerby, East Yorkshire, are of national and international importance containing evidence for environmental change since at least the last interglacial (Evans 2002, 71). The features seen include an Ipswichian interglacial beach deposit dating to c.132,000 m.y.a., sediments resulting from the drop in sea level at the beginning of the last glacial period and evidence for the advance of ice into the area during the Dimlington Stadial (Evans 2002, 71). Although the Yorkshire Wolds were unglaciated during the Devensian, as a periglacial region, the subsoil would have remained frozen throughout the entire year (Ahnert 1998, 103). It is however, entirely possible that some of the dip-slope features may have been caused by the full glaciation of the Yorkshire Wolds, and this has not been conclusively discounted (Lewin 1969; Foster 1985, 36). Geomorphological and sedimentary analysis demonstrates that the ice advanced further into East Yorkshire than previously appreciated (Foster 1985, 1). An attempt to delineate the advance of the Late Quaternary ice sheet in the Yorkshire Wolds was unsuccessful due to the poor quality of the data retrieved. The analyses revealed higher blown sand content than expected which is probably indicative of a glacial outwash deposit (Foster 1985, 1). Unsurprisingly, this study found a close correlation between the underlying tectonic framework and the surface landscape development of the Yorkshire chalk.

Versey considered the nature of hydrology in East Yorkshire in 1949, and provided detailed calculations demonstrating the ability of the chalk Wolds aquifer to provide all the mains water required for domestic and industrial needs in the East Riding and Hull. However, he also described the problem of understanding the perched water tables within the aquifer which arise from the marl bands which separate layers of chalk. These marls represent the insoluble residue of dissolved chalk and the resulting clay deposits frequently seal the joints between the chalk layers. Even when the marl band is very thin, it may be sufficient to form a watertight barrier to percolation (Versey 1949, 239). It is this effect that results in very different results for water table heights between boreholes which are very close geographically. The extent of the chalk aquifer in the Yorkshire Wolds and the Holderness Plain covers an area of 2000km² and the only surface flow on the outcrop is the Gypsey Race in the Great Wold Valley, with the River Hull rising as a series of springs south of the chalk outcrop (Salmon *et al*. 2007, 413). The chalk here, belongs to the ill-defined northern chalk which is materially different from the chalk in the south of England (Salmon *et al.* 2007, 413). The hydrogeology of the area was assessed and the study found pronounced fissuring and the development of secondary permeability especially within a zone of water table fluctuation within the dry valleys themselves (Salmon *et al.* 2007, 414). There is an absence of modern water intrusion and marked seasonal variation in the spring-flow; the application of a numeric model underestimated low flows in the seasonal stream of the Gypsey Race and in the streams and becks that issue from the chalk edge (Salmon *et al.* 2007, 414).

In the nineteenth century the Reverend EM Cole of Wetwang became the first to specifically comment on the formation of the East Yorkshire dry valleys. He deduced that erosion responsible for valley formation had occurred largely by annual meltwater runoff from an active area of Devensian regional permafrost. This theme was taken up by Mortimer (1885) in the late nineteenth century. As part of his discussion into the

formation of the valleys, Mortimer mentions 'the very few existing streams now running for short distances along some of the valley bottoms' and that they could not be related to the vast numbers of water sources needed to excavate the valleys themselves. Mortimer (1885, 30-31) states that such imaginary streams would have to, in any case, 'run in opposite and in every direction'. Mortimer suggests that the valleys were created by cracks and fissures in the chalk surface due to the elevation of the chalk onto dry land, and that the cracks have been subject to natural forces which have subsequently widened them (Mortimer 1885, 34) (Figure 3).
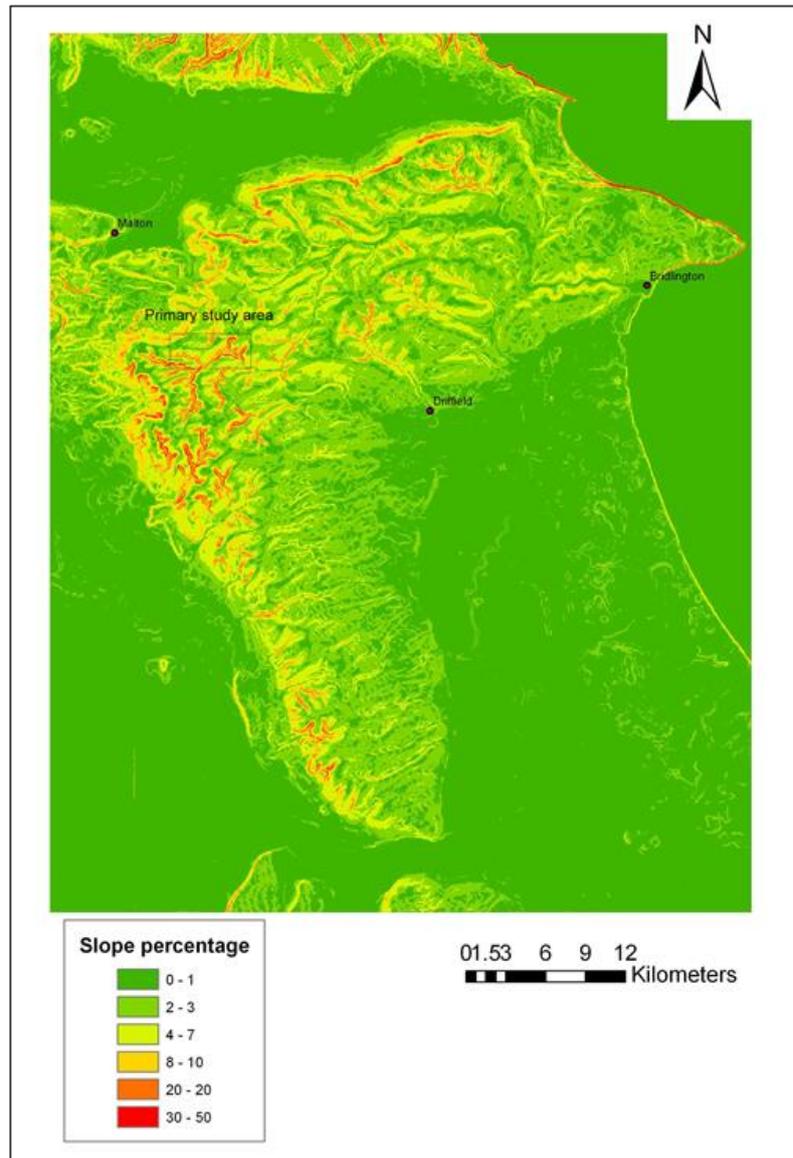
Figure 3. *Dry valley slope gradients on the Wolds* (Image Copyright: C. Neal).

Versey (1949) suggests three likely explanations for the range of dry valley axes seen in the Yorkshire Wolds. Firstly, the obsequent valleys (flowing into another stream but in the opposite direction to the slope of the land surface) have most likely been developed due to spill-over lines from an ice front to the west of the Wolds escarpment. Some others seem to have been formed by the erosion of frozen chalk, and others still by the collapse caused by solution hollows (Versey 1949, 242). A topographic field study of the geomorphology of the dry valleys in the Yorkshire Wolds was undertaken four decades ago (Lewin 1969). The escarpment

features on the Wolds are making analogy with other regions problematic (Lewin 1969, 17). Water moves through the body of the chalk via joints which are often identified by looking at valley axes, but in the Wolds there is no consistent valley direction to imply sub-surface jointing patterns (Lewin 1969, 4) suggesting a similar periglacial origin as the patterns seen in the Chilterns.

Lewin made an assessment of the morphology of all the dry valleys on the Wolds, but found that typological classifications were of limited use because the valley networks vary so considerably (Lewin 1969, 46). He found that most dry valleys are developed irregularly and abruptly onto otherwise smooth slopes, giving the appearance that they are a late addition to an earlier landform (Lewin 1969, 51). There were three factors that he found of particular relevance. Firstly, that there is a general angularity of the confluences. He also found that adjacent valleys often ran in a consistent direction but that neither angularity nor alignment is in sympathy with the general slope and this is more closely related to joints and faults in the underlying chalk (Lewin 1969, 47). The third significant finding relating to valley patterning, is that the valley heads are very variable, being either rectangular, sharply cut or dendritic onto the adjacent interfluve.

The features arising from solution collapse on the Yorkshire Wolds are on a massive scale, that is unique for England (Lewin 1969, 56). The valley networks themselves are variable, with frequent dendritic and converging systems (Lewin 1969, 38) (Figure 4). Drainage densities are difficult to assess because of the variability in valley size from the head to mouth, and surface density estimates are limited because the water movement is largely underground (Lewin 1969, 39). Looking at the morphology of a valley can give an indication of past landscape processes; for example, the five large meanders in the Great Wold Valley suggest very high water flow at some point in the past (Lewin 1969, 51). Whilst the valley floor gravels here are waterlain, the upper surface has been altered by cryoturbation during periglacial conditions (Foster 1987, 37). As Harris (1961, 2) suggested, the bottom of valleys provide an excellent settlement location with shelter from the wind and the elements, and access to water via springs and shallower wells than would be possible at the top of the slopes. However, during heavy rain, the effects of flooding might be felt more strongly here. Many small villages and hamlets are strung out along the valley floor, especially in the High Wolds, but this type of settlement is more difficult to identify archaeologically due to the nature of methods such as aerial photography which are dependent on the depth of buried features, current land-use and tend to favour eroded sites. Archaeological patterning is dependent predominantly on sites revealing themselves through processes of denudation or by methods which rely on shallow deposits for their success. Occasionally an ancient site in the valley bottom is revealed, as was the case at Burdale within a broad valley (an Anglian site, and our departmental field school site in 2006/7). In a landscape concentrated on the deeply incised slacks and dales of the Yorkshire Wolds, it is likely that past settlement is concentrated in precisely the locations that are most difficult to 'see' and to investigate by conventional methods.
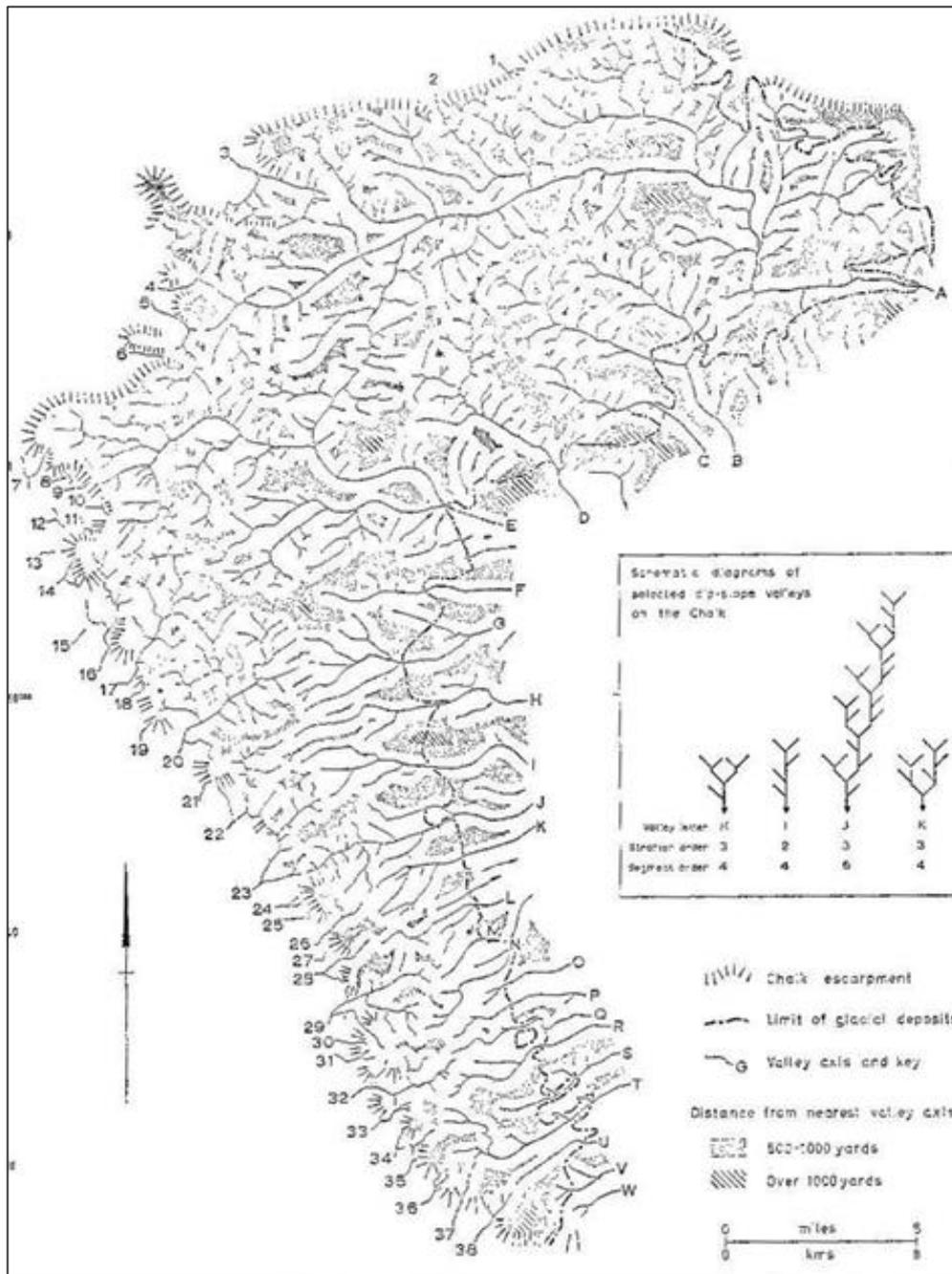
Figure 4. *Dry valley networks on the Yorkshire Wolds* (after Lewin 1969).

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The use of Photogrammetric models for the recording of archaeological features

Robert P. Barratt[1]
[1]82 Ainsworth Street, Cambridge, CB1 2PD
Email: robbarratt1@outlook.com

It is inevitable, with the rapid pace at which technology has been evolving recently, that even in the field of archaeology, a process of modernisation is underway.

GIS data is constantly being utilised to create accurate plans of sites, LiDAR creates surfaces that can be used to point out underlying features and Access databases have revolutionised the way we organise records. The list of computer-based methods which are the foundations of archaeological investigations is vast.

One of the methods of recording which only has recently been developed to the point of being suitable for field archaeology is Photogrammetry, which allows the creation of 3D models using series of photographs of an object or a feature. Although it is not a recent concept, only in the last few years have we moved on from having to carefully measure the position of the camera at every shot, to being able to use photos taken much more freely (Chandler & Fryer 2011).

Background

The idea of using Photogrammetry as a means of recording archaeological features was first explored during the 2012 excavation at Ham Hill, Somerset, carried out by the Cambridge Archaeological Unit in association with Cardiff University, and the excavation at Caerau, Cardiff, also by Cardiff University. In these instances features of particular note were recorded using 123D Catch, which lets you create 3D models from photographs, and the finished models were uploaded to sketchfab.com for the general public to view. Artefacts were also recorded in this manner, and they received positive interest on social networks by people interested in the outcome of the excavation.

Although the initial intention was simply that of providing a new and interesting way of presenting archaeology to the general public, the wider potential of this technology can already be seen, as the models created in these two sites provide an extremely detailed record of how the features would have looked when the photos were taken. As such, would it be possible to use the same methodology with the sole intention of recording an archaeological feature, and can it work alongside traditional methods of recording to provide a more accurate representation of the archaeological finds?

In an attempt to shed light on the potential of Photogrammetric recording, during the 2013 excavation of Ham Hill, a number of features have been even more carefully recorded with Photogrammetry with the clear intention of testing the limits and advantages of this method.

Programs required

Many programs allow the creation of Photogrammetric models from photographs, but for this project the one chosen was 123D Catch by Autodesk. The main reason for this choice is the availability and simplicity of the program, which is complemented by good accuracy. Previous unpublished work by the author suggests that 123D Catch provides an error margin of less than 1% (Figure 1), although it is based on smaller objects, while Chandler and Fryer (2011) have achieved reconstructions with less than 0.17% error. Programs like AgiSoft PhotoScan should provide even higher accuracy due to a larger number of points being created in each mesh, but while 123D Catch is freeware, PhotoScan is a commercial product which as such may not be available to all. Ducke, Score and Reeves (2010) suggest an alternative and more accurate approach, yet the process requires a number of programs, some of which are less than user friendly.

Figure 1 & 2. *Two features in which the base is hard to plan due to it being cut into the bedrock* (Image Copyright: R. P. Barratt).

As a result 123D Catch is a good compromise between accuracy and accessibility, making it a tool available to all, simple to use, and one that still creates high quality meshes.

123D Catch creates a complete mesh which means no alteration or additional user input is required, and as such it is not equipped with more advanced tools of model manipulation. However, in some situations described later on, it may be necessary to alter the mesh. As a result, the model can be exported as an object file and opened with the program MeshLab (also freeware), which provides a series of tools to scale, glue and filter the mesh.

A last mention should go to the website sketchfab.com, which allows users to upload models that can then be shared or embedded on other websites. The main advantage of this is organisation, as the models can be placed in different galleries and are easily accessible both to the uploader and to those who may require access to the data.

Methodology

An overview on how to use 123D Catch can be found on the program's website (http://www.123dapp.com/catch), yet for the recording of features it is worth pointing out a number of details that can help the creation of good models.

The models that are used for the purpose of the argument here were made using approximately 20 photographs each, which consisted of 8 photos taken at a relatively consistent height with a 45° change between shots, 8 shots at a lower angle, 1 shot of the feature as a whole from above, 1 shot of each section in detail and 1 of the base of the feature. The number of shots however depends on the shape of the feature, and if it is slightly more complex it may require additional photographs to emphasise certain areas. The photographs don't require excessive accuracy when being taken, i.e. there is no need to measure precisely the position of the camera each time, provided that it is roughly similar to the ones mentioned.

For the purposes of the models here a PENTAX *ist DS camera was used, with the settings left on automatic to further emphasise the accessibility of this methodology, even for those who do not possess vast photographic experience. The photographs were not altered in any way as that could impede the working of 123D Catch. The images were saved in .jpeg format, which is the standard file type with which the program works. With this setup the finished model should be produced without any difficulty, however with some more complex features, manual stitching may be required. A discussion of problematic features is provided later on.

Features recorded

A large number of features were successfully recorded using Photogrammetry from both Ham Hill and Caerau, ranging from postholes to large stone spreads. Excavated sections from Ham Hill of Bronze Age and Romano-British ditches in particular proved to be easy to record, as well as storage and deposition pits. Some in situ finds were also recorded to provide context once they were removed from the ground, including a number of pottery spreads within pits and articulated bones from a number of features.

Given the size of the sites, it was not possible to complete all features, so a larger emphasis was placed on those that appeared to be either more challenging or unique, in order to stress the conditions and test the limits of the technology.

The features were also recorded using traditional methods, but given the research nature of the excavation, comparisons between the two methodologies are harder to make, hence this paper is more interested in noting the advantages of Photogrammetry as an addition to traditional methods, rather than a replacement.

All models recorded have been uploaded to http://robbarratt.sketchfab.me, and the most poignant for the argument are shown in the Figures section.

Results: additions to traditional methods

The rapidity and precision with which the features were recorded seem to suggest that Photogrammetry can be an invaluable tool for recording features. Far from being technology for technology's sake, it provides additional information that may be only partially kept with traditional recording, and it condenses most of the data into one singular object rather than having a number of plans and context sheets that have to be consulted together.

The main way this is achieved is through the addition of the third dimension, which allows the 2D plans to come to life. In traditional plans, the hachures can be somewhat confusing, and they are far from a precise method to record the depth of a feature due to the impossibility to standardise the distance between them. The depth is recorded in the context sheets and as such it is not lost information, yet often a single measurement is taken as an example for the average depth of the entire feature, not taking into account the changes within the surface (Figure 1 & 2).

Similarly the slope of a feature is recorded both in the plan and the context sheet, with an accurate description given of how it appears to the eye of the excavator. This again though can be subjective and can only give a limited idea of what the surface actually looks like. Photogrammetric models represent clearly how the slope progresses, and make it possible for the person interpreting the data to draw his own conclusions on the nature of the feature (Figure 3).
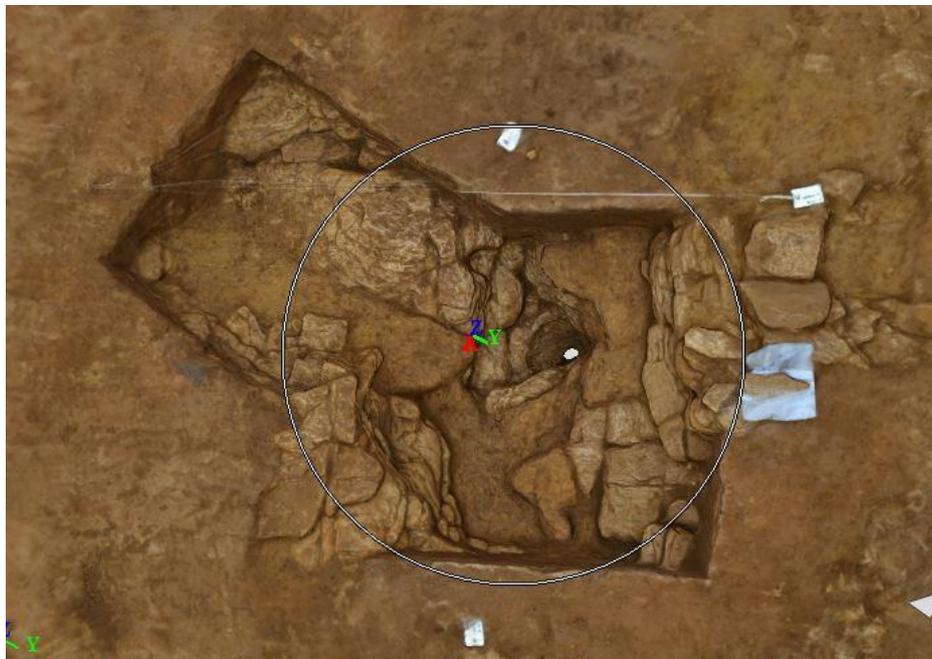
Figure 3. *Two adjoining ditches with a highly irregular stone base and sides* (Image Copyright: R. P. Barratt).
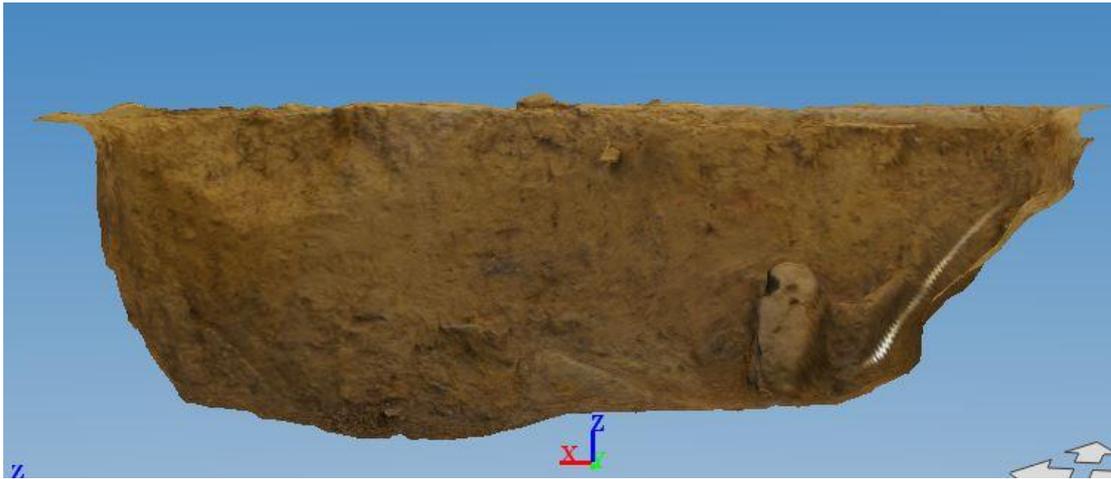
Figure 4. *A section of a pit, part of a larger model.* Lines may be traced on the surface to show different contexts (Image Copyright: R. P. Barratt).

Sections can also be successfully recorded using this method, either as part of a larger model of the entire feature or as a separate entity (Figure 4). These models combine section drawing and photography, and by using MeshLab, it is possible to draw lines within the model in order to show the separation between the different contexts, meaning that the interpretation of the excavator, who would have actually experienced the changes of soil first hand, is not lost.

Figure 5. *A stone spread, part of a rampart* (Image Copyright: R. P. Barratt).

For stone spreads it is ideal, as it gives a precise image of the position of all the stones, which are also hard to record by hand using a grid (Figure 5). The abundance of contrast between the stones and the soil also makes it much easier for the program to recognise points, making the finished model even more accurate.

Finally, provided that a measurement between two points has been taken as a form of reference, it is possible to accurately scale the model to real-life size, and through the use of MeshLab measure the distance between different parts of the models in order to get real life measurements. Again, the addition of the third dimension means that this measuring process is as precise as actually doing it on the feature itself.

Results: limitations

As competitive as Photogrammetry may sound, at the moment it does present a number of limitations that mean it cannot be used by itself. The main issue is the unreliability of the software. Simple features are easy to model, and present little need for manual stitching. However larger features, or features that present more complex characteristics (pits within features, stone structures, adjoining ditches) often result in partially completed models, with holes within the surfaces, or even no models at all. When using Photogrammetry on a feature there is also a chance that the finished model may not be satisfactory, and given the need of internet for the program to work, it may take time to realise the problem, by which point the feature may be lost. Manual stitching can help complete the models with holes in them, and sometimes even a model that has entirely failed can still be recovered by uploading a small amount of photos and then slowly manual stitching the rest. However this is a long process and requires good knowledge of the program, as well as a certain quantity of luck, and as such it is certainly not the ideal method. In addition to this, although the process itself is extremely fast, interpreting the data from the model can be less than so.

MeshLab itself is an unreliable program, with the additional issue of not being able to undo the previous action. Setting up a reference distance and measuring off it requires calculations to be made in order to alter the scale the right amount. Drawing lines to separate sections is less complicated, but it also looks less professional, making it unsuitable for publications. The potential of Photogrammetry itself is strongly connected to the 3D aspect of it, and as such it cannot compare with plans and sections in publications.

Finally, being objective in the recording process is important for some aspects, especially for features for which the interpretation is uncertain, but when drawing a plan or a section, the excavator filters it using the knowledge he or she has gained from the excavation of the feature itself, something which is hard to replicate using Photogrammetry.

A compromise

Due to these limitations Photogrammetry cannot be used on its own as a method of recording. On the other hand though, the advantages derived from it are enough to justify an addition of this method to the more traditional ones, especially considering the rapidness with which it operates. A model with 20 photographs can take as little as 5 minutes to photograph and 10 minutes to process, which is extremely short considering the much longer processes of planning and section drawing. Therefore it is possible to argue that the time lost making the model is justified by the additional information gained from it.

Conclusion

Consequently the work done at Ham Hill with Photogrammetry suggests that as a method of recording it has great potential, if used alongside plans, section drawings and context sheets. Its main advantages are the rapidity of the process, the ability to convey in a clear manner the shape of the edges and the depth of a feature, as well as condensing much information into one entity. The issues that still persist though are the unreliability and complexity of the software, the unsuitability for publication and the lack of interpretation derived from it. Overall Photogrammetry should certainly be explored further as a technology and introduced into the field as a standard method of recording.

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The archaeological investigation into deserted medieval villages of eastern Yorkshire

Jonathan Foster[1]
Email: jonathonfoster1991@yahoo.co.uk

The practical approaches of major archaeological investigations towards deserted medieval villages have included aerial photography and Ordnance Survey maps that have recorded many sites (Hoskins 1973, 7; Taylor 2010, 6). The landscape of these deserted medieval villages includes the parish and the interaction between settlements (Stamper 2009, 331; Winchester 2000). The history of theoretical approaches towards these sites began with old fashioned ideas about the Black Death causing these villages to become deserted (Beresford and Hurst 1990, 27; Dyer 2010, 29; Stamper 2011, 5; Whittock 2009, 47). This was replaced after the Second World War by accurate explanations of how sheep pasture and expanding country house estates caused village desertion (Dyer 2010, 28). This change was a result of fresher approaches as well as medieval archaeology becoming its own discipline (Stamper 2011, 5). Deserted medieval villages have a wider importance in medieval archaeology as they played an important part in shaping medieval England's landscape economically, socially, militarily, and politically (Roberts and Wrathmell 2002, 150). Although Wharram Percy is the most excavated and studied deserted medieval village (Fenton–Thomas 2005, 23; Pryor 2011, 347; Wrathmell 2010, 109), it is important to study each site's attributes individually, to broaden the study of these sites. This is why further research of deserted medieval villages is necessary to fully understand each site in relation to recent approaches (Dyer and Jones 2010; Rowley and Wood 2000). Eastern Yorkshire is important to this study because there are a lot of deserted medieval villages in this area of England, which includes Wharram Percy (Beresford and Hurst 1990, 13–5; Fenton–Thomas 2005, 23, 116; Hoskins 1977, 118; Wrathmell 2010, 109). The Harrying of the North in 1069–70 took place in east Yorkshire, meaning there is clearer evidence of redeveloped village plans (Richards 2001; Sheppard 1976, 9–10; Stamper 2011, 5).

Before World War Two, there was not much interest in deserted medieval villages as academics focused on documentary evidence and standing stone buildings which tended to represent the wealthy and elite, but since the 1950s, deserted medieval villages have been studied more appropriately (Beresford and Hurst 1989, 76; Crabtree 2009). After World War Two deserted medieval villages started to gain greater academic interest, especially through the Wharram Percy excavations (Crabtree 2009, 880; Gerrard 2003, 103). Before 1950, scholars misinterpreted the Black Death, as causing deserted medieval villages, because of the depopulation and some villages' failure to recover from this (Beresford and Hurst 1990, 27; Hoskins 1977, 120; Rowley and Wood 2000, 14–6; Whittock 2009, 47). Key contributors to the study of deserted medieval villages, such as William Hoskins and Maurice Beresford, disproved this by stating that deserted medieval

villages were caused by agricultural changes and land redistribution (Taylor 2010, 4). Beresford, Hoskins and other influential individuals managed to change perceptions of deserted medieval villages (Taylor 2010, 4).

Beresford excavated at Wharram Percy alongside John Hurst (Beresford and Hurst 1990; Crabtree 2009, 881; Stamper 2009, 332–3), and then later Stuart Wrathmell excavated there in the 1980s, discovering that peasant longhouses were constantly altered throughout every generation (Beresford and Hurst 1989, 85; Stamper 2009, 333). Modern perspectives on deserted medieval villages include the focus on surviving villages, viewing deserted medieval villages from the peasant's perspective and questioning the term 'deserted medieval village' itself (Jones 2010, 8–12; Smith 2010, 64). The term 'deserted medieval village' may also refer to a hamlet, shrunken village or a relocated village, since there was a varying degree of desertion amongst the sites analysed (Jones and Page 2006, 10). As not all sites are fully abandoned, most sites have non–medieval phases and it is difficult to distinguish between townships, villages, hamlets and large farmstead arrangements (Jones 2010, 11–2). Some settlements were only relocated or shrunk, depending on the decisions of the landlords (Fenton–Thomas 2005; Jones 2010; Rowley and Wood 2000). Village desertion across the country is mainly the result of sheep pasture and expanding estates (Dyer 2010, 29; Hoskins 1973, 65; Williamson 2010, 180). Most settlements still show the original planned layout from the Norman period; however it is likely that most sites will have an Anglo–Scandinavian influence (Gies and Gies 1991; Whittock 2009). In Holderness, environmental conditions such as coastline erosion, meres and marshes also led to village abandonment (Beresford and Hurst 1989, 54; Jones 2010, 21).

Deserted medieval villages show the lifestyle of ordinary peasants (Wrathmell 1996, 11), unlike the studies of pre–1950s antiquarians who were more concerned with important people and buildings (Beresford and Hurst 1989, 76). The lack of above ground remains of deserted medieval villages, as well as few medieval peasants rarely leave behind written accounts, contributed to this (Gies and Gies, 1991: 5). Most medieval peasants were not literate and accounts of medieval peasants tended to be written from those with more wealth and power (Gies and Gies 1991, 5). Deserted medieval village buildings tended to be made from perishable materials, mainly wood, whereas stone built buildings were likely to survive and were considered a status building material in the medieval period (Beresford and Hurst 1989, 93; Beresford and Hurst 1990, 38; Wrathmell 1996, 13).

Aerial photography highlights the village layout, shown through remaining earthworks where buildings used to stand, trackways and boundaries which are not as obvious on foot (Beresford 1951, 130; Beresford and Hurst 1990, 18–9; Gies and Gies 1991, 4–5). Ordnance Survey maps, which have been commissioned since the early nineteenth century, are good at recording the locations of deserted medieval villages (Beresford 1951; Richards 2001; Taylor 2010). The East Riding of Yorkshire in particular was fortunate enough to be recorded by Captain John Bayly, who had a fond interest in antiquity and recorded as many deserted medieval villages as possible (Beresford 1992, 65–6; Taylor 2010, 2). Aerial photography and Ordnance Survey maps are both useful at quickly recording (Beresford and Hurst 1990; Hoskins 1973; Taylor 2010)

since the landscape is being recorded rather than a specific area, and research can be initiated from them. On most deserted medieval village excavations trenching is popular; Wharram Percy pioneered total area excavation as this technique became popular, enabling an area to be fully excavated (Beresford and Hurst 1989, 83; Ralston and Hunter 2009, 8). Wharram Percy became a predominant site for medieval rural archaeology, with the lives of ordinary peasants being the focus of attention unlike pre–1950s interest in medieval antiquity (Stamper 2009, 332–3).

Most deserted medieval villages have been aerially photographed, and in more recent times, deserted medieval villages can be seen from above by using Google Earth's satellite imagery (Kaimaris et al. 2011, 268–9). Alongside Ordnance Survey data, this makes it easier to identify deserted medieval villages and to locate them (Taylor 2010, 6). These constitute principal pre–excavation research because they indicate where a deserted medieval village is within its landscape (Beresford and Hurst 1990). As it is cheap and easy to use the combined resources of Google Earth and Ordnance Survey mapping, they are used in the first phases of investigation (Beresford 1992; Kaimaris et al. 2011).

Aerial photographs and Ordnance Survey maps show trackways between places that can be traced over long distances (Beresford 1951, 130). Since Ordnance Survey maps and aerial photography are good at recording long distances they can show this better than other types of evidence, and they give a good visual aid to the whole landscape of a deserted medieval village (Taylor 2010). They can clearly depict these features (Beresford 1992), for example, the trackway between Wharram Percy and Thixendale shows where the villagers of Thixendale had to travel in order to get to St. Martin's church at Wharram Percy (Beresford and Hurst 1990, 25, 101–2). Furthermore, parishes reveal how settlements close to one another were affected differently; an example of this can be found in the Wharram Percy parish, where Burdale, Raisthorpe, Thixendale, Towthorpe and Wharram Percy were all affected differently (Beresford and Hurst 1990, 129). Thixendale still survives as a village, Wharram Percy is completely abandoned and Burdale, Raisthorpe and Towthorpe were reduced to farmsteads, with the remains of the former village being visible in the earthworks (Beresford and Hurst 1990). Faunal and fauna evidence found at Wharram Percy (Mays 2004, 23) shows that there was medieval trade between coastal and inland centres, showing that rural sites were not isolated.

The remains of peasant longhouses and burials have revealed lifestyles (Wrathmell 1996, 11), with an osteological analysis of human remains revealing detailed information about peasant activities, diets, health, gender and age (Mays et al. 2001; Sofaer–Derevenski 2000). Artefacts found in peasant houses indicate the function of the buildings, their purposes and possibly the activities they carried out (Wrathmell 1996, 11). It is presumed that deserted medieval villages housed the vast majority of rural medieval England's population (Dyer and Jones 2010; Whittock 2009). Since peasant farming occupied most of the land, this required a lot of labourers to farm it (Whittock 2009). The study of deserted medieval village populations and their living areas show how these societies interacted with their landscape (Wrathmell 1996), revealing which areas

were ideal locations to place a settlement; areas were good for grazing animals, and areas that were good for growing crops (Carter 1995; Fenton–Thomas 2005; Muir 1997).

Village desertions started from the mid–fifteenth century, long after the Black Death (Dyer 1982, 19; Hoskins 1977, 123; Jones 2010, 22). Some villages were in long–term decline before the Black Death, some villages did not recover from it and some villages did recover or were unaffected but still were abandoned (Beresford and Hurst 1989, 8; Hoskins 1977, 120–3; Rowley and Wood 2000, 14–6). This is around the time when agriculture changed from peasant farming to sheep pasture and country house estates started to expand (Dyer 2010, 29; Gies and Gies 1991, 200; Hoskins 1977, 123, 163; Rowley and Wood 2000, 19). Sheep pasture was more profitable, due to the expanding textiles industry, and involved less responsibility with less people to look after (Beresford and Hurst 1989, 26). There are circumstances such as environmental conditions that also caused village desertion (Jones 2010, 21). In Holderness, villages such as Auburn were lost to the sea (Beresford and Hurst 1989, 54) and villages such as Eske and Southorpe were located on marsh or mere land that degenerated making the village unsustainable because of the unsuitability of the land (Beresford 1983, 393; Wrathmell 2012, 251). Sometimes, expanding urban centres meant the incorporation of deserted medieval villages into these areas, for example, Sewerby and Hilderthorpe both became incorporated into Bridlington (Beresford 1983, 21; Fenton–Thomas 2005, 69, 90; Rowley and Wood 2000, 28).

Despite the detailed excavations of Wharram Percy, no other deserted medieval village has been excavated to the same extent, which could be why other deserted medieval villages remain so unknown (Beresford and Hurst 1989). Excavations on other deserted medieval villages in eastern Yorkshire would indicate whether Wharram Percy was a typical deserted medieval village or whether it was unique, as every settlement has its own distinctive timeline (Beresford and Hurst 1990). Excavations on other deserted medieval villages would add depth to the study of medieval social, economic and political activities (Rowley and Wood 2000), demonstrating the diversity of each site and potentially displaying trends and patterns of deserted medieval villages.

Although most deserted medieval villages would have similarities to Wharram Percy, it is important to treat each site individually, as each village has its own past (Beresford and Hurst 1989). Modern surviving villages all have similarities and differences between them (Roberts 1987). Wharram Percy is unique in the fact that the manor estates were a continuation from Roman villas (Wrathmell 1996). Therefore, each deserted medieval village will have their own unique aspect to them.

Eastern Yorkshire has a high amount of deserted medieval villages compared to other areas of England and there are reasons for this (Beresford and Hurst 1990, 13–5; Fenton–Thomas 2005, 23, 116; Hoskins 1977, 118; Wrathmell 2010, 109). The Yorkshire Wolds were better suited to sheep pasture because of the chalky soils (Fenton–Thomas 2005, 56), plus land in this area was considered marginal for crop growth since the fifth century (Fenton–Thomas 2005, 81). The Howardian Hills had very rich landowners who wanted to expand their estates to show off their wealth and status, so villages were either removed or relocated out of

convenience (Carter 1995). As a result of coastal erosion at Holderness, a mile's worth of land has eroded since the Roman period (Jones 2010, 21; Muir 1997, 16) and the area has a lot of marshes and meres, which gradually made the land unsuitable for a village (Muir 1997).

Deserted medieval villages show the results of landownership, especially in terms of agriculture and attitudes of landlords and tenants (Dyer 2010, 29–30; Hoskins 1977, 123; Rowley and Wood 2000, 16–7). Most sites are linked to a manor house, monastic building, urban centre and sometimes, in the earlier medieval phases, deserted medieval villages had links with castles. This all stems from the Norman principal of 'no land without a lord' (Gies and Gies 1991, 28), although earlier Anglo–Saxon societies also had a similar structure (Gies and Gies, 1991; Whittock 2009). Initially, villagers once owed military services to their landlord, however over the centuries the military aspect was replaced by economic purposes (Gies and Gies 1991; Whittock 2009). Wealthy individuals, including those from urban areas and monasteries, also bought landholdings in villages (Beresford and Hurst 1990; Wrathmell 2010). Christopher Dyer (2010, 37) believes that deserted medieval villages represent the change from feudalism to capitalism, meaning that deserted medieval villages represent a significant change of ideology. This would reflect a significant shift as England gradually came out of the medieval period (Pryor 2011, 379).

Aerial photography and Ordnance Survey maps are the basis for which further excavation into deserted medieval villages can be undertaken (Hoskins 1973; Taylor 2010); alongside the literature, they show the wider landscapes of deserted medieval villages (Beresford 1983). These methods represent the first phases of research as well as conveying the spatial organisation of a deserted medieval village and its wider landscape. Further excavation will show intricate details about medieval village life, plus with the more recent approaches towards deserted medieval villages it would be interesting to see what the results would be (Dyer and Jones 2010)

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Adventures after graduation

Keneiloe Molopyane[1]

[1]Archaeology Department, School of Geography, Archaeology and Environmental Studies & Evolutionary Studies Institute, University of the Witwatersrand, South Africa

Email: Keneiloe.Molopyane2@wits.ac.za

In 2012 I walked across the stage at Central Hall as a University of York graduate with an MSc degree in Bioarchaeology, ready to take on the world. I remember returning to South Africa eager to get stuck into a PhD degree that would take me halfway across the world again, but things did not exactly pan out that way. Nobody ever really tells you how hard it is to find work and to adjust to life outside of academia. Nevertheless, after several months of sending out endless applications, I was fortunate enough to be selected as a Maritime Archaeology intern under the mentorship of one of the very few Maritime archaeologists in Cape Town, South Africa. So, in September 2012, I packed my bags and relocated down south to a new city for new career adventures. I did not have a clue about what Maritime Archaeology entailed, and all the work that goes into it to prepare one's self for a day at work, and I was about to find out fast! Having no time to settle into Cape Town life, the first thing I had to do was learn how to dive and be certified as a Class IV Commercial/Scientific diver. This qualification basically translates to what I think is a Masters level in Recreational diving, just a little bit harder. This was not the easiest qualification to obtain when you take into consideration that this was the first time I would be underwater and breathing at the same time. For a good couple of days this was a foreign concept (as I had not grown any gills up to this point), but after an intense month of living like a fish, jumping off harbour walls, getting lost in a quarry that had been filled with water and converted into a watersport venue and losing two dive knives, I passed my exam and could officially start working on a shipwreck site on one of Cape Town's many beaches.
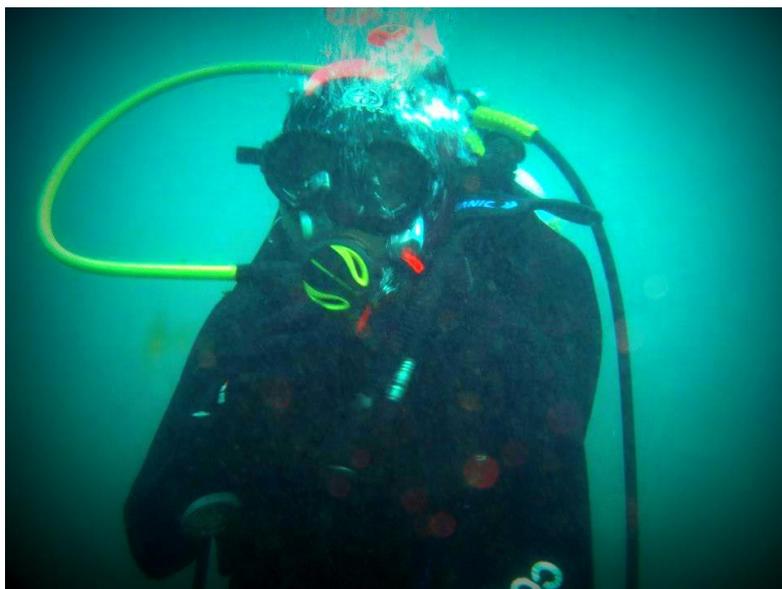
Figure 1. *A bioarchaeology mermaid* (Image Copyright: J. Solomon).

My job as the Osteoarchaeologist on the research team was to put together a protocol and policy for osteological material, in the event that we uncovered any human remains on this site, due to a number of reports referencing the number of lives lost in the sinking of this particular ship. For the first two months of 2013, I had my very first underwater excavation experience in what I had been told was not the most ideal site to start out on. Well, I don't know any better work-related dive conditions other than the surge-like and cold waters of Cape Town. There I was, underwater in a relatively cold environment, operating a dredge that sucks up sand from the ocean floor just like a vacuum cleaner. Sounds boring and mundane, but then something magical happens and you see something emerge from beneath the sand. Your breathing rate becomes rapid and shallow from pure excitement, and just as fate would have it, a giant swell (more like a wave) swoops by above you and you are just effortlessly forced to ride that wave. All you see is sand, bubbles and your feet as you try to gather yourself and continue your little discovery, only to find that it has once again been swallowed by the ocean floor. It's like an Indiana Jones movie gone wrong – chaos is meant to ensue once you have the artefact in your hands, not before. This was the case for many days on site; either the sea conditions were just not conducive to diving, or on days when we did brave the conditions, the waves would show us who exactly the master was in that situation. At least it was a day out on the boat, meeting and hanging out with amazing people from the South African Heritage Agency's (SAHRA) Maritime and Underwater Cultural Heritage Unit, Iziko Museums of South Africa, the National Parks Services (NPS) Submerged Resources Center, George Washington University, National Association of Black SCUBA Divers, and finally the Smithsonian Institution's National Museum of African American History and Culture. I am not exactly the most social of people, but it truly was an amazing experience working with this team and looking forward to when I can do so again.
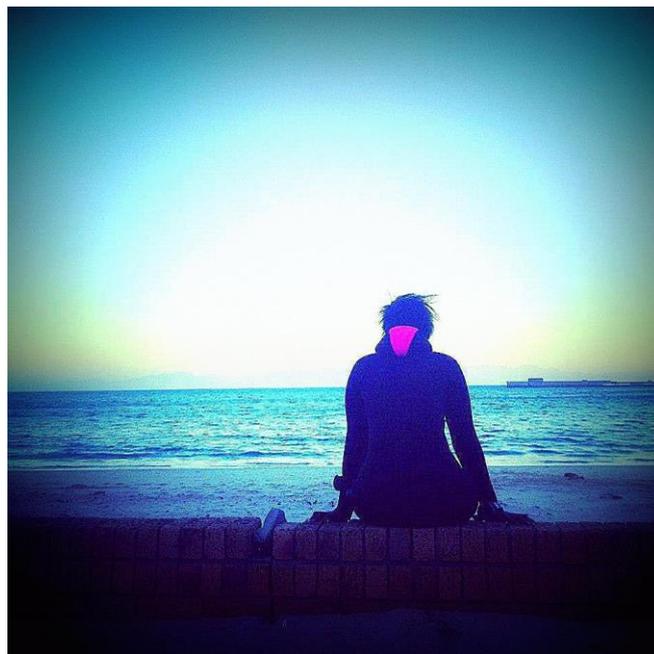
Figure 2. *'Bones' contemplating the meaning of a Night Dive* (Image Copyright: J. Solomon).

I spent just under a year learning how the world of Underwater Archaeology and museum curatorship operates, which has expanded my career portfolio in a direction that I honestly did not plan for. Now at the end of 2013, I'm employed by the University of the Witwatersrand as an associate lecturer in archaeology! Once again I packed up my life in Cape Town and moved back home to Johannesburg to start a whole new kind of adventure – academia. Archaeology as a profession, and in my case a lifestyle, is just one adventure after another. I cannot predict what the next year will bring in terms of job opportunities and sites to be excavated, but it has been an amazing ride thus far. In a short space of time, I transformed from being a Bioarchaeologist, to being a mermaid, and now a mini-academic in my ivory tower writing up my PhD proposal. The question is what are *you* doing now?

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