

Interim Report for seasons 2007 & 2008

The Current SHARP Team

DIRECTORIAL TEAM

Neil Faulkner, Gary Rossin, Jon Cousins

CHALK PIT FIELD

Mark Blagg-Newsome, Stuart Calow Kathryn Creed, Matthew Cross, John Hensby Zoe Knapp, Katie McKinnon Deborah Riches, James Westoby

SEDGEFORD AIRFIELD PROJECT

Neil Faulkner, Anna Gow, Keith Robinson

HUMAN REMAINS

Martin Hatton, Ray Baldry, Zannah Baldry, Sophie Beckett, Lorraine Horsley

ANIMAL REMAINS

Zoe Knapp, Kris Poole

BULK FINDS

Ann Smith, Brenda Stibbons

SMALL FINDS

Naomi Payne

POTTERY

Neil Faulkner, Ann Smith

ARCHAEO-ENVIRONMENTAL

Lynn Jollans, Greg Campbell, Adrian Donaghey

ARCHIVE

Anna Gow, Bill Howard

FIELDWALKING

Terry Baxter

SCHOOLS

Sally Faulkner, Christine Morton

POST EX

Neil Faulkner, Gareth Davies, Anj Beckham, Naomi Payne

PHOTOGRAPHY

Terry Baxter, Tim Snelling

OPEN DAY

Pauline Fogarty

SITE TECHNICIANS

Kelvin Smith, Peter Ward

INFORMATION OFFICE

Sally Faulkner, Peter Ward

FRIENDS OF SHARP

Marion Ogden

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Terry Baxter, Stuart Calow, Jon Cousins,
Neil Faulkner, Sally Faulkner, David Hibbitt,
Angela Hibbitt, Lynn Jollans (Secretary), Zoe Knapp,
Marion Ogden (Chair), Deborah Riches,
Gary Rossin (Treasurer), Kelvin Smith,
Brenda Stibbons (Bookings), James Westoby

CONTACT

Members of the SHARP team can be contacted by email at **enq@sharp.org.uk**

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Foreword

Welcome to the latest report on the progress of SHARP's excavations within the parish of Sedgeford.

It's only appropriate to begin with an apology for the delay in bringing you a report on our 2007 and 2008 seasons, which have been combined into this one report. The past two years have seen significant change for the project, both within its organisation and structure and more importantly, in the focus of its excavation areas.

Since our last report we have concluded our excavations in the Boneyard, with both New and Old Trenches finally being completed. With the area having been the central focus of the project since it began back in 1996, it was a strange feeling to see New Trench being backfilled and the excavations no longer a direct part of our site tours. However, the emphasis for these areas has now moved to the post-excavation stage with work now started on writing up for publication.

Although this brings about a curtain call on what can be described as the first phase of the SHARP project, the next equally exciting phase has already begun. What began as an evaluation excavation at the northern edge of Chalk Pit field back in 2007 has already yielded very exciting results, giving us a tantalising glimpse of Saxon settlement activity, contemporary to the cemetery area. Chalk Pit field has now become the central focus of our excavations and we envisage several more years work being carried out here, enabling us to understand the size and status of the settlement. It is also our intention to continue running various smaller scale excavation projects within the parish to help us better understand settlement activity and land usage.

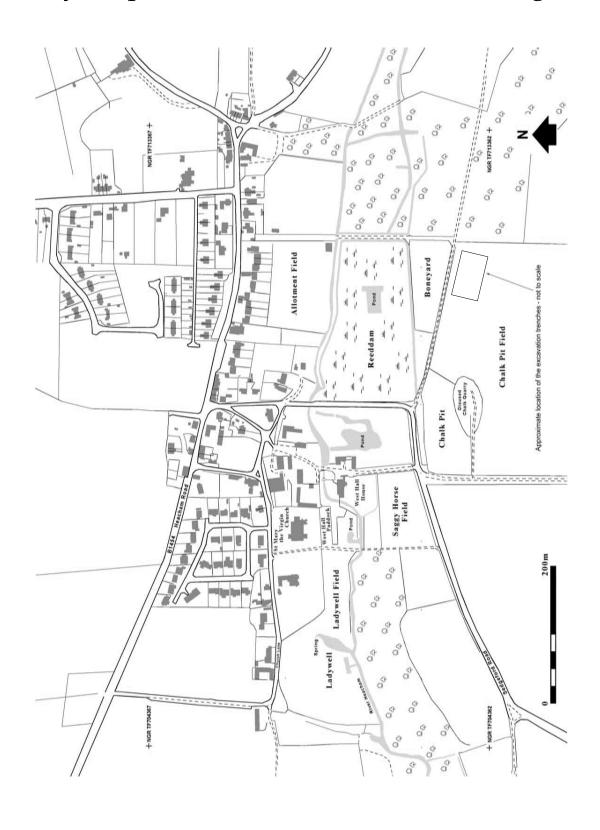
This latest report gives you an overview of some our latest research, along with news and information on the project in general.

As always, the project would not be possible without the help and support of a large number of people, especially the Campbell family who own the land on which much of our past and current excavations have been undertaken but also the numerous volunteers, the Friends of SHARP and the local community who support us each season.

Thanks also go to everyone who has contributed to this report but a special thank you goes to Eve Richardson for bringing all the pieces together.

Gary Rossin

Locality map of SHARP excavations at Sedgeford



Boneyard New Trench 2007

2007 saw the completion of SHARPs 11 years of excavations in the Boneyard field. The first trench (opened way back in 1996) was Boneyard, the trench later become known as Boneyard Old Trench, with test pits happening in the Reeddam. The following year saw the opening of a trench in the Reeddam and a trench linking these sites opened in 1998. In 2000 we opened a trench linking SHARP's excavation to those of Peter Jewell's of the 1950s and a year later saw the opening of New Trench. These, and other trial trenches, make up the Boneyard/Reeddam area of excavations.

The last trench to be completed was Boneyard New Trench in 2007 after six years of excavations. Due to the heavy rain in the earlier part of 2007 we experienced a higher water table than seen before. This resulted in the northern limits of the trench being water logged causing difficult working conditions. To start with we had to try to get the water into a manageable situation by digging sumps and channelling the water towards the finished Old Trench. Lots of pumping took place to make conditions workable. This had to be done throughout the season at the start of every work period and a vast amount of man power was being dedicated to water management.

The first week was mainly digging these sumps and drainage channels but also removing the final fills of the Saxon ditches we had previously excavated.

As cleaning progressed an intriguing band of stones were revealed that may indicate the edge of a deep terrace or even a revetment underlying all but the earliest of Saxon occupation on the Boneyard site. A slot excavated through this feature showed that underneath these stones lay natural gravels, that mark the end of the archaeological sequence in New Trench.

A Saxon pit was excavated and may be one of the final Saxon features to be investigated on New Trench. This feature produced large quantities of Middle Saxon Ipswich ware, lava quern and interestingly a sherd of early Stamford ware, a regional import. As the last of the dark Saxon layers were being removed a number of artefacts were recovered, including a splendid Late Saxon octagonally carved bone knife handle. The handle was not dissimilar from one found the previous year, possibly made from a sheep metatarsal.

A lot of the 2007 season's work on New Trench involved the removal of post-Roman pre-Saxon layers. These layers were pretty much sterile with very little finds coming out of them, leading us to believe that they represent an



Waterlogged conditions in New Trench

'abandonment' period of the site, with no human activity taking place. The layers seem to be formed by soils being brought down by heavy rains from Chalk Pit field, silts being laid down by flooding of the river Heacham to the north and by the rotting down of vegetation making the soil. These layers seal Iron Age and Roman archaeology and were also observed on Old Trench during 2003-06 but only produced a handful of Iron Age and Roman pot sherds.

With the removal of the abandonment layers, all the archaeology was at the northern limits of New Trench, the most water-logged area of the site. These included a ditch which contained Ipswich and Thetford ware, possibly our last Saxon feature before the juicy Iron Age and Roman features. We were teased with a taster of what was to come when we excavated an east-west ditch, which ran along the north edge of our trench. From this ditch an array of decorated Roman pottery and a simple copper alloy finger ring were found. A pit containing



Completing the final excavations in New Trench

hearth or oven waste (partly excavated in 2006) with another possible Anglo-Saxon pit on the edge of our excavations was, along with two small portions of NE-SW aligned ditch, the final Anglo-Saxon feature to be investigated on New Trench.

Beneath the post-Roman colluvium, clipping the northern edge of the trench were three possible pits. One of these was dated to the

Roman period by decorated Roman pottery, of possible Mediterranean import. Also found in these pits were a large amount of small finds; including two bone pin beaters, a simple copper alloy finger ring, some Roman vessel glass, three iron blades, and lots of animal bone.

A second pit contained a number of large sherds of at least two vessels of imported high status Iron Age Gallo-Belgic pottery. The third pit contained no dating evidence but was clearly sealed by the post-Roman colluvium. All three pits had dark brown/black fills and showed no signs of any marine shell, which is unusual for deposits from Boneyard/Reeddam. The fact that all three features are just clipping the northern limits of excavation and there was no Iron Age activity to the south seems to suggest that the Iron Age concentration is further down towards the valley bottom where the hoard was found. The previously mentioned east-west ditch, which we believed we had towards the end of the 2006 season turned out to be the post-Roman colluvium dropping away sharply, with residual Samian pottery within it. Even with heavy water logging the natural was reached across the whole of New Trench.

Iron Age archaeology

A pit with a number of large sherds, of at least two vessels, of imported high-status Iron Age Gallo-Belgic pottery clipped the northern limits of the excavation. A further pit with no dating evidence, but clearly sealed by the post-Roman layers, was also at the northern limits of excavation. A slot excavated through this feature showed that underneath these pits lay natural gravels, which mark the end of the archaeological sequence in New Trench.

Roman archaeology

The east-west ditch that ran through the centre of New Trench had its final fills excavated in 2007. The ditch has been dated by a single piece of pot from the early Roman period. A number of other pieces came out during

2007, as well as one found in 2006, that are yet to be dated but the ditch seems to be earlier than the Saxon ditch within New Trench due to the Saxon ditches cutting into and removing parts of the 'Roman' ditch.

A pit clipping the edge of the northern limits of the trench had within its fill a large amount of finds including; decorated Roman pottery, of possible Mediterranean import, two bone pin beaters, a simple copper

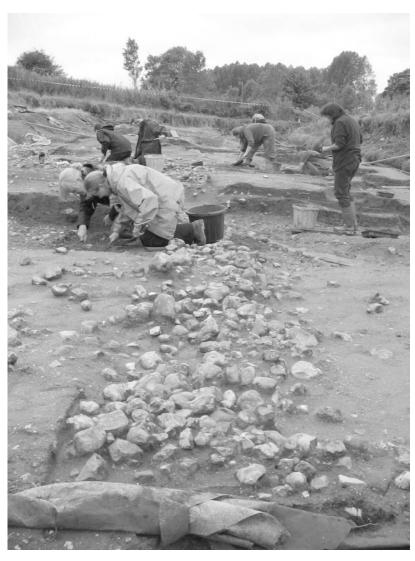
alloy finger ring, Roman vessel glass, three iron blades, and lots of animal bone.

Post-Roman pre-Saxon layers

A lot of the 2007 work on New Trench involved the removal of post-Roman pre-Saxon layers. These had very few finds, leading us to believe that they represent an 'abandonment' period of the site when no human activity took place. The layers seemed to be formed by soils being brought down by heavy rains from the hill to the south, silts being laid down by flooding of the river Heacham to the north, and vegetation rotting down and making soils. These layers, also observed on Old Trench in 2003-6, sealed the Iron Age and Roman archaeology and only produced a handful of Roman and Iron Age potsherds.

Anglo-Saxon archaeology

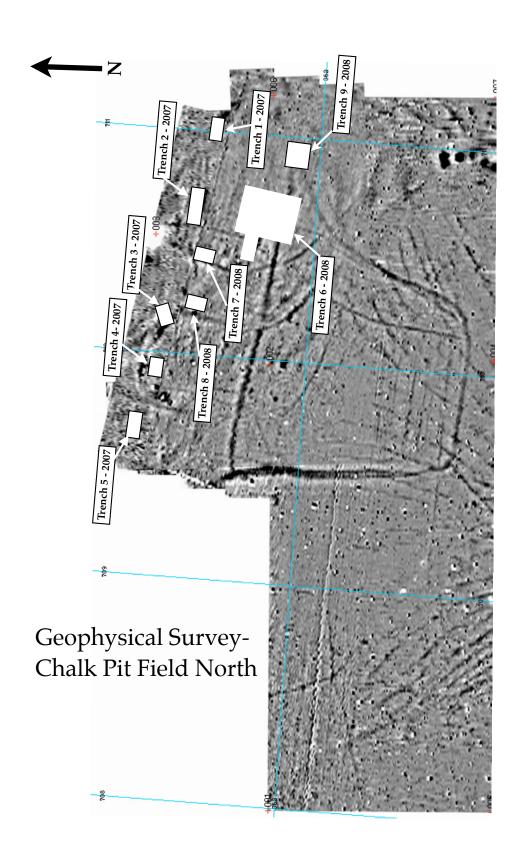
A pit containing hearth or oven waste, part-excavated in 2006, and another possible Anglo-Saxon pit on the edge of excavations, along with two small portions of the western and eastern arms of the cemetery boundary ditch, were the final Anglo-Saxon features to be investigated on New Trench. The first pit produced lava quern, large quantities of



Excavating the stone terrace found in New Trench

Ipswich Ware and, interestingly, a sherd of early Stamford Ware, a regional import, while the second pit had only one piece of pottery in it. As the earliest Anglo-Saxon levels at the northern extent of New Trench were removed, an east-west band of stones was revealed, indicating the edge of a terrace or revetment. As the last of the dark Saxon layers were being removed a number of artefacts were recovered, including a splendid carved bone knife handle, similar to one found the previous year.

Jon Cousins



2007 Chalk Pit field north evaluation excavations



Chalk Pit field (so named because of the presence of a disused post-medieval chalk pit in the NE corner of the field), lies to the south of Sedgeford overlooking the Heacham River valley and the previous focus of the project, the Mid-Late Saxon cemetery in Boneyard Field.

This field was chosen as a potential site of archaeological interest for several reasons. During the 1996 and 2002 seasons, fieldwalking by SHARP had revealed an abundance of both Ipswich and Thetford Ware (Middle and Late Saxon pottery respectively) in an area at the northern end of the field. These sessions also revealed a significant amount of shell within the same area. In 1991 a water pipe was laid alongside the track bordering Boneyard Field and during the watching brief undertaken by the Norfolk Archaeological Unit, excavations along the northern end of Chalk Pit field revealed the remains of ditches and gullies, along with evidence for occupation including a Middle Saxon oven or kiln. The third piece of evidence that was to assist in the decision making process was produced during Easter 2007. Extensive magnetometry survey yielded some very exciting results, with the survey indicating extensive and prominent ditch systems, the most striking of which being a substantial enclosure ditch. This probably relates to the Saxon settlement which the cemetery served. Concentrations of fieldwalking finds corresponded with some of the most intensely ditched areas revealed by the geophysical survey.

Based on the evidence to hand it was decided that for the 2007 season we would conduct an evaluation project within the northern area of Chalk Pit field. The main objective was to establish the location of the Middle-Late Saxon settlement and to try and further understand its character and chronology. If successful, it was anticipated that this might develop into the next mid to long term excavation focus of the project.

During set-up week five evaluation trenches, targeting geophysical anomalies, were opened by mechanical excavator. All five trenches were placed within a 30m strip of land at the northernmost edge of the field close to the hedge that runs adjacent to the trackway leading into the main campsite area.

Trench 1

Located at the northeast end of the field, Trench 1 was 1.6m wide and 17.8m in length. The topsoil contained a number of finds including modern pottery, oyster shell and animal bone, as well as part of the modern pipeline that was laid during 1991. The mechanical excavation also exposed an interesting chalk feature, which although the cut was slightly irregular in nature (suggesting a natural formation) its fill was subsequently found to



Thetford ware jar found smashed in situ in Trench 1

comprise of several layers of compacted chalk giving a camber-like profile, which might be evidence of manmade construction. However, it was not possible to draw a conclusion as to whether this feature was a deliberately constructed path or trackway, it will be investigated further at a future date.

Excavation by hand of Trench 1 uncovered a further two features in the central northern area of the trench, a boundary/drainage ditch 0.64m wide running northwest to southeast which may have been an extension of or replacement of the second feature and the eastern terminus of a separate ditch

system. The ditch terminal contained no datable artefacts, however the NW-SE aligned ditch was to offer up a nearly complete Late Saxon Thetford ware jar that had apparently been smashed in situ. The jar was found in the upper fill, along with some animal bones and several guern fragments.

Apart from the Thetford ware jar, few finds came out of Trench 1, leading to the conclusion that this evaluation trench had been positioned in an area that would have been at the periphery of the settlement.

Trench 2

The second of the evaluation trenches was located in the centre-north of the field, approximately 15m south of the field boundary. An area 1.8m wide and 21.8m long and orientated east to west was opened where the geophysics suggested the presence of a number of ditches. The opening of this trench by mechanical excavator and subsequent metal detecting revealed a large number of finds including Ipswich and Thetford pottery, oyster shell, animal bone, slag and some ceramic building material. Perhaps the most notable finds were an incomplete Middle Saxon safety pin brooch and a Neolithic flaked axe. The Middle Saxon finds hint that Trench 2 was positioned closer to the actual settlement activity. With the topsoil removed, initial cleaning identified a total of eight features.

The eastern half of the trench contained two NNW-SSE aligned ditches and one east-west aligned ditch. The fills of these ditches contained a few sherds of Middle Saxon Ipswich ware (along with a single piece of Roman grey ware) but no evidence of Late Saxon ware.

Other artefacts of interest uncovered from these ditches included a fragment of light blue Middle to Late Saxon vessel glass with yellow trailed decoration, a third of a donut shaped fired clay loom weight and two iron spikes likely to be associated with the processing of textile fibres. The spikes are probably teeth from a wool comb but could also be from a flax heckle.

In the western half of the trench, two pits and a north-south aligned boundary ditch were excavated. Both pits appeared to have been truncated by ploughing and although no datable evidence was obtained from the first pit, several sherds of Thetford ware was recovered from the second. The north-south boundary ditch was quite

substantial, 1.97m wide and 1.02m deep, with four observable fills and from these came both Middle and Late Saxon pottery. Also in the western half of Trench 2 were two north-south aligned boundary/ drainage ditches. The first ditch produced 17 sherds of Late Saxon Thetford ware, along with animal bone, lava quern fragments and one of the iron textile processing spikes. Later environmental sampling revealed a large quantity of cereal grains and other elements of hearth or oven waste. The second of these north-south ditches contained little datable evidence in its earlier fills, however the later deposit produced a pottery assemblage varying in date from Early-Middle Saxon grass-tempered pottery through to Thetford ware. This fill also contained a large quantity of oyster shell, some lava quern fragments, fired daub with wattle impressions and some metal slag.

The picture that emerges from Trench 2 is of a Middle Saxon



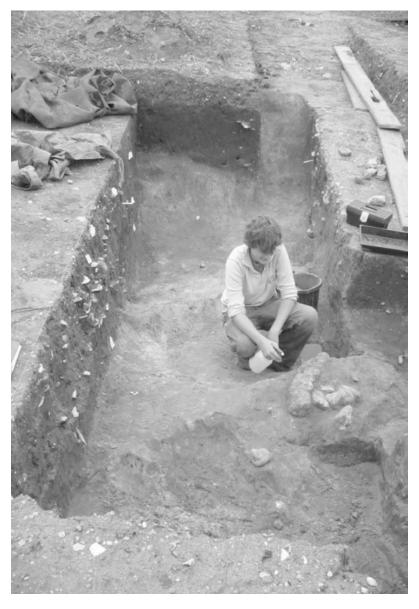
Excavating E-W ditch feature in Trench 2

occupation phase with land use taking place within the area of the evaluation trench. Evidence from the Late Saxon and Mid-Late 9th century ditches and pits which were excavated not only point to the area being active at this time but also the location of habitation may not have been far away.

Trench 3

Trench 3 was centrally placed at the northern end of the field, orientated northeast to southwest and it was 1.7m wide and 14.3m long. It was within this area that previous fieldwalking had produced substantial quantities of artefacts and indicated the most concentrated area of Anglo Saxon settlement.

From the moment the topsoil was machined off, it became evident that Trench 3 had been placed over a very large feature, neatly lining up with the geophysical surveys. The first bucket removed by the excavator yielded large quantities of animal bone and shell, along with sherds of Anglo Saxon pottery. After cleaning the surface, a series of six inter-cutting ditch features were visible. Subsequent excavation revealed a further ditch, a pit/ditch



Excavating baked clay oven in Trench 3

terminal and the remains of Mid to Late Ninth century oven. These features point to three phases of occupation and land use;

Late Saxon - two NW-SE aligned ditches contained predominantly Late Saxon Thetford ware, along with vast quantities of animal bone, oyster, mussel and cockle shells, along with a variety of other finds including two domestic knife blades, two fiddle key horseshoe nail, metal slag and lava quern fragments. This indicates that these ditches were located very close to settlement activity and the depositing of rubbish in them suggests boundary ditches going out of use.

Mid/Late Saxon - here we found a further three NW-SE aligned ditches, one pit/ditch terminal and part of a clay baked oven. The ditches mostly contained sherds of Mid Saxon Ipswich ware, although some Thetford ware was present. Again significant quantities of animal bone, oyster and mussel shells were recovered, plus three further iron textile processing spikes, iron shears and more metal slag. The remains of a baked clay oven, which had been heavily truncated by two of the ditches, was also uncovered. The oven contained three separate fills, which contained a small amount of Ipswich and Thetford ware pottery and heather stem fragments, which were recovered during environmental analysis. Interestingly, the oven located during the 1991 watching brief was morphorically similar.

Mid Saxon - one NNW-SSE boundary ditch and a pit/ditch terminal, both of which contained good assemblages of Anglo Saxon pottery, mostly Ipswich ware.

The various boundary ditch features uncovered in Trench 3 indicate a concentrated and constant settlement activity very close to this area. The vast quantity of animal bone and shells which were excavated from all trenches, but particularly Trench 3, have given an intriguing insight into daily life at the Saxon settlement. Over 3,500 oyster shells came from Trench 3 alone, with shells being transported to the finds hut by the wheelbarrow load rather than the normal finds tray.

Trench 4

Located towards the northwest corner of the field and orientated north to south, Trench 4 was extended to its final dimensions of 7.6m x 8m. The geophysical survey had highlighted a number of anomalies in this area and the placement of the trench here was to try and understand what they were.

Initially used by BERT students during their excavation and recording techniques course, Trench 4 contained two pit/ditch terminals and a NNW-SSE gully terminal which were dated to the Mid-Late Saxon period through the Ipswich and Thetford ware. The pits also contained animal bone (and the by now ubiquitous oyster and mussel shells) along with lava quern fragments and an iron strap. Another NNW-SSE gully terminal was dated to an earlier Middle Saxon period, with a small quantity of both Ipswich and Thetford ware present, along with a

complete copper alloy dress pin with a balloon-shaped head and a Middle to Late Saxon copper alloy hooked tag was discovered whilst searching from a metal detector during the backfilling of the trench.

Trench 5

Moving further west across Chalk Pit field, Trench 5 was located in the northwest corner, orientated west southwest to east northeast, with dimensions of 1.7m wide and 20.8m long. The geophysical survey had produced less clear anomalies in this area. However, our plan had been to conduct as clear an evaluation as possible across the northernmost edge of the field and hopefully Trench 5 would allow us to complete this picture.

Initial cleaning of the trench by yet more BERT students, revealed five features, including distinct reddish-orange soil stains. The first of these was a pit with a charcoal-rich fill, mixed with flecks of burnt clay and burnt chalk. This contained both Ipswich and Thetford ware. Environmental sampling of the fill identified more heather stem fragments. A Late Saxon iron chisel or punch was also discovered in this feature. In the western half of Trench 5, a NNW-SSE boundary/drainage ditch was identified, with Thetford ware sherds, that again dated this to the Late Saxon period. Close to the ditch, a further pit was identified. This was fully excavated, and its fill was found to contain fragments of unglazed medieval pottery, including a sherd of Grimston ware, along with more animal bone and oyster shells. Trench 5 also



Copper alloy pin found in Trench 4

revealed two further features both of which are believed to be drainage ditches, although neither feature contained any datable artefacts.

Like Trench 1, Trench 5 revealed less material culture than the other trenches, indicating that Trenches 2, 3 and 4 were opened closer to the main settlement focus.

Summary

The abundance of animal from all trenches was a defining feature of this season's excavations. In total over 8,500 animal bone and teeth fragments were recovered from the five trenches. Nineteen different species were present including sheep/goat, cattle, pig, horse, dog, cat, roe deer, chicken, geese, mallard, crane, curlew, golden plover, snipe, goshawk, buzzard and crow, with the dominant species being sheep, pig and cattle.

Overall the Chalk Pit field north evaluation excavations were a great success. Combined with earlier fieldwalking and the geophysical survey, we have conclusive evidence for the Mid-Late Saxon settlement at Sedgeford. We hope that the excavations undertaken during the 2007 season will result in Chalk Pit field becoming the next phase of SHARP, with the northern edge of the field becoming the mid to long term focus of excavation activity within the project.

Gary Rossin

Report of the 2008 excavations in Chalk Pit field

The 13th season of SHARP excavations ran from the 5th July through to 1st August, non-archaeological issues within the project bringing about a somewhat shorter digging season. As we only had a four week season, the decision was made to further investigate the northern edge of Chalk Pit field, building on the evaluation trenches opened the previous year.

The previous year's geophysical survey had shown up many anomalies including what looked like a large E-W ditch feature, which appeared to be the northern end of a large enclosure stretching approximately 150 metres south into the field. A plan was developed to try and understand the northern end of the enclosure feature and the relationships of what appeared to be a complex series of boundary ditch features. Using a mechanical excavator a 20m x 20m trench, with a linked 15m x 4m trench extending to the west, was opened up (termed Trench 6). Two smaller 10m x 4m areas, Trench 7 and Trench 8 were also opened. A final area (Trench 9) to the east of the initial excavation areas was opened a week later, to try and further investigate the relationship of the

juncture of northern ditch and the NNE-SSW running ditch of the large enclosure.

Trench 6

After initial cleaning of the opened area, two large east-west running ditches became clearly visible, along with two smaller north-south ditch features and numerous post/stake holes and pit features. The linked 15m x 4m on the western side of the trench also uncovered two further north-south running ditch features. Slots were placed across both of the large east-west ditch features. The southern one which had shown up so well on the geophysics appeared, at first, to be quite shallow but dropped away deeply after further excavation. Large amounts of Ipswich and Thetford ware were found within the fill of the ditch, together with animal bone and oyster shell. However, a few sherds of Iron Age and Roman pottery ware were also uncovered, suggesting a multi-period occupation of the site. A series of post and stake holes were also discovered, predominantly along the southern bank of the large east-west ditch feature.



Excavating the nearly complete Ipswich ware pot from the charcoal filled pit in Trench 6

In the south east corner of Trench 6 an area which had appeared on the geophysical survey as a very distinct anomaly, possibly concentrated burning, was investigated. Excavation uncovered a rich charcoal filled pit feature which also contained animal and fish bone and pieces of worked slag. However, its most significant find was an almost complete Ipswich ware pot which had signs of significant burning on its outer edges. The pot had holes bored through its rim presumably for suspension over an open fire.



Mussel shell filled ditch in Trench 6

A north-south aligned ditch feature was excavated to determine its relationship with the previously investigated large east-west enclosure ditch and was found to have been dug later. An interesting characteristic of the north-south ditch was its distinct fill of mussel shells. During initial cleaning the ditch had appeared as if it was a chalk track. Further north along this ditch a pit feature with a semi circle of post holes on its western side was excavated. Later environmental analysis of the fill of this ditch suggested that approximately 350,000 mussel shells had been discarded over the course of a 12 to 18 month period, suggesting concentrated processing taking place within the settlement.

In the northern area of Trench 6 two beam slot features were excavated. Much of the archaeology in this area had been ploughed out but these two features, along with a series of post holes, suggest buildings were located here. Unfortunately archaeological evidence such as floors had been lost through mechanised ploughing. Trench 6 also delivered an interesting piece of a bone comb handle, with rivets still intact.

Trenches 7 and 8

Located to the west of Trench 6, both of these trenches were opened, cleaned back and initially drawn and photographed. Trench 7 was given over for a two day visit of Young Archaeologists during National Archaeology Week. Trench 8 had no further work carried out on it.

Trench 9

This final trench was opened at the end of week 1 with a view to understanding the relationships of the two ditches of the large enclosure as they met on the western edge. The land within the field drops away in this area

and the mechanical excavator had to go to some depth to come onto the archaeology. It was during this process that one of the season's most impressive finds was discovered. Metal detectorist Steve Hammond found an impressive small cast copper alloy horse while working on the spoilheap as the trench was being machined (a full article on the horse appears elsewhere in this report). It was hard work excavating the juncture of the two ditches with slots having to be dug to a considerable depth. Ipswich and Thetford ware sherds were found in both ditch features, although in less



Excavating Trench 9

quantities than in Trench 6. An odd assemblage of animal bones were also found towards the northern end of the trench, including articulated vertebrae from numerous sheep, along with a single cow humerus Conclusions

Although the excavation season was shorter than normal, it was certainly successful in building on the work of the previous year and confirming the location of the settlement. We have located good evidence of what appear to be buildings, although tantalisingly this disappears into the northern baulk of Trench 6. The significant quantity of mussel shell found in the north-south ditch gives further evidence of activity taking place on this site. The northern half of Trench 6 was covered with Terram and will be excavated further during the 2009 season, when we hope to expand excavations to the north and west of Trench 6 to further enhance our picture of Saxon settlement activity at Sedgeford.

John Hensby

Qui sequitur mutationem consuetudium lectorum Mirum est notare quam littera gothica quam nunc putamus. Qui facit eorum claritatem Investigationes demonstraverunt lectores legere me lius quod, quam nunc

The little horse from Chalk Pit field

Early on during SHARP's 2008 season, a miniature cast copper alloy horse was discovered by volunteer metal detectorist Steve Hammond whilst the Chalk Pit field trenches were being machined. This little horse produced a huge amount of discussion about its origin, date and function.

The horse is small in size, about 2cm from nose to tail, and three-dimensional. The proportions are not true to life, the head and neck being on the large side and the legs being very short. The ears project upwards from the top of the head; they are over-large and are not individually defined. Three deeply scored lines on the back of the head represent the mane. The legs are barely individually defined; instead, there are two rather blocky sections, each defining a pair of legs, one at the front and the other at the back. It has been suggested that the underside of the legs could have been filed down to an unknown degree, but their appearance may simply reflect the finishing process. The tail projects outwards and curves round back on itself to form a loop. This loop suggests that the horse was intended to be suspended, rather than being made as a tiny figurine. It is too light to be functional as a steelyard weight. The horse is decorated with a number of pecked dots and lines that represent features such as the eyes, and possibly some form of harness. The horse was finely made, and its beautiful rich and even midbrownish-green patina suggests that it is of some age.

As Chalk Pit field contains the site of a Middle/Late Anglo-Saxon settlement, an early-medieval date for the horse would be most obvious. But the horse would be an extremely unusual find if this were the case. Roman horse figurines are slightly more common. When they do appear they often have an associated, separately cast,



rider. The Chalk Pit horse is rather too small for this and in any case it does not have a hole for the lug that would have kept a rider in place. There are no other signs of attachment (apart from the loop), indicating that it probably stood alone. The horse is quite stylised, and as Roman figurines are usually rather more naturalistic, a date in the later Iron Age might also be a reasonable proposal.

Because of the uncertainty about the dating, a variety of specialists were shown the horse and asked for their opinions. Unfortunately, they agreed on very little except that they had seen nothing quite like our little horse before! It was even suggested by more than one expert that the horse was not British in origin. If this were the case, its presence on Chalk Pit field might be explained in two ways. Firstly, it could have been brought from elsewhere in Europe, for example, another part of the Roman Empire at some point during the first to fourth centuries AD. Alternatively, the horse could be a fairly recent loss, perhaps a souvenir from an eighteenth or nineteenth century European grand tour. Although unusual, ethnographic or ancient foreign material does occasionally turn up in British fields. These recent losses could be accidental, they might reflect deliberate disposal of 'rubbish', or possibly, and rather more sinisterly, they could be planted in an attempt to confuse or test archaeologists.

After the circulated photographs did not result in a united response, the next step was to take the little horse to the British Museum to show to curators there. Richard Hobbs and Jody Joy, curators of Roman Britain and the British Iron Age respectively, saw the horse and were both reasonably happy that it dated from the Roman period, although they, like everyone else, had never seen anything quite like it. Richard suggested that a photo be included in Lucerna, the newsletter of the Roman Finds Group, and as a result of this I received a very useful email. Martin Henig, an expert on Roman archaeology, art, iconography and religion, believes the Sedgeford horse dates from the very late Iron Age, to the decades immediately before the Roman invasion of Britain. Dr Henig suggests that the horse has an Icenian look to it, the long neck and spiky mane being reminiscent of the horses depicted on Icenian coins. The markings on the horse's flank do look suspiciously like the wheel motifs seen on some of these coins. Dr Henig adds that the "ears" might even be horns, as shown on a horse on a unique coin of Tasciovanus, a king of the Catuvellauni tribe, whose tribal area was immediately to the south-west of that ruled by the Iceni. In terms of use he suggests an alternative, which would make more sense than suspension by a loop from the hind quarters (as this would mean the horse hung unevenly). Although he has as yet found no direct parallel, Dr Henig suggests the horse could have been soldered to a base in order to function as the lid of a jug. Jugs of this date sometimes have little birds fulfilling this role. The research goes on and hopefully one day a parallel for the Sedgeford horse will be found, either in an obscure publication, or perhaps in the ground.

Naomi Payne

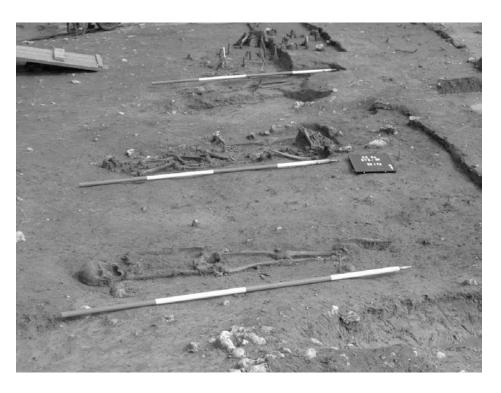
Annual report of work on human remains: 2007

With the completion of excavation on Old Trench in 2006, and only the most northerly part of New Trench left for excavation in 2007, it was clear that there had to be a radical shift in the focus of the human remains work. It now concentrates on bringing together the information that we already have, in a form suitable for publication; initiating new lines of research on the archived remains; and supporting SHARP's 'public archaeology' role. During 2007 this involved work outside the normal season as well as a short season in the OVH at Easter and a full season on site in the summer.

Outside of the seasons further work was carried out by Lorraine, Zannah and Martin on the identification, reunification and recording of the fragmentary remains of the burnt body from the Roman 'oven/grain dryer' (see 2006 Annual Report for details). Lorraine also conducted an extensive literature search on both Roman burial practices and Roman north-west Norfolk to provide context for these remains. Together with a report on the practical work, these formed the basis of her degree dissertation (a copy of which is in the SHARP archive).

Out-of-season public archaeology work included Zannah lecturing on dentition and dental pathology to Cranfield University MSc students at Shrivenham. Hilary also gave the same group a lecture on palaeopathology together with an opportunity for practical work on the SHARP archive at the OVH in Sedgeford.

During the two week
Easter season Lorraine, Sophie
and Martin continued the
analysis of some of the remains
excavated in summer 2006.
Some of these had been
incompletely analysed due to
lack of time during the season.
The assistance provided by
Virginia Jennings and Clare



Rowlinson with this work meant that some effort could be put into one of the normal Easter activities - analysis of disarticulated remains. In particular some of the West Hall disarticulated bones were re-examined as a result of questions raised on the first draft report produced in 2006. The questions arose because of the early dates (Iron Age and Roman) of small amounts of pottery found in association with some of these bone fragments. The re-examination of both the bones and pottery broadly confirmed the results previously reported. It seems likely that either the pottery is residual, or the bones are intrusive, or both depending upon context.

Also present at Easter was Jessica Miller, a UCL student, who was making a quantitative assessment of toothwear as part of her MSc research. A brief note of her findings is given on pages 25 and 26 of this report. A copy of her full dissertation will be deposited in the SHARP archive.

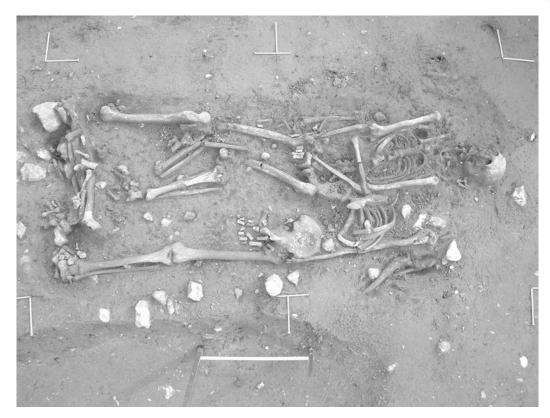
Between Easter and Summer 2007, Sophie produced two posters. They explained how x-ray diffraction could be used to study a bladder stone (mentioned in previous Annual Reports) and for identifying different animal species from bone fragments. She also obtained a grant from the Royal Society of Chemistry which paid for their high quality reproduction and display.

During 2007 other public archaeology work dominated the summer season. Since it was expected that there would be no actual excavation of burials, nor any cleaning and marking work on site, a skeleton was laid out in the site Information Centre for the visitors to view if they so wished. Visits from schools were a major feature of the first two weeks of the season. Later in the season activities relating to osteoarchaeology were provided for the

Young Archaeologists Club (YAC) summer holiday course. Other work aimed at presenting archaeology to a wider public included mounting a display on human remains for the SHARP open day. This included the skeleton which suffered with the bladder stone, along with the encapsulated and sectioned stone itself. Also on display were some of the burnt human bones from the 2006 Roman Project, together with full-size plans of how they had been distributed in the 'oven'.

Originally it had been planned to run two Human Remains courses during the summer – one introductory course and one, more advanced, further studies course. The first introductory course was fully booked before the start of the season so an additional one was advertised. Bookings for this were also gratifyingly high; as were those for the further studies course. In general the courses were well received and the presentations made by the attendees to the Friday afternoon site tours demonstrated a high level of achievement.

Two lectures on the burnt 'body in the oven' were prepared and given during the season. One, entitled 'Murder at Sedgeford Grange? – The Body in the Oven', was given by Martin as one of SHARP's regular Tuesday



night lectures in the church. The other, under the title 'All Change at Late Roman Sedgeford', concentrated on the contextual aspects. It was given by Lorraine at the SHARP one-day conference on 'A Late Roman Agricultural Revolution? Change in the countryside from the 2nd to 4th century AD in East Anglia and beyond' at the end of the season.

Given the amount of time which had to be devoted to these 'public archaeology' tasks it was only possible to do a limited amount of research oriented work during

the main summer season. Nevertheless it was possible to do further work on S0221. As reported in the 2006 Annual Report, this skeleton had a major spiral fracture of one leg just above the knee. Although the bone had knitted together in life the bone was very thin. To help conserve this unusually good example of a pathology Ray made a plaster cradle to support it. The thinness of the leg bone was probably due to osteoporosis. Some other bones, notably the ends of the radii at the wrist, were also thin but they also showed signs of extra bone growth. This we believe was caused by rheumatoid arthritis.

Although both wrists showed the same type of bone changes they were found over a metre apart and in close association with two different skeletons. As a result of extensive inter-cutting in the vicinity of the burials and fragmentation of the skeletons it was impossible to prove that they did in fact come from the same individual; although we thought it highly likely that this was the case. This left us last year with what we admitted was a 'conundrum'. At Easter this year Lorraine found the broken head of a humerus (top of the arm) in with the bones from one of the skeletons which fitted perfectly the broken humerus shaft of the other. This proved to our satisfaction that the inter-cutting had caused such disturbance to the two burials that the two arthritic radii were in fact from just one person.

This success lead us to search for more reunitable bone fragments in other nearby skeletons (there was a third buried between the two mentioned above) and fill contexts. The search was helped by the very particular nature

of the disease. Carpals (wrist bones) were found with highly polished surfaces which matched the polished surfaces on the lower arm bones with which they articulate. Metatarsals (foot bones) were found which showed the erosion lesions on their heads often associated with rheumatoid arthritis. And finger bones were found which showed the characteristic distorted shape sometimes associated with erosive arthropathies. Archaeological evidence for this disease (which Ray suggests we should be calling oligoarthritic rheumatoid arthritis since it seems to have affected only a few joints) is much rarer than the osteoarthritis which is found on many of the Anglo-Saxon Sedgeford adults.

Overall, we now have a much better understanding of the range and extent of the diseases which S0221 suffered but may yet be able to discover more. We also better appreciate the complexity created by the many ditch and burial cuts made nearby, but we still can't fully explain the whole sequence of events. Further osteological and interpretive work will continue next year.

Another interesting piece of research was the discovery by Ray of a skeleton with a first rib fracture. These are rarely found in archaeological remains and he is preparing a paper explaining what he has found. In the meantime a short article by Ray describing the nature and cause of this fracture is provided in this report (see p22).

Since the end of the summer season human remains from the SHARP archive have continued to be used in presentations to the public. In September 2007 Terry Baxter and Gary Rossin took a number of skulls and other artefacts to an event in the Forum Centre in Norwich where local groups could showcase their activities. The event was promoted by BBC Radio Norfolk who specifically asked that the SHARP display should include human remains. In October Hilary Snelling presented a lecture on the archaeology of human remains at the Ancient House Museum in Thetford. Following on from this she has also been asked to give a short course of six weekly two hour sessions on osteoarchaeology at the same venue.

Other out-of-season work continues on data processing, preparing papers for publication and developing a new 'Introduction to Osteology' course which covers both human and animal bones. The basic human remains course is also being revised to reflect the fact that, as far as human remains is concerned, SHARP has moved from digging to the post-excavation phase. Sessions on excavation techniques and strategy will be replaced by new ones on interpretation and report writing.

Martin Hatton

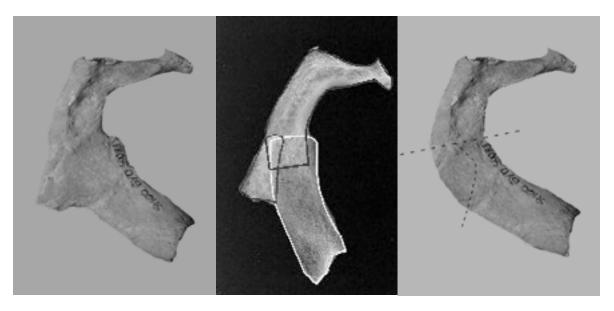
Fracture of the first rib on Sedgeford skeletons

The bones of the Anglo-Saxon men and women of Sedgeford are generally robust. They also show a variety of the signs of wear and tear to joints expected from a physically demanding farming lifestyle. Any accidental bone breakages they may have suffered during their lifetime were, therefore, probably the result of more extreme circumstances. In this context a fracture of the right first rib does not immediately conjure up a particularly dramatic picture. However it still invites questions: how, why and what effect did it have?

Background information

Fractures of the first (uppermost) rib are a rare occurrence. This is because its position at the top of the rib cage is well protected by the collar bone at the front and shoulder blade at the back. All these structures are in turn covered with the attendant muscles of the shoulder girdle and neck.

Skeleton No. S0083 is the individual SHARP reference for a skeleton recovered from the Boneyard Old Trench excavation in 2000. It is recorded as an adult male with extremely well-defined arm and shoulder muscle attachments. These are more pronounced on the right arm, suggesting a dominant right-handedness. One of his central neck vertebrae has signs of having been compressed forward at some time earlier in his life. This was a man used to a life of heavy toil involving lifting and carrying on a regular basis. An episode of his life is also



Fractured right first rib

Fracture segments

Reconstruction

revealed by examination of his first and second ribs on the right side. There is evidence of a fracture through the central portion of the first rib with a protruding growth of bone matching it below on the second rib. He suffered these injuries in an accident several years before his death, which was from an unknown cause. The outcome of his accident is a rib that is soundly healed and functional, although a little shorter because the pieces are overlapped and displaced from their original position.

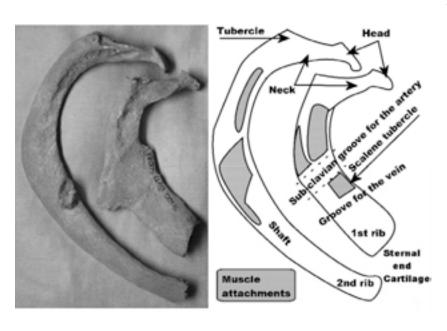
The investigation

To begin the study, a computer graphics reconstruction was done using the intact left first rib for comparison. This revealed a complex injury involving two probable lines of damage resulting in three separate pieces. The injury pattern was reviewed and each element evaluated for its contribution to the story. This included the related bones with their associated muscles and ligaments. Text books, medical journals and the internet were browsed to find similarities elsewhere for a retrospective parallel account. A search of the online database from the human remains archives of the Museum of London and a visit to view their recorded examples (only four found in several thousand skeletons) was a helpful experience for historical comparison. To date, no completely matching example has been found anywhere. However, by using the limited comparative evidence available, a picture emerged of the experience that this individual may have endured.

The results

This rib can break in three different circumstances: direct blunt trauma, repetitive stress and strong muscular action. Early text books and reports refer only to major blunt trauma chest injury in which the first rib fracture is only one element in a series of fractures caused by forces going through the bones of the shoulder and other ribs. Assault was often a cause of this type of injury in the past; today it is more likely to be a road traffic collision. The high degree of complication with this type of injury results in frequent fatalities. This first of the possible types of injury is not a consideration for us because in our example the rib is the only bone broken.

Stress fractures occur when the rib is subjected to rhythmical and repetitive bending. The muscles of the neck lift the forward portion upwards during deep inspiration whilst the weight of the arm pulls the outer section downwards. At the point where the main artery to the arm passes over the rib a natural groove is formed creating a thinner section. It is this pivotal point that snaps. Continuation of the movement may lead to incomplete healing. The amount of new bone formed is often large in its repeated attempts to repair itself. The detection of this kind of fracture only became possible with the widespread use of chest x-ray screening for tuberculosis. It



Right first rib fracture with second rib exostosis

First and second rib anatomy

was noticed that in young, fit male recruits in the armed forces previous injury was evident but that no knowledge of any incident could be ascertained. It was well known in the army that a stress fracture of the metatarsal bones in the foot (a 'march fracture') could occur when new recruits did unaccustomed longdistance walking in new boots. The first rib equivalent was the 'backpack fracture'; a comparable injury in the navy was associated with frequent pulling on ropes. The numbers detected were still small. It is this type of stress fracture that is closer to the Sedgeford example. It has a similar position on the bone but cannot provide a complete explanation for the fracture pieces.

The muscle-pull type of injury can occur in athletes who are involved in

weightlifting, throwing and overhead racket activities. They tend to be detected because sports medicine involves the widespread use of three-dimensional imaging, including Computer Aided Tomography and Magnetic Resonance Images. They follow the pattern of young, fit, strong individuals whose daily activities include both repetitive and stressful actions. Injury often happens when an increase in (or change to) their usual routine comes with intensive practice before competition. It is this high level of detailed, firsthand knowledge of the individuals concerned that produces a thorough understanding of the consequences of this particular rib fracture. By monitoring the movements made by sport participants it is possible to plot the course of events leading up to the injury.

This profile most closely fits the general characteristics of our Anglo-Saxon example. In particular, it can explain the probable reason for the detached third fragment which is connected to the chest muscle that aids the forward movement of the shoulder. This muscle is attached by separate insertions into all the top eight ribs at the front and the shoulder blade at the back. The two uppermost insertions become involved when the arm is thrust forwards. They work in the opposite direction from the muscles attached to the neck which lift the ribs during deep inspiration.

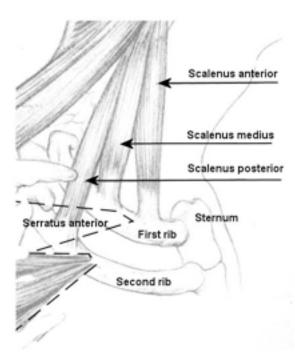
A plausible explanation

A strong man, accustomed to heavy physical work, found himself faced with a difficult object to move. If his work was seasonal it would involve episodes of intense activity such as harvesting, land clearance or house building. On this occasion he may have been working intensely for some days previously, resulting in an already

weakened first rib on his most active side. He took hold of the rope attached to the object and instinctively braced himself. When he took up the strain and turned his body away in preparation to pull, his right shoulder moved backwards, stretching the upper insertions of his chest muscles. In readiness for the effort, he took in a deep

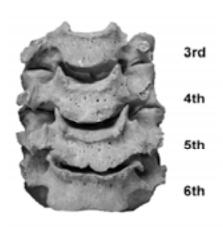
breath and held it, thereby lifting the first rib and starting the sequence of progressive tension. In a sudden and aggressive action he thrust his head for greater momentum. This completed the maximum tension on the neck muscles. When the object did not move, the shoulder became fixed, causing the muscles to pull on the chest. The insertion into the first rib was placed under strain as the movement was resisted. The first rib continued to be pulled upwards by the neck muscles, aided by the momentum of the head, until it could go no further. The conflicting forces then fractured the bone at its thinnest point. Such was the force involved that the bone fragmented and a piece was pulled off where the muscle was attached. Pulled downwards and outwards, the sharply pointed edge of the separated fragment embedded itself into the second rib below, causing the reaction seen on its surface.

Individuals who have recalled their experiences of this injury provide a suggestion of what may have happened next. An intense pain behind the collarbone and radiating into



The attachment of the rib muscles

the shoulder would be felt. The recoil action of the pieces hitting the major arm nerve and artery would send a stabbing pain down the inside of the upper arm into the hand with a loss of power and 'pins and needles' in the fingers. Presumably, he would have let go as a result. The left arm would have grasped the right elbow to support the weight of the arm and the head would turn towards the right shoulder with the chin resting on the chest. This reflex action instinctively removes the strain upon the injury and offers immediate relief from the pain. The separated fragments could not return to their normal anatomical position and so the ends all overlapped. They



Lower neck vertebrae osteophytes

would have been compressed together between the lung below and the shoulder muscles above. The arm would have remained functional but with pain on exertion. After a period of about two weeks, the early healing processes would have stuck the fractured ends together, permitting more comfortable movement of the shoulder. At four to six weeks, the bone would have been sound enough for more active movement, and by three months normal stressful actions would have returned.

There are no signs on the skeleton to suggest anything other than a full recovery, though the shortened rib may have constricted the space for the nerve and artery to pass through, causing long term nerve irritation effects in the hand. It is not possible to say whether the bone changes seen in the neck, which are precisely those the relevant muscles are attached to, were caused by this incident or whether they were already present. They have a link with long-term lifting and carrying actions.

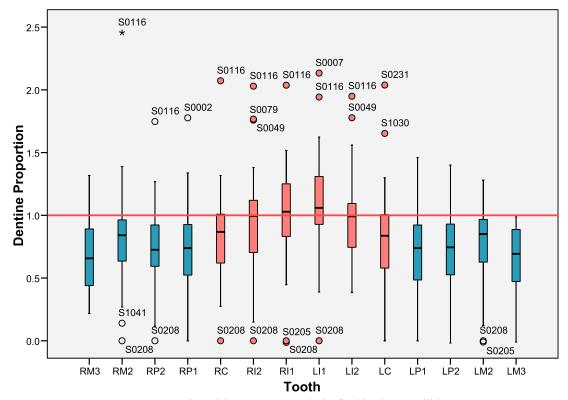
Sedgeford dental attrition patterns

The goal of my project was to create and implement a quantitative method by which dental attrition could be compared in a large number of dentitions. The method involved individual macro-photographs of each tooth and the use of image-processing software to measure the areas of exposed dentine and the area of original enamel. Eventually, these results were compared to the relevant first molars establishing the relative pattern of wear in each jaw. This work was carried out at Sedgeford and the site of Medieval St. Nicholas Shambles cemetery in London in order to compare patterns of dental attrition in Anglo-Saxon and Medieval period populations.

During the Easter session of 2007, I collected macro-focus photographs of the dentitions of the complete population of Sedgeford excavated thus far. This work entailed the photography of each tooth individually and encompassed both adults and juveniles. The photographs were then loaded into image-processing software known as ImageJ. For each tooth, the original enamel surface and the area of exposed dentine were measured and then a ratio was created comparing the two. These data were then compared to the results achieved for the 1st molars in each jaw in order to establish what we are calling the dentine proportion.

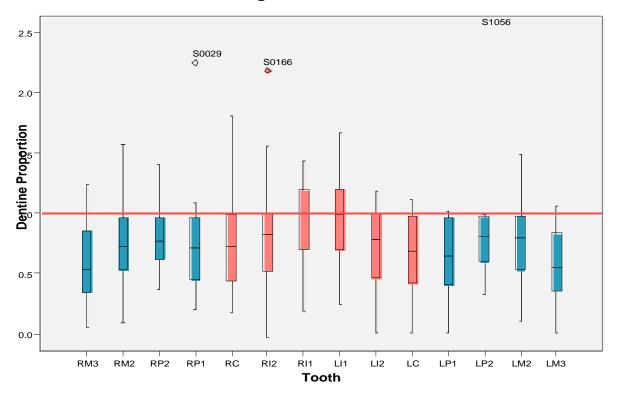
The analyzed data from Sedgeford was found to follow the expected pattern of the human dental eruption sequence (see graph). This is the first large-scale sample to demonstrate almost perfect adherence to the eruption sequence expectation (ESE). When compared to the population from Nicholas Shambles, also a large sample, the Sedgeford data did not show any of the anomalies that the Nicholas Shambles data did, and also did not show any severe bunching around the 1st molar reference line as Nicholas Shambles did. This suggests several things about the way that the individuals at Sedgeford may have used their teeth. Firstly, it seems quite clear that the incisors were not used as tools, meaning that they were not employed as an extra hand to hold or tear objects such as hides or stones. If this had been the case, as with Neanderthal samples studied by A. Clement, the incisor teeth would have demonstrated excessively high attrition compared to the molars (A. Clement, unpublished PhD. dissertation, "Tooth wear patterns in Neanderthals and early modern humans").

Sedgeford- Mandibles



Dental attrition patterns at Sedgeford in the mandible

Sedgeford-Maxillae



Dental attrition at Sedgeford in the maxilla

Instead, at Sedgeford, though there is generally heavy attrition, it is more consistent across the dental arcade than dentitions from other sites that have been studied. Though scholars do not agree upon the processes behind severe dental attrition, I have speculated that the attrition seen at Sedgeford is consistent with what may be described as a 'natural' human diet. The Anglo-Saxon period just prior to the establishment of large-scale industrialized milling, would have allowed the individual to have more control over the quality of their bread flour (having fewer inclusions) and would have been greatly supplemented by wild food sources, both vegetal and animal. This sort of omnivorous diet with lower levels of stony inclusions in the flour would have resulted in the anterior and posterior teeth wearing at a consistent rate, and therefore would predict the steady progression of attrition observed in the molars as they follow the eruption sequence. In comparison, the individuals at Nicholas Shambles have equal amounts of wear across all three molars, suggesting a diet heavy in bread made from highly included flour. In the future, Sedgeford may come to be a type-site or base-line site against which the attrition patterns of other populations are assessed.

Jessica Miller

Gallery



Excavating Trench 1, Summer 2007



The huge quantity of animal bones and shell, including remains of clay baked oven found in Trench 3, Summer 2007



The discovery of the smashed pot found in Trench 1, Summer 2007



Excavating Trench 6, Summer 2008



Excavating Trench 9, Summer 2008



Chalk Pit field excavations, Summer 2008



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