EASTBOURNE ANCESTORS

A story of life from the bones of the past

Project Report

by Hayley Forsyth and Jonathan Seaman

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The Story Begins…..

A Project Overview by Jonathan Seaman & Hayley Forsyth

The remains of countless people dating from millennia of British history lie in museum collections across the country. Academic interest in them has never been stronger, but our heritage service went further: it invited in the public.

Eastbourne has a lot of skeletons in its closet – or more correctly in the basement of the Town Hall, where they have been for some time, though rarely seen by the public. These remains had been collected by what is now the Eastbourne Heritage Service (Eastbourne Museum Service until May 2013) and its various incarnations over the last 150 or so years. There are now some 300 inhumations and cremations in store, their origins spanning almost 4,500 years.

Taking account of considerable losses over the years (a former museum was destroyed during enemy action in 1942 along with an unknown number of artefacts), this amounts to a significant quantity of human skeletal remains in a relatively small collection. Some of them came to light during amateur community excavations or major research projects (such as the Bullock Down Survey by the late Peter Drewett), and from chance discoveries during building or agricultural works. Unfortunately some remains were largely devoid of identification. A particularly intriguing example with no clear archaeological provenance would prove to be one of our most fascinating individuals.

However, the majority of burials came from one place, the former Eastbourne College of Art & Technology, St Anne's Road, Eastbourne (given the site name ECAT). Excavations here in the 1990s uncovered over 200 Anglo-Saxon graves. The skeletons were belatedly returned in 2011 after a period of inadequate storage and limited post-excavation analysis, due to lack of sufficient funding for the original project.

Meanwhile, the Heritage Service had undergone a major revival, experiencing a surge in public interest in community archaeology and local history. The human remains collection seemed to offer the opportunity for a research project that could tap into this interest. We knew there were new stories to tell, and wanted to prove the worth of retrospective analysis. Each skeleton or cremation could receive a full osteological examination. A selection could be investigated further, using radiocarbon dating and radio-isotope analysis. The main aim was a noble, if rather ambitious one: to give every skeleton or cremation in the collection an osteobiography, or "story from the bones". All the Heritage Service needed to do was raise the funds.

Like most other public sector bodies, Eastbourne Borough Council has undergone a period of restructuring and cost-cutting determined by national government guidelines. Thankfully the council has shown great foresight in promoting the Heritage Service as part of its vision for the future. Thus encouraged and supported, Jo Seaman, the heritage manager and

project manager, put together a Heritage Lottery Fund (HLF) bid for £73,800, backed by a commitment of £8,200 from the council. In April 2012 it was revealed that the application was successful. The Eastbourne Ancestors Project was born.

The project proved popular with the HLF largely because of the emphasis on volunteer training and participation within a practice – in this case the post-excavation analysis of human skeletal remains – that rarely allowed such opportunities. Academic institutions were involved, including Bournemouth and Durham universities, which supplied undergraduate and postgraduate students and interns. In this way the Heritage Service would disseminate learning opportunities, or even encourage careers in post-excavation osteology.

This was not to be a purely academic exercise, but would be as accessible as possible, with volunteer opportunities and involvement a priority, in keeping with the Heritage Service's belief that encouraging public engagement is an essential part of its work. Volunteers would be directly involved in researching the remains, to help them understand, even just a little, the lives of their distant antecedents. The project would include archaeological fieldwork training, conservation workshops, re-enactment events and an educational programme that could really bring the past to life.

After a local appeal, the heritage office was flooded with enquiries from would-be volunteers. Over six months a strong and diverse team was assembled, affectionately known as "The Bone Crew". Without them, the thousands of bones would never have been cleaned and sorted, and the tonnes of earth (then still bagged with many of the skeletons) could never have been sieved and checked for artefacts. The volunteers became adept in picking out even the tiniest ear bones and amber beads from this claggy grave fill, and thus helped us further add to the burial assemblages already excavated.

Over 300 volunteers helped the project in some way, either as part of the 'Bone Crew', as excavation assistants or in putting together and eventually stewarding the exhibition. Many of these volunteers underwent training as part of the project and are continuing to use these acquired skills to assist the Heritage Service, giving sustainibilty and more importantly, personal impact:

"My favourite parts of the project were: connecting with the bones of people from the past. ... scrubbing a jaw and wincing when I saw a rotten tooth....the excitement when cleaning a small 'stone' in a bag of soil from a grave then realising it was an Amber bead.. the amazement of finding a fragile tiny stirrup shaped ear bone - how did it survive all these years....meeting other volunteers and enjoying often intriguing conversations while we worked. ... having the opportunity to join pottery and conservation workshops...."

Paula Borthwick, Eastbourne Ancestors Volunteer

That such a small and relatively new heritage service should embark on a high-profile and all-encompassing post-excavation project was unusual. We attracted much interest from the local, regional and even international archaeological world.
The implications of our discoveries are starting to resonate with professionals as well as, and more importantly for us, the communities with which we have worked. Our aim has always been to engage with and excite those who may not be viewed as traditional museum goers or have an interest in archaeology. Feedback certainly indicates we have achieved this, though it was only with the opening of the Eastbourne Ancestors exhibition in February 2014 that we were really able to evaluate this success.

The display of human remains today always seems to make curators a little nervous. However, by and large – notwithstanding recent protests at the new Stonehenge visitor centre – it seems that the public do not have such reservations. To test this theory, the Heritage Service held a public meeting to discuss project ethics and gauge the opinion of our potential audience on the display of human skeletal remains. The view in the hall was unanimous: such display was supported, as long as this was carried out with respect and in the correct contextual setting.

The project's progress was followed by a BBC South East team from the regional Inside Out programme, which broadcast two pieces. The Heritage Service developed a good working relationship with this team, the result being two very positive promotions for Eastbourne Ancestors. There has been further media interest, with the results of a facial reconstruction and osteoanalysis slowly leaching out. Thus far, however, we have managed to avoid the more outlandish media stories that can plague human remains projects.

Putting Flesh on the Bones…

Osteoarchaeologist and project coordinator Hayley Forsyth, helped by interns and volunteers, analysed the remains over 18 months, while schools, colleges and the public were invited to a temporary lab set up in Eastbourne Town Hall. Analysis aimed to determine the sex, age, stature, health, metrics, non-metric traits and ancestry of each individual. This was a challenge, with most of the remains being poorly preserved; some of the burials still remain under study. After a preliminary assessment, skeletons were chosen for radiocarbon dating, isotope analysis and facial reconstruction – most of them were excavated either before such techniques were available, or on a restrictive budget. The project followed guidelines set out by the British Association for Biological Anthropology & Osteoarchaeology, English Heritage, and the Institute for Archaeologists to ensure that the treatment and care of remains met agreed ethical standards.

Oxford University's Radiocarbon Accelerator Unit (ORAU) analysed samples from 13 individuals, only one of which had to be rejected due to contamination (from a burial from Old Town, previously dated to 2600–1600BC on the basis of an associated Beaker pot).

Jane Evans and Angela Lamb from the Natural Environment Research Council (NERC) performed stable radio isotope analysis (strontium, oxygen, carbon and nitrogen) on the teeth of 11 individuals. Forensic facial reconstruction was undertaken for three individuals by Caroline Wilkinson, professor of craniofacial identification at the University of Dundee. To produce such reconstructions, complete or near-complete skulls are needed, of which the collection has few, easing the difficult choice of individuals to study. It was intended that the public have the opportunity to come literally face to face with the past, and opted for using different media for the exhibition.

The ECAT site dominated research. In 1991–92 the Eastbourne Natural History & Archaeology Society excavated 27 Anglo-Saxon inhumation burials and three cremation deposits. A further 42 graves and 61 other features were recorded but untouched, until 1997–98 when a team from University College London (UCL) excavated the entire site prior to major redevelopment into residential units. Over 5,300 square metres were cleared, and 192 graves and at least 16 pottery cremation vessels unearthed. Skeletons were found to be in various states of preservation, with some largely complete. Many had been buried with exquisite grave goods indicating a fifth to seventh century date. The cemetery's full extent is not known, but chance finds of similarly furnished graves in the 1920s some 130m away suggest that a substantial area remains uninvestigated or lost beneath 19th century housing.
The ECAT site lies atop a ridge running roughly north-south along the eastern slopes of the South Downs escarpment.
Numerous burials dated by limited grave goods to between 650–850AD were found during road building in the 19th and early 20th centuries further along this ridge to the north-west, on Ocklynge Hill. Most of these remains are now lost, but another outlying part of the cemetery was partially excavated by the local archaeological society in 1970, during a boom in house building.

Twenty six skeletons were recovered, with a few iron knives as grave goods, suggesting these burials date from the late seventh to ninth centuries, a transitional period in Anglo-Saxon Sussex when Christianity was becoming the dominant religion and funerary practices were changing.. These burial groups, along with a handful of other scattered graves (two were excavated at Willingdon Road in 1921 and a single skeleton was found in a garden in nearby Hurst Road), indicate the use of this ridge for burial over at least four centuries spanning the pagan and early Christian Anglo-Saxon era.

The burial sites would have commanded a view over a large lagoon and out to sea in one direction, and to the majestic South Downs in the other. The evidence of earlier burials (a possible bronze age round barrow on the ECAT site and slightly later cinerary urns from the upper slope of the ridge) could push this tradition for interment back at least 4,500 years.

Telling Stories…

In February 2014 the Eastbourne Ancestors exhibition opened after 6 frantic months of building, writing and designing, often as the results of the scientific testing were still coming in.

The exhibition was housed in the former Pavilion Tearoom adjacent to the Redoubt Fortress, which had seen better times and was in danger of failing completely. About 70% of the floorspace was given over to the new exhibition with the remaining 30% housing a completely rejuvenated café and seating area. This close cooperation between the Heritage Service, EBC Marketing and Devonshire Park Catering was the first of its kind, but following this experiment, certainly not the last.

The displays themselves had been carefully designed to tell the broard story of the project whilst also delving deep into the scientific details of the fascinating discoveries all at an accessible level for all-comers. This was no easy task, but through a combination of layers of interpretation and interactive exhibits for all ages, the feedback would indicate that it was a resounding success.

Over 25000 visitors have taken part in the 'Ancestors' experience at the Pavilion over the course of 10 months and many of these left feedback for evaluation. Only one of these was actually a negative comment. This evidence also showed that the exhibition had achieved its goal in reaching beyond the bounds of the 'traditional' museum visitor. It has also proved that Heritage Tourism and archaeology in particular are incredibly attractive to the visiting public of Eastbourne and the legacy of this will be seen in the continued expansion of the Heritage Service.

Osteoarchaeological Analysis of Human Remains from Eastbourne's Heritage Service Collection

By Hayley Forsyth

Introduction

Eastbourne Ancestors is a Heritage Lottery Funded community project managed by Eastbourne Borough Council's Heritage Service.

This report details the results of the osteoarchaeological analysis of human remains; inhumations and cremations from the Eastbourne Ancestors Project. The analysis was carried out by Hayley Forsyth in 2012-2014 for Eastbourne Borough Council's Heritage Service with assistance from volunteers and interns.

The Eastbourne Heritage Service has a total of three hundred and six human skeletal remains; two hundred and seventy-five inhumations and thirty-one cremation burials within the archaeological collection, excavated over the years from the surrounding Eastbourne area (Figure:1).

The collection includes human skeletal remains from eighteen sites from around Eastbourne. The majority of the burials date to the Anglo-Saxon period, skeletal remains are also present from the Neolithic(?), Bronze Age and Roman eras. Several cemetery sites, monuments, small clusters and individual lone burials are represented within the collection. Skeletal remains present include disarticulated, articulated, cremation burials and inhumation burials.

The Neolithic(?) assemblage (*c.*4000-2500 BC) contains one inhumation excavated from **Motcombe Farm** in 1907 (Stevens, 1980). The Bronze Age assemblage (*c.*2500-800 BC) contains eighteen inhumations and fourteen cremations. Two Beaker burial (*c.*2500-1700 BC) inhumations were recovered from the site that was once the **Dental Estimates Board** in Eastbourne, Old Town in 1977 (Stevens, 1980). One of the individuals was also buried with the remains of a wild boar.

Crowlink, a Bronze Age funerary monument located on Baily's Hill produced the remains of seven inhumations and twelve cremation burials along with pottery and struck flints from the period (Greatorex, 1998). The Bronze Age tumulus at **Long Down** included seven inhumations and two cremation burials, whilst the Round Barrow tumulus at **Cornish Farm** (Stevens, 1980), and the **Shinewater** wetland site contained (at least) one inhumation.

Iron Age (*c.*800 BC - 43 AD) remains are not present within the collection. Disarticulated remains were recovered from the Eastbourne College of Arts & Technology (**ECAT**) site excavated by Archaeology South-East University College London, (*forthcoming*).
The Roman assemblage (*c.*43 AD - 410 AD) contains two inhumations and three cremation burials. Inhumations were recovered from **Duttles Brow**, Jevington (Chuter, 2009) and an unknown site at **Beachy Head**. Single urned cremation burials were recovered from **Fore Down Close**, **Jevington** and **Willingdon**.

The Anglo-Saxon assemblage (410 AD - 1066) contains two hundred and fifty-four inhumations and fourteen cremations. Lone inhumation burials were recovered from a garden in **Hurst Road** in 1993 and from an area of **St. Anne's Road** during the excavation for a telephone cable trench in the 1970's. A further single inhumation was discovered in **Exceat** and two inhumations were excavated from an area of **Willingdon Road** in 1921.

The site at **Saxon Close**, originally part of a much larger cemetery, was excavated in 1970 (also known as **Ocklynge Hill** and more recently **Saxon Place**) and produced twenty-six inhumation burials (Stevens, 1980). The **ECAT** (Eastbourne College of Arts & Technology) 1991.1 cemetery site, located on St. Anne's Road, was excavated by Patricia Stevens (*forthcoming*) and local archaeologists in 1991-1992; twenty-eight inhumations and three cremation burials were recovered. In 1997-1998, a larger part of this cemetery was excavated by Archaeology South-East, (part of University College London) and produced one hundred and ninety-five inhumations and eleven cremation burials.

1- Exceat
2- Shinewater
3- Foredown Close
4- Cornish Farm
5- Beachy Head
6- Dental Estimates Board
7- Jevington
8- Duttles Brow
9- Willingdon
10- Hurst Road
11- ECAT St. Anne's Road
12- ECAT 1991.1
13- Willingdon Road
14- Saxon Close (Ocklynge Hill)
15- Long Down
16- Crowlink
17- Motcombe Farm

Figure 1: Google Maps location of sites created by K. Buckland, Eastbourne Heritage Service

Aims and Objectives

The human remains within the collection had been in storage for many years, some of which had been reported on previously, whilst others had not.

The aim of the Eastbourne Ancestors Project was to osteologically examine all of the human remains to produce an up-to-date record of the collection, with an inventory of skeletal and dental material to record bone preservation and completeness of the skeletal remains. The analysis recorded, where possible, the determination of sex, estimation of age, stature, metrics and non-metric traits and noting pathologies if present. Further scientific analysis included radiocarbon dating, isotope analysis and forensic facial reconstruction of a small number of individuals from the assemblage.

Methodology

The human skeletal remains were analysed according to the standards in guidelines recommended by the British Association of Biological Anthropology and Osteoarchaeology, the Institute for Archaeologists and English Heritage.

The skeletal remains were macroscopically examined to assess the grade of preservation and percentage completeness, as well as determining the age, sex, stature, metrics, non-metric traits and pathological lesions where possible. The cremated bone was weighed, the fragment size and colour recorded, where possible elements were identified and an osteoloigcal assessment completed.

The skeletal remains had been in storage for many years and a large number, the **ECAT** 1997/1998 assemblage amongst others, required cleaning to remove soil debris before analysis could take place. Skeletal remains were cleaned using soft brushes and cold water, dried at room temperature away from direct sunlight and heat. Cremation burials had soil debris removed from the bone where possible.

The majority of the skeletal remains were already boxed in conservation grade human skeletal containers, although soil debris had been gathering in the bags and boxes, this was removed to reduce any further damage to the remains. The **ECAT** 1997/1998 inhumations had been stored temporarily in bags, once these remains had been cleaned they were re-bagged and re-boxed with the labels available and packed with acid-free tissue paper to minimise damage to the bones. Packing materials were updated where necessary within the remainder of the collection in order to prevent damage to the remains.

The post-excavation archive for the **ECAT** 1997/1998 assemblage was made available for study by Archaeology South-East. Where available, literature was sourced to obtain information regarding the other sites discussed within this report.

Preservation rates (<25%, 25-75%, >75%) and completeness levels (poor, partial, near complete) of the skeletal remains were recorded by roughly following Buikstra & Ubelaker (1994) and Brickley & McKinley (2004). An inventory of the skeletal material was recorded based on Buikstra & Ubelaker (1994) in tabular and pictorial form. Bones have been recorded as present or absent, with the pictorial form used to illustrate this in further detail.

In adults and sub-adults, age at death was estimated using the dentition; dental wear (Miles 1963,2001; Brothwell, 1981) as well as dental development and eruption rates (Buikstra & Ubelaker, 1994; White & Folkens 2005). Analysis of the wear patterns of the pubic

symphysis (Brooks & Suchey, 1990) and auricular surface (Lovejoy *et al*, 1985) were also used to assist in the estimation of age from adult remains.
Where possible bone development and fusion rates were also consulted to aid in the age estimation of sub-adult individuals (Brothwell, 1981; Mays, 2006; Schaefer *et al*, 2009).

Biological sex in adults was determined from the analysis of dimorphic traits of the pelvis and skull (Brothwell, 1981; Buikstra & Ubelaker, 1994; White & Folkens, 2005; Mays 2006). Metrical analysis (Bass, 1995) was also used where possible, in conjunction with the former methods. Subadult remains were not analysed as these skeletal remains had not developed through puberty.

Metrical data was recorded following Buikstra & Ubelaker (1994) for adult and subadult remains where skeletal preservation and completeness allowed. Stature was calculated using the Trotter & Gleser (1952,1958) method measuring complete and unbroken long bones. Subadult remains were not measured as the skeletal remains are not fully developed. The recording of non-metric traits was limited to observing those discussed by Buikstra & Ubelaker (1994) and Brothwell (1981).

The data gathered will be archived and held by the Eastbourne Heritage Service; full recording forms and digital photographs are supplied separately to be archived with any archaeological material.

Osteoarchaeological Analysis

Quantification

A total of 329 archive records were produced during the analysis of the collection, however only 306 contained skeletal remains. In five of the cremation entries, no human remains were present, this was also the case with four of the inhumation burials. Two additional inhumation graves were not excavated and twelve skeletal remains had been lost, most likely amongst the disarticulated bones.

In the majority of cases, as with the skeletal remains from the inhumations, the bones from the cremation burials had been analysed previously. All cremated bone prior to this analysis

had been removed from vessels already, apart from the assemblage at **Fore Down Close**. This pottery vessel had been reconstructed whilst a small amount of bone was still contained inside.

The bones from the cremation burials were weighed, varying from 1gram to 964grams with an average weight of 192grams. Fragment sizes and the colouration of bone was recorded. Due to the low weight values it is likely that the cremation burials contained token amounts of bone, rather than complete individuals.

Preservation

The local geology, soil PH, burial environment, and in some cases post-depositional disturbances, have affected the preservation levels of the bones within the collection. The age, sex, size and robustness of skeletal remains will also affect their preservation levels. The treatment that skeletal remains receive subsequent to excavation is a further key factor. Very few of the skeletal remains within the collection had been processed and in some instances the bones were still covered in soil debris, several of the skulls present also contained soil. The presence of this soil debris caused additional post-depositional damage with the weight of the soil breaking the bones. The majority of the **ECAT** 1997/1998 assemblage had been stored temporarily in bags and it was also necessary to update the packing materials within the remainder of the collection. A number of skeletal remains including the inhumations from **Exceat**, **Hurst Road** and **Willingdon Road** had been 'reconstructed' in previous years using an unknown glue type, these remains were kept intact. The two burials from the **Dental Estimates Board** site had also been 'reconstructed' with an unknown glue type, set into plaster and painted.

The condition of the skeletal remains were assessed macroscopically and recorded according to fragmentation level; minimal (<25%), moderate (25-75%) and high (>75%). A high percentage of preservation inferred that the individual had little or no bone surface erosion and very few, or no post-mortem breaks. A minimal percentage of preservation implied that the individual had severe bone fragmentation, a high level of surface erosion as well as damage to articulation surfaces.

Minimal preservation was observed in one hundred and fifty-one (55%) of the inhumed remains, (illustrated in Figure:2), with moderate preservation recorded in ninety-six (35%) and high preservation in twenty-eight individuals (10%) within the collection.

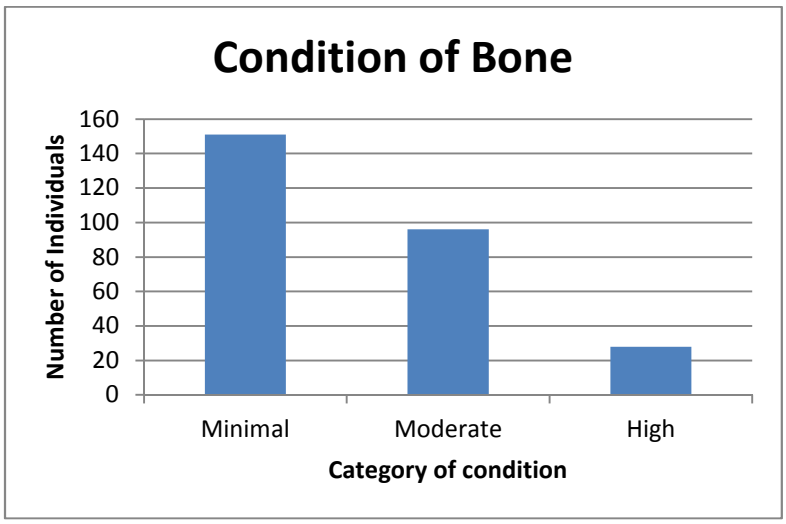

Figure 2:Condition of bone from the inhumation burials

The completeness of the skeletal remains was assessed macroscopically and recorded according to the percentage present; near to complete (>75%), partial (25-75%) and poor (<25%). Near to complete, inferred that the majority of the skeletal elements were whole and a high percentage of the skeleton was present. None of the skeletal remains were 100% complete. Poor completeness implied that very few elements were represented and that the majority of the skeletal remains were fragmentary.

Of the 275 inhumations within the collection, 12 (4.3%) were near to complete, two hundred and forty-seven (90%) were partially complete and sixteen (5.8%) were observed as poor.

The majority of the inhumed remains have damaged articulations and many of the individuals were highly fragmented.

The cremation burials within the collection were also assessed in terms of preservation and completeness. All thirty-one (100%) of the cremation burials were recorded as having minimal preservation and poor completeness. The bone showed evidence of surface erosion with the majority of fragment sizes ranging from small to medium and in some cases, larger fragments were present. The cremated bone had been removed from the cremation vessels prior to this project.

Minimum Number of Individuals

The minimum number of individuals (MNI) count is used to establish how many individuals are represented from articulated and disarticulated remains within an assemblage irrespective of the number of graves recorded. The MNI is calculated by recording the presence of the most abundant element, usually a long bone or a skull. The MNI is most likely to be lower than the actual number of inhumations present, as it indicates the minimum number within the assemblage that can be proven as present. In this case, due to poor bone preservation and skeletal completeness there were a lack of skulls available. Instead, paired femurs were counted which produced an MNI of one hundred and ninety-two individuals within the collection.

Assessment of Age

There are several standard ageing methods available for the assessment of age at death in adult and sub-adult skeletal remains. The age of sub-adult remains can be more accurately assessed than that of adults based on the known stages of skeletal development, dental formation and tooth eruption (Brothwell, 1981; Mays, 2006; Schaefer *et al*, 2009). Joint changes in the skeleton, specifically those observed in the pelvic region; the auricular surface (Lovejoy *et al*, 1985) and pubic symphysis (Brooks & Suchey, 1990), are used to assess the age of adult remains based on categories of deterioration.

Analysis of the adult remains produces broad age categories as the skeleton has reached developmental maturity, recording degenerative changes provides a less reliable estimation of age. Dental attrition rates can also be used in conjunction, where possible.

The age categories used included neonate (around birth), infant (1-6), child (7-12), adolescent (13-17), young adult (18-25), young to old middle adult (26-45) and mature adult (46+). Adult and sub-adult categories have been assigned to individuals with poorly preserved remains that hindered analysis (Table 1).

Age	Sex					
	Subadult	Female	Female?	Male	Male?	Undetermined
Undetermined						30
Neonate	2					
Infant	23					1
Child	19					2
Adolescent	10				1	
Young Adult		9	8	7	4	8
Young - Old Adult		18	9	23	7	8
Mature Adult		1	4	10	4	3
Adult		10	7	12	9	55
Subadult	1					1
Total	55	38	28	52	25	108

Table 1: Age and sex estimations of skeletal remains from inhumation and cremation burials

It was possible to estimate the age of 265 inhumations and 11 cremations from the collection (90% of the complete assemblage). Due to poor bone survivability as well as completeness and preservation rates in several individuals, dental wear although less reliable, was used to assist in the estimation of age where the pelvic region was damaged or absent.

Of the 276 individuals whose age could be estimated two (0.7%) were neonates, twenty-four were infants (8.7%), twenty-one were children (7.6%), eleven were adolescents (4%), thirty-six were young adults (13%), sixty-five were aged between 26 - 45 (23.6%) and twenty-two were mature adults (7.8%). Ninety-three individuals were classed as adult (33.7%) and two as subadults (0.7%) where preservation and completeness affected the results. Table 2 shows the sites included within the collection along with assigned age categories of all the individuals present.

Sites	Age									
	<1	**1-6**	**7-12**	**13-17**	**18-25**	**26-45**	**46+**	**Adult**	**Subadult**	**U**
Beachy Head					1					
Cornish Farm						1				
Crowlink		1						2		16
Dental Estimates Board								2		
Duttles Brow					1					
ECAT		16	17	8	28	54	18	55	2	9
ECAT 1991.1		1	4	1	3	3	3	1	10	4
Exceat							1			
Fore Down Close										1
Hurst Road						1				
Jevington										1
Long Down						1		8		
Motcombe Farm								1		
Saxon Close		1	3	3		3	4	1	11	
Shinewater									1	
St. Annes								1		
Willingdon									1	
Willingdon Road							1		1	

Table 2: Age assessment categories of skeletal remains analysed by site location

Sex Determination

Biological sex was assessed using standard osteological methods such as those discussed in Buikstra & Ubelaker (1994). Analysis is based on the morphological features observed between adult male and female skeletal remains; typically the pelvis and skull.
Metrical analysis (Bass, 1995) of sexually dimorphic bones was also used where possible. Both preservation rates and completeness levels affect the ability to identify biological sex. The categories used included 'male', 'possible male', 'unobservable', 'possible female' and 'female'. Subadult remains were not analysed as the dimorphic characteristics used to determine biological sex start developing during puberty. Subadult remains were represented by fifty-four (19.6%) inhumations and three (9.6%) cremation burials. Table 3 below shows the distribution of skeletal remains by sex determination and era.

Period	Male	Male ?	Unobservable	Female ?	Female
Neolithic?	1				
Bronze Age	2	1	24	3	1
Roman			2	2	1
Anglo-Saxon	49	24	80	23	36
Total	52	25	106	28	38

Table 3: Sex determination of the skeletal remains within the collection by era.

The majority of adult individuals within the collection (42.5%) could not be classified within the sex determination categories due to poor preservation and completeness. The bones of the skull and pelvis are fragile even when in good condition due to the irregular shapes of these bones compared to those of other skeletal elements. During excavation, these bones often project into the grave fill above the remainder of the skeleton, depending on burial position, meaning that these elements are often encountered first and can lead to them becoming damaged. It has been possible to estimate the sex of two hundred and forty-nine adult inhumation and cremation burials (Table 4). The collection contains fifty-two (21%) males and twenty-five (10%) male? individuals as well as thirty-eight (15.3%) females and twenty-eight (11.2%) female? individuals.

Biological Sex	Inhumation Burial	Cremation Burial
Male	52	
Male?	25	
Unobservable	79	27
Female?	27	1
Female	38	
Total	221	28

Table 4: Sex determination by burial type

Figure 3 illustrates the percentage of individuals identified by sex determination within each site assemblage. Due to the limited samples within the majority of the sites contained in the collection, direct comparison is only possible between the larger Anglo-Saxon cemeteries. Although both the **ECAT** and **ECAT 1991.1** assemblages belong to the same cemetery, and the similarities are clear in the breakdown of the categories shown below.

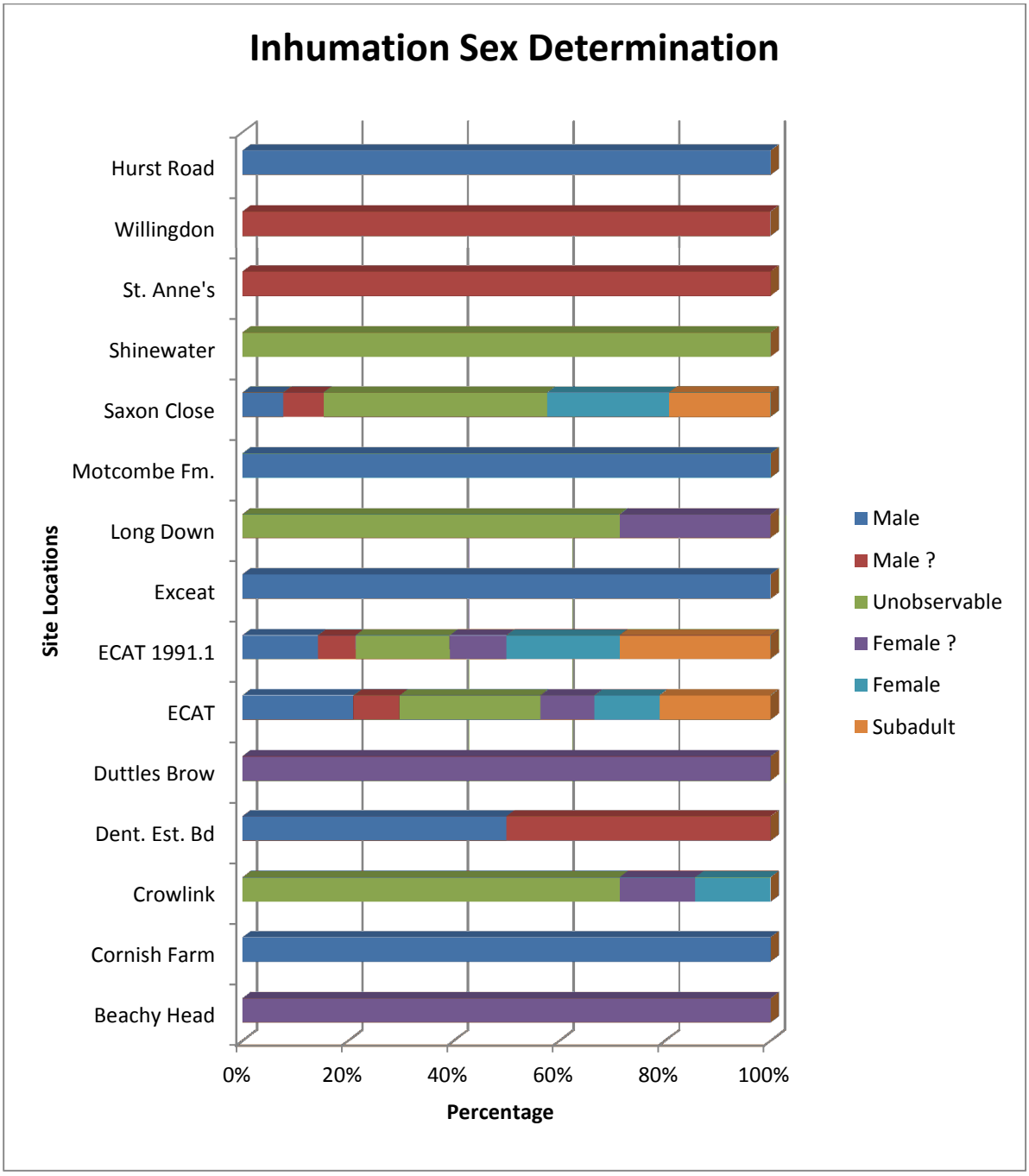

Figure 3: Percentage of individuals categorised by sex per site

Stature

Stature of adult inhumations can be estimated by measurements obtained from complete unbroken long bones. As the bones of subadults are not skeletally mature, it was not possible to record a stature estimate for these individuals.

Measurements were recorded and Trotter & Gleser's (1952,1958) formula was used to calculate the stature estimate, there are variations in estimated stature, which can measure up to 4cm. Stature is affected by several factors including genetics, diet, health and lifestyle and can give an insight into health status. The estimation of stature was limited to individuals where biological sex could be recorded, as the formula varies in males and females when measuring the same element. Individuals that were assigned the male and female query categories were grouped into the male and female main groups.

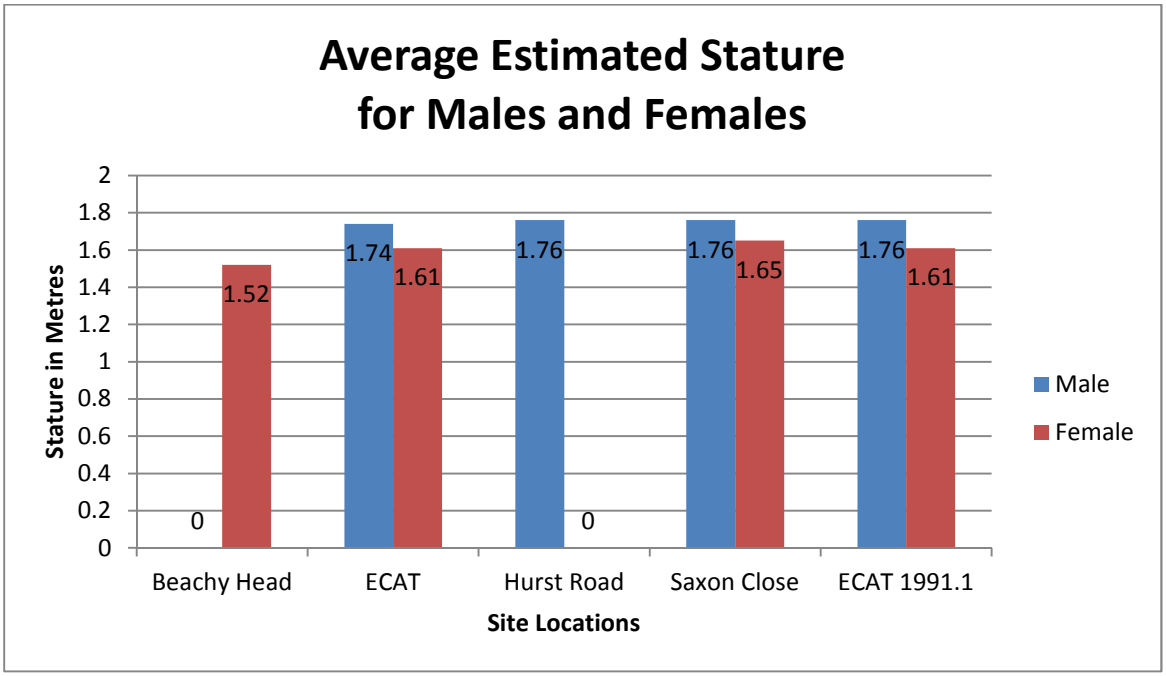

Figure 4: Average estimated stature for male and female inhumations

Stature estimates could be calculated for forty-one (15%) individuals (see Table 5), fourteen (5%) of these were female and twenty-seven (10%) were male from a range of sites within the collection.

Figure 4 illustrates the mean estimated stature for males and females that have been identified within the collection. The estimated stature for the Roman female inhumation from **Beachy Head** is suggested, due to the small sample size, to be below that of the national average. This could indicate poor health, diet and lifestyle, although genetics may also have affected the outcome regardless of other factors.

The inhumations, twenty-seven males and thirteen females, spanning the Anglo-Saxon period from **ECAT**, **ECAT 1991.1**, **Saxon Close** and **Hurst Road** are in line with, and in some cases, slightly elevated than those of the national average. The average height of

males as reported by Roberts and Cox (2003) in Britain for the period is 1.72m and 1.61m for females. This may indicate that the individuals, particularly the males, as well as the females from **Saxon Close** had an improved diet, healthier lifestyle and a better environment during childhood. Due to the limited size of the sample available for analysis, only suggestions can be made.

Additional metrical data has been recorded according to Buikstra & Ubelaker (1994) where possible and is contained within the archive material.

Site	Skeleton Number	Male Stature (in metres)	Female Stature (in metres)
Beachy Head	Beachy Head		1.52
ECAT	151		1.52
ECAT	780		1.58
ECAT	154		1.61
ECAT	143	1.61	
ECAT	64		1.62
ECAT	1077	1.64	
ECAT	1053	1.65	
ECAT	309	1.65	
ECAT	375		1.67
ECAT	334	1.68	
ECAT	453	1.68	
ECAT	580		1.68
ECAT	812	1.70	
ECAT	43	1.70	
ECAT	476	1.70	
ECAT	111	1.71	
ECAT	818	1.72	
ECAT	809	1.74	
ECAT	783	1.74	
ECAT	617	1.75	
ECAT	777	1.78	
ECAT	1075	1.79	
ECAT	89	1.80	
ECAT	236A	1.82	
ECAT	315	1.85	
ECAT	768	1.85	
ECAT	236BC	1.99	
ECAT	294	1.77	

Hurst Road	1	1.76	
Saxon Close	10		1.56
Saxon Close	18		1.62
Saxon Close	9		1.63
Saxon Close	8		1.63
Saxon Close	12	1.68	
Saxon Close	21/22	1.73	
Saxon Close	16		1.82
Saxon Close	19	1.88	
ECAT 1991.1	28		1.63
ECAT 1991.1	14	1.76	
ECAT 1991.1	3		1.59

Table 5: Stature estimates in metres by biological sex category and site.

Non-metric traits

Non-metric traits are morphological features found within bone and teeth. These variations occur in some individuals, often influenced by genetics and physical activity amongst other factors. Although the exact cause is unknown, they appear to have no functional purpose.

There are over four hundred of these discrete traits within the human skeleton, the traits of primary importance have been recorded according to Brothwell (1981) and Buikstra & Ubelaker (1994). These variations have been recorded in one hundred and nineteen individuals in the collection as present or absent depending on skeletal preservation and completeness, and are available within the archive.

Pathology

Pathology was recorded for all individuals where observed. The pathologies were categorised according to aetiologies; joint disease, trauma, infection, congenital, metabolic, dental and neoplastic. Descriptions of observed pathology and differential diagnoses were made wherever possible. Poor preservation and completeness of skeletal material will have affected the number of pathological conditions observed and the recording of detailed descriptions.

Prevalence rates have been calculated for the collection as a percentage of the count of each case of pathology, known as the Crude Prevalence Rate (CPR). The CPR gives an estimate of the disease prevalence in relation to the number of individuals present (Figure 5).

The majority of the individuals within the collection suffered from dental disease (141;46%), dental enamel is a harder substance than bone and is likely to have aided preservation. Joint disease has been recorded in ninety-one individuals (29.7%) and includes osteophytic lipping, osteoarthritis, Schmorl's nodes and diffuse idiopathic skeletal hyperostosis. Evidence of trauma was observed in thirty individuals (9.8%) and included periosteal reactions, fractures, crushing, an amputation, an ossified haematoma and inter-personal violence. Infections were recorded in ten individuals (3.2%) possible mastoiditis, paget's and localised lesions. Nine individuals (2.9%) were recorded as suffering from metabolic conditions and two individuals (0.6%) were noted with congenital skeletal abnormalities.

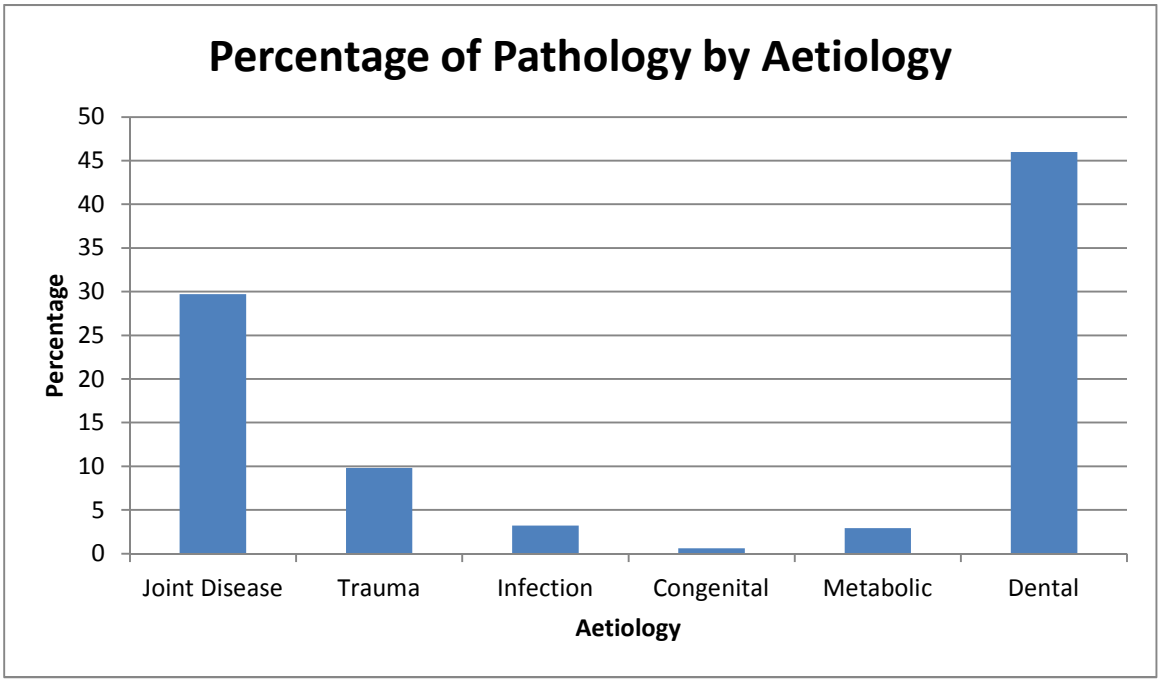

Figure 5: Comparative percentage of pathology prevalence according to disease aetiology

Joint Disease

An adult male inhumation from the cluster of burials at **Willingdon Road** exhibited possible signs of diffuse idiopathic skeletal hyperostosis (DISH), also known as Forestiers disease in the two lumbar vertebrae present (Plate 1). Clinically this disease is identified when four vertebrae show signs of new bone bridging, although due to poor preservation and minimal skeletal completeness only two vertebrae are present for analysis. DISH is a non-inflammatory joint disease which causes extra bone growth and ossification of ligaments, usually evident in the spine, producing a 'candle-wax' appearance (Ortner, 2003). Although classed as a type of joint disease, this condition is often linked to a rich diet.

Plate 1: Diffuse idiopathic skeletal hyperostosis (black arrows).

Slight evidence of osteophyte lipping was present in the vertebrae and in the left acetabulum of the inhumation from **Hurst Road**. Developed enthesophytes are present throughout this skeleton at muscle attachment sites and suggest an active life. Moderate to severe osteoarthritis was discovered in the right humeral-ulna articulation in skeleton **6/20** from **Crowlink**. The skeleton from **Exceat** also displayed signs of osteophytic lipping in the right acetabulum.

Osteoarthritis and osteophyte developments were present in several of the skeletal remains from **Saxon Close**, including skeleton **18** with osteoarthritis evident in the left mandibular condyle. Skeleton **25/26** exhibited monoarticular osteoarthritis in the left distal humerus, producing an exstosis and the foot bones of skeleton **6** showed slight signs of osteophyte remodelling. Whilst skeleton **10** showed evidence of osteoarthritis throughout the spine (Plate 2), rib articulations, sacro-illiac joints as well as in the foot. Skeleton **19** also exhibited

signs of osteoarthritis in the lumbar spine. Severe osteoarthritis was located in the left femoral head and associated acetabulum of skeleton **12** (Plate 3a & 3b). This could have been amplified by the presence of a compression fracture to the femoral head, or have been the cause of the fracture, weakening the area. Rheumatoid arthritis is visible in the feet, right hand and elbow joint of this individual.

Plate 2: Osteoarthritis of the lumbar vertebrae from Skeleton 10, Saxon Close (white arrows).

Individuals from **ECAT 1991.1** showed evidence of osteoarthritis including skeleton **28** in the thoracic spine, skeleton **12** and **16** in the pelvic region, skeleton **6** in the axial elements and skeleton **27** in the spine, particularly the lumbar region as well as the sacrum and pelvis. The thoracic-lumbar vertebrae of skeleton **9** was also affected by moderate to heavy osteoarthritis, while the vertebrae of skeleton **26** and **23** showed signs of changes. Moderate arthritic remodelling was noted in the spine, sacrum, pelvis and femoral heads of skeleton **11** while skeleton **18** suffered osteoarthritic changes to the mandibular condyles.

Plate 3a & 3b: Osteoarthritis of the femoral head and acetabulum, skeleton 12 Saxon Close (black & white arrows).

Joint disease was observed in 68 individuals from **ECAT**. Severe cases of osteoarthritis were evident in eight skeletons (**52**,**111**,**294**,**346**,**405**,**488**,**753**,**787**). Individuals **111**, **294**, **405**, **753** and **787** showed osteoarthritic changes in the spine, while skeleton **52** and **346** (Plate 4) exhibited changes in the pelvis and associated femoral heads. Skeleton **488** had osteoarthritic changes to the right distal femur.

Plate 4: Severe osteoarthritis of the femoral heads and acetabulums of skeleton 346, ECAT (black arrows).

Schmorl's nodes are indentations in the vertebral body surfaces caused by disc pressure and herniation (Roberts & Manchester, 2005; Waldron, 2009), the exact aetiologies are unknown but could be linked to excessive activity during skeletal development. The skeleton from **Duttle's Brow** exhibited signs of Schmorl's nodes in the thoracic vertebrae. These depressions were present also in the mid-thoracic vertebrae of skeleton **16** and thoracic-lumbar vertebrae of skeleton **10** and **19** from **Saxon Close**. Skeleton **23** from **ECAT 1991.1** suffered from Schmorl's nodes in the lumbar vertebrae and skeleton **14** in the thoracic-lumbar region. Schmorl's nodes were observed in fourteen individuals skeletons from **ECAT** in the thoracic-lumbar spine. The number of individuals recorded with Schmorl's nodes may have been greater, but poor preservation and skeletal completeness has affected the number of cases observed.

Fusion of vertebral bodies was recorded in skeletons **49** (thoracic), **294** (cervical, thoracic and lumbar) and **821** (thoracic) from **ECAT**.

Trauma

The occurrence of periosteal new bone growth in skeletal remains has many aetiologies, often linked to episodes of stress and trauma, or reactions caused by several different pathologies (Ortner, 2003; Waldron 2009). Several individuals within the collection exhibited signs of periosteal reaction.

Periosteal reactions were evident on the bones from the right arm (left arm not present) of the **St. Anne's** inhumation. It is possible that due to the robustness of the skeleton, this is activity related and not linked to pathology. Skeletons from **Saxon Close** exhibited deposits of periosteal reactions; skeleton **12** had slight reactions visible near to the right radial articulation, close to an area affected by osteoarthritic remodelling in the ulna. Periosteal deposits were present in small areas in the carpal and tarsal bones of the hands and feet, as well as throughout the right and left, upper and lower limbs in skeleton **19** (Plate 5). Although osteoarthritis was also present in this individual, it was confined to the vertebral column. Skeleton **27** from **ECAT 1991.1** showed evidence of periosteal deposits to the pelvic region, most likely linked to the osteoarthritic lesions also present. Several skeletons from **ECAT** exhibited signs of periosteal reactions throughout the body. Three skeletons (**640**,**773**,**777**) showed deposits within the ribs, deposits were also present in the hands and feet of skeleton **214**, while several skeletons (**67**,**259**,**346**,**481**,**699**,**756**,**777**) had reactions visible in the long bones. It is possible that the reactions visible in the lower limbs are associated with leg ulcers or over-exertion of these elements. Reactions in skeletons **588** and **699** may be associated with direct trauma to these elements in the form of fractures and crushing leading to fusion of foot bones. Skeletons **481** and **588** showed evidence of possible bone atrophy and periosteal reactions, although poor preservation has affected these individuals and the aetiology is unknown.

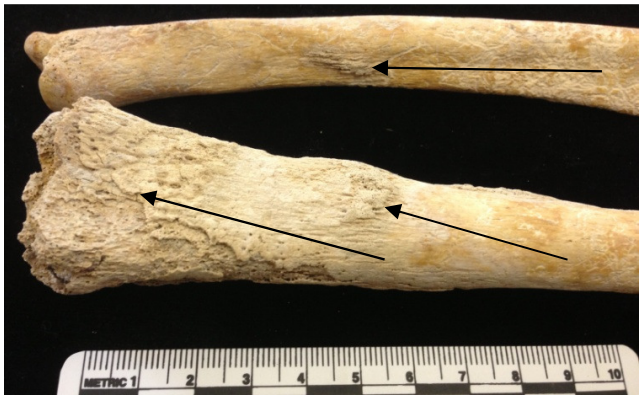

Plate 5: Periosteal deposits distal radius and ulna of skeleton 19, Saxon Close (black arrows).

Healed fractures were observed in several individuals from **ECAT**. Possible vertebral compression fractures were present in the thoracic spine of skeleton **49** with the fusion of two and three bodies. Four skeletons (**346**, **402**, **588**, **591**) suffered fractured clavicles, three right and one left. These fractures had healed, although mis-aligned and shortened in appearance, most likely caused by a fall. Long bone fractures were evident in four individuals (**236BC**,**699**,**744**,**756**).

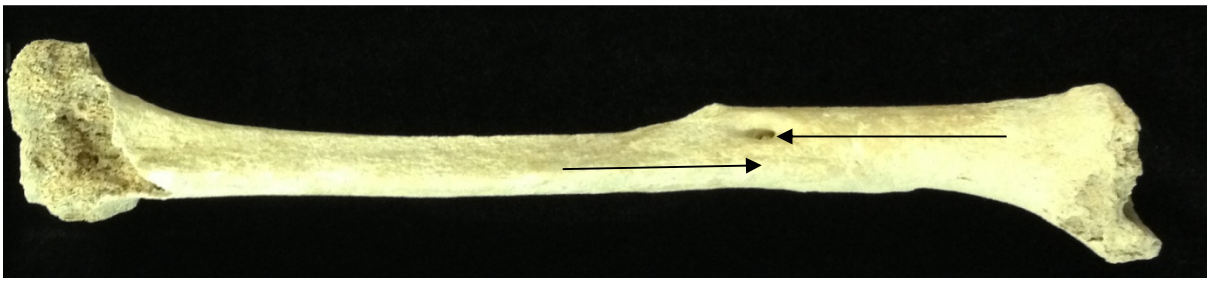

Plate 6: Healed misaligned Tibia midshaft fracture skeleton 756, ECAT (black arrows).

Skeleton **699** suffered a possible fracture to the right ulna, healed and obscured by periosteal new bone growth. The left tibia of skeleton **744** showed evidence of a healed fracture with possible infection. Skeleton **756** had a healed midshaft fracture (Plate 6) to the left tibia and fibula with periosteal new bone growth also present, while skeleton **236BC** exhibited signs of a healed left tibia fracture and deposits of periosteal new bone growth to the tibia and fibula. Two individuals had fractures to the hands and feet; skeleton **681** suffered from a healed fracture to the 1st metatarsal and skeleton **777** had a mis-aligned fracture to the right proximal phalange (Plat 7a & 7b). Rib fractures, healed, were present in four skeletons (**111**,**294**,**481**,**1053**), with individual **111** suffering multiple fractures (Plate 7a & 7b). Skeleton **768** may have suffered fractures or crushing which lead to the fusion of bones from the feet. Skeleton **12** from **Saxon Close** suffered from a compression fracture of the left femoral head and associated pelvic articulation. The affected area was remodelled and as previously mentioned had severe osteoarthritis. A healed mid-shaft rib fracture was evident in skeleton **9** from **ECAT 1991.1**.

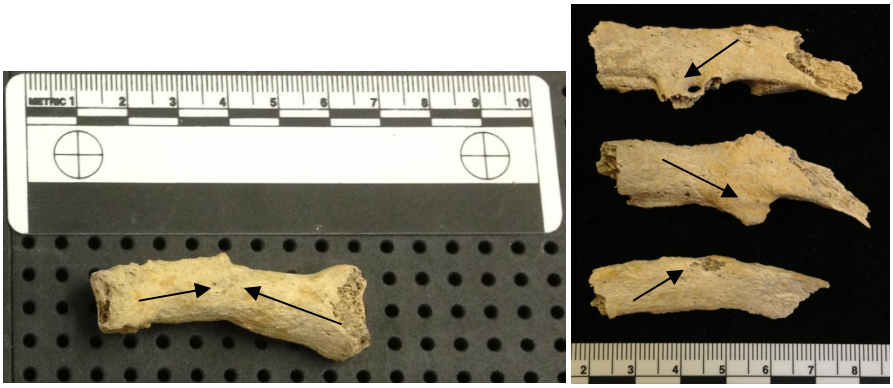

Plate 7a & 7b: Healed misaligned fracture to 3rd proximal phalange skeleton 777. Rib fractures from 111, ECAT (black arrows).

Skeleton **111** from **ECAT** suffered a variety of traumas. Healed rib fractures were evident from the left side of the body, exostoses were present at the fracture locations. During osteoarchaeological analysis it was discovered that the left hand was absent, it had been amputated at the distal third of the radius and ulna (Plate 8). The wound had healed cleanly and showed evidence of use through the development of a bony bridge joining the radius and ulna together in a stump. The hand could have been removed for numerous reasons; punishment, battle trauma, or if it was beyond medical treatment. There did not appear to be any disuse atrophy within the upper arm and shoulder region. It is possible that these traumas were sustained during one event.

Plate 8: Healed arm amputation skeleton 111, ECAT (black arrows).

The skeleton from **Beachy Head**, a young adult female also suffered a variety of traumas. Evidence of an ossified haematoma (Plate 9) was recorded on the right femur at the midshaft. A unilateral malformation of the jugular foramen was also observed, although the possible aetiologies are unknown this may have resulted from trauma. The blockage appears to be formed from a granulose osseous deposit.

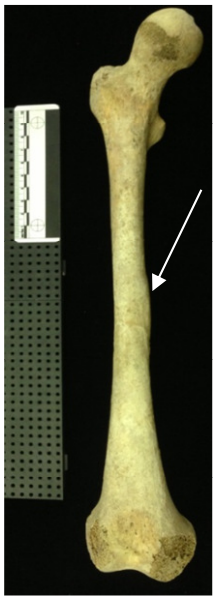

Plate 9: Ossified haematoma midshaft, Beachy Head skeleton (white arrow).

Three skeletons (**233**,**832**,**1022**) displayed traumas to the skull which may have resulted from interpersonal violence. Poor bone preservation is evident in these skeletons. Individual **233** displayed a cut to the left parietal bone with evidence of healing, although this skull is fragmented. The left parietal bone of individual **832** showed signs of a small cut, with possible evidence of healing. Skeleton **1022** also exhibited evidence of a cut mark to the left parietal bone, remodelling and healing is visible, although bone preservation has affected the entire skull.

Infection

A possible case of mastoiditis was present in the skeleton from **Exceat**, pitting and inflammation to the inferior surface was noted although poor preservation affected this individual.

Paget's disease (also known as osteitis deformans) is a chronic bone abnormality (Ortner, 2003). Bone is remodelled at a faster rate than normal, this causes an additional increase in new bone growth which creates the thickened bone appearance. Several bones, or a single bone can be affected by this disease including the skull, vertebrae and long bones. Skeleton **10** from **Saxon Close** exhibited signs of the disease in the skull, particularly in the cranial vault, measuring up to 3cm thick in places. Slight thickening of the skull was also evident in Skeleton **21/22**, also from **Saxon Close** and in skeleton **12** from **ECAT 1991.1**, although this may not be related to Paget's disease. According to Ortner (2003) most cases of Paget's affect males more so than females and occur in individuals over the age of 40.

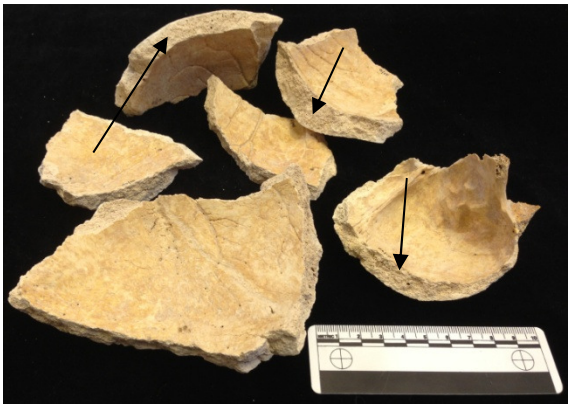

Plate 10: Paget's disease in the skull skeleton 10, Saxon Close (black arrows).

Several individuals from **ECAT** displayed signs of infection. Skeleton **67** had a possible blastic lesion present on the midshaft of a single rib. Two individuals (**267**,**603**) showed signs of possible mastoiditis, although the skeletal preservation was poor. Skeleton **252** exhibited signs of porosity to the skull and maxilla, poor preservation affected any diagnosis as to the aetiology. Skeleton **744** suffered from osteomyelitis to the left tibia, most likely in direct association with the fracture to this bone. Skeleton **378** showed evidence of infection, aetiology unknown, to the midshaft of the right femur. Severe periosteal reaction was present in the femur midshaft of skeleton **346**, although no evidence of trauma was observed the new bone deposit may have masked the location of a fracture. It is also possible that this reaction was caused by an open soft tissue lesion, allowing bacteria to infect the periosteum.

Congenital abnormalities

Congenital abnormalities result in defects that occur genetically or during the developmental stages before birth (Ortner, 2003). In the **ECAT 1991.1** assemblage changes were noted in three individuals; **444**, **481** and **1048** (*ASE forthcoming*). The analysis carried out by Archaeology South-East recorded spina bifida occulta in these two individuals (**444**,**1048**), preservation rates have since affected these individuals and this abnormality was not recorded during analysis. Skeleton **1048** exhibits kyphosis malformation of the spine with wedge-shaped vertebrae, while skeleton **481** has fused vertebral bodies with a slight abnormality (*ASE forthcoming*).

A case of spondylolsis, a genetic weakness of the neural arch, was evident in the 4th lumbar vertebrae from skeleton **447**, **ECAT**. Several skeletons from **ECAT** showed evidence of Sacro-lumarisation/lumbar-sacralisation occurring in **52**, **60**, **267**, **588**, **787**, **851** and **1077** Plate 11a & 11b).

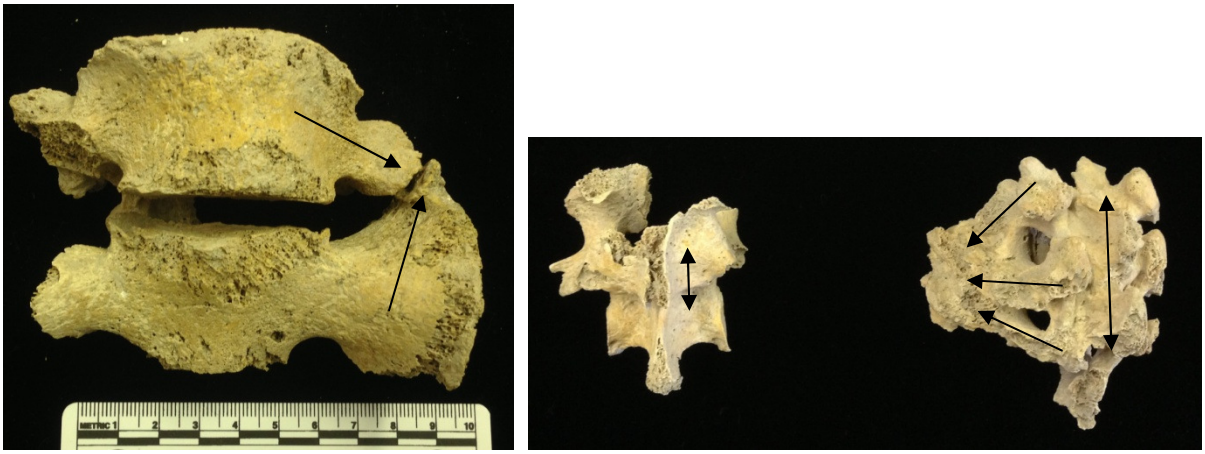

Plate 11a & 11b: Sacrolumbarisation skeleton 851 and fused vertebrae skeleton 49 (black arrows).

Metabolic

Metabolic pathologies are linked to nutrition, whether through too much or too little within an individual's diet, or in some cases due to the poor absorption of ingested nutrients (Ortner, 2003).

Cribra orbitalia is thought to be linked to iron deficiency (Waldron, 2009). Pitting suggestive of this metabolic condition was present in the orbits of skeleton **2T** from **Saxon Close** and skeleton **28** from **ECAT 1991.1** as well as skeletons **98**, **196**, **339**, **381**, **656**, **844** and **1039** from **ECAT97B.**

Dental

In total it was possible to examine 3,698 adult permanent teeth and 397 subadult deciduous teeth. Calculus deposits, the build up of dental plaque, were the most common form of dental disease recorded within the collection affecting 110 (39.6%) individuals (Table 6). It is likely that more individuals suffered from this disease but that skeletal preservation and completeness had an impact on the results. The calculus material is very fragile in dry bone specimens and can easily fall away from the dentition (Plate 12).

Plate 12: Dental calculus, ECAT (black arrows).

Carious lesions were noted in 50 (18.1%) individuals throughout the collection (Plate 13a & 13b), the majority of cases were also affected by calculus and in some, ante-mortem tooth loss. Ante-mortem tooth loss (amtl) was observed in 25 individuals (9%) within the collection, carious lesions are the most likely cause of amtl. Several individuals suffered from abscesses (Plate 13a & 13b), recorded in 15 individuals (5.4%) within the collection. It is likely that carious lesions often have a direct affect upon the presences of abscesses if the tooth/dentition has not already been lost ante-mortem. Dental enamel hypoplasia (DEH) was recorded in 26 individuals (9.4%) within the collection.

Plate 13a & 13b caries and an abscess, ECAT (black arrows).

DEH is not a direct disease, but a reaction visible in the tooth enamel which suggests the individual suffered from a period of trauma or stress while the adult dentition was in development during childhood. Periodontal disease was recorded in 24 (8.3%) individuals within the collection, caused by bacterial infection of the gums from deposits of dental calculus. Poor skeletal and dental preservation and completeness has affected the number of individuals in which dental disease could be observed.

Site	Disease					
	Calculus	Caries	Ante-mortem Tooth Loss	Abscess	Dental Enamel Hypoplasia	Periodontal Disease
Beachy Head	1	1				
Cornish Farm	1					
Crowlink	1					
Duttles Brow	1					
ECAT	77	38	20	13	13	15
ECAT 1991.1	12	3	1	1	6	4
Exceat	1		1			
Hurst Road	1	1			1	
Long Down	2	1				
Saxon Close	10	6	2	1	6	4
St. Anne's	1		1			
Willingdon Road	1					
Prevalence %	39.6	18.1	9	5.4	9.4	8.3

Table 6: Dental disease prevalence percentage by site location

Dental abnormalities were recorded in at least fourteen individuals within the collection. Absence of the 3rd molars were observed in skeletons **89**,**809** and **835** from **ECAT**, **21/22** from **Saxon Close** and the individual from **Beachy Head**. Two individuals (**62**,**591** from **ECAT**) suffered hypercementosis of the molar roots. Peg teeth, a deformity of the dentition, were observed in three individuals (**46**,**591**,**662** from **ECAT**) with possible cases also recorded in skeletons **804** and **844** from **ECAT**. Skeleton **259** had bilaterally retained mandibular deciduous 2nd molars, while skeleton **777** had a heterotopic tooth within the maxilla.

Further scientific study

A preliminary macroscopic assessment of the collection enabled skeletons to be chosen for further study making use of Carbon 14, stable radio isotopes (strontium, oxygen, carbon & nitrogen) and forensic facial reconstruction. Most of the human remains within the collection were either excavated before these scientific techniques were available, or on a limited budget.

Radiocarbon dating and Isotope analysis requires skeletal remains to have a certain amount of collagen present within the bones. Skeletal remains that were contaminated with substances such as glue or paint would also not produce a result during analysis. This meant that moderate to well preserved skeletal remains would be most suitable as being able to provide a successful result. The cemetery population of ECAT and Saxon Close had produced some interesting individuals, as previously mentioned, that the Eastbourne Ancestors project wanted to find out more about. Testing skeletal remains recovered from sites with very little information previously known would not be of much benefit as the overall contextual information would still be limited. However, testing remains from large cemeteries, or from known locations with associated artefacts enables archaeologists to increase our knowledge regarding particular sites and time periods. The individuals selected for further scientific study were chosen to represent a range from the collection, taking into account the factors mentioned above and the levels of preservation available with regards to assessing age and determining sex. Individuals were then selected further based on the inclusion of grave goods and types of artefacts present, interesting pathologies and ancestry. The selection proved a difficult process as only a small number could be chosen.

Oxford University's Radiocarbon Accelerator Unit (ORAU) conducted the Carbon 14 analysis of 13 individuals, only 12 of these samples produced results with the 13th being compromised by contaminants. The results suggest that the **Saxon Close** (**Ocklynge Hill**) cemetery could have been in use from approximately 650 – 770 cal AD from three individuals tested, whilst the **ECAT** cemetery suggests a range of approximately 410 – 770 cal AD based on the analysis of six individuals. One of two skeletons from **Willingdon Road** excavated in 1921 produced an Anglo-Saxon date of 671 – 770 cal AD and the single **Hurst Road** skeleton was dated as 886 – 995 cal AD. The sample from **Beachy Head** gave a Roman date of 125 – 245 cal AD.

The contaminated sample from the **Dental Estimates Board** site had previously been dated to the Bronze Age, specifically the Beaker period circa. 2500 – 1700 BC due to the inclusion of such pottery with the skeleton.

Jane Evans and Angela Lamb from the Natural Environment Research Council (NERC) performed the stable radio isotope analysis of 11 individuals; 5 from **ECAT**, 3 from **Saxon Close**, one from **Willingdon Road** and single samples from **Hurst Road** and **Beachy Head**. Lamb and Evans (2013) suggest that the majority of the remains are consistent with a South Coast population, although there are four individuals which stand out; the oxygen and strontium levels and carbon and nitrogen levels of the respective samples. The isotopic composition of skeleton **777** from **ECAT**, a male weapons burial, suggests that his childhood was spent in the Pennines or Wales rather than in South East England. Whilst the individual from **Hurst Road** may have spent time on Chalklands, possibly the East Coast of England. The carbon and nitrogen levels of the **Willingdon Road** skeleton and **777** from **ECAT** suggest they consumed a cereal based diet, whereas the individual from **Beachy Head** was eating a more marine based diet.

Lamb and Evans explain in their report that although these samples have produced a range consistent with an origin in Britain, it does not exclude origin in areas of the continent that generate similar values. The use of isotopes in archaeology is expanding which in the future will increase the amount of comparable data available.

The forensic facial reconstruction of 3 individuals; the skeletons from **Beachy Head**, **28 ECAT 1991.1** & **98** from **ECAT** was undertaken by Caroline Wilkinson, Professor of Craniofacial Identification at the University of Dundee. Complete skulls, or as near to, are needed to produce facial reconstructions. **28 ECAT** is an adult female skeleton from the 1991-2 excavation by the Eastbourne Natural History & Archaeology Society (ENHAS). Caroline produced a 3D computerised animation (Plate 14), a process that involved laser scanning the skull and using a computer programme to build up the muscle layers, add skin tone and eye colour. Osteoarchaeological analysis of this individual found that she had a build up of dental calculus and evidence of enamel hypoplasia; a disturbance in dental development during childhood. The right clavicle is more robust than the left, which may suggest her right shoulder was more dominant.

Plate 14: Forensic facial reconstruction of skeleton 28 ECAT 1991.1. Courtesy of Eastbourne Heritage Service. *Produced by University of Dundee; Dr Caroline Wilkinson, Dr. Christopher Rynn and Janice Aitken.*

98 ECAT is an adult male skeleton from the 1998 excavation by UCL (Plate 15). This individual is represented as a computerised 2D sketch. Osteoarchaeological analysis discovered he suffered from poor oral hygiene with dental calculus, caries and an abscess.

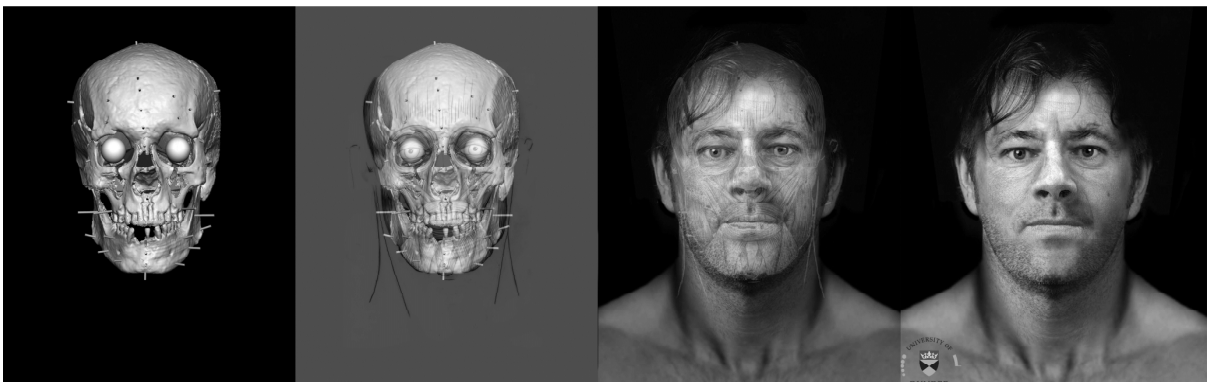

Plate 15: Forensic facial reconstruction of skeleton 98 ECAT. Courtesy of Eastbourne Heritage Service. *Produced by University of Dundee; Dr Caroline Wilkinson, Dr. Christopher Rynn and Janice Aitken*.

The skeleton from **Beachy Head** is a young adult female skeleton believed to be from the Beachy Head region of Eastbourne. A laser scan was taken of her skull, which was then 3D printed using a resin substance. A mold was made of this and the soft tissue layers were added by hand in clay to produce a bust model. The reconstruction was then painted, given glass eyes and a wig (Plate 16).

The forensic facial analysis carried out by Dr. Caroline Wilkinson revealed that Beachy Head Lady had African ancestry; specifically Sub-Saharan traits. C14 dated as Roman (125 – 245 cal AD), with a high marine based diet and strontium isotopes which suggest the possibility of being born locally.

Plate 16: Forensic facial reconstruction of the skeleton from Beachy Head. Courtesy of Eastbourne Heritage Service. Produced by University of Dundee; Dr Caroline Wilkinson, Dr. Christopher Rynn and Janice Aitken.

The Tested Individuals

A Review of the Evidence by Jonathan Seaman

In this section each individual skeleton that underwent scientific testing other than the osteo-analysis has been given an overview in which some of the findings are discussed.

These results formed a core part of the Eastbourne Ancestors Exhibition and also feature in the publication 'Eastbourne Ancestors – A Story of Life from the Bones of the Past' (Eastbourne Heritage Service, Jarrold Publishing, 2014).

BH1959 – Beachy Head

Sex: Female

Age: Young adult, 22-25

Stature: 4ft9in – 5ft1in

Although the circumstances of this burial are shrouded in mystery and even the exact location of the discovery is still uncertain, the analysis of the bones has given us a wealth of information about this diminutive lady.

BH1959 is our most complete skeleton within the collection but apart from being roughly located within the Beachy Head area, the provenance of the skeleton is vague.

The osteoarchaeological analysis of the bones revealed some interesting pathology, notably an ossified haematoma (a severe bruising of the bone but not a break) on the right femur, some tooth decay, absent wisdom teeth and a partially blocked jugular foramen. This latter would not have been life threatening but may have caused deafness of hearing impairment (pers comm Dr Caroline Wilkinson). There is no pathological evidence for cause of death.

The C14 analysis of the bones gave a calibrated date of 125-245AD, putting this lady as living during the middle of the Roman period in Britain. This proved to be the earliest of our tested samples following the failure of the process due to sample contamination of a supposed Bronze Age burial.

The stable radio isotope testing of BH1959 was very interesting. Strontium levels suggest that the individual had been born or at least grown up from an early age locally and Carbon and Nitrogen levels point to her diet having a very high marine content.

BH1959 was one of the specimens to experience a full cranio-facial reconstruction by Dr Caroline Wilkinson of Dundee University resulting in a stunning 3D sculpture. Following an initial inspection, Dr Wilkinson quickly suspected that BH1959 had ethnic origins far away from south-east England. Following consultation with colleagues, it was soon agreed that this individual had skeletal traits that placed her ancestry as being of definite sub-Saharan African origin. This combined with the evidence of birth or at least childhood in the region local to Eastbourne is particularly intriguing. Although examples of British finds of

individuals with African origin during the Roman period are not unheard of, it is rare or even unique to have a sub-Saharan traits positively identified. We must remember that this region lay outside the southern boundaries of the Roman Empire, though there was certainly contact (and indeed conflict) with the ancient region of Nubia and the Kushite Empire, now part of Sudan.

With the dearth of information about the exact circumstances and position of her burial, it will be very difficult to understand how someone with such ancestry ended up living and ultimately dying in the area surrounding Eastbourne. But there is some hope that future investigations into an area west of Beachy Head where Roman burials were identified in the late C19th may give us more of an insight into the story behind our local,Roman, African 'Beachy Head Lady' and give us some understanding of why she ended up here at the other end of the Empire.

ECE 97b 98

Male 25 – 35

This male skeleton was only partially complete with less than 75% of the bones remaining and of them a large number were fragmentary or difficult to accurately analyse, thus we have no estimate for the stature of this individual. Clues from the existing bones and of the skull in particular do indicate a robust and well-muscled man who died in his late 20's or early 30's.

This skeleton was excavated from a cut grave lying NE-SW, near the centre of the main excavated area of the St Anne's Road, ECAT site. In the immediate vicinity were a number of other graves, none of which show the lavish grave goods evident on some of the site. The four closest graves, on roughly the same alignment were all adults, 3 male and1 female. One of the men was buried with a spear, datable by type to the late C6th to C7th and another with a barrel shaped jar. Our young man however, was buried with nothing that survived the ensuing 1400 or so years.

Identifiable pathology was largely confined to the teeth and these show that this man suffered from poor dental hygiene with tooth decay, a build-up of plaque (or dental calculus) and a particularly nasty looking abscess that would have given considerable pain. Away from the teeth, there is some evidence that ECE97b 98 may have had iron deficiency anaemia, most likely during his youth. This shows in what is known as Cribra Orbitalia, a changing of the bone in areas of the eye orbits. Evidence of iron-deficiency anaemia is not overtly uncommon in early populations and may well have lessened as the individual matured. The causes could be attributed to poor diet (particularly a lack of iron rich plants), climate or even economic reasons, or, of course, a combination of factors. Recent work by Dr Becky Gowland of the University of Durham suggests that Cibra Orbitalia may be evidence of malarial infection in an individual and there seems to be a correlation with this and populations living on or near wetlands during the Saxon period. This research is

particularly exciting for Eastbourne as very recent archaeological evidence suggests that there is indeed quite extensive settlement on the marginal lands on the edges of lagoons or marshes in this area.

The results of C14 testing gave a date of death to between 646-764AD, rather later than expected for this cemetery. The dating evidence (not scientifically tested) from other graves in the vicinity would point to this burial being one of the latest in this area of the site. Also the complete lack of burial goods may indicate a change of traditions that may have been gradually evolving over 50 or so years. It cannot be stated with certainty that this man was a Christian, but his C14 results and the historic 'Sussex Conversion' date of 681AD do fit together rather conveniently. Whatever his religious affiliations, it is likely that this man lived in a turbulent time when historic documents record periods of famine, war and pestilence within Sussex.

Evidence from the Strontium Isotope tests show that this individual was local and the Carbon and Nitrogen isotopes detected indicate a diet high in seafood as would befit someone from a fishing community or at least with a high reliance on the sea for sustenance.

As the skull was well preserved, ECE97b 98 was chosen for 2D craniofacial reconstruction by Caroline Wilkinson and her team at Dundee University. The resulting illustration (see below) shows a strong looking individual and one who would not look out of place on any sports field today.

ECAT 1991.1 28

Sex: Female

Age: 18-25

Stature: 5ft3in

Over 75% of this female skeleton survived within the grave it was excavated from and of that amount, most was in good condition. The skull in particular was well preserved and thus she became one of our craniofacially reconstructed individuals.

The grave of this young woman was located in the far north-east of the excavated site within 8m of a suspected Bronze Age ring ditch but markedly without any other adjacent graves. Her resting placed was aligned east-west with her head at the western end and she was buried without any surviving grave goods, thus giving the appearance of a typical Christian burial. Though we must be careful not to jump to conclusions as the transition between pagan and Christian was likely to have been a protracted one and our lack of definite understanding of (what appear to be) the numerous varieties of pagan rites cannot help. It could also be that a lack of grave goods is more a mark of social status than religious preference. It is the relative isolation of her grave that is particularly interesting and

continued study and testing of other remains from the site may well lead us to better understanding. It could be that her relative isolation marked her out as special or different from others being buried at this time.

The young ladies teeth show signs of hypoplasia or the thinning of the enamel. This is often caused by periods of trauma or disease whilst the adult tooth is forming, so generally this would have occurred during childhood. Another piece of pathology that points to her having a hard, albeit brief, life is found in the osteophytic lipping or bone spurs of the thoracic vertebrate, evidence of advanced bone degradation and painful osteo-arthritis. We should note that this condition was in an advanced state, even though this lady was at oldest, in her mid 20's when she died. It is thought that this condition could be brought on by frequent hard, manual labour from an early age.

The C14 results for this skeleton leave us in no doubt that she was buried between 665-770AD, putting her among the latest burial dates from this site. Given the traditional date of 681AD for the Christian conversion of Sussex and the other evidence already mentioned, we could once again start assuming her religious background, but with caution.

Evidence from the Strontium Isotope tests show that this individual was local and the Carbon and Nitrogen isotopes detected indicate a diet high in seafood as would befit someone from a fishing community or at least with a high reliance on the sea for sustenance.

As this skull was so well preserved, she was chosen to be craniofacially reconstructed using new digital technology that scanned the skull and then rebuilt the face in an animated format.

ECE97B 111

Sex: Male

Age: 36-45

Stature: 5ft5in – 5ft8in

This fascinating skeleton was discovered in an area of relatively dense burials and the grave was cut just off a north-south alignment into an underlying Iron Age linear feature that ran in the same direction. It is unlikely that this feature was visible at the time of burial, but a further three graves were cut into it. Of the other nearby graves on the same alignment, three out of four contained skeletons of people who had died as mature adults older than 35, older than average for this site.

Accompanying grave goods were excavated and consisted of a complete iron spearhead to the right of the skull (the wooden haft of which would have run down the length of the body) of a type that has been dated by style to between the mid 5th to mid 6th Century AD.

He also had an iron knife placed (or perhaps suspended) across his chest, the typology of which gives a 5th-8th Century AD date. Of course this only represents the surviving non-organic parts of the grave goods that may have originally been interred with the body.

This individual has also been marked out as archaeologically special because of the interesting pathology associated with him. Firstly, like many of the individuals from the ECAT site at St Anne's Road, he suffered from tooth decay, plaque build-up and periodontal disease leading to what must have been painful infections. However the most striking evidence, or lack of it, was that lower portion of the left radius and ulna (and obviously the once attached hand) had been carefully removed and the wound had healed cleanly. He had evidently lived for some time after this amputation as the bone between the radius and ulna had formed a bridge and fused them together. This person had also undergone further trauma with healed rib fractures down his left side and as the rate of healing is similar to the arm bones, it is possible that all of this occurred in one incident. Subsequent close examination of the vertebrate by Carolyn Felton (an undergraduate student) revealed that, as well as the degeneration in the spine (severe osteoarthritis had already noted in the osteological examination) there is heavy pitting on his C1 and C2 vertebrate (the top two) and what appears to be degeneration of his odontoid peg of C2. This would seem to be quite rare in samples of this period and it has been theorised that he may have worn or carried something heavy on his head or have had a whiplash type injury. It is tempting to put all of this trauma together in one incident and one can hypothesise an incident where this individual was riding a horse or atop a cart when for some reason he fell or was thrown heavily to the ground. The natural reaction to this would be to extend an arm to take the impact, in this case his left, which subsequently broke badly, with the individual then impacting on his left side, breaking his ribs and suffering from whiplash like symptoms. With a very badly broken arm, the only option may have been amputation. Of course, there are many other reasons why the removal of the hand may have taken place. It could be as a punishment or as trauma from battle (the raising of the left arm in a defensive gesture could lead to such an injury) and of course the other injuries may not be contemporary.

However he was injured, this man lived to a pretty good age, being in the older bracket for the site and due to the care he received both during life and after death (he was accompanied by grave goods and had been laid out carefully with his legs crossed), we can assume that he was held in some esteem. The C14 dating puts this man as living between 425-558AD, one of the earliest individuals tested and the dating of the spearhead to no later than mid-6th Century would tend to corroborate this.

Isotopic testing on this individual would be useful to establish whether he was an incomer to the area or one of the indigenes who seem to have readily adopted Germanic traditions at the end of the Roman occupation of Britain.

ECE 97b 143

Sex: Male (?)

Age: 18-25

Stature: 5ft2in – 5ft4in

This was one of the burials that had been furnished with enough non-organic grave goods to give us an idea of social status and perhaps how they were considered by their contemporaries. It was also found in an area of fairly high density of burials (some with good quality grave goods) more or less in the centre of the site, interestingly predominantly females or children more or less all aligned north-east to south-west. The grave goods found with the body were splendid ; two copper alloy square-headed brooches (of a Kentish type of the early 6th Century), 27 monochrome and 12 polychrome glass beads (found in the area around the waist of the body), an iron buckle (again of 6th Century type), a set of iron keys, an iron knife and an ivory purse ring (in reality more of a 'bag' ring) that originally hung from a belt over the left upper leg. Usually these objects would be interpreted as indicating a female occupant of the grave but, in this case, the skeleton seems to show more male than female traits, albeit a very slim, gracile and diminutive individual. If the sexing of the skeleton is correct then this could prove to be one of the few biological males whose gender, at least at burial is ambiguous. It could also prove that the placing of a male in a 'female area' of the site meant certain rites or traditions had to be followed and it is not the gender of the individual in life that matters when a burial site is chosen. It has also been speculated that priests in early Norse religions are sometimes described as being neither male nor female, so perhaps that idea was also prevalent in the south east of Britain as well and thus these people's grave goods could reflect a more androgynous nature. Of course, if the skeleton was in fact, female, then the grave goods would not be a surprise (but still a rich assemblage) but the positioning in a predominantly female area still very interesting.

Other than the nature of the biological sex of this individual, his skeleton also showed poor dental hygiene with plaque build-up and painful looking abscess's and some degrading of the hip joints, even though he appears to have died by his mid-twenties.

C14 testing would place the year of death between 419-545AD, with the grave goods indicating a date in the early 6th Century. This would presumably set this individual up as one of the early settlers or immigrants if this is what actually happened during this period.

The stable isotopic testing produced results that actually put the last statement in question as the strontium tests strongly show an origin in and around the Eastbourne area. The accompanying Carbon and Nitrogen tests also indicate the now familiar marker for this region of a higher than average seafood content in the diet.

It could well be that Germanic or Kentish type traditions had already begun to be assimilated into the material culture of this part of the south east of Britain before the end

of the Roman occupation making a transition to a more widespread Northern European style of culture inevitable.

ECE 97b 656

Female 18 - 25

This young woman was accompanied with some of the richest grave goods that have thus been discovered on the site. Her grave was deeper than most and was oriented roughly north-east to south-west in area of fairly high grave density with no clear definition in gender or age.

The archaeological evidence points to this young lady being buried in her finery. Traces of gold thread were found near her skull, adjacent to a stunning pin with a head in the form of a bird, inset with garnets and with an eye made from a river pearl. The whole had then been gilded and in places tinned. It is likely that the thread and pin were once part of an elaborate headdress worn in a 'Frankish' style. Near her neck a beautiful, gilded, Frankish style 'S-shaped' brooch with animal heads and garnet eyes was found, impressions of the textile she was wearing preserved in the corrosion to its rear. She was also adorned with two further gilded brooches (seemingly pinned near her waist), appeared to be wearing strings of amber and glass beads (106 beads in total) and carried the ubiquitous small iron knife at her side. What marks her out as really special is the burial of a very rare glass claw beaker on the right of her skull. These vessels are generally thought of as high status objects with two being found during the 1997 excavations, both complete, making them the only examples in this condition from Sussex. Previously this specific form of green glass beaker has only been found in Kent and they are thought to have been manufactured there sometime at the beginning of the 6th Century. Interestingly the other claw beaker of a slightly more widespread type (though still incredibly rare) was found in the grave of a man (with objects that point to an early 5th Century date) but some way to the north and east of ECE97 656. Despite this distance between them, there may well be some form of connection between these two individulals which further testing may reveal.

The pathology of this skeleton revealed little as the condition of the bone was not good but her teeth showed evidence of plaque damage and caries or tooth decay. This would seem to show that even the higher status people had bad teeth, but in a time before sugar, this must be attributed to a gritty diet. The orbits of the skull show the signs of Cibra orbitalia or iron deficiency anaemia, most likely affecting her during her youth, perhaps as a result of the lack of vitamin D rich plants in the diet.

The C14 test for this young lady gave a date between 405-537AD and again this correlates with the dating for most of the cultural material found with her. Though it could point to a slightly earlier than expected date of some of the objects and if repeated elsewhere may lead to an alteration in the comparative dates that are currently attributed to their

manufacture. This early date would again point to this lady being one of the early 'settlers' of this area in the period following the end of direct rule from Rome.

Isotopic testing reveals that our expectations for at least some immigration to the area in this early period must again be put on hold. Her formative years were spent locally and she carried the 'Eastbourne marker' of having a diet very high in seafood content. Her material assemblage, at least after death do point to connections with the Kingdom of Kent but the science places her as local. Could it be that she married into a Kentish family or that cultural exchange with this area was particularly prevalent in this early period.

ECE 97b 777

Male 26 - 45

Stature: 5ft7in – 6ft

This well cut grave was discovered in the far north of the site lying just to the east of a north-south axis in an area of quite dense burial activity. If we are to take the grave goods as a marker of the trade or occupation of the internee then this man would be labelled firmly as a warrior. Buried with him was a large sword, the handle tucked beneath his left shoulder, a spear (dated by type to the mid 5th to early 6th Century) and covering his lower legs a shield with an iron boss. The sword handle was adorned with a flint 'sword-bead' perhaps as a symbol of good luck, much as holed or 'fairy' stones have been collected from local beaches for centuries. He wore an iron knife at his waist and by his head were two pottery vessels one a bowl decorated with incised lines and the other a simple cup, decorated in a similar way. It has been speculated that this bowl may have been filled with beer (fortuitously it would hold about a litre of liquid) or some other similar beverage and the cup provided to drink it in the afterlife. These grave goods would traditionally point to this being an early period warrior burial and possibly representing one of the 'founder' population of young male warrior migrants. A nearby burial would also seem to be of a male warrior, containing as it did a shield boss and spear.

Physical inspection of the bones revealed healed infections and a possible leg ulcer to his left femur and the onset of osteoarthritis in his left arm (just try hefting a Saxon shield for some time and one can understand why). His third (middle) finger had been broken and healed but misaligned and yet again, like most of the individuals from this site, her had decay in his teeth. This individual was also noted as having 'metopism', where the frontal suture of the skull has not joined up, this trait was noted in just four other individuals on the site. Notably two ECE97 765 & 783, were buried nearby and appear to have grave goods that could place them within a generation of our man. Further scientific testing of these two may help us to determine whether this was a familial group.

A date of death of around 405-537AD was produced from the C14 testing, indicating that this man may well have been among the first to be buried on this site. The spear that was

buried with him would also point towards a mid-late 5th Century date which may mean an individual at the heart of this early community.

Once again though, the stable isotope testing results show that the traditional theories of immigration from the Continent need not always apply to even the most formulaic of burial assemblages. The strontium results indicate a place of origin around the Pennines or more likely in what is now Wales. The carbon and nitrogen results also prove he had a very different diet, particularly in his early life with a much more cereal based foods than any of those found to originate from the south east coast.

At last we do have evidence of someone buried in Eastbourne in the early Anglo Saxon period who was not raised locally, albeit he is probably not from across the sea to the east but further inland to the west.

Saxon Close (now Place) 10

Sex: Female

Age: 36-50+

Stature: 5ft – 5ft1in

Lying in a well cut grave aligned more or less exactly west-east, this skeleton was found in fairly good condition and hence thought to be a good candidate for thorough scientific testing. This lady was buried with her right arm laid across her chest and her feet also crossed and an infant interment on either side in what appears to be a carefully planned row of graves. Unlike most of the burials from this site, this lady did have one surviving artefact with her in the form of a simple iron 'D' shaped buckle found above her right shoulder, this was however of little use for dating the skeleton.

The change of site does not appear to have changed the condition of the Saxon populations teeth. Once again there is extensive evidence of plaque and of tooth decay and caries. Hard manual work and age seems to have resulted in this lady experiencing severe osteoarthritis in her lower back, spine, ribs and feet by the time she died. Most noticeable was the extreme thickening of the vault of the skull to upto 30mm in places and it is thought that this is the result of an infection known as Paget's Disease. This condition can cause additional increase in bone growth and is more common in older individuals, so it is likely that it developed later on in her life. The disease would not necessarily have been debilitating, but would have given some intense pain and perhaps hearing loss.

The C14 testing returned a date of 664-770AD, very similar to the later burials at St Annes's Road and possibly, along with the grave orientation and lack of grave goods could indicate a change of religious practice. That the burials here at Ocklynge Hill are occurring at the same time as burials further along the ridge at St Anne's road could indicate two discrete populations rather than continued use of the ridge by one group. It may be telling

that the Ocklynge Hill site now lies in the Parish of Willingdon whereas St Anne's Road is in Eastbourne.

Stable isotope testing of this skeleton revealed that she had been raised in the local area and like her locally reared predecessors had eaten a seafood rich diet, indicating a reliance on fishing, so even if this is a different population dynamic from that already encountered, it would appear that the sea was still the primary resource for nourishment.

Saxon Close (now Place) 12

Sex: Male

Age: 46+

Stature: 5ft5in

Lying just to the south of Grave 10, on the same west-east alignment, this man was found buried with no grave goods and with his left arm laid across his right at the wrist. His bones were in a fairly poor condition but were complete enough to carry out a fairly in depth analysis.

Osteoarthritis had plagued this individual with considerable remodelling of his bones of his feet, right arm and right hip, perhaps representing wear from some form of repetitive physical labour. As well as this degenerative disease, at some point he had suffered a compression fracture of the right upper leg and pelvis that had healed. The cumulative effect of which would have been considerable on this man and his ability to move freely. The usual plaque damage and tooth decay was also evident.

C14 dating places the death of this man in the region of 670-771AD or very similar to skeleton 10 who was buried to his right. It is likely because of this dating and the grave placement that these two people died within a generation (or less) of each other.

Isotopic testing revealed once more that this man was local and had a diet very high in seafood.

Saxon Close (now Place)19

Sex: Male

Age: 25-35

Stature: 6ft – 6ft3in

This grave lay on the northern edge of the excavations at Ocklynge Hill and was carefully aligned north-west to south-east along with four others. The condition and amount of

surviving bone was good so detailed analysis was possible. This tall man was buried accompanied by a small plain knife.

The dental pathology exhibited in this individual was perhaps more extreme than most from this site with plaque build-up, tooth decay and periodontal disease prevalent. He also suffered from osteoarthritis in his lower back and his lower legs exhibited signs of healed minor wounds and possibly of more serious leg ulcers.

C14 dating for this individual was once again within a generation of the other two tested individuals at 654-767AD and it is possible that all three could have known each other in life.

Unsurprisingly the isotope results for this individual were very similar to the previous two skeletons tested from this site, being raised locally on a diet with a high marine element.

The limited modern investigations of this site do point to at least part of this burial ground being used regularly, systematically with a considerable amount of planning. It also points to a population in the late 7th or early 8th Centuries who were used to hard manual labour and just may have adopted Christianity.

Willingdon Road 2 1921

Skull

Sex: Male?

Age: Adult 18-46+

As so little of this individual remained (less than 25%) we must be thankful for the information that we can glean from these results. The exact location of this burial is not known but it was from very near the Saxon Place burials on Ocklynge Hill and is likely to be part of the same cemetery. It is believed that this skull and the remains of another were collected by a local youth during road widening in 1921and were presented to the Archaeological Society soon after, leaving us with no further burial context, but at least with the surviving bones themselves.

The shape of the jaw may indicate that this individual was male and the teeth would give an age at death of between 26-45. The teeth themselves are in fairly good condition compared to the other burials but do have signs of plaque build-up or calculus.

C14 dating of this sample was very similar to the other Ocklynge Hill burials coming in at 671-770AD and once again indicating that at least this part of the site was used in a systematic way over a relatively short space of time.

Stable isotope testing shows that this person was local to the area, but rather at odds with the rest of the indigenous population, had a diet that was cereal based rather than marine in

content. Testing of a larger sample (if one becomes available) will tell us whether this is really an anomaly or actually more frequent in this later period.

Hurst Road HR2/1992-2

Sex: Male

Age: 26-35

Stature: 5ft6in – 5ft9in

Pathology: Bad teeth (caries and calculus). Osteoarthritis in the spine.

This single skeleton was found in the back garden of a private residence in Hurst Road during landscaping works. It appeared to have been placed in a grave that was a little too small for it and the body may well have been wrapped tightly in a shroud (as was indicated by the position of the bones). This site is not a known burial ground and is too distant from either St Anne's Road or Ocklynge Hill to be part of those cemeteries so it would seem, given the nature of the burial, that this stray find may be part of a previously unknown one. It could of course, be a stray interment or even the evidence of foul play, but some care does seem to have gone into the disposal of the body so perhaps this is unlikely.

The pathological analysis showed a fairly robust male but with the tell-tale signs of osteoarthritis in his spine and elsewhere, again indicative of a life of manual labour. His teeth also show general wear and beyond that, plaque build-up, tooth decay and possible infections.

In this case the C14 testing gave unexpected results. This man died between 886-995AD putting him as living in the later Anglo Saxon period and also the latest burial we have so far tested. This date would almost certainly make the man a Christian and if he is part of a larger burial complex it may well be that the site of an early Church lies somewhere nearby. If this is so, this could even be the precursor of the pre-conquest edifice built (and subsequently rebuilt) on the site of the present Parish Church of St Mary's in Old Town.

Only testing of, as yet undiscovered, further skeletons from this location (if they exist) will be able to see how this hypothesis stands up to scrutiny.

The isotope testing was also useful establishing this individual as having been brought up on a diet with a high marine content on a coastal area, but in this case, not locally. The strontium markers show that he was brought up on the chalklands of Eastern England, possibly Kent or East Anglia but certainly not locally. This is significant as from our sample we now have two individuals who were not born or raised locally, but neither are from the areas that we may have previously expected.

Discussion by Hayley Forsyth

Analysis of the skeletal remains from Eastbourne's Heritage Service collection has produced a range of data from individuals excavated from a number of sites in and around Eastbourne. The majority of the collection, where biological sex could be observed, is comprised of male individuals. A large quantity of the skeletal remains were recorded as adult in terms of age, with the second being the young - old adult group, in part due to the broad ageing category.

The majority of the human remains within the collection have been recorded as poor in terms of preservation rates and completeness levels as previously discussed. The ageing and sexing of human skeletal remains relies upon the ability to clearly observe and record key data points throughout the pelvis and skull specifically, as well as assessing the remainder of the skeleton.

The accuracy and reliability of ageing and sexing skeletal remains is reliant upon high levels of bone preservation and completeness. In some instances enough key data points may survive bone fragmentation that an estimation of age and sex can still be attributed to an individual. Most of the skeletal remains within the collection have high levels of fragmentation throughout the skeleton that make attributing age and sex any further difficult.

A range of pathologies were identified including joint, dental, trauma, infection, congenital and metabolic conditions. Although small in number, an insight into the health, diet and lifestyle of the individuals within the collection can be observed in the high percentage being affected by dental and joint disease. Poor preservation and poor completeness of the skeletal remains has unfortunately affected the amount of data that could be collected.

With thanks to the Volunteers

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Student Dissertations

Four students focused their University dissertations on aspects of the human remains within the collection. The dissertations are available within the paper archive held by the Eastbourne Heritage Service:

Charilaou, E. 2012. Presenting The Past In The 21st Century: An Osteobiography Of Anthropological Skeletal Remains From Eastbourne Archaeological Collection. Bournemouth University.

Milligan, R. 2012. An Osteological Profile of 15 Burials from an Anglo-Saxon Cemetery at Eastbourne Arts and Technical College. Bournemouth University.

Riley, K. 2014. Are Anglo-Saxon Burial Practices Local or Regional? Using the St. Annes Cemetery, Eastbourne. Bournemouth University.

Zieger, T. 2012. Clavicular Variation: Comparisons between and within Pan troglodytes, Gorilla gorilla, and Homo sapiens sapiens populations. Exeter University.

Bibliography

Bass, W.M. 1995. Human Osteology, A Laboratory and Field Manual (4th Edition). Missouri Archaeological Society, Inc.

Brickley, M and McKinley, J. 2004. Guidelines to the Standards for Recording Human Remains. IfA BABAO. Southampton & Reading.

Brooks, S and Suchey, J.M. 1990. Skeletal age determination based on the os pubis: A comparison of the Acsádi-Nemeskéri and Suchey-Brooks methods. *Human Evolution* vol.5. pp.227-238.

Brothwell, D.R. 1981. *Digging Up Bones* (3rd Edition). British Museum (Natural History). Cornell University Press. Ithaca, New York.

Buikstra, J.E and Ubelaker, D.H. 1994. *Standards For Data Collection From Human Skeletal Remains*. Arkansas Archaeological Survey Research Series No.44. Fayetteville, Arkansas.

Buckberry, J and Cherryson, A. 2010. *Burial in Later Anglo-Saxon England c.650-1100AD*. Oxbow Books, Oxford.

Carver, M. Sanmark, A and Semple, S (Eds), 2010. *Signals of Belief in Early England – Anglo-Saxon Paganism Revisited*. Oxbow Books, Oxford

Chuter, G. 2009. Fieldwalking at Duttle's Brow near Jevington, East Sussex. Prehistoric to Romano-British Downland Occupation and an Anglo-Saxon Cemetery. *Sussex Archaeological Collections*. Vol. 147. pp 25-36.

Greatorex, C. 1998. Evidence of Sussex prehistoric ritual traditions: The Archaeological Investigation of a Bronze Age Funerary Monument Situated on Baily's Hill Near Crowlink, Eastbourne. *Sussex Archaeological Collections*. Vol. 139. pp 27-73.

Gowland, R.L. & Western, A.G. 2012. Morbidity in the Marshes: Using Spatial Epidemiology to Investigate Skeletal Evidence for Malaria in Anglo-Saxon England (AD410-1050*). American Journal of Physical Anthropology 147(2):* 301-311.

Hines, J and Bayliss A (Eds) 2013. *Anglo-Saxon Graves and Grave Goods of the 6th and 7th Centuries AD: A Chronological Framework*, The Society for Medieval Archaeology, London

Lamb, A and Evans, J. 2013. Carbon, Nitrogen, Strontium and Oxygen isotope analysis of collagen and tooth enamel from Anglo Saxon inhumations in Eastbourne, UK. NIGL report. Nottingham.

Lovejoy, C.O., Meindl, R.S., Pryzbeck T.R., and Mensforth, R.P. 1985. Chronological Metamorphosis of the Auricular Surface of the Ilium: A New Method for the Determination of Age at Death. American Journal of Physical Anthropologu. Vol. 68. pp 15-28.

Mays, S., Brickley, M and Dodwell, N. 2004. Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports. English Heritage. Fort Cumberland.

Mays, S. 2006. *The Archaeology of Human Bones*. Routledge. London.

Miles, A.E.W. 1963. The Dentition in the Assessment of Individual Age in Skeletal Material, pp. 191-209 in D.R.Brothwell (ed.) *Dental Anthropology*. Pergamon, Oxford.

Miles, A.E.W. 2001. The Miles method of assessing age from tooth wear revisted. *Journal of Archaeological Science*. Vol 28. pp 973-982.

Ortner, D. 2003. Identification of Pathological Conditions in Human Skeletal Remains (2nd Edition). Academic Press. London.

Roberts, C and Cox, M. 2003. Health & Disease in Britain: From Prehistory to the Present Day. Sutton Publishing. Gloucestershire.

Roberts, C and Mancherster, K. 2005. The Archaeology of Disease (3rd Edition). Sutton Publishing. Gloucestershire.

Schaefer, M, Black, S, Scheuer, L. 2009. *Juvenile Osteology, A Laboratory and Field Manual*. Academic Press. London.

Stevens, L. 1980. Eastbourne 'The Vigil and the Morrow'; A Survey of Local Antiquity Research. Stevens. Eastbourne.

Waldron, T. 2009. Palaeopathology. Cambridge University Press. Cambridge.

White, T.D and Folkens, P.A. 2005. *The Human Bone Manual*. Academic Press. London.

Appendix

Skeletal Inventory

SITE	SITE CODE	SK.	BURIAL TYPE	PERIOD	SEX	AGE	STATURE METRES	CONDITION	PRES %	COMMENTS
BEACHY HEAD	BH1959	1959	Inhum	R	F	YA	1.54	Good	>75%	Dental: Caries, calculus, DEH, congen. absent M3's. Trauma: Ossified haematoma right femur mid shaft. Other: Partially blocked jugular foramen.
CORNISH FARM	CF90/1/50	TR1	Inhum	BA	M	YOM	-	Poor	<25%	Dental: Calculus.
CROWLINK	CROWLINK 1998	5	Inhum	BA	U	-	-	Poor	<25%	24 frags.
CROWLINK	CROWLINK 1998	5A	Crem	BA	U	-	-	Poor	<25%	10 frags. 1 charred, 9 calcined. 4xskull, 1xrib, 4xlbf. 9g
CROWLINK	CROWLINK 1998	6	Inhum	BA	U	-	-	Poor	<25%	8 frags.
CROWLINK	CROWLINK 1998	2~6	Inhum	BA	U	-	-	Poor	<25%	2 frags.
CROWLINK	CROWLINK 1998	8	Inhum	BA	U	-	-	Poor	<25%	2 frags.
CROWLINK	CROWLINK 1998	8A	Crem	BA	U	-	-	Poor	<25%	6 frags. Calcined bone. 1g.
CROWLINK	CROWLINK 1998	10	Crem	BA	Sub Ad.	INF	-	Poor	<25%	5 frags, 2g. Light, white.
CROWLINK	CROWLINK 1998	15	Crem	BA	U	-	-	Poor	<25%	16 frags. 10g.
CROWLINK	CROWLINK 1998	17	Crem	BA	U	-	-	Poor	<25%	196 frags, 68g. Calcined. Small-med frags. Light white grey. 1xskull, lbf.
CROWLINK	CROWLINK 1998	6~20	Inhum	BA	F?	AD	-	Poor	<25%	-
CROWLINK	CROWLINK 1998	31	Crem	BA	U	-	-	Poor	<25%	13 frags <0g. Dark in colour.
CROWLINK	CROWLINK 1998	33	Crem	BA	U	-	-	Poor	<25%	50 frags, 28g. Small. Grey/white. 2xskull.
CROWLINK	CROWLINK 1998	38	Crem	BA	U	-	-	Poor	<25%	230 frags, 64g. Burnt/crem.. Dark grey/white light grey. 2xskull, long bones.
CROWLINK	CROWLINK 1998	39	Inhum	BA	F	AD	-	Poor	<25%	Dental: Calculus.
CROWLINK	CROWLINK 1998	39	Crem	BA	U	-	-	Poor	<25%	148 frags, 230g. Small-med. Grey/white. 5xskull, 1xmt, 1xdp, 1xpp, 4xskull.
CROWLINK	CROWLINK 1998	39A	Inhum	BA	U	-	-	Poor	<25%	63g, not crem. Small bone frags.
CROWLINK	CROWLINK 1998	41	Crem	BA	U	-	-	Poor	<25%	690 frags, 362g. Burnt/crem. Medium frags. Grey/dark - light. 2xroots, 1xcrown, 5xskull.
CROWLINK	CROWLINK 1998	43	Crem	BA	U	-	-	Poor	<25%	4 frags, 2g. Grey/white. Small frags.
CROWLINK	CROWLINK 1998	47	Crem	BA	U	-	-	Poor	<25%	27 frags, 7g. Light, white grey. Small frags.
DENTAL ESTIMATES BOARD	DEB 1977.19.1	1	Inhum	BA	M?	AD	-	Poor	<25%	-

DENTAL ESTIMATES BOARD	DEB 1977.19.2	2	Inhum	BA	M	AD	-	Poor	<25%	-
DUTTLES BROW	DB	1	Inhum	R	F?	YA	-	Poor	<25%	Dental: Calculus. JD: Schmorl's nodes vert.
ECAT	ECE97B	-	-	AS	-	-	-	-	-	No human remains
ECAT	ECE97B	-	-	AS	-	-	-	-	-	No human remains
ECAT	ECE97B	-	-	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	Not excav	-	AS	-	-	-	-	-	Not excavated.
ECAT	ECE97B	Not excav	-	AS	-	-	-	-	-	Not excavated.
ECAT	ECAT 98	-	-	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	-	Crem	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	-	Crem	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	UNKNOWN	Inhum	AS	M	YA	-	Poor	<25%	Dental: Calculus.
ECAT	ECE97B	UNKNOWN OTHER	Inhum	AS	U	AD	-	Poor	<25%	JD: Long bones new bone growth, also pelvis. Trauma: Left foot bones fused.
ECAT	ECE97B	UNKNOWN2	Inhum	AS	U	SA	-	Poor	<25%	-
ECAT	ECE97B	51/57/579	Inhum	AS	U	AD	-	Poor	<25%	Dental: Calculus. Three individuals mixed together.
ECAT	ECE97B	95/98/93	Inhum	AS	U	AD	-	Poor	<25%	Three individuals mixed together.
ECAT	ECE97B	276/280B	Inhum	AS	F?	YA	-	Poor	<25%	-
ECAT	ECE97B	276/280C	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
ECAT	ECE97B	276/280A	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	43	Inhum	AS	M?	MA	1.70	Good	>75%	Dental: Caries JD: Osteophytic lipping spine
ECAT	ECE97B	46	Inhum	AS	M	YOM	-	Poor	25-75%	Dental: Caries, abscess, periodontal disease, supernumerary tooth. JD: Osteophytic lipping on vert. thoracic and lumbar.
ECAT	ECE97B	49	Inhum	AS	M	AD	-	Poor	25-75%	Dental: Periodontal disease, caries, calculus, abscess, amtl. JD: Acetabulum rim remodelling. Vert. thoracic fused 3 mid/lower and 2 additional. Two individuals present.
ECAT	ECE97B	52	Inhum	AS	U	MA	-	Poor	25-75%	Dental: Calculus. JD: Occupation stress markers patella's. Osteophytic lipping and OA throughout spine. Sacrolumbarisation. Extreme OA Femur heads and associated acetabulums.
ECAT	ECE97B	55	Inhum	AS	U	AD	-	Poor	<25%	-

ECAT	ECE97B	56	Inhum	AS	-	-	-	-	-	Individual not present
ECAT	ECE97B	60	Inhum	AS	M	YOM	-	Good	>75%	Dental: DEH, calculus, periodontal disease. JD: fusion L5 TO S1. Schmorl's nodes vert. thoracic. Osteophytic lipping acetabulum rims.
ECAT	ECE97B	61	Inhum	AS	U	-	-	Poor	<25%	Dental: Calculus
ECAT	ECE97B	62	Inhum	AS	F?	MA	-	Moderate	25-75%	Dental: Calculus, hypercementosis of molar roots.
ECAT	ECE97B	64	Inhum	AS	F	AD	1.62	Moderate	>75%	Dental: Healed abscess, calculus, AMTL.
ECAT	ECE97B	67	Inhum	AS	M	YA	-	Poor	25-75%	Trauma/Infection: Blastic lesion on right tibia midshaft and periosteal reaction. Co-mingled individuals.
ECAT	ECE97B	70	Inhum	AS	M	MA	-	Good	25-75%	Dental: Alveolar re-absorption, amtl mandible. JD: Osteophytic lipping in vert. cervical, lumbar and sacrum 1.
ECAT	ECE97B	75	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	78	Inhum	AS	M?	MA	-	Poor	<25%	-
ECAT	ECE97B	81	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	84	Inhum	AS	F?	YOM	-	Poor	25-75%	-
ECAT	ECE97B	87	Inhum	AS	M	MA	-	Poor	25-75%	Dental: Calculus. JD: Occupational stress markers patella's. OA vert. cervical, remodelling of acetabulums.
ECAT	ECE97B	89	Inhum	AS	M	MA	1.80	Poor	25-75%	JD: Vert. cervical osteophytic lipping. Congenital: Absence of M3s.
ECAT	ECE97B	93	Inhum	AS	-	-	-	-	-	Individual not present
ECAT	ECE97B	95	Inhum	AS	F	YOM	-	Good	>75%	Dental: Calculus, amtl. JD: Schmorl's nodes vert. lumbar, osteophytic lipping vert. thoracic and lumbar. Rim remodelling to acetabulum and centre.
ECAT	ECE97B	98	Inhum	AS	M	YOM	-	Moderate	25-75%	Dental: Caries, calculus, abscess. Metabolic: Cribra Orbitalia?
ECAT	ECE97B	111	Inhum	AS	M	YOM	1.71	Poor	25-75%	Dental: Caries, calculus, periodontal disease. JD: OA severe vert. Vert. cervical atlas body fused to C3. Trauma: Left radius/ulna amputation healed. Rib fractures L/R healed.
ECAT	ECE97B	137	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	140	-	AS	-	-	-	-	-	Individual not present
ECAT	ECE97B	143	Inhum	AS	U	YOM	1.61	Poor	25-75%	Dental: Abscess, calculus, amtl. JD: acetabulum.
ECAT	ECE97B	146	Inhum	AS	F?	YOM	-	Poor	25-75%	Dental: Calculus.
ECAT	ECE97B	148	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-

ECAT	ECE97B	149	Inhum	AS	-	-	-	-	-	Individual not present
ECAT	ECE97B	149?	Inhum	AS	U	AD	-	Poor	25-75%	JD: Changes to acetabulum.
ECAT	ECE97B	151	Inhum	AS	F	YOM	1.51	Poor	25-75%	Dental: Caries.
ECAT	ECE97B	154	Inhum	AS	F	YA	1.61	Moderate	25-75%	-
ECAT	ECE97B	157	Inhum	AS	M	YOM	-	Poor	25-75%	Dental: Calculus, caries. JD: Osteophytic lipping spine. 2 individuals present.
ECAT	ECE97B	190	Inhum	AS	F?	YA	-	Poor	<25%	-
ECAT	ECE97B	193	Inhum	AS	F?	MA	-	Poor	<25%	Dental: Calculus, caries. JD: Porosity in left acetabulum.
ECAT	ECE97B	196	Inhum	AS	Sub Ad.	INF	-	Moderate	<25%	Metabolic: Cribra orbitalia.
ECAT	ECE97B	199	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
ECAT	ECE97B	207	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	211	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Caries. JD: Osteophytic remodelling left acetabulum. OA vert. thoracic and lumbar.
ECAT	ECE97B	214	Inhum	AS	M	MA	-	Poor	<25%	Dental: Calculus. JD: Periosteal reaction extremities.
ECAT	ECE97B	233	Inhum	AS	M	AD	-	Poor	<25%	Dental: Calculus and caries. JD: Osteophytic lipping vert. Vert thoracic possible wedge shaped and Schmorl's nodes. Trauma to skull.
ECAT	ECE97B	236	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECE97B	236B C	Inhum	AS	M	AD	1.99	Poor	>75%	Dental: Calculus, caries. JD: Osteophytic lipping to acetabulum, vert and ribs. Right tibia bone exstosis from shaft. Trauma: Left tibia healed fracture - compression with some periosteal reaction. Slight periosteal reaction to left fibula also. Mix of two individuals.
ECAT	ECE97B	236A	Inhum	AS	M	YOM	1.82	Poor	>75%	Dental: Amtl, periodontal disease, calculus. JD: OA changes through skeleton - acetabulums and ribs.
ECAT	ECE97B	239	Inhum	AS	F?	MA	-	Poor	25-75%	-
ECAT	ECE97B	248	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
ECAT	ECE97B	251	Inhum	AS	Sub Ad.	CH	-	Poor	25-75%	Dental: Calculus.
ECAT	ECE97B	252	Inhum	AS	Sub Ad.	CH	-	Poor	25-75%	-
ECAT	ECE97B	255	Inhum	AS	M?	YOM	-	Good	25-75%	JD: Occupational stress markers patella's and associated long bones.
ECAT	ECE97B	259	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Calculus, alveolar re-absorption, DEH. JD: Periosteal reactions throughout skeleton. Remodelling of acetabulums.

ECAT	ECE97B	261	Inhum	AS	Sub Ad.	CH	-	Moderate	<25%	Dental: DEH, calculus, caries.
ECAT	ECE97B	264	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Calculus and periodontal disease. JD: Osteophytic lipping left femur. Periosteal reaction fibula shaft.
ECAT	ECE97B	267	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Calculus, periodontal. JD: Osteophytic lipping and fusion L5/S1. Porosity around temporals - mastoiditis?
ECAT	ECE97B	270	Inhum	AS	U	YOM	-	Poor	25-75%	Dental: Calculus, periodontal disease, crowded teeth, poss. abscess right mandible M3. JD: Occupational stress markers patella's. Schmorl's nodes vert thoracic and lumbar. Osteophytic lipping spine.
ECAT	ECE97B	273	Inhum	AS	M?	YA	-	Poor	25-75%	Dental: Caries, calculus. JD: Right radius, left femoral head and acetabulum. Vert cervical osteophytic lipping.
ECAT	ECE97B	276	Inhum	AS	U	YA	-	Poor	<25%	-
ECAT	ECE97B	280	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
ECAT	ECE97B	294	Inhum	AS	M	YA	1.77	Poor	>75%	Dental: Caries, calculus, amtl. Trauma: Healed rib fracture midshaft. Fused vert cervical 2/3, thoracic X2, lumbar 4/5.
ECAT	ECE97B	309	Inhum	AS	M	YOM	1.65	Good	25-75%	Dental: Calculus, periodontal disease. JD: Schmorl's nodes on lower thoracic and lumbar vert. Slight remodelling of left acetabulum and localised porosity.
ECAT	ECE97B	312	Inhum	AS	M	YOM	-	Poor	<25%	Dental: Calculus.
ECAT	ECE97B	315	Inhum	AS	M	YA	1.85	Poor	25-75%	JD: Slight in acetabulums.
ECAT	ECE97B	318	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	322	Inhum	AS	F	YOM	-	Poor	<25%	Dental: Calculus. JD: OA osteophytic lipping cervical vert.
ECAT	ECE97B	325	Inhum	AS	M?	YOM	-	Poor	25-75%	Dental: Amtl. JD: Exstosis at sacro-illiac region.
ECAT	ECE97B	328	Inhum	AS	F	AD	-	Poor	<25%	Dental: Amtl, caries, calculus, periodontal disease.
ECAT	ECE97B	331	Inhum	AS	F?	YA	-	Poor	>75%	-
ECAT	ECE97B	334	Inhum	AS	M?	YA	1.68	Poor	>75%	-
ECAT	ECE97B	337	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Amtl.
ECAT	ECE97B	339	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	Metabolic: Cribra orbitalia
ECAT	ECE97B	341?	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	346	Inhum	AS	M?	AD	-		<25%	JD: Left clavicle healed midshaft fracture. Severe OA left acetabulum and femoral

								Poor		head. Left femur shaft periosteal reaction, poss. leg ulcer. OA spine, osteophytic lipping ribs. Left femur shaft infection leg ulcers?
ECAT	ECE97B	349	Inhum	AS	F?	YOM	-	Poor	25-75%	Dental: Amtl.
ECAT	ECE97B	352	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECE97B	355	Inhum	AS	F?	YOM	-	Poor	<25%	Dental: Calculus .
ECAT	ECE97B	358	Inhum	AS	Sub Ad.	SA	-	Poor	<25%	-
ECAT	ECE97B	361	Inhum	AS	U	AD	-	Poor	<25%	More than 1 individual present.
ECAT	ECE97B	375	Inhum	AS	F	YOM	1.67	Moderate	25-75%	-
ECAT	ECE97B	378	Inhum	AS	F?	AD	-	Poor	<25%	Trauma: Right Femur porous compact bone.
ECAT	ECE97B	381	Inhum	AS	Sub Ad.	ADO	-	Moderate	25-75%	Dental: Calculus. Metabolic: Cribra orbitalia.
ECAT	ECE97B	384	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECE97B	389	Inhum	AS	Sub Ad.	ADO	-	Poor	25-75%	Dental: Caries and calculus.
ECAT	ECE97B	392	Inhum	AS	Sub Ad.	CH	-	Moderate	<25%	-
ECAT	ECE97B	395	Inhum	AS	U	AD	-	Poor	25-75%	Dental: Caries. JD: Osteophytic lipping vert.
ECAT	ECE97B	402	Inhum	AS	U	MA	-	Poor	25-75%	Dental: amtl, calculus. JD: Right clavicle healed mid shaft fracture.
ECAT	ECE97B	405	Inhum	AS	U	AD	-	Poor	<25%	JD: Osteophytic lipping vert. lumbar.
ECAT	ECE97B	444	Inhum	AS	M	YOM	-	Poor	25-75%	Dental: Calculus and caries. JD: OA spine.
ECAT	ECE97B	447	Inhum	AS	F?	MA	-	Poor	>75%	Dental: Calculus, caries, periodontal disease and amtl. JD: OA, Schmorl's nodes, lipping and remodelling throughout skeleton. Lumbar 4 spondylolsis.
ECAT	ECE97B	450	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	453	Inhum	AS	M	AD	1.68	Good	>75%	-
ECAT	ECE97B	463	Inhum	AS	F?	AD	-	Poor	25-75%	Dental: Calculus, periodontal disease poss.
ECAT	ECE97B	476	Inhum	AS	U	AD	-	Poor	25-75%	-
ECAT	ECE97B	479	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Dental: DEH.
ECAT	ECE97B	481	Inhum	AS	M	AD	-	Poor	25-75%	Dental: Amtl. JD: Fused vert lumbar 3/4. Healed fracture to left rib. Periosteal reactions and possible atrophy of extremities.
ECAT	ECE97B	488	Inhum	AS	F	YOM	-	Poor	<25%	Dental: Caries, amtl and calculus. JD: Osteophytic lipping of spine. Remodelling present on acetabulums and femurs more so on R than L. Eburnation on R femur and pitting on surface - visible in association with acetabulum, remodelling and deposition of new bone growth.

ECAT	ECE97B	491	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	494	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECE97B	497	Inhum	AS	-	-	-	-	-	Individual not present
ECAT	ECE97B	560	Crem	AS	U	AD	-	Poor	<25%	140g. Small-medium frags. White/light grey. 3xskull, 2xtooth roots.
ECAT	ECE97B	563	Inhum	AS	F	YOM	-	Poor	<25%	Dental: Calculus. JD: Osteophytic lipping in vert. cervical and thoracic. Remodelling and pitting in acetabulums and fem heads.
ECAT	ECE97B	580	Inhum	AS	F?	YA	1.68	Moderate	25-75%	Dental: Amtl. JD: Slight degenerative changes to acetabulums.
ECAT	ECE97B	585	Inhum	AS	Sub Ad.	INF	-	Moderate	<25%	-
ECAT	ECE97B	588	Inhum	AS	M	MA	-	Poor	25-75%	JD: Osteophytic lipping spine. Sacrum 1 fused to Lumbar 5. Vert lumbar and thoracic Schmorl's and lipping. Right clavicle healed fracture midshaft, periosteal bone growth, compression/shunt. Atrophy distal phal no1.
ECAT	ECE97B	591	Inhum	AS	M	YOM	-	Poor	25-75%	Dental: Max palate porosity. Hypercementosis of right max M3. JD: Compacted fracture distal clavicle right. Osteophytic lipping vert. Schmorl's nodes vert. lumbar.
ECAT	ECE97B	594	Inhum	AS	F?	YOM	-	Poor	<25%	-
ECAT	ECE97B	597	Inhum	AS	U	MA	-	Poor	<25%	Dental: Calculus. JD: Osteophytic lipping vert. Remodelling acetabulum rims.
ECAT	ECE97B	603	Inhum	AS	Sub Ad.	MA	-	Poor	25-75%	Infection: Possible mastoid/auditory meatus infection - could be poor preservation.
ECAT	ECE97B	614	Inhum	AS	F?	AD	-	Poor	25-75%	JD: OA Left acetabulum and fem head.
ECAT	ECE97B	617	Inhum	AS	M	YOM	1.75	Good	25-75%	Dental: Caries.
ECAT	ECE97B	628	Crem	AS	Sub Ad.	-	-	Poor	<25%	334g. Small-medium frags. White/grey - blue. Two individuals present both subadults.
ECAT	ECE97B	631	Inhum	AS	U	YOM	-	Poor	<25%	Dental: Periodontal disease.
ECAT	ECE97B	634	Inhum	AS	U	AD	-	Poor	<25%	Dental: Caries. JD: OA remodelling of the acetabulums.
ECAT	ECE97B	637	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Dental: DEH.
ECAT	ECE97B	640	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: DEH, calculus, amtl, abscess. JD: Tibia periosteal reaction. Rib osteophytic lipping. Remodelling to acetabulums. Schmorl's vert thoracic and lumbar.
ECAT	ECE97B	642	Inhum	AS	U	YOM	-	Poor	<25%	Dental: Calculus, amtl.

ECAT	ECE97B	644	Inhum	AS	M?	YOM	-	Poor	25-75%	Dental: caries and calculus.
ECAT	ECE97B	647	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECE97B	650	Inhum	AS	F?	YOM	-	Poor	25-75%	-
ECAT	ECE97B	653	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECE97B	656	Inhum	AS	F	YA	-	Poor	25-75%	Dental: Caries, calculus. Metabolic: Cribra orbitalia.
ECAT	ECE97B	659	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECE97B	662	Inhum	AS	M?	YA	-	Moderate	25-75%	Dental: Supernumerary peg tooth. JD: Osteophytic lipping on phalange R hand.
ECAT	ECE97B	667	Crem	AS	U	AD	-	Poor	<25%	293g. Mix is small, med, large. White/grey - blue. 11x skull, 2xrad, 1xphal prox hand.
ECAT	ECE97B	672	Inhum	AS	U	-	-	Poor	<25%	-
ECAT	ECE97B	675	Inhum	AS	Sub Ad.	ADO	-	Poor	<25%	Dental: Caries, calculus, DEH.
ECAT	ECE97B	678	Crem	AS	U	AD	-	Poor	<25%	23g. Medium frags. White/blue-grey. 25xskull.
ECAT	ECE97B	681	Inhum	AS	M	YOM	-	Poor	<25%	Dental: Amtl. JD: OA cervical vert bodies.. 1st metatarsal fracture healed.
ECAT	ECE97B	685	Crem	AS	U	AD	-	Poor	<25%	386g. Med-large frags. Grey/white - blue. 4xribs, 1xpelvis frag.
ECAT	ECE97B	687	Crem	AS	U	AD	-	Poor	<25%	395g. Med-large frags. White/grey. 3xrib, 3xvert, 25xskull.
ECAT	ECE97B	691	Crem	AS	U	AD	-	Poor	<25%	226g. Med-large frags. White/grey. 19xskull, 1xulna frag.
ECAT	ECE97B	693	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Dental: Calculus, DEH.
ECAT	ECE97B	695	Crem	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	699	Inhum	AS	U	AD	-	Poor	<25%	Trauma: Right ulna, healed mid shaft fracture with periostitis.
ECAT	ECE97B	702	Crem	AS	U	-	-	Poor	<25%	92g. Small-med frags. White/grey. Two teeth C, I1 max. 9xribs, 84xskull.
ECAT	ECE97B	704	Crem	AS	-	-	-	-	-	No human remains.
ECAT	ECE97B	708	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Adult individual mixed with this Sub Adult.
ECAT	ECE97B	711	Inhum	AS	F	YOM	-	Poor	25-75%	-
ECAT	ECE97B	719	Inhum	AS	M?	YOM	-	Poor	25-75%	Trauma: Poss. compact fracture of vert thoracic.
ECAT	ECE97B	722	Inhum	AS	Sub Ad.	INF	-	Moderate	<25%	-
ECAT	ECE97B	724	Crem	AS	-	-	-	-	-	No human remains
ECAT	ECE97B	726	Crem	AS	U	-	-	Poor	<25%	96g. Med-large. Grey/white - blue. 1xhum, 20xskull.
ECAT	ECE97B	732	Inhum	AS	U	AD	-	Poor	<25%	-

ECAT	ECE97B	735	Inhum	AS	U	YA	-	Poor	25-75%	Dental: DEH. JD: Porosity slight at auditory meatus. Porotic compact bone on right acetabulum.
ECAT	ECE97B	744	Inhum	AS	U	YA	-	Poor	<25%	Dental: Calculus, caries. Trauma: Poss. compound fracture left tibia? Infection: Left tibia swelling and thickening osteomyelitis. Cloacae present .
ECAT	ECE97B	744	Inhum	AS	U	YA	-	Poor	25-75%	Dental: Calculus.
ECAT	ECE97B	747	Inhum	AS	M	AD	1.70	Good	>75%	Dental: Calculus, caries, abscess, periodontal disease'. JD: OA vert cervical and thoracic. Schmorl's nodes. OA acetabulum rims.
ECAT	ECE97B	750	Inhum	AS	F	YA	-	Poor	25-75%	-
ECAT	ECE97B	753	Inhum	AS	U	YOM	-	Poor	25-75%	Dental: Calculus, periodontal disease. JD: Osteophytic lipping spine. Infection: Poss. thickening of cranial vault.
ECAT	ECE97B	756	Inhum	AS	M	AD	-	Poor	<25%	Trauma: Left tibia healed fracture midshaft, left fibula also shows signs of trauma. Periosteal reaction with possible ossified muscle attachment on right tibia.
ECAT	ECE97B	763	Crem	AS	Sub Ad.	-	-	Poor	<25%	373g. Small-med frags. Grey/white/beige - blue. 52xskull, 12xrib, 1xpat, 7xphal, 1xtoothroot, 1xtalus.
ECAT	ECE97B	765	Inhum	AS	F	YA	-	Moderate	>75%	Dental: Periodontal disease, calculus.
ECAT	ECE97B	768	Inhum	AS	M	YOM	1.85	Good	>75%	Dental: Calculus, abscess. Trauma: Right foot fusion of bones 1st metatarsal and proximal phalange fused. Osteophytic lipping, phalange raised 45degrees with minimal extra bone growth.
ECAT	ECE97B	773	Inhum	AS	Sub Ad.	ADO	-	Poor	25-75%	Trauma: Periosteal reaction on ribs.
ECAT	ECE97B	777	Inhum	AS	M	YOM	1.78	Good	>75%	Dental: Caries, Heterotopic tooth. Trauma: Periosteal infection left femur - leg ulcer. Localised OA left arm. Fractured right phalange 3rd, healed misaligned.
ECAT	ECE97B	780	Inhum	AS	U	YOM	1.58	Good	25-75%	Dental: Calculus, abscess.
ECAT	ECE97B	783	Inhum	AS	M	YA	1.74	Moderate	25-75%	-
ECAT	ECE97B	787	Inhum	AS	F	AD	-	Poor	25-75%	Dental: Calculus, amtl. Trauma: OA right ulna, sacro-lumbarisation, osteophytic lipping ribs. OA spine.
ECAT	ECE97B	790	Inhum	AS	U	AD	-	Poor	<25%	Dental: Caries.
ECAT	ECE97B	793	Inhum	AS	M?	AD	-	Poor	<25%	-
ECAT	ECE97B	796	Inhum	AS	U	YA	-	Poor	25-75%	-

ECAT	ECE97B	799	Inhum	AS	M?	MA	-	Poor	25-75%	Dental: calculus, alveolar re-absorption. JD: Slight acetabulum changes. Schmorl's nodes vert lumbar.
ECAT	ECE97B	802	Crem	AS	U	-	-	Poor	<25%	270g. Med-large frags. Grey/beige - whiteish. 27xskull, 1xmand, 1xphal hand.
ECAT	ECE97B	804	Inhum	AS	U	YOM	-	Poor	25-75%	Dental: Calculus, supernumerary/peg tooth. JD: Acetabulum porous compact bone.
ECAT	ECE97B	809	Inhum	AS	M	YOM	1.74	Poor	>75%	Dental: Calculus, M3 amtl. JD: Bony spur on tibia shaft right. Remodelling of acetabulums.
ECAT	ECE97B	812	Inhum	AS	M	YOM	1.70	Good	>75%	JD: Spine Schmorl's nodes, OA vert lumbar.
ECAT	ECE97B	815	Inhum	AS	F?	AD	-	Moderate	25-75%	-
ECAT	ECE97B	818	Inhum	AS	M	YOM	1.72	Good	25-75%	Dental: Calculus. JD: Schmorl's nodes vert lumbar.
ECAT	ECE97B	821	Inhum	AS	M	YA	-	Poor	25-75%	Dental: Caries, calculus. JD: OA lipping vert lumbar, vert thoracic x2 fused.
ECAT	ECE97B	826	Inhum	AS	U	AD	-	Poor	<25%	Dental: Calculus.
ECAT	ECE97B	829	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECE97B	832	Inhum	AS	M	AD	-	Poor	25-75%	Trauma: Interpersonal violence to skull.
ECAT	ECE97B	835	Inhum	AS	Sub Ad.	CH	-	Moderate	>75%	Dental: Possible impacted M3.
ECAT	ECE97B	838	Inhum	AS	U	YA	-	Poor	<25%	-
ECAT	ECE97B	841	Inhum	AS	U	CH	-	Poor	25-75%	-
ECAT	ECE97B	844	Inhum	AS	F	YOM	-	Poor	25-75%	Dental: Caries, calculus, DEH supernumerary/peg tooth.
ECAT	ECE97B	851	Inhum	AS	F	MA	-	Poor	25-75%	Dental: Calculus. JD: OA spine and ribs. Vert lumbar 5 fusing to sacrum 1.
ECAT	ECE97B	1001	Inhum	AS	U	-	-	Poor	<25%	-
ECAT	ECE97B	1002	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECAT 98	1004	Inhum	AS	U	-	-	Poor	<25%	-
ECAT	ECAT 98	1006	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
ECAT	ECAT 98	1008	Inhum	AS	Sub Ad.	ADO	-	Poor	<25%	-
ECAT	ECAT 98	1011	Inhum	AS	U	AD	-	Poor	<25%	Dental: Calculus, caries, abscess. Infection: Skull thickening - not paget's - trenching of blood vessels. 2 people present - mixed.
ECAT	ECAT 98	1013	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECAT 98	1017	Inhum	AS	F?	YOM	-	Poor	25-75%	-
ECAT	ECAT 98	1018 A	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT	ECAT 98	1018 B	Inhum	AS	M	YA	-	Good	>75%	-
ECAT	ECAT 98	1021	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-

ECAT	ECAT 98	1023	Inhum	AS	U	AD	-	Poor	<25%	Trauma: Interpersonal violence skull.
ECAT	ECAT 98	1025	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1027	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1028 A	Inhum	AS	Sub Ad.	ADO	-	Poor	<25%	-
ECAT	ECAT 98	1028 B	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1031	Inhum	AS	M?	AD	-	Poor	25-75%	-
ECAT	ECAT 98	1033	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1035	Inhum	AS	U	YA	-	Poor	<25%	-
ECAT	ECAT 98	1037	Inhum	AS	U	YOM	-	Poor	<25%	Dental: Caries, amtl, calculus.
ECAT	ECAT 98	1039	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Metabolic: Cribra orbitalia.
ECAT	ECE97B	1039 B	Inhum	AS	Sub Ad.	ADO	-	Poor	25-75%	Dental: Calculus.
ECAT	ECAT 98	1045	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1047	Inhum	AS	U	YA	-	Poor	<25%	-
ECAT	ECAT 98	1049	Inhum	AS	M?	YA	-	Poor	25-75%	Dental: Caries, calculus, DEH. JD: Slight JD to thoracic spine or possible fracture due to wedge shape.
ECAT	ECAT 98	1051	Inhum	AS	-	-	-	-	-	Individual not present.
ECAT	ECAT 98	1053	Inhum	AS	M	YOM	1.65	Good	>75%	Dental: Caries. JD: Osteophytic lipping throughout skeleton - patella's, ulnae, radii, acetabulums, vert. Schmorl's nodes. Trauma: Healed rib fracture left.
ECAT	ECAT 98	1056	Inhum	AS	F?	YA	-	Poor	25-75%	Dental: Caries and calculus.
ECAT	ECAT 98	1060 A	Inhum	AS	M?	AD	-	Poor	25-75%	Dental: DEH, caries. JD: Evident in pelvis, patella's, ribs - extra bone growth, some lipping vert thoracic.
ECAT	ECAT 98	1060 B	Inhum	AS	M	AD	-	Poor	25-75%	Same as above.
ECAT	ECAT 98	1063	Inhum	AS	M?	YOM	-	Poor	25-75%	Dental: Calculus.
ECAT	ECAT 98	1067	Inhum	AS	U	YA	-	Poor	<25%	Dental: Calculus.
ECAT	ECAT 98	1069	Inhum	AS	M?	YA	-	Poor	<25%	-
ECAT	ECAT 98	1071	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT	ECAT 98	1072 A	Inhum	AS	U	AD	-	Poor	<25%	Dental: Calculus. JD: OA Medial clavicle right. Osteophytic lipping spine.
ECAT	ECAT 98	1072 B	Inhum	AS	F	YOM	-	Poor	<25%	Dental: Calculus.
ECAT	ECAT 98	1075	Inhum	AS	M	YOM	1.79	Good	>75%	Dental: Calculus. JD: Osteophyte growth ribs/vert. Schmorl's nodes vert lumbar.
ECAT	ECE97B	1077	Inhum	AS	M	MA	1.64	Poor	>75%	JD: Sacralisation. Lipping to vert lumbar and acetabulums. Schmorl's vert lumbar.

ECAT 1991.1	ECAT 1991.1	F10	Crem	AS	U	-	-	Poor	<25%	19g. Medium frags. Dark/Light grey.
ECAT 1991.1	ECAT 1991.1	F60	Inhum	AS	U	-	-	Poor	<25%	6g. Medium frags. Mix of charred and non cremated remains.
ECAT 1991.1	ECAT 1991.1	F38	Crem	AS	U	-	-	Poor	<25%	259G. Medium frags. Light grey/white.
ECAT 1991.1	ECAT 1991.1	F11	Crem	AS	U	-	-	Poor	<25%	591g. Medium frags. White/grey - blue grey. 25xskull.
ECAT 1991.1	ECAT 1991.1	1	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	1?	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	2	Inhum	AS	M	YOM	-	Moderate	25-75%	Dental: Calculus, DEH.
ECAT 1991.1	ECAT 1991.1	3	Inhum	AS	F	AD	1.59	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	4	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	Dental: Calculus, DEH.
ECAT 1991.1	ECAT 1991.1	5	Inhum	AS	Sub Ad.	ADO	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	6	Inhum	AS	F	AD	-	Poor	25-75%	JD: Osteophytic lipping sacrum, ribs, spine.
ECAT 1991.1	ECAT 1991.1	7	Inhum	AS	Sub Ad.	ADO	-	Poor	<25%	Dental: DEH, calculus, M3 mand congen absent?
ECAT 1991.1	ECAT 1991.1	8	Inhum	AS	M?	AD	-	Poor	<25%	Dental: Caries and calculus.
ECAT 1991.1	ECAT 1991.1	9	Inhum	AS	M	MA	-	Poor	25-75%	Dental: Periodontal disease and calculus. JD: OA spine.
ECAT 1991.1	ECAT 1991.1	11	Inhum	AS	F	AD	-	Poor	<25%	JD: OA spine throughout. Lipping on sacrum, fem heads and acetabulums. 2 individuals present.
ECAT 1991.1	ECAT 1991.1	12	Inhum	AS	F?	YOM	-	Poor	25-75%	JD: Remodelling pelvis. Infection: Poss. paget's? Some skull thickening.
ECAT 1991.1	ECAT 1991.1	13	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	14	Inhum	AS	M	AD	1.76	Moderate	>75%	Dental: DEH, periodontal disease. JD: OA spine, osteophytic lipping, Schmorl's nodes. Infection: Deep veins marked in right and left parietals.
ECAT 1991.1	ECAT 1991.1	15	Inhum	AS	M?	ADO	-	Poor	25-75%	Dental: Calculus.
ECAT 1991.1	ECAT 1991.1	16	Inhum	AS	F?	YA	-	Poor	25-75%	Dental: Caries, calculus, periodontal disease. JD: Osteophytic lipping on auricular surface. Two individuals represented.
ECAT 1991.1	ECAT 1991.1	17	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	18	Inhum	AS	F	AD	-	Poor	<25%	Dental: Caries and calculus, amtl. JD: Osteophytic lipping mandibular condyles.
ECAT 1991.1	ECAT 1991.1	19	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	20	Inhum	AS	F?	YA	-	Poor	<25%	Dental: Calculus.
ECAT 1991.1	ECAT 1991.1	21	Inhum	AS	U	AD	-	Poor	<25%	Dental: Calculus.
ECAT 1991.1	ECAT 1991.1	22	Inhum	AS	U	AD	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	23	Inhum	AS	F	YOM	-		<25%	Dental: Abscess, amtl, periodontal disease, calculus, DEH.

								Poor		JD: OA vert cervical and lumbar 5. OA acetabulums.
ECAT 1991.1	ECAT 1991.1	24	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
ECAT 1991.1	ECAT 1991.1	26	Inhum	AS	M	MA	-	Poor	25-75%	Dental: Caries, amtl, calculus. JD: OA vert thoracic and cervical.
ECAT 1991.1	ECAT 1991.1	27	Inhum	AS	F	AD	-	Poor	25-75%	JD: Osteophytic lipping patella's, sacrum body S1. OA throughout spine. Acetabulums remodelling to rims. Periosteal reaction and remodelling of right femoral head with OA and eburnation.
ECAT 1991.1	ECAT 1991.1	28	Inhum	AS	F	YA	1.63	Good	>75%	Dental: DEH, calculus. Metabolic: Cribra Orbitalia. JD: Osteophytic lipping thoracic vert.
ECAT 1991.1	ECAT 1991.1	29	Inhum	AS	Sub Ad.	INF	-	Poor	<25%	-
EXCEAT	EXCEAT	1	Inhum	AS?	M	MA	-	Poor	<25%	Dental: Calculus and amtl. Infection: Inflammation and pitting around mastoids. JD: Osteophytic lipping acetabulums.
FOREDOWN CLOSE	FDC 1978.22	1	Crem	R	F?	AD	-	Poor	<25%	629g. Small-Large frags. Beige- blue/grey. 5x bird bone frags.
HURST ROAD	HR 1993	1 AND 2	Inhum	AS?	M	YOM	1.76	Good	25-75%	Dental: Caries, calculus, DEH. JD: Osteophytic lipping spine and poss. acetabulum remodelling. Osteophytic lipping on other elements of the skeleton.
JEVINGTON	JEV	41	Crem	RB	U	-	-	Poor	<25%	175 frags, 4g.
LONG DOWN	LD 1977	Q	Inhum	BA	U	AD	-	Poor	<25%	-
LONG DOWN	LD 1977	1A	Inhum	BA	U	AD	-	Poor	<25%	-
LONG DOWN	LD 1977	1	Inhum	BA	U	AD	-	Poor	<25%	Dental: Calculus.
LONG DOWN	LD 1977	1?	Inhum	BA	U	AD	-	Poor	<25%	Dental: Calculus.
LONG DOWN	LD 1977	2	Inhum	BA	F?	AD	-	Poor	<25%	-
LONG DOWN	LD 1977	2	Crem	BA	U	AD	-	Poor	<25%	13g. Small frags 1-2cm. White/grey.
LONG DOWN	LD 1977	2?	Inhum	BA	U	AD	-	Poor	<25%	-
LONG DOWN	LD 1977	3	Inhum	BA	F?	YOM	-	Poor	<25%	Dental: Caries.
LONG DOWN	LD 1977	6	Crem	BA	U	AD	-	Poor	<25%	61g. Small frags 0.5-2.5cm. White/grey.
MOTCOMBE FARM	MCF 49.19.8 1907	1	Inhum	NEO?	M	AD	-	Poor	<25%	-
SAXON C	SC	T2A	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	21/22	Inhum	AS	M?	YOM	1.73	Moderate	<25%	Dental: Calculus, congenitally absent M3's. Infection: Possible skull thickening.
SAXON C	SC	23/24	Inhum	AS	U	AD	-	Poor	<25%	3 individuals; male, female and subadult. Adults 25-45 and sub adult 6-7.
SAXON C	SC	25/26	Inhum	AS	M?	AD	-		<25%	Dental: Periodontal disease. DEH subadult. 3 individuals present: 2

								Poor		adults, 1 sub adult.
SAXON C	SC	1	Inhum	AS	F	YA	-	Poor	<25%	Dental: DEH, calculus. Additional x2 juveniles present.
SAXON C	SC	1T	Inhum	AS	Sub Ad.	INF	-	Poor	25-75%	Two individuals present based on differences in femur sizes.
SAXON C	SC	2	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	2T	Inhum	AS	Sub Ad.	NEO	-	Poor	<25%	Metabolic: Poss. cribra orbitalia.
SAXON C	SC	3	Inhum	AS	U	AD		Poor	<25%	-
SAXON C	SC	1+2	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	4	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	5	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	6	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	7	Inhum	AS	U	INF	-	Poor	<25%	-
SAXON C	SC	8	Inhum	AS	F	YOM	1.63	Poor	25-75%	Dental: Caries, calculus, poss. periodontal disease.
SAXON C	SC	9	Inhum	AS	F	YA	1.63	Poor	<25%	Dental: DEH, calculus.
SAXON C	SC	10	Inhum	AS	F	YOM	1.56	Good	>75%	Dental: Calculus, caries, DEH. JD: OA Spine, ribs, foot, sacro-illiac joints, Schmorl's spine. Infection: Paget's disease.
SAXON C	SC	11	Inhum	AS	Sub Ad	NEO	-	Poor	<25%	-
SAXON C	SC	12	Inhum	AS	M	MA	1.68	Poor	25-75%	Dental: Calculus, caries. JD: Periosteal reaction long bones. Trauma: Left femur/pelvis compression fracture - severe OA, eburnation, pitting, remodelling 'mushroom' appearance.
SAXON C	SC	15	Inhum	AS	Sub Ad.	CH	-	Poor	<25%	-
SAXON C	SC	14 1C	Inhum	AS	U	AD	-	Poor	<25%	-
SAXON C	SC	16	Inhum	AS	F	YA	1.82	Good	>75%	Dental: Calculus. JD: Schmorl's nodes vert thoracic.
SAXON C	SC	17	Inhum	AS	U	CH	-	Poor	25-75%	Dental: Caries and calculus.
SAXON C	SC	18	Inhum	AS	F	AD	1.65	Moderate	25-75%	Dental: Caries, DEH, periodontal disease. JD: OA/Osteophytic lipping mandibular condyle and acetabulums.
SAXON C	SC	19	Inhum	AS	M	YOM	1.88	Good	>75%	Dental: Caries, abscess, DEH, periodontal disease, calculus. JD: OA vert lumbar and Schmorl's nodes. Periosteal reaction long bones - poss. leg ulcers?
SAXON C	SC	20	Inhum	AS	Sub Ad.	CH	-	Poor	25-75%	Dental: Calculus.
SHINEWATER	SW 2000.45	1	Inhum	BA?	U	AD	-	Poor	<25%	-
ST. ANNES	TELE EX	1	Inhum	AS	M?	MA	-		25-75%	Dental: Calculus, amtl. JD: Periosteal new bone

								Poor		growth right scapula, clavicle, ulna, radius.
WILLINGDON	WILLINGDON	47	Crem	R	U	AD	-	Poor	<25%	964g medium frags. Dark grey/whiteish - blue. 42xskull, 12xrib, 3xtib, 1xfem, 5xfib, 1xpubis, 1xmand, 10xhand, 4xfoot.
WILLINGDON ROAD	WR 49.19.1	1	Inhum	AS?	M?	AD	-	Poor	<25%	JD: Possible DISH in lumbar spine. Infection: Possible thickening of the skull.
WILLINGDON ROAD	WILLINGDON ROAD 49.19.2	2	Inhum	AS	M?	YOM	-	Poor	<25%	Dental: Calculus.

Age Key

Neo- Neonate (birth)
INF - Infant (1-6)
CH- Child (7-12)
ADO- Adolescent (13-17)
YA- Young Adult (18-25)
YOM- Young to Old Middle Adult (26-45)
MA- Mature Adult (46+)
AD- Adult (18-46+)
SA- Sub Adult (1-17)

Glossary

Inhumation - type of burial; articulated skeleton.
Cremation - type of burial; burnt bone.
Tumulus - type of burial monument.
Aetiology - the cause, or causes of a disease.
Osteophytic lipping - bone projections beyond the normal articulation margins.
Osteoarthritis - a type of degenerative joint disease.
Schmorl's nodes - a type of joint disease where protrusion or herniation of an intervertebral disc causes depressions in the surfaces of the vertebral bodies.
Diffuse idiopathic skeletal hyperostosis - a type of joint disease where vertebrae fuse together.
Periostitis - inflammation of the periosteum caused by trauma or infection causing abnormal bone growth.
Ossified haematoma - a swelling of blood within soft tissues (haematoma) affecting the bone.
Mastoiditis - infection of the mastoids.
Paget's disease - is a chronic bone abnormality.
Enthesophytes - bony projections at the sites of tendons or ligaments.
Exostosis - a bony outgrowth usually involving muscle or ligament tissues.
Fracture - a break in the bone during life.
Rheumatoid arthritis - a type of joint disease.
Atrophy - wasting of tissue or bone.
Unilateral malformation - an irregularity affecting one side of a bone.
Granulose osseous deposit - a grainy bony deposit
Blastic lesion - an area of pathologically altered tissue.
Osteomyelitis - inflammation and infection of the bone by bacteria.
Periosteum - thin tissue covering the outer surface of bone.
Spina bifida occulta - an opening in the spine.
Kyphosis - a malformation of the spine.
Spondylosis - a malformation of the spine.
Sacro-lumbarisation/lumbar-sacralisation - fusion of the sacral body to lumbar and reversed.
Cribra orbitalia - pitted lesions in the eye sockets.
Calculus/plaque - a deposit of calcified dental plaque on teeth.
Caries - tooth decay.
Ante-mortem tooth loss - loss of teeth during life.
Dental Enamel Hypoplasia - defects in dental enamel development.
Hypercementosis - excess cementum is present on a tooth root.
Peg tooth - irregular peg shaped tooth.
Bilaterally retained - present on two sides.
Heterotopic tooth - an extra tooth not located in the dental arcade.

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