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Contextualizing Bede's *Ecclesiastical History of the English People* with Bioarchaeological Data – Reassessing Anglo-Saxon Culture, Health, and Disease

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Both the limitations of paleopathological data and the lack of textual remains from early Anglo-Saxon Britain create difficulties when trying to interpret culture, disease, and health. Of the few complete texts from this period, the monk Bede—having written several treatises and chronicles that survived in various incarnations into the modern period—provides the most complete textual overview of this time. His works, however, possess several overlying biases that make careful and accurate analysis of his depictions of Anglo-Saxon life difficult without other complimentary evidentiary support. Bede's main focus is on ecclesiastical phenomenon; he writes long passages devoted to miracles, conversions, the founding of churches, and hagiographic tales with only passing mentions of diet, disease, and medico-cultural activities. By contextualizing Bede's *Historia* with concurrent bioarchaeological and paleopathological evidence, however, a more complete picture of typical mid-5th to mid-6th century Anglo-Saxon health and disease can be established.

Introduction: Why does Bede's *Historia* Require Reassessment?

The historian and archaeologist both encounter several problems when attempting to describe and analyze early Anglo-Saxon Britain for several reasons. The overall lack of written texts (Caenegem 1979), and the nature

of paleopathological evidence creates material-based limitations on what can be ascertained about this vital period in British history. Researchers are limited to only a handful of texts, and from them they must try and infer Anglo-Saxon culture and health. Additional difficulties are encountered by the very nature of those primary sources. Bede's *Historia Ecclesiastica* was written according to various hagiographic *topoi*, altering and reinterpreting events to fit into literary patterns, formulae, and structures. Due to these literary-based limitations, its veracity cannot be assumed. As a consequence, it is especially important to evaluate and contextualize conclusions drawn from such a work with other bodies of evidence.

Bede's *Historia* was written during his life as a Benedictine monk, living at the twin monasteries of Wearmouth and Jarrow (Colgrave, xxviii). In his *History*, he presents a version of chronologically ordered events from Roman Britannia to his death in 735 CE (Colgrave, xxix). His main purpose was to provide an account of the conversion and spread of Christianity throughout the various Anglo-Saxon kingdoms, as well as provide moral lessons on the dangers of heathenism and sin; while similarly illustrating the virtues of benefice and piety. As a consequence, historians, when interpreting Bede's work for depictions of Anglo-Saxon lifestyle, are limited to short and infrequent references.

Bioarchaeological evidence, although imperfect itself, does provide a new avenue of exploration, when combined with textual and material artifacts, in developing a fuller understanding of pre-Norman English society (Manchester 1990). Importantly, bioarchaeological evidence is free from the biases present in contemporaneous texts, and when critically interpreted, allows the historian to re-examine historical texts and make more precise interpretations (Prowsea et al. 2004). Recent interdisciplinary research in Southern Italy has demonstrated that the responsible integration of bioarchaeological data can allow the historian to extrapolate better inferences from texts (Perry 2007).

This does not mean that bioarchaeology is without any biases. Osteological data has to be interpreted with some qualification, as the paradoxical nature of the evidence itself presents an inherent bias (Roberts & Manchester 2001). One must question how accurately the exhumed portion of inhumations reflects the living culture at the time of interment; and also if that portion is a reliable statistical sampling of the entire burial site (Wood et al. 1992, Perry 2007). Even with these limitations, the information provided by site reports from Northeast and Central England provide enough information, when synthesized with contemporary historical texts, to allow better understanding of Anglo-Saxon society.

Methods and Limitations

Analysis of archaeological site reports provided the bulk of the data sets interpreted for this study. The six site reports taken into account were all active burial sites from 520 CE to 750 CE (Sherlock and Welch 1992, Boyle et al. 1998, Haughton and Powlesland 1999), with some additionally lasting into the ninth century (Cramp 2006). These sites represent the major Anglo-Saxon archaeological sites of Northeast England: Wearmouth, Jarrow, Norton, West Heslerton, and Butler's Field. Analysis consisted of data collection, statistical review, and critical assessment of the individual data sets recorded in each site's paleopathology report.

There are limitations that were taken into account in order to help minimize the impact of any sampling biases. Sex determination of degraded skeletal remains left more than two thirds of inhumations unsexed at West Heslerton (Haughton and Powlesland 1999), while male to female ratios showed large discrepancies and biases toward women at Butler's Field (Boyle et al. 1998) and towards men at both Wearmouth and Jarrow (Cramp 2006). Additional sampling biases were represented in the pronounced lack of infant skeletal remains and the limitations of current stature and age analysis (Perry 2007). To this extent, gender-related arguments have not been made except in cases where specific bioarchaeological data has shown a substantial sex-related divide.

There are also limitations placed on a study of this kind based on the parameters and practices of both historians and bioarchaeologists. Just as there is debate among paleopathologists about the significance of bony responses to prescribed diseases and stressors (Wapler et al. 2004), there are differences among historians about how to utilize textual sources. Historians may translate texts differently and/or derive their translations from competing manuscripts. Historians also must decipher texts while considering narratological constructs that are still the source of much discussion among the academic community (Berkhoffer 1995). Even so, these methodological limits still allow a considerable amount of interdisciplinary analysis to occur.

Results

Demographic Profile

The demographic evidence provided by site reports is fairly limited in its usefulness for several reasons. Bone degradation was fairly progressed

due to the acidic nature of the soil, the distribution and shallowness of some gravesites, and by the limited number of complete or even sexable inhumations (Haughton and Powlesland 1999, Cramp 2006). Where able, all site authors reported usage of the same techniques for sexing and ageing of the inhumations, which does limit the problem of cross-technique misinterpretation (Miller et al. 1996).

Sex was determined using both the assessment of the pelvic girdle (Bruce-Mitford 1974) and sexually dimorphic traits—typically either the femoral or humerus head and mandibular condyle (Haughton and Powlesland 1999). The severely degraded nature of the skeletal remains at West Heslerton, along with the lack of pelvises at Norton and Butler's Field (Haughton and Powlesland 1999, Boyle et al. 1998, Sherlock and Welch 1992) yielded unsexable inhumations in statistically large numbers as seen in Figure 1—enough to limit the effectiveness of demographic analysis based upon gender.

Age was assigned using the standard techniques of epiphyseal fusion and tooth eruption in juveniles (Lucy 1998), while adult ageing was derived from dental degradation (Hillson 1979). Adult ageing must be met with some skepticism because dental wear provides only a rough estimate of age (Cramp 2006).

At all sites except Wearmouth and Jarrow, there was a distinct lack of perinatal and infant skeletal remains, illustrated in Figure 2. There are several reasons that may explain the low number of inhumations from 0–2 years of age, but these will be considered later. The average age of death ranged from 28.4/28.5 for men and women, respectively at Norton (Sherlock and Welch 1992); to 41.5/40.7 at Jarrow (Cramp 2006), with the other sites evidencing median ages around the mid-30s for both male and females. For a more complete graph of this data see Figure 3.

Stature and Non-metric Traits

Stature was estimated by examination of long bone lengths and using these measurements in Trotter's regression formula (Trotter 1970), and the mean statures are represented in Table A. The statures of the inhumations were calculated from Trotter's own charts, which were derived from modern Caucasian and African-American skeletons, so they may not be entirely accurate (Lucy 1998, Sherlock and Welch 1992). Anglo-Saxons of both genders were taller than Roman, medieval, or early-modern populations (Roberts and Manchester 2001, 27).

The overall robustness of the inhumations was also assessed at Wearmouth, Jarrow, and Norton. While the skeletal inhumations at both Wearmouth and Jarrow showed evidence of a large stature with the attendant increase in muscular attachment (Cramp 2006), inhumations at Norton were not robust, but more gracile (Sherlock and Welch 1992). Several cases of *spina bifida occulta* were documented at Jarrow (Cramp 2006, 491), and at Butler's Field (Boyle et al. 1998, 48–52). Septal apertures, a non-metric genetically inherited trait, were also found in 47% of inhumations at Norton (Sherlock and Welch 1992).

Dentition and Dental Diseases

Dental health was generally good, as illustrated in Table B, however age played an important factor in the pronounced increase of ante-mortem tooth loss seen at Wearmouth and Jarrow (Cramp 2006). Sub-adults at all five sites had very low instances of tooth decay, calculus, and periodontal disease, while the opposite was true for those over 35 years of age. The increased cases of caries, calculus, and tooth loss were also accompanied by abscesses, some extending into the maxillary sinus (Boyle et al. 1998, 45).

Tooth wear, evident on both the canines and incisors, indicates a predominately edge to edge biting pattern (Haughton and Powlesland 1999). Enamel hypoplasia was also observed at all five sites, with the vast majority of all cases determined to have occurred between the ages of one and five (Sherlock and Welch 1992, Haughton and Powlesland 1999, Cramp 2006).

Skeletal Pathology

In keeping with assessed statistics, degenerative diseases were the most commonly attributed skeletal pathology at all sites. Osteophytic lipping of the lumbar vertebrae was seen in just over half of all middle-aged men and women at Norton (Sherlock and Welch 1992, 118), while degenerative spinal osteoarthritis was attributed to a fifth of all men at both Wearmouth and Jarrow (Cramp 2006, 493). These are reflective of the generally high rates of osteoarthritis in the adult inhumations at the other sites. Osteoarthritis was also seen to affect the ribs, hips, knees, ankles, feet, and shoulders of men more than women (Boyle et al. 1998, Cramp 2006).

Other degenerative diseases were also documented. A possible case of osteoporosis was cautiously prescribed at West Heslerton (Haughton and Powlesland 1999, 183), but the degree of difficulty in differentiating

osteoporosis from pseudopathological degradation (Roberts and Manchester 2001, 9) and the absence of radiography at the other sites makes this assertion questionable. Schmorl's nodes were seen very frequently at all sites, with a range from 4.2% at Wearmouth (Cramp 2006), to 35% at Norton (Sherlock and Welch 1992). The other sites exhibited findings closer to Norton, except Jarrow, which evidenced slightly higher incidences of Schmorl's nodes in the inhumations than Wearmouth (Cramp 2006). Schmorl's nodes also seemed sex-related as they affected three times more often than females (Sherlock and Welch 1992).

The presence of cribra orbitalia and porotic hyperostosis was also evidenced in the bioarchaeological record at all sites. Modern scholarship has placed doubt on the ability of cribra orbitalia by itself to be a differential diagnostic tool that points toward anemia, especially if no microscopic analysis is made—which is the case at all five sites (Wapler et al. 2004). The presence of cribra orbitalia was mainly diagnosed in children, usually accompanied by porotic hyperostosis (Haughton and Powlesland 1999), but some healed incidences were recorded at Butler's field, Wearmouth, and Jarrow (Cramp 2006, Boyle et al. 1998).

Several indicators of generalized infection were noted. The most common skeletal marker of prolonged or recurrent infection was periostitis. Ten adults evidenced periostitis at Butler's Field, with an additional sub-adult having the typical boney manifestations on his/her tibia and fibula (Boyle et al. 1998, 48). Both osteomyelitis and periostitis were frequently seen at Wearmouth and Jarrow (Cramp 2006), and in 8% of adult long bones at Norton (Sherlock and Welch 1992). Osteochondritis dissecans, typically found in sub-adult males, was also evidenced at most of the sites. Occurrence was higher than normally witnessed (Sherlock and Welch 1992), with around 5% of inhumations evidencing osteochondritis dissecans at any one site.

The evidence of trauma is important in understanding any population, especially when the evidence can be categorized as either aggression-linked or accidental (Manchester 1990, Lucy 1998, Roberts and Manchester 2001, 68–69). Fractures resulting from falls were the most commonly occurring accidental trauma recorded at all the sites. Most fractures were Colle's fractures, which are usually due to falling onto an outstretched arm (Cramp 2006). These fractures were present at Wearmouth, Jarrow, Norton, and West Heslerton, varying in degrees of severity from a simple fore-arm fracture (Cramp 2006, 497), to a complex and unhealed fracture at West Heslerton which indicated a fall from a greater height (Haughton and Powlesland 1999, 185). One adult male at Norton had a severe break of the right femur, resulting in poor bone reunion with the consequence that his left leg was five centimeters longer than his

right (Sherlock and Welch 1992, 119). Broken ribs and skull trauma are generally viewed as aggression-linked traumas, but one adult male appears to have sustained both, along with other fractures, resulting from a very steep fall (Boyle et al. 1998, 46).

Violent traumas were also documented in the skeletal markers. Three adult male skull fractures from Butler's Field evidenced delivery via sword edge (Boyle et al. 1998, 45), while a female adult experienced four perimortem cut marks to her skull vault at West Heslerton (Haughton and Powlesland 1999, 185). An adult male suffered a shallow depressed skull fracture, typical of blunt force trauma at Norton (Sherlock and Welch 1992, 119), while several cavity fractures were suggestive of aggression, including four rib fractures at Butler's Field (Boyle et al. 1998, 45–46) and one rib fracture, with an attendant unknown metallic object, at Jarrow (Cramp 2006, 498).

Neoplasms were only found on skeletal remains at West Heslerton and Wearmouth, both of which only contained benign osteoid-osteomas and osteochondromas (Haughton and Powlesland 1999, Cramp 2006). Given the findings from these sites, we can now integrate this information with Bede's writings in order to further explore contemporaneous Anglo-Saxon health and disease.

Discussion: Reassessing Bede's *Historia* with Bioarchaeology

Reassessing Depictions of Anglo-Saxon Infancy and Childhood in Bede's *Historia*

Bede describes several instances of early childhood life in his *Historia*, and one can use these brief mentions of domestic life to make further interpretations when paleopathological data is considered. Bede writes about the child-birthing process; "the queen had been safely delivered of child," (Bed. Hist. ii.9.6)[1] and that "he [the king] gave thanks to his gods [for the ease of the birth]" (Bed. Hist. ii.9.6). Bede's mentioning of the invocation of gods would suggest that such an easy birth was by no means the norm, and that the king was exceptionally lucky. The bioarchaeological record illuminates the birthing process even further. Despite the low number of perinatal inhumations uncovered at each site, several were found in context with their assumed mothers, suggestive of perinatal or postnatal mortality (Boyle et al. 1998).

1 Quotes from Bede's Ecclesiastica Historia will be cited by book, chapter, and paragraph in order to allow for other translations to be used in conjunction with this study.

In fact, the lack of infant skeletal remains is in itself puzzling. Possible explanations that cite archaeological methods include the difficulty in recognizing and sifting small bones (Haughton and Powlesland 1999), and sampling limitations based on the area of excavation (Sherlock and Welch 1992, Perry 2007). The small amount of infant skeletal remains can be inferred, however, from Bede's explanations of infant burials. Bede states, "other children of his were baptized…the first two snatched from this life while they were still wearing the chrisom and are therefore buried in the church[yard]" (Bed. Hist. ii.14.2). According to Bede's account of early Anglo-Christian customs, only those who were baptized received proper burial in a gravesite. This would have a tremendous impact on the ability of remains to withstand degradation because these burials were more likely to have less energy expended toward their graves—perhaps resulting in shallower graves, and may not be included within an acknowledged gravesite (Lucy 1998).

Anglo-Saxon Juvenile Illness and Anemia

Anglo-Saxon childhood often ended tragically early, usually from illness and disease (Manchester 1990). Although short-lived infections will not result in osteological responses, recurrent infections can leave traces on the skeletal remains such as those exhibited by tibial periostitis (Robert and Manchester 2001, 129–130). Bede mentions numerous cases of widespread childhood illnesses and fevers, such as: "there was a little boy…who had been greatly troubled with recurrent fevers," (Bed. Hist. iii.12.1), "the pestilence quickly followed," (Bed. Hist. iv.1.1), and "there was a boy, not more than three years of age…who was attacked by the plague" (Bed. Hist. iv.8.1). These depictions of childhood disease and the incidence of recurrent fever can be viewed as fairly accurate indicators of a common Anglo-Saxon childhood experience. The bioarchaeological data available reinforces the accuracy of his statements, as each site showed a large percentage of young childhood deaths and periostitis. Using the information that Bede writes regarding "recurrent fevers", which could be etiological sources of periostitis, one can see how the typical Anglo-Saxon childhood was fraught with disease.

Additional evidence of anemia, with the corresponding skeletal markers of cribra orbitalia and porotic hyperostosis (Roberts and Manchester 2001, 165) were present at all the Anglo-Saxon sites. This bioarchaeological evidence allows one to extrapolated further inferences from Bede's retelling of a "famine assail[ing] the populace and pitilessly destroy[ing] them" (Bed. Hist. iv.13.3). Bede recalls the story of a boy who—as a result of starvation—cannot recover from an illness and dies (Bed. Hist. iv.14.4–5);

both stressors would have left some paleopathological evidence in the wider population experiencing such a famine, either in the form of enamel hypoplasia (Hillson 1979) or with anemic skeletal markers (Roberts and Manchester 2001, 169).

Anglo-Saxon Juvenile and Sub-Adult Recovery

The picture is not all grim, however, as despite the high incidence of childhood mortality, there are also strong indicators of communal support for the susceptible, both in the paleopathological site evidence, and in Bede's *Historia.* Bede makes use of blind, lame, or severely ill children (Bed. Hist. i.18.1) in the retelling of miracles because—one can infer—that these conditions were common enough within the general population to secure the intended emotive response and interest. In order for his miracles to be as effective as possible in teaching the benefits of Christianity to the Anglo-Saxon audience, he would have to use conditions that were readily exampled in the living population.

The care shown these children, which is evident in their survival past infancy, is reflected in the bioarchaeological record. The survival of two adults at Butler's Field suffering from *spina bifida occulta* (Boyle et al. 1998, 44), a congenital disease which would have made childhood extremely dangerous and survival past infancy rare (Roberts and Manchester 2001, 36), helps reinforce Bede's depiction of a caring Anglo-Saxon community. Further suggestive evidence is found with an adult who survived a usually lethal compound fracture of the right femur at Norton and would probably have been completely unable to walk (Sherlock and Welch 1992, 119), and with a severe case of mobility-limiting spinal fusion evidenced in a sub-adult at Wearmouth (Cramp 2006, 493–4).

Reassessing Depictions of Anglo-Saxon Adulthood in Bede's *Historia*

Adulthood, as presented in both Bede's *Historia* and in the bioarchaeological record, was physically demanding and dangerous. By contextualizing Bede's own writings on adults with relevant data, historians can provide a more nuanced understanding of the trials and tribulations that constituted Anglo-Saxon adulthood.

Adult Stature and Diet

The Anglo-Saxons, which Bede labels "tall and handsome" (Bed. Hist. iii.14.4) and "powerful"[2] (Bed. Hist. i.15.2) were indeed so, as seen in Table A. The mean height at each site was considerably taller than either their medieval or modern contemporaries (Lucy 1998, Sherlock and Welsh 1992, Cramp 2006). The greater robustness of Anglo-Saxon remains compared to Roman remains was detailed at each site except Norton (Sherlock and Welsh 1992), which reiterates Bede's depiction of Anglo-Saxons as tough and physically robust.

This overall heartiness was also exhibited in Anglo-Saxon teeth. Carious tooth rates were incredibly low, demonstrated in Table B, and ante-mortem tooth loss was also negligible when the more elderly populations of Wearmouth and Jarrow are taken into account (Cramp 2006). Dental health is very useful in determining both diet and disease factors (Hillson 1979, Prowsea 2004). The low rate of caries most likely reflects diet—with an increased intake of fluorine or fluorine-rich foods. Bede sheds some light on the situation when he describes Britain as "remarkable too for its rivers, which abound in fish, particularly salmon and eels," (Bed. Hist. i.1.1) and in his depictions of Anglo-Saxon eel-fishing and sea fishing (Bed. Hist. iv.13.3). Both eels and freshwater fish are good sources of fluorine (Prowsea 2004), which contributes to the prevention of caries and periodontal disease and may help explain the very low rates of tooth disease experienced in Anglo-Saxon England.

The Skeletal Manifestations of Work and Warfare

A heavy daily workload is suggested by the work-related bony manifestations of Anglo-Saxon adult inhumations. Bede refers to labor often in his *Historia*, describing "[an] island rich in crops," (Bed. Hist. i.1.1) and where "a [man] carrying an axe and an adze," (Bed. Hist. iv.3.2) was common. Bede gives an interesting anecdote which describes the desertion of several Irish monks from a monastery at harvest time due to the strenuous nature of the work (Bed. Hist. iv.4.1). Whether this story is true or not is tangential to its point that working the land was very difficult. Osteological evidence further addresses this issue. At each site analyzed, work-related stress fractures and osteological markers were commonplace—especially in the male populations. Although sex has been left out of this study due to the overall lack of sexed inhumations at all the

2 The Latin Bede uses is fairly ambiguous in this case. 'Fortioribus' can also be taken as strong, manful, resilient, hardy, and big, all of which do reinforce my position as a qualifier to the robustness of typical Anglo-Saxon adults.

Anglo-Saxon sites, the presence of a significant bimodal disparity between the male and female fracture rate at all sites, combined with the complete absence of any mention of women active in field work in Bede's *Historia*, one can fairly convincingly conclude that the dangerous field work was primarily carried out by Anglo-Saxon males. The particularly high incidences of Schmorl's nodes, osteochondritis dissecans, osteomyelitis, periostitis, and osteoarthritis of the shoulders, lower lumbar vertebrae, hips, knees, and feet in the male skeletal records at each site (Sherlock and Welch 1992, 118, Boyle et al. 1998, 48–52, Haughton and Powlesland 1999, 183, Cramp 2006, 503–545) all suggest both a strong division of labor between women and men, and that work started in late adolescence and was both physically demanding and stressful (Roberts and Manchester 2001, 109).

The amount of accident-related fractures is also suggestive of a strong sex-determined division of labor. Bede makes mention of a male horse-rider who, upon falling from his mount laments, "so my thumb was broken and my skull fractured, and, as I said, I lay like a corpse," (Bed. Hist. v.6.2). The paleopathological record contextualizes this incident further. Only one women was found to have a fracture, and that was a simple Colle's fracture which probably resulted from a fall (Cramp 2006, 497). Men, on the other hand, suffered from fractures of the femur, metacarpals, ulna, radius, clavicle, ribs, and pelvis (Sherlock and Welch 1992, 119, Boyle et al 1998, 48–52, Haughton and Powlesland 1999, 185, Cramp 2006, 503–545) as probable results of their increased risks from heavy manual labor and/or horseback-riding.

The constant warfare Bede relates in his *Historia* is also well represented in the paleopathological record. Bede mentions that periods of peace were often short-lived and "truth and justice were so utterly destroyed and abandoned" (Bed. Hist. i.22.1) that warfare seemed almost endemic to the British Isles. The ascension of kings brought about more infighting (Bed. Hist. i.34.1), death, intrigue, and warfare (Bed. Hist. iv.21.1), and the battles are well-recorded in the archaeological data. Fractures of probable violent etiology were witnessed in male populations at all sites, with the smallest number occurring at the relatively isolated community at Norton (Sherlock and Welch 1992). Violence was pervasive, as probably was its attendants; disease and famine and evidence of each of these phenomena is present at each site as well.

Reassessing Depictions of Old Age in Bede's *Historia*

Very few Anglo-Saxons managed to live into 'old age' according to both Bede and the paleopathological evidence. Old age itself is something of a

misnomer, as it merely meant living into and beyond one's 30s in contemporary Anglo-Saxon society. If one managed not to succumb to disease or death by warfare and pillage—then one had a chance to live well into one's 40s or 50s, even beyond. Demographic data is often difficult to interpret because of the physical limitations caused by the deterioration of osteological materials and the imprecise nature of ageing from dental wear (Haughton and Powlesland 1999, Roberts and Manchester 2001), but fairly reliable generalizations can be made of trends within a demographic population with some critical qualifications (Buzon et al. 2005).

Average Lifespan and Demographic Differences

As can be seen in Figure 2, Wearmouth and Jarrow evidenced a longer average lifespan than any of the other sites (Cramp 2006), while Norton evidenced a notably younger population than either Butler's Field or West Heslerton (Sherlock and Welsh 1992). Bede illustrates the problems that monastical burials can lend to demographic interpretations by relating how several brothers were greatly aged (Bed. Hist. iii.27.3), some even "the age of ninety," (Bed. Hist. iii.27.4). Wealth and institutionalization did not always extend lifespan outside of monasteries—where warfare and disease were more commonplace. Bede illustrates this point when he recalls the death of Osred at age seventeen (Bed. Hist. v.18.1), as the unfortunate prince and king was unable to fully recover from a battery of wars and illnesses (Bed. Hist. v.18.1–19.2).

Bede provides the paleopathologist some good explanations for the demographic differences between sites. Wearmouth and Jarrow probably demonstrate such an elderly population because of the influx of older monks and clergymen who would not have been exposed to hard field work or battle, and who had, as Bede wrote: "doctor(s) (who) could set up and bind (a) fractured skull" (Bed. Hist. v.6.3). Norton, conversely, was probably one of the isolated communities that because of poverty and warfare, was not able to fully interact with other agrarian communities and reach their full potential, suggested by their overall poor health, low birth rate, and inbred population (Sherlock and Welch 1992).

Neoplastic Diseases

Neoplasm and osteoporosis, which occur primarily in elderly sections of a given population (Roberts and Manchester 2001, 193), naturally then occurred in the skeletal records of the elderly at Wearmouth, Jarrow, and West Heslerton. Why would these cancers be apparent at these three sites, but not the others? Bede provides several anecdotes that help provide a

possible solution. He tells of a young man "whose brow was disfigured by an unsightly tumor… and suffered from this affliction for a long time," (Bed. Hist. iv.32.1), of a nun who "had a very large tumor beneath her jaw," (Bed. Hist. iv.19.4), and of two nuns, one "afflicted with a most serious bodily disease for nine years was sorely tired," (Bed. Hist. iv.9.1) and the other "so disabled [(by aching] that she could not move a single limb" (Bed. Hist. iv.9.2). Each case presents itself as either a neoplastic or osteoporotic/arthritic case which could be reflected in the osteological evidence. Each occurs at a nunnery or monastery, or is associated with an ecclesiastical building, of which Wearmouth, Jarrow, and West Heslerton all had at least one (Boyle et al. 1998, Cramp 2006). These incidences are likely the result of the extended lives of ecclesiastics. Ecclesiastical men and women typically lived longer lives than their lay counterparts, so an increase in the presence of age-related neoplasm is to be expected.

Conclusion: Is Bioarchaeological Data Helpful in Analyzing Primary Texts?

There are several qualifications that must be made if one is to use historical texts and bioarchaeological data to make medico-historiographic arguments. Owing to the limitations of osteoarchaeology, one cannot make precise remarks concerning the degree of short-term infections, demographic profiles, and that the dead of a given period are in fact representational of their living contemporaries—after all—people do not die because they are a part of the healthy majority (Perry 2007, Wood et al. 1992). Historical texts also need to be critically evaluated and qualified. The quality of the work, its authenticity, biases, and intended purpose can all make accurate and responsible interpretation both difficult and unfruitful (Perry 2007).

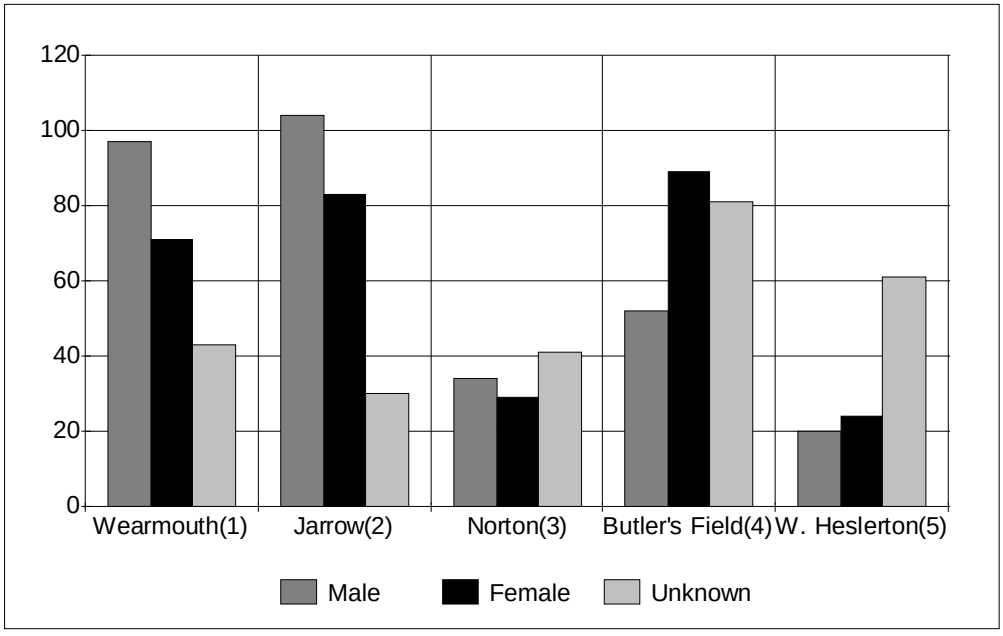
What then, can be said for using Bede's *Historia Ecclesiastica* with salient paleopathological site reports? As a historian, the need to extrapolate subtle nuances from tangential textual comments is common, but this approach is decidedly foreign to hard sciences such as paleopathology and forensics (Perry 2007). The responsible combining of close historical reading with critical evaluations of scientific evidence can provide valuable intersections where discourse and discovery can be made. The result is not the discovery of complete and unequivocal answers, but rather the enrichment of arguments based on inferences or limited data sets. By allowing one to provide fuller and more distinct solutions to historiographic questions, one can reach far better conclusions.

Bioarchaeology has several impacts on the study of Anglo-Saxon history in post-Roman Britain. The information provided by Bede is both extremely

limited and subject to *topoi* and the limitations inherent in any historical document over 1,300 year old. It would be foolish as a historian to make arguments pertaining to health and lifestyle from such a limited textual source, but without approaching the field of bioarchaeology few advances could be made in the reconstruction of historical health. The analysis of site reports from cemeteries active during 'the age of Bede' is crucial in making meaningful arguments about Anglo-Saxon infancy, youth, diet, stature, trauma, warfare, violence, sex, gender, religion, and even death. Further research and integration of both these fields can only serve to illuminate these areas better for future analysis of Anglo-Saxon health, culture, society, and death.

Tables & Figures

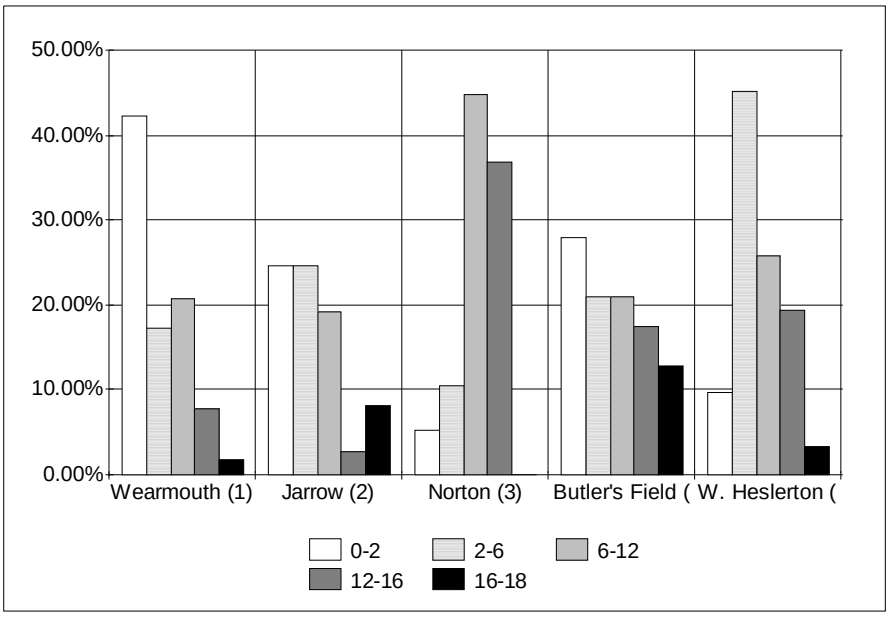
Figure 1 : Adult Sex Distribution



Number of sexed and unsexed inhumations at each site. Data obtained from: (1)(2): (Cramp, R., (2006) *Wearmouth and Jarrow Monastic Sites*, Volume 2 English Heritage: Swindon, UK, 502-545), (3): (Sherlock, S.J., and Welch, M.G. (1992) An Anglo-Saxon cemetery at Norton,

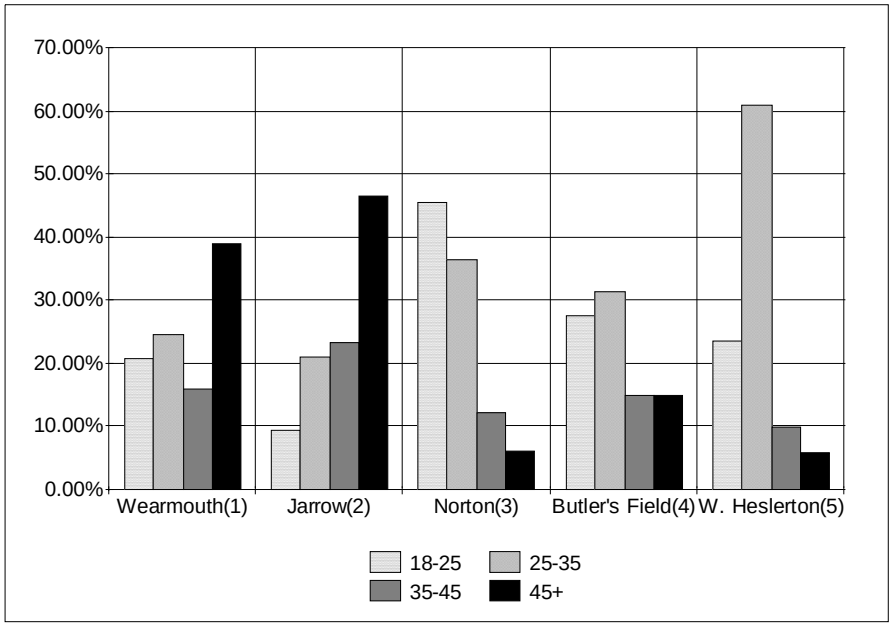
Cleveland, *Council for British Archaeology Research Report*, 82: 107-120), (4): (Boyle, A., Jennings, D., Miles, D., and Palmer, S. (1998) The Anglo-Saxon Cemetery at Butler's Field, Lechdale, Gloucestershire, *Thames Valley Landscape Monograph*, 10: 43-52), (5): (Powlesland, D., and Haughton, C., West Heslerton, (1999) the Anglian cemetery: the excavation and discussion of the evidence, *Landscape Research Center Archaeological Monograph Series*, 1(1): 172-188).

Figure 2: Juvenile Death Rates of Aged Inhumations



Percentage of total infant, juvenile, and sub-adult deaths broken down into five age categories. Data obtained from: (1)(2): (Cramp, R., (2006) *Wearmouth and Jarrow Monastic Sites*, Volume 2 English Heritage: Swindon, UK, 502-545), (3): (Sherlock, S.J., and Welch, M.G. (1992) An Anglo-Saxon cemetery at Norton, Cleveland, *Council for British Archaeology Research Report*, 82: 107-120), (4): (Boyle, A., Jennings, D., Miles, D., and Palmer, S. (1998) The Anglo-Saxon Cemetery at Butler's Field, Lechdale, Gloucestershire, *Thames Valley Landscape Monograph*, 10: 43-52), (5): (Powlesland, D., and Haughton, C., West Heslerton, (1999) the Anglian cemetery: the excavation and discussion of the evidence, *Landscape Research Center Archaeological Monograph Series*, 1(1): 172-188).

Figure 3: Adult Death Rates of Aged Inhumations



Percentage of total adult deaths broken down into four age categories. Data obtained from: (1)(2): (Cramp, R., (2006) *Wearmouth and Jarrow Monastic Sites*, Volume 2 English Heritage: Swindon, UK, 502-545), (3): (Sherlock, S.J., and Welch, M.G. (1992) An Anglo-Saxon cemetery at Norton, Cleveland, *Council for British Archaeology Research Report*, 82: 107-120), (4): (Boyle, A., Jennings, D., Miles, D., and Palmer, S. (1998) The Anglo-Saxon Cemetery at Butler's Field, Lechdale, Gloucestershire, *Thames Valley Landscape Monograph*, 10: 43-52), (5): (Powlesland, D., and Haughton, C., West Heslerton, (1999) the Anglian cemetery: the excavation and discussion of the evidence, *Landscape Research Center Archaeological Monograph Series*, 1(1): 172-188).

Table A: Mean Anglo-Saxon Stature

Site	*Male (mean)*	*Female (mean)*
West Heslerton[1]	**173.7cm**	**160.0cm**
Norton[2]	**173.5cm**	**164.1cm**
Butler's Field[3]	**170.0cm**	**161.1cm**
Wearmouth[4]	**171.9cm**	**159.5cm**
Jarrow[4]	**171.0cm**	**159.1cm**

Average Trotter-derived stature from long bones found at each site. Data obtained from: (1): (Powlesland, D., and Haughton, C., West Heslerton, (1999) the Anglian cemetery: the

excavation and discussion of the evidence, *Landscape Research Center Archaeological Monograph Series*, 1(1): 172-188). (2): (Sherlock, S.J., and Welch, M.G. (1992) An Anglo-Saxon cemetery at Norton, Cleveland, *Council for British Archaeology Research Report*, 82: 107-120), (3): (Boyle, A., Jennings, D., Miles, D., and Palmer, S. (1998) The Anglo-Saxon Cemetery at Butler's Field, Lechdale, Gloucestershire, *Thames Valley Landscape Monograph*, 10: 43-52) (4): (Cramp, R., (2006) *Wearmouth and Jarrow Monastic Sites*, Volume 2 English Heritage: Swindon, UK, 502-545).

Table B: Anglo-Saxon Dental Markers

Site	Caries	Ante-Mortem Tooth Loss
West Heslerton[1]	**2.44%**	**1.2%**
Norton[2]	**3.4%**	**4.1%**
Butler's Field	**-**	**-**
Wearmouth[3]	**0.8%**	**7.3%**
Jarrow[3]	**0.95%**	**4.0%**

Percentage of carious teeth and ante-mortem tooth loss exhibited at each site. Data obtained from: (1): (Powlesland, D., and Haughton, C., West Heslerton, (1999) the Anglian cemetery: the excavation and discussion of the evidence, *Landscape Research Center Archaeological Monograph Series*, 1(1): 172-188). (2): (Sherlock, S.J., and Welch, M.G. (1992) An Anglo-Saxon cemetery at Norton, Cleveland, *Council for British Archaeology Research Report*, 82: 107-120), (3): (Cramp, R., (2006) *Wearmouth and Jarrow Monastic Sites*, Volume 2 English Heritage: Swindon, UK, 502-545).

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