Embodied Identities in Roman Britain: A Bioarchaeological Approach

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ABSTRACT

Human skeletal remains from Roman Britain are abundant and provide a rich repository of social as well as biological information concerning health, migration, diet, and body/society interactions. At present, skeletal remains tend to be marginalised in studies of Roman trade, the military, economy, urbanisation, and so forth, and yet they have huge potential to contribute to current debates. This chapter aims to highlight the potential of bioarchaeological analysis for understanding aspects of social identity in Roman Britain through the use of a more integrated, theoretical approach towards embodied interactions. It encourages future collaborative scholarship between bioarchaeologists, archaeologists and historians. The social determinants of health and identity will vary greatly between regions and the only way of establishing the diversity of life across the Roman Empire is through the instigation of a more comprehensive, large-scale, integrated study of funerary and skeletal assemblages.

Keywords: Roman; bioarchaeology; life course; ethnicity; status; biomolecular; skeleton

INTRODUCTION

Mortuary evidence has played a central role in the reconstruction of Roman lives: it provides a unique archaeological link between the physical remains of an individual and the culturally constructed burial environment.[1] While artefactual materials from burials have been the subject of extensive and fruitful analyses, human skeletal remains provide a still largely untapped archaeological resource for understanding the social forces shaping population health and demography in the Roman world. During a person's lifetime, the biological tissues of the body, including the skeleton, respond to the social as well as physical environment in a dynamic way, thus providing insights into 'local biologies'[2] and regional patterns of morbidity and mortality. Living in Roman Britain was an embodied experience: the local living environment, travel, diet, activity, social status, gender, and so forth, were sensed, performed and mediated through the physical body, thus leaving tangible traces in the bones and teeth. The role of the bioarchaeologist is to tease out and interpret this evidence in relation to contextual information for the period. When fully integrated with historical and archaeological materials these data can provide unprecedented insights into life and death in Roman Britain. Methodological and theoretical innovations in bioarchaeology over the last two decades have provided novel ways of addressing questions about the past; for example biographical data is being derived from stable isotope studies, while genomic analysis can now reveal aspects of physical appearance (see below and Redfern *et al*. this volume). For many classical and Roman archaeologists, however, human skeletal remains are considered little more than an interesting footnote. It is therefore important that this source of evidence is more thoroughly integrated into 'mainstream' research on the Roman world. Collaborative enterprises between bioarchaeologists and Romanists are vital for ensuring that the value of skeletal remains for understanding past social worlds becomes more fully realised. This special edition of Britannia aims to go some way towards achieving this by highlighting the latest bioarchaeological developments and their applicability to Romano-British contexts. This volume also calls for a bioarchaeology of the Roman World that is more closely engaged with theoretical understandings of the body and society. The aim of this introductory chapter is two-fold: firstly to provide a critical synthesis of current work in order to contextualise the following bioarchaeological contributions; secondly to set out a future research agenda for an integrated, theoretically engaged Roman bioarchaeology.

BIOARCHAEOLOGY AND SOCIAL THEORY

Until the 1990s 'the body' as a physiological entity was neglected within archaeology, as well as the broader social sciences. The 'biological' aspects of the body were considered the preserve of those engaged with scientific discourses (such as bioarchaeology), while studies of social identity viewed the physical body as a largely passive 'absent presence'.[3] With the pioneering work of sociologists such as Turner[4] and Shilling,[5] as well as authors such as Lock,[6] Scheper-Hughes[7] and Krieger,[8] the dialectical relationship between the physical and social body became a fresh focus of study.

Within archaeology, the embodiment of identity has been fruitfully explored by authors such as Meskell,[9] Joyce,[10] Geller[11] and Sofaer.[12] While the physical remains of the body have long been exploited by bioarchaeologists as an essential source of data for reconstructing past lifeways, the more explicit theorisation of the skeleton as the physiological embodiment of social processes has only been developed comparatively recently.[13] This approach has now gained considerable traction, particularly in the United States where bioarchaeology is a prominent field of study (e.g. Springer book series *Bioarchaeology and Social Theory*).

This introductory chapter encourages a body-centred approach to the study of social interactions and identities in Roman Britain. It is structured around the four primary social categorisations of gender, age, ethnicity and social status, which are all themes encountered within the bioarchaeological contributions to this volume. For the purposes of discourse and analysis, individual and group identity is often fractured into these four key categories. In actuality, these multiple facets act synchronously so that, for example, the experience of gender within any one society will also be dependent upon social class, ethnicity and life course stage.[14] Of course, in everyday life a whole spectrum of additional social imperatives (e.g. religion, impairment, etc.) are enacted.[15] This chapter will focus on inhumation evidence, but it should be acknowledged that technological innovations are now unlocking the potential of burned bone.[16] This is particularly important given the dominance of cremation during the earlier part of Roman occupation in the first and second centuries and in the North of the province.[17] The methodological problems and potentials concerning to the construction of an osteological profile will be discussed in relation to embodied identities and the concept of 'local biologies' in Roman Britain.

SEX, GENDER AND THE SKELETON IN ROMAN BRITAIN

The distinction drawn between sex as a biological feature and gender as the cultural interpretation of biological differences has been extremely influential in archaeology. Masculinity and femininity are no longer considered to be fixed biological givens, but rather historical and cultural constructions.[18] This distinction also maps conveniently well onto the cemetery context: the skeleton is considered representative of biological sex, and the burial style (grave goods, etc.) indicative of gender. A consequence of this division, however, is that the ahistorical condition of the human skeleton is left largely unchallenged.[19] The relationship between biological sex and gender is complex and culturally situated.[20] The skeleton is never fully 'biological' in terms of sex due to way in which society constructs gendered difference and the impact that this has on bone physiology.[21] As Fausto-Sterling states: 'One cannot easily separate bone biology from the experience of individuals growing, living and dying in particular cultures and historical periods and under different regimens of social gender'.[22] For example, male and female infants may receive different treatment in terms of care and diet from birth onwards due to their perceived cultural value, thus exposing them to differential risks of nutritional deficiencies and infectious diseases that may impact upon growth, stature, morbidity and mortality in later life.[23] Several authors have described ways in which the skeleton becomes 'gendered' and 'imprinted' by the culturally constructed roles ascribed to different sexes.[24] Sofaer[25] argues that the skeleton can be likened to material culture in that it is shaped and moulded by gendered practices. She provides the example of activity-related differences in patterns of joint disease between the sexes on the Isle of Ensay.[26]

In terms of Roman Britain, several studies have analysed sex-related differences in the bioarchaeological evidence with the aim of studying gendered practices.[27] Powell's[28] unpublished Masters thesis analysed skeletal trauma from 13 Romano-British cemetery sites and found that patterns of trauma in males (fracture prevalence and affected bones) differed depending on the site type (e.g. small town, rural, etc,), while the female pattern remained consistent across site types. Powell argued that these results concur with Allason-Jones'[29] hypothesis that the only substantial changes that urbanisation made to the lives of females would have been social, rather than occupational. By contrast, in males, activity-related differences between site types were also present, resulting in different fracture patterns and risks (e.g. statistically higher fracture rates in rural locales than small towns and *colonia*). Gilmour and colleagues[30] also noted differences in the causes of fractures between males and females at the site of *Aquincum*, Hungary, which she relates to gendered activity-related risks. Redfern and DeWitte's analysis of skeletal indicators of poor health in a large sample of Iron Age and Roman skeletons from Dorset noted differential mortality risks during Roman occupation that were related to gender and age.

It is important to note that the 'gendering' of the skeleton also occurs in ways that are non-pathological in origin.[31] A range of genetic and environmental factors, including cultural practices such as diet and activities, affect the character and extent of sexual dimorphism between different skeletal samples. For example, sexual dimorphism at the late Roman cemetery of Lankhills, Winchester, is markedly different to that observed between male and female skeletons at the nearby fifth- to sixth-century site of Worthy Park, Kingsworthy. Characteristics viewed as masculine in one would be considered feminine in the other.[32] It is certainly worth exploring these differences further using geometric morphometric techniques, which allow a more objective measure of variation in sex-associated features.[33] Once this has been quantified it would then be possible to explore the underlying causes.

Stable isotope evidence has also proven a useful tool for exploring gendered behaviour in terms of mobility and diet in the Roman World.[34] Such studies have highlighted the degree to which woman and children, as well as adult males, were mobile across the Empire. While epigraphic evidence had previously established this,[35] the bioarchaeological data is more inclusive (i.e. no elite bias) and allows a greater understanding of the true extent of mobility. Dietary change at different stages of the life course have also been noted for sites in Roman Britain as well as Roman Italy.[36] For example, young children and adolescents from *Londinium* had different diets to adults and gendered differences were also evident.[37] This research highlights the fluidity of gendered identity and access to resources over the life course.

Finally, Redfern's contribution to this volume discusses a particularly intriguing burial from the Harper Road site in London, dating to the first century. This burial has an array of unusual high-status grave goods considered to be indicative of a feminine identity and which also aligns with the osteological assessment of a female. Yet the ancient DNA analysis revealed that the individual was in fact a male. We have a tendency to assume that sexually dimorphic features are polarised and this is reinforced by our use of language (e.g. robust, rugged = male, gracile, fine = female). In reality, almost all biological features – including genetic, hormonal and skeletal – are on a continuum from hyper-feminine to hyper-masculine, with much blurring and overlap. This does not mean that our techniques are poorly suited to the task at hand, but just points to the socially constructed nature of biological as well as social norms surrounding sex, gender and the body.

Bioarchaeological evidence can provide a greater understanding of the ways in which societies shape the bodies of males and females differently, from the molecular to the macro level. It can provide a crucial window into the variability of gendered physiologies in relation to a vast array of different cultural practices and beliefs about sex and the body. Such studies have the potential to inform contemporary debates regarding the construction of gendered bodies in the present, as well as those past societies.

AGEING AND THE LIFE COURSE

There has been an increasing focus on the life course within archaeology over the last few decades, with a particular emphasis on the fluidity of identity from conception to old age.[38] A number of studies of the Roman World have sought to examine constructions and perceptions of different life course stages using funerary evidence. Epigraphic and artefactual studies have demonstrated that males and females experienced different life course trajectories, symbolised in clearly demarcated dress and funerary ritual for different age groups.[39] For example, the term 'biological age' is often used to denote either the developmental or degenerative condition of the human skeleton, which is then translated into a 'chronological age' as a more standardised unit of analysis. While ageing is often conceptualised as a biological process, the body does not develop and degenerate according to a predetermined genetic clock; it is profoundly affected by cultural practices, including diet and activity.[40] Much of the research on age within bioarchaeology has focussed on improving methodological techniques.[41] Since the 1990s, however, age as a fundamental aspect of social identity has gained considerable research traction within archaeology.[42] Bioarchaeological remains are an exceptionally rich source of data for life course studies: the skeleton is not simply a snapshot of an individual at the time of death, it has temporal resolution because different dental and skeletal tissues form at different ages. For example, depending on the type of tooth or bone analysed, the age at which a child was weaned, along with diet and mobility at different life course stages, episodes of trauma and disease, can all be accessed. These hard tissues therefore have the potential to provide a series of mini-biographies which can then be stitched together to build a picture of an individual's life course.[43] This next section will draw together work on age identity in Roman Britain.

Infancy and Infanticide

Large numbers of infant burials have been excavated from Roman Britain, particularly from rural sites. These have been the focus of a number of studies, but have generally been dominated by discussions of infanticide and counter-arguments against this practice.[44] The study of past infancy, including infant care, breastfeeding and weaning practices, has tended to be marginalised within archaeology.[45] Infants are considered peripheral to more central questions concerning Roman economic and military matters. However, the importance of infant health for overall population well-being has been highlighted in a spate of clinical epidemiological studies conducted over the last three decades. This research has culminated in what is now known as the Developmental Origins of Health and Disease Hypothesis (DOHaD), which highlights the lifelong health risks incurred through poor maternal and infant well-being.[46] Given that infant health and care practices are now known to be pivotal to population mortality and morbidity, their skeletal remains can no longer be regarded as inconsequential.[47]

Maternal health is likewise often disregarded in discussions of perinatal and infant mortality, despite being vital to the offspring's chances of survival. Maternal health may be affected by culturally prescribed practices relating to pregnancy, such as a special diet, or extended periods of confinement. Infants with evidence of skeletal pathologies such as rickets and scurvy have been identified at a number of Romano-British sites.[48] In this edition of Britannia, Claire Hodson's detailed palaeopathological analysis of infants from the late Iron Age/ early Roman site of Piddington, Northamptonshire, reveals important insights into their health and that of their mothers. Such studies make a refreshing change from the consistent focus on infanticide and instead attempt a more contextualised examination of factors contributing to infant and maternal well-being. Cultural beliefs concerning gender identity, reproduction and the pregnant body have biological repercussions for the devleloping fetus.[49] Another exciting development in the analysis of perinatal remains relates to incremental isotope analysis of tooth dentine. Teeth begin to form *in utero* and at birth the crowns of the anterior teeth are approximately 60 per cent formed. Beaumont and colleagues[50] have been able to sample the dentine from these teeth and thus provide intra-uterine values, which relate to maternal diet and well-being. When integrated with the palaeopathological evidence, this provides new avenues of investigation for cultural understandings and practices surrounding motherhood and female health in the Roman world. Understanding the interplay between the body and society in the formation and conceptualisation of fetal and infant bodies is vital for interpretations of pathological evidence in the Roman Empire.

One final methodological development published this year provides a further tool to explore this crucial relationship. Booth[51] utilised micro-CT to study bio-erosion in infant bones; the decomposition of the infant skeleton is affected on a microscopic level by changes in the gut bacteria that occur after the first post-natal feed. Analysing the bio-erosion in infant bones can help differentiate between still-born infants and those who died after their first feed. The application of this technique to Roman Britain has the potential to contribute new information on patterns of perinatal mortality, which are strongly influenced by environmental and cultural factors.[52]

Perceptions of Childhood

The study of Roman childhood is a burgeoning field.[53] Current evidence for the perceptions of childhood in the Roman Empire has relied strongly on ancient literary sources, medical texts, epigraphic and monumental evidence.[54] These sources have provided valuable insights, but tend to be biased towards Mediterranean contexts. The potential for skeletal evidence to yield significant social information concerning Roman childhood is proving to be immense. Redfern[55] and Lewis[56] have analysed the health and disease of children from Roman Dorset revealing evidence of severe health stress in young children, likely linked to cultural, child-rearing practices. Powell and colleagues examined weaning practices in Roman London using stable isotope analysis and found a surprising degree of uniformity in infant feeding across sites here as well as elsewhere in Roman Britain.[57] The weaning timetable from Roman Britain was more prolonged than that identified in sites such as Isola Sacra,[58] suggesting regional practices, with impacts for health. In this edition of *Britannia*, Anna Rohnbogner’s contribution provides an important large-scale analysis of childhood health from across rural, small town and urban sites in Roman Britain. Her analysis demonstrates different patterns of child health that provide new information concerning broader topics such as rural economies, social status and slave labour.

As discussed previously, new techniques of bioarchaeological analysis are developing apace. One such method now allows age-at-puberty to be assessed from skeletal remains.[59] Arthur and colleagues[60] undertook the first independent application of these methods on adolescent skeletons from Roman Britain. The results demonstrated that age of menarche in ordinary Romano-British females was later than modern norms and indicated that females were unlikely to have been able to reproduce until their late teens. Likewise, the skeletons of males were still developing into their early 20s. These data correlate well with the burial evidence for Romano-British females, which suggest a marked change in social status from 18 years, possibly due to marriage or motherhood.[61] Skeletal evidence for males aligns with Galen’s assertion that male growth does not cease until the early to mid-20s. Such studies make important contributions to debates concerning ancient fertility, demography and marriage and highlight the benefits of integrating both skeletal and funerary evidence.

It is important that this skeletal information is integrated with isotopic evidence for fetal and infant health, childcare practices, childhood diet, mobility and physiological changes during pregnancy. Incremental isotope ratio analysis of dentine has demonstrated, for the first time, clear differences in the stable isotope values of those who died in childhood compared to adult survivors.[62] Tooth dentine retains childhood values and therefore provides an enduring archive of childhood even in people who died at an advanced age. This technique, therefore allows bioarchaeologists to ‘reach back’ and compare individuals during similar developmental stages (e.g. puberty) irrespective of the age at which they died. Previous studies of carbon and nitrogen in bone cannot do this, because bone continually remodels, thus erasing the early life record. When integrated with the skeletal evidence for growth and health, the impact of childhood nutrition, health and environment on adult morbidity and mortality can be observed over the course of a number of years of a person's life. These are new techniques and therefore the application of them to Roman period material is currently limited, but in future years they will undoubtedly provide new insights into Roman Britain.

Old Age

Experiences of growing old are greatly affected by the socio-cultural milieu, including family networks, communities of care and social constructions of the elderly. Old age has been a neglected topic within archaeology, in part due to the misconception that longevity was rare in the past,[63] but has become a fresh topic of focus over the last two decades. A number of important contributions by Classicists have discussed the variable constructions and cultural responses towards elderly individuals in the ancient world.[64] Much of this evidence is drawn from textual, epigraphic and iconographic sources, all of which are relatively sparse from Roman Britain. Here, however, funerary and skeletal evidence provide clear examples of the spatial marginalisation and even abuse (i.e. fractures associated with inter-personal violence) of elderly females.[65] Within the Roman world, family relationships were more often focussed on the nuclear, rather than extended family.[66] Women were more likely to marry men 10 years their senior and therefore to experience widowhood and potentially economic dependency in later life.[67] Factors such as frailty and impairment intersect with old age to create situations of dependency and burdens of care. Relationships of dependency and power imbalances are those which are more likely to become abusive.[68] It is also possible that some of these marginalised and abused elderly represent slaves who became frail or impaired and outlived their usefulness. The notion that elder members of past societies were uniformly treated with respect is not consistent with the evidence from Roman Britain.[69]

Further integrated research of the funerary and bioarchaeological evidence for the life course, from perinatal well-being through to old age, can highlight the shifting identities, social networks, activities and interactions with age.

ETHNICITY

Ethnic groupings today are derived from a variety of entangled biological and social constructs, including geographical origin, skin colour, religion, linguistic commonalities and a variety of other non-heredity factors.[70] As Gowland and Thompson discuss, the apparent intangibility of this construct is contrary to the biological resonance that 'ethnicity' has in everyday life. Cultural constructions of ethnicity are perceived as being far from ephemeral; instead they exert a powerful and often negative effect on the lives of individuals and groups.[71] Ethnicity has long been a prominent subject of interest amongst scholars of the Roman Empire, particularly those seeking to characterise its multicultural elements.[72] There is currently some tension between the characterisation of ethnicity as a social construct and the use of biological data to investigate it in the past. This next section will provide some clarity to these debates in relation to the evidence from Roman Britain.

There has been a recent resurgence in craniometric (skull measurements) analyses employed to determine 'ancestry' in Roman Britain. It is therefore worthwhile briefly exploring the theoretical and methodological underpinnings of such endeavours. 'Ancestry' is the term most commonly utilised in craniometric studies today, and is used to denote biological heritage, while at the same time distancing itself from the negative connotations of 'race'. 'Ancestry' can therefore be considered differentiated from 'ethnicity' in a similar way that sex is from gender. As with the sex/gender divide, the ancestry/ethnicity distinction is also an artifice because the social constructions of ethnic groups have biological ramifications (e.g. as a consequence of related social inequalities).[73]

It is important to acknowledge that craniometric attempts at 'racial' categorisations have a sinister history within the discipline of anthropology, associated with racism, slavery and eugenics. Racial categorisations in the seventeenth and eighteenth centuries were initially a descriptive, taxonomic enterprise.[74] These categorisations, however, came to be far from passive descriptors of physiological features[75] and instead served to legitimise past ideological frameworks that proclaimed the superiority of the white male.[76] The naturalisation of social injustice through the body is a political project, but similar links between physiognomy and cultural worth are still prevalent today.

While phenotypic similarities in cranial traits between broadly defined population groups exist, the possibility of harnessing these differences to address questions of ancestry can be problematic due to the specific combination of environment, culture, and genetic factors that contribute to an individual's physiology.[77] Consequently, current morphometric techniques, while more sophisticated than they once were and involving more complex statistical analyses, are not without their shortcomings.[78] Advocates argue that worldwide craniometric variation shows strong geographic patterning that allows assignations of 'affiliation' or 'ancestry'.[79] One criticism levelled, however, is that the reference samples used to generate affiliation probabilities are biased towards particular geographical areas and genetic groups. As a consequence, when used to infer ancestry on skeletal samples not adequately represented within the reference measurements, the method becomes unreliable.[80]

Returning to the Romano-British context, Leach and colleagues[81] analysed skulls from Roman York and this suggested the presence of a number of individuals with North African ancestry. One particularly rich and unusual female burial contained an ivory bangle from Africa as well as jet from Yorkshire. The female exhibited morphological cranio-facial features that hinted at a 'mixed' white/black ancestry. The isotopic analysis (see below) was quite marginal and could have been compatible with southern Britain as well as warmer climes such as the Mediterranean.[82] The integrated analysis of isotopic (see below), craniometric and archaeological evidence combined to make a compelling case that high-status females as well as slaves travelled across the Empire and highlighted the multicultural character of cities such as York. Another study by Redfern and colleagues[83] examined the craniometrics of individuals from Southwark, Roman London, again in conjunction with isotopic evidence, to investigate ancestry. Four of the 22 individuals analysed in this study appeared to be of African ancestry; this was supported by isotopic evidence, which suggested a childhood spent in a warmer climate than Roman Britain.

The movement of individuals and families across the Roman Empire is well attested, particularly in the epigraphic record.[84] Ascertaining the extent and nature of mobility and the ethnic composition of different towns and provinces is of great interest to archaeologists. Such inferences have traditionally been restricted to material culture evidence, particularly those associated with the funerary record.[85] Over more recent years, the utility of lead, strontium and oxygen isotopes for examining mobility in the Empire has been pioneered. Numerous applications of these techniques to Romano British data is revolutionising our interpretation of artefact/ethnic relationships.[86] Lead isotope studies have only recently been applied to Roman Britain,[87] but results have been promising. In addition to its value as an indicator of mobility, lead concentrations can also be used as a health indicator: consumption of this toxic metal during the Roman period occurred as a result of its use in cooking vessels, water pipes and other domestic articles. The integration of lead concentration data with palaeopathological evidence will be important for elucidating the relationship between putative lead consumption and health in the Roman Empire. It also allows consideration of the social effects of group exposure to toxic substances in contemporary Europe.

Information concerning migration is key to interpreting skeletal pathologies as well as population composition. This is because many health stress indicators recorded in adult skeletons (e.g. stature and dental enamel defects) relate to childhood health. This becomes problematic if an individual migrated, as a mismatch may exist between their childhood disease environment and their place of death, which could lead to erroneous conclusions. Gowland and Redfern[88] have highlighted the issue of migration and health when interpreting the apparent similarity in skeletal health stress prevalence between *Londinium* and Rome. In order to properly interpret palaeopathological data, and to better understand the population composition of both urban and rural locales, establishing mobility is crucial.

Additionally, it is likely that dietary isotope ratios express geographic variations due to the well-established link between diet and cultural identity, but also regional availability of food resources, trade and environmental factors (both natural and anthropogenic). A large-scale application of multiple isotope data across the Empire could have profound implications for future interpretations of population movement, expressions of identity and health. We should now seek to compare individuals from territories on the frontier regions of the Western Empire with more central zones, northern areas with Mediterranean regions, and rural versus urban sites. To date, there a far fewer studies isotopic studies from the Continent, but such studies are vital to interpretations.

Finally, with developments in ancient DNA analysis via Next Generation Sequencing, exciting new avenues of investigation are now possible regarding the cosmopolitan nature of the Empire and ethnic make-up of different regions. This is highlighted by a recent genomic study of nine individuals, including six of the famous 'Roman Gladiators', from Driffield Terrace, York.[89] Martiniano and colleagues found that five of the 'gladiators' had affinities with genomic data from Iron Age Britain, while one of them exhibited an exogenous genomic signal, indicating a Middle Eastern origin. This individual was independently identified as likely having come from this region in a concurrent analysis using stable isotopes. Redfern *et al*. (this volume) provide a detailed and integrated case study of individuals from Roman London that includes ancient DNA analysis, isotopic and funerary analyses, which further highlights the utility of this approach. At present, genomic studies are expensive and time-consuming and this precludes any large-scale studies, but it seems likely that as the technology advances further, this will become a more feasible proposition.

We need to be clear then: skeletal evidence alone cannot inform us about ethnic identity, but provides information concerning mobility or possibly ancestry.

Studies that integrate funerary, isotopic and genomic evidence are extremely valuable for highlighting the mobility of people in the Empire, but mobility and ethnicity are not the same thing. Ethnic groups may comprise geographically and phenotypically diverse individuals and thus it is crucial that interpretations continue to incorporate material culture analysis. Some of the complexity between previous interpretations of ethnicity based on material culture alone has been highlighted through isotopic studies, of Lankhills in Winchester[90] and will no doubt be explored in future isotopic research. While a wealth of studies have been conducted on Roman Britain, what is required now is more integrated research on sites elsewhere in the Roman Empire to provide a broader context and understanding of regional expressions of ethnicity.

HEALTH AND STATUS

The Roman world was strongly hierarchical and characterised by increased migration and urbanisation, all factors known to impact on morbidity and mortality. Socio-economic, environmental and cultural diversity will have resulted in marked differences in patterns of health and demography across the Empire. Traditionally, social status has been inferred from factors such as house structure and grave offerings, but status-related impacts on the skeleton provide an important additional strand of evidence. Within hierarchical societies, health varies across the social gradient, with those at the upper echelons experiencing better health than those at the lower levels.[91] With respect to the archaeological evidence, in theory, we would expect status differentials expressed through funerary display to correlate with the skeletal health of those interred. High status in the Roman Empire, however, has also been correlated with particular pathologies, such as increased caries (consumption of sweetened food) and rickets (due to sun avoidance and status-related child-care). Low status has been correlated with a higher prevalence of nutritional deficiencies (e.g. vitamin C) and shorter stature[92] (see Rohnbogner, this volume).

In current clinical research, there is an increasing emphasis on the significance of psycho-social stressors for health. The stigmatisation and exclusion of those at the very bottom of the social ladder is known to have particularly profound health consequences. This is an interesting consideration with respect to the Roman world. In Roman Britain, skeletal evidence reveals a reduction in adult height compared to the Iron Age period and a higher prevalence of skeletal indicators of poor health.[93] In the fifth and sixth centuries, stature then increases again and skeletal evidence for health stress reduces. A similar skeletal pattern has been observed in Roman period Italy.[94] Roman occupation of Britain is likely to have resulted in the imposition of an increasingly hierarchical structure onto the local population, exacerbating social inequalities and psycho-social stresses. Scheidel[95] likewise suggests that declining stature in Roman Gaul may be linked to an increase in population size and social inequality. The stress hormone cortisol is known to inhibit growth and this may be responsible for some of the link between psycho-social stress and reduced stature.[96] Modern data from living populations demonstrates a correlation between greater equality and taller adult stature.[97] Any such patterns are likely to be complicated by horizontal inequalities such as gender and ethnicity, nevertheless, we would expect to see broad patterns of pathologies correlating with social stratification (see Rohnbogner, this volume)

One may accumulate biological markers of disadvantage throughout one's life course; poor maternal environment, poor care and diet during infancy and childhood may result in poorer health outcomes later in life. Some interesting clinical studies have demonstrated that an individual does not simply embody the disadvantage that they are born into, but they carry forward the weight of inequalities endured by their ancestors because of the effects of environmental factors on gene expression. Social inequalities have the potential to alter key biological processes and through this mechanism become perpetuated across generations.[98] For example, it has been hypothesised that the low birth weight of African American infants compared to their European American counterparts (of equivalent social status) is a consequence of earlier generations of slavery. The inheritance of poor ancestral environmental conditions that have yet to be fully nullified by the present day social context.[99]

Previous bioarchaeological studies have examined the correlation between 'biological status' and 'social status',[100] though comparatively few from Roman contexts. One such study was undertaken on the site of Baldock, Hertfordshire which correlated skeletal indicators of health stress with grave offerings.[101] Socio-economic status is certainly a highly significant factor in terms of health, but has yet to be explored in detail in Roman Britain. We certainly need to be mindful of the context-specific nature of interpreting skeletal pathologies in relation to social status. Redfern highlights one such example in this volume; the wealthy burial of a child from Roman London with skeletal indicators of rickets. This condition forms as a consequence of vitamin D deficiency, usually due to a lack of sunlight. This condition was highly prevalent during the eighteenth and nineteenth centuries in Britain, particularly amongst the poor. During the Roman period, however, it could have been an indicator of high status child care (as it was during sixteenth-century Italy and England), due to cultural practices such as sun avoidance by wealthier pregnant women and children being kept indoors. In terms of a bioarchaeological approach, it seems most likely that children will hold the key to examining the impact of social hierarchies on population health in the Roman world, because their skeletons are the most sensitive to adverse circumstances. In this volume, Rohbogner demonstrates the benefits of this approach in her large-scale, multi-site study of childhood health.

CONCLUSIONS

The construction of identity within any society is complex, multi-dimensional, and above all body-mediated. During life, skeletal remains have the capacity to respond dynamically to the social fabric.[102] Facets of identity such as ethnicity and gender are now regarded as social rather than biological constructs, but because they affect the myriad of social interactions, they have clear and direct biological consequences.[103] These in turn will influence social identity. Human bones and teeth become a repository for the remnants of past social processes relating to different life course stages. As the chapters in this volume demonstrate, the study of human bones has great potential, but successful interpretation of Romano-British skeletal evidence relies on a nuanced approach to body/society interactions and full integration with the archaeological evidence. I will finish by setting out a bioarchaeological agenda for future research on the Roman Empire:

1) Skeletal techniques of analysis are developing apace, but many Romano-British cemetery studies were undertaken decades ago, meaning that results are now of limited value and difficult to compare across sites. Skeletal remains analysed pre-1990s should be revisited with the aim of applying new techniques and standardising analysis across sites. In a similar vein, due to the rapid advancement of techniques, I would caution against the current and alarming reburial trend in the UK with regard to Roman cemetery sites. Universities with bioarchaeology departments are often willing and able to curate and analyse such material, should local museum repositories be overstretched.[104]

2) In order to be able to understand and interpret bioarchaeological patterns, including growth, health, diet and mobility, in Roman Britain, an Empire-wide view is vital. Currently, there are thousands of Roman period skeletal remains languishing, un-analysed, in museums across Europe. A large-scale study of cemeteries from across the Roman Empire, including isotope analysis for mobility and diet, and pathological indicators of growth, infectious disease and generalised health stress, would allow for more informed, contextualised comparisons of local and regional ‘biologies’. For example, do frontier regions have differing levels of health stress (e.g. elevated trauma, metabolic disease) due to the possibility of heightened inter-group tensions and/or restricted access to resources? Are there differences in health between rural and urban communities as a consequence of differing socio-economic activities (see Rohnbogner, this volume)?

3) As the contributions to this volume demonstrate, the study of the Roman world would benefit greatly from an increased focus on the skeletal remains of infants and children. The Developmental Origins of Health and Disease hypothesis is highlighting the importance of early life adversity for adult disease risk. Maternal and infant health can no longer be considered a peripheral concern when the outcomes for mortality and morbidity are so enduring. New skeletal parameters for assessing infant growth and health have been developed over recent years and these, when successfully integrated with high resolution isotope analysis, provide a vital window into socially-induced fluctuations in overall population well-being across the Empire.

4) While Roman funerary evidence has often been characterised as uniform and undifferentiated, subtle variation exists in body position, grave good type and placement, alongside more extreme distinctions such as lead coffins and stone mausolea.[105] The integration of funerary evidence with isotope and palaeopathological analysis is known to be important for advancing knowledge of the Roman World. Current studies from Roman Britain suggest a more complex pattern between funerary evidence and ethnicity, but a broader contextual knowledge would aid interpretation. Do funerary variables traditionally associated with ethnic identity (e.g. inclusion of belt-sets)[106] correlate with isotopic evidence for place of origin and health within the sample, or does the symbolism of burial display vary between regions? How does burial style change over the life course and how is gender signified, if at all, during different life course stages? Is there a correlation between burial and biological parameters such as puberty and, if so, are there observable differences in social age transitions between elite and non-elite females, as the former may mature more quickly due to health advantages? Is there a relationship between funerary indicators of higher social status and skeletal evidence for diet and health? Such studies could provide an unparalleled level of information concerning the inter-relationship between well-being, migration, mobility and social identity (e.g. gender, ethnicity, status) in the Roman Empire.

5) Finally, bioarchaeological parameters for Roman Britain should be situated within an understanding of diachronic changes from the Iron Age through to the early Anglo-Saxon periods. Current evidence hints at a reduction in health status during the Roman period, which affected all individuals, but elicited different gendered responses. There is emerging evidence that females faced particular adversity,[107] perhaps as a consequence of the new social order and intensely patriarchal Roman society. Initial comparisons of burial practices also suggest that older females were particularly marginalised in the Roman period when compared to the fifth and sixth centuries. It is likely that there are also changes to be observed within the Roman period itself, most probably aligned to the fluctuating fortunes of the broader Empire.

Bioarchaeology of the Roman Empire is gathering momentum; much of the work conducted on Roman Britain has been ground-breaking and innovative and there is great potential to expand such studies on an Empire-wide scale. The extent to which skeletal remains are embraced by the broader discipline is still open to question. It is important, therefore, to improve communication and collaboration between specialists in order that such data is properly contextualised and interpreted. Human bones should not remain a fringe interest – these are, after all, the remains of the people that inhabited this world. Their remains provide access to tantalising and unique traces of evidence that greatly enrich our understanding of Roman life and death.

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[97] Bozzoli *et al*. 2009.
[98] Kuzawa and Sweet 2009; see Gowland 2015 for a discussion of this approach in bioarchaeology.
[99] Jasienska 2009.

[100] Robb *et al*. 2001.
[101] Griffin *et al*. 2011.
[102] Gowland and Thompson 2013, 175.
[103] ibid., 176.
[104] http://www.babao.org.uk/receiving-skeletal-collections/.
[105] Pearce 2013a, 2013b.
[106] see Eckardt *et al*. 2015 for a study of the Scorton cemetery in which four out of 15 burials have cross-bow brooches and six have belt-sets. Isotopic evidence also suggests a non-local origin for some of these individuals.
[107] Redfern *et al*. forthcoming.