**Ruptured: Reproductive Loss, Bodily Boundaries, Time and the Life Course in Archaeology**

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## Abstract

The concept of the bounded body is powerfully resonant within the post-industrialised western world; it is performed and reinforced through cultural practices which observe the maintenance of bodily space and the delineation of individual bodies. Recent research on the Developmental Origins of Health and Disease hypothesis, epigenetics and microchimerism has increasingly exposed the fragility of this construct. As feminist scholars have stated, the pregnant body represents the ultimate boundary transgression: the body within a body. This presentation aims to provide a theoretical exploration of the maternal body, the interconnectedness of mothers and infants in relation to bodily boundaries, and the impact of reproductive loss (miscarriage/neonatal death). Approximately 15-25% of pregnancies end in miscarriage and infant mortality rates in the past are estimated at 25-30%. Reproductive loss brings violent rupture to a woman's sense of bodily boundaries, both literally in that she is unable to contain the fetus, but also because she is required to reconfigure her expected self. Up to 40% of mothers who miscarry suffer from PTSD three months afterwards. This rupture of the infant/mother nexus creates social anxieties concerning the boundedness of both infants and mothers that have hitherto unexplored repercussions for burial practice and bioarchaeological interpretations.

## Keywords

Miscarriage, funerary practices, stillborn, maternity, fetus, personhood, DOHaD, fertility, pollution

**Introduction**

Motherhood has received scant attention in the archaeological literature to date. This situation has arisen not through passive neglect, but rather a conscious attempt by feminist archaeologists to shift the dialogue away from reductionist views of women's lives as being centred on their reproductive role (Whitehouse 2007). It is worth acknowledging the hard-fought battles of earlier feminist scholars within archaeology (e.g. Gero 1985; Damm 1986; Conkey and Spector 1984, and more recently Geller 2017), whose efforts have now created a 'safe space' in which we are able to examine the variable perceptions of pregnancy, reproduction and motherhood without fear of reprisal.

This chapter seeks to examine the infant/mother nexus in relation to bodily boundaries and the challenge that the maternal body poses to the dominant construct of bodies as discrete, bounded entities. The concept of the bounded body is powerfully resonant within the industrialised world; it is performed and reinforced through cultural practices which observe the maintenance of bodily space and the delineation of individual bodies (Gowland and Thompson 2013; Longhurst 2001). Challenges to the concept of the body's boundedness, such as through the leakage of bodily fluids, are regarded with repugnance, associated with a lack of mastery or control over one's basic/baser functions. Females bodies have long been conceptualised as leaky bodies and feminist scholars have highlighted the link between this construct and perceptions of female volatility and insecurity (Shildrick 1997; Shildrick and Price 1999). Menstruation, lactation and pregnancy portray the female body as one capable of extreme flux, whose borders are elastic, permeable and unstable: it is a body out of control (Longhurst 2001, 2008; McDowell 1993).

In actuality, of course, the corporeal boundaries of both men and women are not fixed or discrete; our nails and hair extend beyond our skin and we shed all of these, along with our DNA and epithelial cells wherever we go, whilst inhaling and consuming similar corporeal fragments of others (Gowland and Thompson 2013). The Western construct of the bounded body has been deconstructed in relation to concepts of personhood and funerary treatment in previous anthropological and archaeological studies (e.g. Chapman 2010; Fowler 2001). Strathern's (1988: 185) seminal analysis of Melanesian understandings of the lived body introduced the concept of 'partible' bodies: 'in being multiple [the Melanesian person] is also partible, an entity that can dispose of body parts'. The lived body within Melanesian

cultural understanding is a 'site of interaction and exchange', with parts comprised of a mosaic of male and female gendered features (Strathern 1988: 131).

The concept of partibility has been adopted within archaeology, most notably by Chris Fowler's (2001) examination of 'individuals' and 'dividuals', in relation to the commingling and manipulation of skeletonized bodies in Neolithic funerary practices. However, bodily boundaries and partibility have not hitherto been examined in archaeological approaches to maternity. As other scholars have highlighted, the pregnant body represents the ultimate transgression of the construct of boundedness during life: it is a body within a body (Finlay 2013; Longhurst 2001; McDowell 1993). Today, with the benefit of technological developments, the foetus within the medical sphere is conceived of as a distinct, almost self-contained and entirely separate patient, or entity, from the mother (Lupton 2013; Rutherford 2018). Within this framework, the uterus is perceived as a distinct bounded space, which is hermetically sealed to separate these two beings. In reality of course, these boundaries are permeable to facilitate the transfer of elements vital for foetal growth and sustenance. The foetus, however, is not simply the passive recipient of maternal nutrients, as often conceptualised; instead cells are exchanged bi-directionally, foetal cells circulating within the mother even long after birth (Martin 2010). Martin (2010) discusses the way in which the border between mother and foetus has been articulated in geopolitical terms, with the fetus framed as a 'foreign' and sometimes pathogenic entity, whose cells 'migrate' or even are 'trafficked' to the mother. These 'foreign' cells have also been conceptualised as an invading force, implicated in the stimulation of auto-immune diseases such as rheumatoid arthritis (Martin 2010: 31). This framing of the fetus as 'other' and 'threatening' stems in part from our unease with this breakdown in bodily boundaries that the mother/infant dyad represents. Longhurst (2001: 6), in her study of bodily fluids and boundaries, states that: "The pregnant body is neither subject nor object but rather exemplifies the impossible, ambiguous and untenable identity of each. Consequently, the pregnant body is often constructed as abject. It is a body that is considered dangerous and to be feared. It is also considered to be a body that needs to be controlled". By 'abject' Longhurst explicitly draws upon Kristeva's (1982) use of the concept of abjection – responses of fear and disgust – in relation to pregnancy; in this instance arising because of the fragile border it exposes between self and other.

This chapter aims to provide a theoretical exploration of the maternal body and the relevance of such work for our interpretations of the archaeological record. In particular, it examines the interconnectedness of mothers and infants in relation to bodily boundaries. The concept of boundaries will be discussed with respect to reproductive loss and archaeologically observable funerary practices. The notion of partible bodies and boundaries will also be contextualised in relation to recent research in epigenetics and the developmental origins of health and disease (DOHaD) hypothesis. I will argue that the life course and human bodies are partible at a fundamental, physiological, level during life as well as in death, and that this notion of boundedness is becoming increasingly challenging to sustain.

**The Beginnings of Life**

Cross-culturally and historically there is considerable variability with respect to societal understandings of fertility, conception, pregnancy, fetal development and the acquisition of personhood (Finlay 2013; Gottlieb 2000; Gowland 2018; Kaufman and Morgan 2005). These variable understandings are important to consider in relation to maternity because they have implications for the agency and activity of the pregnant woman (e.g. geographical/activity constraints, dietary restrictions), which in turn have repercussions for the developing infant. Additionally, such cultural constructs will have a bearing on the burial treatment of infants and pregnant mothers within archaeological contexts. For example, during the medieval period in Britain the developing fetus was considered to exist in a vegetative, animalistic state, until ensoulment at around 4 to 5 months *in utero* – usually at the point described as 'quickening' (Gowland and Penny-Mason 2018). From that point onwards it acquired a social presence, but the newly instilled soul could only be protected by the rite of baptism, which could not occur until after birth (Gilchrist 2012; Orme 2001). Loss of the infant prior to baptism was calamitous, resulting in an eternity at the margins of Hell (*limbus puerorum*) and their exclusion from burial in consecrated ground. While these liminal infants were spatially marginalised in death, it does not follow that their loss was felt any less keenly than those who died post-baptism (Gilchrist 2012). Arguably, parental grief was heightened by further existential anxieties regarding the negative fate of the infant's soul (Youngs 2010). Hausman (2017) provides an interesting example of the expression of parental distress in response to the uncertain status of their unbaptised infant's soul at the

late medieval site of Oberbüren, Switzerland. Excavations revealed approximately 200 infant burials, mostly of late fetal or neonatal size. Here, the unbaptised dead body of the infant was subject to post-mortem 'miracle baptisms' described in miracle books dating to the 14th century. The baby's body was contrived to appear to draw breath, through heating and then placing a feather on his/her lips, which was subsequently disturbed via thermal uplift. Both the church and parents conspired in the performance of this ritualistic loophole in order to secure the sanctity of their dead infant's soul in the afterlife.

As the medieval example shows, the imbuing of a fetus or newborn with personhood was often not a single event, it occurred incrementally (See Gowland and Halcrow, this volume; Gowland et al. 2014). A fetus/infant will pass through a series of transitions, marked in some instances by quite subtle shifts in their perceived status, and some by more formalised rites of passage. For example, in the Roman world there is little written about intrauterine life, but once born the infant was subjected to a series of rituals, including bathing, which signalled an acceptance of the child into the family, followed by massages and binding/swaddling (Carroll 2018). The naming ritual of the '*dies lustricus*' approximately 8 days after birth and other acts, including the removal of swaddling bands and dedicating them to the gods, together with a votive offering at around two months of age gradually cemented the infant's personhood (Carroll 2018; Graham 2013). Pliny argued that an infant was not considered a full person until he or she started cutting teeth, which occurs around the second half of the first year. The Roman literature therefore documents the enactment of an elaborate series of stages for the social assimilation of an infant.

In western post-industrial societies, the day of birth is of profound importance, but it is just one point in the continuum of identity acquisition, which is marked by various intrauterine milestones and continues post-birth (See Han, this volume; Gowland et al. 2014). These milestones are not static and have been significantly influenced over recent decades by the rapid introduction of new technologies such as four-dimensional imaging of the fetus *in utero* (Lupton 2013).

While the social assimilation of fetal/infant entities is incremental, so too is the social construction of the infant as a physiologically discrete and bounded individual. While we can clearly observe a newborn infant as a separate entity, his/her boundaries are often conceptualised as dangerously insubstantial and ephemeral. For example, the infant body in

the Roman world (and elsewhere) was often conceptualised as viscous in form and therefore required some form of containment (Carroll 2018; Dasen 2011). The physician Soranus, practicing in Rome in the second century AD explicitly likens infants to clay whose bodies can be moulded by physical and social forces (Temkin 1991). The rupture of the infant/mother nexus frequently creates social anxieties around the boundedness of the infant body. It requires that the fetus or infant be contained, made more tangible, or tethered in some way through material culture or spatial associations. This may be why the act of swaddling or binding of infants is so common cross-culturally – it is a way of creating a false boundary – a more substantive and tangible border zone or delineation. Indeed, a newborn infant cannot conceive of him/herself as a separate entity from the mother. Through touch the infant gradually learns where he/she begins and ends – their boundaries are brought into consciousness (Benthien 2002). The first three months of an infant's life is often referred to as the fourth trimester because human infants are born in such a state of dependency compared to most other mammals. The common practice of binding or wrapping infants during this period and of strapping of babies to the mother prolongs the nexus and acts as a form of transitional womb. As Astuti (1998: 36) observed amongst Madagascan communities: "The lack of strong and clearly defined bodily boundaries (which the baby never had and which the mother has lost as a result of giving birth) requires mother and baby to remain fused with each other". Anxieties surrounding the precariousness of life during this early period are also expressed in in the wrapping of babies in cloth close to mothers amongst the Beng of Cote D'Ivoire in order to encourage him/her to stay in this world (Gottlieb 2004: 18). Again, alluding to the ephemeral status of the infant and their fragile grasp on life.

This ontological ambiguity is also expressed in burial practices encountered in archaeological contexts, in which fetal and infant entities are often confined within bounded features such as the corners of rooms, or within pits and ditches (Millet and Gowland 2015; Moore 2009). Another practice that has been observed in numerous time periods and places is the burial of infant remains within pottery vessels (See Temple, this volume; Boeyens et al. 2009; Carroll 2011, 2018; Ohinata and Steyn 2001). Stevens (2013) synthesised the evidence for infants buried in amphorae around the Mediterranean from the 2$^{nd}$ to 7$^{th}$ centuries AD (Stevens 2013). She notes that perinatal infants were often

buried in vessels with grooved or ridged exteriors, reminiscent of votive uteri recovered from temple sites (Graham 2013). The use of pottery vessels as surrogate uteri for infant burials has also been observed ethnographically amongst the Lemge in South Africa (Ohinata and Steyn 2001) and elsewhere.

The use of these vessels likewise signals unease with the insubstantial and unbounded nature of the deceased infant once separated from the maternal body. Mary Douglas's (1966: 35) concept of 'dirt' as 'matter out of place' is useful to invoke here; whilst not implying that infants are 'dirt', the dead infant, recently ruptured from the mother, may be considered 'matter out of place' and hence polluting and dangerous. Burial within vessels can be regarded as a way of mitigating this threat whilst (as amongst Bantu speakers in Southern Africa) also safe-guarding the future fertility of the mother (Boeyens et al. 2009). Creating a false uterus for the deceased infant, rebounding them, also serves to reconfigure maternal boundaries, making her uterus available and whole for future reproduction.

**Reproductive Citizenship**

The fortunes of the mother and infant are physiologically linked and their health and well-being inter-woven. Different cultural beliefs concerning gender identity, reproduction and the pregnant body therefore have biological repercussions for the developing fetus. As well as general cultural norms, whether mothers are high status or low status, their ethnicity, religion, or their age, may govern maternal behaviours or actions. For example, a high-status female in the medieval period would ordinarily cover her skin to retain a pale complexion, and during pregnancy her confinement may involve 1-2 months in a darkened room prior to the delivery of her child, thus exposing her to the threat of Vitamin D deficiency (Cressy 2010). The detrimental impact of such high-status practices were exemplified by a recent skeletal analysis of the individuals from the wealthy Medici family in Florence, which revealed evidence of rickets in all of the children, including a newborn. The expression of vitamin D deficiency by the time of birth can only have arisen via maternal insufficiencies (Giuffra et al. 2013).

Hockey and Draper (2005: 54) refer to embodiment by proxy and discuss the various ways in which the presence of the developing fetus becomes embodied through the performativity of the mother. Women may adopt a range of culturally-mediated embodied strategies to

improve their chances of conception and then to secure the health of the hoped-for child (Hockey and Draper 2005). However, the pregnant body is also one that becomes subject to a great deal of public scrutiny and censure. The mother must be seen to conform to certain standards of 'reproductive citizenship' (Salmon 2004). As Salmon (2011: 167) states, a good reproductive citizen must be self-regulating, self-sacrificing and morally irreproachable. Women are described as carriers of 'precious cargo'; they are 'containers' for the developing fetuses that require intense medical and public surveillance (Longhurst 2001; Lupton 2013). Control of the maternal body becomes a collective endeavour and the mother's actions scrutinised, not in terms of her own well-being, but that of her unborn child.

As Longhust (2001, 2008) discusses, until recently, maternal bodies in the western post-industrialised world were excluded from many public spaces, including work and certain social spaces (e.g. pubs/nightclubs); in fact, increasingly confined to the domestic sphere. The maternal body therefore becomes subject to various geographical constraints and there are many cross-cultural examples of avoidance behaviours in terms of pregnant bodies and space (Longhurst 2008). Scrutiny and censure of pregnant bodies is not new, although perhaps it has intensified with increased medicalisation over the past century (Richardson 2015). As Carroll (2018: 52) highlights, however, even in the ancient world women were admonished for not taking 'proper' care during pregnancy. Carroll (2018) provides the example of Pliny the Younger's censorious letter reporting the miscarriage experienced by his unfortunate teenage wife who was deemed to have "failed to take proper precautions, and did several things better left undone". According to Soranus' *Gynaecology*, pregnant women should avoid pungent foods, cold baths and vigorous activities: blame for reproductive loss in the ancient world was often firmly placed upon the woman (Carroll 2018: 52).

The unborn infant and even the hoped-for pre-conception infant can therefore exert considerable constraints on maternal behaviour and involve a reconfiguration of the space within which the maternal body should operate (Longhurst 2001)**.** Motherhood also marks a transition towards a new embodied identity through physiological and cognitive changes (e.g. production of breast milk, changes in body shape), which may be marked by shifts in material culture, such as clothing and items of adornment. The mother may also engage in

preparations for the arrival of her baby by the acquisition of infant-related items and the reordering of domestic space/boundaries. The pregnant body is also an 'expectant' body. It is a body in flux, whose boundaries are shifting, both internally and externally. It is a body that signals a future outcome: a body in waiting. But what happens when those expectations do not come to fruition?

**Miscarriage/Reproductive Loss**

Identities are forged from the societal and relational roles that we play, and parenthood may be considered one of the most dominant (Gowland et al. 2014). This, however, leads to the question of whether a woman is still conceptualized as a mother if her infant dies? Approximately 15-25% of pregnancies end in miscarriage, not including those very early pregnancy losses of less than 5-6 weeks (Ammon et al. 2012). In addition, infant mortality rates for various periods in the past are generally estimated at 25-30% (e.g. Parkin 1992). These statistics are overwhelmingly stark and yet strangely, as has been noted by a number of authors, we have no word for a woman who has miscarried, nor a mother whose infant has died (DiCaglio 2017: 4): "A wife who loses a husband is called a widow. A husband who loses a wife is called a widower. A child who loses his parents is called an orphan. There is no word for a parent who loses a child. That's how awful the loss is." (Neugeboren 1976).

Is she still a mother? In some cultures, this would be a resounding *yes* and women would continue to wear cultural signifiers of motherhood such as necklaces. In other societies pregnancy loss, particularly early loss, is a largely unacknowledged bereavement (i.e. in the post-industrial west) and the answer is a firm *no* (Frost et al. 2007). If a mother gives birth to a stillborn child, then she will certainly still bear the physical signs of pregnancy and birth in the form of stretch marks, sagging skin and lactating breasts. Her body is forever altered: her dead child an 'absent presence' (Shilling 1993). There is a rupture and a disconnect – the expectant mother is no longer expecting, yet her body is still a maternal body. She exists in a liminal state. Transitions are often born in pain; the very act of going through childbirth may be viewed as a rite of passage as important as any other in terms of a woman's identity. The death of the infant or the delivery of a stillborn child does not necessarily erase or invalidate this experience; indeed, it potentially taps into a more acute strand of pain in terms of the ensuing emotional rupture (Gowland et al. 2014).

Recent work has begun to explore the variable cultural responses to miscarriage and stillborn infants, but relatively little within archaeology (e.g. Cecil 1996; Finlay 2013; Murphy 2011). Halcrow and colleagues (2018) provide a useful recent synthesis and discussion of the bioarchaeology evidence for fetuses. Skeletal elements start to ossify during the first trimester, but it is rare to find such early fetuses in archaeological contexts, except perhaps within the pelvic cavity of females. A remarkable example of an early second trimester fetus is the report in the press from 2016 of the small coffin dating from 664 and 525 BC (curated by the Fitzwilliam museum, Cambridge), which was scanned using computed tomography and found to contain the mummified remains of a fetus aged just 16-18 gestational weeks (University of Cambridge Research News 2016).

Today, stillborn infants are now accorded a much greater visibility in the funerary sphere than in recent historical periods (Hallam et al. 1999). Miscarriage relatively early on in pregnancy is, however, still considered problematic in terms of the ambiguous ontological status of the expunged foetus – which falls between human and not human – there is a lack of a recognisably human form to mourn (Frost et al. 2007). This is illustrated by Layne's (2003: 4) account of one of her miscarriages: "…I remember how shocked I was when days after I had stopped bleeding, I discovered the embryo. It looked just like the pictures in the pregnancy books, and I was confused about what to do with it. I called my husband, but he would not look at it; in the end I flushed it down the toilet, then regretted having done so." As in Layne's account, by the time the embryo is expunged many women know that they have already miscarried as it is often preceded by copious bleeding. The confrontation with the physiological substance of the baby is still shocking, sometimes accompanied by feelings of abjection towards the fetus. While Douglas (1966) does not refer to fetal remains in her discussion of dirt and disorder, this once cherished developing baby becomes a polluting thing, perhaps, as discussed earlier, because it is "matter out of place": "This is the stage at which they are dangerous: their half-identity still clings to them and the clarity of the scene in which they obtrude is impaired by their presence" (Douglas 1966: 160).

The 'personhood' ascribed to the developing fetus within the uterus does not necessarily stem from physical appearance (because it is often unseen), or indeed from cultural norms; instead it arises from the private imaginary of the parent. Uniquely, with miscarriage, grief stems from a loss of the future rather than a past (Frost et al. 2007). Pregnancy loss during

the first trimester tends not to be publicly acknowledged, it therefore becomes a private, internalised grief, lacking in ceremony. Indeed, miscarriage tends to be cloaked in secrecy – confided to few as though shameful. From my own experience, the medical community are complicit in constructing the clandestine nature of pregnancy loss by writing sick notes to employers that refer vaguely to gynaecological problems, rather than bereavement. Women who take 'sick days' from work as a consequence of miscarriage also tend to self-notify as having some other form of illness such as 'flu' (Frost et al. 2007). An additional imperative for women to conceal miscarriage from employers is to avoid the negative stigma associated with pregnancy in the workplace (e.g. not a 'team player', not fully committed, on the 'mommy track', etc.) and to avoid potential work-placed prejudice through revealing reproductive plans.

Today, if the fetus is lost after broader knowledge of the pregnancy, there is still often a wider social withdrawal and unwillingness to address this taboo subject, or to express sympathy to the grieving mother (Layne 2003). It has been argued that the social practices surrounding miscarriage exemplifies the 'sequestration of death'. Yet, for women it can involve a major disturbance in self-identity, with feelings of a loss of agency and bodily integrity, and of shame (Frost et al. 2007: 1005). There is, however, a desire by many women to commemorate this loss and to materialise it in some way. Research by Layne (2000) shows how women are compelled to make their loss 'real', through the acquisition of material items to associate with their dead baby, such as toys or clothing, and the memorialising of prints of intrauterine scans. This is partially a response to the social disavowal of that grief (Layne 2000). An interesting emergent trend is for the mother to inscribe her body with a tattoo that symbolises this loss (Craven and Peel 2017). This is an act which confronts, externalises and makes public that internal grief: her body becomes a memorial to an experience and loss that was real and profound. These external inscriptions also invite public comment and hence confront and force a dialogue about reproductive loss from the broader community. These tattoos create an overt challenge to the averted public gaze: it dupes people into participating in that grief.

Jones (2001), a theologian, refers to pregnancy loss as a "rupturing of self" because in a very literal sense the body cannot contain itself, the woman has become unbounded, and is left feeling "dispersed, fragmented, leaking into the world" (Jones 2001: 234).

“Instead of experiencing herself as an agent, the woman grieving reproductive loss knows herself as powerless to stop it and yet guilty for her perceived failure. As her hope dies, she also becomes a self without a future. She is a self whose borders are as fluid as the blood she cannot stanch, a self undone. And in the space of this undoing, she is the anti-maternal self who doesn’t give life; she takes it away” (Jones 2001, 236).

These are powerful words and they are supported by the clinical evidence. A study in the *British Medical Journal* found that 39% of women who suffered an early pregnancy loss experienced moderate to severe post-traumatic stress disorder three months afterwards (Farren et al. 2016). This is an alarming statistic and raises concerns regarding the largely unacknowledged grief surrounding miscarriage and pregnancy loss in the UK and many western societies today. A stark reflection of UK attitudes was the Alder Hey hospital, Liverpool, scandal in 1999, in which it was revealed that organs from many hundreds of infants had been retained, along with the bodies and body parts from fetuses lost at various gestational ages, all without parental consent (Dewar and Boddington 2004). These babies and parts of babies have subsequently been buried. Such practices could only have occurred within a clinical profession that perceived these small bodies to be objects rather persons. This scandal acted as a catalyst for more rigorous procedures relating to organ harvesting and retention, as well as the treatment of infant and fetal remains within a clinical setting (Bauchner and Vinci 2001). There is now a growing awareness amongst the medical community of the sensitivities surrounding pregnancy loss at any stage, although, there is still progress to be made.

Within a modern western life course model, the miscarried foetus never really existed. It is socially denied. Yet the mother may mark this loss by remembering her due date and what would have been the birthday of the child each year – it has a social presence. There is also, however, a more tangible biological presence in the form of fetal cells, which are now known to circulate in the mother even as long as 20 years after pregnancy loss (DiCaglio 2017; Martin 2010). These cells do not just passively circulate, but can even differentiate into functional cells within the mother thus impacting upon her own health and well-being, both positively and negatively. As DiCaglio (2017: 16) states: “microchimerism cuts across time and forces us to reconfigure our understanding of the genetic self as bounded, unchanging, and unique”. The integration of fetal cells with the mother brings into question,

in a very fundamental way, the paradigm of the discrete body, but it also challenges current concepts relating to the beginnings and ends of an individual's lifespan and this will be explored further later in the chapter.

There is an assumption that because infant mortality was high in the past, an infant was not mourned and parents were not emotionally attached (Murphy 2011). Such deterministic viewpoints are largely unsubstantiated: historical evidence for various periods and places is ambiguous and contradictory in this regard. Cultures with high levels of infant mortality are known to have very involved mourning rituals for miscarried and still born infants. This is exemplified by the Chinchorro of Northern Chile (BP7000-3600) who artificially mummified fetuses and infants using complex and labour-intensive processes (Standen et al. 2007). The care and attention poured into preparing infants bodies during this elaborate funerary ritual may have acted as a substitute for the care that would have been provided had the child lived. Such funerary preparations would have served as an outlet and focus for grief but may also have served a symbolic purpose of healing the ruptured maternal boundaries.

Cannon and Cook (2015: 411) state that: 'Reactions to infant death are determined by individual psychology, social constraints and the experience of infant death within different emotional communities. There is little basis from archaeological evidence for assertions or counter-assertions of emotional attachment or detachment toward infants in the context of high mortality rates."

Murphy (2011: 413) has also lamented the lack of engagement by archaeologists with what she refers to as the 'powerful physiological responses that are associated with pregnancy, birth and motherhood'. She presents a variety of archaeological and historical data to highlight the fact that infants in Ireland, who appear to have been marginalized in death, were nevertheless mourned by their families (Murphy 2011). For example, Hausman's (2017) work highlighted above provides an example of the very real anxieties about the everlasting souls of infants in early medieval Europe and the elaborate ritual response.

**Whores and Rubbish**

The repercussions of losing an infant is important to consider in archaeological interpretations of infant burials, because funerary rites may be predicated more on the social perceptions of motherhood, maternal bodies and reproduction, rather than of the dead infant alone (Gowland et al. 2014). This is rarely considered, however, in interpretations of the archaeological burial evidence. For example, the presence of fetal remains, along with perinates (infants dying around the time of birth) is common at Romano-British settlement sites, yet interpretations of these burials have been almost entirely dominated by discussions of infanticide (e.g. Mays 1993; Mays and Eyers 2011). It has been argued instead that the demographic profile of these infants more likely represents natural perinatal mortality and their segregated burials reflect concepts of the beginnings of life and motherhood in Roman Britain (Gilmore and Halcrow 2014; Gowland and Chamberlain 2002). Indeed, the mothers of these infants have often been disregarded as prostitutes or slaves, who disposed of their unwanted or murdered offspring in clandestine circumstances (Cocks 1921; Mays and Eyers 2011). There are a number of problems with such interpretations (see Gilmore and Halcrow 2014; Gowland et al. 2014); Eleanor Scott (1999) critiqued these arguments as imposing Victorian values onto the Roman past. More prosaically, it does not make good economic sense to allow a prostitute to carry her baby to full term and give birth, with all of the attendant risks, when there was a good knowledge of plants that could induce spontaneous abortion (Riddle 1994). Interpretations of infant burials primarily in terms of infanticide or disposal deny the agency of infants to affect those around them emotionally (for a detailed discussion of the evidence for and against Roman infanticide see Gowland et al. 2014). Burial of infants in these locations was an active choice which stemmed from specific cultural understandings of the mother/infant nexus, its rupture upon the death of the fetus/infant, and the ritual practices that follow.

The topic of motherhood and the way in which the developing foetus and infant can alter the identities of the pregnant women, as well as the families more generally, has been largely neglected within archaeological discussions. The over-riding impressions from the spatial distribution of infant burials from the Roman period in Britain, and even the preceding Iron Age period, are firstly the bounded nature of the burials, within ditches, pits, corners of rooms, and secondly, the consistent desire to maintain a physical and symbolic

connection between the domestic setting and the infant. This is a common theme cross-culturally, but why? It seems to express a desire to keep the dead infant close to the family, or perhaps more specifically the mother. The pattern of burial at some Romano-British settlements signals an unease with the complete severance of the connection between mother and infant and an apparent need to sustain this link through proximity between the living and the dead (Millet and Gowland 2015). It is possible that infants and mothers were not considered to be separate entities; the infant was an indivisible part of the mother. This is a concept that has been observed ethnographically, with abortion for some cultures considered a form of self-mutilation (Lupton 2013). Cross-culturally it has been observed that the mother does not just figuratively 'lose a part of herself' with the death of her newborn but does so in a very literal sense (Gowland et al. 2014). The burial of infants in Roman Britain within the domestic sphere and corners of rooms creates a spatial boundedness and proximity to the mother. It is worth noting the work of social geographers concerned with bodies and space who have observed that there is a 'wrong' and a 'right' place for particular bodies to inhabit at particular times (Longhurst 2001). In this context it is *right* for an infant to be buried within a domestic dwelling, but not for an older child. The symbolic nature of this should not be overlooked, it is a funerary practice that reflects and reconstructs the social/cosmological understandings of pregnancy loss, maternal bodies and reproduction within that society.

As discussed earlier, maternal bodies are often subject to culturally sanctioned spatial constraints and taboos. For example, within the western world there is still some unease surrounding visibly pregnant bodies in the workplace and many pregnant women experience a geographical diminishing in their social worlds as their pregnancy progresses (Longhurst 2008). Perhaps in the Roman World the maternal body was one in which the mother was confined to a domestic space. The rupturing of the nexus and the fetal/neonatal body represented 'matter out of place'. The fetus/infant had therefore to be confined, bounded, and buried in proximity to the mother, perhaps (as observed ethnographically) as a way of also accelerating her own healing and securing her future fecundity.

Of course, others have forwarded many other interpretations of such burials, including Eleanor Scott (1990, 1991) for Roman Britain, who argues for the use of these burials as a form of gendered empowerment and legitimisation. Brereton (2013) argues that the burial

of infants in domestic settings is about social reproduction across generations. He argues that infant burials are a "form of symbolic 'capital' that ensured the renewal of decent lines" (Brereton 2013: 239). This link between infant burials within the domestic sphere and regenerations and 'lineage renewal' has been highlighted by other authors too. In this interpretation the dead infant is temporally fluid; the fruit of the previous generation and ensuring the legitimacy of future generations. The idea of an infant burial as a vessel for the past and a link to the future is a concept that also has biological resonance, and this will be explored in the final section of this chapter below.

**Extended Life Courses**

The inter-connectedness of the infant/mother nexus allows infant skeletal remains to provide archaeologists with important information regarding maternal health, even in the absence of a direct connection in the archaeological record (e.g. mother/infant burial) (Gowland 2018). As discussed above, the developing fetus is prioritised by the pregnant body in times of nutritional stress, with maternal resources diverted to support the needs of the infant. Nutritional deficiencies observed in the fetus/infant subsequently reflect the poor health status of their mothers (Chávez et al. 2000). The infant therefore has direct inter-generational significance for bioarchaeological interpretation (Gowland 2015). While this statement appears self-evident, the implications rarely seem to be fully realised by archaeologists, who frequently consider infant remains as entirely separate and distinct entities. For example, the excavator of a site with a large number of perinatal burials was recently asked for permission to examine these remains for a study of maternal health. The bemused response from the excavator was that this was not possible because there were no adult females at the site. Whilst anecdotal, this is illustrative of the widespread attitude towards infant remains, the infant/mother nexus, and the bounded and discrete construction of individual bodies and life courses.

Fetal and infant development and early life experiences are now known to be of central importance for adult health and well-being (Barker et al. 2002). The Developmental Origins of Health and Disease (DOHaD) hypothesis has emphasised the importance of the first 1000 days of life (from the point of conception) for longevity and later life health risks (see also Hodson and Gowland, and Kendall et al., this volume). The effects of under- and malnutrition at different gestational ages has been linked to different birth phenotypes,

resulting in a variety of metabolic problems in later life (Barker 2012). Adverse circumstances can elicit changes to gene expression – epigenetic effects – some of which remain stable across the life course (Landecker and Panofsky 2013). Natural experiments in places like the Gambia have shown the impact of the season of conception (whether it is the hungry season or not) on the growth and immune system of the developing fetus, with implications for disease susceptibility in later life (Waterland and Michels 2007; Waterland et al. 2010).

This research has meant that these first 1000 days, and in particular the intrauterine period, have become the focus of increased medical scrutiny (Richardson et al. 2015). Pregnant women engaging in risky behaviours such as drug-taking, alcohol consumption and smoking, are vilified for jeopardising not only the present, but also the future health of their offspring. In actuality, research has shown that targeting this nine-month gestational window is unlikely to be the answer to life-long health (Chung and Kuzawa 2014). Both the DOHaD and epigenetic framework reveal that the socio-economic circumstances of even the grandmother, has proven significant for the health of her grandchild (Barker 2012). Within the DOHaD model poor health may arise as a consequence of the accumulation of risk, potentially across generations, rather than a single life course (Davey Smith 2011).

As Richardson (2015: 224) states: "On the one hand, women are instructed to do all they can to prevent harm to their fetus. At the same time, an individual woman can do little to improve outcomes for her own offspring if they are trapped in the intergenerational epigenetic 'feedforward cycle' hypothesized by DOHaD research."

Research on the DOHaD and epigenetics demonstrates how life courses become inter-woven over generations, thus challenging the Western concept of the life course as a discrete, individualized trajectory, with a clearly defined beginning and an end (Gowland 2015, 2018; Rutherford 2018). If we consider DOHaD together with the phenomenon of microchimerism, discussed above, in which the cells of the fetus have a functional life-span even if the fetus itself fails to fully develop, then it prompts us to reconsider our models of bodies and life-courses as genetically and physiologically distinct entities. Current biomedical research represents a fundamental challenge to the paradigm of the bounded body; our bodies carry the epigenetic legacy of our ancestors' psycho-social and biological

experiences (e.g. past anxieties, dietary practices and so forth), with consequences for the phenotype (Gowland 2015, 2018; Rutherford 2018).

Both literally and figuratively, fetal and infant entities have a presence outside of traditional concepts of time: "it is both materially and metaphorically a product of the past, a marker of the present, and an embodiment of the future" (Han et al. 2018: 1). For the parents, they embody a hoped-for future that may or may not come to fruition. They also create expectations around the future maternal body on a behavioural, physiological and psychological level. Environmental circumstances *in utero* and developmental plasticity means that this period will also impact on the well-being of the infant's future self (Agarwal 2016). They have a genomic existence beyond their own life-time, with their cells having a functional life-span in the mother. In addition, the epigenetic model shows us that they carry forward the weight of the past – the "intergenerational epigenetic 'feedforward cycle'" (Richardson 2015: 224). Within our current biomedical framework the fetal/infant entity reveals us to be genomically, physiologically and temporally fluid (Rutherford 2018). The maternal/infant nexus unravels long-held truths about our bounded bodies and discrete, linear life course. Instead, we are unravelled, with lives that extend and are interwoven with past and future generations.

**Conclusions**

This chapter has been wide-ranging in terms of the theoretical, biomedical and bioarchaeological literature covered. The thread throughout, however, has been that each of these fields of study challenge on some level the bounded nature of individual bodies. The fragility of this construct becomes particularly exposed when one considers the infant/mother nexus. Reproductive loss brings violent rupture to the woman's sense of bodily boundaries, both literally in that she is unable to contain the fetus, but also in the sense that she is required to reconfigure her expected self. It is essential to consider the social anxieties and the emotions surrounding fetal and infant death and maternal rupture when interpreting archaeological burial practice. For too long archaeologists have dismissed the spatial and material accoutrements of infant burial as reflecting disposal and a lack of emotional attachment. Instead, the rupture of the infant/mother nexus and the untimely dead of the fetus/infant "serve[s] as lightning rods for any ontology you'd care to imagine" (Rapp 2018: xii) This chapter has argued that Mary Douglas' (1966) work on pollution and

"matter out of place" is prescient. Reproductive loss represents a unique crisis: the dead infant is prematurely unbounded and the mother's boundaries are also undone. Ritual and practice combine to actively re-order, re-instate, and purify the corporeal and/or spiritual integrity of both components of the nexus to secure the future and purify/remedy the past.

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