Interpretation of a probable case of Poliomyelitis in the Romano-British social context

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Introduction

In this paper, individual 131 (hereafter K131) from the Romano-British cemetery of 76 Kingsholm, Gloucester (UK, 20/87; fig. 1) will be evaluated and interpreted as a case report. This individual has already been the subject of initial study by Roberts et al. (2004). A diagnosis of unilateral left club foot deformity was suggested, arguing that it was not possible to differentiate whether the deformation had a congenital or acquired (poliomyelitis) origin. The reassessment of K131 using data obtained from bilateral asymmetry studies (e.g. Storm 2009), as well as the analysis of the discrepancy in the muscular insertions and the bone structure, allows for a refined diagnosis of acquired club foot. Instead we propose this may be a case of poliomyelitis. The case of K131 is significant because the individual presents an unusual condition which would have affected their appearance and interaction with wider society. Interestingly, K131 was afforded a normative burial. We argue that whilst it is not possible to know for certain the social attitudes which this individual faced during life, the burial evidence suggests that the the disability might not have affected K131's ability to fulfill expected social requirements.

Funerary context

Individual K131 was excavated from the Romano-British cemetery at 76 Kingsholm Road, Gloucester in 1988, along with 46 other individuals. This excavation is one of several to have revealed a large Romano-British cemetery north of Gloucester. The site is believed to have been in use from the second to fourth centuries AD (Atkin 1987). K131 was uncovered in a supine position and orientated W-E, with forearms possibly crossed on the torso (Roberts 1990), and associated with a pottery fragment. Seven coffin nails were also retrieved from the grave cut, which was significantly bigger than the individual (fig. 2).

Fig. 1 Map of the British Isles indicating the location of Kingsholm, Gloucester.

Osteological and palaeopathological analysis

Methods

A combination of age estimation methods, including dental development and eruption, dental wear and epiphyseal fusion, indicated that K131 was a young adult aged around 17–23 years old (Brothwell 1994; AlQahtani et al. 2010; Scheuer and Black 2000). An assessment of the sex of K131 was not attempted due to the pelvic and the cranial asymmetry. Furthermore, stature was not estimated due to the observed bilateral asymmetry of the individual. All skeletal measurements were made using sliding and spreading calipers, an osteometric board and a torsiometer. All measurements were rounded to the nearest millimetre.

Description of the lesions

The following shall describe the lesions observed across K131's skeleton prior to providing an interpretation and differential diagnosis of the pathological fea-

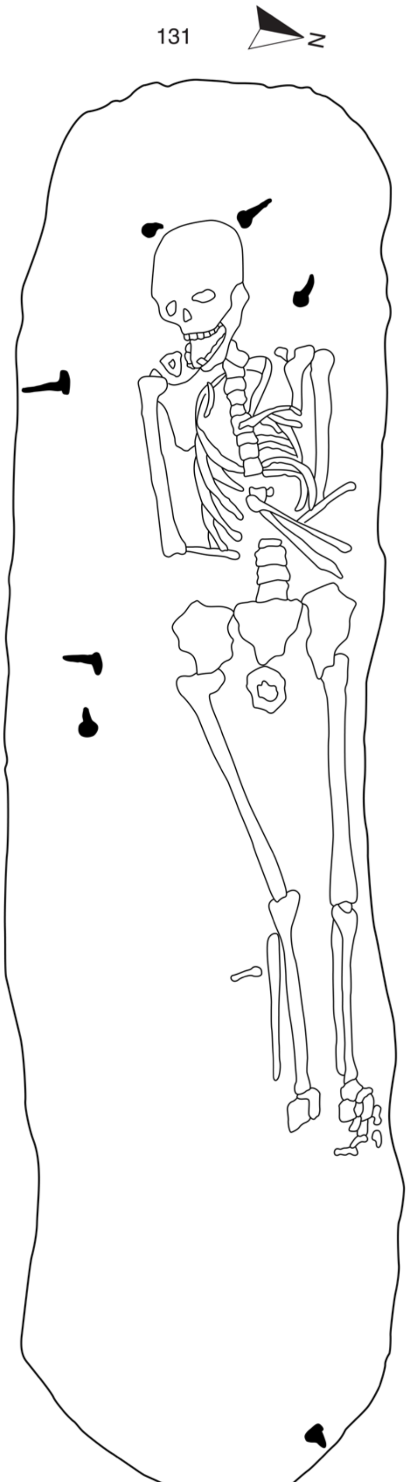

Fig. 2. Plan of grave 131 from 76 Kingsholm, Gloucester (Drawn by Rachael Kershaw).

tures. The humeri, femora, tibiae and fibulae show discrepancies in size and shape, which will be described below. The directional analysis results indicate that the right side of the body is consistently larger than the left side. However, the distribution of the asymmetry throughout the skeleton is not homogenous; external cross-sectional measurements have the greatest asymmetry values (table 1).

Macroscopically, K131's femora, tibiae, humeri and pelvis displayed the greatest asymmetry (fig 3). The linea aspera of the left femur appears nearly obliterated, yet the gluteus maximus enthesis is slightly shallow and porous, and is the same size as the contralateral insertion. The combination of these two features results in the apparent buttressing of the subtrocanteric area and the reduction of the asymmetry at this point (table 1; shaded). K131 exhibits asymmetry in the angle of the femoral neck whose normal range is between 120° and 140° (Resnick 2002: 4610; Finby et al. 1956). The right femur of K131, at 120°, qualifies as borderline Coxa vara, whilst the left, at 138°, falls towards the upper limit of the normal range.

The diaphysis of the left tibia is round in cross section due to the absence of the anterior crest, while the right retains the typical triangular shape (fig. 3). The left medial condyle is antero-posteriorly elongated and smaller compared to the right and the left lateral condyle is round and medio-laterally divided by a crest located across the anterior third. The left distal epiphysis of the tibia is also smaller; the fibular notch is postero-lat-

Table 1. Directional asymmetry as measured in K131 compared to the normal ranges observed in the populations, from the 7th to the 19th century, studied by Storm (2009)

Bone	Measurement	Normal range*	K131
Humerus	Maximum length	-1.22 to 3.3%	4%
	Maximum diameter: midshaft	-5.05 to 9.83%	10.2%
	Minimum diameter: midshaft	-6.09 to 9.15%	0.0%
	Maximum diameter: deltoid tuberosity	-5.67 to 9.81%	0.1%
	S-I diameter: head	-3.72 to 5.24%	4.4%
	A-P diameter: head	-3.38 to 6.22%	8.22%
	Breadth: epicondylar	-2.83 to 4.73%	2.2%
Femur	Maximum Length	-2.01 to 1.59%	n.m
	Maximum diameter: midshaft	-7.31 to 6.77%	20.9%
	Minimum diameter: midshaft	-6.61 to 6.39%	14.63%
	Maximum diameter: subtrochanteric	-7.54 to 6.86%	12.25%
	Minimum diameter: subtrochanteric	-7.45 to 7.95%	6.90%
	Breadth: Epicondylar/distal epiphysis	-2.3 to 3.1%	4.5%
	Maximum A-P diameter: head	-2.93 to 3.67%	7.00%
	Maximum S-I diameter: head	-3.39 to 3.77%	3.1%
Tibia	Maximum length	-1.81 to 1.67%	4.6%
	Maximum diameter: nutrient foramen	-6.79 to 6.53%	22.5%
	Minimum diameter: nutrient foramen	-6.89 to 9.11%	22.2%
	M-L width: proximal end/epiphysis	-2.33 to 2.95%	26.8%
	A-P diameter: medial condyle	-4.19 to 4.65%	16.7%
	A-P diameter: lateral condyle	-4.28 to 5.04%	-5.1%

Directional asymmetry (DA) calculated using the formula [(R-L)/(R+L/2)]*100 (Palmer 1994; Palmer & Strobeck 2003). Positive value indicates that the right side is larger and a negative one that the left side is larger. *95% confidence interval includes the 95% of the normal variation of the directional asymmetry (after Storm 2009). Shaded rows highlight buttressing of the subtrochanteric area.

erally displaced, and the medial malleolus is anteriorly displaced and flattened at its distal surface. The distal epiphysis of the left tibia is laterally rotated 46° with reference to the proximal epiphysis. The tibiofibular rotation of the right tibia is 16° which falls within the normal range (Windisch et al. 2007).

The superior surface of the left calcaneus has four articular facets. The three talar articular surfaces are small yet not notably misplaced, the fourth is located

Fig. 3. Comparison of the right and left lower limbs. The left long bones are thinner and shorter compared to the right long bones. The left tibia shows a round cross-section instead of the typically triangular shape, whilst the left fibula is medio-laterally bowed (photograph by Laura Castells-Navarro).

at the posterior third of the sustentaculum tali (fig. 4). The cuboid articular facet of the left calcaneus is displaced medially and shows a depression at the most medial edge partially surrounded by a para-articular eminence.

The left talus is significantly smaller than the right talus, which features a medially displaced head and poorly defined neck depression. The talar trochlea is obliquely divided by a pair of parallel crests separated by a 0.5mm groove that run from antero-laterally towards the postero-medial segment (fig. 5). When the ankle joint is articulated, the antero-medial quadrant of the trochlea articulates with the tibial distal epiphysis, the postero-lateral one with the fibular malleolus, with the extra articular surface of the calcaneus articulating with the distal surface of the tibial medial malleolus. This abnormal contact suggests that the positioning of the talo-crural joint was varus and inverted.

Fig. 4. Medial view of the left calcaneus showing the division of the sustentaculum tali (arrowed) (Photograph by Laura Castells-Navarro).

The left fibula is medio-laterally bowed and smooth, not displaying the characteristic ridges and depressions associated with muscle insertions. This deformity is more pronounced in the distal third. The proximal third is round in cross-section while the distal third is semi-circular.

The upper limbs are less asymmetric compared to the lower limbs (table 1). Only the humeri are compared here, since the left ulna and radius are poorly preserved. The left humerus is gracile and smaller in size, however the *deltoid, latissimus dorsi, teres major* and *pectoralis major* muscle insertions, while smaller, are similar in appearance to the right side, clearly demarcated, with a slightly depressed cortex. The humeral distal joint surface is also smaller on the left side.

Asymmetry is also observed in the height of the lumbar vertebral bodies, the left side being consistently larger throughout the lumbar vertebrae. The spinous process of these vertebrae are displaced towards the right side and the left superior and inferior apophyseal joints are also slightly larger than the right ones. All these features indicate a slight lumbar scoliosis to the right. The thoracic and

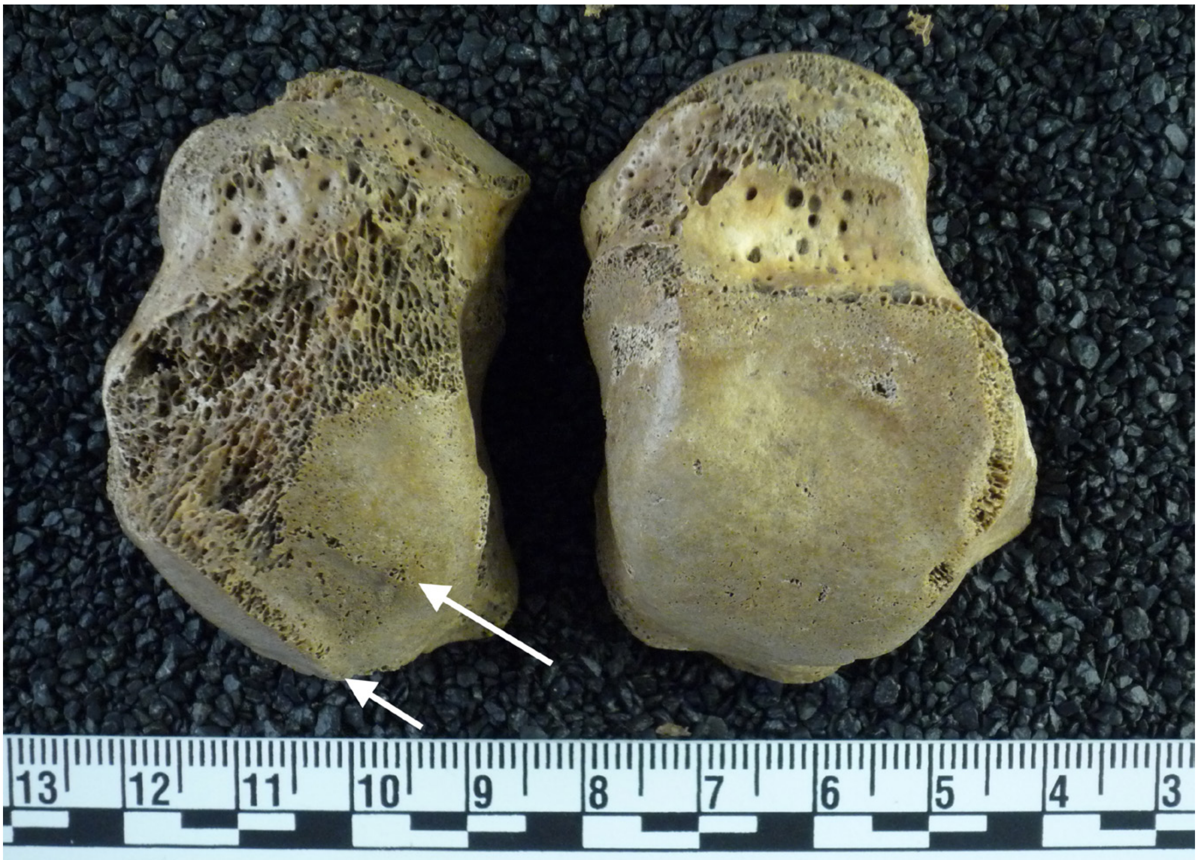

Fig. 5. Left and right tali illustrating the size difference. The left talus shows a poorly demarcated neck and two crests separated by a groove (arrowed), suggestive of a positional change of the talus respective to the tibia (Photograph by Laura Castells-Navarro).

the cervical vertebrae do not show any of these features. The ossa coxae also shows a degree of asymmetry consisting of a more defined "S" shape, increased medio-lateral width and a more pronounced right iliac crest, suggesting that the muscles of the right side were more developed than that of the left side.

The cranial vault is asymmetric as a result of a boss at the right frontal bone superior to the orbital ridge, accompanied by boss at the supero-lateral portion of the left occipital bone. The right half of the occipital bone appears flattened, contributing to the plagiocranic shape of K131's cranium. The viscerocranium is distorted with the anterior prominence of the right side.

Five of the left ribs show a thin layer of loose woven bone, unattached to the cortical bone except by a number of thin bone spicules, extending throughout the entire visceral surface. The new bone formation is possibly related to a pulmonary condition (Ortner 2003; Roberts et al. 1994). This observation is not thought to be related to the other changes, and will not be discussed further.

K131's first mandibular molars display linear enamel hypoplasia (LEH), suggesting that this individual suffered a period of systemic nutritional stress, or physical injury, during childhood (Ogilvie et al. 1989; Ogilvie and Trinkaus 1990; Neiburger 1990; King et al. 2005). The location of the LEH, indicates that the stress period might have occurred between second and fourth years of age (Hillson 1996; AlQahtani et al. 2010). It might be possible that this period of stress was related to the primary infection with poliovirus, which has been clinically proven to preferencially affect children under 5 years of age (Herring 2014).

Differential diagnosis

As reported by Roberts et al. (2004), the left talus shows clear deformation, with the articulation of the ankle joint suggesting a varus and inverted disposition of the foot when rested on the floor, which is consistent with talipes (club foot), which can be either congenital or acquired (Resnick 2002: 4614). The tibial deformities are also consistent with talipes varus, where the hind foot is deviated inwards (inverted). A more specific diagnosis of talipes equinovarus (where the foot is also pointing downwards; typical of congenital club foot) was suggested by Roberts et al. (2004), however the ankle articulation only shows varus/inverted deformations; no equinus deformity is present. Furthermore, a diagnosis of talipes equinovarus would not explain the extended atrophy of K131's left side, the lumbar scoliosis and the skull deformity. Thus we argue that this case is more characteristic of acquired club foot.

Acquired foot deformations are usually related to trauma, infections or neuromuscular disorders. The foot bones and the radiographs do not show any signs of infection or of trauma. Examples of neuromuscular disorders that can induce secondary club foot are Duchenne muscular dystrophy or a congenital dystrophy (Sussman 2002), however, because K131 does not show bilateral atrophy, these must be discarded. Foot deformities, due to muscle imbalances, have been described in neuromuscular disorders such as poliomyelitis and hemiplegic paralysis. The former commonly shows a varus deformation (Herring 2014), while equinus deformation is the most common deformity in hemiplegic paralysis (Duffy and Cosgrove 2002).

In K131, the reduction in overall size, thinning of the cortical bone, loss of normal skeletal architecture, and the reduced size and lack of definition of the left muscular entheses suggest there was disuse atrophy of the left side (Havelková et al. 2011; Hershkovitz et al. 1993; Ruff and Hayes 1983; Trinkaus et al. 1994). Underlying conditions that can result in disuse atrophy-related asymmetry include congenital, traumatic or neuromuscular disorders. K131 does not show the dramatic underdevelopment expected in congenital asymmetry (Johnston and Penrose 1966; Zlatanović et al. 2010) and the lack of visible fractures in the radiographs does not support the diagnosis of trauma (Churchill and Formicola 1997; Ortner 2003; Nystrom and Buikstra 2005).

Neuromuscular disorders induce disuse atrophy by affecting the innervation of the muscular mass, resulting in paresis and loss of activity. Consequently, the loading pattern is transferred to one side resulting in bilateral asymmetry (Wendorf et al. 1986; Trinkaus et al. 1994). As the entire left side is affected, the bilaterally affecting neuromuscular disorders, such as Duchenne muscular dystrophy, congenital myotonic disorder (Harper 1975; Sussman 2002) or entrapment neuropathies, related to trauma and limited to a specific dermatome (Resnick 2002: 3500-3501), were not considered as a potential diagnosis. Only asymmetric paralytic disorders, such as hemiplegic paralysis and poliomyelitis were included in the final differential diagnosis (Prince et al. 1988; Krigger 2006). Hemiplegic cerebral palsy is a non-progressive movement and posture disorder produced by an injury to the immature brain (O'Shea 2008) and poliomyelitis is a flaccid paralysis that results from death of individual spinal motoneurons due to infection by poliovirus (Holt 1899, Herring 2014). Table 2 summarises the principal characteristics of hemiplegic paralysis and poliomyelitis.

The combination of features observed in K131; positional club foot deformity, leg length discrepancy, asymmetry in the collodiaphyseal angle, and tibial torsion combined with the lack of stress fractures and articular surfaces deformations, suggest that the most likely diagnosis is poliomyelitis (Duffy and Cosgrove 2002; Holt 1899; Stebbins et al. 2010). Furthermore, the spontaneous recovery of muscle activity, characteristic in poliomyelitis, could explain why some of the left muscular insertions are present but appear smaller and less defined compared to the right ones.

The lumbar scoliosis combined with the asymmetry of the ossa coxae point to a muscular origin of the scoliosis, probably second-

Table 2: Comparison of the main characteristics of hemiplegic cerebral palsy and poliomyelitis

Hemiplegic Cerebral palsy	Poliomyelitis
Constant muscle contraction → deformation of bones and abnormal articular contacts (e.g. equinus deformation related to an excessive tension at the Achilles tendon (Duffy and Cosgrove 2002)) Premature degenerative changes in the weight bearing joints Pathological fractures of weakened osteoporotic bones (Paterson 2011) Asymmetry in weight bearing elements → coxa valga at the paralysed limb; can result in hip subluxation or dislocation (Resnick 2002) The spasticity not set until the 7th year of age; first years of life are characterized by muscle hypotonia. Neonates tend to spend much time laying → tend to have high vertebral bodies (Resnick 2002: 3484)	Individual muscle groups are affected which induces secondary abnormal postures (e.g. foot deformities and lumbar scoliosis) Limb length discrepancy: paralysed limb being slightly shorter in a varying degree (Duffy and Cosgrove 2002) Tibial external rotation is common secondary to the paralysis of the internal muscles combined with the activity of the iliotibial band. This deformation is compensated by a varus position of the foot to regain the body balance (Herring 2014) Osteoporosis: common feature of poliomyelitis though the partial muscular hypotonia decreases the prevalence of fractures and bone deformation in this condition (Resnick 2002, Schlecht et al. 2012)

ary to a neuromuscular disorder or abnormal posture (Madigan and Wallace 1981; Raczkowski et al. 2010; Gurney 2002).

For the cranial deformation observed in K131, the presence of visible and unfused cranial sutures argue against congenital craniosynostosis (Maniscová and Beňuš 2003; Ortner 2003: 461; Storm 2009). As a final note, the lack of mastoid process asymmetry, or differences in the sternocleidomastoid insertion, make the diagnosis of muscular congenital torticollis unlikely (Yu et al. 2002). Scoliosis could have caused the plagiocranic deformation, however this scoliosis should have appeared before the individual was one year old (Wynne-Davies 1968, Watson 1971), and there are no signs in the spine that indicate that K131 suffered infantile scoliosis. Therefore a positional origin of the skull deformation is suggested (Biggs 2003; Fulford and Brown 1976).

Interpreting palaeopathological features

The physical appearance of K131 would possibly have been different to that of their contemporaries. The weakness of the left leg and the presence of club foot would have affected their gait. It is not possible to know how much their ability to move might have been impaired, however the presence of strong muscle entheses on the right as well as the left side might suggest that this individual had, at least, a certain amount of mobile independency. Likewise, the architecture of the humeri suggest that although the right might have been the dominant arm, the left, though slightly shorter, was by no means unusable. Therefore, it is possible that this individual was able to engage in manual tasks.

From the analysis of archaeological human remains we can attempt to understand how this individual might have looked, allowing us to identify some of the physical challenges a person with this disability might have faced. However, an important aspect which dictates the social attitudes towards an individual include the character of the person, which is impossible to establish through the archaeological record, and their social status (discussed below).

K131 in their social context

It is possible to assert that K131 would have shown some physical deformity and altered gait, however the task of understanding how this would have affected the daily life of the individual and their integration into the community is difficult to establish. One avenue of inquiry is to consider textual and iconographic sources, which can inform on ancient Roman attitudes to such physically-restrictive impairments—however, documentary evidence should be considered with caution. Recent years have seen a vigorous interrogation of the ancient sources which discuss Graeco-Roman attitudes towards disability (Garland 1990, Rose 2003, Breitwieser 2012, Laes et al. 2013). However, there are effectively no sources which focus explicitly on disability or impairment in a way that is recognizable to modern understandings of the term. The majority of evidence we can find for attitudes towards the disabled are gleaned from oblique references in texts describing other social, medical, religious and political concerns. In addition to this, these texts are tied to very specific contexts in both time and space. For example, while we might be able to acquire clear insights into the hierarchical and demeaning attitudes towards disability held by Roman elites in the first to second centuries AD, it is not possible to be certain that these attitudes were necessarily mirrored in the social milieu of Romano-British provincials in the third to fourth centuries AD. Nonetheless, the written sources do provide some insight which can be used as a base for the treatment K131 may have encountered during life.

For the most part, the attitudes towards disability which we can glean from the sources are uniformly negative. Many sources focus on the ways in which impairment engendered dependency and perceptions of weakness, and mark out the congenitally disabled as the targets of infanticide (Garland 1990; 20). For example, we can refer to the *Letters* (8.18) of Pliny the Younger wherein he describes the debilitating effects of paralyzing diseases on even those who could afford the best of help, and the dependency it caused;

> *"Crippled and deformed in every limb, he could only enjoy his vast wealth by contemplating it and could not even turn in bed without assistance. He also had to have his teeth cleaned and brushed for him–a squalid and pitiful detail- and when complaining about the humiliations of his infirmity was often heard to say that every day he licked the fingers of his slaves."*

The disabled were also frequently the object of cruel humour, ranging from literary mocking, through to the use of disabled slaves as entertainment (Garland 1990, 73-87; Gevaert 2012). One of the most illustrative examples of perceptions of physical impairment in the Roman period is the case of the Emperor Claudius (41-54 AD), who displayed a variety of symptoms described by Suetonius (*Claudius.* 30) and Seneca the Younger (*Apocolocyntosis 5.2-6)* which have invited a range of interpretations and diagnoses over the years including, but not limited to, infantile poliomyelitis (Braund and James 1998). Claudius was deliberately kept out of the public eye due to the stigma attached to his condition, which made the majority of his family despise him as both *imbecelitas* (weak, feeble, and dependent) and as a monster, until his accession, when he is deliberately portrayed in all extant statuary and imagery as an ideal Julio-Claudian figure (Garland 2010, 40-42; Leon 1948; Stahl 2011, 727). Satire, such as Seneca's *Apocolocyntosis,* utilized Claudius' impairment to stinging effect, wherein he is depicted as a deformed monster, struggling with life and cursed by the gods. Descriptions of Claudius' physical impairments are obviously exceptional compared to the life of Roman provincials, both in their relation to an individual of extraordinary status and their actual existence, but perhaps illustrate the ways in which a family might have reacted to having had an impaired or deformed child and the negative reactions that such differences provoked.

Given that, if taken alone, the Roman sources would argue that individuals with deforming and mobility-impairing disabilities would be the subjects of marginalization and aspersion, what are we to make of K131's normative burial? The burial of K131, which is a relatively unfurnished supine burial in a sub-rectangular grave, is normative both for the late Romano-British period and the wider Empire during this period (Philpott 1991, Rebillard 2009). There are few discussed examples of disabled individuals with normative burials for comparison. The burial of individuals with significant impairments has, when noted upon within British archaeology, been typically associated with the provision of deviant burials, particularly within both the Romano-British and Anglo-Saxon periods (Philpott 1991, Molleson 1999; Taylor 2008). Forms of Romano-British deviant burial that are found include, but are not limited to: decapitation burial, prone burial, the use of stones as weights on the body, and liminal burial positions (Philpott 1991; Taylor 2008).

Typically, when discussed, disabled people in the Roman period have been focused on as a sub-category of those individuals who received deviant burials on a case-by-case basis rather than as part of a wider, holistic study of disability in Roman Britain as a whole. The disabled are often considered as sub-categories of identity that may receive deviant burial, rather than as a category of analysis in their own right. Such analyses have tended to focus on the ways in which impairment was marginalized, considered a taboo and the subject of possible superstitions. These analyses have, by-and-large, neglected to look at the range of disabled individuals who did receive normative burial, such as burial K131, and what the differences in provision may mean. The deficiencies in such an approach have begun to be recognized. For example, Southwell-Wright (2013, 84–85) has previously noted the ways in which focusing on the more lurid case studies, such as the individual with dwarfism who was found buried in a refuse pit at the Roman fort of Trimontium at Newstead (Scotland), may overemphasize negative attitudes towards disability, highlighting the fact that the other recorded individuals with dwarfism in Roman Britain have all been found in regular cemetery contexts. Additionally, Southwell-Wright (2014) has argued that the provision of 'deviant' burial status is not solely determined by disability, but is instead brought about through the intersection of a range of competing factors which affect the overall social identity of the individual, including their gender, age, social status and expected role in society.

Furthermore, Southwell-Wright's (2014) work on infants and adults with cranial deformities and possible associated neuropsychological impairment demonstrated a clear distinction between the two age categories. Infant burials were shown to have received investment and a prominent status, whilst those of adults were found in the most marginalized locations with stereotypically 'deviant' burial patterns. This pattern was attributed to the different attitudes towards sickness in infancy and adulthood. Romans identified the former as a period defined by a constant process of change which was seen as associated with ill health. Contrastingly, these same kind of impairments in adulthood could become a cause for stigmatization (Southwell-Wright 2014; see also Carroll and Graham 2014). Likewise, Gowland's (2016) work on the marginalized burials of elderly individuals in Roman Britain highlights the importance of considering age, ill-health and disability together, as the perception of disability influences and is influenced by the age of the individual.

Perhaps there is something significant in the fact that K131 was buried in a normative manner, both in terms of the broader cemetery context, but also within Romano-British funerary norms as a whole. It can be suggested that if deviant burial is only afforded to those whom their peers felt had to be marked out as marginalized and different, even in death, then it is meaningful that this individual did not receive such treatment despite their physical deformity and impairment. Whilst caution must be applied to such matters, it could be argued that this individual's impairments did not severely affect their ability to live up to expected social requirements. A parallel can be drawn with the individuals described with a variety of impairments from the *Via Collatina* cemetery, Rome, described by Graham (2013), who were found in a communal burial context within a wider cemetery of individuals without impairments or disabilities. These too illustrate the ways in which the physically impaired may often appear in funerary contexts that would not correlate with a focus purely on the examples of deviant and unusual burial provision for the disabled.

It is likely that a range of factors will have had implications for the perception of this individual's impairment. Was their work largely physical, or sedentary? What was the status of their family? What was their ethnic background? Questions such as this will all have affected how this individual was treated, but will largely remain unknown to us. Nonetheless, and perhaps contrary to what is expected, this individual's normative burial remains noteable as it illustrates the range of identities that individuals with impairments could hold in funerary contexts in Roman Britain, perhaps in contrast to the typical association between these individuals and the remarkable unusual deviant burials that more readily noticeable.

Conclusions

The palaeopathological analysis of K131 suggests that unilateral disuse atrophy of the left side of the body, acquired postural foot deformity and scoliosis could be related to poliomyelitis. It is likely that this individual would have manifested deformity and altered gait. It is not possible to ascertain the social implications of this impairment in Romano-British society of the second to fourth centuries AD. Whilst Roman historical sources give us a very particular, and overwhelmingly negative, sense of what life was like for the disabled, it is difficult in the absence of specific evidence from Roman Britain to know to what extent such attitudes played out in non-elite, provincial contexts. K131's burial and its normative nature is demonstrative of the fact that, despite the impression that much of the wider literature gives, many people with significant physical impairments were buried within inclusive, normative burial contexts in this society. We may not know whether K131 faced neglect, aspersion, or discrimination in their lifetime, as the sources would suggest, but we can state with confidence that their normative burial treatment should be taken to be indicative of the ways in which the impaired were not necessarily treated as deviant or 'other' in death, as is often assumed.

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