Chapter 16

The Mesolithic Footprints Retained in One Bed of the Former Saltmarshes at Formby Point, Sefton Coast, North West England

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Abstract In the early Holocene period, extensive tracts of coastal land were submerged as the climate warmed and meltwaters flooded into the oceans. As the Irish Sea expanded, coastlines altered and large intertidal zones were created as tracts of low-lying land at the tidal margins were gradually submerged. In these areas, reed swamp and saltmarsh formed which, too, were inundated for varying periods of time. However, in the calmer warmer weather of the late spring and summer, birds and mammals were drawn on to the mudflats where they could feed on molluscs, or new reed and sedge shoots, wallow in the cooling mud, drink the brackish water or, for some predators, hunt. The behavioural tendencies of some species are revealed by their footprints which show their engagement within this environment – some breeds moved on to the marshes while others moved away. The humans who shared this landscape understood the opportunities offered by these predictable behaviours. Their trails run along and across those left by many species, leaving a visible network of human and animal activity preserved in the hardened mud. These will be described through an examination of the footprints recorded in three contexts which formed the stratigraphy of a Mesolithic bed at Formby Point in North West England. The persistent return to the mudflats by generations of people reflects an embodied knowledge of this coastal landscape, learnt in childhood and practiced in adulthood. The ability to modify movements in the landscape, to respond to the daily tides, the changing seasons and a fluctuating environment, all suggest a spatial-temporal relationship which not only encompassed a dynamic environment but also the other life that dwelt within it.

Keywords Formby Point · Mesolithic · Footprints · Sedimentary beds · Saltmarshes · Intertidal · Humans · Animals

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Introduction

Formby Point forms part of the Sefton coast which encompasses a length of coastline of sandy beaches backed by intermittent dune systems and located between the city of Liverpool to the south and Southport to the north (Fig. 16.1). This part of the coastline is suffering from erosional processes which act to reduce the height of a beach. In places, particularly at Formby, this causes the Holocene sedimentary beds to become intermittently visible, jutting out from the sand. The consolidated muddy outcrops appear at different times but the most northern are constantly visible. The different consistency and colour of the sediment indicates the various inland sources of the silt laden streams that conveyed material in suspension from inland during the Mesolithic period. Today, once exposed, they are at the mercy of the weather and the waves which act to gradually destroy them by alternately drying and eroding the layers by sea water. However, the beds are frequently re-covered by the sand either brought down from the nearby eroding dunes or from the sea. Therefore, the exposures are transient and their appearance unpredictable. This study will focus on one sedimentary bed. An analysis of the footprints preserved within it will offer insights into the lifeways of coastal populations during the late Mesolithic period. First, I would like to illustrate the palaeoenvironment which existed in the coastal

Fig. 16.1 (a) The location of the published footprint sites situated around the coastline of Britain. 1 **Formby Point**, Sefton Coast, Merseyside; 2 Low Hauxley, Northumberland; 3 Happisburgh, North Norfolk; 4 St Ouen's Bay, Jersey; 5 Magor Pill, Gwent and Uskmouth, Newport, S. Wales; 6 Goldcliff, Gwent, S. Wales; 7 Kenfig, Pembrokeshire, Wales; and 8 Splash Point, Rhyl, Denbighshire, Wales. (b) The exposed bed at Blundell Path C. The scale is 1 m. (Photo June 2016)

zone of North West England. This provides the contextual background in which the footprints were left.

The Palaeoenvironment

Fluctuations in sea level during the Mesolithic period led to corresponding changes in the landscape. Brackish areas of wetland developed as fresh and saltwater mixed, which changed the ecology of an area as tracts of land were submerged (Fitch and Gaffney 2011; Tooley 1978). Waves and strong tidal currents reworked the mud, gravels and glacial till situated on the bed of the Irish Sea (Fitch and Gaffney 2011; Johnson 2009; Pye et al. 1995). Flood tides around the Liverpool Bay were much stronger in their velocities than the ebb tides. This created an overall landward drift of water-borne material which remained in suspension until it was released onto the upper reaches of the intertidal zones. Transgressive events during the mid-Holocene period also caused a significant amount of sediment to accumulate at the eastern edge of the Irish Sea where it formed sand bars and intertidal mudflats (Huntley 2008: 64; Kenna 1986; Pye et al. 1995; Tooley 1978). Within this diverse and fluctuating landscape, people would have utilised the ever-changing coastline to their advantage, using areas of higher ground as look-out points but retreating when the sea flooded over previously dry areas (Fitch and Gaffney 2011: 96).

Immediately inland, the terrain consisted of low-lying fen carr mixed with carr wood and scrub which extended to the coastal dunes and at the seaward margins an intertidal saltmarsh (Pye et al. 1995; Roberts and Worsley 2008). This coastal ecology covered an area from Anglesey, North Wales, all the way round the eastern edge of the Irish Sea to Walney Island in Cumbria, interrupted at intervals by estuaries running through them (Fitch and Gaffney 2011; Tooley 1976).

This chapter will discuss one footprint laden bed which was recorded in its entirety during a short period of exposure during June 2016. It consisted of two main contexts with a third exposed as a narrow strip on the seaward side of the bed. Contexts 1 and 3 were radiocarbon dated using plant macrofossil analysis. However, in order to contextualise the footprints within this bed it is important to mention other studies which have taken place at Formby and the processes which led to the retention of these footprints.

Previous Studies at Formby Point

Previous studies relating to Formby were published in 1978, the late 1990s and the early 2000s. These studies focussed on dune formation and on determining the pattern of sea-level rise during the early Holocene period. As part of this research, alder and oak roots growing into the sedimentary beds were dated. At Lifeboat Road, the initial dating of the then dune-edge woody dendritic peat, which has since been eroded, was undertaken by Tooley (1978). The sample

recovered from a height of +5.08 m OD gave an age of 897–386 calBC (2510 ± 120 BP, Q-2086). In 1995, Pye et al. dated alder roots visible on the upper beach, north of Lifeboat Road, Formby Point (National Grid reference SD 269 065) to 800–100 calBC (2335 ± 120 BP, HV 4709) and 1690–1370 calBC (3230 ± 80 BP, Beta 47,682), respectively, providing a terminus post quem for the sediments which lay beneath the dunes and therefore a date after which the coastal dune system had formed. To establish the antiquity of the sedimentary beds further organic samples were taken. Gonzales et al. (1997) dated alder roots from a similar location to 1780–1430 calBC (3333 ± 80 BP, UB 3868) and 2400–1650 calBC (3649 ± 109 BP, UB 3869) and Roberts (2009) also dated alder roots near Lifeboat Road to 2040–1760 calBC (3575 ± 45 BP, OxA-10,075). However, it was recognised by Roberts that these dates did not establish the actual dates that the footprints were formed, partly because in the 1990s, Gordon Roberts had discovered a set of red deer antlers with good stratigraphic context in an outcrop of sediment close to the dune foot at Wicks Path. This lies approximately 100 m to the north of Lifeboat Road. The antlers yielded a date of 3339–3205 calBC (4450 ± 45 BP, OxA-9130) (Roberts 2009: 36), putting them into the middle of the Neolithic period. In an effort to date the footprints in beds sediment samples taken by Roberts from Blundell Path were sent for dating analysis using optically stimulated luminescence (OSL). Two samples were analysed: the first taken from a depth of –10 cm gave a date of 5978–3371 calBC (5750 ± 600 BP, OxA 1528a), and the second, taken from a depth of –30 cm, gave a date of 7311–4169 calBC (6650 ± 700 BP, OxA 1528b), (Roberts et al. 1996; Roberts 2009). The exact location of these sample sites is not recorded, and the dates obtained from the sediment give a very broad time span for the mudflat formation but indicate that terrestrial and marine sediments were steadily accumulating from the late Mesolithic period. However, the coastal palaeoenvironment at these locations had changed substantially over time as the dates of the oak and alder roots indicate. Eventually, by the Bronze Age, trees had become established over the former saltmarshes as the coastline moved significantly further to the west as local sea levels regressed (Huddart et al. 1999; Tooley 1978).

The rarity and significance of the archaeological record at Formby Point was established by Gordon Roberts, a local resident, who was primarily interested in the footprints which he noticed in the mud when walking his dog. His careful recording – photography, casting and cataloguing of many footprints enabled him to identify most of the faunal species and to identify and make estimations on the sex, age and stature of the human population (Roberts et al. 1996; Roberts 2009). Represented in the faunal population, he identified red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), aurochs (*Bos primigenius*), crane (*Grus Grus*) oystercatcher (*Haematopus ostralegus*), dog/wolf (*Canis lupus/familiaris*), small seabirds, wild boar (*Sus scrofa*), unshod horses (*Equus*) and possibly beaver (*Castor fiber*) (Huddart et al. 1999; Roberts 2009).

Footprint Formation and Preservation Process

As the extensive saltmarsh formed intertidal reed beds and mudflats accumulated at the fluctuating fringes of the coast. These were cut by muddy channels filled with brackish water. This area attracted a variety of fauna drawn by the richness of the reed beds and the openness of the mudflats in contrast to the tangled fenn-carr inland. During the late spring and summer months, the mudflats were exposed for some hours when the tide was out, enabling the footprints of all those moving over them to be captured in the damp sandy mud. During the warmth of the day, the mud hardened and the footprint was retained, baked into the silt. The hardened impressions would have been first filled with aeolian and tidal sand and then covered and sealed by the next water-borne sediment deposition (Allen 1997, 2007; Bennett et al. 2010; Roberts 2009). This fresh layer of silt also had the potential to retain a further array of footprints. However, as can be appreciated, a particular suite of circumstances was needed to enable preservation to take place. Most footprints would have been destroyed by the returning tide within hours of their formation. Over time though, a consolidated bed of sediment formed with the preserved footprints retained in the stratigraphy – offering a snapshot of activity which had taken place over a few hours but which was buried by silt and sand for millennia.

In an experimental research project regarding footprint formation and retention, Marty et al. (2009) described the best conditions for footprint preservation as occurring when the substrate was moist but not waterlogged. In these circumstances the fine details in the footprint would be retained so long as the impression was not immediately covered by water (Marty et al. 2009: 134). Allen described this as stiff mud with a moderate moisture content (1997: 500). The pristine footprints revealed in some of the contexts in the beds at Blundell Path suggest that these conditions were present when these footprints were formed, indicating activity when the tide had been out for a considerable period. Others with less detail suggest a much wetter substrate existed when they were formed and that animals and people also accessed the mudflats shortly after the turn of the tide.

The sedimentary bed which will be discussed in this chapter was only visible for approximately two weeks during June of 2016 and has been named Blundell Path C as it lies in close proximity to two other beds of similar colour and consistency which were previously recorded. This bed measured roughly 4 m by 1.5 m. It was composed of two large exposed layers of approximately 4 m by 0.5 m and one small third layer running under the upper two. Each of these layers contained distinctive trails of footprints. Due to the rapid exposure of the bed in June 2016, most of the footprints were clear, retaining the finer footprint detail and some were in pristine condition. They were recorded over a period of days. At the end of this time, a large quantity of sand once again buried the whole bed to a depth of at least 45 cm.

Blundell Path C

Many beds are intermittently exposed along the foreshore but, during the seven years of recording, Blundell Path C was only visible once for a period of approximately two weeks. However, during this time, it was dated and the exposed parts of the bed fully recorded. Located at Grid reference SD27105 07795, it lies approximately in the middle of the span of beds which extend for 4 km around Formby Point. The mixed stratigraphy of this bed indicates the existence of a dynamic intertidal environment which experienced both periods of flooding, resulting in the deposition of sand, and periods of reduction in relative sea level, which enabled the sediment of the bed to gradually accumulate in three distinct layers of hardened silt (Fig. 16.1). The bed was finally buried beneath the sand where it remained intact until its recent exposure. Each layer, described as a context in this chapter due to the separate episodes of formation, contained footprints.

In order to date the footprints, plant macrofossils were extracted from bulk samples recovered from contexts 1 and 3 and were radiocarbon dated. From context 1 (at the top of the bed), a date of 4331–4050 calBC (5363 ± 59 BP, UBA-32242) was obtained. Context 3 returned a date of 4659–4489 calBC (5749 ± 59 BP, UBA-33959), indicating that the bed accumulated over a period of approximately 400 years. This chapter, therefore, represents an analysis of the humans and animals present within the intertidal muds in Formby at the end of the Mesolithic period in Britain.

The Footprints in the Bed

The lack of clarity of some of the footprint impressions in context 1, which appear eroded, reflects the extended duration of the exposure of this layer of silt to the elements before it was sealed. However, during its formation, this bed had not been subjected to intense drying as no desiccation cracks had occurred. The transient visibility of the bed in 2016 meant that most of the footprints were well preserved and were not exposed to taphonomic processes after exposure. The visible stratigraphy formed two main contexts (Fig. 16.1). A third lower context appeared as a small layer of silt for two days only, before it was partially eroded and reburied. However, these footprints (forming context 3) were photographed and measured. During the recording of the bed, which took place over 4 days, parts of the seaward edge of the bed were eroded at a rate of approximately 45 cm a day. This affected the continuity of some footprint trails in context 2 which had fortuitously been previously recorded. However, it illustrated the ephemeral nature of the bed and the footprints once exposed.

Of the six species recorded here (human, red deer, roe deer, wild boar, oyster-catcher and crane), human footprints dominate, accounting for 22 individuals ranging from toddlers to robust adults. Of the animals represented, a small flock of cranes at the most southern end of the bed (Fig. 16.4) accounts for their increased representation in context 1. Of the other species, red deer accounted for three trails of prints and roe deer seven. Unusually, roe deer outnumber red deer in this bed, in contrast with the other Mesolithic beds, where red deer dominate. A single wild boar

Table 16.1 The species and their numbers represented by the footprints in the bed at Blundell Path C

Species	Human	Red deer	Roe deer	Wild boar	Oystercatcher	Crane
Context 1	3	1	4	1	2	8
Context 2	14	2	3		1	1
Context 3	5					
Total	22	3	7	1	3	8

Table 16.2 The dimensions of the footprints, the estimated heights of the children and the direction of travel in context 3 (cm)

Feature number	FL	FW	FD	H	Age	Direction
F.0054	14	5	5	90	≤3	S
F.0055	22	8.5	2	146.5	14+/A	NE
F.0056	10.6	4	1	68	<3	SE
F.0069	12.7	6.5	0.6	81.5	<3	W
F.0070	8.5	5	0.7	54.5	<3	NE

FL foot length, *FW* foot width, *FD* foot depth, *H* height

trail and three widely spaced oystercatcher prints account for the other species. Table 16.1 shows the number of species present within each context.

The footprints will now be discussed in each context starting from the earliest dated context (3) to the newest (1), to highlight the activity taking place during the accumulation of the bed.

Context 3, the Lowest Layer

The footprints in this 1 × 0.5 m exposure of mud were made by four young children and one person over 14 (Table 16.2). No overall trend in the direction of travel could be seen due to the lack of full footprint trails. Only single footprints left by individuals were discernible (Fig. 16.3d). However, they were all within the same area. The grouping of the footprints suggests a number of infants moving around in the mudflats when the tide was out, probably under the supervision of a teenager (F.0055 in Table 16.2).

It is interesting to note that the prints left by the four very young children conform to groupings of children's footprints which are repeated in several of the beds along the foreshore of Formby Point. It would appear that children frequently ventured out onto the mudflats together and that an older youth or young adult was close to them. However, occasionally children moved around together without an accompanying elder. Their presence at the edge of the mudflat indicates the level of familiarity that even very young people had with this intertidal environment. The footprints show their movement directly to and from the sea and at an oblique angle to the tidal edge. At a very young age, habitus, which Ingold (2010, 2011, 2018) defined as the

development of skilled knowledge through repeated engagement in a particular setting, was developing. In later life, habitus can be interpreted in the trails of adult footprints progressing with ease through the intertidal muds.

Context 2, the Middle Layer

In this context, the footprints were left by five species; roe deer, red deer, crane, oystercatchers and humans. The footprints were made by 14 humans dominate, although these are frequently only single footprints lying amongst the animal footprints. Only two trails composed of several human footprints were preserved. The measurements of the single human footprints indicate that each age group is represented in this context. Adults are represented by half of the 14 sets of prints. There were three sets of footprints belonging to children under three years of age, two children around ten years of age and two sets belonging to sub-adults aged 14 and above. The assignation of sex was problematic due to the lack of detail in most of these footprints. However, the largest footprint lengths indicate that the adults ranged in height from 155 to 175 cm. This suggests that both sexes were represented by the tracks. The three sets of footprints belonging to children indicate that one child was 112 cm tall and the two smallest sets indicate a toddler and a slightly older child under three years of age. Table 16.3 is a summary of the human footprint dimensions in this context.

Table 16.3 The dimensions of the human footprints in context 2 (cm)

Feature	FL	FW	FD	H	Age	Sex	Trail/ Single	Direction	Interpretation
F.0040	25.5	9.5	2.9	171	Adult	Male?	Single	NW	
F.0041	25	8		166.5	Adult		Single	N	F.0042, F.0043, same person
F.0042	23.5	9	3	156.5	14+		T	W	
F.0043	23.5	9	3	156.5		Female?	T	W	
F.0044	partial	9	3				T	SW	
F.0046	21	7.5	3	134	14+/ adult		T	SW	F.0044, F.0046, F.0047, F.0048, F.0049, F.0052 same person
F.0047	22	9	3	146.5			T	SW	
F.0048	25	9.5	2.7	166.5	Adult		T	SW	
F.0049	24.5	9.5		162	Adult	Male?	T	SW	
F.0053	7	7	3.7	49	≤3		Single	NE	
F.0052	24.5	9.7	2.7	162	Adult		T	SW	
F.0057	24	13	0.5	160	Adult	Male?	Single	S	
F.0058	14	8	2	90	≤3		Single	S	
F.0059	22	8	1.5	146.5	14+/ adult		Single	S	
F.0060	18	7.5	1.5	116	10+		Single	S	
F.0061	15.5	8	0.5	99.5	≤10		Single	S	
F.0022	10	4	3	64	≤3		Single	E	
F.0023	27	6	3	179	Adult		Single	N	

FL foot length, *FW* foot width, *FD* foot depth, *H* height

Although the human and faunal prints (red deer and crane) lay in close proximity within this context, there are no obvious connections between them. The direction of travel by the three roe deer shows a preference to travel along the mudflat to the northeast and the southwest. This contrasts with the red deer who moved east or west. The crane and oystercatcher prints show their random movement over the bed. Although these prints lie near to the human footprints and show the presence of several species over a short space of time, the animals would not have been present at the same time as the humans, rather shortly before or shortly after.

That the humans did not step into faunal footprints is notable and provides us with a sense of their awareness of others. Despite no recognisable trends apparent in human travel over these mudflats, there was a slight preference to move towards the south along them, parallel to the inland vegetation. However, some human footprint trails clearly show particular patterns of movement. For instance, the clearest set of footprints were left by a person 165 cm tall (probably male) who walked along the mud before stopping (Fig. 16.2, features F.0044, F.0045, F.0046, F.0047, F.0048, F.0049 and F.0052). This person then carried on walking southwest, oblique to the sea. This trail was crossed by another – also an adult – who stood 155 cm high and headed west directly to the seaward edge of the mudflat (features F.0042 and F.0043). These two sets were joined by a third person (171 cm) who walked northwest to join the others (feature F.0040). A slightly different orientation shows a fourth person (also 165 cm tall) who walked north (feature F.0041). However, at least three of the group of people were converging on one area at the seaward edge of the mudflat (Fig. 16.2). It suggests, therefore, that they may have been engaged in activity at the edge of the sea.

Fig. 16.2 A group of human tracks in context 2 Blundell Path C recorded in June 2016. The plan covers an area of approximately 5×3 m

Figure 16.3 shows three of the sets of footprints from this group which could indicate two males and possibly one female. However, this footprint F.0043 could also represent a youth due to the width of the forefoot. Of note is the division between the

Fig. 16.3 Footprints from three adults shown in Fig. 16.2; (a–c) features F.0041, F.0043, F.0048 in context 2; (d) a child's print in context 3 shows the wide foot of an infant (F.0054). (Photos June 2016)

big toe and the other toes in feature F.0048, left by the first (165 cm tall) individual described. This print anomaly was not caused by the substrate but represents some form of foot deformity or a missing toe. This is confirmed by the same impression left in each right footprint. This abnormality is not seen on the left side.

Context 1, the Top Layer

Here the footprints were left by six species. A small flock of cranes represent the greatest number of prints left by any one species. The footprints in this context are widely dispersed, but the crane prints in the southern end of the bed shows their random movements as they foraged for food buried in the silt. Their bill probes left distinctive marks as small oval shapes in the mud amidst their footprints (Fig. 16.4). Bird species are also represented by the oystercatcher, the most common seabird recorded at Formby Point.

Roe deer are well represented in this context, accounting for four sets of prints, indicating that this location was quiet enough at times to enable the wary roe deer to feel safe in the open landscape. This interpretation of composure is accentuated by the footprints of two adult roe deer that travelled across the bed towards the sea at a steady walking pace. One roe deer was slightly larger than the other (Table 16.4). Both had hooves larger than adults of the extant breed (which have hoof prints which average 4–5 cm long and 3–4 cm wide). Of the four sets of roe deer prints, two indicate movement towards the northwest and two towards the southwest, indicating travel towards and back from the seaward edge of the bed where they may have been drinking the backish water flowing through the channels at the edge of the mudflat. Of the animal species present on the beds at Blundell Path, roe deer and red deer represent the greatest numbers and were clearly prolific in this wetland area during the Mesolithic period.

Fig. 16.4 A photogrammetric plate of the crane prints and their bill scrapes at the southern end of Blundell Path C. The scale rod shows 1 m. (Photos June 2016)

Table 16.4 The size of the hoof prints made by two roe deer in context 1 at Blundell Path C (cm)

Roe deer	Feature	FL	FW	FD
Context 1	F.0024	9	7.5	2
	F.0025	9	7.5	2.5
	F.0026	8	7	2.4
	F.0027	8	6	3
	F.0028	8	7	3.2
Context 1	F.0009	8	8	2
	F.0010	7.5	6.5	2.5
	F.0011	6.7	6	2
	F.0012	7	8	2
	F.0013	7	6	3
	F.0014	8	6.5	4.5
	F.0015	8	5	4

FL foot length, *FW* foot width, *FD* foot depth

The lone red deer trail showed a small animal moving northeast (Fig. 16.2, feature F.0051). The single wild boar trail is the only confirmed recording of this species at Formby, although other scholars have reported the possibility of its presence (pers. comm. Roberts). Apart from the group of crane prints, there were no visible connections between the individual sets of footprints between the various species. All the hoof and footprints show movement at a steady walking pace in an undisturbed environment.

The two sets of human footprints in this context were eroded to the extent that the impressions were shallow and the foot shape indistinct with no fine internal footprint details remaining. One set showed a track of five footprints, the clearest of which measured 25.5 cm in length suggesting a person 171 cm tall (F.0031, F.0034). This person travelled north along the mudflat. The other track (F.0036) was made by an adult of approximately 186 cm tall, and this broad footprint at the level of the metatarsal heads suggests a male (Fig. 16.5). This person travelled east back to dry land. Due to the amount of erosion of these footprints, the footprint lengths used to calculate height of each individual are variable (Table 16.5) and therefore give a range of possibilities. Some footprints also show slippage of the foot which further complicates estimates of height using these indistinct impressions. Therefore, although the clearest footprints have been taken as the approximate height of the individual, these calculations can only be estimates at best.

The difference in detail between the human and faunal prints in this context (compare the impressions in Figs. 16.4 and 16.5) could be due to humans being present when the mud was hardening so that the footprint was not captured in detail. Erosion by the incoming tide could have further erased the detail.

Fig. 16.5 The two sets of footprints left in context 1 Blundell Path C; (a) and (b) the two clearest footprints left by person 1 (F.0031, F.0034); (c) the clearest footprint left by person 2 (F.0036). (Photos June 2016)

Table 16.5 Measurements from the human footprints in context 1 (cm)

Context	Feature	FL	FW	FD	H
Human 1	F.0031	32	13	2	153
	F.0032	21	10	1	134
	F.0033	20	11	1.3	128
	F.0034*	25.5	11	3	171
Human 2	F.0035	23	8	3	153
	F.0036*	28	10	2.5	186

FL foot length, *FW* foot width, *FD* foot depth, *H* height, * clearest print

Activity on the Mudflats

Faunal Behaviour in the Intertidal Zone

The faunal imprints contained within each context offer a snapshot of activity which occurred during the drying process of the silt. However, some knowledge of the habits of the different species present at different states of the tide enables us to make a number of interpretations about the activity which occurred in this bed. For instance, the red deer and roe deer would only have been visible on the bed at dawn and dusk unless a particularly quiet interlude during the day could have enabled them to feel safe when exposed on the mudflats. The wild boar would not have been on the saltmarshes at the same time, preferring instead to be active during the night, foraging from dusk until dawn in the undergrowth nearby and only venturing onto the saltmarshes to wallow in the mud during the day (Overton and Hamilakis 2013). Humans, however, could have been present at a similar time to the deer but were most likely to have been most active during the middle hours of the day, at the same time as the cranes and oystercatchers. The cranes are present in some numbers and may have nested in the alder trees fronting onto the saltmarsh coming down on them to forage for food. They are found in each Mesolithic bed, showing their presence throughout this time but not later during the Neolithic. Although not recorded in this bed, the aurochs was present at Formby and would have been active during the day. Known as a wetland specialist (Hall 2008: 190), the aurochs would have fed on young reed shoots and wallowed in the mud (Aurochs footprints have been recorded in the other Mesolithic beds at Blundell Path).

In this Blundell Path C bed, in context 1, it can be hypothesised from an interpretation of the depth of the footprints, that the roe and red deer and possibly also the cranes were present very early in the day at dawn when the mud was still saturated shortly after the turn of the tide. This enabled clear, deep, sharply cut impressions of each hoof and claw to be captured in the mud. The humans, however, were present some time later when the mud had had time to dry. This reduced the depth and details of their footprints which were also then rapidly further eroded by the incoming tide, before being capped with further sediment and sealed as the bed

accumulated. When the footprints are interpreted using a range of information regarding the habits of different species and the appearance of the footprints themselves, a picture of movement in the intertidal mudflats is gained and the changing nature of activity on the mudflats better understood.

Many of the trails of footprints left by different fauna suggest a familiarity with this environment that enabled them to take advantage of the intertidal muds and marginal vegetation. Here, animals moved obliquely to the edge of the sea, thus using the terrain to travel through. This may have been because it was easier to walk along a mudflat than travel further inland where the wetland fen carr would have offered many obstacles. The openness of the saltmarshes would also have afforded an awareness of the presence of other species and, at times, would have provided an early warning of potential danger. At Blundell Path C, the very alert roe deer travelled at a walking pace, but in other beds they frequently travelled at some speed as if escaping from a threat. Apart from humans though, predator species are not noted at Blundell path C. However, the presence of wolf/dog and lynx has been noted in the other Mesolithic beds at Blundell Path, so they were almost certainly, in the proximity of the mudflats.

In summary, the intertidal environment was in a constant state of flux. Here we have a sense of continual movement on and off the marshes at different times depending on the state of the tide and the habits of the animals. Overall though, an impression of familiarity and comfort in this intertidal area is gained, where there was minimal perception of threat despite the possibility of predators being nearby. A return to the area by the same species over many generations also shows patterns of activity which remained consistent over a long duration, despite the ever present challenges of an existence within such a dynamic environment.

Humans in the Intertidal Zone

The human footprints in each of the three contexts in this exposed area of the bed discussed, demonstrate a human presence on the marshes over the several hundred years of its existence. People of all ages are represented, although not recorded in each context. For instance, in context 3, four young children and a 14 +/adult are represented. In context 2, adult footprints dominate (14 people are represented here). In context 1 there are only two adult trails. However, these footprints all show persistent activity focussed on this area in the intertidal zone for over at least 400 years at the end of the Mesolithic period.

As previously mentioned, one notable feature in each context is the lack of overlap of any of the footprint impressions despite their close proximity. This is particularly apparent in context 2 (Fig. 16.2). Here also, adults travelled both along the mudflats and directly out towards the sea. However, in this particular area, people appear to have been progressing from several directions to converge at the seaward edge of the mudflat. In context 1, adults still walked along the mudflats often progressing northwards, in reverse of context 2. They also walked east towards land

and away from the edge of the sea. However, despite these differences in orientation, they still may have been engaged in the same activities, like the fauna, generations later.

Experience in the Intertidal Zone

The depth and uniformity of the base of the footprint impressions showed that these people moved through the mud at a steady walking pace, fully aware of others around them and the semi-liquid environment in which they walked. This awareness would have been accentuated by the visibility of other footprint tracks left in the mud, read as clues to the whereabouts or intentions of other beings (Ingold 2010: 131) whose temporal and territorial rhythms would have been familiar and understood (Brittain and Overton 2013; Haraway 2003; Ingold 2010, 2018). Later return along the same pathways would have reinforced impressions of the location, both of the path and its setting in the saltmarsh (Ingold 2018). The dynamics of erosion would also have exhumed beds with ancient footprints and made them visible to all who walked in the mudflats. At these times, local knowledge, connections to the past and memories of the easiest paths and routes across the mudflats as well as past encounters with other humans and animals would have strengthened a feeling of co-habitation and a sense of bonding with others. This would have been particularly keen between the animal species and humans that shared the same rhythms (Brittain and Overton 2013; Ingold 2010; Sturt 2006; Wieckowska-Lüth et al. 2018).

The footprints which show adults travelling west towards the sea could indicate seafaring activity – fishing for young fish in the shallow waters along the edges of the saltmarsh, or possibly embarking on sailing trips along the coastline on the protected waters at its edge. Knowledge of the seasonal tides and currents, combined with periods of calm weather, would have enabled this to be a regular occupation (Robinson 2019: 150) and could have enabled regular contacts to be made with other communities of people living along the coast. From the shores of Formby, the North Welsh coast can be clearly seen, appearing easily accessible across the River Mersey, which during the late Mesolithic period would have been a small estuary (Fitch and Gaffney 2011). Although dugout log boats have been recovered from Mesolithic sites such as Tybrind Vig, Denmark (Anderson 2011; McCartan et al. 2009; Robinson 2019), and Lough Neagh Co. Tyrone (McCartan 2004: 280), seafaring using curricles made from wood and hide have been shown to be more seaworthy (Callaghan and Scarre 2009; Robinson 2019) with the potential to travel across the Irish Sea from many locations, particularly in the summer months (Cobb 2008; Robinson 2019).

Evidence of Coastal Occupation

Close to Formby, on the foreshore at Rhyl (in North Wales, 4 km from Prestatyn) (Fig. 16.1: site number 8), intertidal footprints and a submerged forest have been

recorded. A red deer antler mattock embedded in the silt of the forest was dated to 5640–5360 calBC (6560 ± 80 BP, OxA-1009; Bell 2007: 298). At Prestatyn, ten shell middens have been excavated at Nant Hall Road, only 1 km from the current coastline. These shell middens were situated at the Mesolithic margins of the saltmarsh and wetland area. The oldest are contemporaneous with the Oronsay middens and date from the late Mesolithic 4470–4050 calBC (5470 ± 80 BP, CAR-1424). They were largely composed of mussel shells (*Mytilus edulis*) that were mixed, in some deposits, with charcoal, small numbers of periwinkles (*Littorina littorea*) cockles (*Cerastoderma edule*), fragments of flint, red deer bones and fractured beach pebbles (Thomas and Britnell 2007: 272). Here, small-scale, short-term activity rather than a year-round occupation took place (Bell 2007: 311) and the middens were the result of small fires and stone tool production necessary to process and cook shellfish and red deer. Although not present in the archaeological record at Formby, the activities indicated by the Prestatyn middens would also have applied to the contemporaneous population based around the coastline of North West England. However, along this coastline, only the footprints remain as evidence of Mesolithic lifeways.

Hunter-Gatherer-Foragers at Formby

The footprints manifest intimate traces of past actions, and their distribution in each context has provided a portrait of contemporaneous activity in the intertidal reaches. They are therefore a rich source of information on the human and animal behaviours that took place at a particular time, as described. However, to make some nuanced interpretations on particular aspects of human activity, it has been necessary to use ethnographic analogy to make comparisons between the footprints of the Mesolithic population and modern populations for whom footprints form an important source of information - extant hunter-gatherer groups. For them, information contained in the footprints can provide clues to who was in the vicinity, how long ago and whether alone or in the company of others (pers. comm. Thui Thao, /Ui Kxunta, Tsamgao Ciqae Jul'hoan tracker). This information is pertinent to both animals and humans. Patterns of walking can be interpreted and individuals discerned through their gait after they have moved through an area, and the activity in which they were engaged read by their footprint trails some time later.

This type of enquiry has been invaluable to assist with the interpretations made regarding the Formby footprints and particular patterns of movement reflected in some individual tracks or groups of trails. For instance, two sets of human footprints, one in Blundell Path C and another in Blundell Path A, show adults walking and then stopping, standing with their feet apart firmly planted in the mud in order to look around. This type of movement replicates that of the Bartek tribe in Malaysia who are opportunistic hunters. Their method of pursuing quarry is to proceed with care for a few steps and then stop and silently observe what prey might be in the vicinity.

This relies on an awareness of the fauna that might potentially be present within the local environment and a skilled ability to walk carefully so as not to make noises that would disturb any targets in the surrounding area (Laws 2017).

Other footprint trails at Formby show large adults walking alone along the edge of the mudflats. Within the same context however, other footprints were made by younger people who appeared to have been moving parallel to the adult. Occasionally these human trails are associated with very large red deer prints and sometimes crane prints, which can be observed running both parallel and across the human footprints. It is possible in these scenarios that, as with the Jul'hoan, older experienced teenagers and adults were leading scouting expeditions across the mudflats in search of quarry. Ethnographically, in the Jul'hoan community, male youths accompany elders in order to learn hunting techniques. One explicit purpose of these expeditions is to learn to read the clues displayed by footprints and information contained in spoors (pers. comm. Jul'hoan hunter 2017).

In the constantly changing mudflat terrain at Formby, adults may also have been actively engaged in familiarising young children with the intertidal environment, the safe areas and the more dangerous ones nearer to the sea, the state of the tide and the preferred locations of particular species at particular times of the day. This would have enabled hunting expeditions to be more successful and people of different ages to be actively involved as part of a purposeful group. Ethnographically, these behaviours can be seen in the Yamana tribe who teach their young to imitate adult hunting activities. These are an important part of community life, where replication of adult behaviours by juveniles helps to bolster the social reputation of adults and assists with the formation and maintenance of social norms and cooperative behaviours (Santos et al. 2015: 2). In the Hadza tribe, children as young as three are taught to forage and contribute food to the immediate family, spending up to half the day away from their parents with their peer group (Lozoff and Brittenham 1979). At Formby, the footprints show that people of all ages and both sexes engaged in activities on the mudflats, but most were undertaken by small groups of people working co-operatively together with children under the watchful supervision of their elders.

In the bed at Blundell Path C, the footprints show a healthy population. However, one adult footprint trail shows a missing second toe (Fig. 16.3 F.0048). This is the most common foot abnormality seen in the Mesolithic population. However, in two cases, in the Mesolithic bed at Blundell Path A, the little toe (at the fifth metatarsal head) was fractured and was left to heal at an oblique angle to the other toes. Occasionally, disability has also been indicated by a lack of alignment of the toes which have left an odd impression in the mud (and could be due to club foot (*talipes equinovarus*)). However, the vast majority of footprints show a population with healthy feet and no skeletal lower limb abnormalities.

Conclusion

This paper has discussed the transient exposure of a late Mesolithic sedimentary bed at Formby Point on the Sefton Coast of North West England which was formed over a period of approximately 400 years. During this time only three episodes of footprint preservation within its layered stratigraphy were identified. The particular atmospheric and tidal conditions necessary for footprint retention have been described as has their appearance in the bed at Blundell Path C after their recent exposure by the sea on the foreshore at Formby. The rapid capture of the footprints in antiquity has meant that daily activity on the saltmarshes can be seen and interpretations can be made of engagement in the intertidal zone at different times. For instance, it is notable that in contexts 1 and 2, despite a potential separation of several hundred years, the species present and the activities in which they were engaged remained very similar. Of note is the fact that several species used this mudflat to travel along the coast and not just to access the resources of the intertidal zone or the shallows of the sea. This may have been due to the ease of moving over the mudflats in contrast to the neighbouring wetland fen-carr landscape.

The patterning of the footprints suggests a shared environment in which daily activity varied with the temporal rhythms of the tides, weather and other species on the mudflats. The diurnal habits of ungulates, birds and wild boar would have been known to the humans who appear to have respected the footprints made by others. This has provided a unique insight into the relationships that operated between people and animals and has moved us away from the interpretation that people were simply accessing the intertidal area for food procurement. In an otherwise empty archaeological setting, these footprints illustrate the importance of the intertidal zone during the Mesolithic period in North West England. It presents an intimate and unique record of life not otherwise available through other forms of the archaeological record.

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