

OF MANURING AND MONUMENTS: NEW WORK AROUND THE FRESTON CAUSEWAYED ENCLOSURE

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Summary

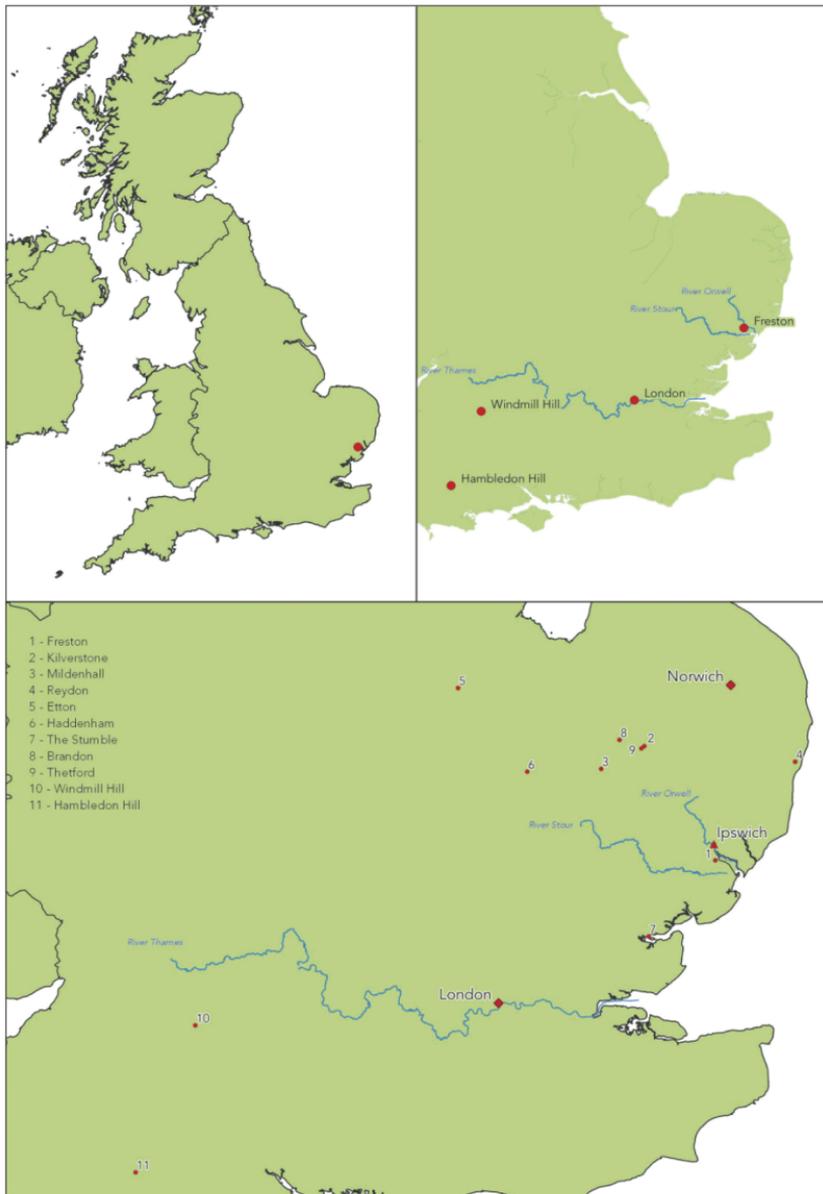
In August 2018 a two-person team undertook a pedestrian survey of a field due south of the Freston interrupted ditch system/causewayed enclosure on the Shotley peninsula, Suffolk. This modest two-week project initiated a new phase of research at the Early Neolithic monument. Our specific aim was to shed light on activity directly outside of this prehistoric enclosure. Whilst the ploughed field provided excellent surface visibility, only a low background noise of Neolithic worked flint was recovered. Most of the survey finds were in the form of later modern period (eighteenth to nineteenth century AD) glazed ceramics, ceramic building material and glass. The relatively even distribution of this Victorian material across the field suggests that these artefacts did not come from the nearby Potash Farm and Latimer Cottages, but instead were likely deposited on the fields with manure brought up from London.

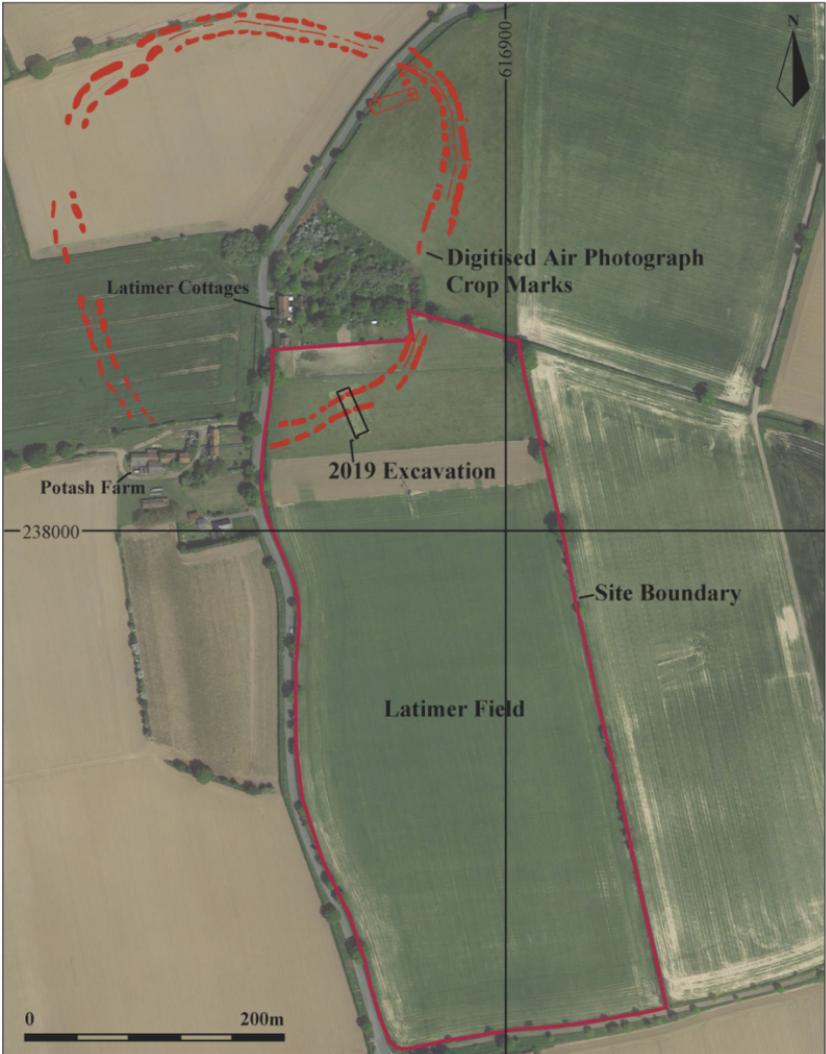
INTRODUCTION

IN 2018 THE FRESTON ARCHAEOLOGICAL RESEARCH MISSION (FARM) was initiated to generate data anew on the parish's large causewayed enclosure (Figs 1 and 2); our first season comprised of a small-scale fieldwalking project due south of the monument. The site was discovered through aerial photography in 1969, with no original earthworks visible at ground level.¹ The enclosure is bisected by the north-south B1080 road, with Potash Farm overlaying its south-west ditches, while the two Latimer Cottages were constructed just south-east of its centre (Fig. 2). At present, most of the site is under farmland, and there is concern that modern deep-ploughing practices may have disturbed the subsurface archaeological deposits in certain areas.

The causewayed enclosure is registered as site FRT 005 in the Suffolk County Council Historic Environment Record (HER), and has protected status from Historic England as Scheduled Ancient Monument 1005982.² The cropmarks indicate that the site consists of two closely spaced, concentric, and interrupted ditches that cover 8.55ha (Fig. 2),³ making it the fifth largest example of these Early Neolithic monuments in Britain.⁴ Of great interest is the outline of a rectangular timber-posted structure in the north-east quadrant, plus two large pits between this building and the enclosure ditch (Fig. 2). This could be a rare example of a long house *within* a British causewayed enclosure, or potentially a precursor to the interrupted ditch system, given that such buildings generally belong to the earliest phases of the Neolithic.⁵ Alternatively, the timber structure might be an Early Saxon hall, and the large pits Saxon Sunken Featured Buildings (SFBs), either of which would be highly significant given the rarity of such constructions in Britain.⁶

Fieldwork at the site has been relatively limited since its discovery, with two small-scale subsurface investigations accompanying modern developments,⁷ plus a more substantial geophysical survey of the monument's north-east quadrant.⁸ While a quantity of prehistoric





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FIG. 1 – Site location map (*map: N. Jackson*).

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FIG. 2 – The Freston causewayed enclosure and Latimer Field (*image: T. Schofield*).

lithic material has been documented from the surrounding fields, there had been no systematic pedestrian survey of this proximate area until now.

THE 2018 PEDESTRIAN SURVEY OF LATIMER FIELD: AIMS AND METHODS

The survey targeted that part of Latimer Field due south of the enclosure's south-eastern quadrant (Fig. 2), part of Home Farm's landholdings. The northern end of the field forms the property boundary of the Latimer Cottages, with the next *c.*100m southwards overlaying part of the causewayed enclosure; this area is no longer farmed. That part of the field accessible for survey is roughly rectangular in form, *c.*450m north–south, and 220–240m east–west. The western edge is defined by a hedgerow (adjacent to the B1080), while its southern boundary divides the parishes of Freston and Holbrook. In 2018 the main part of the field had been cultivated for cereals; harvesting and ploughing had occurred a couple of weeks prior to the survey, providing excellent surface visibility. Over the past 100+ years the field has also been used for growing potatoes, which requires relatively deep ploughing (*c.*28–35cm) and may well have cut into the prehistoric surfaces (paleosols) and brought artefacts into the topsoil.⁹

The survey aimed to characterise and quantify the surface archaeology of Latimer Field to investigate the nature of Neolithic activity immediately outside of the causewayed enclosure, a hitherto under-developed focus of research for these monuments, with ditch systems and interiors being the typical *foci*.¹⁰ While the project's point of departure was an interest in the Neolithic, it took an avowedly diachronic approach in that it was designed to document any surface finds, and by extent any period of human activity. That said, a decision was taken not to document or collect any modern items made from plastic, rubber, concrete, or metalwork such as shotgun cartridges.

The work was conducted following established intensive survey methods, systematically walking linear transects at 40m intervals across the field following the east–west plough-lines.¹¹ Transect 1 was established at an arbitrary point at the northern end of the field, with Transects 2–11 running southward to the parish boundary (Fig. 3). Recording points were established every 10m along these transect lines, with all artefacts collected within a 1m² radius. The eastern field edge was defined as our 1000 baseline, whereby the first collection point was defined as Transect 1-1000 (T1-1000), followed by T1-1010, T1-1020, etc. The artefacts collected from these standardised collection points allowed us to generate broad-stroke, quantified impressions of the surface archaeology (Fig. 3).

The areas between the transect lines and collection points (usually 10m by 40m) were also surveyed, albeit by employing a different fieldwalking and collection strategy. In these instances, the surveyor walked back and forth at 2m intervals across the collection units, noting all surface material, but collecting only chronologically diagnostic finds. These rectangular units were also defined uniquely with a lettering system, the first being Transect 1A (T1-A), followed by T1-B, T1-C, etc. (Fig. 4).

In documenting the survey, the degree of vegetation coverage for each collection point and unit was noted (<10 per cent, 10–50 per cent, 50–90 per cent and >90 per cent being the four options), and the angle of slope (<15°, 15–45°, or >45°). While vegetation and slope can significantly influence artefact visibility and distribution, this was not an issue here, as Latimer Field is flat and ploughing had removed most of the stubble, with dense vegetation being limited to the field's edge hedgerows.¹²

SURVEY RESULTS

The Latimer Field survey produced a modest quantity of artefacts, with few obvious

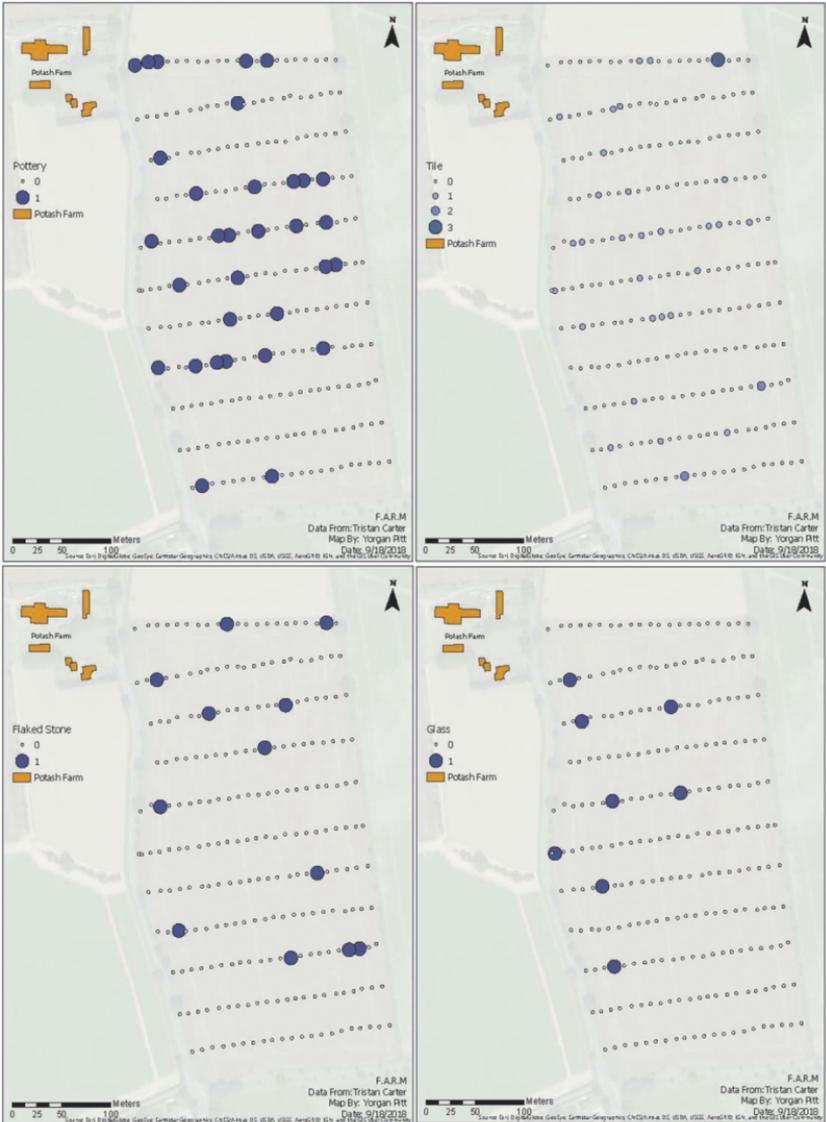


FIG. 3 – Quantification of main artefact classes by transect point: top left, pottery; top right, tile (ceramic building material); bottom left, flaked stone; and bottom right, glass; Transect 11 at the north, Transect 1 at the south (*map: Y. Pitt*).

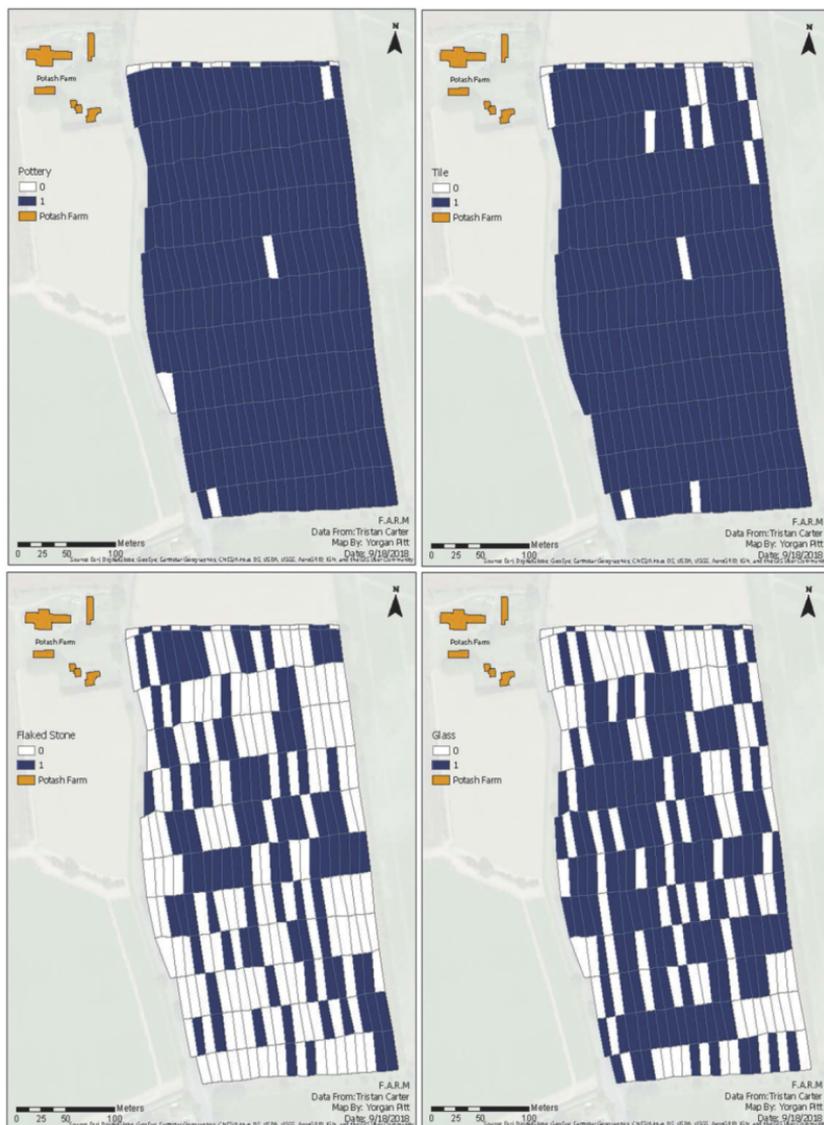


FIG. 4 – Presence of main artefact classes by collection unit: top left, pottery; top right, tile (ceramic building material); bottom left, flaked stone; and bottom right, glass (*map: Y. Pitt*).

concentrations that might be interpreted as *foci* of past activity. When compared to data from other Neolithic sites, one can appreciate how little material was found (see below), leading us to employ the following quantification scheme to present our finds: very low, low, low-medium, or medium density (0–10, 11–20, 21–30, or 31–40 artefacts per collection unit respectively).

Just under a third of the 248 collection points contained material culture ($n=75$, 30 per cent), with 87 artefacts documented in total; no point produced more than three items. These finds, in descending order of frequency, comprised: ceramic building material (CBM) ($n=35$), pottery sherds ($n=32$), flaked stone artefacts ($n=12$), plus eight pieces of glass (Fig. 3). The inter-transect collection units revealed a similarly low-density find distribution across the field, with the same type of finds, together with some burnt flint, and seven clay pipe stems (Fig. 4).

Lithics

The lithic assemblage was comprised of flaked and burnt flint, most of which likely dates to the period of the causewayed enclosure (Figs 3–5). While the assemblage lacked certain classic Early Neolithic tool types, not least leaf-shaped arrowheads, it did include typical scrapers and percussion-knapped blades, bladelets and flakes (Fig. 5).¹³ The presence of a burnt bladelet core, a multiple platform flake nucleus (Fig. 5: J), and part cortical blanks (Fig. 5: H, K), indicates that most of the artefacts were manufactured within the vicinity, flaked from the locally available rounded flint cobbles from the Lowestoft Formation sands and gravels that underlay the topsoil.¹⁴ The retouched component of the assemblage included blade-like flakes and blades with linear modification, two piercer/perforators (Fig. 5: E), side- and/or end-scrapers (Fig. 5: F–I), two ‘serrated’ (denticulated) pieces and notched pieces (Fig. 5: C); direct and inverse retouch were both employed.

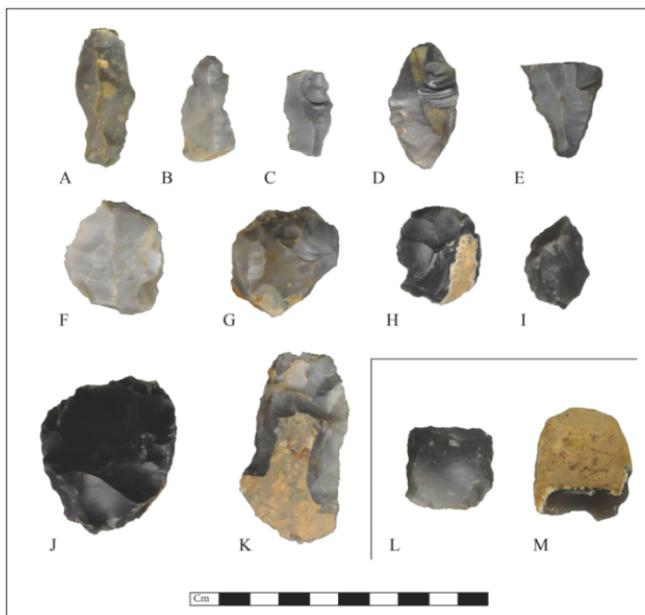
This material has good parallels, technologically and typologically, with Early Neolithic sites in the larger region, such as the pit sites at Hurst Fen, Mildenhall; Reydon Farm (Suffolk) and Kilverstone (Norfolk); the causewayed enclosure and other sites at Eton and Haddenham (Cambridgeshire); and the Stumble (Essex) (Fig. 1).¹⁵ A few pieces of flint were heavily patinated, which might suggest the presence of an earlier prehistoric component, though chemical alteration of an artefact’s surface can relate to microenvironmental factors as much as age.¹⁶ While the survey did not recover any ground stone tools, a few axes are known to have been collected as surface finds within the boundaries of the monument.¹⁷

Burnt flints were also recorded from seven inter-transect collection units roughly in the middle of the field, material that is also likely to be Neolithic in date.¹⁸ Quantities of burnt flint were recovered from the 2019 excavation at Freston,¹⁹ and have been found at Early Neolithic pit sites, such as Kilverstone, Hurst Fen and Reydon Farm (Fig. 1), the material having likely been heated on hearths to be used as pot-boilers for cooking.²⁰

Finally, two of the flaked stone tools are of historic date, specifically gunflints from T6-H and T7-I (Fig. 5: L–M). While the best-known British gunflints, not least those produced in the cottage industry at Brandon in north-west Suffolk in the late nineteenth and twentieth centuries, tend to be of regular prismatic form, the examples recovered during the survey are both of the ‘D-shaped’ variant, produced from around 1650 to the end of the eighteenth century.²¹

Ceramics

The ceramic assemblage is made up of pottery, CBM, and clay pipes. The oldest material comprises a single rim sherd of Thetford ware from T2-G (Fig. 6: A), a type of pottery manufactured in Ipswich from the mid-ninth century, and thereafter in Thetford (where it was first documented) and Norwich through the tenth and eleventh centuries.²² A few sherds of



salt-glazed stoneware with its distinctive glossy, translucent, orange-brown and slightly roughened surface texture were also found (Fig. 6: B–D). This high-temperature fired ceramic was first manufactured in the Rhineland around 1400 AD, after which it was made in Flanders before being adopted by English potters in the seventeenth century, with production continuing throughout most of the 1800s.²³

Most of the survey pottery dates to the later modern period (eighteenth and nineteenth centuries), and consists primarily of glazed wares, including a number with painted and/or printed decoration such as the distinctive blue on a white porcelain background willow pattern ware and other Chinese-influenced forms (Fig. 6: E–G). This ceramic tradition was produced by English artists in Caughley (Shropshire) during the last decade of the eighteenth century, becoming a quintessential Victorian household item by the end of the nineteenth century.²⁴ The survey also recovered a range of other painted and glazed Victorian wares with various linear and geometric designs in black, red and blue on a white porcelain background, and more rarely a coloured fabric (Fig. 6: H–L). As with the willow pattern, most of these vessels were tablewares, i.e. plates and bowls, though there was the occasional fragment of a container, such as the labelled lid from a potted meat jar from T3-I (Fig. 6: J). Two other plate fragments had text on them, one from T3-G detailing its place of origin as Staffordshire (Fig. 6: H). The other from T5-K has the year 1873 painted upon it, though it is not known what this date commemorates (Fig. 6: I); if it were meant to detail the year of manufacture, it would be more likely to be on the vessel's underside.

The glass artefacts all appear to relate to tablewares and serving vessels, with fragments of glasses, bottles (beer and wine), decanters and fruit bowls.²⁵ The glass was either clear (some with a pink hue), or green; the lack of blue pieces suggests that the assemblage did not include medicine containers. The CBM was primarily in the form of roof-tile, mainly unglazed and none stamped, while the seven clay pipe fragments were all unmarked stems; there was also a small, round porcelain knob from a cupboard door, or drawer.²⁶

DISCUSSION

Neolithic

The presence of Neolithic activity due south of the monument is evidenced by a small quantity of flaked stone. While the recovery of two cores, unmodified flakes and cortical blanks indicates local toolmaking, no concentrations of knapping debris were found. The one possible focus of Neolithic activity consists of a small amount of burnt flint from transects 5–6 and 8, potential pot-boilers from hearths and cooking areas such as those excavated at Early Neolithic Hurst Fen and Kilverstone.²⁷

The Latimer Field data reflects a low density of finds, with twelve pieces of flaked stone from the 248 1m² transect collection points representing an average density of 0.05 artefacts per m². Such a meagre quantity of artefacts can be contrasted with the forty-five pieces of flaked stone and four pieces of pottery from the limited cable trench excavation in 2010 that suggested 'a high level of activity' within the monument.²⁸ In turn, one can compare our survey

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FIG. 5 – Neolithic flaked stone artefacts: (A–D) blades; (E) perforator on a blade; (F–I) side- and/or end-scrapers; (J) multi-platform flake core; (K) rejuvenation flake from face of blade-core; (L–M) D-shaped gunflints (*photos: R. Moir*).

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FIG. 6 – Diagnostic pottery from the survey: (A) Thetford ware; (B–D) Salt-glazed stoneware; (E–G) willow pattern ware; (H–L) painted and glazed Victorian wares (*photos: R. Moir*).

data with those from the surface collections at the Early Neolithic pit site of Hurst Fen, Mildenhall in west Suffolk that produced around thirty-three flaked stone artefacts per m², which is 660 times denser than the Latimer Field results.²⁹ Taking a broader geographic view, one can similarly point to significantly richer survey assemblages from Early Neolithic sites in the lower Exe valley in Devon.³⁰

The most pertinent data with which to contextualise the Latimer Field results are those generated by the surveys outside of the well-known Wiltshire causewayed enclosures of Windmill Hill and Hambledon Hill (Fig. 1). Work at the former site focused on the North Field (772,158 m²) where, much like the survey conditions at Freston, the fields were ploughed with good artefact visibility.³¹ The quantity of flaked stone recovered from outside this causewayed enclosure is significantly greater than that from Freston. This is despite having been intensely picked over since the later part of the eighteenth century, with large numbers of flint artefacts accumulated for personal as well as museum collections, most notably the Avebury, Devizes, Swindon and Ashmolean museums.³² Nevertheless, the 284 transect points from this Windmill Hill survey produced 1091 pieces of worked flint, an average of 3.84 artefacts per m², i.e. ~77 times higher than that from the Latimer Field.³³

Between 1976 and 1982 a number of fields spanning a radius of 4km around the Hambledon Hill causewayed enclosure were fieldwalked, providing a second comparable dataset for the Freston results.³⁴ Once again, artefact visibility was described as very good due to recent ploughing, with similar methods of transect collection points generating a 10 per cent representation of total artefact coverage. To calculate artefact density for this swathe of land around the causewayed enclosure, the number of artefacts collected was multiplied by ten ($n=71, 150$), then this figure was divided by the total area of the fields surveyed (c.4,776,868 m²), to produce an estimated 0.01 artefacts per m², which is five times lower than that calculated for Latimer Field.³⁵

That such low quantities of Neolithic artefacts were recovered outside of the Freston interrupted ditch system was perhaps to be expected given that the geophysical survey of the north-east quadrant indicated 'increased activity within the enclosure and very little activity outside it.'³⁶ More generally, one gains the impression that it is the monuments' interiors that represented the primary areas for social action (feasting, exchange, manufacture, funerary ritual *inter alia*), though given the lack of fieldwork of these enclosures' immediate environs, this should be treated as a hypothesis to be tested rather than taken as fact.³⁷ The Latimer Field data does, however, seem to be particularly poor when contrasted with the richer and more varied traces of social action that occurred outside of Windmill Hill, with their survey also producing arrowheads, axes, adzes, knives and hammerstones.³⁸ Whether the distinctions in artefact abundance between the two sites are the product of more intensive and/or longer-term activity at Windmill Hill is something that can only be clarified by excavation and absolute dating of the Freston monument.³⁹

There are two final considerations regarding how we interpret the low artefact counts of Latimer Field that relate, firstly, to prehistoric traditions of discard; and, secondly, to modern farming practices.⁴⁰ During the Early Neolithic period in East Anglia there is a strong tradition of depositing material culture in pits, rather than having surface accumulations of artefacts in midden-like contexts.⁴¹ In many cases it might thus follow that we only see artefacts on the modern surface if the contents of these pits have been disturbed, as for example through deep ploughing.⁴² As we detail below, the 2019 excavation of a trench a few metres north of Latimer Field had very limited evidence for plough scars cutting into the top of Early Neolithic ditch and pit fills, whereby one indeed might not expect a significant amount of artefacts to have been brought to the surface around this part of the site.

Late Saxon

The Late Saxon period is represented by a Thetford-ware sherd (Fig. 6: A). While the significance of an individual find is difficult to interpret, the recovery of Late Saxon pottery from four other *loci* in the parish of Freston has been noted, as has the fact that nearby Ipswich was a major centre of this period.⁴³

Later modern

Most of the survey pottery dates to the eighteenth and nineteenth centuries, though some of the stoneware may come from the later seventeenth century, and the D-shaped gunflints should date to the late seventeenth to eighteenth centuries. Arguably, the most significant detail of the ceramic data concerns the even distribution of the pottery, CBM and glass across the field (Figs 3–4). If these artefacts related to *local* use and discard of ceramic/glass vessels and roof-tiles, then it would have been reasonable to expect the artefacts to have been concentrated in the north-western end of the field, i.e. closest to the Latimer Cottages and Potash Farm. There is no evidence of a halo of finds around these buildings, moreover, much of the material likely predates the cottages' 1875 construction, though the farm has been in use since the sixteenth century. Instead, we believe that this material has nothing to do with local domestic activities, but rather was introduced as a by-product of agricultural practices, specifically field manuring. It is well documented that London's nineteenth-century transport industry produced significant quantities of horse dung, c.60,000 tonnes in 1876 alone, a resource that was sold to farmers as a fertiliser.⁴⁴ The collection of manure from the city is likely to have simultaneously included sweeping up of other street detritus such as broken ceramic and glass vessels, clay pipes *inter alia*, with everything then taken by cart to farms in the surrounding countryside, or transported by barge from Letts' Wharf, Lambeth. The destinations of these vessels included Suffolk, with manure unloaded at various locations 'on the north bank of the Stour between Stutton and Shotley', c.3km south of Latimer Field, with loads of hay, or other forms of feed for the London horses, being traded in the opposite direction from the local farms.⁴⁵ Nor was this commerce solely initiated by Londoners, as the Wrinch family of prominent farmers from Freston, Harkstead and Ewarton had their own fleet of barges that were directly involved in the hay and manure trade.⁴⁶

In conclusion, it is argued that most of the later modern period ceramics, glass and tile recovered from Latimer Field were clearly deposited through manuring, the objects having been originally used and broken in London rather than Freston. Arguably, the main significance of this paper is documenting the archaeological evidence for this practice rather than the historical evidence. Indeed, while the claim that this survey material related to the spreading of manure and 'night soil' was well received by other archaeologists who had experienced the widespread distribution of Victorian ceramics and glass on the region's fields, there has been no publication of this phenomenon in the archaeological literature until now.⁴⁷

CONCLUSION

In 2019 the Freston Archaeological Research Mission segued from survey to excavation, with a 10m by 35m trench excavated in the monument's south-east quadrant over a six-week period in the summer.⁴⁸ This work, targeting two pairs of ditch *termini* and part of the enclosure's interior, produced significant quantities of diagnostic Early Neolithic material culture, not least Mildenhall-ware pottery and leaf-shaped arrowheads, thus proving the long-held belief as to the site's character and date. This work raises two points of significance for our understanding of the Latimer Field survey data. Firstly, as noted above, the excavation suggested that there was only a very limited disturbance of the Neolithic deposits by modern

ploughing, whereby one might not expect to see a lot of artefacts being brought to the surface. Secondly, the trench was deliberately extended southwards beyond the limits of the concentric ditch system in order to further examine the nature of Neolithic activity outside of the monument. Whilst part of the interior of the excavated enclosure contained a few artefact-bearing pits, no such features were discovered outside of the ditch system, despite this being a much larger area of exposure. In sum, the excavation suggests that the low density of Neolithic finds in Latimer Field could be the result of both a low level of archaeological activity outside of the enclosure, and the stability of any deposits that are in this area.

Ultimately, it is hoped that the programme of fieldwork at Freston can be expanded with further small-scale targeted excavations within the monument, environmental coring of the springs, and the fieldwalking of a larger swathe of land around the causewayed enclosure. Whilst East Anglia has a particularly rich history of Early Neolithic research, there has only been a limited focus on sites close to the seaboard and the estuaries leading from them, which is a key area for understanding the processes of Neolithisation, be that initiated by migrant farmers coming directly from the continent, or by budding off from early agriculturalist populations in south-east England.⁴⁹

ACKNOWLEDGEMENTS

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NOTES

- 1 Oswald *et al.* 2001, 155; Palmer 1976, 164, 184, Fig. 15.
- 2 <https://heritage.suffolk.gov.uk/hbsmr-web/record.aspx?UID=MSF8555-Interrupted-Ditch-System-Causewayed-Enclosure-at-Potash-Farm&pageid=16&mid=9>; originally recorded as SF 183 under the government agency's former guise of English Heritage.
- 3 Palmer 1979, 175; see also Dyer 1995; Hegarty and Newsome 2004, 22–3.
- 4 Oswald *et al.* 2001, 72–3, Figs 3.14 and 4.23–4.24.
- 5 Oswald *et al.* 2001, 126; Sheridan 2010, 97.
- 6 Martin 2007, 1.
- 7 Meredith 2007; Wightman 2011.
- 8 Martin 2007.
- 9 G. Mayhew pers. comm.
- 10 Oswald *et al.* 2001, 130; though see Bayer 2016; Whittle *et al.* 2000.
- 11 Carter *et al.* 2016, 277–8.
- 12 Cf. Rick 1976; Whitelaw 1991.
- 13 Clark *et al.* 1960, 214–25; Edmonds 1995, 35–45; Saville 2002.
- 14 British Geological Survey 2020.
- 15 Hurst Fen, Mildenhall: Beadsmoore 2006; Reydon Farm: Clarke *et al.* 1960, 214–26; Kilverstone: Harding *et al.* 2017, 9–11; Etrton: Middleton 1998; Haddenham: Middleton 2006; Stumble: Holgate 2012.

- 16 Hochella and Banfield 1995.
 17 J. Marriot and S. Plowman pers. comms.
 18 From survey units TS-T, TS-V, T6-E, T-6G, T6-I, T6-O, and T8-D.
 19 Schofield *et al.* 2021, 115.
 20 Clark *et al.* 1960, 205; Garrow *et al.* 2005, 145–6, Table 2; Harding *et al.* 2017, 9.
 21 Torrence 1986, 66–74; Ballin 2012, 131–2, Fig. 3, 1.
 22 Atkin *et al.* 1983; Hurst 1957, 1976, 318.
 23 Barber 1907; Hughes 1961.
 24 Neale 2005; O'Hara 1993; Portanova 2013.
 25 Morris 1978.
 26 From survey units TS-3Q, TS-10I, TS-11H, TS-11N, TS-11Q, TS-11S, and TS-11T.
 27 Garrow *et al.* 2005, 145–6, Table 2.
 28 Wightman 2011, 8.
 29 Clarke *et al.* 1960, 214.
 30 Bayer 2011.
 31 Whittle *et al.* 2000, 137.
 32 Holgate 1988, Table 4, 242; Whittle *et al.* 2000, 137.
 33 The larger assemblage size at Windmill Hill could in part be due to the site having a longer period of use, with excavations attesting to Early–Late Neolithic activity, Pollard 1999; Whittle *et al.* 2000, 175.
 34 Palmer and Oswald 2008.
 35 Survey area estimated using GIS by Nat Jackson from original publication, Palmer and Oswald 2008, Fig. 2.2.
 36 Martin 2007, 4. Much the same impression was gained by our 2019 geophysics survey within and beyond the south-east quadrant, Schofield *et al.* 2021.
 37 Oswald 2001, 123–30.
 38 Whittle *et al.* 2000, Fig. 3.
 39 Conversely one wonders if the lower average artefact count from Hambleton Hill might in part be due to the survey incorporating such a large area around the site, as opposed to focusing on tracts of land immediately abutting the enclosure.
 40 See Martin and Russell 2000.
 41 Garrow 2007.
 42 The relationship between surface finds and subsurface features, not least Neolithic pits, has been examined and discussed by a few scholars, with, perhaps unsurprisingly, no clear patterning revealed, see Garrow 2007, 7–8 and Healey 1988, 106.
 43 <https://heritage.suffolk.gov.uk/simple-search> (FRT 007, FRT 022, FRT 023, FRT 032); Wade 1978, 1999.
 44 Turvey 2000, 9.
 45 Malster 2017, 105.
 46 G. Mayhew pers. comm.; Malster 2017, 106.
 47 T. Loader and J. Plouviez pers. comms.
 48 Carter *et al.* forthcoming; Schofield *et al.* 2021.
 49 Whittle *et al.* 2011, 853–61, Fig. 15.8.

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