

18th-century innovations in cattle breeding: the evidence from Dickens Square, Southwark

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Introduction

The history of domestic livestock in the 18th century was marked by 'improvements', following the desire

among landowners and farmers to produce stock which would be more productive and better able to meet the ever-growing food requirements of the burgeoning urban centres.¹ This was essentially achieved through selective breeding, although changes in husbandry practices also played a part. Information provided by archaeology, based on the skeletal evidence, can be used to demonstrate these changes with the data available from complete skeletons of particular importance.

This report offers a description of the three cattle skeletons found within two late 18th-century pits during excavations by Pre-Construct Archaeology (PCA) at 1 Dickens Square, London Borough of Southwark.² It follows a previous discussion of this same material focusing on their derivation rather than, as here, their place within late post-medieval cattle management.³ Comparisons are made with the somewhat larger collection of early to mid-18th-century cattle skeletons found at the British Museum.⁴

Description of the skeletons

This section of the report will focus on characteristics of the skulls, which lead to an interpretation of 'type' (see below). General details concerning the position and

other skeletal aspects of the cattle remains can be found in the previously mentioned report where the data concerning their size, sex, age and pathology were shown in Table 1.⁵

Notably all three skulls demonstrate different posterior nuchal shapes – the line of the skull between the horncores (as shown in Fig 1 Skeletons 1–3, *top to bottom*, and Fig 2, *top view*). This contrasts with a rather similar dorsal shape (as shown in Fig 2, *bottom view*). Regarding the posterior shape, the skull of Skeleton 1 is rounded, Skeleton 2 is slightly rounded/ pointed, while Skeleton 3 is domed. Further similarities and differences include similarly-shaped horncores attached to the skulls of Skeletons 1 and 2 (Fig 2, *left*) compared to a completely different horncore with Skeleton 3 (Fig 2, *right*).

This can be divided into the base, described as horizontal or about 90° to the vertical axis (as shown in Fig 2, *top*); middle, twisting up and somewhat forward and tip, straight up or slightly back, that is, to the posterior – when comparing the posterior, dorsal and lateral views (as shown in Figs 1–3 and represented by Skeleton 2 in the latter two illustrations). The bases of the horncores of Skeletons 1 and 2 are round in cross-section and this attribute, as well as the shape of the horncores, suggest that these individuals are female.

The shape of the Skeleton 3 horncores (Fig 2, *right*), following the same pattern can be described as sweeping down at 60° to the vertical axis: twisting up to the horizontal plane and slightly forward; and then up and forward, clearly contrasting with the more upward stance of the Skeleton 2 horncore (Fig 4). The downward curvature of these horncores suggests Skeleton 3 may in fact be a bull.⁶



Fig 1: posterior views of the cattle skulls from all three skeletons

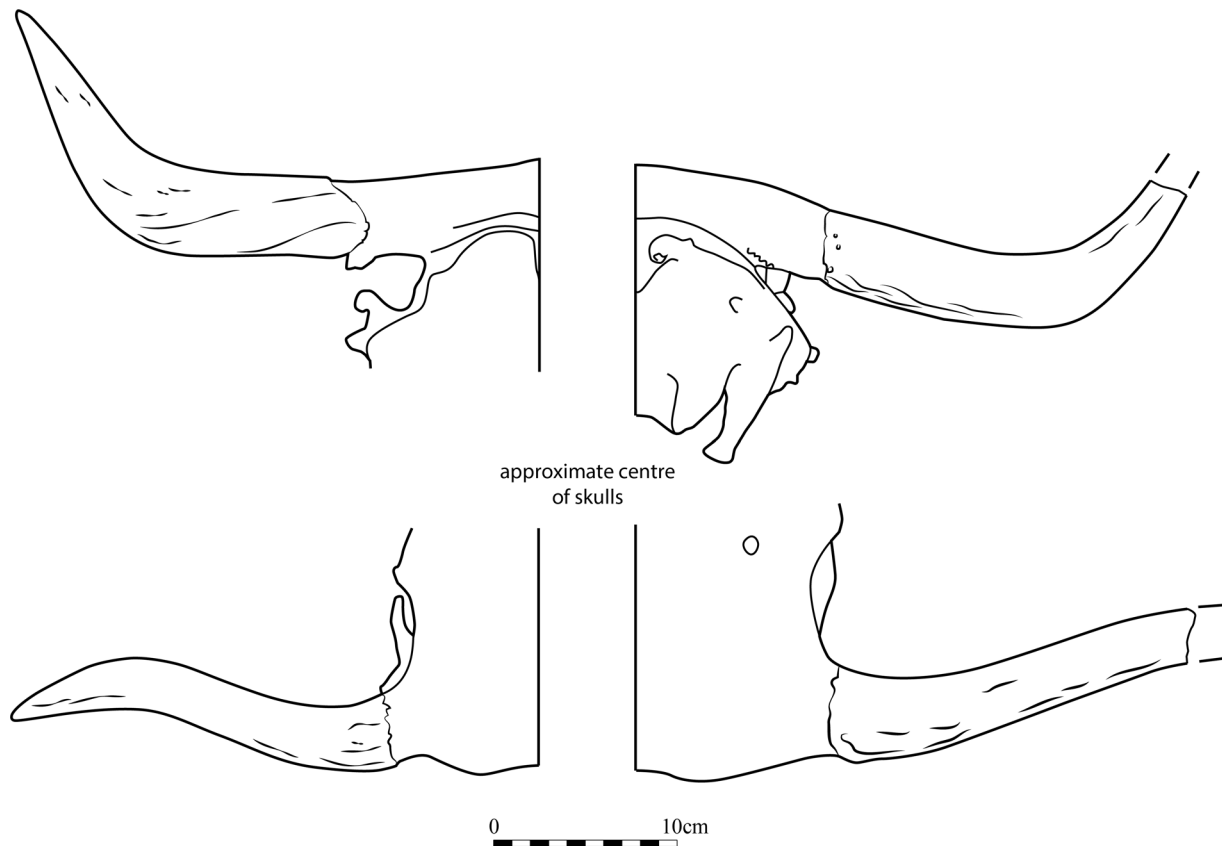


Fig 2: shape of the cattle horncore and adjacent skull from Skeleton 2 (left) and Skeleton 3 (right), viewed from the posterior (top) and dorsal directions (bottom). Note that the posterior aspect is vertical (top) and the dorsal aspect is horizontal (bottom).

However, this shape alongside that of the nuchal area may be indicative of a particular 'type'.

Cattle 'improvements'

The cattle represented on this site stood at the cusp of an ongoing improvement scheme. Dating from at least the latter part of the medieval period, and probably associated with agrarian reform, the culmination of this process took place in the late 18th century and early 19th century with the creation of 'breeds', following the husbandry methods of gentlemen farmers like Robert Bakewell.⁷ Size was clearly a major issue, essentially in response to the increasing demands of the urban meat markets and in particular London, which by the middle of the 16th century had already become known as the 'great mouth'.⁸

A size increase is clearly shown among the cattle bones recovered from a variety of London archaeological sites between the late medieval and early post-medieval periods and again by the 18th century.⁹ It can be observed that the Dickens Square cattle would appear to conform to this upward trend, notwithstanding the rather small dataset

from this site. The 18th-century cattle skeletons from the British Museum, all identified as cows, provided an approximately similar size range – with shoulder heights between 1203.5 and 1382.5mm (giving an average value of 1299.6mm) out of a total of 29 individuals.¹⁰ As mentioned above, such changes were achieved in part by improvements in husbandry practices and also by selective breeding, aided in the 17th century by the introduction of continental (Low Country) cattle.¹¹

This process provided a number of cattle varieties, which by the early 18th century included such 'predominant sorts' as the Lancashire longhorn and the Yorkshire shorthorn. Such varieties, here referred to as 'types', though ill-defined in comparison to 'breeds', nonetheless carried inheritable traits allowing some level of identification. The presence of such traits formed the basis of their selection, acting as building blocks for the creation of the aforementioned 'breeds'.

Despite the county names given to the above examples they were not necessarily regional. Longhorns essentially covered all cattle with exceptionally long horns, Lancashire

longhorns being so-called due to their derivation from the Lancashire stock-rearing farms, which provided the very best animals of this 'type'. These were then exported to other parts of Britain and, in particular, to the graziers of the South Midlands and South Eastern England.¹²

Types or breeds?

It can be supposed, due to the date of deposition, that the Dickens Square cattle represent 'types' rather than 'breeds'. Previous work distinguishing cattle varieties from archaeological faunal collections has concentrated on the shape and size of their horns as well as that of the skull between the horns (the nuchal area as mentioned above).¹³

A division of the horn (or rather the horncore) into three main sizes, according to length, follows the general historical references to short-, middle- or long-horned cattle. The shape of the horn and that of the nuchal area can be compared with a variety of historical illustrations, these tending to be of rather mixed quality and often depicting 'breeds'; rather than 'types', but nonetheless providing some basis for comparison.¹⁴

DICKENS SQUARE CATTLE

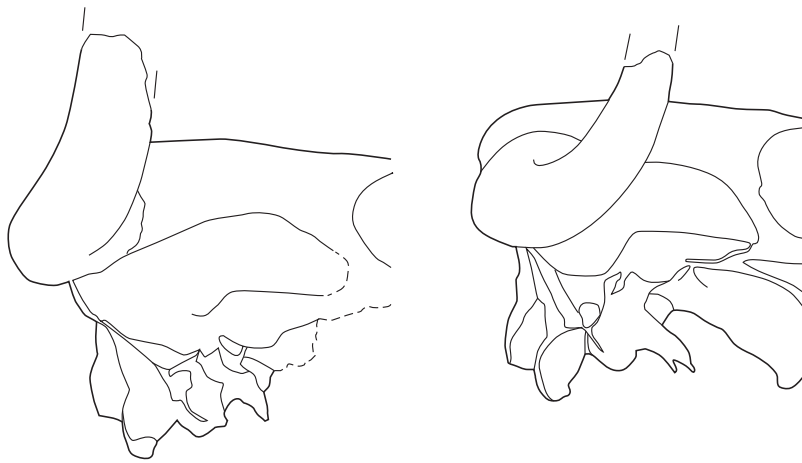


Fig 3: right/lateral view of the skulls from Skeleton 2 (left) and Skeleton 3 (right)

Each of the three cattle skeletons at this site have horncores which can be placed within, or approximate to, the longhorn group (a length of 360mm), with the examples from Skeletons 1 and 3 being slightly smaller (340mm and 355mm respectively) and the Skeleton 2 horncore somewhat larger (385mm). The unimproved longhorn cow, following 19th-century descriptions of the forbears of the longhorn breed, appears to have had rather similarly-shaped horns to those represented by Skeletons 1 and 2 (see Fig 3), while the frontal eminence of this type was known to be either flat or very slightly convex,¹⁵ as indeed shown by Skeleton 2 (and see Figs 1 and 2).¹⁶

Differences concerning nuchal shape (Skeletons 1 and 3) and horncore shape (Skeleton 3) may suggest the presence of more than one variety of longhorn in this area. The British Museum cow skeletons also provided a mix of nuchal shapes, although with a greater range of 'types' based on the length of their horncores.¹⁷

Such a range of sizes and shapes could perhaps be explained in terms of natural variation within a single herd – a 'type' with ill-defined characteristics. However, the extent of these differences, both at Dickens Square and the British Museum, would perhaps argue otherwise. In addition, it would appear to have been common practice by the mid-18th century to keep mixed herds in the fattening and dairying regions (presumably including the outskirts of London).¹⁸

The Skeleton 3 'type' is of particular interest as this clearly represents a

rather rare variety.¹⁹ It resembles the skull of the improved longhorn ('breed') regarding the domed frontal eminence as well as the downward curving horns (as shown in Fig 5). There is also a degree of forward turn, clearly not as pronounced as that shown in the 19th-century illustration, but nonetheless quite different from the other horncore shapes demonstrated by Skeletons 1 and 2. The changes in the conformation of the skull between the unimproved and improved longhorn were clearly profound.

The question to be asked, concerning Skeleton 3, is whether a proportion of the former 'type' bore some of the attributes of the final product. Conversely, could this individual represent an intermediary between the unimproved and improved? It can certainly be suggested that the Longhorn breed would have been developed across a number of

generations. However, it is perhaps unlikely that individuals would have been sold off prior to completion of the breeding process. Obviously, further data, both historical and archaeological, will be required to solve this problem.

Final remarks

The study of cattle development has certainly advanced in recent years, at least regarding their size,²⁰ but there is still much work to do with reference to the development of 'types'. It is possible to identify varieties from archaeological material, at least within general groupings, despite certain reservations here.²¹ However, there is a clear requirement for further detailed studies of this material, preferably combining horncore and nuchal shape data.

The raw material for such studies has been and will undoubtedly continue to be found at London archaeological sites, most notably amongst the concentrations of cattle horncores from sites associated with various post-medieval industries such as tanning and horn-working.²²

The importance of complete skeletons cannot be underestimated here, because these possess the skull parts as well as the necessary complementary evidence concerning size, age and sex.

Acknowledgements

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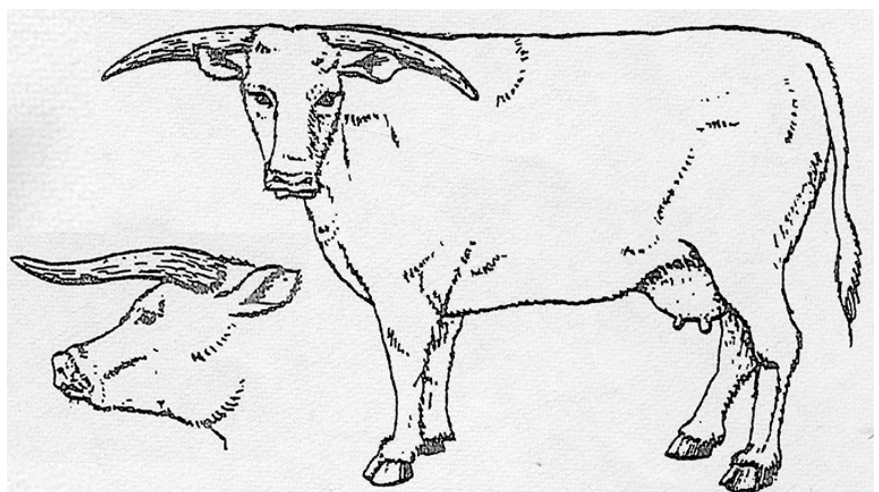


Fig 4: drawing of an unimproved British longhorn cow based on 19th-century engravings and descriptions, notably showing the horncores – with the horn sheaths removed²³

and to Frank Linden for initiating PCA's involvement.

Thanks also need to be extended to Dr Christopher Constable, Senior Archaeology Officer for the London Borough of Southwark, for monitoring the site on behalf of the Local Planning Authority.

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Fig 5: 'An improved long-horned or New Leicester cow' of Dishley stock with a shoulder height of 4ft 1in (125cm)²⁴

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in Peru, Jordan and Tunisia as an archaeozoologist, he joined MOLA in 1994, and then moved to PCA in 2008.

1. See J G Hall and J Clutton-Brock *Two hundred years of British farm livestock* (1995) 12–13.
2. The site was excavated by PCA in 2013–14, following an evaluation in 2011, supervised by Neil Hawkins for Frank Linden on behalf of the Baitul Aziz Mosque; see N Hawkins *Assessment of an Archaeological Excavation at the Baitul Aziz Mosque, 1 Dickens Square, London Borough of Southwark* PCA unpub rep (2014). It follows an earlier MOLA excavation reported in J Taylor *Mosque and Community Centre, 1 Dickens Square, London EC1, London Borough of Southwark* MOLA Interim Excavation unpub rep (2000).
3. K Rielly '18th-century cattle 'plague' pits: evidence from 1 Dickens Square, London Borough of Southwark' *London Archaeol* **15** (8) (2019) 240–3.
4. K Rielly 'The animal bone assemblage' in R Haslam and V Ridgeway *Excavations at the British Museum: An Archaeological and Social History of Bloomsbury* British Museum Research Pub 210 (2017) 165–8.
5. *Op cit* fn 3: the three cattle skeletons were all approx. 7 years old; all within a size range between 1211–1272mm; two complete skeletons were female with their sacrum bent to the left; the third skeleton was incomplete, but with its sacrum bent to the right.
6. Evidence pertaining to sex from the shape of the horncores taken from P L Armitage 'A system for ageing and sexing the horn cores of cattle from British post-medieval sites (17th to early 18th century) with special reference to unimproved British Longhorn cattle' in B Wilson, C Grigson & S Payne (eds) *Ageing and sexing animal bones from archaeological sites* BAR Brit ser 109 (1982) 43–4 and see N Sykes and R Symmons 'Sexing cattle horn-cores: problems and progress' *International Journal of Osteoarchaeology* **17** (2007) 514–23.
7. P L Armitage 'A preliminary description of British cattle from the late twelfth to the early sixteenth century' *Ark* **VII** (8) (1980) 408; *op cit* fn 1, 11–12; D Rixson *The History of Meat Trading* (2000) 215.
8. This quote taken from Yarranton, writing in 1677, as mentioned in R A Trow-Smith *A History of British Livestock 1700–1900* (1959) 10.
9. R Thomas, M Holmes and J Morris "'So bigge as bigge may be": tracking size and shape change in domestic livestock in London (AD 1220–1900)' *Journal of Arch Sci* **40** (8) (2013) 3309–25; K Rielly 'The animal bones' in S Teague *Thameslink Excavations – post Roman PCA/Oxford Archaeol Monogr* (in prep).
10. *Op cit* fn 4, 173.
11. Medieval and early post-medieval evidence in

- Armitage *op cit* fn 7, 410–1 and the introduction of Low Country cattle in Trow-Smith *op cit* fn 8, 112.
12. The distinction between the terms 'type' and 'breed' is essentially down to uniformity, where a 'breed' is defined as possessing a series of well-defined characteristics with the important considerations that these are inheritable and also maintained, as regulated by the respective breed societies, after J Clutton-Brock *Domesticated Animals from Early Times* (1981) 29 and Armitage *op cit* fn 6, 51; references to old British cattle varieties and the more specifically regional 'types' in *op cit* fn 1, 19–98 and Trow-Smith *op cit* fn 8, 24–9; and references to Longhorns in Armitage *op cit* fn 6, 51, and P L Armitage 'Hertfordshire cattle and London meat markets in the 17th and 18th centuries' *London Archaeol* **3** (8) (1978) 221.
13. Archaeologically speaking, any study of cattle horns will involve the inner part, the horncore; the outer sheaf (composed of keratin) rarely surviving burial conditions. The horncore will essentially have the same shape as the horn (combining the horncore and the sheaf), if somewhat smaller. Horncore identification according to their length uses *op cit* fn 6 and by nuchal shape in C Grigson 'Sex and age determination of some bones and teeth of domestic cattle: a review of the literature' in B Wilson, C Grigson and S Payne (eds) *op cit* fn 6, 7–24.
14. The standard early 'breed' illustrations were compiled by G Garrard *A Description of the Different varieties of Oxen common in the British Isles; Embellished with Engravings; Being an Accompaniment to a Set of Models of the Improved Breeds of cattle upon an Exact Scale from Nature, under the Patronage of the Board of Agriculture* (1800); and see Armitage *op cit* fn 6, 49 and Fig 3, and *op cit* fn 12 (1978), 221.
15. Armitage *op cit* fn 6, 49 and Fig 3, and *op cit* fn 12 (1978), 221.
16. The comparison of the archaeological and historical illustrations will require the reader to note that the latter drawings show the shape of the cattle head as in life, somewhat tilted down, while the former follow particular horizontal and vertical rules aimed at facilitating the comparison of these and any further archaeological examples.
17. The British Museum cattle skulls included three with similar nuchal shapes to Skeleton 1 (1 mediumhorn and 2 of unknown length) and five similar to Skeleton 2 (one short/mediumhorn, two medium/longhorns and 1 of unknown length), the smaller cores demonstrating

- lengths smaller than 220mm (shorthorn) and 220 to 360mm (mediumhorns) based on Armitage *op cit* fn 6, 43 and with data taken from PCA Archives.
18. *Op cit* fn 8, 20 and 26.
19. This is the sole representative of this 'type' seen by the author, having worked on numerous post-medieval collections covering over 20 years of archaeozoological work in London.
20. The shoulder height calculations are taken from A von den Driesch and J Boessneck 'Kritische Anmerkungen zur Widerristhöhenberechnung aus Längenmaßen vor- und frühgeschichtlicher Tierknochen' *Saugetierkundliche Mitteilungen* **22** (1974) 325–48; age interpretation uses mandibular data from G G Jones and P Sadler 'Age at death in cattle: methods, older cattle and known-age reference material' *Environmental Archaeol* **17** (1) (2012) 11–28 based on the evidence following A Grant 'The use of toothwear as a guide to the age of domestic ungulates' in B Wilson, C Grigson and S Payne (eds) *op cit* fn 6, 91–108 and the state of fusion of the vertebrae after E Schmid *Atlas of Animal Bones* (1972); while sex is determined by the shape of the pelvis after C Grigson, *op cit* fn 5 and particular dimensions of the distal metacarpus in R N W Thomas 'A statistical evaluation of criteria used in sexing cattle metapodials' *Archaeozoologia* **2** 1.2 (1988) 83–92. Additional information concerning age and sex is based on characteristics of the horncores in Armitage *op cit* fn 6, 37–54.
21. The size study mentioned in Rielly *op cit* fn 9, with reservations described in Armitage *op cit* fn 6 and J C Robertson 'Counting London's horn cores: sampling what?' *Post-Med Archaeol* **23** (1989) 1–10.
22. Here referring in particular to sites within the eastern part of the City and in Southwark (Bermondsey), dating between the 16th and 19th centuries, several providing dumps of horncores and/or horncore-lined pits as described in L M Yeomans *A zooarchaeological and historical study of the animal product based industries operating in London during the post-medieval period* Archaeol Thesis, UCL (2006) and K Rielly 'The leather-production industry in Bermondsey – the archaeological evidence' in R Thomson and Q Mould (eds) *Leather Tanneries – the archaeological evidence* *Archetype/Archaeological Leather Group* (2011) 157–86.
23. This taken from Armitage *op cit* fn 6, 50 and Fig 3.
24. An engraving taken from Garrard *op cit* fn 14 and in *op cit* fn 1, 64.