

Medieval Horses from Kingston-upon-Thames

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DURING THE excavations in Eden Walk, Kingston-upon-Thames, in 1976¹ a large group of horse bones was recovered. It is becoming clear that dumps of horse bones are not uncommon in medieval towns², but to date none has been considered in detail.

There were three excavation seasons at Eden Walk between 1974 and 1977, in which deposits from Neolithic to Post-medieval were examined³. The prehistoric and Roman levels have been published⁴, and the archives with the data on the medieval and post-medieval finds are in Kingston Museum. The horse bones are from trench 76G, layers 18 and 19. The detailed context records, plans and some of the sections for this trench have been lost, but it has been possible to reconstruct the context of the finds from summary descriptions, photographs, and the associated pottery, which dates from the late 14th century⁵. With the horse bones were over 80 horn cores which have been described elsewhere⁶, and about 100 fragments of other domestic animal bones.

The finds were in a large water-logged pit or section of the former river channel which bordered medieval Kingston to the east. The earliest town of Kingston was on an island in the Thames; the main channel of the river ran to the west of the town and a subsidiary channel ran to the east. This filled up gradually during the first millennium AD, but remained wet or seasonally flooded until at least the 16th century⁷.

The documentary evidence for early Kingston indicates that workshops and craft premises were concentrated close to the channel; the horse bones and horn cores are waste from such activities. It is a characteristic of medieval towns that river channels were used as depositories for the rubbish generated, especially by the more noisome crafts.

Many of the bones were damaged or broken, but most breaks had apparently been caused when the bones were retrieved from the heavy clay matrix in which they were buried. Where possible long bones and pelvis were mended, but skulls and mandibles were very fragmented and no attempt was made to reconstruct them. We identified 775 bones and counted approximately 800 further fragments which must have come from the identified bones.

Several different types of horses were distinguished in the 14th century. Working horses (stots, affers, rounceys, summarii) were used as pack horses, for drawing carts and for harrowing, but rarely at this time for ploughing. Riding horses included those used every day (palfreys and others) and those of the knights (destriers)⁸. Stallions, mares and geldings were also distinguished. As part of a more detailed study⁹ we analysed this assemblage to see if we could tell which types of horse were involved.

Identification

The possibility that some of the bones were of asses (*Equus asinus*) or of mules was considered. None of the mandibular rami or the teeth had the character-

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1. L. Gillibrand *Interim report on excavations at Eden Walk, Kingston*. Unpublished ms, Kingston Museum. Ref ER 17 (nd).
2. See e.g. A. Locker *Horse bones from St Albans, Hertfordshire*. Report to St Albans Museum (nd).
3. A copy of the site plan, which is to be published in *Surrey Archaeol Collect* in December, can be supplied if necessary.
4. D. Serjeantson, D. Field, J. Penn & M. Shipley 'Excavation at

Eden Walk II, Kingston: environmental reconstruction and prehistoric and Roman finds' *Surrey Archaeol Collect* 81 (1992).

5. S. Nelson *Eden Walk II archive: report on the medieval pottery* (nd).
6. P. Armitage *Eden Walk II archive: report on the cattle horn cores* (nd).
7. *Op cit* fn 4.
8. J. Langdon *Horses, Oxen and Technological Innovation* (1986).
9. D. Serjeantson & T. Waldron *The horse bones from pit G18/19, Eden Walk II, Kingston*. Unpublished report to Kingston upon Thames Museum and Heritage Service (nd).

istic appearances of donkeys or mules¹⁰ and all agreed well in shape with comparative horse and pony mandibles. Nor did any of the metacarpals have the gracility of ass metacarpals¹¹ and so we are confident that none of the bones is from mules. References to asses and mules are rare in the 14th century record¹² so the absence of other equids is not surprising.

How many horses?

As few of the bones had been butchered they appear to be from complete skeletons, even though only some pelvic bones and two metacarpal bones could be paired. There was only one virtually complete mandible and so the teeth were counted separately and a total of 246 was present, of which twelve were canines. There were 22 pelvic bones and of these, 20 could certainly or possibly be paired.

The remaining two, a left and a right acetabulum, were morphologically distinct and clearly came from different animals. The assemblage, therefore, represents at least twelve horses.

A consideration of the relative number of the different parts of the postcranial skeleton showed that the pelvis was the most common bone and that the vertebrae (particularly the lumbar vertebrae) were present in as high or higher proportions than most limb bones. Least common were the phalanges and ribs.

Size

An estimate of the withers' height of the horses was made from measurements of the long bones using Kiesewalter's formulae¹³; the sizes ranged from 119 to 145 cm (11.5 to 14.3 hands). Twenty of the bones gave estimates of between 11.7 and 13 hands, seven of over 13 hands and two (both metacarpals) of over 14 hands.

Though the Kingston horses are small by modern standards, they were not small by the standards of the 14th century. Though references to the sizes of horses are rare, it is clear that until Tudor times many were below 13 hands. Whereas size may be an advantage in a riding horse it may not be for a pack horse or a peasant's working horse. Smaller animals consume less fodder and are easier to load and unload. Consistent attempts to breed and introduce larger horses did not succeed until the Tudor

period; Henry VIII in 1535 required all 'substantial' landowners to maintain two entire mares of thirteen hands or over¹⁴, the minimum size nowadays considered suitable for a man to ride.

Sex

The sex of the horses was determined from a consideration of the morphology of the pelvic bones¹⁵; some confirmation for the assigned sex was also sought from the number of canine teeth. We considered that the pelvic bones were from seven mare and five stallions or geldings. There were twelve canines present, including four left and four right uppers. These must have come from a minimum of four male horses (in mares the canines are absent or rudimentary), thus giving some confirmation for the sex ratio of the pelvis. It is not possible to say, however, whether the canines were from stallions or horses gelded late.

Age at death

An estimate of age at death was made using tooth measurements¹⁶. A total of 223 teeth was examined and from these it is clear that the remains came from old horses. If we consider the ages given by the third molars alone, which are identified with more certainty than first or second molars, then from the left side we obtain the following ages from the upper and lower teeth:

Left upper	Left lower
10	11
11	17
11	19+
15	19+
19+	19+
19+	19+
20+	19+
	20+

From these data it appears that there are three horses in the age range 10 - 11 years, one aged between 15 and 17 years and six of 19 years or more. The evidence from other teeth supports the presence of at least one younger horse, since virtually all tooth types examined included a tooth in the range 9 - 11 years.

Bit wear

The second premolar in the hemi-mandible which was preserved intact had a smooth, almost semi-

10. P. L. Armitage & H. Chapman 'Roman mules' *London Archaeol* 3 (1979) 339-346.

11. Eisenmann and Beckouche, 1986.

12. *Op cit* fn 8.

13. J. von Boessneck 'Ein Altägyptisches Pferdskelett' *Mitteilungen der Deutschen Archäologischen Institute Abteilung Kairo* 26 (1970) 43-7.

14. H. Barclay *The role of the horse in man's culture* (1980) 135.

15. S. Sisson & J. D. Grossman *The anatomy of the domestic animals*, 5th ed. (1975).

16. M. Levine The use of crown height measurements and eruption wear sequences to age horse teeth in B. Wilson *et al* (eds) *Ageing and sexing* BAR 109 (1982) 223-250.

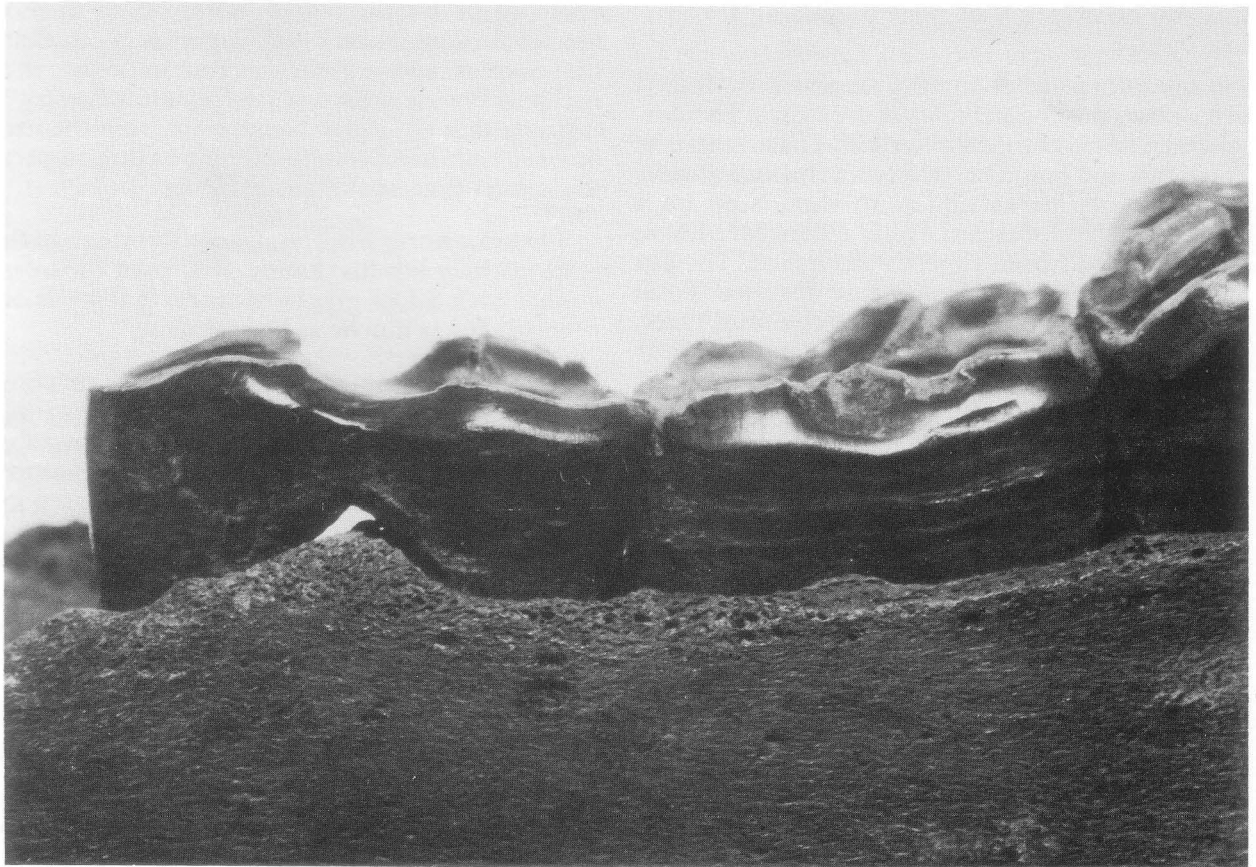


Fig. 1: mandible of Kingston horse to show smooth bit wear on lower second premolar.

circular impression in the centre (Fig. 1). The most plausible explanation for this appearance is that it represents the wear from a metal bit. Unfortunately, although a fragment of the other half of the mandible is preserved, the second premolar is missing. None of the other second premolars was similarly affected. Clutton-Brock¹⁷ described changes due to bit wear in the Buhun horse (c. 1675 BC). She found that the surviving second premolar was excessively worn from front to back (cf. her figure 2), but that there was no grooving on the tooth. These different appearances presumably reflect the use of different types of bit. In the second millennium BC the snaffle bit was apparently the only type in use whereas by the middle ages curb bits were also in use¹⁸. More recently, Anthony and Brown¹⁹ have described other types of bit wear in both modern and archaeological horses and have also noted that, unless the horse is bitted regularly, superficial wear may quickly be worn away, perhaps in as little as six weeks. The

evidence here would suggest that this Kingston horse was regularly bitted.

Treatment of the carcass

We wished to establish whether the bones were from horses which had been buried whole, or whether they had been butchered in any way. The bones were carefully examined for traces of chops or knife cuts but such traces were scarce; 10 bones had evidence of surface knife cuts (fewer than 1%) and 12 (<2%) had possible chops. This is typical for finds of horse bones from medieval sites in Britain.

One occipital condyle had been chopped through, presumably during decapitation. In addition chop marks were noted on seven long bones, on a metatarsal, a lateral metatarsal and one first, one second and one third phalanx. Thus of the twelve horses, one had been decapitated and at least one had been dismembered to some degree; with these exceptions there was no evidence that the carcasses had been dismembered before they were dumped. There

17. J. Clutton-Brock 'The Buhun horse' *Journ Archaeol Sci* 1 (1974) 89-100.

18. C. C. Trench *A history of horsemanship* (1970).

19. D. W. Anthony & D. R. Brown 'The origins of horseback riding' *Antiquity* 65 (1991) 22-38.

was also no evidence of bone processing for marrow or glue.

The question of whether the horses were defleshed before burial is more difficult to resolve. The dorsal spines of three thoracic vertebrae had transverse knife cuts and four ilia, two from the same horse, also had cuts marks similar to those seen on a reference pony obtained from a slaughter-house and which had been expertly defleshed. The cut marks on the ilium presumably resulted from fileting the meat rather than from skinning. Overall these observations suggest that at least three of the Kingston horses were butchered before burial.

There is no certain evidence of skinning cuts although chops on the metapodials and phalanges could have been made during skinning although it is possible to skin an animal and leave no traces on the bones. There is a disproportionately low number of phalanges present, however, and this may indicate that some skins had been removed with the hooves attached. Furthermore, caudal vertebrae are entirely lacking; the hooves and the tail were all sometimes removed with the skin²⁰.

Economic aspects of the assemblage

The Kingston horses were mostly old animals which died of natural causes or were slaughtered at the end of their useful lives. The presence of cut marks on some of them, however, raises the question of whether they had been used for food. Occasional

20. R. S. Thomson 'Leather manufacture in the post-medieval period with special reference to Northamptonshire' *Post-Medieval Archaeol* 15 (1981) 161-179.

21. E.g. A. Grant 'The animal bones' in B. Cunliffe (ed) *Excavation at Portchester Castle Vol 3 Medieval: the outer bailey and its*

evidence of butchering of horse bones in most medieval animal bone assemblages²¹ suggests that they were sometimes eaten in Britain despite the decree of Pope Boniface which forbade it. Barclay²² suggests that the slow change-over from the use of oxen to horses for ploughing was due in part to the fact that, as Walter of Henley states²³:

when the horse is old [and worn out] then hath he nothing but his skynne. But when the ox is olde with Xd. of gras be made fatte to kyller or to sell for as muche as he cost youe.

Horse remains from archaeological sites are consistently from older animals than cattle remains, which no doubt reflects the fact that immature cattle had a value for food whereas immature horses did not. Horse meat was probably eaten in unrecognisable forms from time to time, however. 'Venison' pies were sold in the City of London by the piebakers and the regulations which were made governing the contents of these pies suggest that they were by no means always filled with venison, or even beef²⁴.

Horses played an increasing part in the medieval economy and social life from the 11th century onwards. They were used by everyone and kept by all except the poorest. Even a poor freeman expected to keep a working horse; 'I have... a cow and a calf, a cart-mare also to draw dung afield' says Piers Ploughman²⁵.

defences. (1977); M. Maltby *Faunal studies on urban sites: the animal bones from Exeter 1971-1975* (1979).

22. Barclay (1980) 128.

23. D. Oschinsky *Walter of Henley* (1971).

24. C. Pendrill *London life in the fourteenth century* (1925) 99.

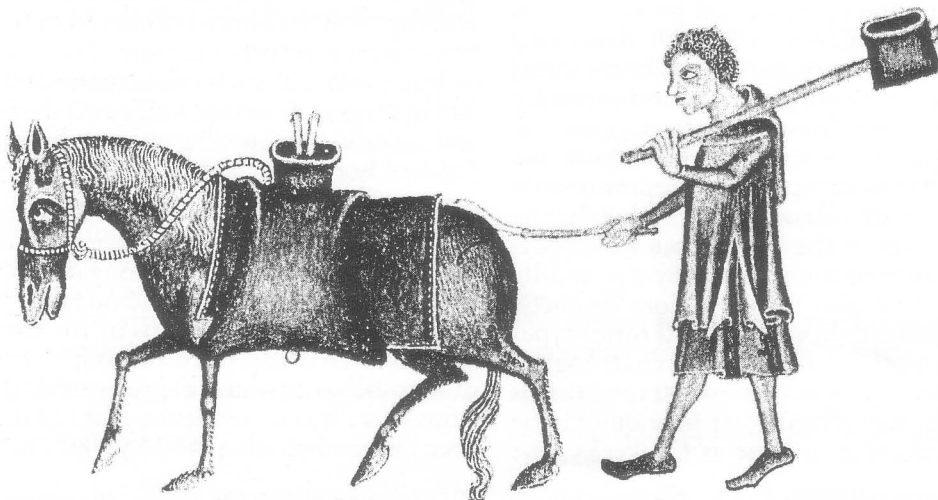


Fig. 2: horse with saddlebag and pot, apparently for carrying water, being driven by a man, also carrying water. British Museum Add. MS 42130 "Luttrell Psalter" f20r.



Fig. 3: man riding a horse with an empty flour-bag across his saddle. The horse wears a halter, but no bit. British Museum Add. MS 42130 "Luttrell Psalter" f158.

Men and women rode when they wished to travel and apparently in the 14th century the only people who travelled in wagons were the women of the court. Immense quantities of goods, however, were carried around the country in a variety of heavy and light carts and wagons²⁶. Records²⁷ and depictions show that the carts were normally pulled by horses rather than by oxen. Much of the carriage of goods was done by packhorses. These were useful where roads were not good enough for carts or wagons; they came into their own especially during winter and in upland areas. They were used in

25. D. Attwater & R. Attwater (trans) *The book concerning Piers Plowman* (1957) 58.

26. J. F. Willard 'Inland transportation in England during the fourteenth century' *Speculum* 1 (1926) 361-374.

27. *Op cit* fn 8.

particular by the sumpters or travelling salesmen of the middle ages. The goods on which tolls were levied on Kingston bridge in 1449 include horse-loads of malt and sea-fish, and id on pack-horse wares, as well as tolls on cartloads of a variety of products²⁸.

The illustrations in the Luttrell Psalter and elsewhere²⁹ show that horses normally wore a bit when ridden, but that when they were harnessed to wagons and carts, or when they were being used as packhorses (Fig. 2) they more commonly wore a form of halter. One illustration shows a horse, no doubt the farmer's packhorse, being ridden with no bit. It is apparently being ridden to the mill with an empty sack (Fig. 3).

The Kingston horse with evidence of bit wear may well have been a riding horse. From their generally small size and absence of bit wear, it may be that the remainder were draught animals.

Acknowledgements

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28. A. McCormack *Kingston market place*. Archive teaching unit 3. Item 4: Letters patent of Henry VI, February 1448/9. Kingston Borough Muniment Room A1/14 (1977).

29 For example J. J. Juesserand (trans L. T. Smith) *English wayfaring life in the middle ages* (1889).

Excavations and post-excavation work

City of London. Enquiries to Museum of London Archaeology Service, Number One, London Wall, London EC2Y 5EA (071-972 9111).

Croydon & District, processing and cataloguing of excavated and museum collections every Tuesday throughout the year. Archaeological reference collection of fabric types, domestic animal bones, clay tobacco pipes and glass ware also available for comparative work. Enquiries to Mrs Muriel Shaw, 28 Lismore Road, South Croydon, CR2 7QA (081-688 2720).

Greater London (except north-east and south-east London), by Museum of London Archaeology Service. Excavations and processing in all areas. General enquiries to MOLAS, Number One, London Wall., London EC2Y 5EA (071-972 9111).

Borough of Greenwich. Cataloguing of excavated and other archaeological material, the majority from sites in the borough. For further information contact Greenwich Borough Museum, 232 Plumstead High Street, London SE18 1JT (081-855 3240).

Hammersmith & Fulham, by Fulham Archaeological Rescue Group. Processing of material from Fulham Palace. Tuesdays, 7.45 p.m.-10 p.m. at Fulham Palace, Bishop's Avenue, Fulham

Palace Road, SW6. Contact Keith Whitehouse, 86 Clancarty Road, SW6 (071-731 4498).

Kingston, by Kingston upon Thames Archaeological Society. Rescue sites in the town centre. Enquiries to Kingston Heritage Centre, Fairfield Road, Kingston (081-546 5386).

North-east London, by Passmore Edwards Museum. Enquiries to Pat Wilkinson, Passmore Edwards Museum, Romford Road, E15 4LW (081-534 4545).

Surrey, by Surrey County Archaeological Unit. Enquiries to Rob Poulton, Archaeological Unit Manager, Planning Department, Pelham Lodge, Kingston, Surrey (081-541 9457).

Vauxhall Pottery, by Southwark and Lambeth Archaeological Society. Processing of excavated material continues three nights a week. Enquiries to S.L.A.S., c/o Cuming Museum, 155 Walworth Road, SE17 (071-703 3324).

The Council for British Archaeology produces British Archaeological News (6 issues a year). It gives details of conferences, extra-mural courses, summer schools, training excavations and sites where volunteers are needed. The annual subscription of £10.50 includes postage, and should be made payable to C.B.A., 112 Kennington Road, SE11 8E (071-582 0494).