WORKED WHALE VERTEBRAE

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East Kent includes some of the most important Anglo-Saxon sites in the country. Aside from an extensive (and still growing) collection of early cemeteries, there are now several contemporary rural settlement sites, as well as the extensive series of structures of this date from Canterbury itself.[1]

For the Middle Saxon period, however, the evidence is more patchy and elusive. On the one hand, it remains difficult to underestimate the importance of St. Augustine's and Christ Church Cathedral at this time, and new excavations at both sites continue to provide significant evidence relating to early English monasticism.[2] The extensive series of excavations carried out in the Outer Court of St. Augustine's has produced an important Middle Saxon site[3] and future work on the objects and residues from that area will undoubtedly redefine the understanding of Anglo-Saxon industrial processes and will allow the relationship of the city and its monasteries during the seventh to eleventh century to be examined in a new light.

On the other hand, however, east Kent still largely (if not entirely) lacks both rural Middle Saxon settlements and ports. A recent review of the evidence for pre-Viking trading centres understandably has little to say about Kent at all and little to add to syntheses, mostly based on historical sources, produced when the Canterbury

[1] K. Blockley, M. Blockley, P. Blockley, S.S. Frere and S. Stowe, *Excavations in the Marlowe Car Park and Surrounding Areas*, The Archaeology of Canterbury, Volume V, Canterbury 1995, 280-235 and 463-5

[2] R. Gem, *St. Augustine's Abbey, Canterbury*, London 1997; K. Blockley, M. Sparks and T. Tatton-Brown, *Canterbury Cathedral Nave. Archaeology, History and Architecture*, Canterbury 1997

[3] P. Bennett, 'Rescue Excavations in the Outer Court of St. Augustine's Abbey, 1983-84', *Arch Cant*, ciii (1986), 79-118; M. Houliston, Christ Church College, *Canterbury's Archaeology 1996-7*, Canterbury forthcoming.

Archaeological Trust was still in its infancy.[4] As far as the sites of Dover, Fordwich, Sandwich and Sarre are concerned, there is ample conjecture, but little evidence.[5]

Happily, some redress of the dearth of Kentish pre-Viking trading centres has begun, in particular with work at *Sandtun*, near West Hythe.[6] Tim Tatton-Brown had previously noted that it is 'important now that the largely unpublished material from '*Sandtun*' (mostly in the British Museum) is examined again before a much-needed excavation is carried out on the site'[7] and this process is now coming to fruition.

Few of the objects from *Sandtun* have ever been published, and it is appropriate, therefore, to draw attention to an individual find which helps to establish a little of the overall nature and importance of this site. It can also be placed within a broader context of the use of whale bone during the Anglo-Saxon period. The object itself is a whale vertebra which, alongside a series of other objects, has largely remained unnoticed for almost fifty years (Plate I). It appears as no. 57 in the register of objects from *Sandtun* given to the British Museum by Dr Gordon Ward, but it lacks any detailed find-spot, although it is known that it was found in 1949, after formal excavations at the site had been completed. Alongside over thirty other small finds, it had reached the British Museum by 1950, but it is unstratified and little more can be said about its discovery. By comparison with contemporary objects, however, it sheds some light on the Middle Saxon phases of this site and on the use of whale skeletons at this time.

The *Sandtun* vertebra is incomplete and at some time in the past around a third of it had been cut away. Both of the flat surfaces are heavily scored by knife marks and the object had clearly been used as a chopping board, or at least as a working surface. In this respect, it can be compared with a similar vertebra from the site of *Hamwic*, or Middle Saxon Southampton.[8] This whale vertebra had also been

[4] H. Clarke and Björn Ambrosiani, *Towns in the Viking Age*, (Leicester, 1995), 23; T. Tatton-Brown, 'The Anglo-Saxon Towns of Kent', in D. Hook, *Anglo-Saxon Settlements*, (Oxford, 1988), 213-32

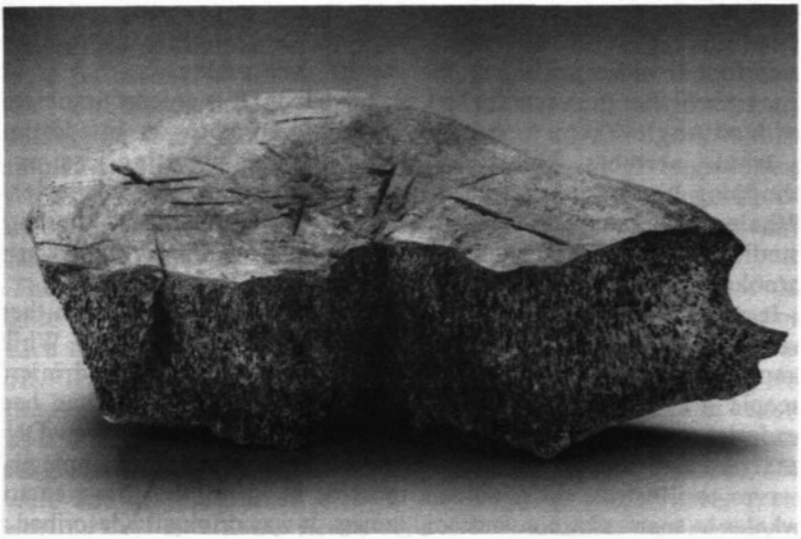
[5] The most recent summaries are to be found in R. Cowie and D. Hill, *Wics. The Pre-Viking Trading Centres of Northern Europe*, (Sheffield, forthcoming)

[6] M. Gardiner, I. Riddler, R. Cross, L. Blackmore and N. Macpherson-Grant, 'The Pre-Viking Trading Centre at Sandtun, West Hythe, *Arch. Journ.*, forthcoming

[7] T. Tatton-Brown, 'The Towns of Kent', in J. Haslam, *Anglo-Saxon Towns in Southern England*, (Chichester, 1984), 26

[8] P. Holdsworth, 'Saxon Southampton: a new review', *Med. Arch.*, xx (1976), 45: A.D.M. Morton, *Excavations at Hamwic: Volume 1*, C.B.A. Research Report 84, London (London, 1992), 144 and Pl. 6

PLATE I



(Photo.: British Museum)

Whale vertebra from *Sandtun*

adopted in precisely the same way, as a working surface, and both flat sides had been used and heavily scored by knife. It had subsequently been thrown into a rubbish pit.

The *Sandtun* and *Hamwic* vertebrae are both notable for the quantity of cut marks visible on them which, in each case, can be seen on both sides of the object. The incised marks have been made by a knife or adze and not by a saw, and this implies that there they were used as chopping blocks. There are no accompanying peck marks of the type that can be seen on earlier Roman animal bone working surfaces.[9] It is likely, on the basis of the heavy scored marks, that the cetacean vertebrae served as implements on which parts of animals could have been butchered, or wood cut. The initial dismemberment of animal remains for working, in contrast, was carried out with the use of a saw, which is not attested here. The whale vertebrae belong, therefore, within the realm of household implements, rather than craftworking tools.

[9] J. May, *Dragonby, Report on Excavations at an Iron Age and Romano-British Settlement in North Lincolnshire*, Oxbow Monograph 61 (Oxford, 1996), fig 14.7.,103

There are slender indications to indicate that whale bone vertebrae working surfaces were not confined to these two Middle Saxon sites. The finds register for Whitby Abbey refers to a whale vertebra which was found under paving in the eastern area of the site.[10] It is not known whether the vertebra had been used, but it is at least associated with an Anglo-Saxon monastery, if only in broad terms. In addition, a whale vertebra with 'ancient cut-marks suggesting use as a chopping block' came from a post-Roman context at Colchester.[11] Whale vertebrae continued to be used in this manner in the early medieval period, and examples are known from Canterbury, Carisbrooke, Launceston Castle and Jarlshof.[12]

It remains difficult to identify the precise species from which these vertebrae derive, even when the objects themselves survive.[13] Whilst important research programmes have centred on the detailed microscopic analysis of types of antler and ivory, less work has been undertaken on the species identification of whale remains.[14] New DNA analyses may yet redress this imbalance, but the *Hamwic* example ably serves to illustrate the problems inherent in identifying fragments of whales to species by conventional means. It was originally described as a Little Piked Whale vertebra (*Balaeoptera acutorastrata*), but it subsequently became clear that its size and shape indicated that it stemmed from a sperm whale, a black right whale, or a humpback.[15] Of these three species, the northern black right whale (*Eubalaena glacialis*) is perhaps the most likely alternative, but it is currently difficult to choose between them when there is only a single, incomplete vertebra to examine.

[10] R. J. Cramp, 'Analysis of the Finds Register and Location Plan of Whitby Abbey', in D. M. Wilson, *The Archaeology of Anglo-Saxon England* (London, 1976), 457

[11] C.F.C. Hawkes and M.R. Hull, *Camulodunum. First Report on the Excavation at Colchester 1930-1939*, (London, 1947), 353

[12] J.C. Driver, J. Rady and M. Sparks, *Excavations in the Cathedral Precincts 2. Lindacre Garden, 'Meister Omers' and St.Gabriel's Chapel.* The Archaeology of Canterbury IV, (Maidstone, 1990), 240; M. Gardiner, 'The Exploitation of Sea-Mammals in Medieval England: Bones and their Social Context', *Arch. Journ.*, (1997), 190; U. Albarella and S.J.M. Davis, 'Mammals and Birds from Launceston Castle, Cornwall: Decline in Status and the Rise of Agriculture', *Circaea*, 12 (1994), 8; J.R.C. Hamilton, *Excavations at Jarlshof, Shetland*, (London, 1956), 183, no. 26

[13] As noted in V.E. Szabo, 'Whaling in Early Medieval Britain', *Journal of the Halpin Society*, forthcoming

[14] K. Ambrosiani, 'Viking Age Combs, *'Comb Making and Comb Makers in the Light of Finds from Birka and Ribe*, Stockholm 1981, 102-3; S. Deschler-Erb, *Römische Beinartefakte aus Augusta Raurica*, (Augst, 1998), 16-68; H.G.M. Edwards and D.W. Farwell, 'Ivory and simulated ivory artefacts; Fourier Transform Raman diagnostic study', *Spectrochimica Acta*, Part A 51 (1995), 2073-2081

[15] P. Holdsworth, *op. cit.*, 45; A.D.M. Morton, *op. cit.*, 144

Not surprisingly, the remains of whales are generally confined to coastal areas during the Anglo-Saxon period. The whale has, indeed, been described as an 'archaeologically invisible' resource, because it would be butchered and dismembered at a coastal location, rather than within a settlement.[16] Anglo-Saxon and contemporary Carolingian sources mention the existence of whales and these are complemented by Saga accounts and by the evidence for bay whaling by the Basques, which goes back to the eleventh century, if not earlier. Irish sources also refer to early forms of whales and whaling.[17]

The Franks casket, a Northumbrian product of the first part of the eighth century, is made from whale bone and includes an inscription which notes that 'the fish beat up the sea(s) on to the mountainous cliff. The king of ?terror became sad when he swam on to the shingle', implying that the source of the material used in the casket was a stranded whale.[18] Marine mammals also form the monstrous background to the death of sailors in the Old English poem, *The Whale* and are mentioned also in *The Seafarer*.[19] It is clear from Aelfric's *Colloquy*, in particular, that the Anglo-Saxons were aware that whales could be caught by fishing expeditions, and not by stranding alone. In the context of discussions with a fisherman, the Colloquy refers specifically to the practice of whaling:

> 'Because I prefer to catch fish that I can kill, rather than fish which at one blow can sink or destroy not just me but my companions too. And yet many do catch whales and escape the danger, and make a great deal of profit from it.' [20]

This text is very specific in its terms and even allowing for the context in which it was written, it does suggest that Anglo-Saxons knew of the practice of whaling. However, does it actually mean that

[16] V.E. Szabo, *op. cit.*

[17] Largely summarised in Szabo, *op. cit.* , M. Ciriquiain-Gaiztarro, *Los Vascos en la Pesca de la Balena*, (San Sebastian, 1961), J. Fairley, *Irish Whales and Whaling*, (Belfast, 1981), S. Lebecq, 'Scènes de Chasse aux mammifères marins (Mer du Nord, Vie-XIIe siècles), in Elisabeth Mornet and Franco Morenzoni, *Milieux Naturels, Espaces Sociaux* (Paris, 1997), 241-53 and Gardiner, *op. cit.*, 174-5

[18] A. MacGregor, *Bone, Antler, Ivory and Horn*, (London, 1985), 200-3; L. Webster, 'Stylistic Aspects of the Franks Casket', in R.T. Farrell, *The Vikings*, (Chichester, 1985), 20-31; Gardiner, *op. cit.*, 174

[19] Gardiner, *op. cit.*, 174; K. Crossley-Holland, *The Anglo-Saxon World. An Anthology*, (Oxford, 1984), 53-6 and 287-9

[20] A. MacGregor, *op. cit.*, 31-2

the Anglo-Saxons practised whaling? Taken at face value, this may at first seem likely, but it is not generally considered that the Anglo-Saxons caught whales.[21] Seen from a different perspective, the reference may actually be to the activities of others and may reflect on the relationship between the Anglo-Saxons and the Continent. In the first instance, it is possible to consider the published quantity of whale bone recovered from Anglo-Saxon contexts and to argue that all of this material may simply stem from a few stranded marine mammals. A similar approach has previously been taken for material of prehistoric origin.[22] This view can be endorsed by a consideration of medieval records of the stranding of whales. It is clear from this accounts that whales were assessed at a high monetary value, which had reached £100 by the first half of the fourteenth century.[23] Authors from Vaucaire onwards have used this evidence and have set it alongside a sixteenth-century reference by Olaus Magnus to the flensing of a stranded – rather than a hunted – whale, in order to suggest that comparatively little English medieval whaling took place.[24] If there was little English medieval whaling, then it is unlikely that the Anglo-Saxons practised it on any scale.

There is no English medieval documentary evidence to set alongside either the Spanish interest in whaling at this time or the northern Viking use of whale products.[25] For east Kent, however, there is a lively series of accounts of disputes concerning stranded whales. Strandings are recorded at Battle Abbey, *Blakewase,* Romney, Dungeness and the border between Kent and Sussex.[26] From the eleventh century onwards, if not before, the whale was the 'King's fish' although in several cases the church had laid claim by charter to a part, at least, of the animal. The situation differed slightly with the Cinque Ports, where a declaration was made to the Warden.[27]

The archaeology of Anglo-Saxon whales generally confirms this situation and suggests that, prior to the tenth or eleventh century, stranded material formed the principal source of whale bone. There

[21] A. MacGregor, *op. cit.*, 32; Gardiner, *op. cit.*, 174-5

[22] V.G. Childe, *Skara Brae. A Pictish Village in Orkney,* (London, 1931), 97

[23] C. Johnson, 'A Claim to "Royal Fish" stranded off Dungeness', *Arch. Cant.*, xlvii 1935), 103-16; J.G.D. Clark, 'Whales as an Economic Factor in Prehistoric Europe', *Antiquity,* 21 (1947), 90; Szabo, *op.cit.*

[24] M. Vaucaire, *Histoire de la pêche à la baleine,* (Paris, 1941); MacGregor, *op. cit.*, 32

[25] R. Vaughan, *The Arctic. A History,*(Stroud, 1994), 79-82

[26] C. Johnson, *op.cit.*, 103-7; Gardiner, *op.cit.*, 178-9

[27] Gardiner, *op. cit.*, 178; R. Sabin, R. Bendry and I. Riddler, 'A Sense of Porpoise', *Arch. Journ.*, forthcoming

is evidence from Middle Saxon *Hamwic* for the original presence there of parts of at least two whale carcasses, and there are now over sixty fragments of waste material.[28]

The Middle Saxons were clearly working whale bone, therefore, even if only from stranded specimens, and the Franks and Gandersheim caskets, as well as the Larling plaque, indicate that one of its principal advantages, the provision of large surface areas, had clearly been realised by the eighth century.[29] In broader terms, however, the quantity of material from Middle and Late Saxon contexts is nowhere near that recovered from Iron Age Scotland or Norway, two areas where early forms of whaling have reasonably been proposed.[30] The early eleventh-century fisherman of Aelfric's *Colloquy* may not, therefore, have been referring to Anglo-Saxons. Indeed, he may actually have been showing that he knew what was in the English Channel and along the Atlantic coast of France at this time.

Several other historical sources, principally of French origin, refer to whales and whaling in and around the English Channel. Amongst them are the unfortunate experiences of Within, an Anglo-Saxon fisherman from Rochester.[31] Interestingly, he was out with his fishing fleet when he was swallowed at sea by a whale. The townsfolk of Rochester butchered this whale once it had stranded, with Within still inside it. Whilst there are obvious parallels here with the story of Jonah, Ziolkowski has suggested that this version of the story originated in English oral narrative, rather than contemporary French whale lore.

In 1004, several ships sank in the English Channel, after encounters with whales.[32] It is worth recalling in this respect, both that the Roman poet Juvenal mentions a Britannic whale (*Ballaena brittanica)* – which could be distinguished from Mediterranean whales – and that, in the later medieval period, the Basques had moved northwards towards the Channel in their search for whales.[33] The presence of whales in the

[28] I.D. Riddler, N.I.A. Trzaska-Nartowski and S. Hatton, *An Early Medieval Craft. Antler and Boneworking from Ipswich Excavations 1974-1994,* forthcoming: Gardiner, *op. cit.,* 190-1

[29] L. Webster and J. Backhouse, *The Making of England,* (London, 1991), nos. 70, 138 and 139

[30] MacGregor, *op. cit.,* 32

[31] J. Ziolkowski, 'Folklore and Learned Lore in Letaldus's Whale Poem', *Viator* 15 (1984), 107-18

[32] W.M.A. de Smet, 'Evidence of Whaling in the North Sea and the English Channel during the Middle Ages', *FAO Fish* Series 5, 3 (1981), 303

[33] de Smet, *op. cit.,* 303 and 306

English Channel may have been more commonplace that is now the case, and whaling may possibly have been carried out there, though not necessarily by Anglo-Saxons, or not entirely by Anglo-Saxons.

De Smet and others have set out a series of references, some of which may go back as far as the seventh century, indicating that various forms of whaling were taking place at that time along northern stretches of the French coast. It is clear that these activities involved the hunting of whales and not simply of porpoises, which were an early medieval delicacy.[34] The whales were being actively hunted and it is not a question of the dismembering of stranded specimens alone. As in England, the earliest sources are concerned with stranded whales. From the middle of the ninth century onwards, however, the practice of whaling is specifically mentioned.

By the period of the Norman Conquest, a little after Aelfric's *Colloquy* was written, there is evidence for a slight change of emphasis in the production of whale bone artefacts in southern England. The products of this period are largely limited to two principal categories, both of which make appropriate use of the size of the material available and follow on from the earlier use of this resource. The first category consists of accessories for board games and the second of ecclesiastical carvings. Earlier finds, and particularly those of Anglo-Scandinavian origin, had indicated that there was a wider range of objects produced from whale bone, although it was never used on any great scale.

The introduction of the games of *Tabula* and chess around the period of the Norman Conquest revolutionised the European concept of board games and some of the most resplendent sets for them were noticeably grandiose in terms of both scale and design.[35] Whale bone formed a material eminently suitable for large concepts in board games, and it was ably used for the chess set from Witchampton, for example.[36] At a slightly more prosaic level, it was adopted also for

[34] de Smet, *op. cit.*, 304-6; J. Lestocquoy, 'Baleine et ravitaillement au Moyen Age', *Revue du Nord* 117 (1948), 40-2; L. Musset, 'Quelques notes sur les baleiniers normands du Xe au XIII siècle', *Revue d'Histoire Economique et Sociale* 42, (1964), 147-61; Lebecq, *op. cit.*, 248-53

[35] R. Eales, 'The Game of Chess: An Aspect of Medieval Knightly Culture', *The Ideals and Practice of Medieval Knighthood*, (Woodbridge, 1986), 12-34; I.D. Riddler, 'Anglo-Norman Chess', in A.J. de Voogt, *New Approaches to Board Games Research; Asian Origins and Future Perspectives*, International Institute for Asian Studies, Working Papers Series 3, (Leiden, 1995), 99-110

[36] O.M. Dalton, 'Early Chessmen of Whale's Bone excavated in Dorset', *Archaeologia*, lxxvii (1928), 77-86

counters for the game *Tabula,* an ancestor of backgammon.[37] A whale bone counter of this type came from recent excavations at Townwall Street, Dover, and a contemporary fragment of whale bone waste has come from the Cathedral Precincts in Canterbury. Whale bone *Tabula* counters, if not abundant, are known from several sites of Anglo-Norman date including Ipswich, London and Winchester, as well as Dover, and there is little doubt that they reflect a revised attitude towards the use of cetacean remains, which occurs at a time when French and Flemish historical sources refer increasingly to the trading of whale meat.[38] By this time, remains from stranded whales in England were being declared to the appropriate authority and transported considerable distances, in some cases.[39]

When these accounts are set alongside the material evidence for the Anglo-Norman whale products, it becomes necessary to consider whether both the Witchampton chess set and the whale bone *Tabula* counters from Dover, Ipswich, London and Winchester might perhaps be of Continental origin. It has already been noted that there is little evidence for English medieval whaling, although there are good accounts of the strandings of Royal fish.

Anglo-Norman gaming pieces are unlikely to be of Scandinavian origin, simply because chess and *Tabula* only reached that area at a relatively late date.[40] Whilst it is true that the twelfth-century Isle of Lewis chessmen are now thought to be of Scandinavian origin, they are made from walrus ivory, and not from whale bone.[41]

Whale bone *Tabula* counters have come from northern French contexts, however, alongside other objects of this material and, at the present time, it is not possible to rule out France as a potential source for them.[42] With this in mind, it is salutary to note that a whale bone panel with a scene of the *Adoration of the Magi* was formerly thought

[37] I.D. Riddler, 'The Bone Gaming Piece', in D.C. Mynard, *Excavations on Medieval Sites in Milton Keynes,* (Aylesbury, 1994), 185

[38] de Smet, *op. cit.,* 304-6

[39] Johnson, *op. cit.,* 104-5; Gardiner, *op. cit.,* 178

[40] W. Fiske, *Chess in Iceland and in Icelandic Literature,* (Florence, 1905); R. Eales, *Chess. The History of a Game,* (London, 1985), 47-8

[41] M. Taylor, *The Lewis Chessmen,* (London 1978); N. Stratford, *The Lewis Chessmen and the Enigma of the Hoard,* (London, 1997)

[42] M. Petitjean, *Fouilles de Sauvetage sous la Place du Marché à Compiègne (Oise) 1991-1993, Revue Archéologique de Picardie,* Numéro Spécial 13 (Châlons-en-Champagne, 1997), 2399, fig 7; A.Kluge-Pinsker, *Schachspiel und Trictrac. Zeugnisse mittelalterlicher Spielfreude aus salilscher Zeit,* (Sigmaringen, 1991) nos. B1-6; R. Hodges, 'A Merovingian Bone-lid in St. Omer Museum', *Septentrion,* 5 (1975), 72

to be Anglo-Saxon, but is now considered to be Romanesque and of Spanish origin.[43]

None the less, it still remains likely that whale bone *Tabula* counters were produced locally from stranded or hunted specimens. The small quantity of worked whale bone waste from Canterbury, which is paralleled by contemporary published and unpublished pieces from Beverley and London is an important reflection of object manufacture.[44] The fragmentary but auspicious chess set from Witchampton, although thought by some modern commentators to be relatively crude, was amongst the finest board game assemblages of its time. Its two inscriptions were produced in an Anglo-Saxon script, which suggests that the set is of English manufacture, although it does not serve as conclusive proof.[45] It is conceivably of late eleventh-century or early twelfth-century date and its origins may possibly be ecclesiastical, or even royal. Within a short space of time, however, whale bone had been effectively supplanted as a raw material by ivory, and a new phase in board design had begun.

The eighth- and ninth-century use of whale bone for casket manufacture, in particular, has been touched on above. From the tenth century onwards decorative panels of walrus ivory were also present, with elephant ivory possibly being available, in limited quantities, at a slightly earlier date.[46] Correspondingly, the use of whale bone for this purpose may have declined markedly in England between the ninth and the eleventh centuries, although it was still used on occasion for other objects, which include clamps, pegs and needles.[47] Whale bone was used again in this decorative context in the twelfth century, but only rarely and seemingly in contexts where panels of a considerable size were desired.[48] By the eleventh century whales, like deer, had come under Royal control and the utilisation of whale bone after this date is sporadic and comparatively rare. This is the period at which deer were also subject to confinement and

[43] J. Beckwith, *Ivory Carvings in Early Medieval England,* (London, 1972), no. 63; G. Zarnecki, J. Holt and T. Holland, *English Romanesque Art 1066-1200,* (London, 1984), 210

[44] P. Armstrong, D. Tomlinson and D.H. Evans, *Excavations at Lurk Lane, Beverley, 1979-82,* Sheffield Excavation Reports 1, (Sheffield, 1991), 222

[45] E. Okasha, *Handlist of Anglo-Saxon Non-Runic Inscriptions,* (Cambridge, 1971) nos. 136-7; Kluge-Pinsker, *op. cit.,* no A42

[46] J. Blackhouse, D.H. Turner and L. Webster, *The Golden Age of Anglo-Saxon Art,* (London, 1984), 19

[47] Riddler, Trzaska-Nartowski and Hatton, *op. cit.*

[48] Zarnecki, Holt and Holland, *op. cit.,* nos 199, 203, and 219

regulation and, inconsequence, the quantity of antler available for working declined markedly and animal bone came into prominence as a substitute material.[49] Interestingly, it is largely with gaming pieces for chess and *Tabula* that antler remains significant as a raw material.[50]

The vertebrae and other elements of whale carcasses were used on occasion throughout the Anglo-Saxon period. Waste from its use has come from several sites and at Ipswich and York it is possible to correlate this with a small range of finished objects. Whale vertebrae were also adopted in an unmodified state as working surfaces, serving in particular as chopping boards. Archaeological and historical sources both suggest that the Anglo-Saxon did not practise whaling, and that whale bone was an 'opportunist' resource garnered principally from stranded specimens. At the same time, they appear to have been aware that whaling was practised on the Continent, conceivably from the ninth century onwards.

ACKNOWLEDGEMENTS

I would like to thank Robin Bendrey, Paul Bennett, Jane Elder, Peter Evans, Mark Gardiner, Nicola Trzaska-Nartowski, Vicky Szabo and Richard Sabin for reading and commenting on this text.

[49] A. MacGregor, *op. cit.* 34

[50] Kluge-Pinsker, *op. cit.*, nos. A42-56