ANGLO-SAXON WHALE EXPLOITATION: SOME EVIDENCE FROM DENGEMARSH, LYDD, KENT (Pl. III, Fig. 4)

There is very little evidence for the hunting of whales in early medieval England. The near silence of English sources contrasts, however, with the numerous references to the practice in Continental Europe dating from at least the 9th century. One of the few comments on whale hunting occurs in Ælfric's Colloquy, probably written *c.* 1000 at Cerne Abbas in Dorset, not far from the south coast. The author was evidently aware of the practice and refers to the use of a number of boats in whaling. The fisherman of the Colloquy agreed that 'many catch whales and . . . make great profit by it', but says that he himself was too timid. How far this may be used as evidence for hunting in England is uncertain. It may merely reflect a knowledge of the practice on the opposite side of the English Channel.[1]

It seems likely that most or all of the small quantities of whale bone found in excavation in Anglo-Saxon contexts came from cetaceans cast up on the shore. The inscription on the Franks Casket identifies the material used as whale bone and apparently alludes to a stranded cetacean as the source. The runic inscription has been translated by Page, 'The king of ?terror became sad when he swam on to the shingle'. Whale bones have been found on a number of coastal Anglo-Saxon sites and most display evidence of working or utilization. For example, a piece from an unidentified species found in a sunken-featured building dated to the period 450–550 near Bramber in Sussex was cut by numerous knife marks on its flat surface. Whale bone provides a firm, though not hard surface which makes it particularly suitable for a chopping block. A vertebra from *Hamwic* (Middle Saxon Southampton) was used in this manner. Other bones were suitable for working into artifacts and the Franks Casket is a virtuoso demonstration of this. Completed objects and fragments of waste from Ipswich and York dating from the Anglo-Saxon and later medieval periods demonstrate the variety of items which might be made from the material.[2]

Whale bone, unlike the remains of other species of animals, provides a poor indicator of the exploitation of cetaceans. The size of whales and of their bones is such that the flesh is likely to have been removed on the seashore. This is evidently what happened to a small whale stranded at the manor of Croft in Lincolnshire in 1331. Part of the flesh was removed on the shore, but the remainder of the body was carried away by the tide a few miles up the coast to Skegness, where more of the whale flesh was stripped. Whale bones reaching sites of consumption will be those which were chosen because of their curiosity or utility. A more informative archaeological indicator of whale exploitation will be the remains found on the coast where the cetaceans were brought ashore. Some species of whale float after death and these may be towed along the coast to the point at which they can be processed, but in many cases the whales will be cut up at the point at which they are stranded because of the impossibility of moving them otherwise.[3]

[1] G. N. Garmonsway (ed.), *Ælfric's Colloquy* (London, 1947, 2nd edn); M. F. Gardiner, 'The exploitation of sea-mammals in medieval England; bones and their social context', *Archaeol. J.*, 154 (1997), 173–95; V. Szabo, 'Whaling in early medieval Britain', *Haskins Soc. J.* forthcoming.

[2] R. I. Page, *An Introduction to English Runes* (London, 1973), 177; M. F. Gardiner, 'An Anglo-Saxon and medieval settlement at Botolphs, Bramber, West Sussex', *Archaeol. J.*, 147 (1990), 262; A. D. Morton, *Excavations at Hamwic 1: Excavations 1946–83, excluding Six Dials and Melbourne Street* (Council for British Archaeology Research Report 84, London, 1992), 144. The text describes its use as a sawing block, but the photograph (146, pl. 6) appears to show chopping marks; I. D. Riddler, N. I. A. Trzaska-Nartowski and S. Hatton, An Early Medieval Craft. Object and Waste of Bone, Antler and Ivory from Ipswich Excavations, 1974–1994 (forthcoming); A. MacGregor, N. Rogers, and A. Mainman, Bone, Antler, Ivory and Horn from York (in preparation).

[3] Public Record Office C145/119 (19), summarized in *Calendar of Inquisitions Miscellaneous* 2, 310 (no. 1267); A. B. Smith and J. Kinehan, 'The invisible whale', *World Archaeol.* 16 (1984), 95–96.

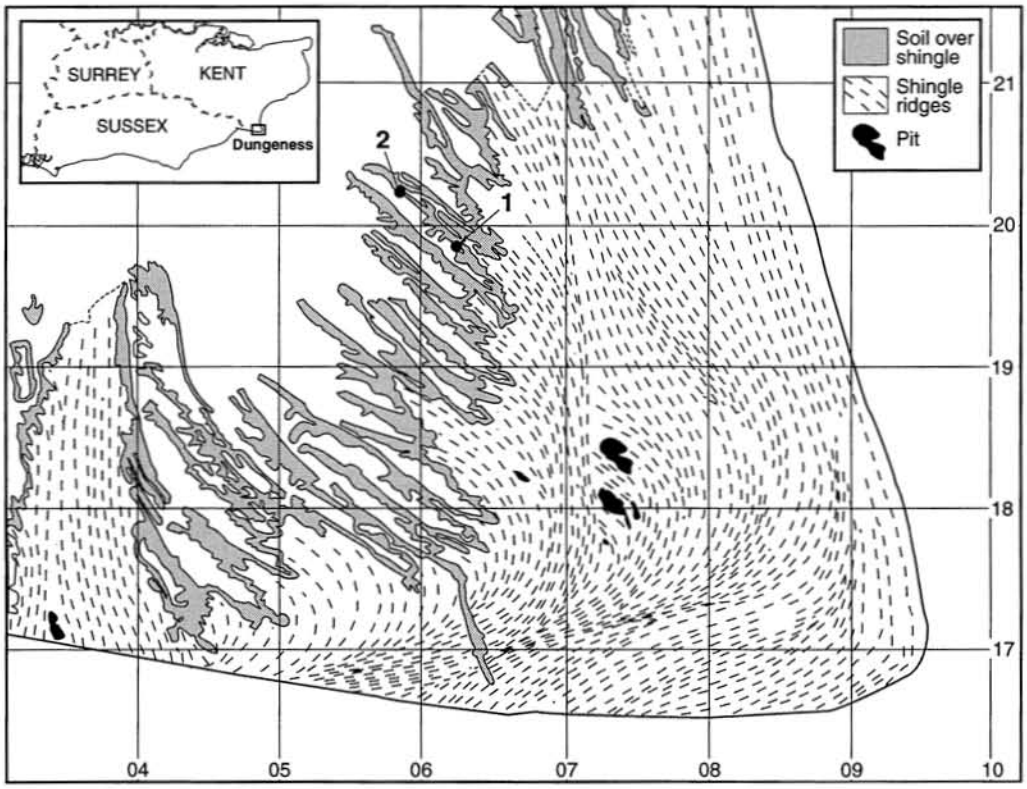

FIG. 4

The findspots of the two whales in relationship to the promontory of Dungeness (Kent). The one-kilometre squares of the National Grid are shown.

The archaeological sites of whale processing on the shoreline will inevitably be few in number. Sites on the seashore are subject to marine erosion and deposition, processes which have generally removed or buried any remains. The survival of two recently discovered groups of whale bones with tool marks on the eastern shore of Dungeness in Kent was due to the deposition of shingle during a storm event which covered the remains within a relatively short time of their exploitation. The Dungeness promontory is a unique formation in the British Isles. Shingle moving eastwards along the south coast of England over the last 4000 years has been thrown up in a series of ridges to create a foreland which now projects 6.5 km into the English Channel. These ridges mark the positions of successive coastlines and are therefore a record of coastal change (Fig. 4). The site at which the whale bones were discovered now lies 2.5 km from the present coastline, but was formerly on the protected eastern shore of foreland.[4]

The fragmented skull of the first whale (Whale 1) was found in January 1994 during gravel extraction at Denge West Quarry, near Lydd (grid reference TR063198) on a site

[4] W. V. Lewis, 'The formation of the Dungeness foreland', *Geog. J.* 80 (1932), 309–24; W. V. Lewis and W. G. V. Balchin. 'Past sea-levels at Dungeness', *Geog. J.* 96 (1940), 258–85; J. Eddison, 'The evolution of the barrier beaches between Fairlight and Hythe', *Geog. J.* 149 (1983), 44–45; A. J. Long and P. D. M. Hughes, 'Mid- and late-Holocene evolution of the Dungeness foreland, UK', *Marine Geol.* 124 (1995), 253–71.

worked by ARC Southern Ltd. The bones were recovered by machine from a depth of 3–4 m below ground level at approximately 2 m OD. They came from the top of a well-defined unit of black sandy silt overlain by clast-supported beach gravels. Tree trunks and smaller fragments of wood, detrital peat and occasional disarticulated mammal bones, sometimes including whale, were also recovered from the same stratum. Further whale remains (Whale 2) from a second individual were recovered from the same stratigraphic context in the quarry about 700 m to the north-west in 1995 (TR058203).

Both sets of bones lay at the top of a stratum identified as an intertidal flat which had been formed by sediment from the Romney Marsh catchment. Rising sea levels and seasonal storms encouraged the deposition of a series of shingle ridges on the intertidal flat. The whale bones were buried beneath shingle. After the emplacement of the first seaward shingle ridges, further progressive sedimentation, now predominantly tidal, took place in the lee of the barrier.[5] The whales were therefore stranded on the flat, presumably between the Mean High and Low Water Marks. The discovery of a number of bones from two individual whales in discrete localities suggests that they were not exposed to marine activity on the foreshore for a prolonged period before their burial by shingle. Their position under the same or adjoining shingle ridges indicates that they are likely to be nearly contemporaneous, a conclusion confirmed by the radiocarbon dates discussed below.

Photographs of the skull of Whale 1 were compared with modern whale skeletons at the Natural History Museum and it was identified as either the northern or southern right whale *(Eubalaena glacialis* or *E. australis* respectively), which are mysticete or baleen whales. The two species dealt with here differ in their distribution; the northern right whale being confined to the North Pacific and North Atlantic oceans and the southern species being from the oceans in the southern hemisphere. As the two species are closely related, their skeletal structures are very similar and may be difficult to distinguish osteologically. Indeed, it is thought by certain authorities that the two species differ too little to warrant separate specific identities. Due to the location of the find, it would seem likely that this skull derived from an Atlantic population of northern right whale.

The diagnosis of the genus is more certain than is that for the species, as *Eubalaena* is characterized among the mysticetes by relatively long and elongate zygomatic processes. The supraorbital processes of the frontal bone are similarly well developed and it is these bones that give the skull its very broad transverse section. Certain portions of the skull are missing, such as the maxillae, the premaxillae, the mandibulae and the nasal bones. These are the bones that would have formed the front part of the head, where the large baleen plates were held which constituted the feeding apparatus used by the animal for extracting plankton from the sea.

The rear part of the skull is almost complete although when it was examined it had been broken up into large fragments. The fragmentation appears to have been caused during the mechanical gravel extraction process. Clear signs of recent damage can also be seen on the supraoccipital bone from the top part of the cranium, but other marks present are more likely to have been caused in antiquity, in particular those which can be seen on the forward-facing surface of the left supraorbital process. Five cut-marks are consistent with use of a heavy metal implement. A large area of medullary bone has been exposed by what may have been a particularly heavy chopping blow which dislodged a portion of bone, and it is on this cut surface that two cut-marks are present. It is possible that these

[5] A. Plater, 'The late Holocene evolution of Denge Marsh, southeast England: a stratigraphic, sedimentological and micropalaeontological approach', *The Holocene* 2 (1992), 63–70; A. Plater and A. Long, 'The morphology and evolution of Denge Beach and Denge Marsh', 19 in J. Eddison (ed.), *Romney Marsh: the Debatable Ground* (OUCA monograph, 41, Oxford, 1995).

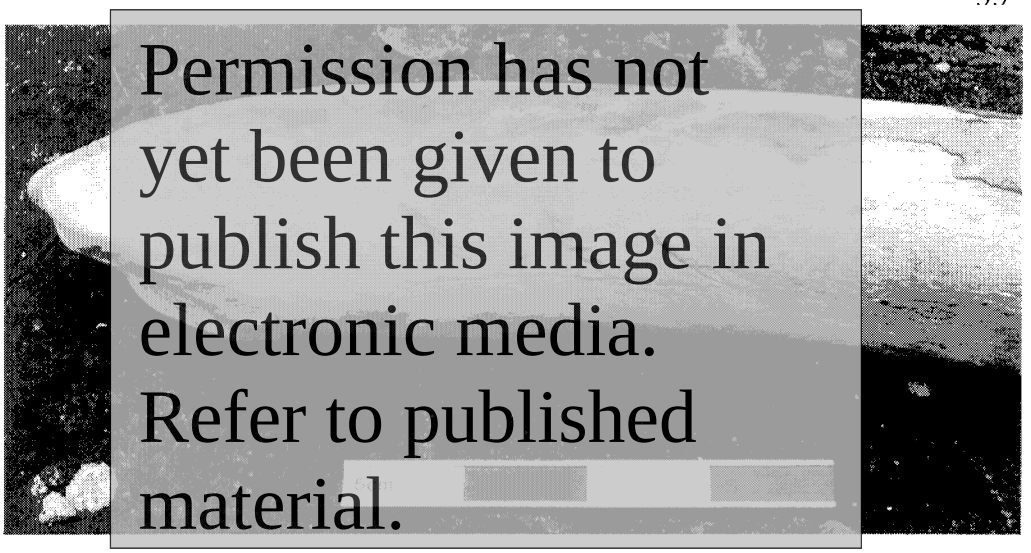

PLATE III

A partial rib of Whale 2 at Dengemarsh (Kent) showing some of the angled chopping marks produced by defleshing. *Photo: G. Priestley-Bell*

tool-marks on the skull represented an attempt to remove the left mandible. The lack of marks on the right supraorbital may be fortuitous.

The bones from the Whale 2 assemblage comprise eight vertebrae, including an atlas fragment and four complete and fifteen pieces of unfused vertebral centrum epiphysis, a number of rib fragments, a portion of the occipital part of the skull and some undetermined fragments. Although the bones from Whale 2 are not particularly diagnostic, the occipital fragment is similar to Whale 1, therefore the remains may represent another individual of the same species.

Five of the ribs and three vertebrae show cut-marks, almost certainly made in antiquity. One end of each of two partial ribs is a cut surface produced by a series of angled chopping blows with a heavy sharp-bladed metal implement. Another partial rib bears a series of seven regularly spaced deep indentations along a 300 mm section of the concave surface (Pl. III). The marks on the vertebrae appear exclusively on the transverse and spinal processes, apparently produced by a cutting or light sawing action with a sharp implement. The butchery marks are consistent with systematic defleshing involving the recovery of meat fillets along the backbone and the removal of flesh from the ribs. Some of the deeper cuts may have been made to remove the ribs from the carcass to facilitate the retrieval of the intercostal muscles. This process is broadly similar to traditional methods of whale meat recovery used by the whaling industry after the removal of the blubber.[6]

Bones from the two whales were submitted for radiocarbon dating at Queen's University, Belfast, and the results are detailed in Table 1. The dates have been corrected by adding 395 years to compensate for the marine reservoir effect before calibration and have been calibrated using the 1986 figures from Stuiver and Pearson.[7]

[6] L. H. Matthews, *The Whale* (London, 1968).

[7] M. Stuiver and G. W. Pearson, 'High-precision calibration of the radiocarbon timescale AD 1950–500 BC', *Radiocarbon* 28 (1986), 839–69; M. Stuiver, G.W. Pearson and T. Brazimas, 'Radiocarbon calibration of marine samples back to 9000 cal years BP', *Radiocarbon* 28 (2B) (1986), 980–1021.

TABLE I

	Uncalibrated	*Calibrated dates*	
UB-4175 (Whale 1)	1448 ± 24 bp	1s 915–1015 A.D.	2s 873–1043 A.D.
UB-4176 (Whale 2)	1468 ± 24 bp	1s 898–1000 A.D.	2s 840–1031 A.D.

The radiocarbon dates of the whale bones may be placed within the developing framework of the evolution of Dungeness. The formation processes of the ness have been discussed by a number of authors. A radiocarbon date from the base of the organic deposits in Wickmaryholm Pit, about 4 km from the places at which the whale bones were found, provided at date of 2038 bp, giving a calibrated date of between 357 B.C. to A.D. 213 at 95% probability.[8] This gives a minimum date for the deposition of the shingle at that point. A number of previous workers have attempted to trace the later development of the coastline using a charter purported to date to 774 and granting land to Archbishop Jaenberht of Canterbury. The charter survives only in a copy of the second half of the 10th century and the language suggests it may have been altered at that time. The bounds of the charter do not allow the coastline to be reconstructed with any accuracy, although this has not prevented a number of suggestions being published.[9]

The land granted in the charter later formed the Lydd bailiwick of the archbishop's manor of Aldington. The boundaries of the bailiwick were recorded briefly in 1462 and in greater detail in the later 16th century. In these later medieval records the south-eastern boundary was demarked by the Dengemarsh Sewer. The Saxon charter records that to the south of Lydd lay the royal land of *aduui*, which Brooks has suggested should be read at as 'belonging to Wye'. Dengemarsh was a member of the manor of Wye which was granted to Battle Abbey by William I. The present Dengemarsh Sewer probably follows an ancient course, although minor variations in its line have been recorded. A detailed survey of *c.* 1430 mentions the 'old watering', a reference to a previous course of the sewer, and there were further minor changes in its line in 1706.[10]

We may be fairly certain that the whales were stranded on land which formed part of the royal estate of Wye in the 10th century. Battle Abbey, the later holders of Dengemarsh, vigorously guarded their right to stranded whales and at an inquisition in 1258 cited various precedents. Five instances of stranding on the coast between Hythe and the Kent-Sussex boundary in the half century or so after *c.* 1070 were mentioned in evidence to the inquisition. In the present century the pattern of strandings reported to the Natural History Museum has been similar with a particular concentration along the east Sussex and south Kent coast where the English Channel narrows at the Straits of Dover.[11]

The discovery of whale bone at Dengemarsh is complemented by finds on occupation sites nearby. A whale vertebra was found in 1949 at *Sandtun* near West Hythe in Kent after formal excavations on the Middle and Late Anglo-Saxon site there had been completed. The vertebra is scored by knife marks and had evidently been used as a chopping board.

[8] Long and Hughes, op. cit. in note 4, 257.

[9] P. H. Sawyer, *Anglo-Saxon Charters: An Annotated List and Bibliography* (London, 1968), no. 111; N. Brooks, 'Romney Marsh in the early Middle Ages', 99 in J. Eddison and C. Green (eds.), *Romney Marsh: Evolution, Occupation, Reclamation* (OUCA monograph, 24, Oxford, 1988); Lewis and Balchin, op. cit. in note 4, 260, 266–67.

[10] G. Ward, 'Saxon Lydd', *Archaeol. Cantiana* 43 (1931), 29–37; Lydd Borough Archives LY/ZM1; Brooks op. cit. in note 9; Public Record Office E315/56, f. 220v.

[11] C. Johnson, 'A Claim to "Royal Fish" Stranded off Dungeness', *Archaeol. Cantiana* 47 (1935), 103–16; F. C. Fraser, *Report of Cetacea Stranded on the British Coasts from 1933 to 1937* (London, 1946); F. C. Fraser, *Report of Cetacea Stranded on the British Coasts from 1938 to 1947* (London, 1953).

More recently, a piece of whale bone was found in excavations at Townwall Street in Dover in a late Norman context.[12]

It has been possible to provide a clear geomorphological, archaeological and historical context for the discovery of the whale bones at Dengemarsh. The whales discussed here were probably either stranded in the shallows of the intertidal zone or washed ashore as carcasses, but the possibility must remain open that they were in fact hunted. Whichever is the case, the apparent butchery marks on both individuals are probably the result of exploitation by the local population, and seem to represent the systematic recovery of whale meat. The very rapid internal decomposition of unflensed animals (whales with the blubber still present) would probably have excluded all but the freshest carcass. The bones provide the first unequivocal archaeological evidence for the exploitation of whale meat in Anglo-Saxon England.

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[12] I. D. Riddler, 'The Small Finds', in 'Excavations at *Sandtun*, West Hythe, Kent' (in preparation); Riddler pers. comm.