

Anglo-Saxon Ships and Boats from the 6th- 11th Century AD

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Abstract: There are very few Anglo-Saxon ships that have been excavated in the UK. The 9th/10th century Graveney Ship is the only Anglo-Saxon vessel to have been found outside of funerary contexts, while the majority of the Anglo-Saxon vessels have been found within graves in East Anglia. Although Sutton Hoo Mound One is arguably the most famous of the Anglo-Saxon ship burials, another ship was placed in Mound Two, and a ship burial was found close by at Snape. It is thought that there may be a connection with the burial rites of Sweden, as ships and boats were buried in cemeteries at Vendel and Valsgärde, and there are similarities in the decoration of helmets and shields. It would also appear that the Anglo-Saxons reused parts of boats for coffins, as this has been discovered at Caister-on-Sea in Norfolk, and in parts of Kent.

Keywords: Sutton Hoo, Snape, Ashby Dell, Caister-on-Sea, Graveney, Buttermarket, Stoke Quay, Ipswich, Valsgärde, Vendel, Sweden, Suffolk, Kent, Boat and Ship Burials

1 Introduction

Relatively little is known about Anglo-Saxon ships compared to the later Viking vessels (Green 1988:21). So far, no sites of Anglo-Saxon ship-building have been discovered, and very few ships and boats have survived in the archaeological record (Goodburn 1986:39). Those which we know of were deliberately disposed of, either within graves or abandoned in waterways, and none of the surviving archaeological examples are complete. The Graveney vessel has only two-thirds remaining, whereas the East Anglian burials remain only as imprints in the ground. The Sutton Hoo ship found in Mound One is probably the most famous Anglo-Saxon ship, and it is worth noting that the only 7th century Anglo-Saxon ship burials in Britain have been found in East Anglia (Green 1988:53). It is thought that there may be some similarity with Swedish practices, although this is an ongoing debate (Carver 1998:164). Certainly, there were similar boat burials taking place in Vendel and Valsgärde cemeteries at the same time as the Anglo-Saxons were burying their dead in ships (Carver 1998:32, 36).

The archaeological remains show that the Anglo-Saxons ships were mainly clinker-built (Goodburn 1986:39; Green 1988:54; Müller-Wille 1974:187). The ships had plank keels, heavy frames, side rudders and stems and sternposts, along with a fairly flat midship section (Goodburn 1986:41). No evidence of the use of sails has been found, and it is believed that most of the Early Anglo-Saxon vessels were rowed rather than sailed (Crumlin-Pedersen 1990:111; Goodburn 1986:45; Green 1988:56, 72).

For the purpose of this article, a ship is a clinker-built vessel measuring more than 10m long, and a boat is a smaller vessel measuring between 3 to 10m (Fern and Carver 2005:301).

2 Boat and Ship Burials of the Early Anglo-Saxon Period (5th-7th centuries AD)

Though ship and boat burials are often found in Viking contexts, the Anglo-Saxons also buried individuals in ships, and most archaeological evidence for Anglo-Saxon ships comes from such graves (Bonde and Stylegar 2016:28; Bruce-Mitford 1952:20; Malfatti 2017:2). Burial with a ship was a rare occurrence, and only a handful of Anglo-Saxon ship burials have been found, all located within a relatively small area of East Anglia (Carver 2017:182; 2019:398; Crumlin-Pedersen 1990:98; Pollington 2017:58). The ships found at Catfield, Norfolk, and Walthamstow, Essex, during the mid-19th century may have been Anglo-Saxon, but there are no surviving records of these vessels, and so these are not covered here (Cameron 1982:323).

The Anglo-Saxon ship burials in England so far discovered have all been under large earthen mounds known as barrows, dated to the late 6th and early 7th century, and were inhumations (Bonde and Stylegar 2016:29; Brookes 2007:2; Malfatti 2017:9; Pollington 2017:10). It is evident that the ship burials were statement graves, for these not only stood out in the landscape and contained rich artefacts, but they also required large amounts of labour to drag the boat to its final location and to create the barrow (Bruce-Mitford 1952:20). Some argue that the use of ship graves was in response to the religious, social, ideological and political changes which were occurring across Anglo-Saxon England in the 7th century. Kingship and Christianity both emerged at the time that monumental burials appear in the archaeological record (Bill 2020:331, 376; Bonde and Stylegar 2016:19; Carver 2005:56; 2019:401; Cunliffe 2012:450; Pollington 2017:41). Indeed, it is believed that the use of ship burial in Anglo-Saxon England may have been reserved exclusively for royalty, with a prime example being the Mound One ship burial at Sutton Hoo, for this is the richest Anglo-Saxon burial found so far and is widely believed to be the final resting place of King Rædwald (Bruce-Mitford 1975:144; Carver 1998:121; 2019: 339-340; Firth and Sebo 2020:333).

No-one knows exactly why vessels were buried, though it is thought that the ships may have served both practical and spiritual purposes (Shenk 2002:23). For example, the ship may have been part of the deceased individual's property, or may have sailed them into the afterlife, or may have been a statement by the family of the dead person (Shenk 2002:23). Equally, ship burial may have provided a means of disposing old vessels, and this may explain the use of boat and ship parts in later Anglo-Saxon graves such as those found in Kent and at Caister-On-Sea, Norfolk (Bill 2020:306 339; Fern and Carver 2005:304; Pollington 2017:59)

It is possible that the Anglo-Saxons were influenced by contemporary Scandinavian practices, for ship burials dating to the same period as the Sutton Hoo ship burials have been found in parts of Sweden (Bill 2020:374; Bonde and Stylegar 2016:19; Brookes 2007:2; Brown *et al* 2020:430; Carver 1990:117; 1998:134; Fern and Carver 2005:303; Pollington 2017:58; Williams *et al* 2010:4). However, ship burial in Scandinavia was more widespread, varied, and long-lived, as it continued to be used throughout the Viking period ((Brookes 2007:1-2; Brown *et al* 2020:430; Bruce-Mitford 1974:132). Scandinavian ship burial also varied, for there are examples of boat cremation, and the use of upright stones to create the outline of a boat or ship rather than using a vessel itself. All the English examples are wooden vessels containing or covering inhumation burials (Bill 2020:305; Brookes 2007:2; Pollington 2017:57).

The relationship between the Anglo-Saxon ship burials and the contemporary Swedish boat and ship graves will be explored further in Section 6.

2.1. Anglo-Saxon Funerary Practices of the 5th-7th Centuries AD

The Anglo-Saxons buried their dead in a variety of ways during the 5th – 7th centuries AD. Both cremation and inhumation graves were popular for people of all ages and status, although there were regional variations in funerary rites, usually visible by the type of grave goods buried with the deceased (Arnold 1997: xix, 24, 159).

2.1.1. Variations within Anglo-Saxon Inhumation Graves

A number of variations are visible within inhumation graves across Anglo-Saxon England. The use of containers, grave linings, and the presence of stones, charcoal or evidence of burning, have all been discovered within graves of the Early and Middle Anglo-Saxon period (Arnold 1997: 160, 192-3; Scull 2009:277).

The variation in burial rites may be based on where the original Anglo-Saxons originated from. For instance, Bede's Angles, Saxons, and Jutes theory claims that these people settled in different parts of England, and this can be evidenced by the various styles of brooches and dress accessories contained within burials (Arnold 1997:19; Cunliffe 2012:412). Certain types of metalwork and pottery are found only within certain cultural areas, such as Kent or East Anglia, and this would support the idea that the Anglo-Saxon settlers continued their cultural traditions and style of dress in the 5th and 6th centuries AD (Arnold 1997:23; Cunliffe 2012:418). Certain burial rites may have been influenced by predecessors, and evidence of this can be seen in the reuse of Bronze Age barrows for the burial of Anglo-Saxons (Carver 2019:308).

However, in the 7th century regional variations in grave-goods seem to decrease, as the range of grave-goods, especially in female graves, tend to be more uniform across Anglo-Saxon England, even though the types of burial used are more varied and visible within the landscape (Scull 2009: 293).

2.1.2. Monumental Burials

The 7th century witnessed a variety of high-investment burial practices, especially for high status individuals (Arnold 1997:159; Carver 2019: 394; Pollington 2017:41). These monumental burials required larger quantities of labour to dig the graves, bury the individuals, and then create the mound on top, so it is believed that these types of grave were reserved for the elite members of society (Pollington 2017:31; Scull 2009:293).

The 7th century was a time of religious and socio-political change, and it has been argued that monumental burials were a response to this (Carver 2005:12; Pollington 2017:31). The rise of 'princely' graves occurs at the same time as the emergence of both kingship and the Christian conversion (Arnold 1997:20, 162; Fern and Carver 2005:306; Pollington 2017:18). Maybe these burials were also influenced by contacts with Scandinavia, for the use of chambers and barrows for burials had been adopted by the Germanic elite across northern and western Europe by the end of the 6th century AD (Bill 2020:309; Carver 2019:340; Cunliffe 2012:445; Pollington 2017:85).

Monumental burial practices included ship burials, chamber graves, bed burials, barrows, and horse burials, some of which are found only within certain regions (Arnold 1997:159; Carver 2019:394; Pollington 2017:49). The majority of ship and chamber graves, and some barrow burials, can justify being termed 'princely' burials (Pollington 2017:19, 20)

Perhaps the most common of these monumental graves is barrow burial, for barrows are found across Anglo-Saxon England, although there are local variations in the grave-goods contained within the grave (Arnold 1997:162, 201; Pollington 2017:7, 45). Although these were not necessarily a new type of burial monument, as these had been used in the Bronze Age and earlier, the Anglo-Saxons in the late 6th and 7th centuries began to construct their own barrows for burying a deceased individual (Brown *et al* 2020:414; Pollington 2017:15).

Chamber graves, which consisted of burials within wood-lined cavities, also emerge in Anglo-Saxon England in the 6th and 7th centuries, with perhaps the most famous example being the princely grave at Prittlewell, Southend-on-Sea, Essex (Pollington 2017: 21). However, chamber graves are also found on the Continent and it is possible that this type of burial monument has been developed independently by different cultures (Arnold 1997:159; Pollington 2017:23). A cotemporary chamber grave, dating to around 580 AD, was unearthed in Grave 58 at Trossingen, Germany. This belonged to a male aged between 30 and 40 years old, and contained rich grave-goods including a harp, saddle and a number of containers (Pollington 2017:27). The chamber itself was constructed of oak planks, measured 2.8 m long by 1 m wide, and had a gabled roof (Pollington 2017:27).

Ship burials also emerged in the late 6th and 7th centuries AD, and may have been adapted in East Anglia for political reasons and as a response to the emergence of kingship and the Christian conversion (Bill 2020:331, 376; Bonde and Stylegar 2016:19; Carver 2005:56; 2019:401; Cunliffe 2012:450; Pollington 2017:41). Intriguingly, ship burials could be classed as a type of chamber burial, for the ship's hull could be used as a form of burial chamber, or a chamber could be constructed on the ship as seen at Sutton Hoo (Pollington 2017:57).

Another form of monumental burial that emerges during this period is bed burials. These predominantly belong to 7th century females, who were laid on a bed and covered by a burial mound (Pollington 2017: 61,62). It is thought that this was an enhanced version of chamber burial, and is primarily found within Anglian areas of England, although examples are known from Scandinavia and on the Continent (Pollington 2017:61, 62).

2.2. Snape, Suffolk

The ship burial at Snape was located within a mixed rite Anglo-Saxon cemetery, and was the first Anglo-Saxon ship burial to be excavated in England (Bruce-Mitford 1974:115-6; Filmer-Sankey and Pestell 2001:6; Green 1988:123). The cemetery itself consisted of a number of cremation and inhumation graves, alongside ten barrows, of which many have been ploughed out or lost since they were excavated in 1827 (Bruce-Mitford 1952:4; Carver 1998:36; Filmer-Sankey and Pestell 2001:5,11; Green 1988:123; Phillips 1940:6). It is worth noting that the cemetery may have been visible from the River Alde in the 6th century, and it is known that the Anglo-Saxons commonly placed barrows in visible points in the landscape, with particular preference to rivers (Bruce-Mitford 1974:116; Filmer-Sankey and Pestell 2001:1).

The ship itself was found in 1862 by Septimus Davidson, and though the location of the ship burial is now unknown, we have the original reports that were published in the local newspapers at the time of the discovery (Bruce-Mitford 1974:114; Carver 2019:401; Filmer-Sankey and Pestell 2001:5). The ship was placed beneath a barrow which was approximately 22 m in diameter and 1.7 m tall, and had been robbed at some point (Bruce-Mitford 1975:28; Carver 1998:36; Filmer-Sankey and Pestell 2001:6, 11, 193; Goodburn 1986:41; Pollington 2017:58).

Though none of the wood survived, an imprint was left of the clinker-built ship, from which six rows of rivets on either side survived, with many still *in situ*, and may have been 8- 9 strakes high (Bruce-Mitford 1974:117; Filmer-Sankey 1990:126; Filmer-Sankey and Pestell 2001:6, 19, 194-5; Green 1988:63). The ship itself was approximately 14 m long and 3 m at midships, with rivets spaced at 14 cm intervals (Bruce-Mitford 1952:6; Carver 1998:36; Evans 1994:23; Filmer-Sankey and Pestell 2001:194; Green 1988:123; Pollington 2017:141). A number of ship rivets were recovered from the burial, as well as portions of iron strips whose function is unknown although iron bolts were fixed through them (Bruce-Mitford 1952:15; 1974:125; Filmer-Sankey and Pestell 2001:194). Mineralised wood attached to the rivets show that the ship was made of oak (Filmer-Sankey and Pestell 2001:19). From the remains, it is evident that the bow and stern of the vessel may have stuck out of the mound (Filmer-Sankey and Pestell 2001:195).

It is believed that the ship contained the burial of a wealthy individual. Although the grave had been robbed, a gold ring was discovered alongside fragments of other artefacts (Bruce-Mitford 1952:7; 1974:118; Carver 2017:42; Filmer-Sankey and Pestell 2001:7; Green 1988:21, 123).

The gold ring has been interpreted as a seal, for the *intaglio* (carved gemstone) would leave an imprinted design, and only high-status individuals would own such items (Bruce-Mitford 1974:122; Cameron 1982:322; Carver 1998:105; Filmer-Sankey and Pestell 2001:198; Pollington 2017:141). The grave goods also included a glass claw beaker, two iron spearheads and a shaggy pile cloak (Carver 1998:36; 2017:179; Evans 1994:23; Filmer-Sankey and Pestell 2001:7, 19). The burial has been dated to the late 6th/mid 7th century AD, based on the grave-goods, and may be the precursor to the Sutton Hoo ship burials (Bruce-Mitford 1952:19; Cameron 1982:322; Evans 1994:23; Filmer-Sankey and Pestell 2001:194).

The Anglo-Saxon cemetery was further excavated in the 1980s, and was found to contain two smaller boat graves. One consisted of a burial within a dugout log boat, and the other may have contained part of a boat. These date to the early 7th century AD (Bill 2020:329; Carver 1998:105; 2017:179; Filmer-Sankey 1990:131; Filmer-Sankey and Pestell 2001:12; Pollington 2017:142) (See Section 3 below).

2.3. Ashby Dell, Suffolk

There is little recorded about the Ashby Dell boat, for though it was found in 1830, the records of the find were destroyed in 1933 (Cameron 1982:322; Evans and Bruce-Mitford 1975:426; Goodburn 1986:41; Green 1988:66).

However, we do know that the boat was Anglo-Saxon and was 16.2 m long, and 14 m along the keel from stem- to stern- post (Cameron 1982:322; Green 1988:66). There was space for 14 oarsmen, seven on each side, for seven thwarts with seats were discovered fixed to the frames with treenails and lashings (Cameron 1982:322; Evans and Bruce-Mitford 1975:427; Green 1988:67-8). There was no evidence of a mast, so it is believed that this vessel would have been rowed but not sailed (Cameron 1982:322; Green 1988:68). Unlike the other Anglo-Saxon ships found in England, the Ashby Dell boat did not have metal components, and yet it was clinker-built, using lashings instead of iron rivets (Cameron 1982:322; Green 1988:68).

It is thought, however, that this ship was built using 'riven larch' planking, and so may have been constructed in Scandinavia rather than in England (Evans and Bruce-Mitford 1975:426; Goodburn 1986:41, 67). Although the keel, stern-post and stem-post were made of elm, which was available in England, larch wood was not then available in England or Denmark (Green 1988:69).

No body or grave-goods were found with the boat, but it may be that these were lost or not recorded, and originally formed part of a burial (Evans and Bruce-Mitford 1975:428; Green 1988:68).

2.4. Sutton Hoo, Suffolk

Overlooking the River Deben, the ship burials at Sutton Hoo were located within an Anglo-Saxon barrow cemetery (Bruce-Mitford 1966:9; 1975:1; Carver 1998:ix; 2005:3). It is generally accepted that the barrow cemetery at Sutton Hoo contains the remains of the *Wuffingas* royal dynasty, with the Mound One ship burial belonging to King Rædwald (Bonde and Stylegar 2016:30; Bruce-Mitford 1974:75; 1975:28; Carver 2005:12; Pollington 2017:15)

At least eighteen barrows were erected during the cemetery's use, each dating to the 6th and 7th centuries AD, and containing various burial rites including cremations, inhumations and ship burials (Carver 1998:107, 134; Carver and Fern 2005:284; Evans 1994:18; Williams 2001:50). Of the excavated mounds, only two, 1 and 17, were not successfully robbed, although all show signs of robber trenches and pits (Bruce-Mitford 1965:5; Carver 2005:3, 492; Marzinzek 2007:9).

2.4.1. Mound Two

The first ship burial to be found at Sutton Hoo, Mound Two consisted of a shallow ditch and a barrow roughly 30.5 m in diameter, and 2.4m high (Green 1988:31). The ship was not in a good state of preservation when excavated by Basil Brown in 1938, for it had been robbed and the surviving rivets were scattered (Bruce-Mitford 1972:15-17; 1975:105; Cameron 1982:321; Carver 1998:70; 2017:84; Evans 1994:17; Goodburn 1986:41; Pollington 2017:148). Indeed, records of an excavation in 1860 at Sutton Hoo revealed that two bushels of rivets had been removed from this mound and turned into horseshoes (Carver 2005:3, 153, 168; Evans 1994:12). However, enough rivets remained for Basil Brown to confidently identify this as a boat burial, and later excavations revealed that this was actually a ship (Carver 2005:3, 156; Evans 1994:17; Green 1988:31; Marzinzek 2007:9-10). Very few of the surviving rivets were *in situ*, but the sheer quantity, size and shape of them indicated the presence of a clinker-built vessel (Bruce-Mitford 1975:111; Carver 1998:79;2005:166-7).

Though it had been robbed numerous times since the 7th Century AD, fragments remained of the original artefacts, which indicated that this was a wealthy burial belonging to a high-ranking male (Bruce-Mitford 1965:8; 1975:106; Carver 1998:81; 2017:86; Green 1988:31). The finds included a piece of blue glass, iron knives, the tip of a sword blade and a gilt bronze disc, and it is thought that the unrobbed grave would have been comparable to Mound One (Bruce-Mitford 1965:14; 1972:17; Carver 1998:8; 2017:8; Marzinek 2007:10, 55).

Basil Brown did not completely excavate Mound Two however, and it was a later excavation in the 1980s which revealed the profile of a keel in the trench section, indicating that the ship had been placed over the burial chamber, rather than being used as the burial chamber itself (Carver 1998:64, 80). In this instance, the chamber had been constructed first, and the ship was then placed above (Carver 1998:120; 2005:10, 153; 2017:86; Evans 1994:121; Green 1988:63; Pollington 2017:57). It is possible that the stem and stern posts would have been visible out of the barrow, which is why no evidence of these survived (Carver 2005:168; Evans 1994:121; Green 1988:31).

Unlike the Mound One ship, the Mound Two vessel survived only as a smear in the ground with about forty-five rivets (Bruce-Mitford 1965:4, 8; 1972:17; Green 1988:31). However, the ship is thought to have been approximately 20 m long, and may have been propped up in order to keep it upright while the barrow was constructed (Bruce-Mitford 1965:8; 1975:128; Carver 1998:120; 2005:168; Green 1988:61-2; Pollington 2017:148). It is believed that the ship was full-sized, pointed at both ends and was a 'conventional' Early Medieval type, although it is not known how many strakes the vessel had, and no trace of internal features survived (Bruce-Mitford 1952:10; 1965:8, 36; 1975:128; Cameron 1982:321; Carver 1998:64; Green 1988:62). The Mound Two burial may be earlier than the Mound One ship, with a date before 620 AD suggested (Bruce-Mitford 1975:128; Carver 2005:166).

2.4.2. Mound One

Perhaps the most famous of Anglo-Saxon ships, the Mound One ship was excavated in 1939 by Basil Brown and Charles Phillips, and to date is the largest pre-Viking ship and wealthiest Anglo-Saxon grave to have been discovered (Bruce-Mitford 1975:144; Carver 1998:121; 2019: 339-340; Tanner *et al* 2020:5; Williams 2001:50). Unlike the ship in Mound Two, this vessel was buried with the burial chamber built amidships, and although an attempt to rob the grave had taken place in the 16th century, it had been unsuccessful (Bruce-Mitford 1975:147; Carver 1998:121; 2005:177; 2017:137; Phillips 1940:11).

Although none of the original wood survived, the impression of the ship remained in the sand, and most of the rivets were still *in situ* (Bruce-Mitford 1966:35-6; 1972:45; 1975:171; Carver 1998:20; 2005:38, 181; Crosley 1942:109; Evans 1994:23, 24; Green 1988:43, 50; Tanner *et al* 2020:7). The structure of the ship was largely undistorted, with much of the structure visible as dark marks in the sand (Bruce-Mitford 1966:35-36; Evans 1994:25; Phillips 1940:10).

The rivets were mainly in their original places, which indicated the size of the ship, and the pattern of rivets revealed some patches of repair which indicate that the ship had been well used prior to deposition (Bruce-Mitford 1966:37; 1972:48; Carver 1998:18, 122, 170; Evans 1994:25, 28; Evans and Bruce-Mitford 1975:350; Green 1988:61; Phillips 1940:24; Pollington 2017:145-6; Tanner *et al* 2020:21; Williams 2001:62). The rivets were spaced approximately 15 cm apart, while ribs, preserved as marks in the sand, crossed the ship at 90 cm intervals except for at the stem and stern. Ribs 1, 2 and 3 were widely spaced at the head of the prow, while ribs 24 and 25 were closer together and formed part of the steering system (Bruce-Mitford 1972:49; Carver 1998:18-20; 2005:181; 2017:24; Crosley 1942:110, 111; Evans 1994:23-4; Evans and Bruce-Mitford 1975:369).

Evidence of one repair was found on Rib 21, with three iron bolts indicating that this had been an area of repaired planking, while between Ribs 20 and 21, two rows of five rivets located within rows of standard spaced rivets revealed that an external patch had been riveted over a damaged hull section (Carver 2005:181; Evans and Bruce-Mitford 1975:392, 412; Phillips 1940:24). A third repair was found between ribs 15 and 21, with a long line of double riveting

joining strakes 5 and 6 which runs for 18ft along port side, and it is thought that this was to strengthen a weakened plank overlap (Carver 2005:181; Evans and Bruce-Mitford 1975:412; Phillips 1940:24; Tanner *et al* 2020:21).

The ship itself was clinker-built, measuring approximately 27 m long, 4.5 m wide amidships. It had nine strakes on either side of the keel (Bill 2020:311; Bruce-Mitford 1966:33; 1972:48; Carver 1998:123; 2005:181; Evans 1994:27; Green 1988:58). There were no surviving remains of the upper parts of the stem and stern posts, though it is thought that these raised about 4 m above the keel, and may have been visible outside of the barrow (Bruce-Mitford 1966:37; 1972:50; Evans 1994:27; Green 1988:58; Phillips 1940:10). The ship is believed to have been predominantly constructed using oak, as mineralised wood matching oak has been found on some of the surviving rivets (Crosley 1942:109; Evans and Bruce-Mitford 1975:354).

The strakes were made of several pieces of timber riveted together at the overlapping joints, and were approximately 1 inch thick (Bruce-Mitford 1966:37; 1972:49; Carver 2005:181; Evans and Bruce-Mitford 1975:354, 361). Twenty-six square-cut ribs were fastened to the strakes by wooden trenails, and to the hull by a single heavy iron bolt through the top strake (Anderson 1950:264; Bruce-Mitford 1966:36; 1972:48; Carver 2005:181; Evans and Bruce-Mitford 1975:365, 369).

It is possible that a heavy steering oar was used at the stern, on the starboard side, although no evidence of a steering system remained (Bruce-Mitford 1966:37; 1972:49; Cameron 1982:321; Carver 2005:181; Evans 1994:26, 27; Phillips 1940:21). The positioning and shape of ribs 24 and 25 at the stern suggests that this area had been strengthened in order to take the extra strain that such an oar would exert on the ship (Bruce-Mitford 1972:49; Crosley 1942:111; Phillips 1940:25). Unfortunately, at the time of the 1965-70 excavations, the steering complex (ribs 24, 25, 26) had been destroyed by a slit trench which had been dug by the army during the period that Sutton Hoo was a training ground (Bruce-Mitford 1975:239, 250-1; Evans and Bruce-Mitford 1975:408, 410).

Although no remains of a mast or rigging were found, it is possible that these were destroyed upon the construction of the burial chamber, were recycled for use on another vessel, or may not have been present originally (Bruce-Mitford 1966:37; 1972:48; Cameron 1982:321; Carver 1998:170; Evans and Bruce-Mitford 1975:351; Evans 1994:27; Phillips 1940:21, 22; Pollington 2017:146). It is possible that the mast step (if it existed), along with any anchors and internal fittings, were removed from the ship before it was hauled to its final resting place (Bruce-Mitford 1975:24; Evans and Bruce-Mitford 1975:410-412).

Evidence of the tholes (thorn-like projections against which an oar is pulled) indicate that the ship was rowed by up to 40 oarsmen, and the ship may not have been sailed (Cameron 1982:321; Carver 1998:171; 2005:181; Evans and Bruce-Mitford 1975:419; Evans 1994:27; Green 1988:60). Each thole measured 4-5 inches (10-13 mm) high, had a thole-pin base of 3 feet (300 mm), and formed a more or less continuous rail along the top of the gunwale strake (Evans and Bruce-Mitford 1975:403-4).

Beneath the ship was found the imprint of an oar, whose shaft could be traced for 8 feet (2.4 m) but no trace of the blade remained, and no other oars were found (Bruce-Mitford 1975:274).

The ship produced no evidence of caulking, although a fatty whitish substance at the strake lands showed evidence of protein and fatty substances, which suggests that there was an animal-derived element plus caulking material present (Bruce-Mitford 1975:270, 271; Carver 2005:181; Crosley 1942:113-4; Evans and Bruce-Mitford 1975:373).

The burial chamber was built amidships, between Rib 9 and Rib 16, and measured 5.5 m long by 4.5 m wide (Bruce-Mitford 1972: 44; Evans 1994:32; Pollington 2017:57). Within this chamber was a range of artefacts, and it is thought to have contained the burial of King Rædwald, though no human remains were discovered (Bruce-Mitford 1966:31; 1975:220; Carver 1998:23, 32-3; 2017:26). However, scientific analysis conducted in the later excavations revealed traces of phosphate, which implies that a human body was contained within the chamber and was probably placed along the keel-line (Bruce-Mitford 1972:40; 1974:5; 1975:516; Marzinek 2007:52).

The artefacts included silver platters and bowls, an intricate gold buckle, gold and garnet shoulder-clasps, a shield, and the infamous Sutton Hoo helmet, among many other items. A purse of 37 gold coins (plus 3 blanks and two small ingots) dates the burial of the ship to the early 7th century AD, and it is believed that the burial belongs to King Rædwald who died in 625 AD (Bruce-Mitford 1972:59; Carver 1998:23, 132.)

3. Dugout Boat Graves

Ships were not the only vessels which were used to bury the dead by the Anglo-Saxons. A number of dugout boat graves have been found in Suffolk, with contemporary examples occurring in Northern Europe (Brookes 2007:1; Scull 2009:275). A dugout boat consists of a hollowed-out log, which has been expanded under heat and fitted with supporting frames, although these are not always easily identifiable in the archaeological record due to the lack of metal fittings (Brookes 2007:7-8). They have thin upper walls which extends the height to the freeboard, and giving a craft which is easier to handle and lighter than prehistoric log-boats (Carver 2019:398). They are a typical small boat of sheltered waters, and measure between 2.5 to 6 m long (Goodburn 2008:1). However, due to the lack of clenched nails, it is not always possible to distinguish a dugout boat from a tree-trunk coffin in Anglo-Saxon graves, especially when wood is rarely preserved in the archaeological record (Carver 2019:398; Fern and Carver 2005:301;).

3.1. Snape, Suffolk

As well as the ship burial, Snape cemetery also contained one partial and two complete dugout boat graves. So far, Snape is the only Anglo-Saxon cemetery to contain both ship and boat burials.

Grave 4 contained a small logboat with pointed ends, which had been used as a coffin, possibly for a child (Carver 2019:398; Filmer-Sankey 1990: 129; Filmer-Sankey and Pestell 2001:25,26). It was 2.96 m long by 0.82 m wide, and survived only as a partially distorted stain in the soil (Filmer-Sankey 1990:126, 128; Filmer-Sankey and Pestell 2001:25, 26). This grave included a pair of drinking horns as well as an iron knife (Carver 2017:179; Filmer-Sankey and Pestell 2001:26-9).

Grave 47 consisted of an early 7th century burial of a male within a dugout logboat 3.53 x 1.37 m in size (Filmer-Sankey and Pestell 2001:102). The stain of the boat is well-preserved, which revealed that the boat was approximately 3.09 m long with a beam of 0.62 m, and both bows remained as V-shapes (Carver 2019: 398; Fern and Carver 2005:303; Filmer-Sankey and Pestell 2001:102, 105). It may have been a working vessel, although it could only have been used by one person on a river, with the boat's stability largely in the use of the paddles, for without baggage the boat would have been likely to capsize, and so may have worked like a modern canoe (Carver 2019: 398-401; Filmer-Sankey and Pestell 2001:203). The grave goods associated included a shield, three iron spearheads, a wooden stave bucket, a pattern welded sword, and a horse's head with the remains of a bridle (Carver 2017:179; Filmer-Sankey and Pestell 2001:105-11). No other remains of the horse were found within the barrow, and the bridle had been scattered throughout the grave by later ploughing activity, although it is believed the bridle had originally been on the horse when buried (Filmer-Sankey and Pestell 2001:111).

Grave 3 consisted of a male burial in a charred container, which is possibly part of a logboat with the end third removed (Fern and Carver 2005:303; Filmer-Sankey and Pestell 2001:23, 199). It measured 3.09 m long x 0.62 m beam x 0.35m deep (Filmer-Sankey and Pestell 2001:199). It was made of oak, and the width of the container is similar to that of the boat found in grave 47 (Filmer-Sankey and Pestell 2001:23). However, this burial was not as wealthy as other ship burials, with the grave goods consisting of an iron spearhead, an iron knife, a copper-alloy buckle and a shield boss (Filmer-Sankey and Pestell 2001:23-5).

3.2. Buttermarket, Ipswich

The main Anglo-Saxon cemetery in Ipswich, the Buttermarket, was in use 610 – 680 AD, and the full extent of the cemetery is unknown (Scull 1998:2; 2009:137; 2013:44). This is due to much of the cemetery being disturbed or destroyed by activity from the 9th century onwards, and the excavations are estimated to have found only 25% of the original graves. These were the only ones that had survived (Scull 1998:2; 2009:137, 256).

The town of Ipswich was established in the 7th century and had contacts with the Continent. Imported pottery and coins from Flanders, northern France and the Rhineland were present in some of the graves (Scull 1998:2; 2013:44, 47, 48). The grave assemblages indicate that foreign individuals were being buried alongside the local residents, and it is clear that Ipswich was an important place for trade and exchange in the 7th century (Scull 1998:2; 2013:47).

The graves also reveal social differentiation through the grave-goods and the type, for mounds, burial containers and grave structures were all present (Scull 1998:3; 2013:46). Most of the excavated graves contained evidence of coffins, chambers, or some other form of container or structure, and this may have been an emulation of contemporary Continental practices, especially with the more elaborate grave linings (Scull 1998:2; 2009:271; 2013:46). However, some of these structures were not easily identifiable because of the state of preservation on the site, as conditions varied between graves and the complex deposits contained traces of organic structures and containers (Scull 2009:3). These traces were so poorly preserved due to later disturbances that it was difficult to decipher what some of these structures were or what they were made of, and in some cases very little remained of the original organic material (Scull 2009:3).

One boat burial was identified, and one grave contained a hollowed-out log, which may or may not have been a dugout boat (Brown *et al* 2020:430; Scull 1998:2). There were probably some barrow graves within the cemetery; although the mounds had been destroyed, the presence of annular ditches around some of the graves suggests that these were barrow burials (Scull 1998:2). The use of log coffins was not a common practice in Early Medieval England, but they are rather more common burial practice across much of the Continent. Their use in the Buttermarket cemetery further indicates the exchange and adoption of Continental funerary practices (Scull 2009:274).

Grave 5014 contained a boat grave, with the vessel measuring 2.6 m long, 0.5 m in the beam and 0.35 m deep, and is similar in size to the boat graves at Snape (Scull 2009:157, 275). Staining on the floor of the grave revealed that the boat was semi-circular in section and tapered at the east end, but there was no strong tapering to the point of the bow, suggesting that the bow may have been more rounded (Scull 2009:157, 275). Maybe this was a dugout boat, for no evidence of planking, a keel, clenched nails, or iron fittings were found (Scull 2009:275). However, it is also possible that this was a boat-shaped log coffin, like those recorded at Burrow Hill, Butley (Scull 2009:275).

The grave was located within an arc of a curved length of ditch, and although no grave-goods were found, this grave evidently required a high investment in labour (Scull 2009:157, 275, 292).

Grave 4250 contained a covered container which tapered towards the east end of the grave and had marked curvature along the sides, suggesting that this is possibly part of a boat (Scull 2009:275). The lack of clenched nails and strakes indicates that this could be a dugout boat, but there is insufficient evidence to clearly identify this as a boat rather than a log coffin (Scull 2009:275).

Grave 968 had a penannular ditch and contained a hollowed-out log coffin which may possibly be a boat, and had a cover of planks (Scull 2009:138).

3.3. Covehithe, Suffolk

The possible dugout boat found at Covehithe, Suffolk, was not a burial deposit as it was found in water, and dates to 775-892 AD (Park 2003:6). It had been carved out of a whole oak log, and measured 5 m long by 0.67 m wide, although it may have originally been deeper (Goodburn 2008:2; Park 2003:6).

It is the size which suggests that this may have been a dugout boat, although the extremely rounded cross-section would have made the vessel less stable than the majority of dugout finds, and it is possible that the Covehithe vessel was unfinished before it was abandoned (Goodburn 2008:3). Indeed, the shape of the vessel could suggest that this may have been a form of trough or coffin, but there is insufficient evidence to state its purpose definitively (Goodburn 2008:3; Park 2003:6).

4. Partial boat burials

Although most Anglo-Saxon ship burials contain whole vessels, there are some graves of a slightly later date which have been found to contain only parts of boats (Malfatti 2017:9). Interestingly, these are found in East Anglia, suggesting a relatively local funerary rite, although graves containing clench nails dating to the 6th- early 7th centuries have also been discovered in Kent (Brookes 2007:1).

In these graves, it is parts of a vessel, such as planks, which have been used as biers or grave covers, rather than as coffins, and in some cases, boat timbers were included as grave-goods in their own right (Brookes 2007:1,7). Although clench bolts have been found on riverine and coastal sites where they could be associated with ship building and repair, the majority of bolts have been recovered from cemeteries, which indicates that boat and ship parts were being reused as grave furniture (Brown *et al* 2020:234). It is thought that the deposition of boat fragments was deliberate, and may have some mythological and spiritual significance, as well as representing a symbolic association with the sea (Brookes 2007:1, 15; Brown *et al* 2020:234)

Partial boat burials also appear to be a relatively long-lived rite, based on examples found in the Early Medieval cemetery at St Peter's, Barton-upon-Humber (Brown *et al* 2020:234). Here, boat parts were found in graves from the later 10th to the end of the 13th century, and could be used as a cover, or placed on the floor of the grave beneath the body, or as part of the grave lining or as part of a carpentered coffin (Brown *et al* 2020:234).

4.1. Caister-on-Sea, Norfolk

Located just outside of an earlier Roman fort, the Anglo-Saxon cemetery at Caister-on-Sea contained a number of burials, the majority of which date from the 8th century to the 11th century AD (Darling and Gurney 1993: xvii, 6; Fern and Carver 2005:304). A number of graves were found to contain pieces of boats and ships, and interestingly no complete vessels were used within the burials (Brookes 2007:3; Bruce-Mitford 1975:128; Cameron 1982:322; Carver 1998:167-8; 2019:398; Green 1988:53; Pollington 2017:58). The boats were probably not longships, but a mixture of average vessels such as fishing vessels (Green 1988:59, 66).

Thirteen burials contained clench nails in up to three rows, which indicates that between two and four boat strakes may have been used as coffin lids (Darling and Gurney 1993:51, 52, 253; Green 1988:62). It is thought that the planks were taken from boats between 6 and 12 m long, and mineralised wood preserved on iron rivets revealed that the planks were made of oak and hazel (Darling and Gurney 1993:53; Green 1988:63).

Most of the clench nail burials contained between five and fifteen clench nails, although up to thirty-seven could be found. They were spaced at regular intervals of 150-180 mm (Brookes 2007:3; Darling and Gurney 1993:53; Green 1988:59). The clench nails had a square shank 3-4 cm long, with a flat head, while the point was clenched over a diamond-shaped rove (Brookes 2007:3; Darling and Gurney 1993:52).

The partial boat burials were found to belong to not just men, for clench nails were found in four female graves, one adolescent, and one child burial, alongside six male graves (Darling and Gurney 1993:253). It is unknown if the presence of boat strakes had any significance. It is possible that these were emulating earlier ship graves, but it may also be simple recycling of boat pieces, and there are no known parallels across the North Sea (Brookes 2007:5; Cameron 1982:322; Darling and Gurney 1993:254).

4.2. Stoke Quay, Ipswich

A Late Anglo-Saxon cemetery located next to the south bank of the River Orwell, Stoke Quay revealed twenty-four burials containing clench bolts, which suggests the reuse of boat timbers (Brown *et al* 2020:1, 85). The earliest datable burials are from the late 9th to the late 10th century, but the cemetery continued in use to the Late Medieval period (Brown *et al* 2020:5, 104). The clench bolts were found in graves dating throughout the use of the cemetery, suggesting that this was a relatively long-lived rite (Brown *et al* 2020:104). The evidence of numerous clench bolts and rivets found on the site suggests the presence of a heavy fishing industry and ship building nearby, and the shipyards may have provided a convenient source of fixings for coffins (Brown *et al* 2020:5, 85, 104).

The clench bolts were found in graves belonging to males, females and children of all ages, although there was a predominantly male distribution in the late 12th to late 15th centuries, and the number of clench bolts within the grave varied between one and thirty-one (Brown *et al* 2020:104). This range and the variety of arrangement of the bolts within the graves suggests that different styles of boat were present at Stoke Quay, and there was no preference in the type of vessel to use within the burial (Brown *et al* 2020:430).

Of the twenty-four clench bolt graves, three were of Late Saxon date, twelve were Early Medieval and eight dated to the late 12th- late 15th centuries (Brown *et al* 2020:9, 234).

4.2.1. The Late Saxon (Late 9th- Late 10th Century) Clench Bolt Graves

Grave 22673 was found to contain twenty clench bolts, which were found around the edge and along the central axis, with the mineralised remains of a clinker-built lid surviving along the central part of the grave (Brown *et al* 2020:85). The lid was formed of more than one piece of timber, suggesting that this was originally part of a vessel which had been reused as grave furniture (Brown *et al* 2020:85).

Grave 20051 contained three clench bolts and a separate rove, which ran in a line from the stomach area down towards the knees, and suggests that a segment of a boat was used as a grave cover (Brown *et al* 2020:233).

4.2.2. The Early Medieval (Late 11th- Late 12th Century) Clench Bolt Graves

Grave 22528 contained thirty-one clench bolts, with boat parts used as a grave cover and possibly as sides of the burial container (Brown *et al* 2020:233).

Grave 22941 contained nine clench bolts which were located in a row over or along the left side of the body, with a cluster of four bolts located over the lower legs (Brown *et al* 2020:233).

Grave 21220 did not contain any clench bolts, but had some possible evidence of boat building in the form of an iron sintel (a small rectangular staple which is associated with Frisian boat building) (Brown *et al* 2020:85, 236).

4.3. Kent

A number of Anglo-Saxon graves containing clench nails have been discovered in sites across Kent.

At Minster Thorne Farm, Thanet, an inhumation grave was found containing eighteen clench nails arranged in two rows above the skeleton (Brookes 2007:5). The space between the nails indicates that the strakes were roughly 200-250 mm wide (Brookes 2007:6).

At the 6th century cemetery on Mill Hill, Deal, Grave 38 contained an inhumation with thirty-one clench nails which had been arranged in two rows up the left side of the body, with a strake width between 100-150 mm (Brookes 2007:5, 6).

Grave 300 from the Dover Buckland 2 Cemetery contained fourteen clench nails, which were in two closely spaced rows overlying the lower torso of the skeleton (Brookes 2007:5). The distance between the nails revealed that the strakes were between 80-100 mm wide, and it is possible that the planks came from high in the prow or stern where the upper and middle strakes joined the stem or stern posts (Brookes 2007:6).

The arrangement of the nails within the Minster Thorne Farm and Dover Buckland 2 graves suggests that boat planking which was two or three strakes wide were used to cover the body, with the concave inner curve of the hull protecting the inhumation (Brookes 2007:6).

At Sarre, a large number of boat remains were discovered within the cemetery, and it is likely that this represents the recycling and disposal of old boat parts, for the settlement has evidence of Anglo-Saxon ship wrecking, recycling and/or building (Brookes 2007:14).

The finds of clench bolts and nails across Kent is comparable with other Early Medieval boat and ship finds throughout the North Sea region, and it is possible that this was a tradition that had been adopted by the Anglo-Saxons (Brookes 2007:9). There is a marked concentration of partial boat graves on coastal sites in Kent, especially on the south coast of the Isle of Thanet and the Deal-Dover seaboard, which suggests that these were located along Early Medieval shipping lanes (Brookes 2007:12).

5. Middle to Late Anglo-Saxon Period Ships and Boats

There is limited evidence for the types of ship and boat used by the Anglo-Saxons from the 8th- 11th centuries AD. Archaeological evidence has revealed one physical ship, the Graveney Ship, and there are few iconographical depictions (Ali 2016:8; Evans and Fenwick 1971:94). Written evidence in the form of the Anglo-Saxon Chronicle has provided only vague mentions of the vessels used by Alfred the Great and his successors.

The 11th century Bayeux Tapestry depicts very few English ships (Ali 2016:8). However, of the vessels it does depict, it is evident that the Anglo-Saxons were using ships with a midships break in rowing position, and oar ports which were commonly used from 9th century on larger boats (Ali 2016:8).

5.1. The Graveney Ship, Kent (often called the Graveney Boat)

The Graveney Ship, Kent, is the only Late Anglo-Saxon ship to have been found so far, dating to the late 9th or early 10th century, and it was deliberately abandoned rather than being buried in a grave (Ali 2016:2; Evans and Fenwick 1971:91, 94; Fenwick 1972:119). It was discovered in 1970 under two metres of marsh clay in an old water course, and as a result the wood was preserved in a waterlogged condition (Ali 2016:2; Evans and Fenwick 1971:89; Fenwick 1972:119).

It was originally a clinker-constructed vessel, made of oak, and is believed to have measured 14 m, although the find site measured 10.5 x 3 m (Ali 2016:2; Evans and Fenwick 1971:89, 90, 92; Fenwick 1972:119; Oddy and Van Geersdaele 1972:30). Only two-thirds of the vessel remained, with the top strakes missing on both sides, and the bow had been destroyed (Ali 2016:2; Evans and Fenwick 1971:92; Fenwick 1972:119; Oddy and Van Geersdaele 1972:30). However, most of the keel, sternpost, and parts of eight strakes on each side survived (Ali 2016:2; Evans and Fenwick 1971:89; Fenwick 1972:119, 125).

The iron clench nails had rusted away, although the surviving holes in the planks reveals that these were spaced at 15 cm intervals (Evans and Fenwick 1971:90, 93; Fenwick 1972:119-123; Oddy and Van Geersdaele 1972:30, 33). The planking itself was radially cut, with an average thickness of 28mm (Evans and Fenwick 1971:93).

The plank keel was fish-shaped in plan, and originally measured 7.5 m long, 70 mm thick throughout, and 445 mm wide amidships (Evans and Fenwick 1971:92; Fenwick 1972:123). A possible false keel was secured by three trenails to the bottom of the keel plank (Goodburn 1986:42).

The ship had a unique sternpost, for it was straight, raked and robust, and nothing similar has been found in contemporary European finds (Ali 2016:2, 11; Evans and Fenwick 1971:92). The sternpost survived to a point 1.4 m above the keel, which it overhung by 3 m, and had two pairs of parallel grooves on the inner surface (Fenwick 1972:119). These grooves allowed the use of through fastenings to secure the hood-end of the garboard and second strakes (Evans and Fenwick 1971:93; Fenwick 1972:125).

The ribs were closely spaced, with an average of 48 cm between them, and were fastened to alternate strakes by willow trenails (Ali 2016:2; Evans and Fenwick 1971:90, 93; Fenwick 1972:128). They were rectangular in cross section, measured between 9-14 cm broad, and sat more than 20 cm above the keel (Ali 2016:2; Evans and Fenwick 1971:90, 93; Fenwick 1972:128).

Ribs 5, 6 and 7 had shallow rebates on their upper surface amidships, which were filled with rough cut timber and trenailed in place (Evans and Fenwick 1971:93; Fenwick 1972:128). A possible explanation for this is that the ship had been converted from a sailing ship to a rowing vessel (Evans and Fenwick 1971:93; Goodburn 1986:45).

The Graveney ship showed no signs of repair or heavy wear, although the keel had a crack which had been caulked and a tingle (a shaped piece of wood to fit over damage and against the next plank) was held in place by four extra fastenings (Evans and Fenwick 1971:94; Fenwick 1972:125).

Evidence of caulking was found in a shallow groove between the planks, and consisted of a mixture of animal hair and Stockholm tar (Evans and Bruce-Mitford 1975:373; Evans and Fenwick 1971:90, 93; Fenwick 1972:123).

The smoothed lower contours of the sternpost indicate that the vessel had considerable usage in estuarine waters with mud berths (Evans and Fenwick 1971:94). It is thought that the Graveney ship was a cargo ship, capable of crossing the Channel (Ali 2016:10; Evans and Fenwick 1971:94; Fenwick 1972:128; Goodburn 1986:45). Associated finds with the ship included pottery sherds, rope and unfinished mill stones, while soil analysis from within the ship indicates a possible cargo of hops (Ali 2016:3).

The Graveney Ship had been deliberately abandoned, for it sat upon a layer of sticks and was moored to stakes driven on either side of the vessel, while the sheer strakes, fittings and everything above the waterline had been removed (Ali 2016:2; Evans and Fenwick 1971:91; Fenwick 1972:119). The remains of a rope attached to the stern post further indicate that the vessel had been tied at moorings (Evans and Fenwick 1971:90-1).

6. A Swedish Connection?

The ship burials at Sutton Hoo are frequently compared with the contemporary boat graves found in the Uppland regions in Sweden, due to the similarities in the funerary rites and some of the artefacts used as grave goods (Bill 2020:374; Bonde and Stylegar 2016:19; Bruce-Mitford 1974:35; Evans 1994:49; Woolf 2014:5). Bruce-Mitford was the first to compare Sutton Hoo with Sweden, for the Sutton Hoo ship burials were broadly contemporary with those at the cemeteries at Vendel and Valsgärde, and the helmet and shield found in Mound One were similar to Swedish examples (Bill 2020:374; Brookes 2007:2; Bruce-Mitford 1966:19; Carver 1998:32,36; Cunliffe 2012:445; Rowsell 2015:4; Williams 2001:64; Woolf 2014:5).

It has been argued that the rite of boat and ship burial was brought to East Anglia from Sweden, although it is not clear which country enacted the funerary rite first (Bonde and Stylegar 2016:28; Carver 1990:117; 1998:164; Evans 1994:114; Pollington 2017:29; Rowsell 2015:3; Woolf 2014:9). However, the Saxon ship burials in England date to the

7th century, whereas those in Sweden date from the 7th to the 10th centuries, indicating that this was a relatively long-lived rite in Sweden (Carver 1998:56, 164; 2019:398; Müller-Wille 1974:197; Marzinek 2007:33).

The Swedish and English ship burials show some key similarities. The vessels are all clinker-built; they were used within the grave either as the chamber or placed above it; and they contained a wealth of grave goods (Evans 1994:114; Firth and Sebo 2020:333). The main similarity between Sutton Hoo and Sweden lies with the designs on the helmets and shields, and it has been suggested that these were either traded from Sweden or made by Swedish craftsmen (Bruce-Mitford 1966:19; 1972:26, 31, 80; 1974:52; 1975:202 Evans 1994:49; Phillips 1940:17; Pollington 2017:42; Woolf 2014:13). Indeed, the shield from Sutton Hoo Mound One is similar to those found in Swedish graves, which indicates some form of connection between Saxon East Anglia and 7th Century Sweden (Evans 1994:49, 55; Marzinek 2007:35; Williams 2001:64).

The similarity of the design of the 'dancing warriors' on the Sutton Hoo helmet to those found on Swedish examples further suggests some form of connection between the two countries (Bruce-Mitford 1972:31; 1974:36; Marzinek 2007:34; Rowsell 2015: 2, 3; Speake 2019:232). However, the Swedish helmets are not identical, for they were made of openwork frame construction rather than from a single sheet of iron, they had bronze visors rather than iron face-masks, and they had mail curtains which protected the face, neck and throat (Bruce-Mitford 1974:52; Evans 1994:49; Fern 2019a:81, 82; Marzinek 2007:33; Pollington 2017:42).

It has been argued that the designs on the Sutton Hoo helmet are similar to those found on the Staffordshire Hoard helmet, raising the possibility that these were made by Anglo-Saxon craftsmen in England, rather than imported from Sweden (Fern 2019a:80, 85; Speake 2019:232). Perhaps these items were made by a Swedish craftsman in England, or that the dies were imported and used by English craftsmen, but this is only speculation until a metal workshop with convincing evidence is found (Fern 2019a:84; 2019b:271). Crested helmets, of which Sutton Hoo and the Staffordshire Hoard helmets are examples, are only found in Scandinavia and Anglo-Saxon England until the 11th century, and it is possible that these are a result of a shared culture (Fern 2019a:80, 84; 2019b:273; Marzinek 2007:35). Certainly, the helmets were probably based on earlier Roman Imperial helmets, while the motifs were popular across the Scandinavian and Anglo-Saxon territories (Fern 2019a:80, 84, 85; 2019b:268; Marzinek 2007:34; Speake 2019:239).

However, while the English burials constitute 'princely burials', the Swedish boat burials have not been attributed to royalty, but may have contained members of successful merchant families (Bonde and Stylegar 2016:30; Bruce-Mitford 1974:52; 1975:516; Carver 1998:47; Evans 1994:114; Fern and Carver 2005:303; Malfatti 2017:1). Unlike their English counter-parts, the Swedish boat burials could contain horses, dogs, hunting birds and numerous bridles and harnesses (Bruce-Mitford 1972:41; 1974:50, 51; Evans 1994:114). The Swedish boat burials also did not contain chambers, with the deceased individual placed in the boat, and are marked either by a flat surface or a low mound (Bonde and Stylegar 2016:29; Bruce-Mitford 1974:50; 1975:14).

6.1. Vendel

The cemetery at Vendel consisted of a mixture of ship burials, cremation graves and inhumation burials, and was in use from the Migration period through to the Viking period (Carver 2017:60; Malfatti 2017:40).

Excavations revealed twelve boat burials, all of which appeared to follow the same structure, for the human remains and grave goods were located within the north-east section of the boat (Malfatti 2017:41, 42). It is thought that the Vendel graves represent the presence of a noble family in the area, for the ship burials contain rich grave-goods, and each of the burials seems to follow the same funerary rite (Shenk 2002:25).

Indeed, the ships were up to 10 m in length and were used to house the deceased and their grave-goods (Shenk 2002:25). The burials were all male, indicated by the presence of weaponry, and contained the remains of animals including horses, hunting birds and dogs, alongside bridles and saddles (Shenk 2002:25).

6.2. Valsgärde

The cemetery at Valsgärde is a well-preserved cemetery site which was in use from the 3rd century BC through to the 12th century AD, and is located by the River Fyris (Carver 2017:200; Evans 1994:114; Ljungkvist 2008: 13, 15; Norr and Sundkvist 1995:395). The burials are similar to those at Vendel, for the contemporary ship burials follow a similar pattern (Shenk 2002:26). It consists of a group of parallel mounds, and contained 15 ship-graves, with helmets, dog leashes and horse-harness, alongside 62 cremations and 15 inhumation burials (Carver 2017:60, 200; Ljungkvist 2008:13). Most of the burials date to the 6th-8th centuries AD, although there are some later Viking burials, and the graves belong to people of varying age, social status and gender (Carver 2017:200; Ljungkvist 2008:15, 49).

The boat graves date between AD 560-1050, and are spread throughout the cemetery (Carver 2019:443-444; Wikborg 2017:12). However, during the Vendel Period (AD 550-793), three clusters of boat burials occurred, suggesting that these were family groups, despite being mixed with regular graves (Carver 2019: 444; Ljungkvist 2008:40).

The closest group of boat-graves, Boats 5, 6 and 7, were located in the eastern part of the cemetery and were the richest equipped, dating to the mid Vendel period (Ljungkvist 2008:41; Wikborg 2017:20). This suggests that boat burial in Valsgärde was used only for high status members of society, which is similar to the use of the ship burial rite in East Anglia (Müller-Wille 1974:198).

All of the boat graves contained weapons and riding equipment, indicating that these burials were of male individuals (Ljungkvist 2008:34; Müller-Wille 1974:198; Shenk 2002:26; Wikborg 2017:12). The boat graves contained clinker-built boats which measured between 8 and 12 m in length, contained one human individual, and held grave goods including swords, game boards, and shields (Bruce-Mitford 1975:498; Wikborg 2017:10). The boats were made of oak or pine, and were likely to have been used for travelling on lakes or smaller streams (Bill 2020:311; Filmer-Sankey and Pestell 2001:195; Ljungkvist 2008:27; Müller-Wille 1974:193; Wikborg 2017:12).

The boat in Valsgärde 6 was of mid-8th century date, measured 10 m long, and was made of pine (Evans and Bruce-Mitford 1975: 430, 431). There were three strakes on each side, with the planks measuring 43 mm thick in the middle, and the ribs were lashed to the hull, while a reinforced gunwale strake on the starboard stern represents a development for steering (Evans and Bruce-Mitford 1975:430, 431).

The boat in Valsgärde 8 dated to 625-650 AD, measured 9 m long, and had an oak keel and pine ribs, with four strakes on each side (Evans and Bruce-Mitford 1975:430, 431).

Interestingly, on both boats the thwarts were spaced about 90-100 cm, and there is some suggestion of decoration of the vessels in the form of iron spirals in Valsgärde 6, and a running twist pattern was engraved on one of the planks of Valsgärde 8 (Evans and Bruce-Mitford 1975:431).

7. Conclusion

Anglo-Saxon ships are a rare find in England, and most of our information comes from finds within burials. As these ships were deliberately deposited, some information has been lost, for parts of the ship were removed prior to deposition, and it is possible that the Anglo-Saxons had a range of vessels available to them, rather than just longships and dugouts. However, as of yet no other type of Anglo-Saxon vessel has been found, and though the planks in graves such as those in Caister-On-Sea allude to the presence of vessels of varying sizes and purposes, it cannot be confidently stated what type of boats or ships these were.

It is unknown whether Anglo-Saxon ships sailed, for no evidence of a mast has yet been found, and likewise it is unknown if the ships had ballast or what sorts of cargo were carried. It is certain that parts of the ships were removed prior to deposition, for these vessels were dragged from their moorings to their final resting place, and it is plausible that anything which was not to be buried was removed prior to the ship's final journey on land.

However, from the finds at Snape, Sutton Hoo, and elsewhere, it can be said that the Anglo-Saxon ships were clinker-built, using iron rivets and oak planks, were mainly rowed, and could contain a relatively large number of oarsmen. The similarities between Sweden and Suffolk are remarkable, and it is evident that some form of communication was ongoing between these two areas in the 7th century AD. The Anglo-Saxons could have been using technology left from the Migration period, and it is impossible to say which community decided upon the use of boat burial for their high-status members of the community first (Bonde and Stylegar 2016:19; Firth and Sebo 2020:333). Ship and boat burial were possibly introduced to Eastern England in the same wave of cultural items such as wrist-clasps and brooches. The ship burial rite was maybe an adaptation of pre-existing Scandinavian funerary practices, albeit a short-lived practice, for the three Anglo-Saxon ship burials occurred in a period of 75 years between 550-625 AD (Bill 2020:330; Bonde and Stylegar 2016:32). Indeed, it has been argued that ship burial started as a Scandinavian practice, but the Anglo-Saxons adapted this burial rite for royalty and members of the elite, and this was then adapted back in Scandinavia which resulted in the later Viking ship burials like Oseberg (Bill 2020:305, 309).

Unfortunately, much remains unknown about Anglo-Saxon ships and boats. There is little written evidence about Anglo-Saxon ship making, and no sites of ship building or repair have yet been found in England (Ali 2016:8). The only ships dating to the 6th and 7th centuries have been found in grave deposits, and so are not complete, while the later Graveney ship was deliberately abandoned. The evidence shows that the Anglo-Saxons favoured clinker-built vessels, with space for numerous oarsmen, and these were long vessels. Evidence of mineralised wood on rivets and nails has revealed that oak was favoured, although it is not certain if other timber was used for vessels (Crosley 1942:109; Evans and Bruce-Mitford 1975:354). However, apart from the dugout boats and the Graveney ship, we do not know what other vessels the Saxons had access to, whether any of these sailed, and if they were constructed entirely from one type of wood.

8. History

Status	Date	Author	Details of change
Draft 0.1	17/11/20	Victoria Fleming	First draft
Draft 0.2	25/3/21	Victoria Fleming	Added sections regarding the Graveney Boat, mortuary practices in contemporary England, and information regarding finds from Stoke Quay and the Buttermarket, Ipswich. Edits made based on comments from Tim Kirk, regarding the Sutton Hoo Mound One ship and the Staffordshire Hoard helmet.
Draft 0.3	8/4/21	Victoria Fleming	Edits made according to comments by Joe Startin, with particular reference to the Snape dugout graves, and Stoke Quay dating.
Issue 1.0	28/9/21	Victoria Fleming	Peer reviewed – no changes required.

9. Sources of Information

Ali, S. 2016. A Digital Re-Examination of the Graveney Ship Find. Unpublished MA Thesis. Maritime Archaeology Department, University of Southern Denmark: Esbjerg.

- Anderson, R.C. 1950. 'The Ribs of the Sutton Hoo Ship'. *The Mariner's Mirror* 36:3. P264.
- Arnold, C.J. 1997. *An Archaeology of the Early Anglo-Saxon Kingdoms (New Edition)*. Routledge: London.
- Austin, D. and Stamper, P. (eds.) 2010. *Landscapes Volume 2 Spring 2010*. Windgather Press: Oxford.
- Bill, J. 2020. The Ship Graves on Kormt- and Beyond. In Skre, D. (ed) 2020. *Rulership in 1st to 14th Century Scandinavia- Royal graves and Sites at Avaldsnes and Beyond*. De Gruyter: Berlin. P305-392.
- Bonde, N. and Stylegar, F.A. 2016. 'Between Sutton Hoo and Oseberg- Dendrochronology and the Origins of the Ship Burial Tradition'. *Danish Journal of Archaeology* 5:1. P19-33.
- Brookes, S. 2007. Boat-rivets in Graves in Pre-Viking Kent: Reassessing Anglo-Saxon Boat-Burial Traditions. *Medieval Archaeology* 51. P1-18.
- Brown, R., Teague, S., Loe, L., Sudds, B., and Popescu, E. 2020. *Excavations at Stoke Quay, Ipswich: Southern Gipeswic and the Parish of St. Augustine*. Oxford Archaeology South: Oxford. EAA reports 172.
- Bruce-Mitford, R. 1952. 'The Snape Boat-Grave'. *Suffolk Institute of Archaeology* Vol 36:1. P1-26.
- Bruce-Mitford, R. 1965. 'Excavations at Sutton Hoo in 1938'. *Proceedings of the Suffolk Institute of Archaeology*. 30:1. P1-43.
- Bruce-Mitford, R. 1966. *The Sutton Hoo Ship-Burial: A Provisional Guide*. The British Museum: London.
- Bruce-Mitford, R. 1972. *The Sutton Hoo Ship-Burial: A Handbook. 2nd edition*. The British Museum: London.
- Bruce-Mitford, R. 1974. *Aspects of Anglo-Saxon Archaeology: Sutton Hoo and Other Discoveries*. Victor Gollancz Limited: London.
- Bruce-Mitford, R. 1975. *The Sutton Hoo Ship Burial Volume One- Excavations, Background, The Ship, Dating and Inventory*. British Museum Publications: London.
- Cameron, P.N. 1982. Saxons, Sea and Sail. *International Journal of Nautical Archaeology and Underwater Exploration*. 11:4. P319-32.
- Carver, M. 1990. 'Pre-Viking Traffic in the North Sea'. In McGrail, S. (ed.). 1990. *Maritime Celts, Frisians and Saxons*. CBA Research Report 71. Council for British Archaeology: London. P117-125.
- Carver, M. 1998. *Sutton Hoo: Burial Ground of Kings?* British Museum Press: London.
- Carver, M. 2005. *Sutton Hoo: A Seventh-Century Princely Burial Ground and Its Context*. The British Museum: London.
- Carver, M. 2017. *The Sutton Hoo Story: Encounters with Early England*. The Boydell Press: Woodbridge.
- Carver, M. 2019. *Formative Britain: An Archaeology of Britain, Fifth to Eleventh Century AD*. Routledge: Abingdon.
- Carver, M. and Fern, C. 2005. The Seventh-Century Burial Rites and Their Sequence. In: Carver, M. 2005. *Sutton Hoo: A Seventh-Century Princely Burial Ground and Its Context*. The British Museum: London. P283-314.
- Crosley, A.S. 1942. 'Survey of the 6th Century Saxon Burial Ship'. *Transactions of the Newcomen Society*. 23:1. P109-116.

- Crumlin-Pedersen, O. 1990. 'The Boats and Ships of the Angles and Jutes'. In McGrail, S. (ed.). 1990. *Maritime Celts, Frisians and Saxons*. CBA Research Report 71. Council for British Archaeology: London. P98-116.
- Cunliffe, B. 2012. *Britain Begins*. Oxford University Press: Oxford.
- Darling, M.J. and Gurney, D. 1993. *Caister-On-Sea: Excavations by Charles Green 1951-55*. EAA 60. East Anglian Archaeology: Dereham.
- Evans, A.C., and Fenwick, V.H. 1971. 'The Graveney Boat'. *Antiquity* 45. P89-96.
- Evans, A.C. and Bruce-Mitford, R. 1975. The Ship. In: Bruce-Mitford, R. 1975. *The Sutton Hoo Ship Burial Volume One-Excavations, Background, The Ship, Dating and Inventory*. British Museum Publications: London. P345-435.
- Evans, A.C. 1994. *The Sutton Hoo Ship Burial*. The British Museum Press: London.
- Fenwick, V.H. 1972. 'The Graveney Boat- A Pre-Conquest Discovery in Kent'. *JNA*. 1. P119-129.
- Fern, C. 2019a. Characterising the Objects. In: Fern, C., Dickinson, T., and Webster, L. (eds.) 2019. *The Staffordshire Hoard: An Anglo-Saxon Treasure*. The Society of Antiquaries of London: London. P30-121.
- Fern, C. 2019b. Date and Origin. In: Fern, C., Dickinson, T., and Webster, L. (eds.) 2019. *The Staffordshire Hoard: An Anglo-Saxon Treasure*. The Society of Antiquaries of London: London. P257-282.
- Fern, C., Dickinson, T., and Webster, L. (eds.) 2019. *The Staffordshire Hoard: An Anglo-Saxon Treasure*. The Society of Antiquaries of London: London.
- Filmer-Sankey, W. 1990. 'A New Boat Burial from the Snape Anglo-Saxon Cemetery, Suffolk'. In McGrail, S. (ed.). 1990. *Maritime Celts, Frisians and Saxons*. CBA Research Report 71. Council for British Archaeology: London. P126-134.
- Filmer-Sankey, W. and Pestell, T. 2001. *Snape Anglo-Saxon Cemetery: Excavations and Surveys 1824-1992*. Suffolk County Council: Ipswich. EAA 95.
- Firth, M. and Sebo, E. 2020. 'Kingship and Maritime Power in 10th Century England'. *JNA* 49:2. P329-40.
- Gnasso, A., Intagliata, E.E., MacMaster, T.J., and Morris, B.N. 2014. *The Long Seventh Century: Continuity and Discontinuity in an Age of Transition*. Peter Lang: New York.
- Goodburn, D.M. 1986. 'Do We have Evidence of a Continuing Saxon Boat Building Tradition?' *International Journal of Nautical Archaeology and Underwater Exploration* 15:1. P39-47.
- Goodburn, D. 2008. Possible Dugout Boat trawled from the Sea near Covehithe. *Saxon* 48. P1-3.
- Green, C. 1988. *Sutton Hoo: The Excavation of a Royal Ship Burial*. The Merlin Press: London.
- Humphrey, C. and Ormrod, W.M. 2001. *Time in Medieval England*. University of York: York.
- Ljungvist, J. 2008. 'Valsgårde- Development and Change of a Burial Ground over 1300 years.' In Norr, S. (ed.) 2008. *Valsgårde Studies: The Place and its People, Past and Present*. Uppsala University: Uppsala. P13-55.
- Malfatti, G. 2017. *All Hands On Deck! The Role of Ship Burial Reentry in the Maintenance and Construction of Narrative in the Vendel and Viking Periods*. The College of Wooster. Accessed via: <https://openworks.wooster.edu/independentstudy> on 26/6/2020
-
- The Longshed, Tide Mill Way, Woodbridge, Suffolk, IP12 1FP, UK

- Marzinzik, S. 2007. *The Sutton Hoo Helmet*. The British Museum: London.
- McGrail, S. (ed.). 1990. *Maritime Celts, Frisians and Saxons*. CBA Research Report 71. Council for British Archaeology: London.
- Müller-Wille, M. 1974. Boat-Graves in Northern Europe. *IJNA* 3:2. P187-204.
- Norr, S. (ed.) 2008. *Valsgärde Studies: The Place and its People, Past and Present*. Uppsala University: Uppsala.
- Norr, S. and Sundkvist, A. 1995. Valsgärde Revisited: Fieldwork Resumed After 40 Years. *Tor* 27. P395-408.
- Oddy, W. A. and Van Geersdaele, P.C. 1972. 'The Recovery of the GRaveney Boat'. *Studies in Conservation* 17:1. P30-38.
- Park, J. 2003. The Covehithe Log Boat: Retrieved for Posterity. *Saxon* 39. P6.
- Phillips, C.W. 1940. 'The Sutton Hoo Ship-Burial- 1. The Excavation.' *Antiquity* 14:53. P6-27.
- Pollington, S. 2017. *Anglo-Saxon Burial Mounds: Princely Burials in the 6th and 7th Centuries*. Anglo-Saxon Books: Ely.
- Rowsell, T. 2015. *Religious Continuity in Northern European Boat Practices of the Vendel Period*. PhD Research Proposal: University College London. Accessed via: academia.edu/31383379 on 26/6/2020
- Scull, C. 1998. Early Medieval Cemeteries at Boss Hall and Buttermarket, Ipswich : A Résumé of the Spring lecture. *Saxon* 29. P1-3.
- Scull, C. 2009. *Early Medieval (late 5th- Early 8th Centuries AD) Cemeteries at Boss Hall and Buttermarket, Ipswich, Suffolk*. The Society for Medieval Archaeology: Leeds.
- Scull, C. 2013. The Buttermarket Cemetery and the Origins of Ipswich in the 7th Century AD. *Suffolk Institute of Archaeology and History*. 43:1. P43-51.
- Shenk, P. 2002. *To Valhalla by Horseback? Horse Burial in Scandinavia during the Viking Age*. University of Oslo: Oslo.
- Speake, G. 2019. Ornament of the Helmet and Die-Imprinted Sheet. In: Fern, C., Dickinson, T., and Webster, L. (eds.) 2019. *The Staffordshire Hoard: An Anglo-Saxon Treasure*. The Society of Antiquaries of London: London. P232-245.
- Tanner, P., Whitewright, J., and Startin, J. 2020. 'The Digital Reconstruction of the Sutton Hoo Ship.' *IJNA* 49:1. P5-28.
- Wikborg, M. 2017. *The Absence of Human Remains in Valsgärde Cemetery- Natural Process or Ritual Phenomena?* Uppsala University: Uppsala.
- Williams, H. 2001. 'Death, Memory and Time: A Consideration of the Mortuary Practices at Sutton Hoo'. In Humphrey, C. and Ormrod, W.M. 2001. *Time in Medieval England*. University of York: York. P35-71.
- Williams, H., Rundkvist, M., and Danielsson, A. 2010. 'The Landscape of a Swedish Boat-Grave Cemetery'. In Austin, D. and Stamper, P. (eds.) 2010. *Landscapes Volume 2 Spring 2010*. Windgather Press: Oxford. P1-24.
- Wolf, A. 2014. 'Sutton Hoo and Sweden Revisited'. In Gnasso, A., Intagliata, E.E., MacMaster, T.J., and Morris, B.N. 2014. *The Long Seventh Century: Continuity and Discontinuity in an Age of Transition*. Peter Lang: New York. P5-17.

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