

Technical Appendix 3: Archaeological Remains of Vessels from Great Britain, Northern Ireland and Ireland 6th- 16th Centuries AD

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This catalogue is accurate as of the summer of 2001, and includes details of all archaeological remains of 6th-16th century AD vessels in Great Britain, Northern Ireland and the Republic of Ireland known to the author at that time. It is taken from the author's PhD thesis (University of Southampton, 2003), and was published in an altered and extended format in Flatman (2007) 2007a *The Illuminated Ark* (Oxford: British Archaeological Reports International Series 1616), although in that publication it lacks the notes on each find included here. In order to aid discussion as a part of the MMHERF process, in July 2009 this catalogue was modified, with all other countries data removed bar for a brief discussion of comparably-dated finds at the end of each period sub-division.

The term 'vessel' is taken to include all possible forms and sizes of watercraft in use both on the sea and in rivers, including logboats, dugouts, etc. It includes all types of vessel, including planked craft, skin boats, rafts, reed vessels, etc. Where possible, a name for a vessel is given. If not, vessel finds are identified by find-spot. A minimum of one reference is also usually provided for each entry: other references not included may also exist for the same find. The source information for a few finds is unknown, and this is stated in the entry.

NB. Mowat (1996) includes details of 154 vessel find sites, the majority of which are undated. However, Mowat himself (pers. comm.) confirms that many of these are suspected to be of medieval date, although this has yet to be proven.

Some Thoughts and Comments (Joe Flatman, July 2009)

- **Locations:** there is an undoubted bias towards SE England in this catalogue, a result of the author's base in Southampton at the time of compilation as well as the generally more intensive archaeological fieldwork of that region, especially London, which creates a statistical 'blip'. There is also a heavy bias towards terrestrial contexts – waterfronts, silted-up river channels, etc., with very few genuinely 'marine' finds. There is virtually no data from SW England, and similarly little from NW England. East Anglia and Scotland are both underrepresented but clearly have significant potential. Some urban contexts, especially London, are over-represented, while others are missing (e.g. Exeter, Bristol) or include only one or two find-spots (e.g. York). Why is this – absence of urban archaeological evidence, or problems with post-ex and publication? Meanwhile, detailed location data is usually not available: on the basis of this catalogue it would be impossible to populate a GIS with detailed grid coordinates, and thus identify other significant data such as whether a find was made in a former river channel, outside a medieval settlement (e.g. alongside a defensive wall, or in a town ditch), reused in a waterfront, etc.
- **Sources:** there is a heavy bias in this collection to McGrail's (1978), Mowat's (1996) and Fry's (2000) reviews of log-boats from respectively England, Scotland and Ireland. Thus, log-boats may be over-represented in the catalogue, and in addition there is no comparatively detailed data for log-boats from other countries. Logboats are also unsuitable for comparison to documentary and iconographic sources, where they are effectively invisible in these

records. Similarly, there is also a bias towards fragmentary remains from London, on the basis of Marsden's (1994 and 1996) reviews of the evidence from the London waterfront up to that time. But this data is now nearly 15 years out of date, does not include more recent finds from the London waterfront, and – except arguably for the evidence from Wood Quay, Dublin, Bryygen, Norway and Novgorod, Russia – has no comparatively detailed urban comparison. It also has to be asked just how useful the extensive data from London really is – being so fragmentary, almost always reused in waterfront revetments, etc.; it can be hard to compare such materials to the more coherent, larger vessel assemblages known from other countries.

- **Dating:** dating referenced here is sketchy at best, compiled from an array of sources and evidence types of varying reliability, including C14, dendrochronology and associated context. This highlights if nothing else the problems with consistent dating procedures and techniques, a situation exasperated by development-led fieldwork where short timescale and limited funds tend to preclude extensive scientific dating.
- **Evidence base:** this review is almost entirely culled from published sources up to 2001: these sources alone are now nearly a decade out of date, and no examination was made of SMR/HERs or equivalent data-bases, nor of grey literature or of other possible sources – especially proceedings of various national and local archaeological and historical societies, which are an important un-tapped resource on vessel finds in the 19th and early 20th centuries. There is much more data available for review in all these and other fields.
- **Comparison:** there is considerable room for comparison of this data to documentary evidence for vessel sizes, cargoes, ports and routes, etc. Comparison could also be usefully made to place-name data, especially in East Anglia. Alternative/additional archaeological data could also be usefully compared to this, such as ceramic assemblages (especially from major urban maritime/mercantile contexts), as well as data from the PAS for indicative metal objects like pilgrim brooches, fishing materials, lead weights, etc. Other known 'high-intensity' find-spots of specific materials could also fit into this – Meols, on the Wirral Peninsular, is a perfect example of this type of site. All of this data would be extremely useful if imputed into a GIS, allowing for period or regional comparisons.

In general, it is notable how few 'large' vessel finds are known from England in particular, in marked comparison to many other countries, especially the Netherlands, Germany, Denmark and Sweden. There is no 'great' English ship find of either the early (e.g. a 'Viking' ship) or high (e.g. a 'Hanseatic' cog) Middle Ages, and Greenhill's 'hulc' is totally missing. The same is also true of Scotland, Wales and Ireland, where the absence of one or more major ship finds is if anything all the more surprising given the generally lower levels of development in these areas in comparison to England but also paradoxically the greater potential for 'chance' discoveries by divers, fishermen, 'low level' coastal users like walkers, etc. As well as the known high levels of use of certain areas at certain times – e.g. where are the remains of all the 'Viking' ships that other evidence suggests were intensively using the Irish Sea for hundreds of years? There is also virtually no evidence for shipbuilding, except for Smallhythe.

Additional Comments, Suggestions and Corrections (July 2009 >)

From Paula Martin (23 July 09)

- 111 is in Scotland not Ireland - we have a Galloway too! And it has a Threave Castle, belonging to Historic Scotland, one of whose inspectors is called Tabraham;
- 182 and 184 are definitely the same thing, just summarised two different ways (I have checked the 1951 article, which I have on file);
- There is one missing site, Rubh'an Dunain, which is where we have been working on Skye. Colin can tell you more. We have a few small boat pieces, one of which has been carbon dated to c.1200 (and there was also an earlier find of a paddle, listed in Mowat, but undated). Still fragmentary and frustrating, but quite possibly a boatbuilding/repair site.

From Mark Redknap (24 July 09)

1. In terms of future research, there is probably scope in more analysis and synthesis of the often fragmentary evidence by sub-period to provide a better summary of what we know, and where the gaps are.
2. The list focuses on tangible boat and ship remains. If we are to view their value as integrated time capsules/assemblages, then sites represented only by artefacts (e.g. the Smalls) should be included in the Research Framework (I am sure this is already in hand). The EH Research Framework should approach the subject from both ends, and include the big question of how we follow up on as yet unlocated ship remains that are signposted by isolated finds.
3. The surviving boat plank from those found in 1877 during the creation of Alexandra Dock, Newport, produced a radiocarbon date range of cal AD 920-1080. However, the sample was taken from the inner rings, and so a late (?12th century) date appears likely.

Catalogue of Archaeological Remains of Vessels

Early 6th Century to Late 8th Century

1. **Amberley, Sussex, England** - Remains of a dugout logboat, with three assorted hull fragments from possibly two different boats, including approximately half of a plank, and also a 4.5m long fragment of the end of a vessel (640 ± 70) (McGrail 1978: No.'s 1-3).
2. **Ashby Dell, Suffolk, England** - 16.2m long x 1.8-2.7m wide remains of a planked wooden vessel with sewn planking, possibly associated to a human burial. Planking of larch and elm wood. Similar in form to the Sutton Hoo and Nydam vessels. 7th century (Mülle-Wille 1974: 204; Fenwick 1978a).
3. **Buston/Buiston, Cunninghame, Kilmaurs, Strathclyde/Ayrshire, Scotland. Vessel 1** - Remains of a narrow, extended, planked logboat, discovered some 3m outside the structural timbers of Buston/Buiston crannog, adjacent to a possible landing place. Made of oak, 6.70m long (6m internal) x 0.6m deep (internal) x 1.2-1.4m broad (amidships) and 1.1m broad (astern) and 0.9m broad (bows), with a length: breadth ratio of 5.5. Evidence of strengthening, including softwood boards inserted within the oak skin (the gap between the skin and the boards being stuffed with moss), moss caulking in cracks in the hull, and numerous ribs inserted at irregular intervals along the hull. Timbers are pierced by both knot-holes and thickness-holes. An oar was found in the associated crannog. Dated from associated finds within the crannog (charcoal with a 310 ± 50 date, stakes with 520 ± 50 dates, and outer palisade timbers with 370 ± 50 dates. Also a 7th century coin and ceramic wares) (Munro 1882a & b: 207, fig. 191; Ellmers 1972: 274-75, no. 5; Mowat 1996: 13-15, no. 11; McGrail 1998: 73, 78, 82, 84).
4. **Buston, Cunninghame, Strathclyde/Ayrshire, Scotland. Vessel 2** - Remains of an oak logboat, attached to a stake associated with the final (4th) phase of Buston crannog. 6.5m of the boat was exposed, suggesting an overall length of no more than 9m. Rounded profile, with a beam of 0.7m (internal) and a depth of 0.65m (internal). Unusually well worked internal form with 0.09m wide adze grooves across the hull. Dated from associated finds within the crannog (charcoal with a 310 ± 50 date, stakes with 520 ± 50 dates, and outer palisade timbers with 370 ± 50 dates. Also a 7th century coin and ceramic wares) (Munro 1882a & b: 207, fig. 191; Mowat 1996: 13-15, no. 12; McGrail 1998: 73, 78, 82, 84).
5. **Loch Doon, Straiton, Cumnock & Doon Valley, Ayrshire, Strathclyde, Scotland. Vessel 1** - Remains of a simple oak logboat 3.4m long x 0.86m (max.) wide x 0.41m deep (internal maximum). Evidence of charring and metal tool work visible internally, with rough working suggesting it was unfinished. Formed from a nearly whole section of log (509 ± 110 , 569-619 cal AD) (Mowat 1996: 55-57, no. 96).
6. **Errol, Tayside, Perth & Kinross, Perthshire, Scotland. Vessel 2** - Remains of an oak logboat. 8.9m long x 1.3 to 1.8m wide x 0.5m high (internal). Probably cut from a whole log (485 ± 40 and 430 ± 45 , 548-599 cal AD) (Mowat 1996: 29-30, no. 38).
7. **Snape, Suffolk, England. Vessel 1** - Remains of a vessel similar in form to several of the Sutton Hoo vessels. 13.8-14.4m long x 2.25-3m wide amidships. Includes 8-9 planks, 6 frames and 4-5 ceiling planks. Used as part of a human inhumation (c. 500-625) (Bruce-Mitford 1975; Filmer-Sanke 1990).
8. **Snape, Suffolk, England. Logboat 1** - Remains of an extended planked logboat, 3m long x 0.7m x 0.4m high amidships (500-625) (Filmer-Sanke 1990, 1992: 132; 1995).

9. **Snape, Suffolk, England. Logboat 2** - Remains of an extended planked logboat, 3.08m long x 0.52m wide x 0.35m high amidships, with a 0.11m freeboard. Used as part of a human inhumation (500-625) (Filmer-Sankey 1995).
10. **Strabane, Co. Tyrone, Ireland** - Remains of a logboat. 6th century (Thier 2000: pers. com.).
11. **Streedagh Strand, Co. Sligo, Ireland** - Remains of a logboat, with cleats and possible thole-pin fittings on the gunwale. Early 6th century (Thier 2000: pers. com.).
12. **Sutton Hoo, Suffolk, England. Mound 1** - Remains of a vessel used in a human inhumation grave. Oak built, with clinker planks and iron nails, luted with hair. No actual hull remains survive, only a pattern of iron hull rivets in a sand impression, and the size of the vessel is thus debated, its length suggested as being 27.15m by Bruce-Mitford (1975) and 25.4m by (Gifford & Gifford 1996). Its width was probably 4.26-4.5m (Gifford & Gifford 1996), and its height 1.37m (amidships). Possibly early 7th century (c. 625-629), although this is much disputed, the ship being earlier than the burial which dates it from the grave-goods (Green 1963; Mülle-Wille 1974: 204, no. 288; Bruce-Mitford 1975: No. 325; Richards 2000: 115; Gifford & Gifford 1996; Andersen & Crumlin-Pedersen 1997: 18-20; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 117, 123, 126, 140, 202, 214).
13. **Sutton Hoo, Suffolk, England. Mound 2** - Remains of a vessel, oak built, with clinker planks and iron nails. No actual hull remains survive, only a pattern of iron hull rivets in a sand impression and stain, and the size of the vessel is thus debated, its length suggested as being at least 10-12m, possibly as much as 20m. Possibly early 7th century (c. 625-629), although this is much disputed, the ship being earlier than the burial which dates it from the grave-goods (Mülle-Wille 1974: 204, no. 288; Bruce-Mitford 1975; Evans 1989: 23-30; Richards 1991: 115; Carver & Evans 1993; Andersen & Crumlin-Pedersen 1997: 18-20; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 117, 123, 126, 140, 202, 214).
14. **Walthamstow, River Lea, Greater London, England. Vessel Q-1388** – Remains of a dugout vessel, cut from a short oak of less than 5m length. A small vessel of between 3.5-5.0m in length and 0.60-0.75m in width, with a rounded transverse hull cross-section, beam-ties across at least one end, and a bulkhead integral to the hull near the midships station (c. 620-785) (Marsden 1989; 1996: 222).
15. **Walthamstow, River Lea, Greater London, England. Vessel Q-3041** – Remains of several wooden dugout and planked vessels from a series of locations along the river Lea. Includes [a] the remains of a dugout vessel, and: [b] the 6.10m long remains of a clinker-built boat originally over 7.0m long x 1.83m wide x 0.46m high, the planks luted with cow hair and a ‘cement’ of unidentified origin (c. 655-885) (Fenwick 1978b; Marsden 1996: 222).
16. **Walton, River Wey, Greater London, England. Vessel Q-3042** – Remains of a dugout vessel. Late 6th century at the earliest, possibly as early as the 4th century (c. 370-575) (Marsden 1989; 1996: 222).

Notable foreign discoveries of this period include: the series of clinker-built vessels from **Bårset, Norway** (c. 700 (Ellmers 1972: 329, no. 149; Prins 1975: 18f; Westerdahl 1985: 130, no. 2; Greenhill 1995: 126, 175-76, 182)), *possibly* the flat-bottomed planked vessel from **Bruges, Belgium** (c. 180 ± 80 or else 5th to 6th century (debated radiocarbon dates) (Jonckheere 1903; Ellmers 1972: 289-90, no. 37; Marsden 1976: 31; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 146, 218, 226-27, 229, 242)), the 20-25m long clinker-built vessel from **Gredstedbro/Gretstedbro, Denmark** (tentatively dated to 550 ± 100 AD, 600-690 cal AD; however, Crumlin-Pedersen dates it to 8th century AD (Crumlin-Pedersen 1968b; 1997a 18-29; McGrail 1998: 113, 116-17, 123, 145)), the 14m + long punt-like

cargo transport vessel or barge from **Krefeld-Gellup, Xanten, Germany (or the Netherlands?)** (802 ± 5 AD dendrochronology date for the felling of the timber (Opladen-Cauder 1993a, 1993b; Crumlin-Pedersen 1997a: 18-29; Neyland 2000: 171; Opladen-Cauder 2000)), the 10m and 18-20m long clinker-built vessels from **Kvalsund, Norway** (c. 690-700 (Crumlin-Pedersen 1997a: 18-29, 110-11; McGrail 1998: 113, 116, 202, 215, 245, 250)), the 10m long clinker-built vessel from **Lapuri, Finland** (of either later 6th century (c. 570 ± 110 or c. 980 ± 90 (debated radiocarbon dates) (Alopaeus 1988; Crumlin-Pedersen 1997a: 18-29)), the presumed 'shipyard' at **Mangersnes, Norway** that includes 24 main fragments and over 10 miscellaneous broken fragments of a wooden boat or boats (3rd to 7th century (0-250 and 560-670 AD, with some possible remains from as early as 30 BC) (Christensen 1993)), the 18m long clinker-built vessel from **Puck Bay, Gdansk, Poland, wreck 2 (P2)** (c. 550 or else c. 820 (debated radiocarbon dates) (Stepien 1984; Crumlin-Pedersen 1997a: 18-29, 110-11; Indruszewski 2000: 45-46)), the five boat-grave vessels (vessels 2-7) from **Tune, Sweden** (vessels 2-7) (c. 630-660 or c. 725 ± 65 or c. 910, debated C14 dates (Westerdahl 1985: 129-30, no. 43; Crumlin-Pedersen 1997a: 18-29, 110)), the 18m long extended clinker-planked logboat from **Utrecht, Netherlands** (vessel 4) (c. 790 ± 45, although possibly as recent as the second half of the 12th century (debated dating) (Phillipsen 1965; Vlek 1987)).

8th to 9th Century

17. **Caister-on-Sea (Caister-by-Yarmouth), Norfolk, England** - Remains of several inhumation graves, at least one possibly associated with a vessel with wooden planks attached by metal rivets. Little or no hull remains survive, only some of the rivets. Part of an extensive cemetery containing 12 burials that included clenched nails. 8th or 9th century (Mülle-Wille 1974: 204, no. 286; Goodburn 1986; Richards 2000: 115).
18. **Dunwich Bank, Suffolk, England** – 5m long remains of a dugout (c. 775-892) (Flatman & Blue 1999: 198-99).
19. **Ingleby, Repton, River Trent, Derbyshire, England** - A 'Viking' burial site that *may* (although this is far from certain) include remains of boat-burials (or at least fragments of boats) within about 60 mounds on a natural ridge. Some of the burials include small numbers of clenched nails, which may have been used to rivet together lapped boards to make coffins, or else which may represent the only surviving remains of small vessels or parts of vessels used to build the 'biers' for the burial/cremation process. The Ingleby burials contained enough clenched nails to represent one or two planks, but certainly not complete ships. 8th-9th century (Bersu & Wilson 1966).
20. **Loch of Kinnordy, Kirriemuir, Angus, Tayside, Scotland** - Remains of an oak logboat, 4.6m long x 0.9m wide (internal). Seat in the stern and a carved, ornamented wooden prow in the shape of an animal, with woodworking of an usually high order (735 ±40, 791-801 cal AD) (Mowat 1996: 65-66, no. 118).
21. **London, England. City, Billingsgate, New Fresh Wharf** – Remains of several pieces of a clinker-built vessel, luted with moss and held together with treenails with wedges inboard. The planks were reused in a waterfront revetment on the site of what had originally been a hard (c. 760 ± 100) (Marsden 1979: fig. 5.2; 1981; 1996: 22, 220, fig. 1; McGrail 1998: 130, 137, 269).

Notable foreign discoveries of this period include: the two clinker-planked vessels from **Baumgarth/Bagart (Bågart), Poland** (c. 800? possibly as late as the 11th century (Crumlin-Pedersen

1997a: 18-29, 110; Litwin 2000; Varenus 1992: 189; Indruszewski 2000: 45-46)), the two clinker-planked vessels from **Frauenburg (present Frombork), Poland** (dated roughly to 8th-11th centuries AD from its hull form (Ellmers 1972: 307, no. 85; Smolarek 1981; Litwin 2000; Crumlin-Pedersen 1997a: 18-29, 110; Indruszewski 2000: 45-46)), two sites from **Puck Bay, Gdansk, Poland wreck 4 (P4)**, the remains of an 11m long vessel with pegged planking and moss Lutting (8th to 10th century (Stepien 1984; Crumlin-Pedersen 1997a: 18-29, 110)), and the 'boatbuilding' site (8th to 10th century (Stepien 1984; Crumlin-Pedersen 1997a: 18-29)).

Early 9th Century

22. **Llyn Llangorse, Brecon, Wales** – Remains of a logboat dugout like vessel with 'steps' at one end, possibly associated to the remains of a crannog (c. 814 ± 60) (McGrail 1978: 233-236, fig's. 29 & 69; 1998: 7, 28, 84).
23. **Scar, Burness, Sanday, Orkney Islands, Scotland** – Very fragmentary remains of a vessel, possibly of Viking origin, as part of a burial, including remains of 5 plank rivets, but mostly lost due to erosion. Over 6.5m long (over 7.15m long originally?), divided into two compartments by an upright stone. Possibly the remains of a *faering*. 300 iron rivet marks can be seen, but no wood survives. Three bodies lie in the chamber. Mid 9th century date (from typology) (Bowman 1992: 163-69; Dalland 1992; Ritchie 1993; Owen & Dalland 1994; 1999).
24. **Walthamstow, River Lea, Essex, England** – Remains of an upturned, buried clinker boat of the Viking period, originally some 13.7m long x 2.13m wide, with a keel-plank construction similar to that of the Graveney boat. The vessel appears to have had a double skin with ribs lying between. 9th century (other dates have been taken to suggest that it is in fact a 16th-17th century river barge) (Marsden 1964; Mülle-Wille 1974: 204, no. 289; Fenwick 1978b).

Notable foreign discoveries of this period include the two vessels from **Fjørtoft, Norway** (vessel 1 of which was clinker-planked, vessel 2 a sewn strake boat with iron fastenings) (c. 830 ± 90 (Westerdahl 1985: 130-31, no. 3; Crumlin-Pedersen 1997a: 18-29, 110)), **Hedeby, Denmark, vessel 4** (c. 840-50 (Bill 1995: 198; Crumlin-Pedersen 1997a: 252-53; McGrail 1998: 118, 126, 137, 157, 202, 263-64, 271, 284)), the **Oseberg ship, Norway** (approximately 800-815-820 AD or else c. 820-843 (Brøgger & Shertelig 1971: 96; Crumlin-Pedersen 1972b: fig. 6; 1997: 18-28; McGrail 1998: 107, 113-15, 117, 123, 126-28, 140, 202, 213, 226, 228-29, 232-33, 237, 247-48, 253-56)), and the two pegged-plank vessels from **Ralswiek, Germany** (vessels 1 and 4) (early 9th century (Crumlin-Pedersen 1997a: 18-29, 110; Englert et al. 1998; Indruszewski 2000: 45-46)).

Late 9th Century

25. **Kiloran Bay, Colonsay, Western Isles, Hebrides, Scotland** – Remains of a male inhumation burial with a horse, originally laid beneath an upturned Nordic tradition vessel some 9-11m long, as evidenced by the remains of thousands of iron rivets and rivet marks. No real remains of the actual hull survive. Probably from the second half of the 9th century (Ritchie 1993; Graham-Campbell & Batey 1998).
26. **London, England. Benfleet Creek** - Remains of several ships. Destroyed during the late 9th century (c. 893-94) (Hutchinson 1994a: 5, 117, 130, 140, 193-94).

27. **Warrington, River Mersey, England. Vessel 3** – Remains of an oak logboat, 3.12m long (c. 875 ± 60) (McGrail 1978: no. 148).

9th to 10th Century

28. **Balladoole, Bay ny Carrickey, Arbory, Isle of Man** - Remains of a boat burial, mainly comprising of a large number of clenched iron hull nails (over 300, with 268 completely preserved, and 15-20 further large nails) underneath a series of large limestone blocks. None of the actual hull timbers survive. The vessel's original length was calculated at about 11m, comparable with the spread of the surviving clenched nails, with approximately 5 planks per side. Typologically dated to the late 9th to early 10th century (c. 850-900) (Bersu & Wilson 1966; Redknap 2001: 24-26).
29. **Buss Creek, Southwold, Suffolk, England. Rudder A** – Remains of parts of a clinker-built vessel, including a virtually intact oak quarter rudder 3.91m long (c. 800-960 or c. 1080 ± 90) (Hutchinson 1986: 219-21; Bowman 1992: 163-69; Hutchinson 1994a: 51-52, 144, 197; McGrail 1998: 245, table 12.9).
30. **Buss Creek, Southwold, Suffolk, England. Rudder B** - Remains of parts of a clinker-built vessel, including a virtually intact oak quarter rudder 4.36m long (c. 850-1050) (Hutchinson 1986: 219-21; Bowman 1992: 163-69; Hutchinson 1994a: 51-52, 144, 197; McGrail 1998: 245, table 12.9).
31. **Eigg, Inner Hebrides, Western Isles, Scotland** - Remains of at least one vessel, probably two or more. The main vessel (sometimes known as 'Eigg 1') was probably similar in form to the Skuldelev 3 vessel, and some 10.4m long x 2.05m wide. Remains of two shaped stern-posts, each made from a single block of oak, were initially found in a drained bog where they had probably been buried for seasoning: the inner edges of both are stepped for clinker planks, with landings for the ends of six pairs of strakes worked on one of the stems recovered. Another stem from the find-spot is sometimes classified as Eigg 2 (c. 885-1035, or 1060 ± 50) (debated radiocarbon dates) (MacPherson 1878; Grieg 1940; Olsen & Crumlin-Pedersen 1967: 162; Ellmers 1972: 275, no. 6; Steer & Bannerman 1977; Ritchie 1993; Martin 1998a: 110; McGrail 1998: 101, 124-25).
32. **Glasgow, Springfield, Bankton, Lanarkshire, Scotland. Vessel 1** - 5.50m long remains of a planked boat, built of oak clinker planks attached with iron nails. 6m of a probable original length of 18m survives, with a surviving width amidships of 1.7m (5m original). 9th to 11th or early 12th century (Robertson 1856; Ellmers 1972: 274, no. 8).
33. **Graveney Marsh, Faversham, Kent, England** - Central portion of the lower hull of an oak plank cargo (?) vessel, originally over 14m long x 4m wide, with a clinker-built hull. Includes parts of the keel, portside hull strakes and frames, and crossbeams. Attempts have been made to date the boat by C 14 (AD 944 ± 30), and by dendrochronology. The latter in 1978 gave a date of AD 927 ± 2, and this was revised in 1983 to AD 895 ± 2. But in 1994 it was not possible to obtain a dendrochronological match. Now carbon dated to c. 895-900, 870±40, 886 ± 54 (Corlett 1978: 303; McKee 1978: 97, 101, 270-271, 308; Fenwick 1978a; Greenhill 1988: 49-52; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 9, 31, 112, 114, 125-29, 131, 141, 144-47).
34. **Newport, River Usk, Monmouthshire, Gwent, Wales. Alexandra Docks** - Remains of a vessel with clinker-laid planks found 4m down under 2.5m of sediments. Oak planking and frames, probably of Baltic oak with wool and horse/cow-hair lutting. 23.0m long x 5.5-6.5m wide x 0.625m high amidships (1000 ± 80 BP, 880-1220 cal AD, most probably c. 950 ± 80) (Morgan

1878: 403-05; Hutchinson 1984: 27-32; 1994b: 195).

35. **Sewardstone, Chelmsford, River Lea, Greater London, England. Vessel Q-3040** – Remains of a dugout vessel, cut from a short oak of under 5m length (c. 805-990) (Marsden 1989; 1996: 222).
36. **Sewardstone, Chelmsford, River Lea, Greater London, England. Vessel Q-3052** – Remains of a dugout vessel (c. 875-1025) (Marsden 1989; 1996: 222).

Notable foreign discoveries of this period include the small clinker-planked vessel from **River Scheldt at Antwerp, Belgium** (9th to 10th century, although possibly as late as the early 11th century from associated stratigraphic sequences (Ellmers 1972: 284-88, no. 35; Van de Moortel 1998)), the remains of the small clinker-planked boat from **Årby (ex Rasbokil), Sweden** (c. 850-950 (Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 206-08, 212, 214-15)), the clinker-planked vessels from **Danzig-Ohra, Poland (vessels 2 and 3, DE82b and 82c)** (c. 900-1050 (Varenius 1992: 191; Crumlin-Pedersen 1997a: 18-29)), the 20-24m long ship 1-2 from **Gokstad, Norway** (c.850 AD or c.895-900 (Nicolaysen 1882: fig. 5; Brøgger & Shetelig 1971: 81, 98; Christensen 1975: 266; Cottell 1984; Greenhill 1995: 61, 68-69, 175-76, 197-203; Varenius 1992: 195; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 102, 103, 107, 113-14, 122-23, 125-27, 140-41, 158, 200, 213-216, 222, 228-29, 231-32, 237, 239, 245, 247, 255, 258)) and the 7m long clinker-built boat (possibly a *faering*) also from **Gokstad** (c. 895-900 (Nicolaysen 1882; Varenius 1992: 195; Greenhill 1995: 61, 68-69, 175-76, 197-203; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 115, 117, 214-15, 245, 247, 250)), as well as other finds from the site such as **Gokstad boat 4** (c. 895-900 (Nicolaysen 1882; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 245, 247, 250)).

Early 10th Century

37. **Cambuskenneth, St Ninians, Stirlingshire, Scotland** - Remains of the lower hull of an oak logboat 6.1m long (incomplete) x 0.9m wide x 0.09m high (very incomplete), with sides 25-50mm thick and a bottom 50-75mm thick (915 ±45, 996 cal AD) (Feachem 1958-59: 117; Mowat 1996: 15-17, no. 14; McGrail 1998: 65).
38. **Dublin, Ireland. High Street** - Fragmentary remains of the lower hull frames and clinker-laid planks of a boat, built from oak (905-) 925-950 (McGrail 1993a; 1998: 117, 127, 129, 140, 213).
39. **London, England. City, Billingsgate, New Fresh Wharf** – Remains of the ribs and planks of an oak plank boat, reused in a waterfront revetment on top of a Saxon foreshore establishment. Clinker-laid planking with moss lutting, treenails and wooden wedge fastenings (c. 920-955) (Marsden 1994: 128, 141-53, figs. 1, 124-37).
40. **Warrington, Arpley, River Mersey, England. Vessel 5 (Q 1394)** - Remains of the outer sections of an oak logboat (c. 958 ± 65) (McGrail 1978: no. 150).
41. **Westness, Rousay, Orkney, Scotland. Vessel 1** - Remains of a small, sturdy planked boat, possibly a *faering*. The outlines of the clinker planks are marked by iron rivets in a pattern 5.25m long x 1.35m high (amidships) x 0.6m high (amidships); originally there were some four planks per side. The vessel is associated with a series of inhumation graves, including. 10th century (Hutchinson 1981: 153-54; Allan 1995; Ritchie 1993).
42. **Westness, Rousay, Orkney, Scotland. Vessel 2** - Remains of a small, sturdy planked boat, possibly a *faering*. The outlines of the clinker planks are marked by iron rivets in a pattern 5.5m long x 1.4m wide (amidships) x 0.45m high (amidships); originally there were some 3-4 planks

per side, each some 0.30m wide. The vessel is associated with a series of inhumation graves. 10th century (Hutchinson 1981: 153-54; Allan 1995; Ritchie 1993; Kaland 1993: 312-17).

Notable foreign discoveries of this period include **Puck Bay, Poland** wreck 3 (P3) (c. 950 but debated radiocarbon dates (Stepien 1984; Crumlin-Pedersen 1997a: 18-29, 110; Indruszewski 2000: 45-46)), **Tune, Norway vessel 1** (c. 900-910 (Varenius 1992: 210; Crumlin-Pedersen 1997a: 18-29, 110)) and **Utrecht, Netherlands, vessel 1** (debated C14 dates of about 790AD ± 50 AD, but possibly as late as the 10th to 11th century (Ellmers 1972: 292-93, no. 44; Vlek 1987)).

Late 10th Century

43. **London, England. Bull Wharf, Upper Thames Street** - Two slabs of articulated overlapping planking, including a rubbing strake, reused as part of a waterfront revetment. Made from ash and oak, with willow treenails and moss lutting. Possibly fragments of a cog (c. 950-990) (Blue 1997: 252-62; Goodburn 2000: 221-23).

Notable foreign discoveries of this period include the two substantial clinker-planked vessels from **Hedeby/Haithabu, Denmark (vessels 1 and 3)** (c. 985 (Crumlin-Pedersen 1984; Bill 1995: 198; Crumlin-Pedersen 1997a: 81-95; McGrail 1998: 118, 126, 137, 157, 202, 263-64, 271, 284)).

10th to 11th Century

44. **Ballinderry, Co. Westmeath, Ireland** - Fragmentary remains of a curragh, associated with a crannog, with individual frames and planks included within the outer palisade along the edge of a loch (c. 1000) (O'Neill Hencken 1936; Ellmers 1972: 272, no. 1).
45. **Clapton, River Lea, Essex, England** - Mostly complete remains of an oak dugout logboat, resembling a small, round-bottomed punt originally over 3.54-3.75m long x 0.6-0.65m wide x 0.4-0.41m high, with a central bulkhead integral to the hull cut using an adze and an axe (c. 950-1000) (Marsden 1989; Goodburn 1991: 105-15).
46. **London, England. Billingsgate** - Fragmentary remains of two boats, including two small pieces of boat planking. Radially cut oak clinker planks, held together by a row of 12mm diameter wooden treenails. Also two pieces of boat with iron rivets. 10th to 11th century (Marsden 1994: 153-54, fig. 137).
47. **London, England. Southwark, Fenning's Wharf** - 2.50m long remains of part of the keel of a vessel, reused in a waterfront revetment, with parts of a garboard and short lengths of planking, caulked with ox hair and attached with hooked iron nails (c. 985) (Marsden 1994: 154-58, 170, 174, 177, 207, 211, figs. 1, 139-40, 175, tables 14, 21-22).
48. **Warrington, Gate Warth, River Mersey, England. Vessel Birm 269** - Remains of an oak logboat (c. 1000 ± 90) (McGrail & Switsure 1979: 229-31).

Notable foreign discoveries of this period include the clinker-planked vessel from **Äskekärr, Sweden** (possibly a *knarr*) that is the only known Viking-Age mast-foot in Scandinavia with runic inscriptions and also a *meginhufr* (c. 925-932 to 1000-1010, disputed radiocarbon dates) (Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 107, 128, 235)), the 20m long clinker-planked vessel from **Ladby, Denmark** (c. 900-1000, 925-975 most likely (Sølver 1946: 120-22; Thorvildsen 1957: fig. 22; Olsen

& Crumlin-Pedersen 1967: fig. 43; Binns 1980: 155; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 229, 254-56), and the three vessels from **Orunia, Poland** (10th to 11th century (Smolarek 1981; Crumlin-Pedersen 1997a: 18-29, 110; Indruszewski 2000: 45-46)).

Early 11th Century

49. **Dublin, Ireland. Christchurch Place** - Fragmentary remains of the lower hull frames and clinker-laid planks of an oak boat or boats. 11th century (McGrail 1993a; 1998: 117, 127, 129, 140, 213).
50. **Dublin, Ireland. St. John's Lane** - Fragmentary remains of the lower hull frames and clinker-laid planks of a boat. 11th century (McGrail 1993a).
51. **London, England. City, Upper Thames Street. Thames Exchange** – Remains of several parts of different ship and boat timbers reused in waterfront revetments, including clinker planking with rivets and pegs, part of a flat keel 5m long, the stem of a boat, a keelson, a frame, and part of a quarter rudder. Early 11th century (Marsden 1994: 141, 171-74).
52. **London, England. Southwark, Fenning's Wharf** – 2.4m long remains of a possible wale from a ship. Early 11th century (c. 1030). Also six small pieces of clinker boat planking, reused in a waterfront revetment (c. 1055) (Marsden 1994: 154-58, 170, 174, 177, 207, 211, figs. 1, 139-40, 175, tables 14, 21-22).
53. **London, England. Southwark, Vintners Place** – Remains of several parts of different ship and boat timbers reused in waterfront revetments, including two sections of different keels, a varied selection of clinker boat planking, a fragment of a boat stern and two parts of a side-rudder (c. 1000-1050) (Marsden 1994: 138, fig. 122; 1996: 21, 31-37, 40, fig. 5).
54. **Warrington, Barton, River Mersey, England. Vessel Q 1396** – Remains of an oak logboat cut from the outer section of a parent log. 4.17m long x 0.91m wide (c. 1030 ± 65, 1060-1205 cal AD) (McGrail & Switsure 1979: 229-31).
55. **Warrington, River Mersey, Lincolnshire, England. Vessel II** – Remains of an oak logboat (c. 1000 ± 90) (McGrail & Switsure 1979: 229-31).
56. **Warrington, Walton Lock, River Mersey, England. Vessel 2 (Q 1391)** – Remains of an oak logboat, cut from the outer section of a parent log. 3.76m long x 0.86m wide x 0.38m high (c. 1020 ± 50) (McGrail & Switsure 1979: 229-31).

Notable foreign discoveries of this period include the remains of over 40 pieces of ships' timber from **Alt-Lübeck, Germany** (presumed to be 11th century from the relationship of the finds to the nearby fortress (Ellmers 1972: 294-95, no. 49)), the vessel (no. 1, DE 82a) from **Danzig-Ohra, Poland** (c. 900-1000-1050 (Varenius 1992: 191; Crumlin-Pedersen 1997a: 18-29, 110)), **Hedeby/Haithabu, Denmark vessel 3** (c. 1025 (Bill 1995: 198; Crumlin-Pedersen 1997a: 99-104; McGrail 1998: 118, 126, 137, 157, 202, 263-64, 271, 284)), **Roskilde Haven, Denmark vessel 6** (after c. 1025 (Bill 1997; Myrhøj & Gøthche 1997)), and **Skuldelev, Denmark vessels 1, 3 and 5** (c. 1000-1050 (Olsen & Crumlin-Pedersen 1967; Crumlin-Pedersen 1991; 1997: 18-29; McGrail 1998: 39, 114, 117, 124-25, 128, 140, 142, 147, 155, 200, 202-03, 228, 226-27, 237, 239)).

Late 11th Century

57. **Irlam, River Mersey, England. Vessel Q 1456** – 2.9m long x 0.85m wide x 0.36m high remains of a logboat cut from the outer section of a parent log (c. 1085 ± 40) (McGrail & Switsure 1979: 229-31).
58. **Warrington, Fairclough, River Mersey, England. Vessel 4 (Q 1393)** – Remains of the aft section of an oak logboat (c. 1072 ± 60) (McGrail & Switsure 1979: 229-31).
59. **Warrington, Walton Arches, River Mersey, England. Vessel 7 (Q 1395)** - Remains of an oak logboat, cut from the outer section of a parent log (c. 1090 ± 60) (McGrail & Switsure 1979: 229-31).

Notable foreign discoveries of this period include the remains of a 6m+ long clinker-planked barge from **Egernsund, Denmark** (c. 1090 ± 100, 1030-1226 cal AD (Crumlin-Pedersen 1977a: 7; 1981: 36; 1988, 1997; McGrail 1998: 118-19, 121, 241)), **Roskilde Haven, Denmark vessel 3** (after c. 1060 (Bill 1997; Myrhøj & Gøthche 1997), and **Skuldelev, Denmark. vessel 2-4** (c. 1060-1070 or else c. 1000 (debated radiocarbon dates) (Olsen & Crumlin-Pedersen 1967; Crumlin-Pedersen & Bonde 1990; Crumlin-Pedersen 1991; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 39, 114, 117, 124-25, 127, 140, 142, 147-48, 155, 202, 226-28)).

11th to 12th Century

60. **Dublin, Ireland. Fishamble Street** - Remains of loose oaken vessel timbers associated to one or more vessels, including; [a] part of a stem or sternpost, dated to the late 11th to early 12th centuries; [b] some clinker-laid planks dated to (905-)925-975); [c] the remains of two keels, one dated to (905) 925-975, the other to (955) 975-1000; [d] two loose planks, one possibly made of pine and dated to (1030-)1050-1100, the other dated to c. 1000; [e] the composite lower hull frames of a boat, dated to (905-)925-975; [f] the lower frames and a possible knee of another vessel dated to (1010-)1030-1040; [g] a bulkhead timber dated to the late 12th century; [h] a knee dated to the 11th century (?); [i] a knee and small bulkhead timber made of alder dated to (1050-)1075-1100; [j] a bow frame of the 10th to 12th century; [k] a rowlock dated to (1055-)1075-1100; [l] and an undated rudder pin (McGrail 1993; 1998: 117, 127, 129, 140, 213).
61. **Dublin, Ireland. Winetavern Street (Timber Group 10)** - Fragmentary remains of the lower hull frames and clinker-laid planks of a boat, built in the Nordic tradition from oak (1060-1080-1100) (McGrail 1993a; 1998: 117, 127, 129, 140, 213).
62. **Dublin, Ireland. Wood Quay (Timber Group 7)** – Remains of a vessel with a clinker-planked hull made of oak, although the surviving planks and frames are very fragmentary. Also the further remains of over 400 oak and pine boat and ship timbers, re-used in defences, waterfronts, houses, drains and causeways, or discarded as fill along the former waterfront. Four groups of planks (known as ‘Dublin 69’) apparently come from a large vessel of the late 13th or early 14th century similar to the mid 12th century Lynaes ship (1055-1075-1125)) (McGrail 1993a; 1998: 117, 127, 129, 140, 213).
63. **Rye Bay, East Sussex, England. Rudder A** – Remains of a quarter rudder originally over 6.7m long. 11th to 12th century (c. 1040-1165 or 1150-1250 - C14 dates debated) (Marsden 1992: 125-30; Hutchinson 1994a: 196).

Notable foreign discoveries of this period include the series of six vessels from **Antwerp, Belgium** (11th to 13th century (Ellmers 1972: 284-88, no. 35, figs 182-3; McGrail 1998: 136, 140-41)), the 17-

18m long clinker-planked vessel from **Eltang Vig, Denmark** (c. 1132 onwards, probably c. 1140 from dendrochronological dates (Bill 1995: 198; Crumlin-Pedersen 1997a: 18-29, 111; McGrail 1998: 125, 140)), the 13-16m long clinker-planked vessel from **Falsterbo, southern Sweden** (c. 1065-1275-1300 or else c. 1311-1318, debated radiocarbon dates (Crumlin-Pedersen 1981; Bill 1995; Olsen 1995; Crumlin-Pedersen 1997a: 18-29, 111; McGrail 1998: 118, 121, 125, 147, 202), and the series of five clinker-planked boats from **Fotevik, Sweden** (c. 1000-1150 or c. 1040-1145 and c. 1000-1200, debated radiocarbon dates (Varenius 1992: 193; Bill 1995: 198; Crumlin-Pedersen 1997a: 18-29)), also **Skuldelev, Denmark vessel 6** (c. 1000-1050-1100 (Olsen & Crumlin-Pedersen 1967; Crumlin-Pedersen 1991; Crumlin-Pedersen 1997a: 18-29, 110; McGrail 1998: 39, 114, 124-25, 127-28, 140, 142, 155, 202, 228)).

Early 12th Century

64. **Perth, Perthshire, Scotland. High Street** - Remains of dismantled clinker boat components reused in the 12th century contexts of several timber-framed domestic houses, including three clinker inserted frames with roves. Also numerous strips of distinctive unused rivet-and-rove hull fastenings, suggesting boat-building or repair was carried out in the vicinity. Presumed to be medieval from associated contexts, probably 11th-12th century (Bowman 1992; Martin 1998a: 110).
65. **Southchurch Hall, Southend-on-Sea, Essex, England** - Fragments of the thin oak strakes from a small planked boat. 12th century (Hutchinson 1994a: 197).

Notable foreign discoveries of this period include **Roskilde Haven, Denmark vessels 4 and 5** (c.1108 vessel 4 and c.1130 vessel 5 (Bill 1997; Myrhøj & Gøthche 1997).

Late 12th Century

66. **London, England. City, Lower Thames Street. Custom House Boat 1** – Remains of the planks and frames from both sides of a single vessel, reused in a 14th century waterfront revetment. Originally a fairly small, clinker-built vessel over 9.75m long x 3.5m wide, with radially-cut oak planking and a flat bottom pointed at both ends, possibly a river barge (c. 1157-1190) (Marsden 1996: 42-44, 49, 52-53, tables 6, 11, 16).
67. **London, England. City, Lower Thames Street. Custom House Boat 2** - Fragmentary remains of the ribs of a small vessel, reused in a waterfront revetment, including part of an oak frame 1.8m long x 0.11m deep x 0.4m wide (c. 1160-1190) (Marsden 1996: 42-44, 49, 52-53, tables 6, 11, 16).
68. **Forfar, Angus, Tayside, Scotland. Vessel 2** - Fragmentary remains of an oak logboat in three pieces and numerous smaller fragments. Poorly constructed overall from knotty timbers, and originally at least 2.65m long x 0.5m wide x 0.35m high (internal) (c. 1090 ± 50, 1181 cal AD) (Mowat 1996: 32-34, no. 49).
69. **Warrington, Arpley Meadow, River Mersey, England. Vessel 1 (Q 1390)** - Remains of an oak logboat, cut from the outer section of a parent log (c. 1190 ± 60) (McGrail & Switsure 1979: 229-31).

12th to 13th Century

70. **Closeburn, Nithsdale, Dumfriesshire, Dumfries & Galloway, Scotland. Castle Loch** - Remains of an oak logboat, measuring (after shrinkage) 3.46m long x 0.54m wide x 0.5m deep. Originally over 3.6m long x 0.6m wide x 0.5m high (1140 ±50, 1235 cal AD) (Mowat 1996: 20, no. 21).
71. **Kew, Surrey, England. Vessel Q-1453** - Remains of a dugout vessel (c. 1170-1270 cal AD) (Marsden 1996: 222).
72. **London, England. Billingsgate** – Remains of sections of clinker hull planking, reused in a waterfront revetment. 12th to 13th century (Marsden 1996: 116-17, 198, 220, figs. 1, 102-06, tables 6, 8, 10).
73. **London, England. Southwark, Bankside** - Remains of the planking of a late 12th to 13th century vessel or vessels, reused in a waterfront revetment (Marsden 1996: 113, 160-67, 218-19, figs. 1, 101, 155, tables 6, 11, 16).
74. **Llyn Peris, Llanberis, Gwynedd, Wales. Vessel 2** - Remains of a logboat. About half of the vessel was recovered, consisting of most of one end and a substantial part of the bottom. Originally thought to be an 18th century AD vessel. It was re-dated in 1999-2000 to c. 1187-1205 cal AD (Illsley & Roberts 1979; 1980).
75. **Waterford, Ireland** - Remains of a vessel or vessels. A series of timbers include: [E527: 294] two lower hull frames and/or ceiling planks of the mid 12th century; [E527: 913] a bulkhead timber and part of a mast of the later 12th century; and [E639: 63] a bulkhead with treenails of the mid 11th century. Also found were part of a knee (dated to the 12th century), several planks (dated to the 12th to 13th centuries), and possibly a fragment of a mast (McGrail 1997).

Notable foreign discoveries of this period include the unique ‘Bulverket’ timber structure on **Lake Tingstäde Träsk, Gotland, Sweden** (c. 1050 or c. 1130’s or else c. 1200 (Varenius 1979; Westerdahl 1989; Rönnby 1990; Bendegard 1992: 11; Varenius 1992: 209; 1994; Rönnby 1995; Crumlin-Pedersen 1997a: 18-29)), also the strongly-built clinker-planked oak vessel, originally over 12m long from **Knösen, southern Sweden** (c. 1140-50’s, or c. 1148-53 (Crumlin-Pedersen 1997a: 18-29)) and the similar clinker-built cog with median rudder, originally over 18m long from **Kolding Fjord, Denmark** (12th to 14th century, or more probably 13th century in line with the structural characteristics of the vessel (Crumlin-Pedersen 1981; McGrail 1998: 114, 227, 251; Hocker & Dokkedal 2001: 16-17)), as well as the remains of a cog from **Kyholm, Denmark** (c. 1205 (Crumlin-Pedersen 1983; 1997: 18-28; Bill 1998; McGrail 1998: 114, 203)). Also **Roskilde Haven, Denmark vessel 2** (c. 1168-1200 (Bill 1997; Myrhøj & Gøthche 1997)), and the vessel from **Sjövold (Sjövoll), Norway** (c. 1200 (Christensen 1968; Crumlin-Pedersen 1991a & b; McGrail 1998: 106, 140)).

Early 13th Century

76. **Cornmarket Street, Cork, Ireland** – Remains of oak vessel timbers. 13th century (McGrail 1986).
77. **Hartlepool, Cleveland, England. Southgate** – Fragmentary remains of at least five pieces of clinker planking from a ship, along with a fragment of a frame, reused in the lining of a

waterfront structure, possibly a dock (c. 1212-13 at the latest) (Daniels 1991: 45; Hutchinson 1994a: 107, 110, 192).

78. **Lincoln, Lincolnshire, England. Dickinson's Mill** – Remains of a section of boat planking, reused in the side of a wharf. Early 13th century (Jones & Jones 1981: 138; Hutchinson 1994a: 107, 110, 193).
79. **London, England. City, Lower Thames Street. Custom House** – Remains of the planks and frames of a single vessel, similar in form to the Graveney boat. The vessel was split down the keel-line, and slabs of still fastened planking held together with iron rivets and caulked with hair were then reused in a waterfront revetment. 13th century (Marsden 1981: 10-16; 1994: 26-29, 179, figs. 13, 15; 1996: 42-44, 49, 52-53, tables 6, 11, 16).
80. **London, England. Southwark, 5-15 Bankside** – Remains of a 14th century timber revetment with boat timbers in it, including two associated oak plank fragments. Includes part of a clinker plank of radially split oak, originally with frames attached by treenails (c. 1028-1137) (Marsden 1996: 113, 160-67, 218-19, figs. 1, 101, 155, tables 6, 11, 16).
81. **London, Westminster, England** – Remains of three ships' timbers, reused in a timber lined feature, possibly part of the lower hull planks of a cog. 13th century (Goodburn & Thomas 1997).
82. **London, England. Southwark, Morgan's Lane** – 6m + long remains of the side strakes of a clinker-built rowing barge or galley, re-used in the walls of a Tudor fishpond, including oar-slots, and the remains of tar lutting and white lead hull paint. The vessel was originally between 15-30m long, possibly longer. 13th century (*Daily Telegraph* 26/5/99).
83. **London, Westminster, England** – Remains of three ships' timbers, reused in a timber-lined feature, possibly part of the lower hull planks of a cog. 13th century (Goodburn & Thomas 1997).
84. **Magor Pill, Severn Estuary, Gwent, Wales. Boat 1** – Remains of the incomplete forward section of a clinker-built oak vessel, possibly a *keel*, originally between 15-20m long x 3.3m wide (c. 1240) (Nayling 1995; Allan 1996: 267-70; Blue 1997: 252-62; Redknap & Nayling 1997; Nayling 1998; Redknap 1998).
85. **Newcastle, Tyne and Wear, England** – Fragmentary remains of several planks, treenails and mast crutches. 13th century (O'Brien et al. 1988: 104-06; Hutchinson 1994a: 195).

Notable foreign discoveries of this period include the well-preserved remains of a substantial clinker-built vessel over 12m long from **Aggersund (Aggersund), Denmark** (early 13th century (Damgård-Sørensen 1997)), the clinker-built vessel, possibly a cog, from **Danzig-Brössen/Gdansk-Brzeźno, Poland (vessel DE81)** (c. 1250 (Varenius 1992: 191; Weski 1999: 372)), and **Ijsselmeer Polders, Netherlands vessel OZ43**, possibly a cog (13th century (Reinders 1985a & b)), also the likely cogs from **Kollerup, Denmark** (13th century or else c. 1150 from new dendrochronological dates (Crumlin-Pedersen 1979: fig. 2.12; Crumlin-Pedersen 1983; McGrail 1998: 114, 203, 226-27)), **Oskarshamn, Sweden** (c. 1250 onwards (Cederlund 1990; Hutchinson 1994: 73; Varenius 1992: 190; Crumlin-Pedersen 1997a: 18-29, 110)) and **Puck Bay, Poland (wreck 1 (P1))** (c. 1250 (Stepien 1984; Crumlin-Pedersen 1997a: 18-29, 110; Indruszewski 2000: 45-46)).

Late 13th Century

85. **Penner Wharf, Bristol, Avon, England** – Fragmentary remains of up to 20 clinker planks from a ship, reused in a waterfront revetment to the southern side of Bristol [old] bridge (c. 1260, disputed dates (Hutchinson 1994a: 191; Parker 1999: 327)).

Notable foreign discoveries of this period include **Kalmar, Sweden** vessel 1 (c. 1250 (Åkerlund 1951; Crumlin-Pedersen 1983; Greenhill 1988: 51-52; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 203, 257)).

13th to 14th Century

86. **Kew, Surrey, England. Vessel Q-3038AD** - Remains of a box-shaped dugout vessel, originally over 4.42m long x 0.76m wide (c. 1225-1335 cal AD) (Marsden 1996: 222).
87. **Kingsteignton, Newton Abbot, Devon, England** - Remains of the lower hull planks of a river boat or barge (c. 1300 onwards, with a probable felling date of c. 1305-1341) (source unknown).
88. **Kingston-upon-Thames, Surrey, England. Horsefair Vessel 1** – 9.3m long x 0.8m wide remains of the portside and stern of a clinker-built boat, originally 11-15m long (c. 1250-1300 - some timbers possibly being as recent as the 17th century, and the dating unsure) (Goodburn 1991: 108-11; Potter 1991: 143-44; Hutchinson 1994a: 192).
89. **Kingston-upon-Thames, Surrey, England. Horsefair Vessel 2** – 13.0m long x 0.9m wide remains of a clinker-built boat, mostly from the port side and stern of a fairly large vessel, and including remains up to five strakes in height. Originally over 17m long (c. 1250-1300 - some timbers possibly being as recent as the 17th century and the dating unsure) (Goodburn 1991: 108-11; Potter 1991: 143-44; Hutchinson 1994a: 192).
90. **Kingston-upon-Thames, Surrey, England. Horsefair Vessel 3** – 6m long remains of a clinker-built boat, including a slab of planking from the starboard side, with planks 50mm thick (c. 1250-1300 - some timbers possibly being as recent as the 17th century, and the dating unsure) (Goodburn 1991: 108-11; Potter 1991: 143-44; Hutchinson 1994a: 192).
91. **London, England. City, Baynards Castle** – 1.75m long x 0.15m wide x 0.115m thick remains of an oak clinker frame from a flat-bottomed vessel, notched or joggled for five strakes and with limber holes cut in the frames to allow bilge water to circulate. Deposited within 14th century rubbish. Probably 13th to 14th century (Marsden 1996: 22, 126, 154, 219, figs. 1, 121).
92. **St Peter Port, Guernsey, Channel Islands. Sites 2 & 3** - Sites '2' and '3', as they were designated at the time, were clinker built, and have now been entirely lost through seabed erosion related to prop-wash. The remains found at these sites suggested one or more vessels some 30m long, and included evidence for the fittings of a median rudder with a considerable amount of deadwood, with tall, narrow, Y-shaped end-frames suggesting that at least one end terminated sharply, probably with a median rudder. They are thought to date from c. 1290-1310 (Hutchinson 1994a; 196; Adams 1998, 1999; Black 2000).
93. **St Peter Port, Guernsey, Channel Islands. Sites A, B1, B2, C & D** - Since the discovery of sites 2, 3 and 2/4, several other sections of structure have come to light (known as Sites A, B1, B2, C and D). These contain the remains of at *least* two vessels of an unknown length, including some substantial lower hull frames and timbers from large, clinker-planked ships that are likely to be of medieval origin (dated from associated finds of ceramics) (Black 2000: fig. 3b; Hutchinson 1994a; 196; Adams 1998, 1999; Black 2000).
94. **York, North Yorkshire, B England. Hungate** – Remains of a vessel, including parts of articulated planking up to 3.66m long x 0.02.5cm thick x 0.23m broad, caulked with fine sheep's-wool, and reused in the sides of a causeway (c.1200-1400) (Richardson 1959: 113, 679, plates 2, 8 & 9; Hutchinson 1994a: 198).

Notable foreign discoveries of this period include the 15-18m long clinker-built vessel from **Asker, Norway** (c. 1210-1300 ± 80 (Bill 1995: 198)), and the numerous vessels and vessel components from **Bergen (Bryggen), Norway**, including 'the Big Ship' – the dislocated and fragmentary remains of a single vessel 26-30m long (c. 1200-1250 at the earliest (Ellmers 1972: 257, 330, no. 150; Christensen 1979: 180; Greenhill 1988: 47-52; Varenius 1992: 189; Crumlin-Pedersen 1997a: 18-29; McGrail 1998: 200, 232)), also the virtually intact remains of the cog from the River Weser in **Bremen, Germany** (c. 1378-80 ± 150 (Abel et al. 1969; Ellmers 1972: 257, 295, no. 50; Ellmers 1979: 1-15, fig. 1.6; Lahn 1993; Varenius 1992: 190; McGrail 1998: 114, 122-23, 125, 129, 131, 136, 200, 257; Crumlin-Pedersen 2000)), together with a series of other likely cogs from the **Ijsselmeer Polders, Netherlands** including vessel A57, G37, R1, N5 and NZ43 (13th to 14th century (Reinders 1985a, 1985b)).

Early 14th Century

95. **Giggleswick Tarn, North Yorkshire, England. Vessel Q 1245** - 2.45m long remains of an ash logboat, cut from the outer section of a parent log (c. 1335 ± 40: C14 date [Q-1245] of 615 BP ±40) (McGrail & Switsure 1979: 229-31; McGrail 1998: 7, 58, 73, 83).
96. **Kentmere, Westmorland, Cumbria, England. Vessel D 71** - 4.25m long x 0.61m wide remains of an extended oak logboat, with five wash-strakes on either side and a bilge keel hewn from a single piece of oak (c. 1320 ± 130) (Wilson 1966: fig. 6.15; McGrail 1978: no's. 70-72, fig. 26; 1981a: plate 16; Hutchinson 1994a: 192; McGrail 1998: 7, 73, 75, 78-79, 84, 125, 129, 213).
97. **Navity Bank, Moray Firth, Scotland** – Remains of a clinker-built vessel containing a cargo of building stone. Early 14th century (Hutchinson 1994a: 195).

Notable foreign discoveries of this period include **Helgeandsholmen, Sweden** vessels 1, 2, 3, 5, 9 and 11 (c. 1320 and 1380-85 (Cederlund 1985; Bill 1995: 198; Crumlin-Pedersen 1997a: 18-29; Varenius 1992: 197)), **Ijsselmeer Polders, Netherlands vessel NZ74** (early 14th century (Reinders 1985a; 1985b)) **vessel OZ36** (the 'Kampen' cog) (early 14th century (Reinders 1985a, 1985b; Hoekstra 2000: 120)) and **vessel Q75** (c. 1325, but also suggested by some to be 12th century in date (Ellmers 1972: 292, no. 42; Reinders 1979; Weski 1999a)).

Late 14th Century

98. **London, England. Southwark, Hays Wharf to Abbot's Lane** – Remains of numerous vessels, reused in the medieval revetment of a channel, including a large slab of the starboard clinker planking of a ship with up to four articulated strakes held-together by iron rivets. Late 14th century (Marsden 1996: 107-12, 173-75).
99. **London, England. Southwark, Hays Wharf to Abbot's Lane** – Remains of numerous vessels, reused in the medieval revetment of a channel, including at least seventeen significant pieces of boat planking and various other pieces of planking, all of radially cut oak caulked with matted animal hair. Late 14th century (Marsden 1996: 107-12, 173-75).
100. **London, England. Southwark, Hays Wharf to Symonds Wharf** – Fragments of the hull planks of a substantial ship or ships, reused in a waterfront revetment. Includes remains of several

Baltic-oak planks from more than one vessel, caulked with hair and moss (c. 1350) (Marsden 1996: 117).

Notable foreign discoveries of this period include the vessel, possibly a cog, from **Skanör Harbour, Sweden** (testing has provided a felling year of 1390 for the main hull timbers (Crumlin-Pedersen 1997a: 18-29)) and the possible cog from **Vejby, Denmark** (c. 1350-1372-1377 (Crumlin-Pedersen 1979; 1997: 18-29; McGrail 1998: 114, 227)).

14th to 15th Century

101. **The Foundry, Poole, Dorset, England** – Remains of a store of 61 used and semi-prepared, but unworked boat-building timbers laid out on the old medieval foreshore at a quayside shipbuilding site, including frame elements, a used sternpost assembly, six roughed-out oak stems, and several Y-shaped oak timbers for mast crutches. 11th to 15th century (Hutchinson 1994b: 23-45).
102. **London, England. City, Bridewell** – Associated fragments of planking from a single vessel. Includes remains of a section of articulated clinker boat planking, with radially-cut planks held together by iron rivets with matted hair lutting in the laps. Also includes oak repair patches with iron nails and rivets. 14th to 16th century (Marsden 1996: 125-26, figs. 1, 118-20, table 7).
103. **London, England. City, Trigg Lane** – Fragments of oak boat planking from a timber waterfront revetment of the 14th century. Includes remains of radially-cut oak clinker hull strakes, with a lap lutting of hair and tar. 13th to 14th century (Marsden 1996: 125, 220, figs. 115-17, table 6).
104. **London, England. Blackfriars Wreck 3** – Remains of the lower hull of a clinker-built, flat-bottomed, pointed-end river vessel or river barge with a low freeboard and shallow draught, originally over 16m long x 4m wide. Most of the keel and keelson survives, the latter with a mast-step set well forward, along with one end post, strakes and framing (c. 1380-1415) (Marsden, 1972, 130-32; 1996: 55-104, figs. 31-69, 71-81, 83-87, 89-91, tables 2-6; McGrail 1998: 140-41).
105. **London, B England. Southwark, Gun and Shot Wharf** – Remains of a small fragment of a substantial clinker-built oak vessel, including hair and moss lutting, reused in a waterfront revetment (c. 1400) (Marsden 1996: 118-25, 167-68, 218, figs. 113-14, 161-62, tables 6-7).
106. **London, England. Southwark, Hays Wharf to Gun and Shot Wharf** – Articulated fragments of a narrow section of ship's planking, recovered from a medieval timber revetment. Includes remains of four radially-cut Baltic-oak clinker planks, joined by iron rivets (c. 1400) (Marsden 1996: 167).
107. **Oakmere (Oak Mere), Cumbria, England** - 3.6m long remains of a logboat with a beak. The vessel was 3.6m long x 0.79m broad x 0.35m deep (c. 1395-1470) (Newstead 1935: 207-11; Hutchinson 1994a: 195-96; McGrail 1998: 84, 203).
108. **Rye Bay, East Sussex, England. Rudder B** – Remains of a median rudder, originally over 4.6m long (c. 1315-1405) (Marsden 1992: 126-27; Hutchinson 1994a: 196).
109. **Sandwich, Kent, England** - Remains of a large, English-built merchant vessel, originally over 28-33m long x 4m+ high, with a clinker-built upper hull. The vessel appears to have been robustly framed and decked. Parts of a median rudder over 4.10m high and some of its attachments also survive, along with part of the stern post, several joggled frames for clinker planks, some pillars to support decking, possible keel elements, and clinker planking, mainly from the stern of the vessel. Dendrochronological analyses now suggest a late 14th century felling

date, from timber grown in south-east England. 14th-15th century (c. 1493 at the latest) (Trussler 1974: 166-69; Hutchinson 1994a: 197; Milne: in prep.).

110. **St Peter Port, Guernsey, Channel Islands. Site 2/4** – Part of the floor of medieval hull structure, comprising a section of the keel, floor timbers and part of the keelson. As the remains of this vessel were in the intended path of channel deepening the remains were removed and reburied elsewhere in 1986. The vessel was clinker-built, and originally at least 15m long, probably as much as 18m long x 5m wide x 2.5m deep. The vessel dates to the 14th-15th century (c. 1390-1450 C14 dates) (Hutchinson 1994a; 196; Adams 1998, 1999; Black 2000).
111. **Threave Castle, Galloway, Ireland**– Remains of an oar blade and paddle. 14th to 15th century (Good & Tabraham 1981: 90-140; Hutchinson 1994a: 197).

Notable foreign discoveries of this period include the **Ijsselmeer Polders, Netherlands vessel M107** (possibly a cog) (c. 1400 (Reinders 1979, 1985a, 1985b)) and **vessel NZ42** (also possibly a cog) (c. 1575 but debated radiocarbon dates (Reinders 1985a, 1985b)).

Early 15th Century

112. **Camber, Sussex, England** – Fragmentary remains of a carvel-built oak vessel. Nine main plank and frame elements survive, including a hood end, a large plank, a small curved frame element, a small section of articulated planking with lutting, and several other miscellaneous plank fragments (c. 1450 or earlier (Goodburn 1990)).
113. **Grace Dieu, Bursledon, River Hamble, near Southampton, Hampshire, England** - Royal flagship built in 1418, decommissioned in 1436, struck by lightning and sunk in 1439, and then gradually buried in mud and sand. The ship is probably a form of carrack formed of three layers of clinker planks, a unique and ultimately unwieldy application of the technology. The remains include the lower hull frames and planks of a vessel originally over 40m long x 12m wide, and built with triple-thickness clinker planking. Early 15th century (Prynne 1968; Howard 1979: 29; Anderson & Anderson 1980: 78-79; Dolley 1985; Clarke *et al.* 1993; Friel 1993; McGrail 1993b; Hutchinson 1995b; McGrail 1998: 26, 129, 226).
114. **London, England. Blackfriars Wreck 4** - Remains of a clinker-built vessel with a cargo of Kentish ragstone. 15th century (Marsden 1996: 105-06).
115. **London, England. Blackfriars Wreck 5** – Fragmentary remains of the ribs and frames of a boat, reused in a waterfront revetment. 15th century (Marsden 1996).
116. **London, England. Bridwell** - Remains of the planking of a small boat, reused in a waterfront revetment. 15th century (source unknown).
117. **London, England. Southwark, Bankside Power Station** – Remains of the planking of a vessel, reused in a waterfront revetment. 15th century (Marsden 1996: 113, 160-67, 218-19, figs. 1, 101, 155, tables 6, 11, 16).
118. **Tentsmuir, Port-on-Craig, Fife, Scotland** - Remains of a roughly worked paddle with a fine straight grain and smoothed used shaft. 1.2m long overall, the blade 0.53m long and the shaft and handle 0.67m long. No actual vessel remains were found associated to the find (1420 ± 60, 1411 cal AD) (Mowat 1996: 106, no. A69).

Notable foreign discoveries of this period include the vessel from **Aber Wrac'h, Brittany, France** (c. 1435 (L'Hour & Veyrat 1989)), the possible cog from **Almere, Germany** (c. 1420-40 (Redknapp

1997a: 31, 127, 140)), the **Ijsselmeer Polders, Netherlands vessels MZ66 and NZ3** (15th century (Reinders 1985a, 1985b)), **Puck Bay, Poland wreck 5** ('The Copper Wreck', W5) (15th century (Litwin 1980: 221; Christensen 1982: 334; McGrail 1998: 130-31, 137, 147, 152; Litwin 2000: 8)), and the probable cog from **Vedby Hage, Denmark** (c. 1433-35 cal AD dendrochronological date (Gøthche & Myrhøj 1996; Myrhøj 2000: 229-34)).

Late 15th Century

119. **Laneham, Nottinghamshire, England** – Remains of a small boat with oak clinker planking fastened by iron nails without roves, and caulked with sheep's wool (c. 1470) (Hutchinson 1994a: 193).
120. **London, England. Bermondsey, Bermondsey Wall West, Adlards Wharf** – Remains of a small clinker-built boat. 15th century (James 1998).

Notable foreign discoveries of this period include **Ria de Aveiro, Portugal vessel A** (c.1434-1448 or 1424-1469, c.1441 cal AD from C14 dates: ICEN 1105, 1116, 1117, 1118 (Alves 2001: pers. comm.; Alves et. al. 2001: 12-36)), the vessel from **Cavalaire, France** (second half of the 15th century (Parker 1992: 133)), and **Ijsselmeer Polders, Netherlands vessels B55, K73/K74 and MZ22** (late 15th century (Reinders 1985a, 1985b)).

15th to 16th Century

121. **London, England. Southwark, 37-46 Bankside** – Remains of the planking of a vessel reused in three parallel waterfront revetments. Includes oak clinker planks, most radially cut, although four were tangentially cut (c. 1500) (Marsden 1996: 113, 160-67, 218-19, figs. 1, 101, 155, tables 6, 11, 16).
122. **London, England. Southwark, Hays Wharf** – Fragmentary remains of several boat and ship fragments, reused in a waterfront revetment, and including the clinker planks from the starboard side of a medium-sized, flush-planked vessel. 15th to 16th century (Marsden 1996: 107-30, 160-81).
123. **London, England. Southwark, Hays Wharf to Morgan's Lane** – Remains of several oak planks reused in a moat revetment. Includes remains with evidence for repairs, such as extra nails used to strengthen a lap, re-riveted laps and re-fastened scarfs, etc. Also other dumped timbers in the moat infill, with five pieces of radially-cut oak and other timbers from more than one vessel (c. 1486-1580) (Marsden 1996: 168).
124. **London, England. Southwark, Morgan's Lane** – Seven articulated planks from a late 16th century waterfront, from the stern of a vessel built in reverse-clinker form, probably a vessel with a specialised use. The planks are all of oak with oak treenails and iron rivets, hair and tar lutting. Their outer surfaces are coated with tar. 15th to 16th century (Marsden 1996: 168).
125. **London, England. Southwark, Symonds Wharf** – Remains of several oak clinker planks from the starboard side of a medium-sized, flush-planked vessel, reused in a waterfront revetment. 15th to 16th century (Marsden 1996: 117-18).
126. **Magor Pill, Glamorgan, Gwent, Wales. Boat 2** – 4m long remains of an oak keel-plank and several clinkered, tangentially sawn oak planks (c. 1418-1634) (Nayling 1995; Blue 1997: 252-

62; Redknap & Nayling 1997; Nayling 1998; Redknap 1998).

Notable foreign discoveries of this period include the vessel from **Bredfjed, Rødby Fjord, Denmark** **the comprise a** clinker-planked vessel made of sawn boards (c. 1470-1600 (Bill 1995: 198; 1998; Lemée 2001: 18-21)), vessels 5 and 6 from **Kalmar, Sweden** (15th to 16th century (Bill 1995: 198; Crumlin-Pedersen 1997a: 18-29), and the Spanish or Portuguese vessel from **Molasses Reef, Turks and Caicos Islands, Caribbean** (c. 1500-1550 from associated ceramics and breech-loading ordnance (Hoyt 1984; Keith et al. 1984; Keith 1988; Oertling 1988, 1989a)).

Early 16th Century

127. **Brighton Marina, West Sussex, England** - Remains of an armed vessel. 16th century (Bowman 1992: 163-69; Fenwick & Gale 1998: 60-62).
128. **Caldecotte, Milton Keynes, Northamptonshire, England** - Fragmentary remains of approximately 50% of a small river boat, including its stem posts, parts of a plank keel, four strakes to each side, a detached frame timber, and an iron mooring spike and chain. Also found were the remains of a rope with a girth of c. 5cm, made from hemp bast, with three right-hand laid strands composed of left-hand laid fibres (c. 1540) (Hutchinson 1983: 7-8; 1994a: 195; McGrail 1998: 35, 252).
129. **Cattewater Reach, Plymouth, England** - Remains of a 200-300 tonne, skeleton-first, carvel-built merchant vessel with planks of plain sawn oak. Possibly Spanish, armed with at least one wrought iron gun. The keel, substantial floor timbers, garboard strakes, outer planking, ceiling planks, futtocks and a keelson all survive, the planks caulked with tar and hair (c. 1510) (Carpenter *et al.* 1974; Mortlock & Redknap 1978; Redknap 1984; 1985; Redknap 1997b).
130. **Church Rocks, Teignmouth, England** – Remains of a vessel, possibly of Mediterranean origin. Mid 16th century (Flatman & Blue 1999: 181).
131. **Dunwich Bank, Suffolk, England** - Badly degraded and only partially exposed remains of a ship. An 11ft long bronze cannon raised in 1994 has proven to be a demi-culverin made between 1536 and 1556, and has wear-patterns inside suggesting that it had been in use for several decades before its loss. The site had originally been thought to be that of the 104 gun British man-of-war the *Royal James*, lost in c. 1672 during the Battle of Sole Bay. Recent evidence now suggests that this is unlikely, and that the vessel is of Elizabethan origin (c. 1536-1556 onwards) (Flatman & Blue 1999: 198-99).
132. **Girdler Sand, Whitstable, Kent, England** – Remains of a vessel. 16th century (source unknown).
133. **Hull, East Yorkshire, England** – Remains of almost the whole of a pine logboat, originally over 2.59m long. Early 16th century (McGrail 1978: no. 65).
134. **London, England. Southwark, Bethel Estate** - Remains of several clinker boat timbers. 16th century (Marsden 1996: 179).
135. **London, England. Woolwich** - Remains of a large, carvel-built oak ship, originally over 36m long x 13.5m wide. A section of iron-bound mast and mast-step, a keel, and a keelson with heavy timbers fore and aft also survive. Possibly the *Sovereign*, built in c. 1488 and rebuilt in c. 1509-1510, or else the *Great Harry* or *Great Gally* (Anderson 1959: 94-99; Salisbury 1961: 81-90; Philp & Garrod 1983: 87-91; Hutchinson 1994a: 198).
136. **Looe Bar, Mounts Bay, Cornwall, England** - Remains of a vessel, possibly the Portuguese

carrack the *St Anthony* (c. 1527) (Redknapp 1997a: 150).

137. **Mary Rose, Spithead, Portsmouth, England** - Exceptionally well preserved remains of over half the hull and contents of a large, flush-planked, four-masted carrack of over 400 tonnes, positively identified as the *Mary Rose*. The vessel had a keel length of 32m and a breadth of 11.66m. Her length at the waterline is estimated to have been 38.5m and her draught 4.6m. The surviving height of the ship is 13m, measured on the starboard side at the aftercastle (built in 1509-11, sunk in 1545) (Rule 1972; 1973; 1978; Whitlock 1980; 1981; Bradford 1982; McKee 1982; Rule 1983; Rule & Dobbs 1995; Dobbs 1995a; 1995b; Loewen 1998; Knighton & Loades 2000).
138. **Matham, River Rother, Rye, Sussex, England** - Remains of a half-decked clinker-built vessel with at least one mast, caulked with moss, possibly a barge. Approximately 19.20m (63ft) long x 4.572m (15ft) wide. 16th century (Lindsay 1874-76: 337 [volume 1]; Goodburn 1990; Redknapp 1997a: 82, 201).
139. **Studland Bay, Poole, Dorset, England** – Extensive lower hull remains of a lightly-armed merchant vessel of Spanish origin, originally over 24m, that grounded on a sandbank, fracturing the keel and separating the two sides from the bottom. The entire length of the starboard side of the hull survives (22.5m long x 3.5m wide, spanning 12 strakes and two tiers of futtocks at about main deck level) amid tons of ballast stones, carvel-built, with oak planks attached with iron nails and treenails. A keel and sternpost assembly also survives (12.5m long x 2.5m wide, from the sternpost scarf to a point approximately the same distance aft of amidships, spanning 4-5 strakes and the length of the floor timbers, just showing the floor/first futtock lap-joints), as do many floor timbers, and a cargo of pottery (lost c. 1500-1520, probably pre-1530; the vessel may even, in fact, have been built before 1500) (Hutchinson 1991; Ladle 1993; Thomsen 2000).
140. **Weybridge, Surrey, England** – Remains of a small boat fastened with iron clenched nails (c. 1540) (Hutchinson 1994a: 198).

Notable foreign discoveries of this period include the vessel from **Bahia Mujeres, Mexico** (early 16th century (Keith 1988; Smith & Keith 1986; Smith 1993), the Spanish or Portuguese vessel from **Highborn Cay, Northern Exuma Islands, Bahamas** (c. 1520-70 (Smith et al. 1985; Oertling 1986, 1989b)), the remains of the Swedish warship **Kravel, Stockholm archipelago, Sweden** (c. 1519 (Friel 1994; Adams & Rönby 1996; Adams 2001), the multiple vessels known from **Padre Island, Texas, USA** (lost c. 1554 (Barto Arnold & Weddle 1978; Keith 1988)), and the vessel from **Western Ledge Reef, Bermuda** (early 16th century from associated artefacts (Watts 1993; Watts et al. 1994)).

Late 16th Century

141. **Alderney Island, Channel Islands** - Fragmented and incoherent remains of a vessel, with a considerable quantity of dispersed hull fragments. Possibly the remains of a small Elizabethan military cargo ship (lost between c. 1585 and c. 1620, probably in February 1592) (Bound 1995a; 1995b).
142. **Bartholomew Ledges, St Mary's Sound, Isles of Scilly, England** - Remains of an armed merchant vessel, possibly the Spanish vessel the *San Bartolome* (lost c. 1597) (Redknapp 1997a: 153, no. 4).
143. **Collieston, St Catherine's Dub, Aberdeenshire, Scotland, England** - Dispersed remains of an unidentified vessel that local tradition associates with that of the ship *Santa Catalina*. The Spanish Armada origin which has been claimed for the wreck is unlikely, although the guns

themselves may be of late 16th century date. No real hull remains identified at present (Martin 1998a: 113).

144. ***El Gran Grifón, Stroms Hellier, Fair Isle, Shetland Isles, Scotland*** – Remains of a vessel, possibly the *El Gran Grifón*, a 650 tonne Baltic *hulk* of the Hanseatic League from Rostock. Few hull remains survive or have been excavated, although much of the hull - including possibly the stern and midships sections - may remain undisturbed elsewhere on the site. Elements of the stern, including wrought iron rudder pintles, survive, but the bow area appears to have been destroyed in the wrecking process and then in the extremely dynamic environment of the wreck site. Numerous other remains do survive, however, including considerable amounts of shot and ordnance, lead ingots, ammunition, anchors, coins, and miscellaneous shipboard equipment (including copper and pewter utensils, etc.) and personal effects of the crew and passengers (built c. 1580's, lost c. 1588) (Martin 1972; 1975, 1990, 1998: 28-45).
145. ***Girona, Lacada Point, Co. Antrim, Ireland*** – Scattered remains of a vessel, possibly the *Girona*, a 200ft long and 600 tonne Neapolitan *galleass* of the Spanish Armada campaign (lost c. 1588) (Martin 1975, 1990).
146. ***La Juliana, Streedagh Strand, Co. Sligo, Ireland*** – Remains of a Spanish Armada transport vessel requisitioned at Sicily, (or warship ?), possibly the *La Juliana*. Includes sections of articulated ship structure, overlain by extensive concretions of iron and stone shot mixed with lead sheathing. Three metal anchors and three bronze guns also overlie the concretions. Further elements of the vessel are buried nearby beneath the sand, including a floor rider with scarf, five wooden spoked wheels, and the rudder of the vessel, which overlies a further bronze gun (c. 1588) (Martin 1975, 1990; Birch & McElvogue 1999).
147. ***La Lavia, Streedagh Strand, Co. Sligo, Ireland*** - Remains of a warship, possibly the *Lavia*, transport vessel requisitioned at Lisbon for the Spanish Armada campaign. Remains identified so far include two wooden gun carriages and associated bronze guns, along with the remains of a small breech-loading swivel gun. Identified and protected under Irish law, but not so far fully investigated (lost c. 1588) (Martin 1975; 1990; Birch & McElvogue 1999).
148. ***La Trinidad Valencera, Kinnagoe Bay, Co. Donegal, Ireland*** – Fragmented hull remains of a Venetian merchant vessel, probably the bulk grain-carrier *La Trinidad Valencera*. A number of hull components have been identified, including extensive iron fastenings, although none occur as articulated assemblies. The wreckage appears to lie in two discreet sections, suggesting the vessel broke in two during the wrecking process, and considerable amounts of the hull may lie buried and as yet undisturbed on the site (lost c. 1588) (Martin 1975; 1978a; 1978b; 1983; 1990).
149. **London, England. Southwark, Cherry Garden Street** – Three fragments of a clinker-built boat, two radially cut and one tangentially cut (c. 1488-1554) (Marsden 1996: 175-178).
150. **London, England. Southwark, Hays Wharf to Abbot's Lane** - Fragments of a boat, with radially and tangentially cut oak timbers (c. 1501-1571-1600) (Marsden 1996: 173-74).
151. **London, England. Southwark, Hays Wharf to Bethel Estate** - Fragments of boat planking reused in the waterfront of a watercourse and moat. Mostly radially cut oak timbers with hair caulking. Damage and repairs are evident. Late 16th century (Marsden 1996: 179).
152. **London, England. Southwark, Hays Wharf to Butter Factory South** - Fragments of boat planking reused in part of a pond, with radially cut oak timbers. 16th century (Marsden 1996: 175).
153. **London, England. Southwark, Hays Wharf to Gun and Shot Wharf** - Fragments of clinker boat planking, reused in a revetment for a moat. Six pieces are from the same vessel, all of radially cut oak, with matted hair lutting and iron rivets. Mid 16th century (Marsden 1996: 167).

154. **London, England. Southwark, Hays Wharf to Morgan's Lane** - Numerous remains of vessels reused in a 16th century timber revetment. Includes two pieces of both radially and tangentially cut oak planks, and also some tangentially cut elm clinker planks with iron rivets, hair lutting and oak treenails. 16th century (Marsden 1996: 168).
155. **Oxwich Bay, Gower Peninsular, Wales** – Remains of a vessel (lost c. 1557?) (Redknap 1997a: 140).
156. **Llyn Peris, Llanberis, Gwynedd, Wales. Vessel 1** - Remains of a boat, originally some 6.3m long x 2m wide. Originally thought to be an 18th century AD vessel, re-dated in 1999-2000 to c. 1547-1549 cal AD felling date after dendrochronological dating (Illsley & Roberts 1979, 1980; NAS Newsletter 2000.2: 5).
157. **Rye, Sussex, England. Vessel 1** - Remains of a flush-built oak vessel, including a keelson, two frames, ribs, and outer hull planking. Late 16th century (Lovegrove 1964: 115-22; Hutchinson 1994a: 196).
158. **Rye, Sussex, England. Vessel 2** - Remains of a double-skinned, oak, clinker-built vessel, including some ribs and treenails. Late 16th century (Lovegrove 1964: 115-22; Hutchinson 1994a: 196).
159. **Salcombe, Devon, England** - Remains of a vessel carrying a cargo including coins and jewellery dating from c. 1510-1536, of Moroccan origin. 16th to 17th century (lost c. 1630-40) (Fenwick & Gale 1998: 86-87).
160. **San Juan de Sicilia, Tobermory, Isle of Mull, Western Isles, Scotland (The Tobermory Galleon)** - Fragmentary remains of the lower hull and miscellaneous timbers and artefacts of an 800 tonne argosy (large merchant vessel), a specialist grain-carrier originally from Ragusa (Dubrovnik, Dalmatia). Few hull remains survive due to successive depredations to the hull since its loss (associated to searches for reported treasure now thought never to have been on board), and also due to the dynamic nature of the wreck site (built c. 1580's, lost c. 1588) (Martin 1975; 1990; 1998: 11-27).
161. **Santa Maria de la Rosa, Blasket Sound, Co. Kerry, Ireland** – Remains of a three-masted Spanish merchant vessel (possibly a 'round ship'), possibly the *Santa Maria de la Rosa* of 945 tonnes and 26 guns. Only the forward lower section of the hull survives, pinned-down by limestone ballast, and including the keelson and mast-step complex, boards, scarfs and stanchions, and a little of the forward outer hull planks: the stern section probably lies elsewhere at another (unidentified) site (lost c. 1588) (Martin 1975; 1990; Redknap 1997a: 10).
162. **Santa Maria de Vison, Streedagh Strand, Co. Sligo, Ireland** – Remains of a Spanish Armada transport vessel requisitioned at Naples (c. 1588) (Martin 1975; 1990; Birch & McElvogue 1999).
163. **Yarmouth Roads, Yarmouth, Isle of Wight, England** – Remains of several hull sections of a merchant carrack of Spanish origin, possibly the *Santa Lucia* (lost c. 1567) (Watson & Gale 1990; Fenwick & Gale 1998: 46-48).

Notable foreign discoveries of this period include vessels 1, 4 and 7 from **Christianshavn (old Grønnegaard harbour), Copenhagen, Denmark** (c. 1582-84 (Lemée 1997a, 1997b)), the **Elephanten, Kalmar, Sweden** (lost c. 1564-65 (Cederlund 1983)), the vessel from **Emanuel Point, Florida, USA** (lost c. 1559 (Smith 1994, 2000)), **Ijsselmeer Polders, Netherlands vessels GZ13, KZ47, LZ1, LZ5 and NZ13** (c. 1550 (Reinders 1985a, 1985b)), and the series of vessels and shore establishments, including a Basque galleon, from **Red Bay, Labrador, Canada** (lost c. 1565 (Grenier 1988)).

Unsure

164. **American Wharf, Southampton, England** – Remains of a clinker-built vessel with a keel length of 22m. Presumed to be medieval (Prynn 1973: 229; Hutchinson 1994a: 197).
165. **Ballywillin, Co. Antrim, Ireland** - Remains of a 40-50 tonne vessel Viking-tradition vessel, of uncertain dimensions, but probably originally over 13m in length and over 3m wide. Includes elements of the keel and a series of planks 0.025m wide x 2.5m long x c. 0.03m thick, spaced at 0.20m intervals. Also some ribs and boards. It was carrying a ballast of white limestone gravel, and had a hearth stone at one end. Presumed to be early medieval (Briggs 1974).
166. **Bartins Bay, Ireland** – Remains of a punt-like vessel, with a tapered bow and stern, and a rectangular transverse cross-section. Presumed to be medieval (Farrell 1989).
167. **Barton-on-Humber, Humberside, England. St Peter's Church** - Remains of sixteen graves with coffins of wood held together with clenched nails. These are seen as being boats, or parts of boats, used as coffins or covers. Richards (1991: 115) notes that parts of old boats might simply have provided handy materials from which to construct coffins and biers in coastal and riverine regions, but this is really too mundane an explanation. Viking Period.
168. **Bexhill, Sussex, England** – 2.74m long x 1.83m wide x 0.45m high remains of a squat vessel. Presumed to be early medieval (Ellmers 1972: 273, no. 3).
169. **Caldicot Levels, Severn Estuary, Gwent, Wales** – Remains of several wooden plank boats and miscellaneous timber remains. Some presumed to be medieval, although altogether they range in date from the Roman to post-medieval period (Allan 1995: 219-29)
170. **Càrn a' Bharraich, Oronsay, Hebrides, Western Isles, Scotland** - Fragmentary remains of a vessel or vessels, possibly associated to a cremation boat-burial. Beside two burials of an elderly man and a woman in a grave is a thick layer of charcoal containing a large number of iron boat rivets. It is impossible to draw full conclusions about the size of the vessel as no hull remains survive. Presumed to be early medieval/Viking period from the typological form of the rivets (Graham-Campbell & Batey 1998; Ritchie 1993).
171. **Catfield, East Sussex, England** - Remains of a vessel. Presumed to be early medieval (Green 1963).
172. **Catfield, Norfolk, England** - An early report mentions that in 1855 clenched iron nails of 'a Viking boat' were found in a sand pit in Catfield, although no burial was recorded, and no remains or real documentary/archive details survive. Presumed to be of the Viking period (Mülle-Wille 1974: 204; Richards 2000: 115).
173. **Clonmacnoise, River Shannon, Ireland** – Badly eroded remains of 11 dugout vessels. A number are long, narrow craft with round bottoms, while others have square hulls with flat-bottoms. A single vessel had separate frames inserted into its floor, carved out of natural ash and elder growths. All the vessels are of oak, and three still had tools lying in their bottoms, including a whetstone, a wood-working axe, a felling-axe and a general axe. Presumed to be medieval (from associated finds at Clonmacnoise bridge) (O'Sullivan & Boland 1999).
174. **Cummatrush Lake, Millstreet, Co. Cork, Ireland** – 4m long remains of a logboat. Presumed to be medieval (Bowman 1993: 175-77).
175. **Dalmarnock, Little Dunkeld, Perth & Kinross, Tayside, Scotland** - Fragmentary and incomplete remains of the lower hull of a logboat, the flat bottom section that remains measuring 4.58m long x 0.82m wide x 0.008-0.01m thick. Rounded bow and stern, with part of a possible

- projecting sternpost. The lack of biconicality of two possible thickness-gauge holes near the stern has been used to infer the use of a metal drill and consequently a medieval or later date (Mowat 1996: 21-22, no. 25).
176. **Derryco, Ireland** – Remains of a vessel with five pairs of ledge-like extensions supporting seats, possibly serving as a ferry. Presumed to be medieval (Farrell 1989).
 177. **Eastbourne, East Sussex, England** – Remains of a clinker-built vessel with iron clench nails and hair lutting, originally over 4-5m wide. Presumed to be medieval (Gilbert 1964: 89; Hutchinson 1994a: 191).
 178. **Lough Enwell, Ireland** – Remains of an extended logboat, with a bow-section that includes the remains of a sophisticated dove-tailed joint. Presumed to be medieval (Farrell 1989).
 179. **Goodwin Sands, Kent, England** – 10m long remains of a piece of boat planking. Presumed to be medieval (Hutchinson 1994a: 191-92).
 180. **Great Yarmouth, King Street, Norfolk, England** – Remains of a Viking tradition vessel with clinker-laid planks, a pointed stem and 5cm long iron clench nails, found underneath the road in King Street. Presumed to be early medieval (Green 1963: 63; Hutchinson 1994a: 192).
 181. **Inch Abbey, Co. Down, Ireland** – Remains of a dugout canoe. Presumed to be medieval or post-medieval (Bowman 1993: 175-77).
 182. **King Furgus' Isle, Loch Laggan, Inverness, Scotland** – Remains of a clinker-built boat with frames in three parts with square headed nails, and a lutting of matted highland cattle hair. The vessel has a split in the hull sewn shut with a batten to hold in the lutting. Presumed to be medieval (Logan 1951: 162-63; Hutchinson 1994a: 193; McGrail 1998: 65).
 183. **Knoc-y-Doonee, Kirk Bride, Andreas, Isle of Man** - Remains of a Viking boat burial, mainly comprising of a large number (300+) of clenched iron hull nails. None of the actual hull timbers survive. 'Viking' period (Kermode 1930; Bersu & Wilson 1966; Richards 1991: 104-08)
 184. **Loch Laggan, Highlands, Scotland** - Remains of a clinker-built boat discovered when the loch was partially drained in 1934 as a part of a hydroelectric scheme. No remains survive and the vessel was inadequately recorded at the time of discovery. Presumed to be medieval (Martin 1998: 110).
 185. **Lough Lene, Castlepollard, Co. Westmeath, Ireland. Boat 1** – Remarkable remains of a dugout vessel, comprising of a single oak plank carved to form the base of a flat-bottomed, parallel sided, punt-shaped vessel with a flared transverse cross-section, the sides of which originally supported two attached side-strakes. 6.40m long x 0.70-0.80m wide (inside) 1.00m wide (outside). Presumed to be medieval (Farrell 1989).
 186. **Lough Lene, Castlepollard, Co. Westmeath, Ireland. Boat 2** – Fragmentary remains of an extended dugout vessel in basic canoe-form, with rounded ends and a transverse cross-section. Originally over 5m long x 1.20m wide. Presumed to be medieval (Farrell 1989).
 187. **Lough Lene, Castlepollard, Co. Westmeath, Ireland. Boat 3** – Remains of a dugout vessel. Presumed to be medieval (Farrell 1989).
 188. **London, B England. Bermondsey, Southwark Park Road (Grange Road ?)** - 2.43m long remains of a small boat. Presumed to be medieval (Marsden 1996: 217, fig. 1).
 189. **London, England. City, 9-11 Bridewell Place** – Fragments of a clinker-built boat beneath the palace of Bridewell (built c. 1515-1523), possibly reused in a waterfront of the river Fleet. Presumed to be medieval from their position beneath 16th century remains (Marsden 1996: 125-26, figs. 1, 118-20, table 7).
 190. **London, England. City, Thames Street** – Fragmentary remains of a clinker boat. Presumed to be medieval (Marsden 1996: 220, fig. 1).

191. **London, England. City, Upper Thames Street** – Remains of a vessel. Presumed to be medieval (Marsden 1996: 219, fig. 1).
192. **London, England. Hay's Wharf** - Fragmentary remains of a clinker-built vessel. Presumed to be medieval (Goodburn 1991: 105-15).
193. **London, England. Deptford** – Remains of a medium-sized ship. Presumed to be medieval (Marsden 1996: 159, fig. 17).
194. **London, England. Hackney Marsh** – Remains of a clinker-built boat with cow hair lutting, Presumed to be medieval (Marsden 1996: 220, fig. 18).
195. **London, England. Southwark, Abbots Lane** – Remains of several metres of articulated planking from the starboard side of a vessel, reused in a waterfront revetment. Presumed to be medieval (Marsden 1996: 107-12, 217, figs. 94-100, table 6).
196. **London, England. Southwark, Guy's Hospital, New Guy's House** – Remains of a vessel. Presumed to be early-medieval (Marsden 1996: 218, fig. 1).
197. **London, England. Southwark, Hibernia Wharf** – Remains of a blade and part of the shaft of an oar or paddle, radially cut from oak. Presumed to be medieval (possibly 10th to 11th century) (Marsden 1994: 139-41, 159, fig. 1, 141).
198. **London, England. Southwark, Park Street** – Remains of a clinker-built vessel. Presumed to be medieval (Marsden 1996: 218, fig. 1).
199. **London, England. Westminster, Storey's Gate** – Remains of a vessel. Presumed to be medieval (Marsden 1996: 219, fig. 1).
200. **Medmerry, Selsey Bill, Sussex, England** – Fragmentary remains of a clinker-built vessel with radially split pieces of oak that were cleft/riven out with wedges rather than sawn. At least one is a reused fragment of an oak clinker boat strake. Other fragments may be other parts of a clinker boat strake. Mid-Saxon (Goodburn 1987).
201. **Melton, Humberside, England** – Remains of several framing timbers with joggles for four strakes and treenails from a vessel. Presumed to be Medieval (Hutchinson 1994a: 195).
202. **North Stoke, Arundel, Sussex, England** - Remains of a logboat cut from half a hollowed-out oak log, 10.90m (35ft 4 inches) long x 1.76m (4ft 6 inches) wide, cut like a canoe. Presumed to be early medieval (Lindsay 1874-76: 33 [volume 1]).
203. **Llyn Padarn, Llanberis, Gwynedd, Wales** - Remains of a clinker-built boat with a carvel-planked bottom carrying a tightly packed cargo of approximately 1354 slates (1.85 tonnes), including parts of the ribs and stem, planks, gunwales and miscellaneous timbers. Flat-bottomed with a shallow draught, with approximate overall dimensions of 6.03m long x 2.16m wide. Originally thought to be an 18th century AD '*bateau*' style vessel. re-dated in 1999-2000 to the medieval period after dendrochronological dating (Illsley & Roberts 1979; 1980).
204. **Pwll Fanog, Menai Strait, Wales** - Remains of a vessel carrying a cargo of around 20 tonnes of slate, with a clinker-built hull. Certain features that suggest that it may be of medieval date, although possibly later (Illsley & Roberts 1979; Fenwick & Gale 1998: 120-21).
205. **Smallhythe, Tenterden, Kent, England** - Remains of a medieval shipbuilding centre, including two ships timbers, one a joggled frame for a clinker-built vessel, and numerous ships nails, spikes and roves. Typologically dated to the medieval period (Flatman & Blue 1999: 191-92).
206. **St. Albans (Verulamium), Herefordshire, England** - Remains of a vessel, the type/tradition of which is unclear. It was found within 11th century AD remains in the ruins of the Roman city of Verulamium, and is made of oak, with iron nails as fastenings. Presumed to be medieval (source unknown).

207. **Thorpe-by-Norwich, Norwich, Norfolk, England** - Remains of at least two rows of clenched nails discovered with a burial beneath the former church at Thorpe-by-Norwich (Norwich). Where burials with clenched nails have been properly excavated, it seems more likely that the nails are from wooden biers, although there is the reasonable suggestion that the biers were fashioned from parts of boats which had been broken up for the purpose or had come to the end of their useful life and were being broken-up anyhow. Viking Period (Richards 1991: 115).
208. **Tormore, Arran, Strathclyde, Scotland** - Remains of a vessel. Presumed to be early medieval (Grieg 1940).
209. **Walberwick (Walberswick), Suffolk, England** – Remains of two hull frame timbers, with joggles for clinker planks. Presumed to be medieval (Hutchinson 1994a: 197-98).
210. **Waltham Cross, England** – Remains of a dugout vessel, cut from a short oak of less than 5m length. Originally a small vessel of between 3.5-5.0m in length and 0.60-0.75m in width, with a rounded transverse hull cross-section, beam-ties across at least one end, and a bulkhead integral to the hull near the midships station. Presumed to be medieval (Marsden 1989).
211. **Winchelsea, Sussex, England** - Remains of a rudder. Presumed to be early medieval (Marsden 1990).
212. **York, North Yorkshire, England. Coppergate** – Remains of several boat strakes, reused in a waterfront revetment. Presumed to be early medieval (Youngs et al. 1987: 210; Hutchinson 1994a: 198).
213. **York Minster, York, North Yorkshire, England** - Remains of a Viking age cremation burial and bier that could well have been a reused boat fragment, hypothesised from the existence of surviving clenched iron nails within the deposits. Where burials with clenched nails have been properly excavated, it seems more likely that the nails are from wooden biers, although there is the reasonable suggestion that the biers were fashioned from parts of boats which had been broken up for the purpose or had come to the end of their useful life and were being broken-up anyhow. Presumed to be of the Viking period (Richards 1991: 115).

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