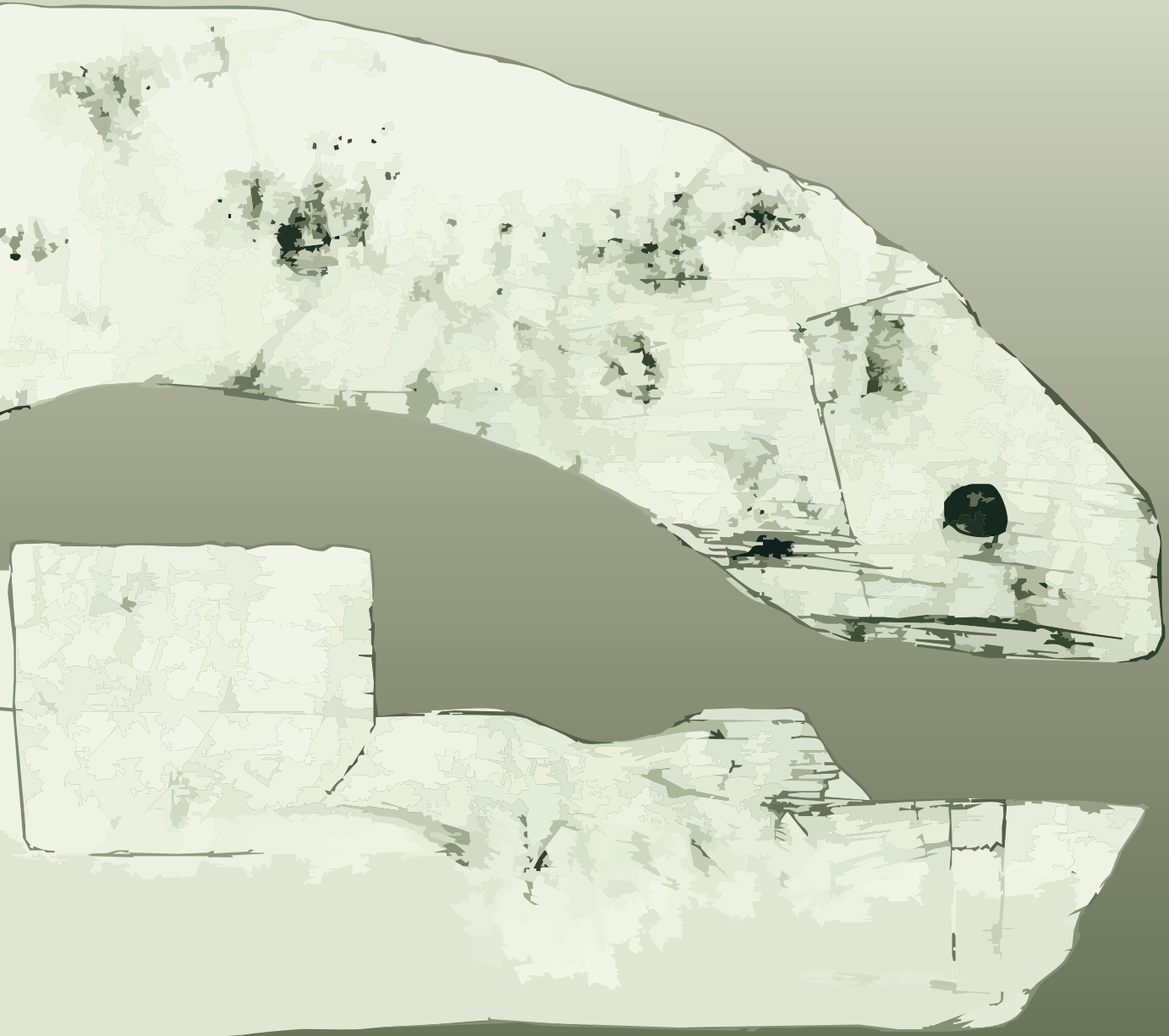


CHAPTER 26

Worked wood



by S J Allen

26 Worked wood

S J Allen

Methodology

The author was asked to report on an assemblage of material recovered by Framework Archaeology from excavations in advance of construction work in and around Stansted Airport, Essex. The material in question had been excavated and placed in temporary packaging awaiting assessment and study. An assessment and list of the timbers had previously been prepared and prior to the assessment, some pieces had been looked at and may have been discarded. So far as is known, all of the remaining assemblage has been available to study.

The artefacts from the assemblage had generally been individually wrapped in finds bags, usually double wrapped and often with thin black polythene bin liners around them. In some cases thick black plastic sheet has been used for the larger timbers. All had been secured with adhesive tape. Occasionally, more than one timber had been packed in the same bag and there were some instances where it could not be determined whether a bag contained one piece of wood broken up in transit or several separate pieces of wood had gone into the same bag.

After delivery to the Wet Wood Laboratory in York, each bag was in turn opened, emptied and the contents washed under cold running water. Each piece was recorded and sampled for species identification, then returned to its original packaging for return to Oxford or for further work. Some objects whose packaging had disintegrated whilst being unwrapped were repacked freshly in Layflat polythene tubing.

Little if any of the wood had been cleaned prior to arrival in York and it can be said therefore that its recorded condition fairly reflects the condition when it was excavated. Little sign of deterioration was evident and only occasional signs of modern excavation damage. Overall the wood was in a good state of preservation and it may be concluded that waterlogged anoxic conditions had been maintained in all contexts in which wood was found, up to the time of excavation.

Species identification was carried out on an item by item basis. Each sample was examined in transverse, radial longitudinal and tangential longitudinal sections under a microscope; all species identifications follow Schweingruber (1982). All identifications carried out in this way are incorporated into the database using their scientific names.

The records consisted of hand written notes supplemented where necessary by pencil sketches. These records were then summarised where necessary and added to a database created in Microsoft Access which forms part of the site archive.

Species and Common Names. Most of the wood can only be identified to a particular genera. Although, for example, there are many different species of willow, their wood cannot be differentiated. The following list gives the common names of the scientific identifications used in this report and the database.

<i>Acer campestre</i> L.	Field Maple
<i>Alnus</i> spp.	Alder
<i>Frangula alnus</i> Mill.	Alder Buckthorn
<i>Fraxinus excelsior</i> L.	Ash
<i>Quercus</i> spp.	Oak
<i>Salix</i> spp.	Willows
<i>Ulmus</i> spp.	Elms

Summary of assemblages

Bronze Age- the M11 (BAALR00) and MTCP sites (BAAMP00)

Waterlogged wood was recovered from two sites with Bronze Age dates - the ring ditch of barrow 324078 at the MTCP site (various primary and secondary deposits) and a waterhole or well on the M11 site.

The wood from the barrow ring ditch may be divided into the wood from the primary ditch fill, the wood from the secondary ditch fills and the wood (316126, 320132) from the fills of cuts through the ring ditch. The earliest material from the primary ditch fills consists of elm and field maple heartwood chippings (320114) and alder heartwood chippings and field maple roundwood fragments and chippings (320117). All of these have eroded surfaces and only the fragment of alder has any indication of charring. It may be presumed that this material derives from light woodworking taking place in the vicinity and is unlikely on its own to have formed a placed deposit.

The wood from the secondary fills indicates some burning nearby with charred oak offcuts (309240, 320151) and fragments (309243, 309246). A small group of oak timbers with a single piece of field maple (320133, Fig. 26.1, no. 2) may be the remains of some sort of burnt structure but no indication of any joints, fixings or fastenings survive which would confirm this. In fact all of the recovered wood from these secondary fills is burnt, perhaps representing some clearance of a nearby wooden structure.

Wood from the fills of ditches cutting the ring ditch consists of willow heartwood chippings (316123) and unidentifiable bark chippings (320132) with no indication of burning. This would seem to emphasise the significance of the burning episode.

The wood from the waterhole (434076) consists primarily of stakes and offcuts, which may be the degraded remains of stake tops. The stakes are likely to have been the remains of a revetting placed to retain the sides of the waterhole during its use. The best preserved of these (426034) was a very simple length of oak prepared from a halved piece of roundwood, with both opposing edges axe hewn to create a sub rectangular cross-section tip. Much of the remaining wood from this feature, including the fragment of withy tie (431036) (Fig. 26.1, no. 1), was eroded and would seem to have arrived in its burial context as waste or rubbish, emphasised by the presence of a stump of very knotty field maple (431038).

Post-medieval: the LTCP site (BAACP01)

In contrast to the wood from the previous two areas, much of this assemblage is clearly derived from structural timber. Two groups appear to be present.

The first is a tank lining of oak boards (448008, 448010-11, 448014 and 448019) and oak, ash and hazel stakes (448015-7) each with sub triangular cross-section section tips. All but one of the boards are radially faced, with very eroded surfaces, the exception being 448014, a tangentially faced board with faint marks indicating it was produced by through and through sawing. Nail holes suggest that some of the boards may have been nailed to the stakes rather than just being retained by them, or perhaps that the boards are reused.

According to the site records, associated with this group is a channel, built from a tangentially faced oak board to which are nailed a pair of tangentially faced oak rails, one along each edge. Erosion has removed any tool marks or technology. and the form of the junction with the tank is not known.

The second group of timbers (461028, 461030-35, 461040) is of great interest. Four curved elm timbers (461031-461033, 461040) are jointed together to make a roughly rectangular frame with curved edges, on which the brick lining of a well rested. A small stake (461035) may have been used to help anchor the frame but the remainder of the wood comes from the fill of this well. In addition to the occasional offcut and the discarded ends of two carpenters pegs (461034, 464051) this fill contained a pump tube in two parts, of which one (461030) was recovered (Fig. 26.2, no. 3).

Catalogue of selected artefacts

A number of the artefacts and timbers merit further comments. These are grouped here by date and object type.

M11 (BAALR00)

431036 Withy Tie. Six disarticulated strands from a withy tie. All strands "S" twisted and presumably plaited in a "Z" fashion. Form of tie no longer possible to reconstruct from the fragments. Strands 53-121 mm l, 11-12 mm dia. All cut from young shoots with two years annual growth present. All pieces *Fraxinus excelsior L.*

MTCP (BAAMP00)

320133 A. Length of quartered timber, no bark surviving. Slightly tapering along length, very heavily charred on all surfaces. Split longitudinally and broken up. 627 mm l, 65 mm w, 62 mm th. *Quercus spp.*

320133 B. Tangentially faced heartwood offcut. Slightly tapering. Wider end, most of one face and one edge heavily charred. 247 mm l, 93 mm w, 34 mm th. *Acer campestre L.*

320133 C. Length of box halved timber. Both ends hewn. Partially charred along one edge and one face. Very soft and decayed, surfaces eroded. 1,414 mm l, 102 mm w, 78 mm th. *Quercus spp.*

LTCP (BAACP01)

448014 Board. Tangentially faced with faint saw marks on both faces. Four 07 dia nail holes through face along intact edge, one with Fe nail present. Slight damage at each end, one edge broken away and missing. 544 mm l, 242 mm w, 24 mm th. *Quercus spp.*

461030 Wooden pump tube. Cut to approximate octagonal cross-section from Roundwood log, some sapwood remaining. Axial hole 57 dia. augered through length of log along axis of pith. One

- end hewn off square to axis of timber. Other end evenly tapered over length of 400 mm to a circular cross-section at tip. Rectangular socket 138 l, 97 w, 122 deep cut into face towards thicker end to intersect with axial hole. Remains of 9 nail holes unevenly distributed around periphery of socket. 1,656 mm l, 253 mm w, 227 mm th. *Quercus spp.*
- 461030 Bung or stopper. Roughly circular cross-section cut from roundwood. Exposed end hewn flat. Fixed into axial hole of water pipe 461030 and fastened there by a single square cross-section Fe nail driven through the end of the bung and into the wall of the tube. 75 mm l, 54 mm dia. *Salix spp.*
- 461031 Baseplate. Length of timber box quartered from a piece of straight grained trunk wood. Outer and inner edges hewn to curve along its length, ignoring trend of grain. Laid on face. Half lap housing cut into upper face at each end, one to engage with 461032, the other with 461040. Each housing pierced by single 24 dia through auger hole, one of which retains fragments of radially faced *Salix spp.* peg. 1.420 m l, 170 w, 160 th. *Ulmus spp.*
- 461032 Baseplate. Length of timber box halved from a piece of curving branch wood. Outer and inner edges hewn to curve along its length, following trend of grain. Laid on face. Half lap housing cut into lower face at each end, one to engage with 461031, the other with 461033. Each housing is pierced by a single 24 dia through auger hole, one of which retains the fragments of a radially faced *Salix spp.* peg. 886 mm l, 130 mm w, 105 mm th. *Ulmus spp.*
- 461033 Baseplate. Length of timber box quartered from a piece of straight grained trunk wood. Outer and inner edges hewn to curve along its length, ignoring the trend of the grain. Laid on face. Half lap housing cut into upper face at each end, one to engage with 416032, the other with 461040. Each housing pierced by single 24-26 dia through auger hole, both of which retain fragments of radially faced *Salix spp.* pegs. 1,068 mm l, 19 mm 0 w, 150 mm th. *Ulmus spp.*
- 461040 Baseplate. Length of timber halved from slightly curving branch wood. No bark present. Inner edge hewn to curve following trend of grain. Cleft surface uppermost in ground, laid on waney face. Half lap housing cut into lower face at each end, one to engage with 461031 the other with 461033. One housing pierced by single 25 dia through auger hole. Other lap housing broken through and missing the portion where any auger hole would have been located. 827 mm l, 165 mm w, 100 mm th. *Ulmus spp.*
- 461034 Tip of radially faced carpenters peg. One end has five cut facets creating a roughly hexagonal cross-section tip, with fine tool signatures present. Other end broken and missing. 146 mm l, 24 mm w, 23 mm th. *Acer campestre L.*
- 464051 Head and part of non refitting shaft from radially faced carpenters peg. Head shaped to roughly septagonal cross-section. Both pieces worn and eroded with much Fe mineral staining. Head 67 mm l, 28 mm w, 23 mm th; Shaft 97 l, 27 w, 22 th. *Quercus spp.*

Discussion

Bronze Age

The withy tie 431036 (Fig. 26.1, no. 1) is one of a class of artefacts which have become steadily better known in recent years, parts of plaited ropes prepared from young, pliable wooden shoots. Most of these finds to date are prehistoric, specifically Iron Age, though this find adds to the number of those known to be Bronze Age. It is unlikely that they all have the same function. Some are clearly used to fasten boat planks together (Ferriby, East Yorkshire - Wright 1990, 65), others are finds from waterholes where a boat connection seems less likely (Perry Oaks, Middlesex WPR98 - Allen 2001). To date, only one other example in ash has been recovered, from the Perry Oaks site (Allen 2001, SF 3319) a straight fragment of three strands. It is not possible to identify what the function of the tie under discussion here was, but it seems to have been discarded with waste material and probably represents an offcut rather than a finished artefact.

The significance of the burnt timbers from the secondary fills of the barrow ring ditch cannot yet be confirmed. All of the wood from these contexts, including up to sixty nine assorted fragments of roundwood was partially or wholly charred, unlike that from the earlier ditch fills and the fills of later cuts. It is tempting to associate these with the cremation rites as suggested in the Project design update (Framework Archaeology 2004, Note 2, section 3.2.12). They certainly have no structural function as found. Unfortunately there are no joints or technology which would indicate how these timbers might have fitted together.

Very little can be said about the woodscape of the period from this assemblage owing to its small size. Alder, ash, elm, field maple and oak were being exploited for timber and field maple, alder and alder buckthorn for small diameter roundwood but any method of exploitation or management cannot be determined. The assemblage reflects the presence of very localised waterlogged burial conditions on the site rather than the utilisation pattern of wood on and around the site and as such, can only hint at the activities taking place.

Post-medieval

Much of the wood from this phase was eroded and little can be said about the woodworking technology, especially where the boards, offcuts and stakes are concerned. It is evident that some timber framed construction work was taking place nearby. Normal practice in pegging a joint together was to prepare a peg much longer than the hole into which the peg was intended to be driven, drive the peg home, then trim off the protruding head and tip flush with the surface of the joined timbers. The two finds of carpenters' pegs are the waste from just such practice.

The base frame for the well lining is of considerable interest, not least in demonstrating that a brick lined well may have timber components at its base (Figs 26.2-3, nos 4-7). Unfortunately, though sapwood is present on the waney faces of some of the components, they are not suitable for dendrochronology. The carpentry is very straightforward, with four plates (two larger and two smaller) being joined to their neighbours by simple half laps fastened by single pegs. The shoulders on the laps of the two smaller elements 461032 and 461040 (Figs 26.2, no. 5 and 26.3, no. 7) were sawn and the waste hewn away. The stops on the laps of the larger elements, 461032 and 461033 (Fig. 26.3, no. 6), would not allow their shoulders to be sawn. Surviving marks show these were cut with a chisel or small hewing tool.

The frame appears to have been fastened together before being placed in the ground as the outer edges and some of the protruding ends of the laps have been hewn away with an axe of over 114 mm blade width, to avoid fouling the edges of the construction shaft for the well. The inner edges of the timbers have also been hewn, this time with an adze with a 65 mm blade width, probably to conform to the circular lining which was to rest above it.

All four elements were cut from elm. The pegs are, unusually, willow. Both species are traditionally thought of as having suitable properties for use under water. Similar frames have been excavated at the Bedern and 16-22 Coppergate, in York (Richards 1983, 169; Hall and Hunter-Mann 2002, 749), Scale Lane/Lowgate, Hull (Armstrong 1980, 31) and Tarring, Sussex (Barton 1963, 30). The Bedern example is of early 13th-century date and, as at Stansted, employs two larger curved timbers (both

reused) joined by single pegged halved lap joints to two smaller curved timbers cut from naturally curving branch wood. These pieces were oak and overall slightly lighter than the Stansted timbers, perhaps because the lining the Bedern frame supported was composed of coopered vessels rather than brick. At 16-22 Coppergate a stone lined well of c1500 rested on a rectangular frame of reused oak timbers. The Hull find dates from the late 14th/15th centuries and is more irregular, made up from five timbers in a horseshoe plan with the brick lining resting on top. The form of the pegged joints used and the type of wood is unclear from the published account. The Tarring find is a rectangular frame supporting a stone lining and dates to the late 15th or early 16th centuries. Unfortunately, no other details of its form were recorded.

The final timber to be discussed is the pipe from a water pump associated with the well (Fig. 26.2, no. 3). Water pipes, particularly in the early post-medieval period are often fashioned from hollowed roundwood logs, usually elm, shaped to fit together end to end to provide a continuous conduit. Though similar, the Stansted example is cut from oak and is the lower end of a pump, rather than a pipe. One end is cut square to the axis and would not fit to a neighbouring pipe section. A willow bung has been nailed into the open end of the tube to prevent the ingress of water. Finally a rectangular socket has been cut into one face, 102 mm from the stoppered end, deep enough to intersect with the tube. This socket would allow water to enter the tube and be drawn up by the pumping machinery whilst keeping the entry point for the water above the base of the well where silt and debris might otherwise have clogged the tube. The nail holes present around the periphery of the socket indicate the former presence of a filter plate, a perforated lead or copper alloy sheet nailed in place to stop debris being sucked into the tube.

There are few excavated parallels for a pump tube of this date, though they are well known from documentary sources, especially those dealing with ship fittings and fixtures. A heavily rotted portion was found at Whitefriars Street Car Park, Norwich (Ayers and Murphy 1983, 11), of uncertain date; as such this is an unusual find and makes an important contribution to our knowledge of water handling.

Catalogue of illustrated worked wood (Figs 26.1-3)

M11 site (BAALR00)

1. 431036 Withy tie

MTCP site (BAAMP00)

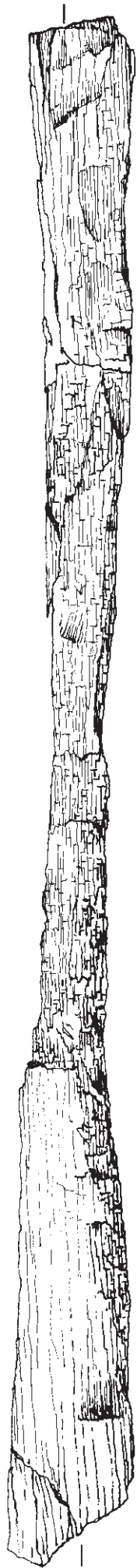
2. 320133 B and C Two partially burnt timbers from secondary fill of Barrow ditch (third piece (A) was not illustrated)

LTCP site (BAACP01)

3. 461030 Lower part of wooden pump tube
4. 461031 Baseplate
5. 461032 Baseplate
6. 461033 Baseplate
7. 461040 Baseplate

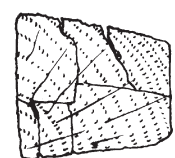


0 50 mm



2C

0 50 100 mm



end view



end view



2B

Figure 26.1: Selected pieces of worked wood (details in the catalogue)

2A not illustrated

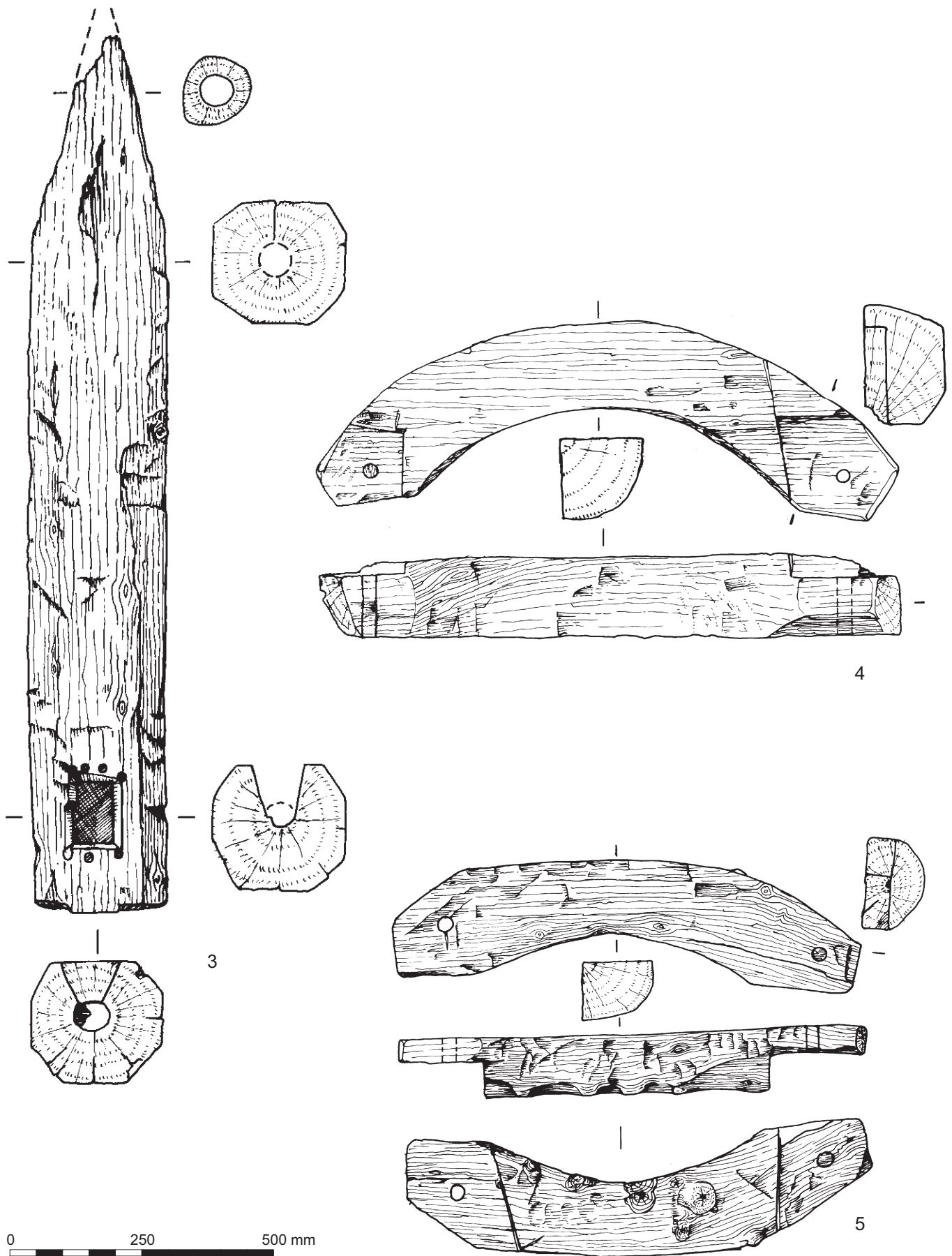
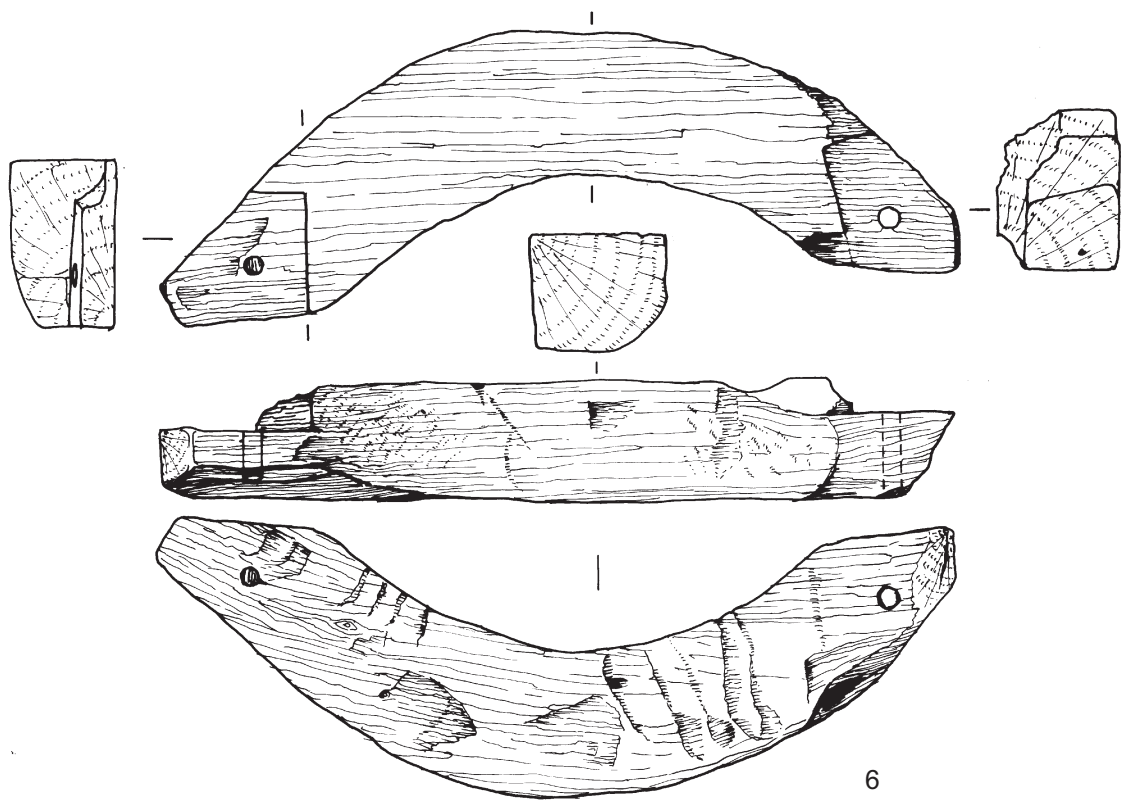
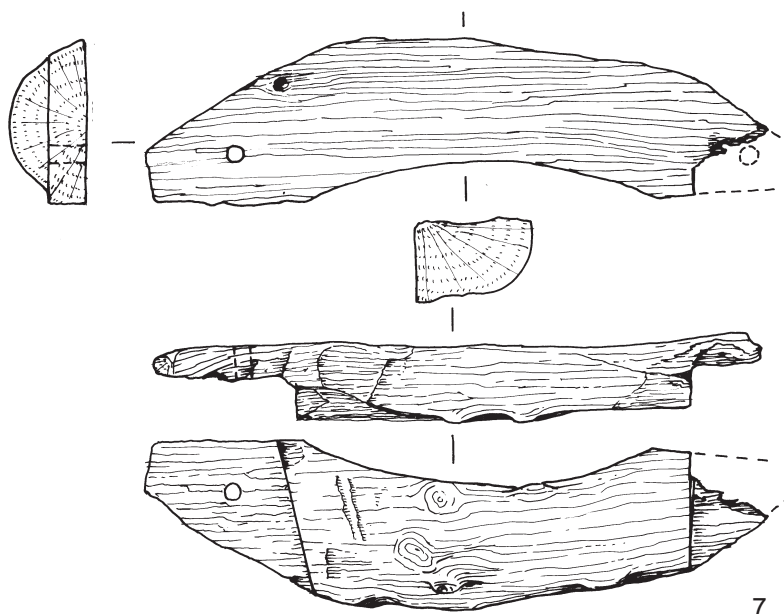


Figure 26.2: Selected pieces of worked wood (details in the catalogue)



6



7

0 250 500 mm

Figure 26.3: Selected pieces of worked wood (details in the catalogue)



*Framework
Archaeology*

BAA Stansted London 