

BARLAND'S FARM, MAGOR, GWENT: A ROMANO-CELTIC BOAT FIND

by Nigel Nayling and Sean McGrail

The last annual report contained an article on the ongoing work at the Europark development east of Llanwern steelworks (Lawler and Nayling 1993) and included a brief note on the finding of a late Roman timber and stone structure with an associated vessel. This paper reviews this piece of fieldwork and integrates results of ongoing post-excavation studies.

During construction works, a watching brief was maintained and in November 1993 a stone and timber structure was discovered after the removal of approximately 2m of overlying clays and silts. In the course of rapid recording and sampling, a curved timber nailed to horizontal planking was discovered and identified as part of a boat or ship. Funds were made available by Tesco Stores Ltd to uncover, record, dismantle and lift the boat remains in late November/December 1993.

The timber and stone structure consisted of a stone abutment of rough slabs of sandstone, running for c. 5.2 m along the east edge of a north-south oriented palaeochannel, revetted by two squared oak uprights with two partially-surviving horizontal oak timbers running between them, from which a triple alignment of clusters of oak piles ran to the west into the palaeochannel before being truncated by a later north-south reën (see Figure 29). Dumps of stone had been deposited around the piles, presumably to consolidate them against erosion by river action. The interdigitation of these stone dumps with palaeochannel sediments and the variable driving depths of the piles imply periodic repair although the structure may not have been particularly long lived. Artefactual material from within the organic matrix around the stone dumps included

pottery (black burnished and possibly local coarse wares consistent with a late third or fourth century date), animal bone and leather shoes. Two unstratified copper alloy coins were recovered: a follis of Diocletian (296-7AD) and an antoninianus of Carausius (287-293AD). All the piles were oak in the round derived from fast grown, relatively immature trees. Four of these have been dated by dendrochronology giving possible felling dates of 279? AD, 282? AD, 283? AD and a felling date range of 270-308 AD for one pile with incompletely surviving sapwood (Nayling unpublished). The structure is tentatively interpreted as a jetty/landing stage although due to its incomplete preservation, the possibility that it functioned as a bridge cannot be dismissed.

The boat lay on a north-south orientation, with its incomplete northern end resting on one of these spreads of dumped stone. This end of the vessel was overlain by a subsequent dump of stone, prior to the accumulation of fine silty clays which sealed both the boat and the structure. It lay with a list of c. 12% to port (assuming the southern end is the bow - see below) such that a maximum of five side planks survived on the port side and only three on the starboard side. The bow was highly fragmented, either due to recent disturbance, or damage from maintenance of the nearby reën. The stern was incomplete, strongly suggesting that the boat had been dumped in a derelict state, with certain elements having been stripped first. With the exception of a few stones, which could be the remnants of a cargo, the vessel was apparently empty at the time of its deposition.

At present, it seems most likely that the vessel was deliberately placed next

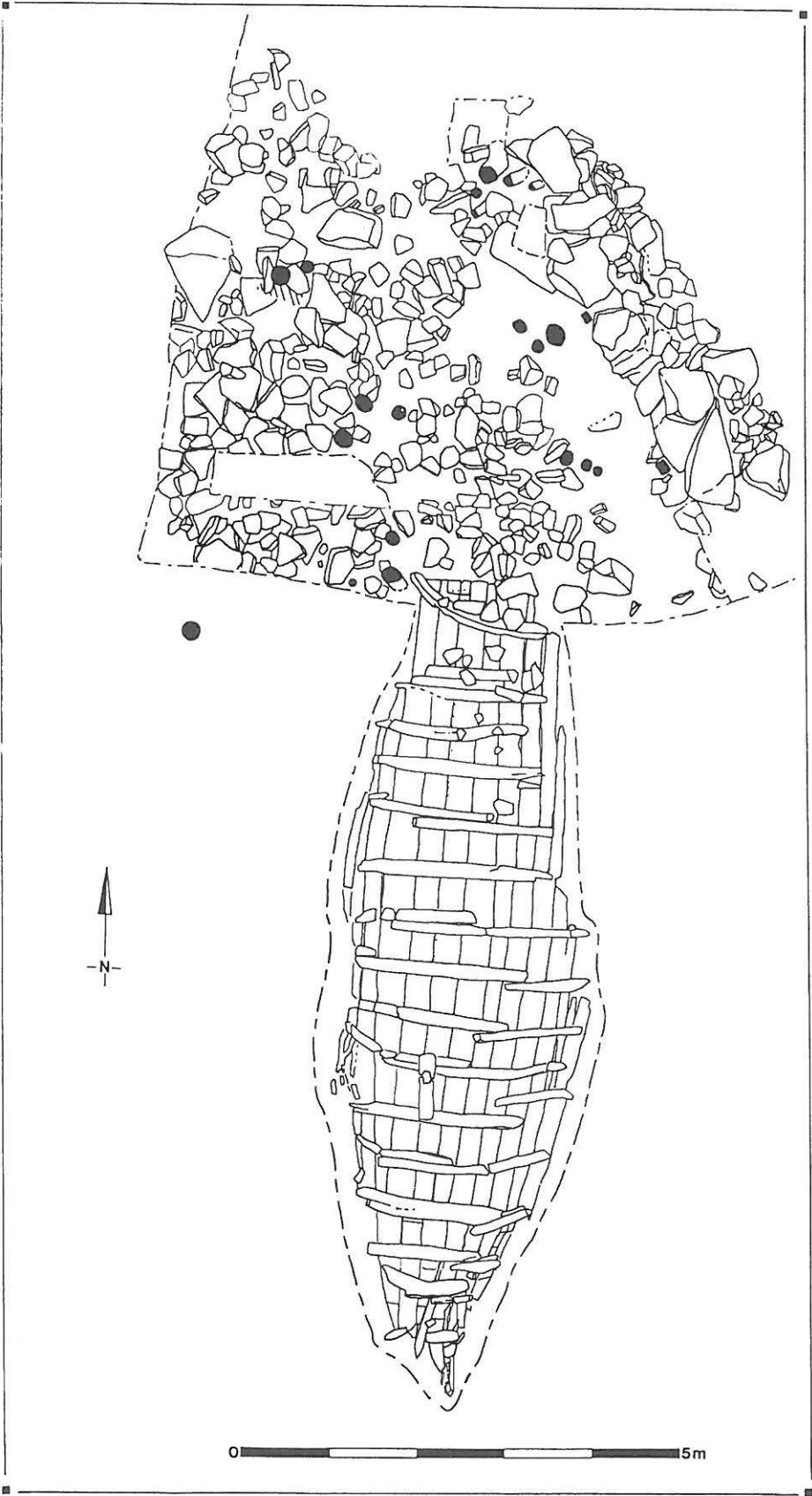


Figure 29 Barland's Farm, Magor: Timber and stone bridge and associated Romano-Celtic boat.

to the bridge/jetty, which continued to be maintained afterwards, to stabilise the river edge. This practice is well attested in the post-medieval period in rivers of the region (e.g. the Tredunnoc Boat: Parry and McGrail 1989), and may also be reflected in the find of a supposed Viking ship during construction of the timber float in the Alexandra Dock, Newport (Morgan 1882; Hutchinson 1984).

Field recording, including timber records, scale drawings and photography, was supplemented by photogrammetry by Atkins AMC Ltd. A variety of lifting techniques were employed, depending on the robustness of the various elements. The floor timbers were generally well-preserved, and were removed with little or no support. Fortunately, the iron nails attaching them to the planking were usually sufficiently corroded to permit removal of the floor timbers with little damage to the underlying planks. The majority of the latter were cut to manageable lengths and placed onto custom-made pallets for transportation. More fragmented planks, especially on the starboard side and in the area of the bow, were encased in fibre-glass and lifted in blocks. The boat is presently in stores held by the Newport Museum, where it was recorded in detail in the spring. It is hoped that the necessary finance can be raised by Newport Museum to conserve and display the vessel, either in a redesigned gallery in Newport Museum or in a new dedicated display.

Provisional description of the boat

by Sean McGrail

The remains of this boat consist of: a bottom of four planks; one side of five strakes and one of three; one end post; sixteen sets of framing timbers and one inter-frame side timber; and a mast-step timber (Figure 30). All timbers examined so far are of oak (*Quercus* spp.). The position of the mast-step

suggests that the surviving (southern) end of the boat was the bow, and this orientation is used in the following description.

It seems likely that this boat was originally double-ended, i.e., the stern was similar in form to the bow. The overall dimensions of the remains are c.9.7 x 2.6 x 0.7m. If the tip of the stern post was as far aft of its junction with the bottom planking as the tip of the bow post is now forward of its junction, the original overall length would have been c.11.4m. Or, if the mast-step was one-third of the overall length from the bow (McGrail 1987, 217-8), the original length would have been c.11.1 m. If the mast-step was 30% from the bow, the original length was c.12.3 m. It seems likely, therefore, that c.2 m of the stern and up to four sets of framing timbers are missing.

Near the assumed midships station, between framing timbers F.10 and F.11, the boat's bottom is c.1.30m. broad. From here the sides flare outwards, the port side at its surviving top edge extending to c.1.60m. from the middle line of the boat. This indicates that the maximum breadth of this boat was originally c.3.20m: preliminary measurement of framing timber F.10 suggests a similar dimension. As the vertical height of the surviving port side near amidships is c.0.80 m, the overall dimensions of this boat would have originally been c.11.40 x 3.20 x 0.80 m. This estimate may need to be amended, in due course, if it proves necessary to allow for the displacement of the stem post and any spreading out of the sides and if evidence survives for more than five side strakes. These are overall dimensions, not waterline dimensions (which are more significant when estimating performance). The waterline dimensions will emerge during post-excavation work when the full form of the original boat has been hypothetically reconstructed.

The four bottom planks (P1,P2 ,S1, S2) are c.7 m long and, towards bow and stern alternately, they taper in

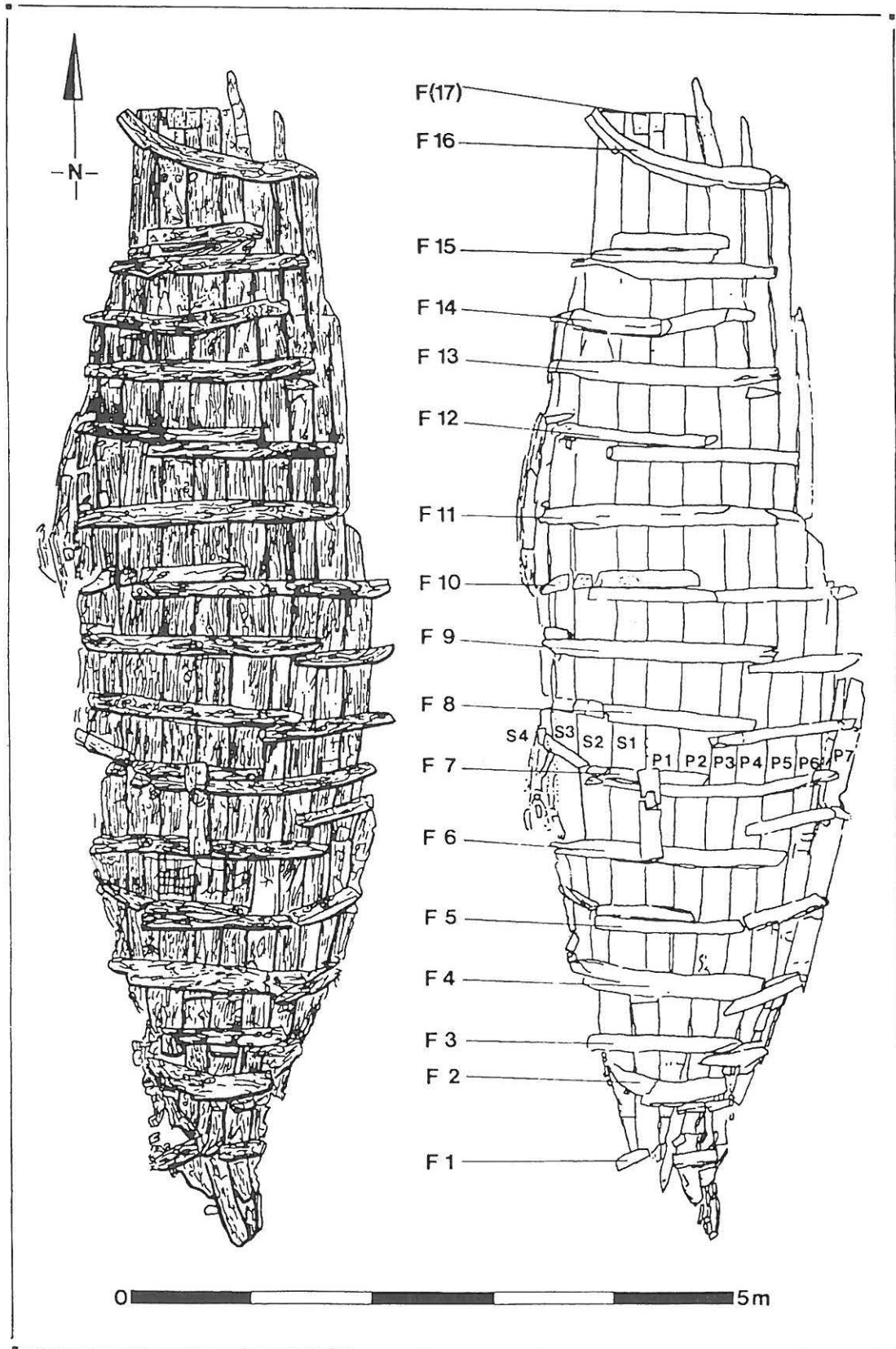


Figure 30 Barland's Farm, Magor: Plan of the vessel derived from photogrammetry and field drawings. Codes relate to the text.

breadth along their length, as did their parent trees. These four planks, which are now some 35 to 65 mm. thick, were tangentially sawn. At each end of the inner bottom planks (P1 and S1) are rabbets into which the stem and stern posts were fastened.

The port side has five strakes surviving, each made up of at least two planks. The longest planks, c.4 to 5.5 m. in length, are in the central part of the boat, with shorter lengths butt-jointed near the ends. These butt joints, all underneath framing timbers, are staggered in adjacent strakes; on the port quarter, there is a horizontal spacing of c.0.50 m between a butt in the lowest side strake (P3) and that in the second side strake (P4), and a c.1.15 m. spacing between butts in P4 and P5.

In the bows, beyond the junction of bottom planking and stem post, the bottom is extended by short stealer planks on each side of the post. At the stern, a fragment of the first side strake (P3) extends beyond the stern post/bottom junction, suggesting that at least some of the side strakes extended to the post without butt joints. The corresponding side planking in the bows is damaged and it is not yet clear whether butts were present. The stem post has rabbets to receive the forward ends of the strakes.

Over the stem post/bottom junction there is a single floor timber (F4) extending from the fifth strake (P7) on the port side, across the bottom planking, to at least the second strake to starboard (S4). On the port side, adjacent to this floor timber and forward of it is an overlapping side timber extending from the second side strake (P4) to the fifth (P7). Forward of this frame are three single floor timbers, two of which (F2 and F3) also have adjacent, overlapping side timbers to port.

In the main body of the boat, between the post/bottom junction at F4 and the junction at the presumed position of F(17), are twelve sets of

framing timbers. Four of these sets (F5, 7, 10, 12) consist of two adjacent asymmetric floor timbers running across the bottom planking and up to the fifth side strake (P7), the forward one of each pair going to port, the after one to starboard.

The other eight sets of framing timbers (F6,8,9,11,13,14,15,16) are single floor timbers extending from the second (P4) or third (P5) side strakes on the port side to, at least, the first side strake to starboard (S3). Three of these floor timbers (F8,9,13) have adjacent, overlapping side timbers forward of them on the port side, extending from the first (P3) or second (P4) side strake to the fifth (P7). One floor timber (F15) has two adjacent floor timbers aft of it, which extend from the first side strake to port (P3) across the bottom and probably to the equivalent strake to starboard. The remaining single floor timbers (F6,11,14,16) do not now have adjacent side timbers but future examination of the planking may reveal evidence for them. On the port side there is one inter-frame side timber between floor timbers F.6 and F.7, which extends from the second side strake (P4) to the fifth (P7).

The framing timbers vary in scantlings (size of cross section): an 'average' timber is approximately 90mm moulded (thickness at right angles to planking) and 125 mm sided (parallel to planking). The spacing of sets of frame timbers, centre to centre, varies from c.0.40 to 0.60 m. Limber holes, for the free flow of bilge water, have been cut in the under face of each floor timber, above both outer bottom planks. The floor timbers in the bows (F2,3,4, and possibly F1) have a section cut from their under face so that they fit over the stem post.

On the middle line, between framing timbers F6 and F7, is a longitudinal timber, some 0.75 m in length, with a mast step cut into it, c.120 x 80 x 60 mm. The position of this step, some one-third of the overall length from the bow, is suitable either for a towing mast,



Figure 31. Barland's Farm, Magor: The Romano-Celtic boat. View to south (Photo: Glamorgan-Gwent Archaeological Trust).



Figure 32. Barland's Farm, Magor: The Romano-Celtic boat under excavation. View to north (Photo: Glamorgan-Gwent Archaeological Trust).

or for a sailing mast with a fore-and-aft sail such as a lugsail (McGrail 1987, Table 12.5; 1990 B, 44-5). The steering arrangements of the boat remain to be investigated.

The planking is not fastened together, but each plank is individually fastened to the framework by iron nails driven from outboard through plank and frame. The nails are badly corroded where they emerge on the inboard surfaces of the framing timbers, but they appear to have been clenched by turning the point through either 90° or 180°. One of the two loose nail fragments excavated has a rounded cross section; the other one is rectangular. In the plank seams there is an organic caulking which has not yet been identified.

This boat has several of the features which characterise the Romano-Celtic tradition of boatbuilding (McGrail 1990b, 45), including: non-edge fastened planking; large iron nails fastening the planking to the framing

and clenched by turning; a mast step well forward; and no pronounced keel. Furthermore, the shape of this boat's hull has been obtained not just from the curve of the outer edges of the outer bottom planks, but more importantly, from the upward curve of the ends of the floor timbers: conceptually this is the skeleton sequence of building.

Boats of this Romano-Celtic tradition, dated to the 1st to 3rd centuries A.D., have been excavated from Swiss lakes, the Rhine mouth, Belgium, northern France, Guernsey and London (McGrail 1990a). The Barland's Farm boat extends this distribution to the Severn Estuary.

Individual Romano-Celtic boats differ in detail, sometimes quite significantly, but all have at least some of the core features (a polythetic group). Functionally and in form, these 15 or so boats can be divided into two groups: river boats, typified by the barges from Zwammerdam (de Weerde 1990); and the estuary and seagoing vessels -

Blackfriars 1, from the Thames in London (Marsden 1990) and St Peter Port, Guernsey (Rule 1990; Rule and Monaghan 1993). The Barland's Farm boat appears to have more in common with the latter sub-group: in general terms she may be thought of as a boat one-fifth the size of Blackfriars 1, with, perhaps, some affinity with the boat from New Guy's House, London (Marsden 1965).

Discussion

Our understanding of the Caldicot Levels, between the rivers Usk and Wye, during the Roman period is predominantly dependent on evidence at or beyond the Level edge or from the eroding foreshore. Previously recovered, deeply buried finds from the Levels themselves such as those from Uskmouth (Barnet 1961) and Magor Sewage Works (Boon 1967) probably came from silted palaeochannels so no firm data has been available on contemporary landscape or the degree of post-Roman alluviation. There is as yet no clear evidence for systematic drainage on the Rumney Great Wharf model (Fulford, Allen and Rippon, 1994) on the Caldicot Levels: whatever drainage took place is likely to have enhanced natural drainage features (but see Bell, p. 137). The intensity and nature of agricultural activity is unclear and the location of settlement and industrial sites largely unknown. It seems likely that sites could be closely associated with navigable channels enabling import of fuel and iron ores for smelting and trade in pottery products and less durable agricultural produce.

Post-excavation analysis of environmental samples from the Barland's Farm site, and further evaluation and excavation in advance of further development of the Europark site should help to clarify the broader context of the Barland's Farm boat and provide insights into contemporary vegetation, landscape and agricultural economy on the Caldicot Levels.

Acknowledgements

Thanks are due to Tesco Stores Ltd for funding the work and Alison Borthwick (Archaeological Adviser) for liaising with the developer. Every assistance was given by the on-site contractors, Wimpey Construction UK Ltd. The excavation team (Belinda Allen, David Andrews, Joyce Compton, Roger Linnard, Nigel Wilson, Peter Wright and Adam Yates) ensured the successful recovery of the boat in less than comfortable conditions under considerable pressure. Kate Hunter from Newport Museum assisted in lifting more fragile elements and Jim Spriggs of York Archaeological Trust gave advice on lifting techniques. The line drawings were prepared by Chris Seabright.

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