

The Brigg 'raft': a flat-bottomed boat

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The remains of a stitched prehistoric plank boat, colloquially known as the Brigg 'raft', were first encountered in 1888 near the R. Ancholme, one mile (1.6 km) to the NW of Brigg, S. Humberside (Thropp, 1887; Hunt, 1907/8). The boat was relocated and excavated by the National Maritime Museum in 1974, and the site was published as the sixth volume in the Museum's Archaeological Series (McGrail, 1981). In that report it was concluded that the so-called 'raft' was in fact a flat-bottomed boat, with a shape similar to that of a lidless box (Fig. 1), for which there are many ethnographic parallels (McGrail, 1985: figs 11.5–11.8), and also archaeological parallels, for example, the Romano-Celtic 'barges' from Zwammerdam, Netherlands (McGrail, 1987: fig 8.38). This interpretation of the boat's form was re-evaluated in 1984 in a paper given at a Greenwich conference on sewn plank boats, but no reason could be found to revise the hypothesis in any significant way. It was concluded that reconstruction as a flat-bottomed ferry best fitted not only the surviving evidence, but also the context of the find and its technological environment (McGrail, 1985, 190, fig. 11.16). This was a minimum solution to the reconstruction problem: other solutions were theoretically possible but would involve more conjecture.

Owain Roberts has recently re-assessed this boat and concluded that it was 'a lean, round-bilged, stable, buoyant craft having a versatile operational capacity which would include coastal passage-making and short sea crossings'. (Roberts, 1992: 245, fig. 19). In his view, the Brigg 'raft' was not flat-bottomed but round-hulled. Roberts' argument is based mainly on his belief that the bottom planks, when found, were 'close together in the middle

of the 'raft' and splayed at the left [i.e. north-west] end' (Roberts, 1992: 245, figs 1 & 5). As he rightly says, such an arrangement of the planking could best be interpreted as the springing apart of the end planking of a round-hulled boat as the stitching broke or rotted after deposition.

The basis for Roberts' theory, and the only drawing of the boat quoted by him, is fig. 2.1.19 in McGrail (1981), reproduced here as Fig. 2. This drawing is, as its original caption stated, a 'composite plan of the 'raft' prepared after post-excavation recording by joining together plans of individual cleat-units', cleat-units being sections of planking as lifted. At first sight, some of the bottom planking on this drawing may appear to be splayed out at the north-west end. However, the post-excavation recording of this boat was undertaken some considerable time after excavation and, sad to say, by that time fragments of timber had been lost (McGrail, 1981: 60), especially from the north-west end which had been left exposed for nearly five months in 1888 (McGrail, 1975: 7) and, as a consequence, was found to be the most degraded part of the vessel when re-excavated in 1974.

On site, the vessel was recorded in a number of ways: 1:10 plans with profiles (Fig. 3); stereo photogrammetric plans and profiles (Fig. 4); black and white (Fig. 5), and colour photography; and in detailed notes related to the cleat numbering system (McGrail, 1981: 29–46). In the post-excavation phase, individual cleat-units of planking were recorded by orthogonal photography of upper, lower and end faces, leading to conventional 1:10 plans with transverse and longitudinal sections (McGrail, 1981: 57–82, figs 2.1.4–2.1.14). It was these thirty measured drawings which were combined to

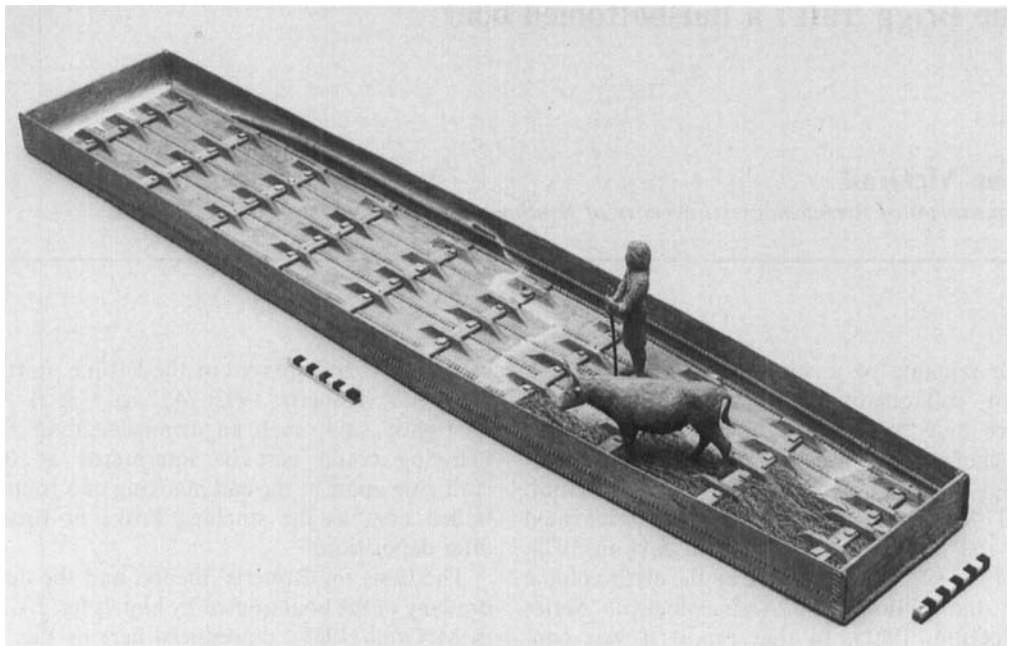


Figure 1. A 1:10 scale model of the preferred reconstruction of the Brigg 'raft' with side height 0.55 m, made by Kim Allen for the National Maritime Museum in 1984. (After McGrail, 1985). Scales in centimetres. (Photo: N.M.M., Greenwich.)

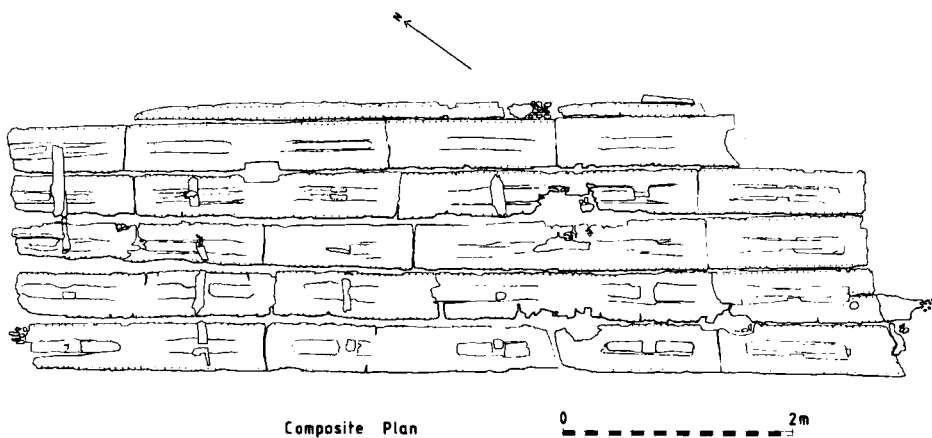


Figure 2. A composite plan of the north-west end of the 'raft' prepared after post-excavation recording by joining together plans of individual cleat units. (After McGrail, 1981). (Drawing: N.M.M. Greenwich.)

produce the composite plan used by Roberts (Fig. 2). This composite plan is incomplete, however, as can be seen by comparison with the site plan (Fig. 3), the two photogrammetric drawings (for example, Fig. 4), and on-site photographs (Fig. 5). Although much was miss-

ing from both edges of the north-west end of the central bottom plank (plank 3) when re-excavated, the seams between the first and second bottom planks (on the right of Fig. 5 and towards the bottom of Figs 3 and 4), and between the fourth and fifth bottom planks (left

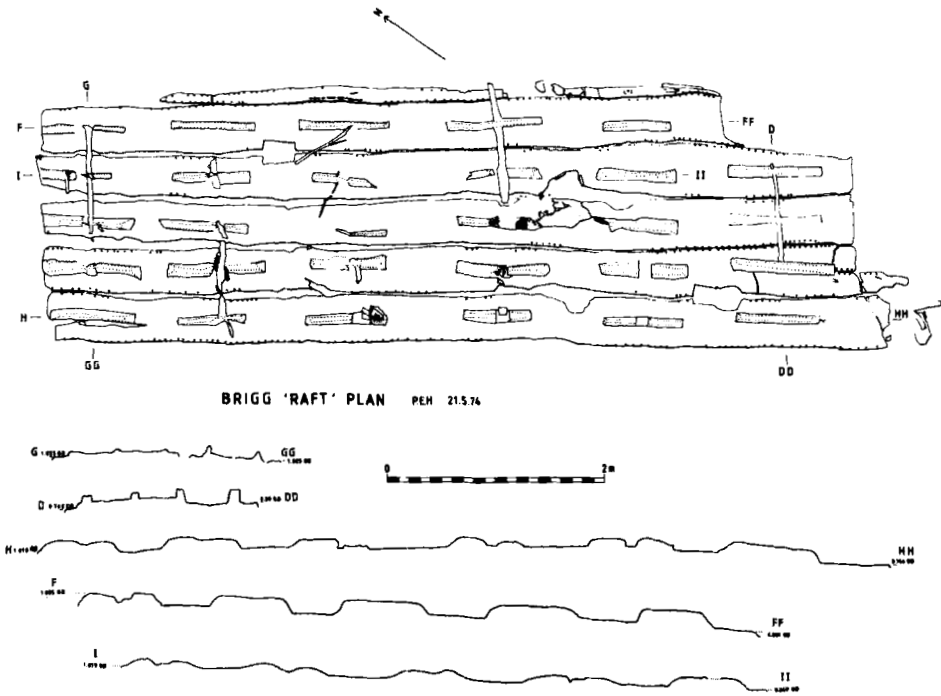


Figure 3. The on-site plan of the north-west end of the 'raft', with profiles. (After McGrail, 1981). (Drawing: N.M.M., Greenwich.)

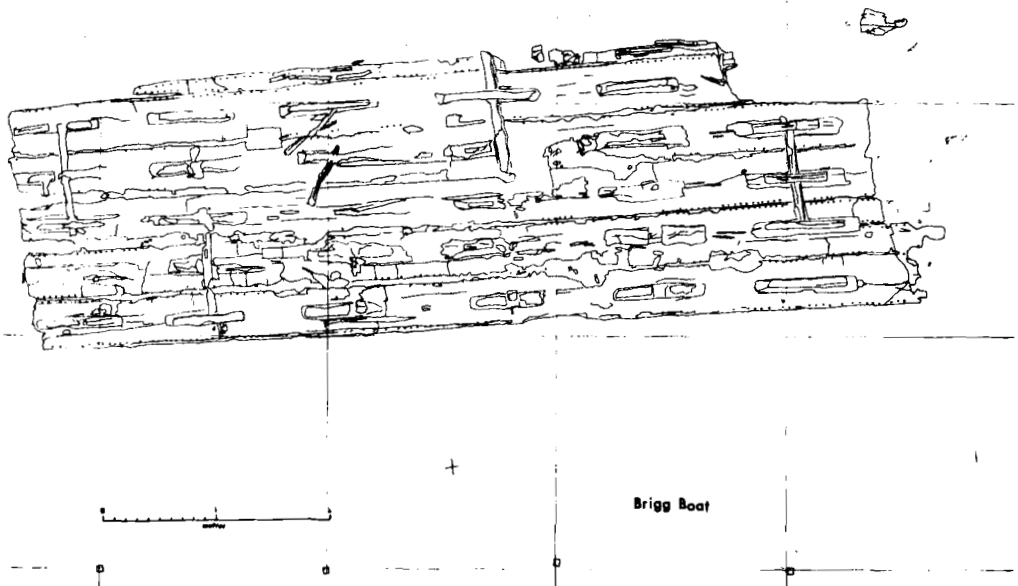


Figure 4. The Photogrammetric detail plot of the north-west end of the 'raft' from photography on 20.5.74. (After McGrail, 1981). (Drawing: N.M.M., Greenwich.)



Figure 5. The 'raft' during excavation in May, 1974, photographed from the north-west end. The first bottom plank is to the right, the fifth bottom plank and the lowest side strake, to the left. (Photo: N.M.M., Greenwich.)

on Fig. 5, near the top of Figs 3 and 4) were almost complete: they showed no splaying but had a relatively constant gap along their length.

South-east of cleat-row 3, the seams on either side of the central bottom plank were similar. The planking had shrunk across its breadth

between deposition and excavation by 11 or 12% and, if an allowance is made for this, opposing plank edges butt together along their surviving lengths (McGrail, 1981: 228; 1985: 178).

Dendrological examination and the ring and ray patterns recorded at every exposed cross section of each bottom plank and of the two detached fragments G4 and G5, show that the bottom of the vessel had been made from three trees at least 12.2 m in length, with girths of c. 2.07 m near their upper ends, 2.21–2.49 m at 5–6 m from the butt (lower) end, and 2.70–3.03 m at breast height, that is, c. 1.5 m from the butt (McGrail, 1981: 84, 224; 1987: 39–40). The logs from these parent trees were converted into planks by first splitting them longitudinally into two halves. Planks 1 and 5 (outer bottom planks) were fashioned from one log; planks 3 and 4 from another; and plank 2 from a third. The builder's aim seems to have been to obtain the greatest possible breadth of planking, since the natural taper of the parent logs was retained and some sapwood was left on the edges of every plank. Furthermore, although these planks generally had straight edges, occasionally there was a gentle waviness: where there was natural damage or when a minor wood-working mistake led to a slight reduction in plank breadth, the builder had fashioned the adjacent strake, to match the contiguous defect. These planks did not have curved edges: there were very minor and occasional 'waves' in otherwise straight edges. The Ferriby boats probably had similar wavy edges, and they may be seen on 20th-century stitched boats (McGrail, 1981: 225, fig. 4.1.10).

On the building site, the planks were positioned close alongside one another with their narrower ends (north-west end, as found) adjacent, thereby giving the boat an elongated trapezium shape in plan. This technique is widely used when building true rafts, as it results in an enhanced waterline shape with the narrower end being forward, leading to improved hydrodynamic characteristics. (McGrail, 1987: 45). During felling or conversion, all three Brigg logs were significantly damaged near their butt ends, with the damage extending furthest up the bole of parent tree 3/4 in the half that was to become plank 4. Thus the trapezium shape could not be maintained

right to the after end of the bottom. The resultant, modified trapezium shape may be seen in the small-scale model (Fig. 1), the outline reconstruction drawing, and also, to a degree, in Thropp's idealised 1888 drawing (McGrail, 1981: figs 4.1.23 & 1.1.4).

Discussion

It is not possible to interpret the Brigg 'raft', or indeed any boat-find, using only one element of the on-site and post-excavation record: all elements must be used for they are complementary to one another. For example, when the contrast between clay and wood is insufficient on black and white prints, colour photographs often resolve the matter. Moreover, whilst photogrammetry is generally more accurate than traditional planning, details on photogrammetric plots can sometimes be inaccurate due to difficulties in interpreting photographic images which are not always well-defined and clearly outlined; the archaeological planner, on the other hand, can himself clarify the details as he goes. On-site planning and photography, although essential, cannot replace post-excavation recording, not only because the under surfaces are seldom seen on site, but also because the detailed examination of fastenings and caulking, the direct measurement of bevel angles and the like, and the recording of 'shadows' of former fittings are only practicable in a laboratory or workshop. When reconstructing the Brigg 'raft' it was necessary to use *all* these sources of information, and also the 1888 measured drawing by the Lincolnshire County Surveyor, J. Thropp, and the photograph of the 'Viking pontoon bridge or raft' published by the Rev. A. Hunt in the early 20th century (Thropp, 1887; Hunt, 1907/8; McGrail, 1981: figs. 1.1.4 & 1.1.6).

The Brigg 'raft' did not have a round hull: she was flat-bottomed (McGrail, 1981: figs 4.1.11–4.1.14, 4.1.19, 4.1.21, 4.1.23). This bottom may, however, have been rockered, and the overall length of the boat, the height of sides, and the form of the ends are by no means certain (McGrail, 1985: 178, 184, 185). It is hoped that Owain Roberts' timely paper will lead to further informed debate on these points a seminar at Greenwich could prove useful, after conservation is completed and before the timbers are re-assembled for display.

Although this boat was not the international trader visualized by Owain Roberts, she undoubtedly played an important part in the everyday lives of the Late Bronze Age folk who lived c. 800 BC between the limestone Lincoln Edge to the west and the chalk Lincolnshire Wolds to the east. She was a poled or paddled ferry on the middle reaches of a tidal arm of the R. Humber, at a nodal point in the Ancholme valley. Her role may not have been spectacular—a commonplace river ferry—and she was not over-engineered for this function.

Nevertheless, this boat is not to be thought of as second rate; she undoubtedly matched the

demands made on her and made a significant contribution to the economic and social well-being of that region, being able to carry a safe load of between 40 sheep with 10 men, and 30 cattle with 20 men, depending on the height of sides (0.34 m or 0.55 m) and the freeboard requirements.

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