

Notes

1. Surveying was undertaken by Mr. Michael Hamilton of the University of Wales College of Cardiff on behalf of the National Museum of Wales.
2. Identification by Mr. Andrew Calver, School of History and Archaeology, University of Wales College of Cardiff.
3. I am grateful to Dr. Bryony Coles for her comments on the wood.
4. I am grateful to Ms Jennifer Hillam, Dendrochronology Laboratory, University of Sheffield, for generously undertaking the analysis.
5. I am grateful to Dr. Peter Northover, Department of Metallurgy and Science of Metals, University of Oxford, for analysis of the metals. The excavation was undertaken by the author with the assistance of Ms Elizabeth Walker and Mr. Evan Chapman of the Department of Archaeology and Numismatics. Dating remains provisional, dependent on the completion of conservation and further study.

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Second Severn Crossing - Welsh Approaches: Intertidal Zone

Introduction

The archaeological potential of the Second Severn Crossing and its Welsh approaches was identified in an assessment undertaken by the Glamorgan-Gwent Archaeological Trust in 1990 (Parkhouse 1991b). This called special attention to the intertidal zone where a range of wooden structures and artefacts had been identified despite the coverage of much of the area by semi-mobile modern sediment. This year's programme of fieldwork arose out of the assessment and the mitigating measures outlined in the Environmental Statement accompanying the Severn Bridges Bill put before Parliament in November 1990. The fieldwork was generously funded by the Welsh Office Highways Directorate to a brief drawn up by and ultimately undertaken by Cadw: Welsh Historic Monuments.

The wooden structures and archaeological features found within the intertidal zone are very fragile. They would be totally destroyed in the area of the bridge abutment and its associated coffer dam and threatened over a wider area by the passage of construction machinery and temporary or permanent changes in the hydrology of the estuary. The aims of the fieldwork were to survey in detail all the land to be acquired as part of the crossing scheme. In practice this comprised an area 300 m on either side of the centre line, covering just under 50 ha of the mudflats. The survey would locate and map all the wooden structures and relate them to the stratigraphy, map the major sedimentary units, pick up all artefacts which pre-dated 1700 and undertake selective excavation and sampling of the most important

wooden structures. The fieldwork extended over a three-month period, August-November 1991, and was carried out by a team of four people supported by a number of specialists. At this stage it is possible to set out the preliminary results of the project and consider the effectiveness of the methods used.

Sedimentary and Palaeoenvironmental Background

The survey area did not present a series of uniform deposits which could be easily related to the main sedimentary sequence established by Professor Allen for the Severn Estuary. The main feature was a band of Keuper Marl running southwest from the end of Sudbrook Point across the mudflats. This was only visible at the surface in two places but it did underlie the extensive spreads of gravel which lay on the mid shore. The most obvious feature was a crescent-shaped shingle bank, the Bar, standing up to 1.5 m high above its surroundings. The gravels must be derived from elsewhere in the estuary, though close to Sudbrook Point and elsewhere, they were found standing upright in what were interpreted in the field as former ice wedges.

Behind the Bar were deep, soft silts and clays suggesting intermittent brackish conditions. The outfall of the River Troggy or Nedern may have moved about in this area over time, now coming out at Caldicot Pill on the western edge of the survey area and formerly, perhaps in Romano-British times in a channel at the eastern end. The seaward side of the Bar showed a succession of estuarine silts, which might be related to Allen's Wentlooge formation. The sedimentary sequence will be analysed following an auger survey by the Geoarchaeological Service Facility of the Institute of Archaeology led by Tony Barham.

Four areas of peat were located exposed on the shore, three on the fringes of the Bar and one associated with an area of submerged forest, whose stumps and fallen trunks just extended into the western edge of the survey area. These exposures will allow some dates to be put on the sedimentary sequence and reconstruct through pollen analysis the local environment at the time. This work is being undertaken by Dr. Rob Scaife.

Survey and Fieldwalking

In an attempt to locate all the wooden structures and any artefacts within the survey area, parts were systematically fieldwalked. In all seventy-three 25 m squares were looked at in detail. This largely consisted of the area covered by gravel and its silt covered margins. Despite several storms during the autumn, the semi-mobile modern sediment was never swept clean from the areas of silt and clay. Whilst isolated posts were found in these areas, a complete picture was not recovered.

Relatively few artefacts pre-dating 1700 were collected. A few sherds of Medieval/early Post-Medieval pottery were matched by similar numbers of Romano-British sherds. There is a collection of blackened animal bone to put alongside the partly articulated auroch skeleton found previously. A large number of struck chert and basalt cobbles and flakes were collected from the gravels. Careful study will be needed to separate natural and man-

made items but one particularly fine plano-convex blade and possibly two further handaxes were recovered. In all the volume of artefacts was insufficient to suggest that there had been settlement at any period within the survey area, though it did indicate evidence for human activity potentially back as far as the Lower Palaeolithic.

Structures and Excavations

The sites investigated can be divided into three major categories: post settings, woven or hurdling structures, and alignments of horizontal timbers.

Post Settings

Nine post settings were considered in some detail. These ranged in numbers from 3 to up to 250 individual stakes. The majority of these stakes were roundwood, varying in diameter from 0.02 - 0.12 m. In plan, whilst they followed broad alignments extending for over 30 m in some cases, it was not possible to separate out contemporary groups. This suggested that there were particularly favoured locations where traps were reset or repaired over a long period. Amongst the roundwood was a proportion of split oak posts. The posts were well preserved below ground level, retaining evidence for their toolmarks. They were driven into either the gravel or silt substrates, often to considerable depths, one retrieved being 0.75 m long. From these concentrations between 10-20% were samples or excavated whole. This collection will form the basis of the study of species identification, dendrochronology and wood-working technology.

Woven and Hurdling Structures

Six structures of this type were identified, of which five were investigated by excavation. Two lengths of hurdle fishweir were found collapsed within the silt. Both would have stood about 1.2 m high and their uprights were intact. There were two putts, large conical baskets, still used in the estuary in banks as fish traps. These putts were pegged down separately close to the former outfall of the River Troggy, and were associated with one of the pieces of hurdle and a smaller wicker basket. The latter object was lifted off site for cleaning and recording. It is of an unusual form not presently identified.

Horizontal Timber Alignments

Three structures fell under this heading. The first was a trackway, found and recorded by Derek Upton and Bob Trett, dating to the tenth century AD. This had almost completely been destroyed. A second possible trackway consisted of 70 roundwood timbers spaced intermittently over about 75 m held down in place by roundwood pegs. The final structure in this group appeared to be a group of logs or fallen trees derived from the submerged forest which extended into the survey area.

Conclusion

Even at this very preliminary stage in the analysis, it is possible to make some comment on the first intensive survey of a substantial area of the Severn Estuary's intertidal flats. It seems clear that local variations in the geological and sedimentological sequence are important in the siting of the archaeological structures. In the case of this project, all the structures seem to relate to traditional forms of fishing, probably dating from the historic period, some perhaps relatively modern in date. The movement of fish on the flood and ebb tides was no doubt influenced by the Bar and the traps were sited to gain best advantage. The large numbers of posts within the emplacements suggest that the best locations may have been re-used over a long period of time, and so making it very difficult to isolate the original spacings or plans of particular phases. Subsequent analysis of the wood-working techniques and species concerned may help here and absolute dates are expected to be obtained by dendrochronology and radiocarbon dating.

It was hard to decide what was a proper balance between survey and excavation. Working with a field team of four made excavation difficult, as some sites were about 1 km from the nearest vehicle access. Even cleaning and recording some of the woven structures took over four tides with much of the time spent just cleaning back to where the previous day's work had finished. However using a small team over a long period meant that expertise developed and the survey area was seen under different conditions ensuring a more thorough survey. Ideally it would seem best if a future study of this kind is considered to combine the two approaches with a survey team available over a long period, strengthened by a field team of about eight people to undertake any selective excavation.

The final report on this project is due in the late summer. It will be important in showing what can be achieved from an intensive survey of what was, in archaeological terms, an arbitrarily chosen block of the intertidal zone. Its results can then be set against those from the non-intensive studies, such as the 'Archaeological Potential of the Severn Estuary' (Green and Whittle 1988), and the more specific projects at Goldcliff (see above) and Chapel Tump (Whittle 1989).

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Second Severn Crossing, English Approaches

Stage 2 Archaeological Assessment

A programme of detailed assessment was undertaken on the English side of the Second Severn Crossing by the Glamorgan-Gwent Archaeological Trust for the Department of Transport. This followed upon earlier stages of assessment carried out by Avon County Council (Russett