

SECOND SEVERN CROSSING 1991 WELSH INTERTIDAL ZONE

by Steve Godbold and Rick Turner

Introduction

This paper summarises a programme of rescue fieldwork undertaken by CADW, Welsh Historic Monuments during the autumn of 1991 in the Severn Estuary in advance of the bridgeworks of the Second Severn Crossing. Some preliminary observations were included in the 1991 Annual Report prepared when fieldwork had only just been completed (Godbold and Turner 1992). The present paper draws on some of the results of post-excavation analysis.

The investigations were conducted in the intertidal zone at the east end of the Caldicot Levels between Caldicot Pill in the west and Sudbrook Point in the east extending southwards to mean low water (Figure 24).

This programme was the result of the Environmental Statement covering the Severn Bridges Bill put before parliament in November 1990 and a subsequent assessment carried out by the Glamorgan-Gwent Archaeological Trust in 1990 (Parkhouse 1991b) and was funded by the Welsh Office Highways Directorate.

The archaeological potential of the intertidal zone to be affected by the bridgeworks had already been established by earlier workers and the assessment had recorded several sites and features of archaeological interest supporting the earlier observations of D. Upton and R. Trett.

The fieldwork was carried out over a three month period from August to November 1991 by a team of four. The objectives were to survey an area 300 m either side of the centre line of the main corridor route of the bridgeworks, to locate all timber structures within this area, map the major sedimentary features, collect all

artefacts pre-dating AD 1700 and excavate and sample selected structures. The work was supported by the Geoarchaeological Service Facility of the Institute of Archaeology who conducted an auger survey to establish the sedimentary sequence, and Dr. Rob Scaife who sampled peat exposures in the area for pollen analysis which will allow a reconstruction of the local environment and dating of the sedimentary sequence. Their final results are not available at the time of writing.

Topography

Within the survey area the dominant feature is the Bar, a gravel bank which stands about 1.5 m above its surroundings, part of a band of gravels which lie across the east of the area on a north-east - south-west alignment. Further to the north-east and immediately below Sudbrook Point lie the former river terrace gravels, which were largely masked by modern sediment during the survey.

To the south-west of Sudbrook Point is a wide area of soft sediments interpreted as the outfall of the River Nedern/Troggy before its course was diverted to flow out of Caldicot Pill by the late eighteenth/early nineteenth century. An area of soft silts and clays lies between the coast and the Bar suggesting intermittent brackish conditions. The river outfall may have meandered across this area at different times.

To seaward of the Bar there are a succession of estuarine clays which may possibly be related to the Wentlooge Formation. The Keuper Marl bedrock which underlies the area outcrops in two places, a broad band

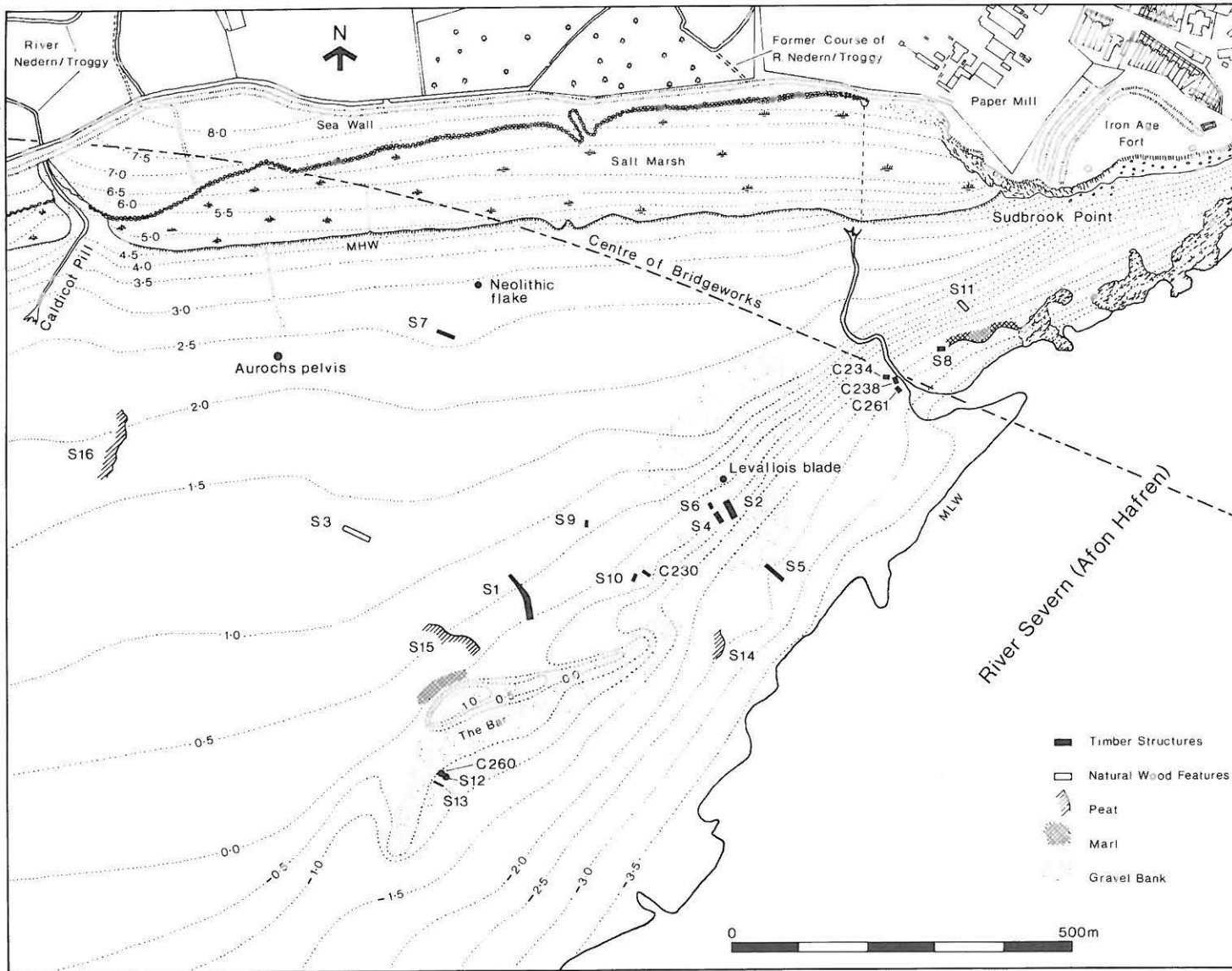


Figure 24. Second Severn Crossing, 1991. Welsh Intertidal Zone, location of sites and contexts.

immediately north-west of the Bar and a fairly extensive area near mean low water, slightly south-west of Sudbrook Point. Peat exposures occur at three localities, Sites 14, 15 and 16 (Figure 24). One about 70 m east of the Bar at an elevation of -2.5 m O.D., another 40 m north of the Bar at about +0.5 m O.D. and the third about 250 m south of Caldicot Pill associated with the remains of a submerged forest which extends westward beyond the survey area.

Fieldwalking

Site work commenced with a controlled programme of fieldwalking on the gravels within the route of the bridgeworks with the aim of locating all timbers and artefacts. Altogether 73, 25 m squares were walked plus a further 18 only partly examined because of overlying modern sediments.

As a result three concentrations of vertical posts were defined (Sites 2, 4 and 6), and a quantity of worked stone was collected including a Levallois flake-blade, a handaxe and a small collection of late prehistoric flintwork. Other finds included a few sherds of Romano-British, medieval and post-medieval pottery and some animal bone, which had probably been washed out of the earlier course of the River Troggy.

Further to the west, the right innominate bone of the pelvis of an aurochs (*Bos primigenius*) was recovered from where it lay embedded in estuarine clay just below the upper foreshore 350 m south-east of Caldicot Pill. A Mesolithic/Neolithic date was indicated by comparison with similar examples at the Natural History Museum, London (J. Clutton-Brock pers. comm.).

Excavation

Some 21 features of archaeological and geological significance were investigated but limitations of space

allow only a brief summary of the principal features.

VERTICAL POST ALIGNMENTS

These were the most numerous of the types of sites investigated and mostly lay on and around the gravels of the Bar. They varied from simple three stake alignments to groups of 250 timbers.

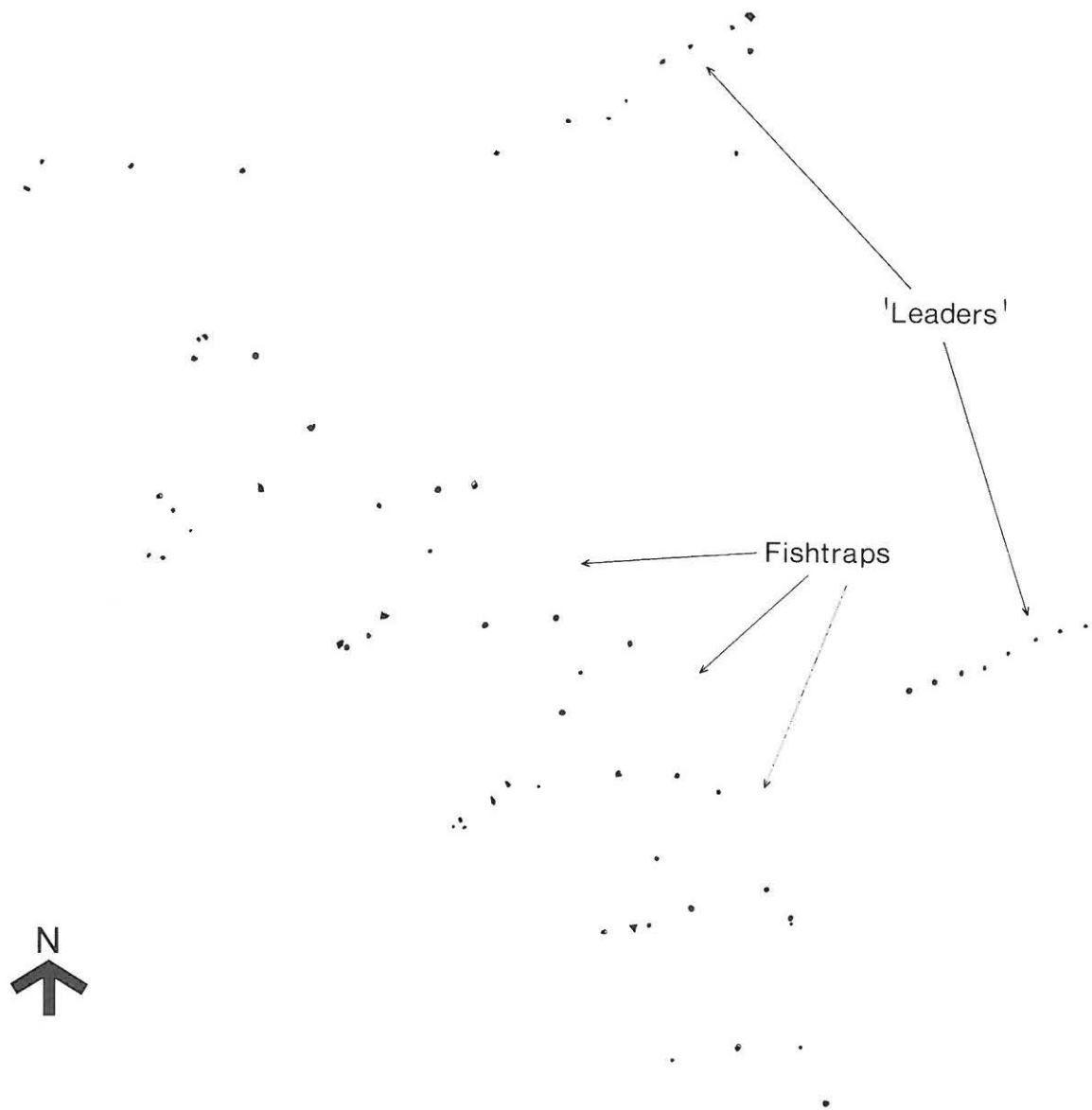
Sites 2, 4 and 6

These three areas lay within 40 m of each other on the south-east facing slope of the gravels at an elevation of between -0.5 m and -1.5 m O.D. (Figure 24).

Site 2 (620±50 BP (BETA-54823)) was the larger of these areas, 25 by 10 m, and comprised 240 posts and stakes. The timbers formed a series of overlapping vaguely V-shaped alignments and more than one phase seemed to be represented here.

Sites 4 (620±60 BP (BETA-54825)) (Figure 25) and 6 (640±60 BP (BETA-54824)) were of a similar character. However the alignments here formed a series of clear V-shaped structures 1.5 - 3.0 m long and 1.5 - 2.0 m wide at the mouth. The structures on these sites were all orientated south-west - north-east with their mouths facing upstream and their shape suggests they were the surviving framework of fishweirs which held basketwork fishtraps similar to 'putts' (Figures 30 and 31), a traditional type of trap used on the River Severn for many years and described as 'ancient fisheries' in an Act of Parliament of AD 1778 (Note 1). To the north-east of site 4 there were two linear alignments of 8 or 9 posts each, which seem likely to be the remains of brushwood or hurdle fences known as 'leaders' used to funnel the fish towards the traps.

Between 24% and 48% of the timbers were sampled on these sites including many which were lifted complete. These had all been pointed



Second Severn Crossing 1991:
Welsh Intertidal Zone



Figure 25. Second Severn Crossing 1991: Site 4, Medieval Fishweir showing three V-shaped fish traps and the remains of others to the north and south. 'Leader' fences can be seen to the north-east (see text).

mostly with pencil points or wedge variants, and varied from 0.10 - 0.94 m in length. They were mostly roundwood of between 0.02 m and 0.15 m in diameter, but there was also a large percentage of split wood which ranged up to 0.12 m in width. Although generally oak was the most common species, the majority of split timbers were beech, especially on site 2 where out of 30 split examples 15 were beech and 10 were oak, perhaps indicating that beech was being used as an alternative to oak for splitting at a time when oak was becoming scarce and more expensive. Many samples still retained toolmarks suggesting the use of thin flat metal blades, either broad axes or billhooks.

Site 5

Tree Ring Felling Date AD 1203 or 1204

This was a slightly curving linear alignment of over 40 posts forming a discontinuous double row 0.70 - 1.50 m wide and 30 m long on a north-west - south-east orientation. It lay at the foot of the gravels only 70 m distant from mean low water and straddled the -2.5 m O.D. contour. The alignment described a wide crescent facing north-east with several of the timbers grouped in pairs. These could have held small fishbaskets or hurdle fences and it seems certain this was a fishweir positioned to catch fish swimming in front of the gravel bank on the ebb tide.

The date was obtained from a sample of split oak and was the result of matching with chronologies from London and Germany, the match with London being so good as to suggest it may have come from that area (J. Hillam pers. comm.). Site 5 would seem to be an earlier structure than sites 2, 4 and 6 and interestingly, whereas beech was a common species amongst split timbers on these sites, it was totally absent from site 5.

Sites 12 and 13

Several groups of vertical posts lay scattered along the seaward side of the Bar. These were at the southern limit of the survey and outside the main corridor route of the bridgeworks. However the largest of these, site 12, was briefly examined. This was a dense cluster of 230-250 mostly roundwood timbers contained within a sub-oval area 11 by 12 m at an elevation of -0.9 m O.D. A pointed roundwood sample of hazel gave a radiocarbon date of 960 ± 70 BP (BETA-54831). Located just inside its northern edge was a small 0.39 m long fishbasket, context 260, and 10 m to the south-west was a 6 m long linear alignment of about 70 timbers, site 13. The early medieval date indicated here would seem to justify further investigation before its destruction by erosion.

INTERWOVEN FEATURES AND OBJECTS

Five features of this nature were excavated. Four of these were found lying in the area of the former outfall of the River Nedern/Troggy between -2.0 and -2.5 m O.D.

Context 234

590 ± 70 BP (BETA-54830)

This was a finely interwoven sub-rectangular shaped fishbasket 0.82 m long, 0.44 m wide and 0.18 m in height (Figure 26). It was composed of 20 longitudinal rods, 9/10 mm thick around which were woven thin withies of 5 mm diameter. At the east end the sides tapered slightly to meet a 16 mm thick timber board which seemed to be the base of the feature. The opening was probably to the west but this had been partly eroded away. The basket appeared to have been secured to its



Figure 26. The small fish basket, context 234, under excavation. Note ash stake holding it in place.

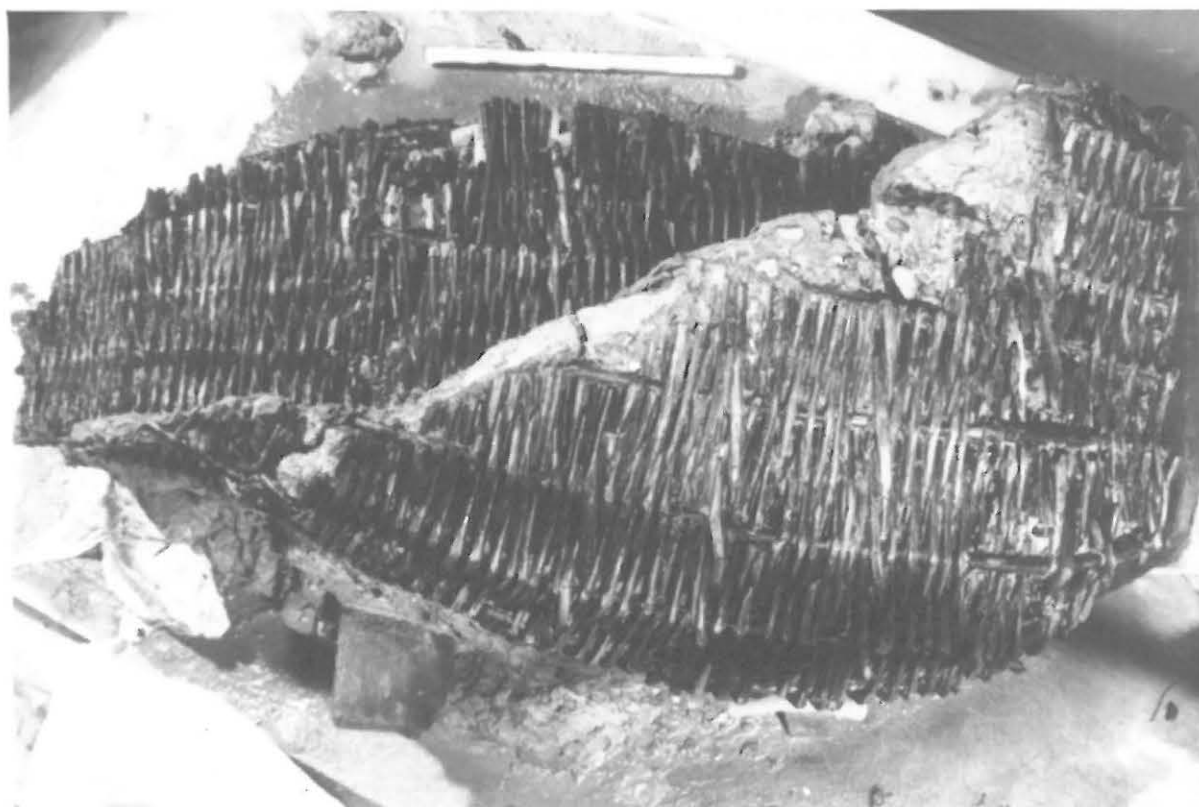


Figure 27. The fish basket, context 234, after initial cleaning and conservation.

location by a 0.68 m long ash stake.

This object was probably meant to be portable and there is a tradition on the lower Severn of the portable fishtraps known as 'putcheons' or 'wheels' or a shoulder basket called a 'welch' or a 'witcher' (Jenkins 1974, pp.279-283). However, context 234 with its wooden base appears to be an unusual form.

This basket and associated timbers were removed complete from the estuary (Figure 27), albeit with some difficulty, and await conservation at the National Museum of Wales.

Context 238

960±60 BP (BETA-54832)

This was a large fishtrap located 15 m south-east of context 234 (Figure 28). It was 2.2 m long, 1.5 m wide at the mouth (facing north) and tapered to 0.65 m wide at the south (Figure 29). It was constructed of longitudinal roundwood rods 15-18 mm in diameter interwoven with roundwoods of 7-15 mm thickness. Samples taken showed these to be hazel. It was oval in section but this had been distorted and in its original form was probably conical in shape in the form of a 'putt'.

Context 261

1090±80 BP (BETA-56188)

This feature lay only 10 m to the south of context 238 and may be contemporary. It was an interwoven hurdle structure in the form of a panel 1.9 by 1.5 m composed of 7 roundwood sails of 25-30 mm diameter and rods of 10-20 mm thickness. Samples showed it was made of hazel. One of the sails had been pointed on one end and it seems likely this feature once stood vertically as part of a fishweir. Alternatively, it may have been part of a trackway to service fishtraps in this area.

Site 8

280±60 BP (BETA-54833)

This was a large V-shaped fishtrap lying below the terrace gravels at Sudbrook Point. It was aligned east-west, the mouth facing upstream and was 3.2 m long and 2.4 m wide but appeared damaged at the mouth, beyond which lay large fragments of interwoven timber hurdling. A trench excavated across the mouth showed the structure was formed of longitudinal roundwood rods 40/50 mm diameter around which were woven thinner lengths of roundwood which curved downwards from one side of the structure to the other in the shape of a broad U which was about 0.90 m in depth. It was supported on either side by large horizontal timbers of oak and elm. The interwoven timbers were identified as hazel. It had been built in a depression or a natural channel in the marl bedrock and placed to trap fish on the ebb tide.

Context 230

1120±90 BP (BETA-54828)

This was a hurdle structure found partly embedded in blue grey clay behind the Bar gravels. It was a panel 3.5 m long by 1.2 m wide made of 12 sails 25-55 mm thick with interwoven roundwood rods of 16 mm average diameter and was constructed mainly of hazel although field maple and holly were also present. Some timbers had weathered cut ends and one sail had been pencil pointed on one end and still retained tool marks.

This feature was only about 16 m west of the hurdle structure recorded by D. Upton and R. Trett in 1986 (PRN 4408 G) (Trett 1987) and may possibly be part of the same. The calibrated radiocarbon dates of the two structures overlap. Although possibly a trackway, no vertical stakes were found and the pointed sail may indicate that this



Figure 28. The large fishtrap or putt, context 238, under excavation.

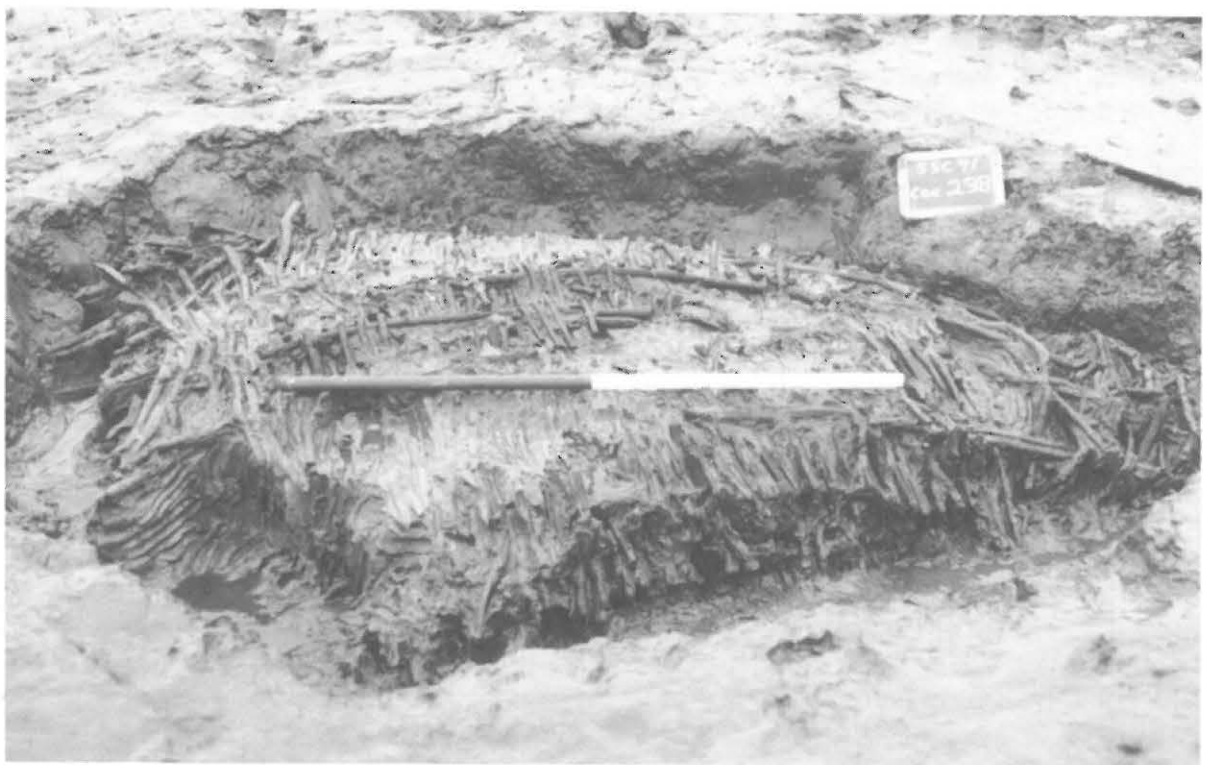


Figure 29. The large fishtrap after cleaning on site

structure stood vertically as part of a fishweir.

HORIZONTAL TIMBER ALIGNMENTS

Site 1

150±50 BP (BETA-54826)

In the centre of the survey area about 80 m north of the Bar were the remains of a trackway. This consisted of about 70 roundwood and split timbers, average length 0.80-1.00 m, widely dispersed over an area 75 m long by 3-10 m wide on a north-west - south-east alignment. The occasional roundwood stake was also present.

These timbers were embedded in the surface of soft blue grey clay and were possibly the survivors of a more extensive area of timbers laid to give access to fishing areas south of the Bar.

Site 3

5760±70 BP (BETA-54827)

An area of 18 fallen trees and branches was examined near the western limit of the area. These were embedded in the surface of blue grey clay and were an easterly outlier of a more extensive area of submerged forest which extended westward beyond the boundary of the survey. Here some of the tree boles were observed to have rooted through a thin layer of peat (site 16). Samples proved to be oak and the radiocarbon date, when calibrated gives a date within the late Mesolithic period.

Site 11

6040±70 BP (BETA-54829)

This feature was a 6 m long twisting alignment of alder roots in the terrace gravels below Sudbrook Point. The gravels, which are reddish-brown in colour, were in an upright stance around this feature, a characteristic

indicative of frost heaving and it seems possible that the roots colonised a cavity caused by this phenomenon and may represent carr woodland at a time of relatively low sea level.

Conclusion

This first systematic survey of a selected area of the intertidal zone of the Severn Estuary may be seen to have successfully contributed to our knowledge of medieval river and estuary fishing practice in the lower Severn Valley and perhaps to the wider sphere of research into the importance of fishing to the economy in the Middle Ages. Also the collection of prehistoric worked flint including Levallois material identified previously in Wales only at Pontnewydd Cave dated *c.* 225 ka (Green 1984) indicates human activity in the valley back to the Lower Palaeolithic period.

All the archaeological structures excavated were associated with fishing, and radiocarbon and tree ring dating has shown the developing tradition of the use of interwoven basketwork fishtraps on the lower Severn from early medieval times until the post-medieval period.

The concentration of features on and around the Bar gravels and in the former outfall of the River Troggy suggest these areas were favoured for the repeated siting of fishtraps in the medieval period, probably influenced by the movement of fish and eels around the Bar itself, especially on the ebb tide, and their passage in and out of the Troggy.

Documentary evidence supports the early existence of fishweirs on the lower River Severn. A survey of the Manor of Tidenham (11 kms to the north-east of the bridgeworks) in A.D. 956 lists a total of 64 *cytweras* (basket weirs) considered to be of the 'putt' type, in use at three locations just north of the present road bridge (Neuville Taylor 1974, p.13; C.J. Bond 1988, pp.79, 85-86); and a 10th century A.D. charter in



Figure 30. Putt weir at Goldcliff, 12th May 1938 (Note 2). Side view showing putts secured between lines of timber posts, and the three sections (L-R) 'kipe', 'butt' and 'forewheel'. Length 3.2 m.



Figure 31. Putt weir at Goldcliff, 12th May 1938 (Note 2). Front view showing putt entrances. Diameter 1.3 m. Facing the ebb tide.

Liber Landavensis mentions the grant of fishweirs at the mouth of the Troggy (Davies 1979, Charter 235b, p.123).

Putts are no longer fished on the River Severn. In Wales, their use was discontinued at the Goldcliff fishery in the late 1940s (Adrian Williams, pers. comm.) (Note 3). They continued to be fished on the east bank of the river until the eighties and were probably last used at Haywards Rock fishery at Berkeley where records show six putts were in operation in 1983. In their developed form putts were made in three sections, *kipe (kype)*, *butt and forewheel* (Figures 30 and 31). They were 1.3-1.8 m wide at the mouth and 3.2-4.2 m in length and placed to face the ebb tide.

Basket fishtraps are still used on the river today. These are called 'putchers' (C. Green, pp. 69) and are designed solely to catch salmon. However most fisheries now use metal baskets but the tradition of interwoven fishtraps is maintained at Awre and Berkeley where putchers are still used woven from hazel and willow. In Wales putchers are used only at Goldcliff but these are made from aluminium.

Acknowledgements

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Martin Grahn, Bryan Matthews and Richard Roberts made up the field team in often unpleasant conditions. Derek Upton assisted with the fieldwalking, Glynn Barrett the surveying and Tony Wilkinson provided much useful advice. Thanks also to the many specialists for their contributions to the post-

excavation analysis.

Notes

- (1) Act of Parliament *18 George III, c.33*.
- (2) Photographs from Gwent Record Office Misc. MSS 1152.1-8. Figure 30 MSS 1152.1. Figure 31 MSS 11520.4.
- (3) Mr. Adrian Williams is the current owner of the Goldcliff Fishery, Gwent.

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