

# Excavations on the Site of a Roman Quay at Caerleon & Its Significance

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CAERLEON, fortress of the Second Augustan Legion, enjoyed advantages of communication and supply by sea which applied also to the other permanent legionary fortresses at Chester and York. It is 14 km. upstream of the mouth of the Usk, and the tidal limit is 11 km. beyond, 8 km. below Usk town, where a Neronian fortress had stood in a far less favourable spot. *Isca* occupied a tongue of river-terrace about 15 m. above Ordnance Datum; the land falls north-eastwards to the Afon Lwyd, a tributary, and the Usk itself erodes an Old Red Sandstone cliff south-east of the fortress, sweeping thence south and west to wash a cliff at St. Julian's, on the Newport side, and to enclose a tract of alluvium on the south-west (fig. 1). It was here, in parcel 400 of the Ordnance Survey (Mon. xxix. 9), that the excavations of April to July, 1963, took place.<sup>1</sup> This is one of the level pastures which skirt a gentle declivity from the amphitheatre and the parade-ground, between which ran an extension of the *via principalis*, visible in parcel 384 as a mound continuing, under the name of the Broadway, down to the inner edge of the alluvium.<sup>2</sup>

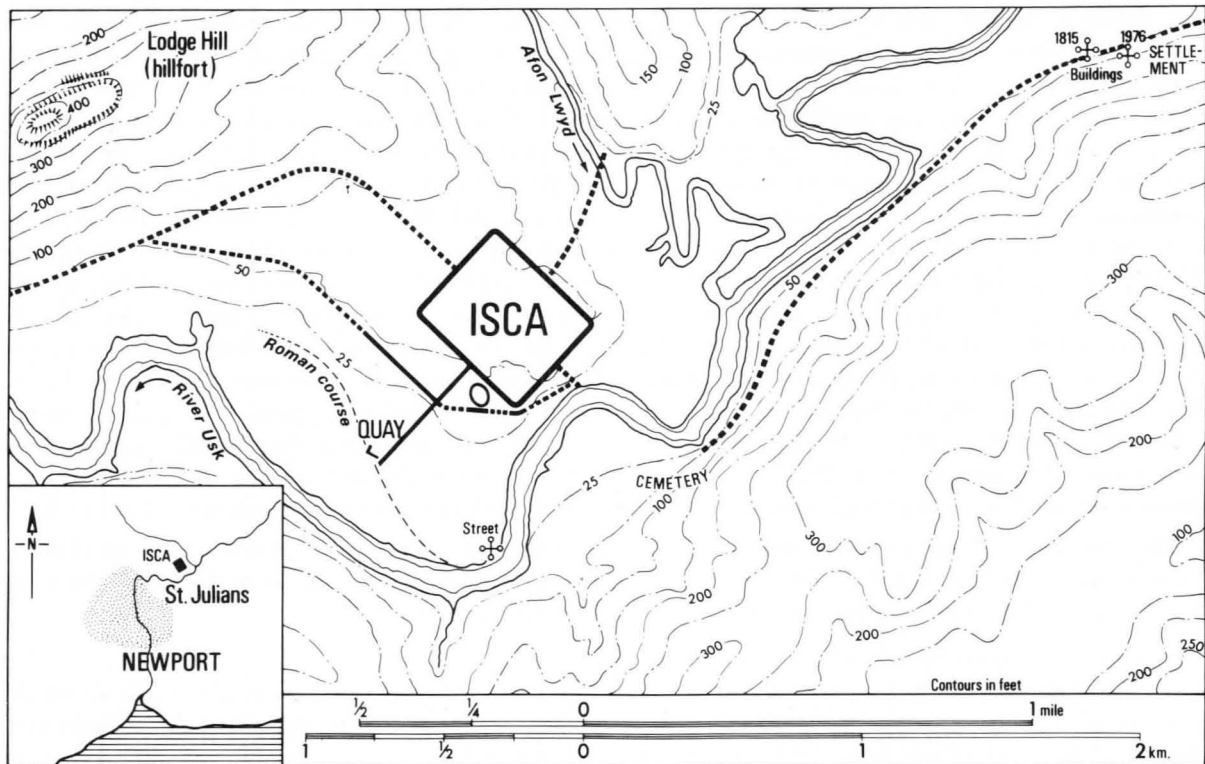


Fig. 1

## *The Quayside in General*

The excavations offered the prospect of settling four matters, namely (1) the position of the right bank of the Usk hereabouts, in Roman times; (2) the nature of Roman installations upon it, to which the Broadway appeared to lead; (3) the dating of recent stages in the Flandrian transgression; and (4) the locating of the brick, tile and pottery kilns which wasters found in and about the fortress proved could lie at no great distance and which, to judge by the existence here of kilns in the eighteenth century, could suitably have been situated at this spot.<sup>3</sup> On the first three counts, the work was highly successful, and in the case of the third provided a basis for valuable inference as to the character of the Gwent Levels in early historic times, as well as in the Roman period.<sup>4</sup> On the fourth count, there was nothing to report; the kilns may possibly lie to the south-east.

Seismic and resistivity-survey along the line of the Broadway in parcels 398-9, immediately south-east of 400, showed that it continued, and that towards its termination the street was accompanied on either hand by stonework of some kind; all structural indications abruptly ceased 30 m. south-west of the ditch dividing the two parcels, and thus the edge of the river was established at a spot some 225 m. within its present line. In parcel 400, mechanical trenching around three sides, carried down well into the underlying blue-grey alluvium, revealed a general Roman layer about 20 cm. thick, lying 60 to 130 cm. below grass. Owing to the threatened collapse of these trenches, measurements rather than drawn sections were alone possible; and from these it appeared that the greater part of the field had anciently been a creek or inlet from the river to the west (fig. 2). The greatest depth recorded was 244 cm. behind a timber breakwater, beyond which the slope no doubt continued. Along the south-east side of the field, the layer merged into a zone of burnt timber buildings, Trajanic at the latest, set among cambered paths which presumably branched off the Broadway. An upper Roman level was also seen here, formed mainly of cobbles laid upon 20 cm. or so of alluvium sealing the remains just mentioned. Antonine at earliest, this upper level ran 50 to 60 cm. below grass, and expanded behind a massive quay-wall running about 15° south of east, and thus at an angle to the Broadway, close to which it must have turned.

The quay-wall was of two periods, Severan and later third-century. In the second period, when the quay was extended, the metalling of the hard-standings behind included shattered slate from the Prescelly Hills of Dyfed, a material otherwise unknown at *Isca*, and an interesting index, therefore, of a connexion with south-west Wales (p. 11). Structures to the rear of the quay-wall included what may have been a boat-house; but our work was less extensive than a consideration of its results has rendered desirable. In front of the quay-wall, there was a timber stage (pl. I). Viewed against the historical background, the quay merges into the many alterations of third-century Caerleon. To mention only the epigraphic evidence, this programme began with the restoration of the headquarters c. 198-209, and ended with the rebuilding of barracks for the seventh cohort c. 253-5 and with the reconstruction of the temple of Diana towards the year 260: a single brick-stamp may carry maintenance work on to 270.<sup>5</sup> The greatest activity, however, fell between 213 and 222, as the ubiquity of bricks and tiles with the *Antoniniana* stamp, and the rarity of those marked *S(everiana)[?]*, imply.<sup>6</sup> It was at this time that the extra-mural area received attention, and the by-pass road<sup>7</sup> was remade. The Broadway probably also received its penultimate metalling at a similar date, in connexion with the primary quay: its final metalling might then correspond with the extension of the quay, as indeed a coin of Postumus, embedded in the uppermost metalling of the street, suggests. After the departure of the Legion c. 290,<sup>8</sup> the riverside area was no longer frequented; not an object of a necessarily later Roman date was found there, and fourth-century relics from the extramural sites are few.

This introduction may be closed with reference to the unusual nature of the installations described in outline above. Little is known of Roman ports in this country: fortunately, that little has been admirably summarised by John Fryer,<sup>9</sup> who thus relieves us of the need to do likewise.

#### *The Riverside in Early Roman Times*

The *Plan of Caerleon* (1967) and the plan in *Isca* (1972) indicate the supposed course of the Usk within the great bend south-west of the fortress. North-west of the quay, the line is demonstrable;<sup>10</sup> south-east, however, it has been proved false; for in the present riverbank, at the deepest part of the bend closest to the cliff at St. Julian's, field-work brought to light a stoutly-made street, typically Roman in its bedding and gravel cover, and at the same depth as the quay. A piece of brick, firmly lodged in the metalling, was tested by thermo-luminescence and pronounced 'very probably Roman'.<sup>11</sup> Tumbled stone in the bed of the Usk near by may mark another quay, completely eroded. The bend of the river in Roman times was therefore more hairpin-like than today (fig. 1), although, upstream of St. Julian's, the course of the river must then have lain nearer the southerly edge of the flood-plain. The little cliff at Caerleon, near the Hanbury Arms, need not have formed the bank, for it is known from a bore-hole<sup>12</sup> that the alluvium adjacent to the south-east side of Caerleon Bridge is of post-Roman formation. It is no wonder that nothing is known of the Roman predecessor of that bridge: any surviving remains must lie well back, within the bend opposite the fortress.<sup>13</sup>

Several sections were cut across the Broadway in parcel 384.<sup>14</sup> The *agger*, about 12·8 m. wide, rose to an initial thickness of 60 cm., gravel upon a solid bed of broken stone; for over 90 m. from the lower boundary of the field, the street had been laid directly on the alluvium, at 6.30 m. O.D., but at 43 m. from the hedge it had been carried on a pink clay raft over a wet hollow filled with organic remains. A

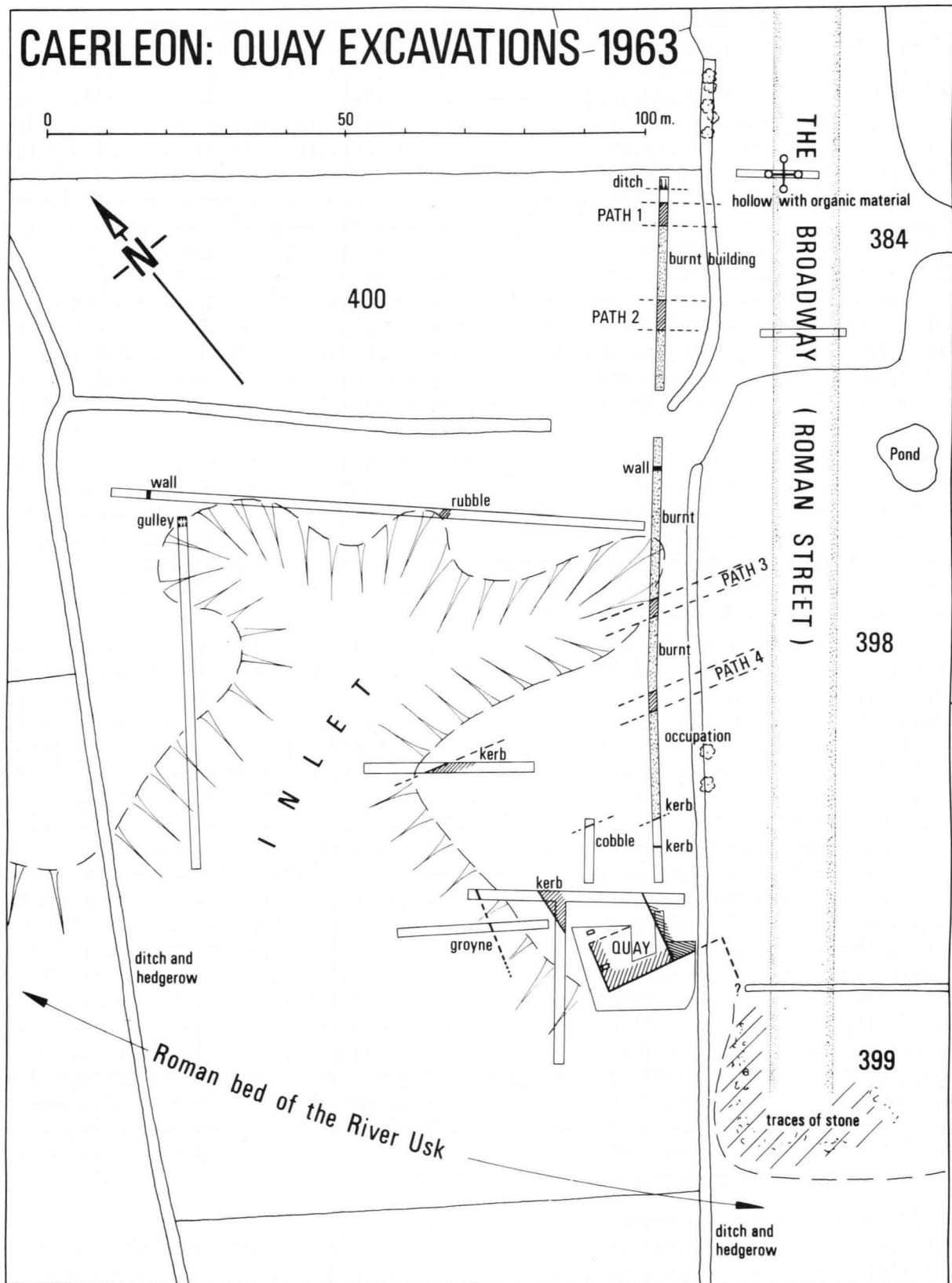


Fig. 2

sample consisted of 'the fibrous remains of plant-tissues, stems, leaves etc., such as might result from cutting herbage . . . three species of mosses common in oak-woods throughout Wales at the present day; ash-cut chips of oak; a fragment of birch-charcoal; birch-bark; hazel-nuts; and several species of weeds characteristic of the flora which invades disturbed ground from which the more stable vegetation has been cleared'.<sup>15</sup> These findings help to substantiate the claim, first made by Lady Fox, that loam-filled, irregular holes in the subsoil were 'most probably made when tree-stumps were drawn and the ground levelled at the initial clearing of the site' of the Myrtle Cottage barracks.<sup>16</sup> The chips in particular bring us vividly into touch with the labour of clearing the legionary site in the early autumn of A.D. 74, when the Second Augustan Legion first took possession.<sup>17</sup> That the authorities should have chosen a spot 500 m. from the south-west gate of the fortress as their landing-place for supplies (which included grain from the Mediterranean upon at least one occasion)<sup>18</sup> is easily explained, for outside the gate stood a belt of timber buildings serving the purposes of a construction-camp and storehouses.<sup>19</sup> Much of the material in the hollow was sedge, which no doubt grew in masses around the margins of the adjoining inlet, and elsewhere beside the river; and the dark 'general Roman layer' mentioned above represents the humified ground-surface, firm enough to carry the timber and wattle-and-daub sheds built beside the Broadway. Fig. 10, 5-6, shows an oak head from an ash-rake, and representative pieces of sheep- or goat-skin tent-panelling, from this hollow.<sup>20</sup>

It is a curious fact that although the Broadway attained an eventual thickness of some 240 cm. in parcel 384, there is no superficial sign of the road in parcels 398-9 beyond, although the depth of alluvium upon the Roman surface is by no means as great as that figure; but just as one's arm is thicker than the hand and fingers, so would this last stretch have required less frequent and heavy remakings in an area doubtless surfaced for traffic in all directions, than where all traffic was confined to a narrow band of metalling. Large-scale work in 398-9, and further south-east, would probably reveal the whole layout of the wharves and storehouses, upon which our excavations merely impinged.

Of the timber buildings revealed in trenching along the south-east side of parcel 400, I do not propose to say much: indeed, little can be said. The paths between them were laid, it seems, in conformity with the edges of the inlet, so that our trench cut two pretty well at right-angles, and another two much more obliquely, running at an angle similar to that of the quay-wall of later date (figs. 2, 3). The four paths were between 2.1 and 3.9 m. wide, and 20 to 30 cm. thick, and were of gravel, gravel and clay, or gravel and sand. Between the first and second (reckoning from the north-east end of the trench) and the third and fourth, there was the same interval of 11.5 m., close to a dimension of 40 Roman feet (11.84 m). The buildings were chiefly marked by seams of burnt clay and ash, in one case mixed with lumps of burnt daub which still retained, on the inner face, the impression of the wattlework to which it had been applied. Traces of floors were feeble—thin clay or gravel. In two cases, shallow emplacements for the sills of walls, 38 cm. wide and 10 cm. deep, were observed. Between the second and third paths, the burnt material included a large amount of iron-slag, as if there had here been a smithy, which may perhaps have been the cause of a conflagration. South-west of the fourth path, and thus closest to the ancient riverbank, unburnt clay marked a building which had escaped the fire. The trenches along the north-east and north-west sides of the field showed no evidence of buildings, except at one spot in the north corner: clearly the occupation of the area was largely confined to the single set of buildings bordering upon the Broadway itself. What can be shown on plan appears in fig. 2. In general, the quantity of pottery recovered was small, and not at all suggestive of continuous habitation: the buildings were doubtless mostly workshops and storehouses. The best pieces of decorated *sigillata* (fig. 11, 1-13) include two Trajanic fragments (12-13), which provide a *terminus post quem* for the fire; and this, therefore, is a different and somewhat later fire than that which had raged through the *cannabae* and had consumed the timber staging of the amphitheatre towards the year 100: only Flavian material is associated with those burnt layers.<sup>21</sup>

#### *The Riverside in Later Roman Times*

Antonine *sigillata* (fig. 11, 14) provides a *terminus post quem* for the upper layer of cobbles and gravel, contiguous with the surface behind the quay-wall, which had been laid over the silt of renewed floodings (p. 2). Of the paths, only the fourth had been remade to the new level, and on the south-west it was accompanied by rubble and pitching suggestive of a stone-based building. The complete submergence of the third path in clean alluvium was a striking feature of the trench-face (fig. 3). To the north-east, a stout stone foundation 75 cm. wide was recorded at the upper level, and a cobble floor lay adjacent. The other

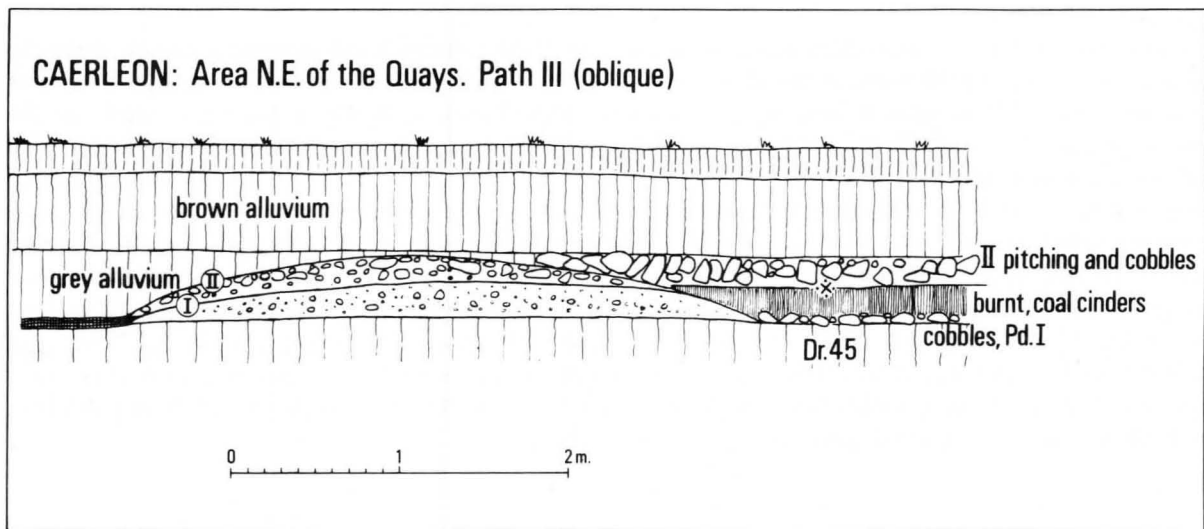


Fig. 3

trenches were, as before, almost blank, at most exhibiting occasional signs of the upper Roman level. Towards the north corner of the field, there were again traces of a building, in the form of scattered rubble, a gully, and a little third-century pottery.

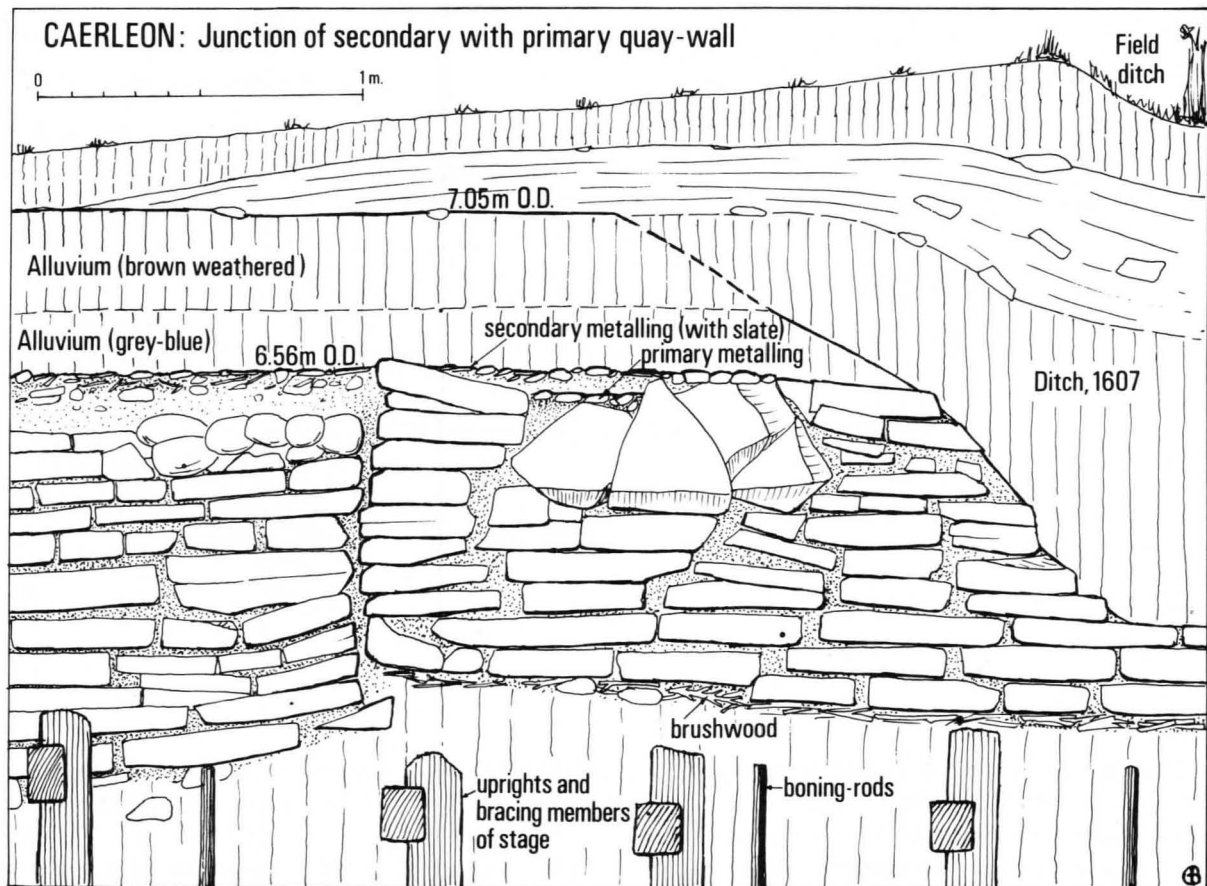


Fig. 4

### The Quay—Primary

Towards the year 220, it was decided to cut back the edge of the riverbank and to build a wall or revetment against which ships could berth at full tide. To this effect, a step 2 m. or more wide was dug; a layer of brushwood was thrown down as bedding, and a line of hazel boning-rods (fig. 4) was set to mark out the line of the face. The wall, 95 cm. thick, was constructed of rough pieces of Old Red Sandstone, bound with red clay (replaced mostly by alluvium). The base of the wall was at 5·65 m. O.D., and its top survived in part to 6·56 m. O.D., a level equal to that of the Prescelly slate metalling of the secondary quay, which extended across the primary quay as well: the light primary metalling had sunk into the clayey filling behind the wall as that had become consolidated with time. The wall ended some 7 m. from the south-east hedge of parcel 400, and was neatly squared off (pl. IIIA); its line was carried back for at least 18 m. by a row of heavy kerb-stones (figs. 5, 8). Parallel and at no great interval were two other such rows. The space between the first and second was very heavily cobbled (fig. 6, pl. IVB), as if to provide a firm edge to the hard-standings which presumably stretched back to the line of the Broadway in parcel 398-9, or possibly to form the foundation of a loading-ramp or some other walling.

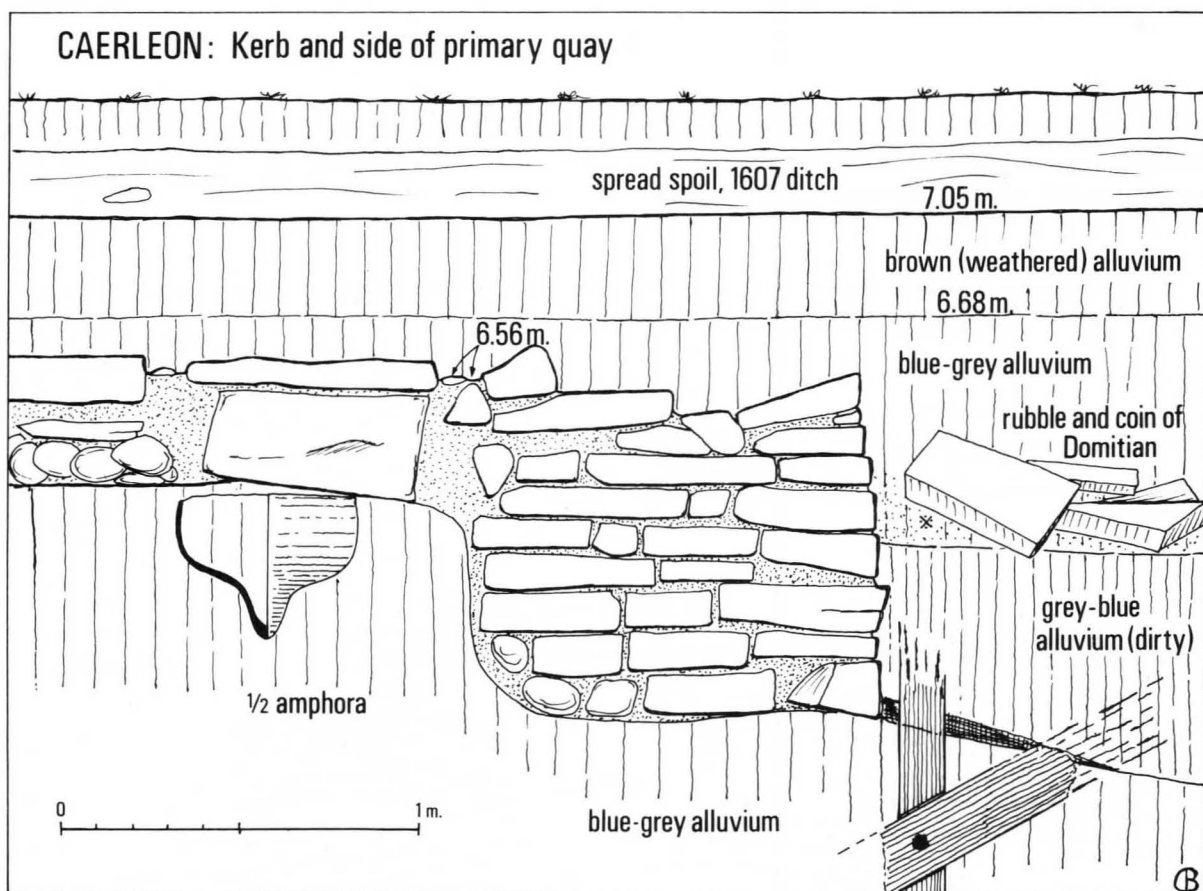


Fig. 5

The date of the primary quay is indicated by a very slightly worn *denarius* of A.D. 205 (p. 12), from beneath the metalling behind it. *Sigillata* is of course at this period of very little value, but fragments of a Nene Valley 'hunt-cup' (fig. 12, 2), mortaria, and black-burnished ware (fig. 13, 1-7) fall within the first third or so of the third century: the flanged bowls lack the beaded rim typical of specimens from beneath the metalling of the secondary quay, of a type well-known at Caerleon from about the third quarter of the century (fig. 14).

*The Quay—Secondary*

The 8 m. extension had a much thicker and slightly higher wall (160 cm., 107 cm.), tightly butted against the original. This time, no boning-rods were used, and the face is slightly bowed (fig. 8). The right-angled return, rising on the slope of the mud, was coursed; from the first, there were oak posts of about 15 by 18 cm. set at intervals of 80 to 120 cm. (fig. 8, pl. IIB), against which the stonework was laid: these posts may earlier have been uprights of a breakwater similar to that described below. The posts terminated in a much larger one, 28 cm. square, set lozengewise in a stone-packed pit (pl. IIB), perhaps a mooring-post of the earlier period. A splayed wall-foundation of smashed stone, with a few pieces of superstructure remaining, ran up to this post; but the full length was only 2.45 m. At a distance of 7 m. to the north-east, and parallel, lay another similar foundation, supporting a block of clay-bound stonework which remained to a height of 30 cm.; and a third feature, between these two foundations but only 1 m. from the second, was a well-built box-drain or culvert, of which 10.5 m., nearly the full length, were exposed (figs. 6, 8, pl. IVA). At the south-east end, the drain expanded into a sink doubtless once covered by a grating. Some of the capstones were missing, and must have been removed in Roman times, for the alluvial profile above was quite undisturbed; about half the superstructure on the second foundation had also gone. Elsewhere, the capstones, though much cracked, were protected by a solid layer of metalling, extending well to either side.

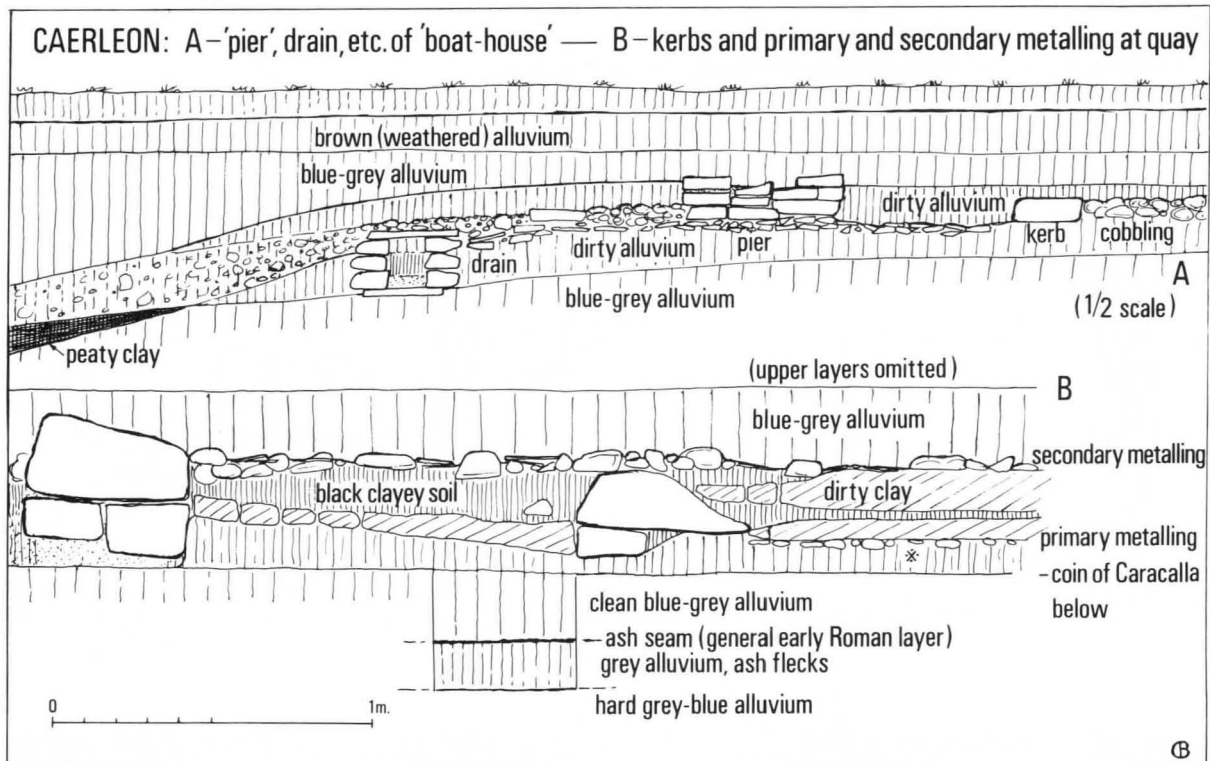


Fig. 6

The two foundations and the drain are perplexing: but if we take their parallel alignment as a guide, we have to do with a space some 5.6 m. wide within, and about 10.5 m. long; for the fact that the drain was underground, and metalling over, must suggest that the whole area was brought into use. It seems possible that we here have the remains of a boat-house with open sides raised on piers, perhaps three along either side, and an open end upon the mud-flat to the north-west, so that a boat could be drawn in at high tide:<sup>22</sup> the off-centre siting of the drain would have ensured that its mouth did not foul the keel. That some long and heavy weight rested within the space seems shown by the fracturing of the capstones, which were about 5 cm. thick; but if the remains are to be so explained, it must be added that no roofing-material was found. The Prescelly slate was not used, for not so much as a piece displayed a nail-hole, or even a trimmed edge. The roof of the 'boat-house' may have been of shingles or, more probably in its situation, of sedge.<sup>23</sup>

The dating of the secondary quay depends basically on three coins (p. 12): a much worn *sestertius* of Domitian, such as still circulated in the third century, in rubble fallen from the wall itself; and two *denarii* of A.D. 195 (much worn) and 210 (slightly worn), both from dirty clayey soil beneath the metalling. There was also fairly abundant stratified pottery, including black-burnished ware bowls with the beaded rim (fig. 13, 15, 17-18, 20). It seems at first sight curious that the numismatic evidence should run no later than Caracalla, since a structure of the later third century, indicated as such by the pottery, might have been expected to yield 'radiates' of c. 270; but the almost total absence of metallic objects from the excavations reminds us of the sorry effect which salt-water would have had upon base, thin coins of that kind.<sup>24</sup>

#### *The Timber Stage and Breakwater*

A series of oak posts, at intervals of 70 to 120 cm., was uncovered along the face of the quay. They were squared, about 13 by 15 cm. The depth to which they penetrated the alluvium was not ascertained. Attached to each by a roughly-sawn halving-joint at 60 to 65°, and once secured by a single large nail (in every case quite corroded away), was a bracing-member of the same timber and scantling (pl. IVD). Along the primary quay, these members ran beneath the wall; along the slightly deeper extension, they were sawn off flush with the face. As much as 70 cm. of the bracing-members survived (fig. 8, pls. I, IIA). Another line of posts 15 cm. square ran 2·4 m. in front of the quay-wall (fig. 8; one is shown in pl. IIA), answering in each case to an upright by the side of the wall. A simple reconstruction (fig. 7) shows that the

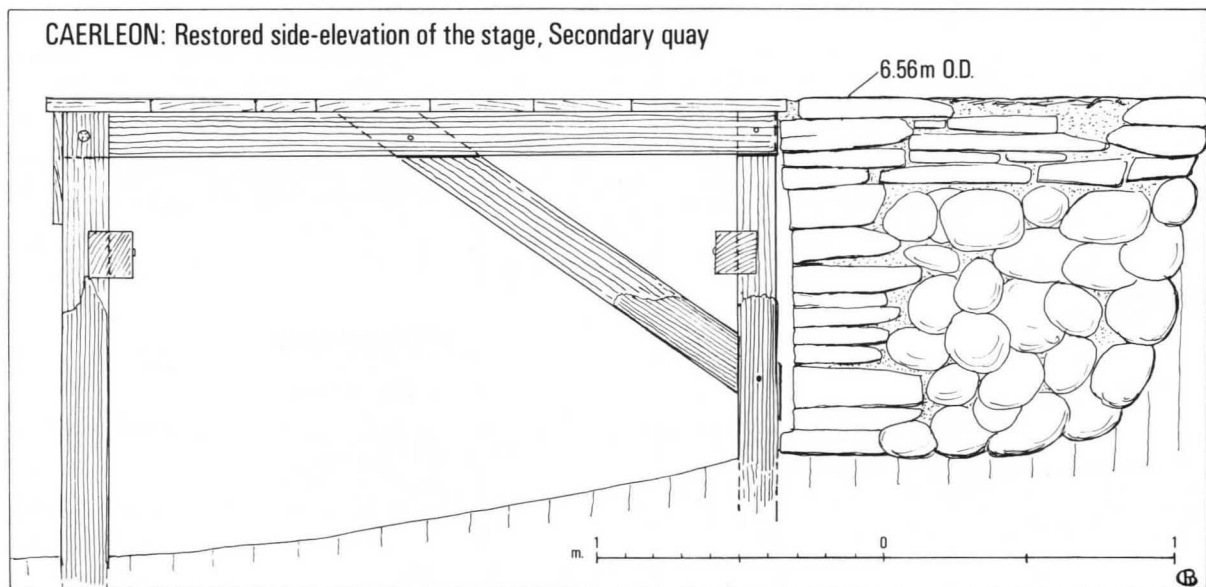


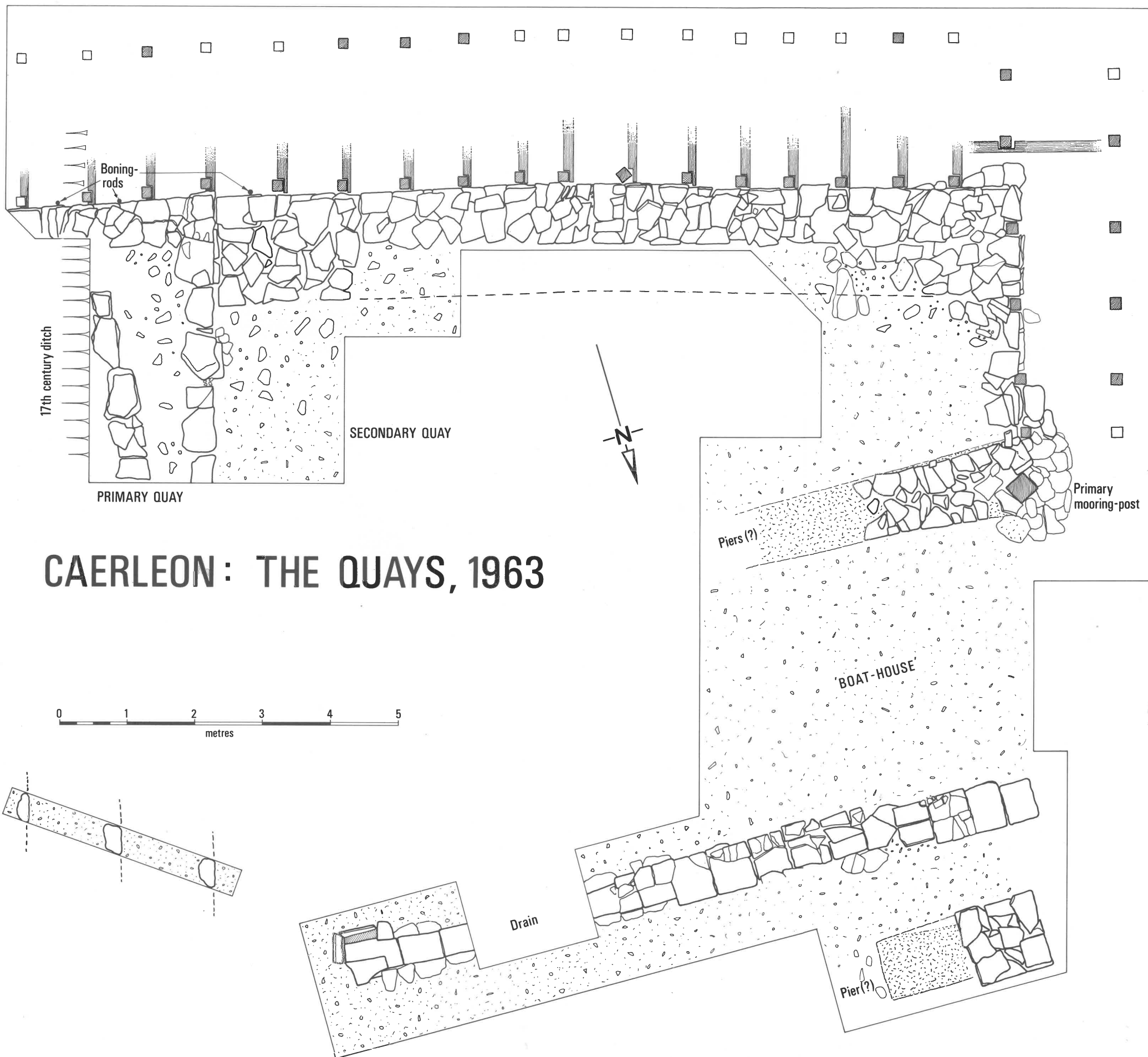
Fig. 7

floorboards of the stage thus supported were 1·5 m. above the mud-flat. There is every likelihood that the stage continued beside the return of the secondary quay, for it is obviously of that period. Doubtless it was erected as a means of maintaining a sufficient depth of water in front of the quay, as silt was inexorably being deposited by higher mean tides, and as the river was beginning in consequence to shift its course south-westward.

At one point 1·5 m. in front of the primary quay-wall, a short length of wattlework or rough hurdling, with two or three uprights, was discovered (pl. IVC). Its most likely explanation, in the absence of a clue to its date, is as a simple means of holding back the mud when the primary quay-wall was being constructed, or perhaps when the stage was erected; but it may have been the remains of an altogether earlier, first-century, revetment of the river-bank.<sup>25</sup>

The breakwater or groyne (fig. 2) was traced in three places, and ran some 14·3 m. north-west of the return of the secondary quay. The dangerous state of the trenches made a proper examination impossible; but we found that the uprights, 15 cm. square, were at about 1 m. intervals, and supported oak boards





3 cm. thick, and in one case fully 45 cm. wide—the widest, I think, recorded of Roman date. If the groyne is of the period of the secondary quay, the accumulation of relics behind it is not without interest, for it included several pieces of East Gaulish *sigillata* (Fig. 11, 15-20, and some plain ware); but it may well be of the first period. In general, the slightness of the timberwork at the quay is worth remark: it is certainly very slight compared with the massive baulks and planks usually employed in such places today. Clearly, the Roman builders were able to gauge to a nicety the minimal requirements of well-maintained timber-work; but continuous maintenance was a necessity: a striking indication of the rickety state of the stage before its final destruction by the tides is a length of uptilted stonework in the middle of the bowed front of the extension, dislodged by the battering-ram action of the loosened floor-joists (pl. IIIB).

#### *The Riverside in Post-Roman Times*

It is impossible to state with exactitude when the Roman surface became permanently covered by alluvium: the latest relics provide only a *terminus post quem* which may not be very close, in view of the feebleness of fourth-century occupation at Caerleon generally and especially outside the fortress. Some 45 cm. of cleanish 'bungum'—to use the local word—had collected in front of the wall before the tides began to tear at its summit (fig. 5); but the rubble then dislodged lay fairly flat, as if the mud had had time to solidify. Renewed flooding eventually brought silt which crept over the hard-standings behind to an eventual depth of 50 cm., a bare 12 to 15 cm. below grass, to 7.05 m. O.D.<sup>26</sup> The rest of the story will be told elsewhere:<sup>27</sup> it is sufficient here to add one or two further facts. The first is that recent research has shown the notion of a cataclysmic marine transgression in the third or fourth century to be ill-founded, and that the level surface of that period (as indeed our findings at Caerleon well show, for the tidal heights so far up the estuary of the Usk are scarcely 10 cm. above those at Newport, South Dock)<sup>28</sup> is only about half a metre, or slightly more or less, below that of today.<sup>29</sup> Secondly, evidence from both sides of the Severn Sea suggests that a rise in mean sea-level began to ruin settlement only in Constantinian times: the latest known coins are an *Urbs Roma* from Rumney Great Warth, Cardiff, and a Magnentius from the North Somerset Level. Farms standing above the area liable to floods, however, on the whole remained in occupation, as at Kingsweston, near Avonmouth.

#### *The Accessibility of the Quay, and the Cargoes Landed*

Upstream of Newport Bridge, the 'headlong Usk' (as Neckam called it)<sup>30</sup> is today used only by pleasure-craft; but the tumbled ruins of wharves and slipways at Caerleon attest the modest share which the old borough enjoyed, until railways came, in maritime trade. Leland makes it plain that 'very great shippes' were prevented from reaching Caerleon only by the obstacle of Newport Bridge.<sup>31</sup> The Usk at Caerleon is 76 m. wide at ordinary tides, when there is 7.6 m. of water, falling to 76 cm. at the ebb; at mean high water springs, the figures are 9.1 and 2.4 m. At Newport (South Dock Entrance), mean high water springs reach 6.28 m. O.D.<sup>32</sup> The largest ships of the ancient world, therefore, would have had not the slightest difficulty in reaching our quay; and the 1.5 m. between the floor of the stage and the mud below would have enabled many vessels to come alongside, even though they might have rested on the mud at low tide. Casson remarks that 70 to 80 tons burden—a figure within the range for coastal shipping in recent centuries—was the smallest size which the ancients regarded as suitable for overseas commerce.<sup>33</sup> Naval vessels—the *Radians* and the *Pacatrix* of the British Fleet, perhaps<sup>34</sup>—could well have sailed up to *Isca*.

Of Roman ships discovered in Britain, the London 'County Hall' vessel was 18 to 21 m. long, 4.5 to 5 m. in beam, and 1.8 m. deep; the late first-century 'Blackfriars' ship, nearly flat-bottomed like a Severn trow, was 16.8 m. long, 6.7 m. broad, and 2.1 m. deep.<sup>35</sup> She had been carrying Kentish ragstone: similar vessels, doubtless, carried lead<sup>36</sup> and Bath Stone<sup>37</sup> down the Bristol Avon and up the Usk to Caerleon; carried the substitute, butter-coloured Sudbrook sandstone from the coast of Gwent,<sup>38</sup> and the Purbeck Marble from Dorset.<sup>39</sup> Ships no larger, though of different build, may have brought to *Isca* the great white marble slab from Italy at the turn of Trajan's second and third consulates,<sup>40</sup> and amphora-borne commodities from all parts of the Mediterranean and from southern Spain, or else barrelled goods from the Garonne or the Loire,<sup>41</sup> though these are more likely to have come in large ships of Venetic construction, for that seafaring race must soon have recovered from the disaster which befell it at Caesar's hands, and taken its share of the commerce in two or three of the four sea-lanes noted by Strabo.<sup>43</sup> There is no important navigational difficulty in the Bristol Channel, the Severn, or its lower tributaries, as is well-shown by the fact that Bristol retained its place as the second seaport of the kingdom as late as the Civil War. The great shoals or 'grounds', and the great rocks, lie mostly upstream of the confluence with the

Usk, where the estuary begins to narrow<sup>44</sup> and the *duo rig Habren*, the 'two kings of Severn', eternally gather their forces.<sup>45</sup> The tidal range is immense—in the Usk, the second highest in the world;<sup>46</sup> but the greatest hazards are the violent storms and gales which made wreck-of-the-sea so valuable a concession to the medieval religious houses of Margam, Neath and Goldcliff, and accounted for scores of vessels driven to ruin on the gently-shelving strands.

We now turn to finds which throw light on cargoes landed at our quay. Apart from the Prescelly slate, ballast rather than cargo (p. 11), interest chiefly attaches to the many fragments of coal in the mud beyond the quay and in the surface of the extension. The vitrainous appearance of some pieces suggested a coal of higher rank than the local material hitherto known at *Isca*, and turned thoughts to the anthracite of south-west Wales used, for example, at Cwmbwrwyn and Trelissey farmsteads in the third century;<sup>47</sup> but the specimens proved upon analysis also to come from the south-east margin of the Coalfield.<sup>48</sup> Thus it seems very likely that coal from outcrop-workings in this vicinity would have been brought down the Ebbw, and round by the Usk to our quay, rather than across-country: the distance is small (10 km. or so), but there was no road. Likewise worth mention is the considerable amount of iron-slag found in the mud beyond the quay, in the quayside hard-standings, and (as mentioned above) adjacent to the second path behind; large amounts were also used in the surfacing of the Broadway in parcel 384 in more than one period. If, as seems likely, the smelting and forging of iron took place in the riverside area, the siting of the furnaces might be explained on the supposition that ore was brought by sea.

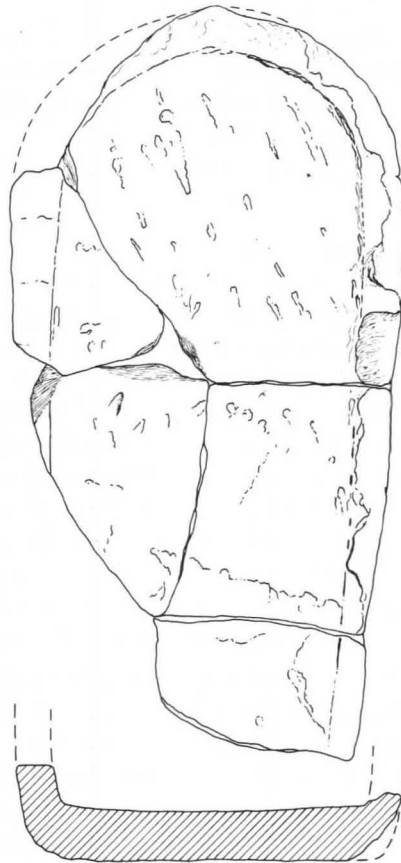


Fig. 9

A cargo of another kind is suggested by the fragments of a round-headed Bath Stone sarcophagus (fig. 9) in the secondary metalling. The inhumation-cemetery near Pont Sadwrn (the bridge over the Afon Lwyd) is 1500 m. directly north-east of the quay;<sup>49</sup> and it must seem that no landing-place had been made nearer. The bridge over the Usk may have impeded access, and unloading such heavy objects into rafts or lighters may have been too troublesome. The massive Bath Stone monuments of earlier date,<sup>50</sup> found at Bulmore at

a like distance upstream but on the left bank of the Usk, seem as the result of excavations chronicled elsewhere in this volume (p. 25) to have been set up originally elsewhere, doubtless much nearer the bridge.

The meagre tale of relics from the quayside may otherwise mostly be classed as rubbish thrown overboard from ships, or from the land: there was, for example, a very large quantity of the bones of a small variety of ox (p. 14), among which an interesting specimen was a skull which had been used as a target for *ballista*-practice (fig. 10, 2). These bones were mingled with a small amount of comminuted wall-plaster, as if some building used as a dump for bones had been cleared away and its refuse discharged here. Among the East Gaulish *sigillata*, more plentiful than usual (fig. 11, 15-20 for decorated ware) there was not, however, enough from any one bowl to suggest breakages in the unloading a cargo.<sup>51</sup> The surface of this pottery was extremely well-preserved by its burial in the mud. There were also scraps of a thin, fawn, ridged variety of amphora which in Dr. Peacock's estimation was of eastern Mediterranean or Palestinian origin (p. 18); and the lower half of another amphora, in brick-red ware with a creamy surface, which Dr. Peacock suggests is North African (p. 18; drawn in fig. 5). This was set very carefully upright in the mud beside the return of the primary quay, as if retrieved from the early Roman level to which its shape probably allows us to attribute it, in order to serve as a container of some kind: possibly for live shell-fish, of which several kinds were abundantly represented in the rubbish beyond the quay.<sup>52</sup>

#### *The Prescelly Slate and its Significance*

My colleague Mr. D. Emlyn Evans reported as follows on a sample of the slate found in the secondary metalling of the quayside: 'The blue-grey, thinly cleaved, spotted slate was readily recognised as being strikingly similar in external appearance to the Foel Tyrch Beds Arenig Slate. This Ordovician slate is exposed and has been extensively quarried in the southern part of the Prescelly Hills. The specimen was also compared with other slates and slate-like rocks from various southern Dyfed localities; but even on macroscopic examination only, it almost certainly came from Prescelly.' Mr. Evans also identified a water-worn pebble as Silurian greywacke: it came from the same metalling as the slate, and doubtless arrived with it.

Of the rivers which drain the southern side of Prescelly—the Taf, which forms a wide estuary with the Towy and the Gwendraeth upon Carmarthen Bay; and the Eastern and Western Cleddau, which unite and flow into Milford Haven—none is navigable by sea-going craft as far as 10 km. from its mouth. Now, at Caerleon we have only *waste* from the preparation of quarried blocks for splitting into roofing-slabs, etc.; and furthermore, there is no sign that Prescelly slate was used in the buildings of the fortress or its environs. The fragments therefore represent ballast taken aboard at some convenient strand, where the slate despatched from the inland quarries was dressed, and where, accordingly, there were heaps of waste. The greywacke pebble may possibly have lain among them. As to where this strand may have been, the distribution of Prescelly slate roofing-material might afford a clue, were it extensively recorded. Three of the five south-western sites where it is known to have appeared—Carmarthen, Cwmbryn and Coygan—are within easy reach of Carmarthen Bay and Carmarthen suggests itself as the seat of an industry, and as a likely port-of-call; the other two sites, Castle Flemish and Ford, are inland, and closer to the source of the rock.<sup>53</sup>

Was the vessel which brought the slate to Caerleon a merchantman, or in the government service? It is not easy to see what commercial traffic there may have been between the legionary fortress and the south-west; Demetian agriculture was in the main primitive,<sup>54</sup> and the fortress cannot have drawn important supplies from that source. Moreover, civil development at Caerleon itself had from its inception been stunted by the proximity and attraction of the Silurian capital only 12 km. to the east, and in the third century may have been of little account.<sup>55</sup> For these reasons, the significance of the slate seems best discussed in military terms.

The later third century, the period of the enlarged quay, has been regarded as a time of disturbance and anxiety; and the numerous coin-hoards from the coastal regions of Wales<sup>56</sup> have been claimed as an index of piratical raids from Ireland.<sup>57</sup> Thus, until recent years, the solution to our problem would have seemed to leap from the pages of Kuno Meyer's studies of the expulsion of the Déisi from Ireland and their resultant settlement in Dyfed, for which a date of c. 270 was calculated from the Annals.<sup>58</sup> The existence of a suite of late milestones from the southern coastal road and from the Usk-Towy route, however, was scarcely in accord with this theory;<sup>59</sup> and on other grounds Professor Alcock demolished the case for such an early arrival of these tribesmen.<sup>60, 61</sup>

The relevance of the coin-hoards is demonstrably negligible, even illusory.<sup>62</sup> What interpretation then, are we to place on the extension of the quay, and indeed also on the continuous maintenance of the roads leading to the south-west? That region was important, as is attested by the inclusion of the Demetian capital, *Moridunum*, in the *Antonine Itinerary*;<sup>63</sup> for this shows that there was a government agency there. But the agriculture of the region, as we saw, is not likely to have been bountiful; what attracted attention was surely Dolaucothi gold, which may have been consigned through Carmarthen, or along the patrolled highways. The mines seem to have been in private hands after the fort at Pumsaint had been given up towards the middle of the second century;<sup>64</sup> but under the usual arrangements the bullion still went, or was supposed to go, to the state.<sup>65</sup> Here, then, is a reason for the maintenance of communications. That mining continued at Dolaucothi down to our period and beyond is well shown by two coin-hoards of British Empire date from the vicinity, and by the numbers of Constantinian and Valentinianic coins in the series once preserved at Dolaucothi, and studied by O'Neil.<sup>66</sup>

Though the hoards in general tell us little of the incidence of Irish raids, such raids there undoubtedly were: the construction of a new, large fort at Cardiff is understandable only in that light;<sup>67</sup> and if the pirates could penetrate as far as this, there was equal or greater cause for alarm in the south-west. Other forts would surely have been built—at Loughor, probably;<sup>68</sup> at Carmarthen, where however the walled town was a fortress ready-made, and was certainly occupied down to the 350's, if not beyond;<sup>69</sup> at Milford Haven, possibly, where third to fourth-century coins from Pembroke Castle suggested to Richmond the likelihood of a late coastal fort in a position somewhat analogous to that of Portchester upon Portsmouth Harbour.<sup>70</sup> The creation of such defences might have been entrusted to our Legion, and the consequent despatch of men and materials might well account for the extension of the quay and the discharge of unwanted ballast by ships returning empty.

#### DATABLE AND OTHER SELECTED REMAINS FROM THE QUAYSIDE

##### A. Coins

- |                      |   |
|----------------------|---|
| 1. DOMITIAN          | <i>Sestertius</i> , very much worn. A.D. 81-96. From rubble of the secondary quay-wall.   |
| 2. SEPTIMIUS SEVERUS | <i>Denarius</i> , MARS PATER, much worn. <i>RIC.</i> 46, A.D. 195. From beneath the metalling of the secondary quay.  |
| 3. CARACALLA         | <i>Denarius</i> , PONTIF TR P VIII COS II, <i>Salus</i> seated L., slightly worn. <i>RIC.</i> 82, A.D. 205. From beneath the metalling of the primary quay. |
| 4. CARACALLA         | <i>Denarius</i> , PONTIF TR P XIII COS III, <i>Concordia</i> seated L., slightly worn. <i>RIC.</i> 116A, A.D. 210. As no. 2.                                |

##### B. Various Objects

1. Plano-convex knurled jet bead, diam. 11 mm. The terminal element in a graduated necklace. Similar from *Vindolanda* and other sites. From a black layer below the metalling of the secondary quay. Fig. 10, 1.
2. Ox-skull, imperfect, used as a target for *ballista*-bolts. A single hole, 6 mm. square, pierces the turbinal region to a depth of 30 mm., and was made (supposing the head to have been mounted perpendicular) by a bolt entering at a high angle, i.e. at extreme range, causing depression of the bone above. Parallels come from Corbridge (F. Haverfield, *Arch. Ael.* ser. 3 vii (1911), 192, fig. 40, reproduced in line here) and *Vindolanda* (Museum): one is shown by G. W. I. Hodgson, *The Animals of V.* (Barcombe Pubs., 1976), pl. 3. For a similar hole, in one of the skulls from the Maiden Castle war-cemetery, see R. E. M. Wheeler, *Maiden Castle* (1943), pl. 53D, reproduced in E. W. Marsden, *Greek and Roman Artillery* (1969), pl. 5. Pyramidal 'needle' heads of *ballista*-bolts from a third-century armoury at Caerleon, V. E. Nash-Williams, *Arch. Camb.* lxxxvii (1932), 69, fig. 19, nos. 7, 8, 22; for complete bolts of like date, see M. I. Rostovtzeff *et al.*, *Excav. at Dura-Europos, Prelim. Report of the Sixth Season* (1936), 455-6, pl. 34, 2. There is a small sketch of one in Peter Connolly's *The Roman Army* (1975), 67. They were 30-35 cm. long, with ash shafts expanding to the base, and there cut away to a narrow edge, where the string struck them; they had three wooden flights spaced to leave half the circumference free to fit into the groove

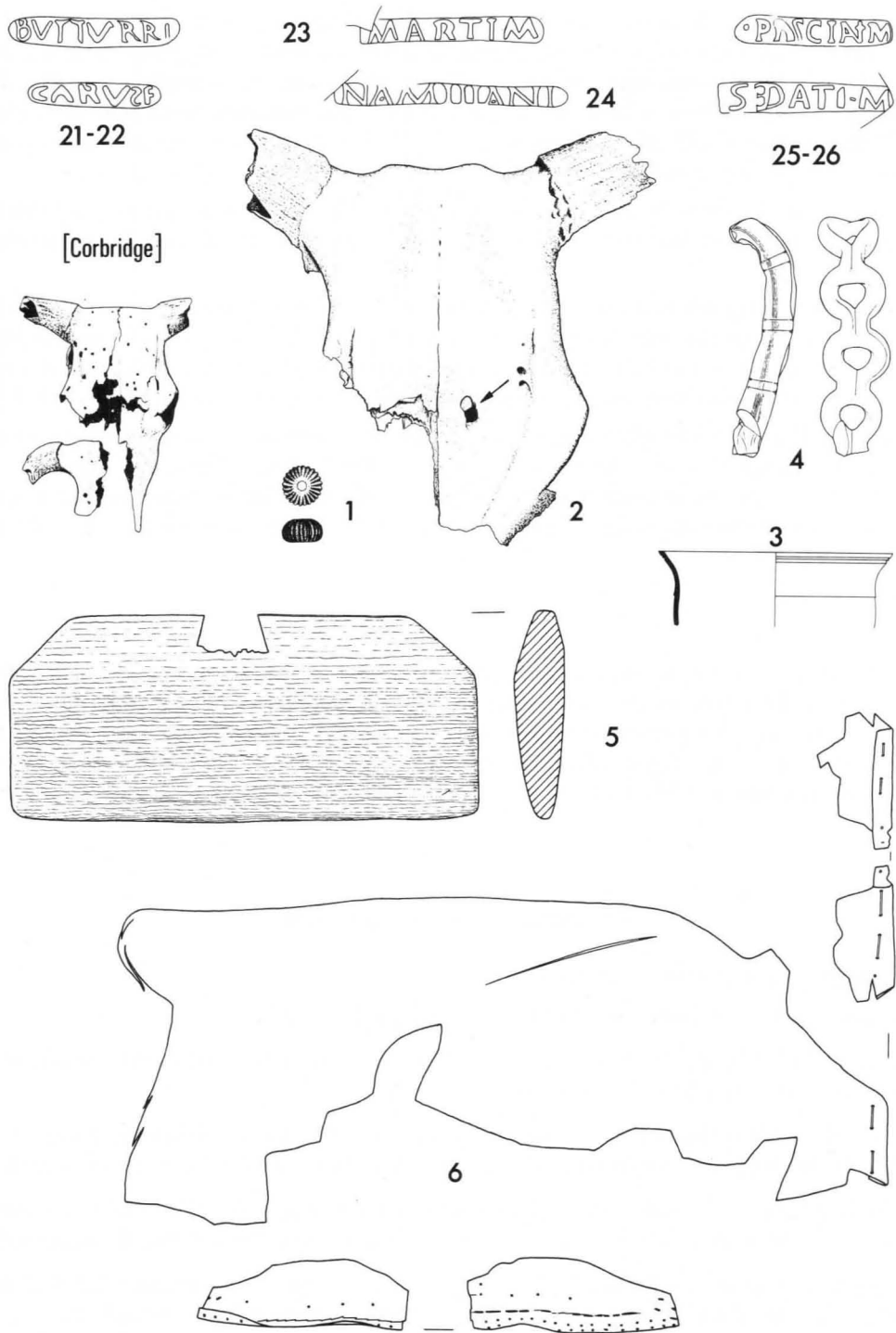


Fig. 10

on the stock of the machine. *Pila* had similar needle-points; but, on all these targets, the weight of their shafts would inevitably have caused much greater bruising of the bone around the holes. Targets, see R. W. Davies, *Arch. Journ.* cxxv (1969), 78-9; G. R. Watson, *The Roman Soldier* (1969), 58-60, n. 131. This type is not mentioned. Range and accuracy of Roman *ballistae*, Marsden *op. cit.*, ch. 4: 450 m. At any such distance, it would have been a great achievement, or sheer good-luck, to hit such a small target; the peppered skulls from Corbridge and *Vindolanda* suggest practice at close range. Mud beyond the quay, third century A.D. Fig. 10, 2.

The above occurred with a large number of ox-bones (and a single pig's jawbone). The late L. F. Cowley reported that the ox-bones were all of the small Celtic Ox, *Bos taurus var. longifrons*. 'The size is indicated by the horncores with basal diameters of 37/27, 42/33 and 50/36 mm.; the complete horncore [the target] had a total length of only 80 mm. A lower jaw of the left side had a complete tooth-row of the cheek-series, of 124 mm. A metacarpal of 173 mm. and a metatarsal of 198 mm. denote an animal standing about 1 m. at the withers. It will be appreciated that the remains were those of a very small breed of ox.'

Since the target was found with this mass, it seems likely that heads were obtained for target-practice from the slaughterhouse, and afterwards returned to the waste-heaps, which were later gathered up and cast away.

3. Scrap from the flaring rim of a colourless glass cup, mould-blown, ground externally; wheel-cut lines; diam. about 67 mm. Note the slight ledge at the line 12 mm. below the rim, and the slightly curving profile, features of a cup on a tall base-ring shown by D. Charlesworth in S. S. Frere, *Verulamium Excav. i* (1972), 207, fig. 77, 43. About later second century. From the core of the secondary quay-wall. Fig. 10, 3.

4. Chain-handle from a small glass flagon or jug, greyish-colourless, imperfect. Good example from Colchester, D. B. Harden *et al.*, *Masterpieces of Glass* (Brit. Mus., 1969), 84, no. 111; squatter, Maastricht, W. A. van Es, *De Romeinen in Nederland* (1972), fig. 114. A fragment of a similar handle occurred in the Antonine-Severan filling of the side-drain of the by-pass road (cf. *Isca*, 16, 60). From mud beyond the quay. Fig. 10, 4.

### C. Sigillata

This section is confined to decorated fragments bearing on the date of the two 'general Roman layers' behind the quay; to East Gaulish decorated ware mainly from mud beyond the quay, and to stamps on plain ware (figs. 10, 11). The material was originally examined by Miss C. M. Johns, now of the British Museum, in 1963. Mr. G. B. Rogers identified the motif on no. 12; M. Marcel Lutz identified most of the East Gaulish material; and Mr. B. R. Hartley provided details of the potters' stamps.

#### SOUTH GAUL (LA GRAUFESENQUE)

Nos. 1-2, Form 29; 3-4, Form 30; 5-11, Form 37.

1. Flavian rim from burnt daub, etc., building between paths 2 and 3.
2. Lower zone, Palisade, Knorr, *Töpfer und Fabriken . . .* (1919) Taf. 58B, 69D; double vertical lines with diagonal, Taf. 68A. RUFINUS? Flavian, same provenance.
3. Saltire on R., imbrication on L., between, vertical row of buds; cf. Atkinson, *Pompeii* pls. 11,55; 12,59; MOMMO. Hermet, *La Graufesenque* (1934), pl. 76, 5. Drainage ditch north-east of path 1.
4. Unusual, from low, wide bowl. Tiny, single-bordered tongueless ovolo. The general arrangement, but not the details, is common and begins early. Early Flavian (not before). Unstratified between paths 2 and 3.
5. Thin, good ware; style of GERMANUS, Hermet, *La Grauf.* pl. 100 or Knorr, *TuF* Taf. 46C for the female panther and tree. Early Flavian. General Roman layer, north-east side of parcel 400.
6. Basal fragment shown upside-down for the sake of the graffito *Lollius* (*JRS* liv (1964), 183 no. 34). MOMMO: with triple-bordered medallion and corner-tendrils with leaflets, as e.g. Atkinson, *Pompeii* (*JRS* iv (1914) pl. 12, 60). Vespaianic. Burnt building between paths 3 and 4.
7. Single-stamp ovolo, perhaps MERCATO, Oswald, *Terra Sigillata of Margidunum* (1948), pl. 24, 6. Flavian. Prov. as no. 3, but unstratified.
8. Ovolo not quite as Oswald, *Margidunum* pl. 12, 5 etc. Tendrils to left and right; uncertain shape on L. Flavian. As no. 5.
9. Shows the Jupiter, *Déché*. 6. Flavian. Unstratified, north-east side of parcel 400.

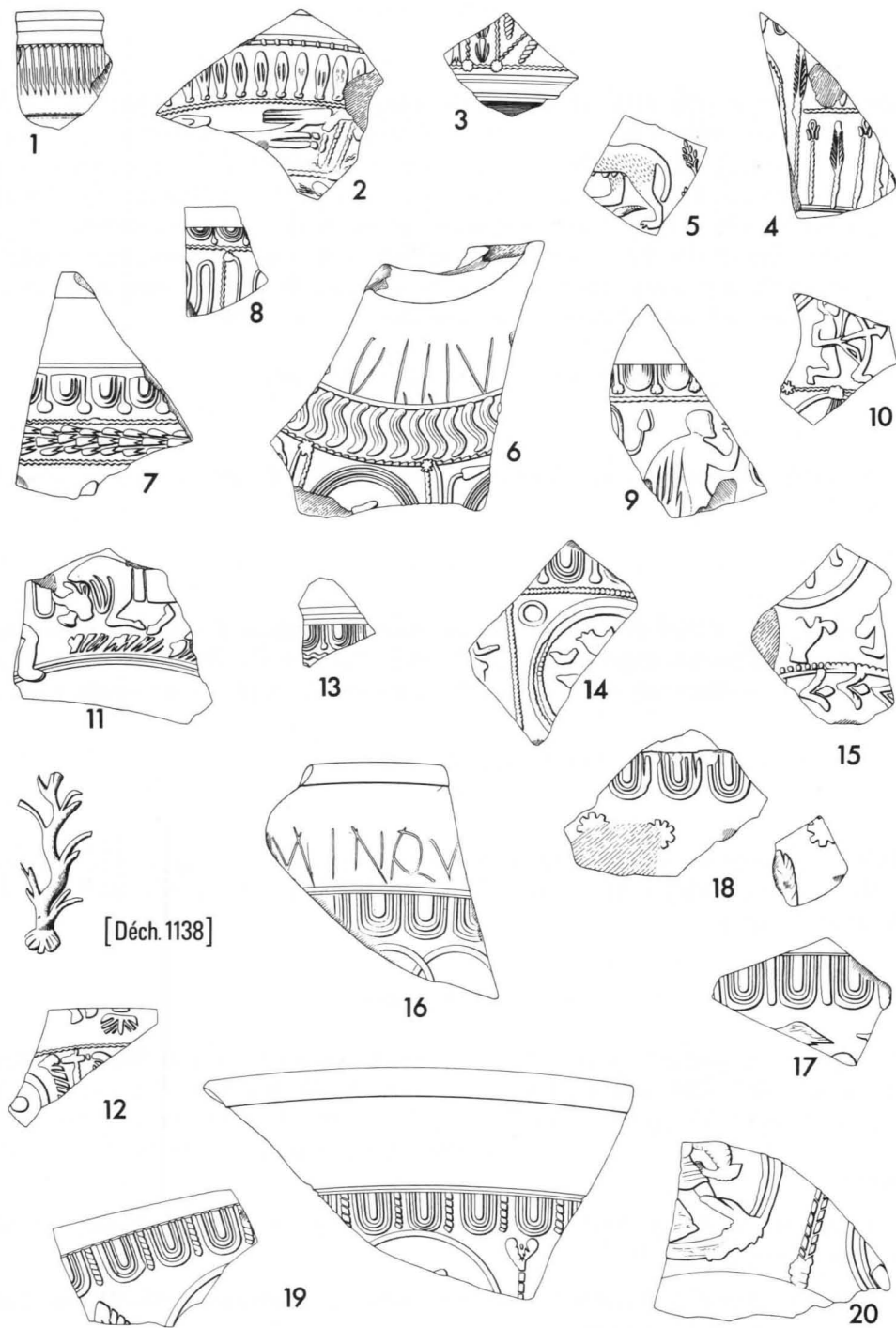


Fig. 11

10. Kneeling archer, O. 268, in the top part of the lower spandrel of an undulating scroll; the decoration below is matched by Knorr, *Terra-Sigillata-Gefässe* (1952) Taf. 39D, style of MEDDILLUS, in a similar design. Vespasianic. As no. 5.

11. The *bestiarius*, O.1087, is set lower with regard to the bull, O.1886, than e.g. Knorr, *TuF.* Taf. 57J, MERCATO; who seems not to use the type or the rough ground underneath, for which see Grimes, *Holt* fig. 40, 67, L.COSIUS style, or Knorr, *TuF.* Taf. 26A, L·COSI. Late Flavian. As no. 5.



## (UNCERTAIN)

## Form 37.

12. Thin, good, rather orange ware, glossy reddish-orange slip, very like the ware of Les Martres-de-Veyre, Central Gaul, and with swags comparable with Rogers, *Poteries sigillées de la Gaule Centrale* i (1974), Group F; the astragalus is possibly his R21. Above, however, by the rear legs of a quadruped, the base of a blasted tree, close to *Déch.* 1138 (drawn alongside), in Mende Museum from Banassac, a very rare motif unknown in Central Gaul. Banassac potters pirated many Central Gaulish motifs, mainly at a period later than the date of this shard, which can hardly be other than Trajanic, by the style. The ware, however, is not very similar to what I have seen in the Morel and Peyre Collections at Banassac; and the Banassac potters could have borrowed the tree from elsewhere. As no. 1 above.

## CENTRAL GAUL (LES MARTRES-DE-VEYRE)

## Form 37.

13. Ovolo, probably Rogers B44, POTTER OF THE ROSETTE, with consistent wavy line below. Trajanic. As no. 1.

## (LEZOUX)

14. Ovolo, Rogers B85, CINNAMUS; the double-bordered medallion not exactly matched, but in general the design resembles this potter's work, cf. Stanfield-Simpson, *Central Gaulish Potters* (1958), *CGP* pls., *passim*. Antonine. Scuffed. Below cobbling of the upper Roman layer between paths 1 and 2.

## EAST GAUL (LA MADELEINE)

## Form 37.

15. Elements of the basal wreath as Fölzer, *T.-S. Manufakturen* (1913), Taf. 2, 43 (Taf. 25, 76); Lutz, *Rev. Arch. du Centre* v (1966), 145, pl. 6, 7-8. Cockerel, Fölzer Taf. 2, 41; gladiator, Taf. 25, 46. Antonine. Scuffed. As no. 3.

## (RHEINZABERN)

16. Below a large tongueless ovolo, interlaced circles, perhaps Ricken-Fischer, *Bilderschüsseln Rheinzabern* (Text, 1963) E57 and Ricken, *Bilderschüsseln Rheinzabern* (Pls., 1942), Taf. 136, 2, REGINUS II, respectively. The graffito ]MINQVE[ (*JRS* liv, 184, no. 39) hints at a metrical tag, either . . . *m inque* . . . or *Inque* . . . . . *m*, cf. e.g. *JRS* xlviii (1958), 154-5 no. 40. Worn. Hardstandings behind the quay.

17. Ovolo, Ricken-Fischer E8, probably. Below, a Cupid's wing not in Ricken-Fischer, cf. M110 with a blunt tip; no bird answers. As no. 16.

18. Ovolo, Ricken-Fischer E55, REGINUS I; rosettes, O45. Leaf, uncertain. Cf. Ricken, Taf. 15, 5 but with line below the ovolo. Mud beyond the quay.

19. Ovolo, Ricken-Fischer E42, JULIUS I; cf. Ricken, Taf. 153, 1-5, for the same ovolo, medallions and bifid leaf on a beaded stem; but here a large leaf seems to have been placed alternately with these. As no. 18.

20. Gladiator, Ricken-Fischer M217, cf. Ricken, Taf. 34, 21 and *passim* for the same double medallion; the bipartite divider is Ricken-Fischer O275, VICTOR I, and seems to have been used by him alone: the gladiator was used by several, apparently excluding him. Peat behind breakwater.

Fragments of several Rheinzabern Form 38 and 45 bowls were found in the mud, in peat behind the breakwater, and on the hard-standings: the 45's included no spout-masks.

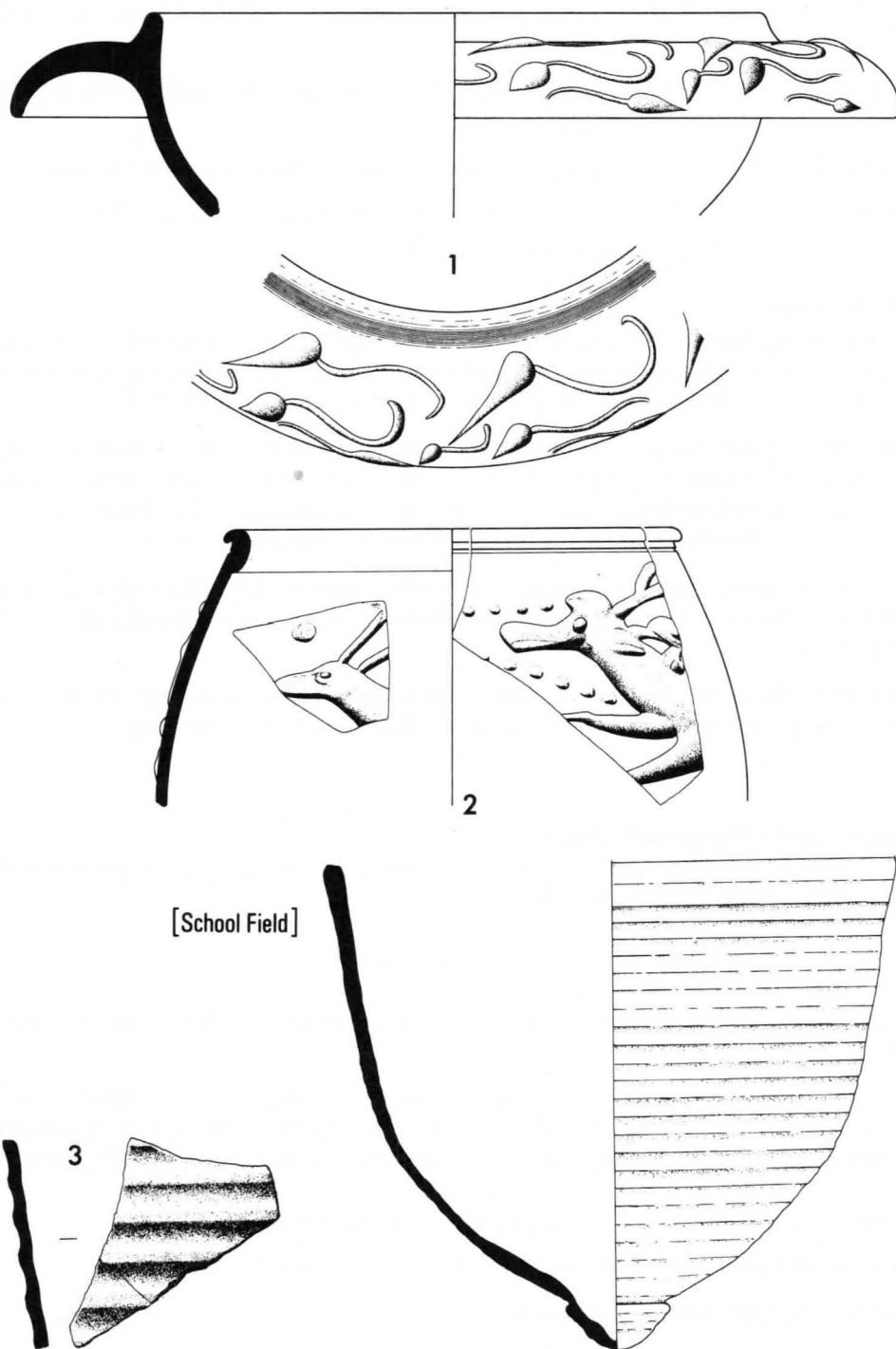


Fig. 12

POTTERS' STAMPS

21. BUTTURI

Lezoux, Form 33. Hadrianic-Antonine. Butturrus, Die 2A. Below metalling, secondary quay.

22. CARUS F

La Graufesenque, Form 33. Flavian. Carus-i, Die 11A. Quayside, unstratified.

23. MARTI M                      Lezoux, Form 33. Antonine. Martius-i, Die 1G. In secondary quay-wall.
24. NAMILIANI                  Lezoux, Form 18/31. Antonine. Namilianus, Die 3C. Mud beyond quay.
25. PRISCIANI M                Lezoux, Form 33. Antonine. Priscianus, Die 1A. Mud.
26. SEDATI M                    Lezoux, Form 27. Hadrianic-Antonine. Sedatus-iv, Die 2C. Quayside, unstratified.

#### D. Fine Wares (selected)

1. Rim and part of the base of a 'Pompeian Red' dish of large diameter; grey-buff micaceous ware, dull darkish red coating on the inside and rim. In all respects identical with the more complete example from Caerleon, my paper, *Antiq. Journ.* xlvii (1967), 40, 42, fig. 3, 13. Flavian. Mud. Not illus.
2. Caerleon ware, pinkish-orange, white slip with brush-dabbed blotches of dark red; worn on the flange. An imitation of the developed type of Curle 11. Antonine? Mottled ware is rare at Caerleon; for a Form 30 with rouletting and barbotine leaves, see my paper on Caerleon ware, *Arch. Camb.* cxv (1966), 64, fig. 3, 9, Prysq Field, dated second century but not stratified; nor is this. Fig. 12, 1.
3. Castor or Nene Valley ware, white paste, grey-black lustrous slip. Hunt-cups are uncommon at Caerleon. With a *denarius* of Caracalla and *sigillata* Form 45, etc., beneath the metalling of the primary quay (p. 8). Fig. 12, 2.
4. Small fragment from the body of a Lezoux black-gloss beaker, decorated *en barbotine*. Cf. N. Brewster, *Arch. Ael.* ser. 4, 1 (1972), 205-16. Antonine. Mud beyond quay. Not illus.

#### E. Coarse Pottery (and a Comparative Series)

This section is confined to vessels stratified or otherwise associated with the quay, and to a well-dated group of comparative material from Caerleon (figs. 13-14).

#### PRIMARY QUAY

1. Mortarium, hard white ware, scaled surface. Late second or early third century. Stone backing of the quay-wall.
2. Mortarium, gritty grey ware, orange surface, fine creamy slip. Perhaps Colchester ware, cf. Hull, *Roman Potters' Kilns*, 119, fig. 64, 4. Similar vessels were dated c. 200-250 at Verulamium, Frere, no. 1068 etc. Brown soil beneath levelling behind the quay-wall, i.e. in the filling of the wall-trench.

Neither of these was represented in the comparative series described below.

- 3-6. Grey (3-4) and black-burnished ware rims. Below the metalling of the quay.
7. Flanged bowl, black-burnished ware. Same prov.
8. A few small rilled fragments in thin, hard, fawn ware with specks of dark inclusions. The School Field excavations at Caerleon, 1928, yielded the lower part of an amphora of this ware; it is drawn alongside. As mentioned in the text of this report, Dr. D. P. S. Peacock considers that it is from the eastern Mediterranean, probably Palestine. Similar fragments were found in the well-dated comparative series; but so far at Caerleon we have nothing of the rim or handles. Below the metalling of the quay; other fragments in mud beyond the quay. Fig. 12, 3.
9. The lower part of an amphora believed by Dr. Peacock to come from North Africa, re-used as a recipient of some kind beside the primary quay-wall return, is mentioned (p. 11) and illustrated on the section, fig. 5. The shape is similar to a south Spanish type used chiefly for fish-sauces and the like; cf. M. Beltrán Lloris, *Las anforas romanas en España* (1970), 433-4, 446, of the early Roman period.

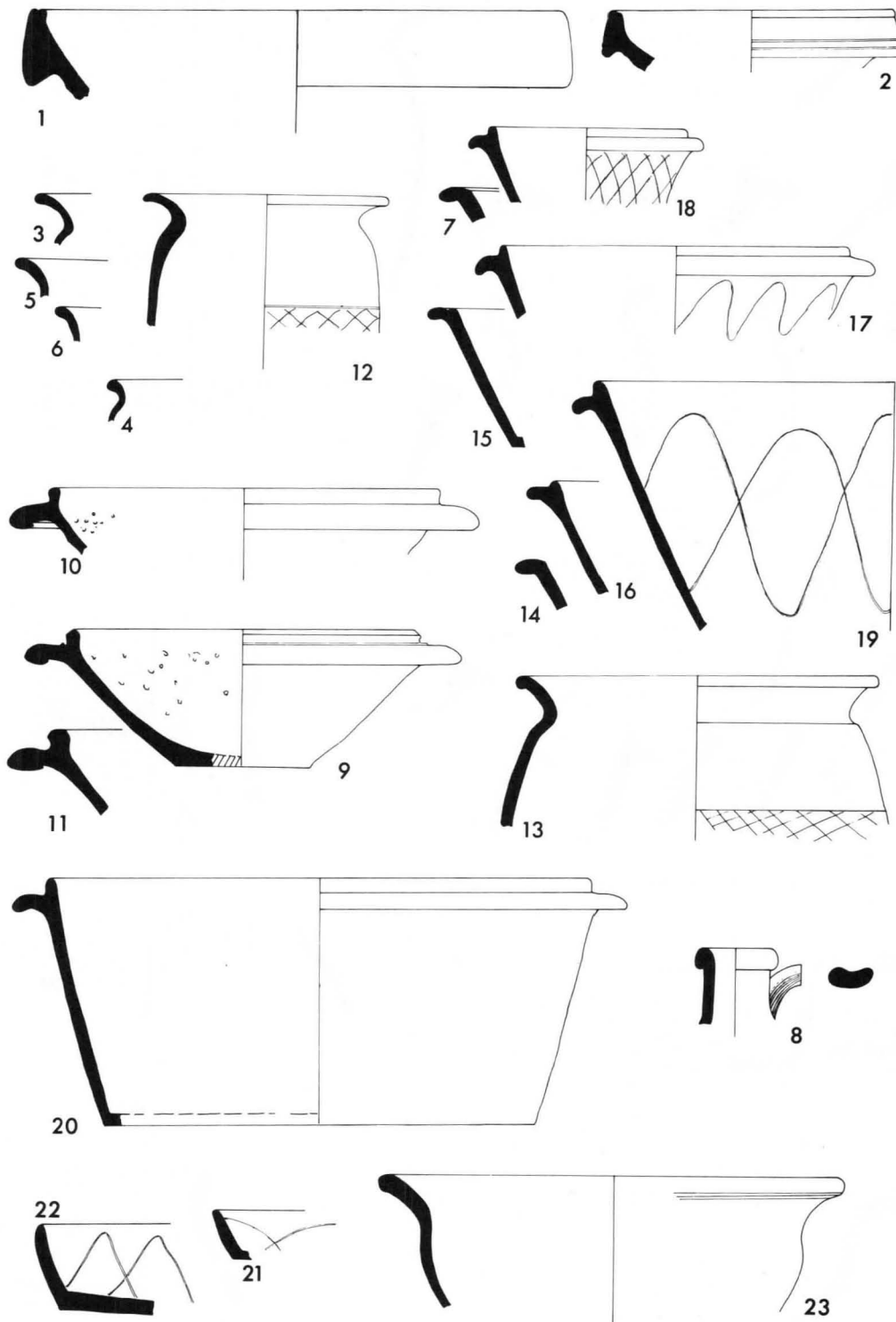


Fig. 13

SECONDARY QUAY

9-11. Mortaria, Oxfordshire ware. 10, on or in metalling; others, mud beyond quay. Cf. comparative series 1, 3 and 4.

12-13. Black-burnished ware cavetto-rim jars. 12, below metalling; 13, mud. Comparative series, 6-10.

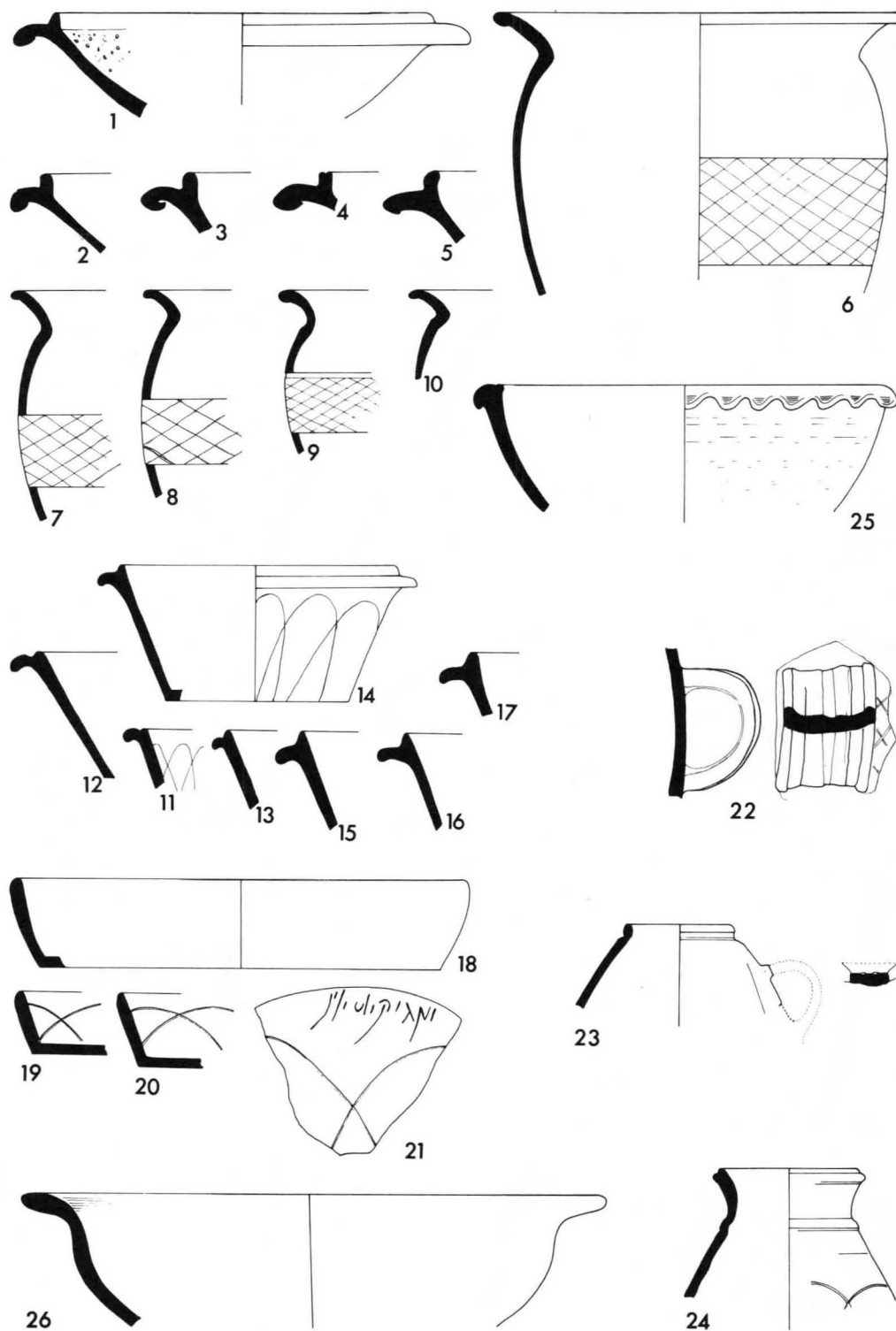


Fig. 6

14-19. Black-burnished ware, flanged and beaded-and-flanged bowls. 14, 16 and 19, mud; 15, make-up of metalling; 18, packing of 'mooring-post' (p. 7). Comparative, 11-17, but for 14 see no. 7 above.

20. Large basin of form similar to the foregoing, but in light grey sandy ware containing comminuted chalk, ferruginous matter and flint, in particles up to about 5 mm. across; traces of a hard, mid-grey slip.

No other specimen at Caerleon; obviously from an unknown kiln in the Chalk country, and probably well to the west of Silchester, where the pottery is again unknown. As 15.

21-22. Black-burnished ware plain dishes, mud beyond quay. Comparative, 18-21.

23. Bowl, light grey gritty ware with black colour-coating. Mud. Comparative, 26.

24. Bottle-rim, creamy-fawn ware, slightly micaceous, with traces of brownish colour-coating. Possibly Oxfordshire ware, but the form untraced. Mud.

#### COMPARATIVE SERIES

This material came from a drain lined with large stone blocks at the south corner of the parade-ground, 1962 (*Isca*, folding plan). Beyond the parade-ground wall, it turned to run beside the Broadway, and is called the Broadway drain. It there joined the contemporary rebuilt drain of the by-pass road (*Isca*, 16, 60), the date of which depends on an *Antoniniana* tile-fragment used to level up one of the blocks. The pottery occurred in the middle (sandy) and upper (black earthy) filling of the Broadway drain: the latter was thrown in all at one time, and the drain was then covered by a solid spread of rubble and small stone, presumably from the uppermost metalling of the Broadway. On top, a coin of Constans, c. 348-50, was found, one of the few fourth-century coins from the extramural area generally. The age of the sealed pottery is shown by forty coins mixed with it, of which the latest occurred directly under the spread of stone over the drain. 29 coins from the middle filling comprised: Domitian to Gordian III (7); Gallienus, sole reign, and Claudius II (5, with one *Divo Claudio*); Gallic Empire (10), counterfeits (7). 11 coins from the upper filling comprised: Gallic Empire (6), counterfeits (3); Carausius (1); Allectus (1). The pottery therefore spans the period c. 260-95.

The pottery illustrated (fig. 14) is a selection covering types from the quayside. Residual earlier material (mainly from a Flavian well over which the drain had been carried), *sigillata*, and contemporary fine wares (Oxfordshire, Forms 31, 38, 45, a range of bulbous and indented beakers, a white clay face-mask from a jug) are excluded. The coin-list shows that there is no chronological distinction to be drawn between the middle and upper fillings of the drain, and the vessels are therefore not distinguished in this way.

1-5. Mortaria, Oxfordshire ware, white to cream-coloured; quartz grits.

6-10. Cavetto-rim jars, black-burnished ware: 9 is particularly well-made, with a good 'waxy' finish on the shoulder and rim.

11-17. Flanged and beaded-and-flanged bowls, same ware.

18-21. Plain dishes, same ware. 18 has scribble loops on the basal interior; 21 shows the basal exterior, and the graffito *SHVIRIANI Severiani*, *JRS* liii (1963), 167, no. 56.

22. Large ribbed strap-handle, same ware, probably from a very large mug, cf. *Proc. Som. Arch. and N.H.Soc.* xcvi (1952), 75, fig. 8, 29, from Catsgore, in 'coarse grey' ware. An unusual piece.

23. Mug or jar with one or two handles, hard black ware, burnished.

24. Jar, same ware; traces of scribble loops.

25. Basin, pie-crust rim; same ware.

26. Wide bowl, coarse dull grey ware, dull slip or burnish at the rim. Possibly Caldicot or Llanedeyrn ware; I am uncertain of the origin of 23-25 above.

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<sup>1</sup>Conducted by the National Museum of Wales for the Ministry of Public Building and Works, in advance of a plan to turn the area into a sports-field for Standard Telephones & Cables Ltd., Newport. I here gratefully acknowledge the assistance of Dr. D. E. T. Bidgood, then of University College, Cardiff, in a seismic survey whereby the edge of the ancient riverbank was detected, and that of Mr. B. P. Whybrew, of the Ministry's Test Branch, who by resistivity-survey established the line of the Broadway under the alluvium in parcels 398-9, by kind permission of Mr. Russell Haines of Broadway Farm. The levels mentioned in this paper were taken by Mr. B. E. Petersen, then of the Ancient Monuments Branch in Cardiff. The area has since been taken for a municipal golf-course, and the site of the quay remains visible in the rough.

<sup>2</sup>For the extramural buildings and settlement see my *Isca* (1972), and below, Mr. Vyner's remarks on the settlement at Bulmore, p. 25.

<sup>3</sup>Cf. *Arch. Camb.* cxv (1966), 45-66.

<sup>4</sup>To be published elsewhere.

<sup>5</sup>*RIB* i, nos. 333-4 and 316; stamp, *Vi(ctoriniana)?*—*Isca*, 62, fig. 6.

<sup>6</sup>*Isca*, 48, 56-60; fig. 6.

<sup>7</sup>*Isca*, 59-60.

<sup>8</sup>*Isca*, 62-66.

<sup>9</sup>J. Fryer in *Marine Archaeology* (Proc. 23rd Symposium, Colston Research Society, ed. D. J. Blackman, 1973), 261-73.

<sup>10</sup>Exploratory machine-cut trenches in parcel 382 (not 365, as by my error in *JRS* liv (1964), 153) and adjacent parts of 380 and 381 revealed boundary-ditches of a field-system (*Isca*, 17 and plan; *Plan of Caerleon*, 1967), of which the lower limit was close to a steep riverbank, as the alluvial profile showed.

<sup>11</sup>... and definitely not' of the period of the 18th-century kilns. The examination was carried out by Mrs. J. Huxtable at the Oxford University Research Laboratory for Archaeology and the History of Art, by the kindness of Dr. M. J. Aitken. The brick was in any case of the thickness of the *sesquipedales* used in the buildings of the fortress, and not of that of local 18th-century bricks.

<sup>12</sup>J. G. C. Anderson, *Proc. S. Wales Inst. of Engineers* lxxxviii (1974), 4, 5, table i, D123. This showed sand and gravel beneath 8·23 m. of alluvium; from the top 1 m. came two small fragments of iron-slag. Note, 270 m. east, 'Cinder Pool' marked on the O.S. plan in the bed of the Usk.

<sup>13</sup>*Isca*, 122 n. 15. The waterworn slab *RIB* i, no. 377 probably came from the northern abutment.

<sup>14</sup>To be reported on another occasion.

<sup>15</sup>Reported on by Dr. Brian Seddon, then of the National Museum of Wales. The mosses were *Thuidium tamarascinum*; *Rhytiadiadelphus longus*; and *Hylocomium splendens*. The weeds were *Polygonaceae*—*Rumex* species (docks); *Chenopodiaceae*—*Chenopodium* species (goosefoot, etc.); *Caryophyllaceae*—cf. *Stellaria media* (chickweed); *Papilionaceae*—cf. *Vicia cracca* or *V. sepium* (vetch); *Rosaceae*—*Rubus* species (brambles); *Cyperaceae*—*Carex* species (sedges); and *Graminaceae* (grasses). The blackberry seeds and the hazel nuts leave little doubt as to the time of year in which the deposit was laid down.

<sup>16</sup>Aileen Fox, *Arch. Camb.* xcv (1940), 105; cf. *Isca*, 14, 122 n. 6.

<sup>17</sup>Until recently, the earliest indication of the presence of *Legio II Augusta* was *RIB* i, no. 330, of A.D. 99/100; but for a link with Exeter, through a type of antefix ornament from both sites, c. 60 on the one and c. 74-81 on the other, see my joint note with P. T. Bidwell, *Britannia* vii (1976), 278-80.

<sup>18</sup>H. Helbaek, *The New Phytologist* lxiii (1964), 158-64; *Isca*, 20, 35.

<sup>19</sup>*Isca*, 35, 44-5.

<sup>20</sup>The leather was identified by Miss B. M. Haines of the British Leather Manufacturers' association. Though the material of panels from Birdoswald was identified as calf-skin by MacIntyre in his well-known article with I. A. Richmond, *Trans. Cumb. & West. Antiq. and Arch. Soc.* n.s. xxxiv (1934), 62-90, subsequent work has pointed elsewhere to sheep- and goatskin as being more commonly in use, cf. chiefly W. Groenman-van Waateringe, *Romeinse Lederwerk uit Valkenburg* (1967). It is the waterproof type of seam displayed on the smaller Caerleon fragment illustrated here which proves the identification of the sheeting; cf. my article, *inter alia* on *Segontium* tent-panelling, *Arch. Camb.* cxxiv (1975), 60-1.

<sup>21</sup>*Isca*, 35. An unworn but unstratified *sestertius* of Nerva, *RIC* 86, probably came from the seat of the fire in the brewhouse where the grain was found.

<sup>22</sup>A distant parallel is provided by the open-sided 'ship-houses' for the Athenian navy in the Piraeus: C. Torr, *Ancient Ships* (1894), 22 n. 57; L. Casson, *Ships and Seaman'ship in the Ancient World* (1971), 363-5, fig. 197. But perhaps I am too particular: open-sided buildings are shown on coins to be usual at harbours, see M. J. Price and Bluma Trell, *Coins and their Cities* (1977), 40, figs. 57-62.

<sup>23</sup>The only additional discoveries worth mention are kerbs and associated hard-standings north-east of the 'boat-house', in one case matching the alignment of path 4. Neither of these kerbs was extensively explored (fig. 2).

<sup>24</sup>Apart from the few coins, the only metallic objects were a piece of iron bucket-hoop or the like, and a small lead patch, perhaps from a boat. The corrosive action of sea-water ensured that lead was largely used for metal fittings aboard ancient ships, cf. F. Benoit, in *Atti del III Congresso Internazionale di Archeologia Sottomarina* (1971), 394.

<sup>25</sup>Cf. *Britannia* vii (1976), 351, pl. 31A, for wattlework revetments beside a channel of the Thames at Southwark.

<sup>26</sup>Some 15 cm. above the Roman surface, an abrupt colour-change from grey to light brown was generally perceptible. It is the effect of oxidation, and does not correspond to an intermediate surface or interface.

<sup>27</sup>The deep post-Roman ditch so noticeable in fig. 4, the course of which is followed by the present ditch and hedgerow between parcels 398-9 and 400, was probably dug to reclaim the area after the disastrous flood of January 1606/7. Until the appearance of my 'Caerleon and the Severn Levels in Early Historic Times', cf. F. J. North, *The Evolution of the Bristol Channel* (1964 ed.), 76-8.

<sup>28</sup>See note 32.

<sup>29</sup>A. B. Hawkins, in *Marine Archaeology* (cit. n. 9), 67-87.

<sup>30</sup>Alexander Neckam, *De Naturis Rerum with the Poem . . . De Laudibus Divinae Sapientiae* (ed. T. Wright, Rolls Series 1863), 415, lines 885-6; where we find *princeps* for *praeceps*, as is neither factual nor poetical—the Wye, not the Usk being accorded primacy among tributaries of the Severn.

<sup>31</sup>J. Leland, *Itinerary* (ed. T. Hearne) v (1711), 5-6. The last ship to use Caerleon as home port was the *Welsh Prince*, 86 tons, lost off Newport in the 1880's: J. R. Gabriel cited by V. E. Nash-Williams, *BBCS* xiv. 2 (1951), 176-7.

<sup>32</sup>Details *ibid.* and from records of the Usk River Division of the Welsh National Water Development Authority.

<sup>33</sup>*Op. cit.* n. 22, 171, cf. 183-4. The largest in general service were the cornships on the Alexandria-Ostia run, about 350 tons (Casson, 172, n. 25): it was in one of these that St. Paul took passage (*Acts of the Apostles*, xxvii). Such vessels berthed alongside the quays of the Claudian harbour at Ostia, where the walls were only 2·5 m. high (O. Testaguzza, *Archaeology* xvii (1964), 177-9). The quay at Massalia was of similar height (*Gallia* xxvii (1967), 423-30; M. Euzennat and F. Salviat, *Les Découvertes archéologiques de la Bourse à Marseille* (1969), 37, 39).

<sup>34</sup>The trireme *Radians* appears on a relief at Boulogne, the principal base; best shown in the drawing in E. Desjardins, *Géographie historique et administrative de la Gaule ancienne* (1876) i, 367. The *Pacatrix*, see C. H. V. Sutherland, *Num. Chron.* ser. 5 xvii (1937), 306-9.

<sup>35</sup>P. Marsden in G. F. Bass, *A Hist. of Seafaring based on Underwater Archaeology* (1972), 114-32.

<sup>36</sup>Cf. my article, *Apulum* ix (1971), 459-64. For a recent study of the Mendip mines see H. D. H. Elkington, in K. Branigan and

P. J. Fowler, *The Roman West Country* (1976), ch. 10 and Appendix 4; where pigs nos. 21-2, from the R. Frome at Bristol, point to the use of the Avon, into which the Frome flows, as a means of transporting heavy merchandise. Large leaden water-mains at Caerleon, *Isca*, fig. 4. Lead was worked at Machen and probably Risca near Caerleon, but it is uncertain to what extent the needs of the fortress were thence met.

<sup>37</sup>J. H. Williams, *Trans. Bristol & Glos. Arch. Soc.* xc (1970), 95-119, makes no reference to Caerleon, where large amounts were used, e.g. in the gate-piers of the amphitheatre and as columns, e.g. the 94 cm. diam. columns of the headquarters (*Arch. Camb.* cxix (1970), 47-8, fig. 12a), and as decorative details and in sculpture (e.g. *BBCS* xxvi. 2 (1975), 227-8, and below, p. 31) and inscriptions (e.g. *RIB* i, no. 331); also for sarcophagi, n. 49.

<sup>38</sup>Exposed at Sudbrook Point 5 km. south-west of the mouth of the Wye; used in the furnace arch of the early baths near the amphitheatre, in gateways at the amphitheatre, and in the *basilica principiorum* and *b. thermarum* of the Fortress Baths as stylobates, pier-bases, etc.; some turned columns are also known. The Roman material from Sudbrook (V. E. Nash-Williams, *Arch. Camb.* xciv (1939), 55-77 *passim*) relates, in its early *facies*, to a Neronio-Flavian military occupation of the Iron Age fort, securing the ferry-terminal on what was to be listed as the 14th of the British routes in the *Antonine Itinerary*; the large Greek Imperial bronze coin of Severus (Holland's Camden's *Britannia* (1637), 634; cf. *Brit. Mus. Cat. Coins of Troas Aeolis and Lesbos*, 131 no. 51) is a rarity, and likely to have been dropped by a much-travelled legionary perhaps engaged in quarrying.

<sup>39</sup>Used mostly in cladding, occasionally for inscriptions; for a large *labrum* with Medusa's head, cf. *BBCS* xxvi. 2 (1975), 228-30, shown also in *Isca*, fig. 70; there is also a hexagonal pedestal in the Legionary Museum. The Flavian *natatio* of the Fortress Baths was lined with this material. On the trade, see G. C. Dunning, *Arch. News-Letter* March 1949, 15; J. Beavis, *Proc. Dorset N.H. and Arch. Soc.* xcii (1971), 181-204.

<sup>40</sup>*RIB* i, no. 330: presumably ordered complete with inscription and consular date II, which required alteration upon arrival.

<sup>41</sup>On the trade in barrelled goods, mostly wine, attested on the west side of Britain by barrels from *Segontium* and Kirkby Thore, see my article, *loc. cit.* n. 20, 52-7.

<sup>42</sup>For a notion of what Venetic ships may have been like, see R.-Y. Creston, *Atti del II Congresso Internazionale di Archeologia Sottomarina* (1961), 369-80.

<sup>43</sup>*Geographika* iv, 5.1.

<sup>44</sup>Coins from Charston Rock and Blackrock are probably from wrecks: cf. E. Donovan, *Descriptive Excursions through S. Wales and Mon.* (1805) i, 51-2, 55-7. A *Constantinopolis* coin from Blackrock was shown at the National Museum in 1967.

<sup>45</sup>Nennius, *Historia Brittonum* (ed. F. Lot, 1934), 213, cap. 68. Cf. F. W. Rowbotham, *The Severn Bore* (1970).

<sup>46</sup>The crossing of the Severn used to exercise local antiquaries a great deal, and they devoted useful attention to the problem of the tides in reaching South Wales from the Bristol Avon. See Bp. Clifford, *Trans. Bristol & Glos. Arch. Soc.* iii (1878-9), 88-9; A. T. Martin, *Proc. Clifton Antiq. Club* i.1 (1886), 63-4. The Bay of Fundy, Nova Scotia, has the highest tidal range.

<sup>47</sup>The earliest known use of coal at *Isca* is Antonine: cinders were found beneath the upper metalling adjacent to the second path (p. 4). Anthracite, T. C. Cantrill in J. Ward, *Arch. Camb.* ser. 6 vii (1907), 212; W. G. Thomas and R. F. Walker, *BBCS* xviii.3 (1959), 302-3, probably from the Amroth exposure.

<sup>48</sup>Analysed by H. F. Adams in the Coal Survey Laboratory, Cardiff; cf. *idem*, E. R. Bradburn and myself, *Geol. Mag.* cii (1965), 469-73.

<sup>49</sup>J. E. Lee, *Isca Silurum* (1862), 23-4, pl. 8, 7 (half-hexagonal). The roundheaded type is also common, cf. F. W. Jefferies, *Proc. Som. Arch. & N.H. Soc.* xcv (1950), 106-11, for a short list. The use of waterways for the delivery of such heavy merchandise seems very likely, wherever practicable. One coffin with a half-hexagonal head, 1.6 m. long, containing the remains of an elderly person wearing sandals with studs, was found on the fringes of the Kingsweston villa settlement near Avonmouth, a case in point (never properly published: see *Western Daily Press* (Bristol), March 9, 1948, 3 col. 3).

<sup>50</sup>See note 37.

<sup>51</sup>Cf. the masses of samian, etc. found at New Fresh Wharf: J. Schofield and L. Miller, *The London Archaeologist* ii.15 (1976), 395.

<sup>52</sup>The late L. F. Cowley identified oyster, mussel, cockle, limpet, periwinkle, and one shell each of *Paphia decussata* and *Anomia sp.*, doubtless all being gathered from the shores of the Severn Sea. Many specimens of the garden snail, *Helix aspersa*, also occurred and must have been thrown over the edge of the quay with rubbish. This creature is now known to be of Roman introduction, doubtless for food (J. G. Evans, *Land Snails in Archaeology* (1972), 175-6).

<sup>53</sup>Carmarthen, see below p. 105; also unpublished, seen by me; Cwmbrwyn, *loc. cit.* note 47, 188-9, 211; Coygan, G. J. Wainwright, *Coygan Camp* (1967), 166; Castle Flemish, R. E. M. Wheeler, *Arch. Camb.* lxxviii (1923), 216 (checked). Slates from a Roman building at Ford, in the W. Cleddau valley 10 km. north of Haverfordwest, were doubtless of the same kind (Fenton, *Tour in Pems.* (1811), 333). A curious inscribed disc, apparently of Prescelly slate, was found at Neath fort (V. E. Nash-Williams, *BBCS* xiii.4 (1950), 242, fig. 9; *JRS* xli (1951), 142, no. 9); and small fragments from a third or fourth century context at Cae Summerhouse native farmstead near Porthcawl have been shown me by J. L. Davies.

<sup>54</sup>M. G. Jarrett, *Carm. Antiq.* iv. 1-2 (1962), 2-8 (Towy valley).

<sup>55</sup>*Isca*, 61-2; but the recent Bulmore excavations (p. 25 below) show that although there was little beside the fortress after the Severan reorganisation, a settlement may have been established at that distance as a replacement.

<sup>56</sup>*BBCS* xxii. 3 (1967), 303-7; xxvi. 2 (1975); and forthcoming.

<sup>57</sup>From Wheeler's *Prehistoric and Roman Wales* (1925), 234, 237 to Nash-Williams's *Roman Frontier in Wales* (1954), 142-3, and again (but not in connexion with the *Dési*, rightly placed later) in Frere's *Britannia* (1967), 254; see *ibid.* 356, where the *lack* of hoards connected with the attacks of 367-8 is noted.

<sup>58</sup>K. Meyer, *Trans. Cymmrodorion Soc.* 1895-6 (1897), 57-9, 'well-authenticated fact', *idem*, *Y Cymmrodor* xiv (1901), esp. 113.

<sup>59</sup>*RIB* i, nos. 2251-62: Gordian III (1), Postumus (2), Victorinus (2), Tacitus (1), Diocletian (2), Constantius I (1), Maximin II (1), Licinius (1) and Constantine II (1).

<sup>60</sup>L. Alcock, *Arthur's Britain* (1971), 122-4.

<sup>61</sup>In *Isca*, 51-2, I mention the *Antoniniana* tile of the Second Legion stated to have been found at Pennal, Mer.; but it now appears that the doubts always thrown on the validity of this piece must now detract largely from its value as evidence of a maritime connexion between Caerleon and outlying forts, cf. Mr. R. White's conclusion (below, p. 62, n. 18) summing up his enquiries into the content of the old collection concerned.

<sup>62</sup>For these reasons: (1) there is in Ireland little of relevant date attributable to raids (cf. J. D. Bateson, *Proc. Roy. Irish Acad.* lxxii, C.2 (1973) and lxxvi, C.6 (1976); M. Dolley *ibid.*, C.7, esp. on the coins, 182-3 and diagram); (2) with only one exception—the Sully hoard (H. A. Grueber, *Num. Chron.* ser. 3 xx (1900), 27-65, pl. 3) none of the third and fourth century hoards



can really be called *treasure*, for they are composed of base coins of which the individual worth was practically *nil* (cf. R. A. G. Carson in *Proc. Internat. Numismatic Convention, Jerusalem* (ed. A. Kindler, 1967), 321-50, esp. 327), so that a hoard of some thousands amounted in terms of gold to only a very modest sum; (3) the phenomenon of hoarding continued beyond the period with which we are here concerned, because coins could still reach the area, which in any case participated in the provincial monetary economy, unaffected by external events; and (4) the coastal districts of Wales have ever enjoyed a substantially larger population than the interior, with the result that hoards will have been more often accumulated, buried and in modern times exhumed than inland. The thread connecting these numerous deposits, covering the better part of a century, is a monetary one: the demonetisation, first of the Gallic, then of the British coinage, and the various manipulations of Constantinian times. The hoards represent, in short, not important value, but obsolete small change; not a testimony to rapine and slaughter in which their owners perished, but abandoned property.

<sup>63</sup>*Antonini Augusti Itinerarium* (ed. Wesseling, 1735), 482.9.

<sup>64</sup>Cf. G. D. B. Jones and J. H. Little, *Carm. Antiq.* ix (1973), 13-14. There was a transition in the early second century to a fortlet, not occupied for very long. Cf. *Apulum* ix (1971), 500, for two worn coins of Domitian and a little-worn coin of Trajan, as well as part of a stone inscription, unfortunately virtually useless.

<sup>65</sup>A. H. M. Jones, *The Later Roman Empire* (1964), 435, 838-9. The hoard of gold jewellery (V. E. Nash-Williams, *BBCS* xiv (1952), 81-2, pl. 5) suggests that a good deal of gold may have been diverted for private use.

<sup>66</sup>B. H. St. J. O'Neil, *BBCS* viii (1937), 370-7.

<sup>67</sup>*The Roman Frontier in Wales* (1969 ed.), 70-3. The latest coins from the fort are of Valentinian I (two), and not of Gratian as stated. An unworn *denarius* of Julia Domna may point to a foundation early in the third century, a suggestion in keeping with the known alterations to the corners, originally rounded. Cardiff is blind to the sea, and may have maintained a signal-station on Penarth Head, cf. my remark in *An Illus. Guide to the Ancient Monuments of Wales* (1973, HMSO), 36.

<sup>68</sup>R. and L. A. Ling, *Arch. Camb.* cxxii (1973), 109-10.

<sup>69</sup>G. D. B. Jones, *Carm. Antiq.* vi (1970), 9. Note also *RIB* i, no. 412, a pedestal inscribed [Bon]o R P Nato, a fourth-century formula which from its official character may suggest a military presence in the town. On the dating, see R. P. Wright, *Arch. Ael.* ser. 4 xlviii (1970), 45-9, esp. n. 7.

<sup>70</sup>Cited by M. G. Jarrett, *BBCS* xx. 2 (1963), 218. Probably not a hoard, as I thought formerly (*BBCS* xxii. 3 (1967), 309 no. 98): cf. E. Laws's original account, *Hist. of Little England beyond Wales* (1888), 46. A late and much worn *sestertius* of Commodus, from river-silt near Wogan's Cave below the Castle, was shown at the National Museum in 1970 and was, I thought, an acceptable ancient loss.



Plate I. General view of the quay from the west.



Plate IIA. Front of the quay.

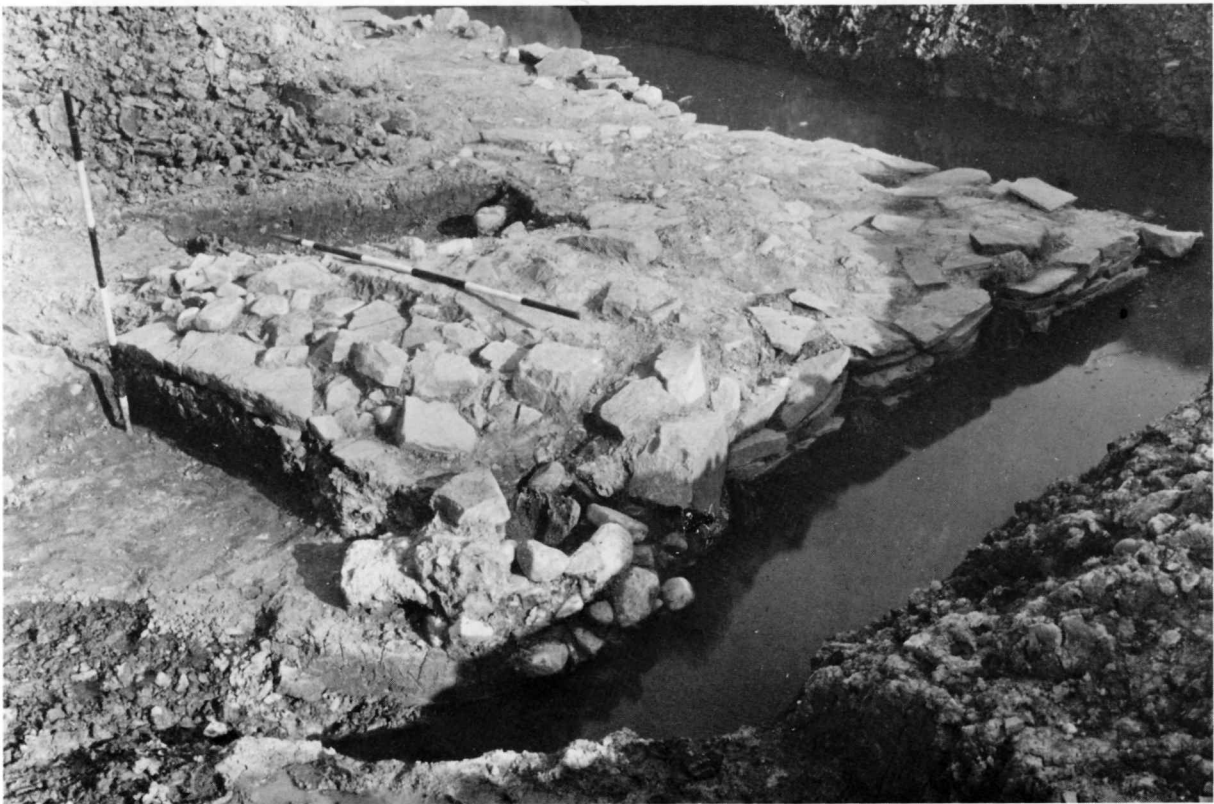


Plate IIB. Return of the secondary quay.



Plate IIIA. Junction of the primary and secondary quay-walls and the return of the primary quay.



Plate IIIB. Damage caused to the secondary quay by the loosened joists of the stage, as the result of tidal action.



A



B



C

Plate IV A Sink and drain in the 'boat-house'.  
 B Cobbling between kerbs, primary quay return.  
 C Wattlework found beyond the primary quay.  
 D Specimen halving-joints, bracing-members of the stage.

D

