

Reconnaissance excavations on Early Historic fortifications and other royal sites in Scotland, 1974–84: 4, Excavations at Alt Clut, Clyde Rock, Strathclyde, 1974–75

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SUMMARY

As part of a long-term programme of research on historically-documented fortifications, excavations were carried out in 1974–75 at Dumbarton Castle, anciently known as Alt Clut or Clyde Rock. These disproved the hypothesis that a nuclear fort, after the pattern of Dunadd or Dundurn, could be identified on the Rock, but revealed a timber-and-rubble defence of Early Historic date overlooking the isthmus which links the Rock to the mainland. Finds of especial interest include the northernmost examples of imported Mediterranean amphorae of the sixth century AD, and fragments from at least six glass vessels of germanic manufacture. Discussion centres on early medieval harbour sites and trade in northern and western Britain. A detailed excavation record and finds catalogue will be found in the microfiche.

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EXCAVATION SYNTHESIS & DISCUSSION

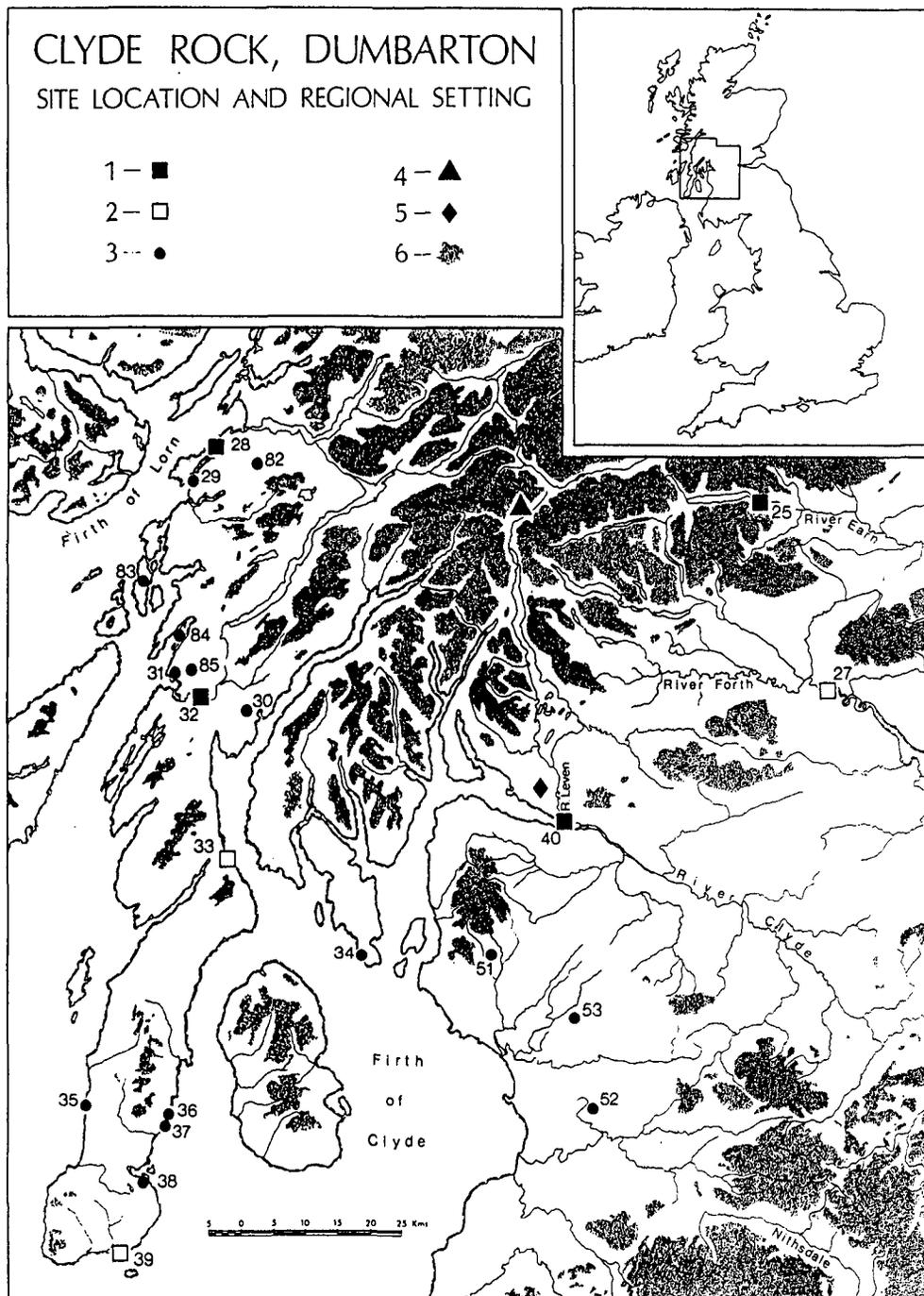
INTRODUCTION: CHARACTER OF THE EXCAVATION & REPORT

When a long-term plan for excavating historically-documented fortifications in Scotland was initially formulated in 1973, Castle Rock Dumbarton was an obvious first choice: partly because historical or quasi-historical records spanned the period from the mid-fifth to the late-ninth century AD: partly because of its logistic convenience for a team based in Glasgow University.

Despite the impressive character of the medieval and later fortifications at Dumbarton, both the excavation and the present report follow rigorously the pattern of others in the series, in that they are restricted to the structures and finds of early historic date – in this case, fifth to ninth centuries AD – except where a discussion of later remains is necessary in order to establish the structural sequence.

The history of Castle Rock is, of course, part of the wider history of Strathclyde, a major British kingdom which may have descended from the pre-Roman tribe of the Damnonii, and which certainly had a major politico-military role to play in the early development of northern Britain into the kingdom of the Scots (Smyth 1984 is the best general account). But Strathclyde is far too large a unit to discuss in an excavation report, even one devoted to its major political centre. This account is therefore broadly limited to the history and archaeology of the Rock itself, and to matters directly relevant to them.

None the less, it must be recognized that the significance of the Rock lay not merely in what it was, but where it was (illus 2, 3 & 4). Firstly, it was a formidable seat of kingship: formidable in the objective sense that, ringed by crags and largely surrounded by water, it was exceptionally difficult to assault, as was demonstrated by its siege in AD 870; but formidable in a subjective sense as well, because of the towering rock steps which buttess its level eastern summit. As for its location (illus 1), at the junction of the maritime Clyde with the riverine Clyde and Leven, it gave access both to the fertile interior of the two river valleys and no less to the coasts and islands of the Firth of Clyde and the wider seas beyond.



ILLUS 1 Map: Clyde Rock, Dumbarton, site location and regional setting.

Key: 1 & 2, certain and possible historically-recorded enclosed places; no 40 is Clyde Rock. 3, archaeologically-dated enclosed places; numbers refer to the gazetteer, Appendix 1. 4, Clach nam Breatann. 5, Carman. 6, land over 300 m OD



ILLUS 2 Air view of Clyde Rock, looking NNW up the Vale of Leven. Carman stands on the lefthand slope of the hill in the background. (Photo: RCAMS, Crown copyright)

EARLY HISTORY

The most important historical reference to the Rock is that in Bede's *Historia Ecclesiastica*, written in AD 731. In describing the western of the two arms of the sea which divided the Picts from the Britons – that is, the Firths of Forth and Clyde – Bede writes 'there is up to the present a strongly defended political centre of the Britons called Alcluith' [*civitas munitissima Brettonum quae vocatur Alcluith*] (HE I 1). Elsewhere he calls it *urbs Alcluith*, and explains that *Alcluith* 'means Clyde Rock in their language' (ie that of the Britons; *Petra Cluith* in Latin) 'because it is beside the river of that name' (HE I 12).

These statements give us a version of the British or Old Welsh name of the place, attribute it to a people or nation; assign it a political status as *civitas* and *urbs*, terms to which we will return (p 116); and make clear that it was a defended place of some standing already by AD 731.

Before that date, Clyde Rock had already appeared under both Latin (*petra Cloithe*) and Irish (*Alo Chluaithe*) forms, as a seat of kings. Thus in Adomnan's life of Columba, written towards the end of the seventh century, but referring to the late sixth, we hear of King Roderic son of Tothal. In 658 the Annals of Ulster record the death of Guret, while the Tigernach Annals mention the death of Donald son of Owen in 694: in all three cases, there is specific mention of 'king of Clyde Rock' or of reigning on Clyde Rock.

In the late seventh century there was indeed a tradition which described as king of Clyde Rock

that Coroticus whose excommunication was called for by St Patrick; this would carry the kings of the Rock back to the mid-fifth century. The tradition is first recorded some two centuries after the event; but it may nevertheless be regarded as more reliable than some recent fanciful reinterpretations of Patrick's conflict with Coroticus.

After Bede, there is a further reference to the death of a king of Clyde Rock in 752; one from a dubious source, Symeon of Durham, to a combined Northumbrian and Pictish attack in 756; and a mention of 'the burning of Clyde Rock', whether by accident or in a hostile attack, 'on the 1st of January 780'. We then come to the events which put an end to early medieval Clyde Rock. In AD 870, the Annals of Ulster record that two kings of the Norsemen, Olaf and Ivar, besieged the citadel for four months, and ultimately destroyed and plundered it. This is indeed the last we hear of the name, so we may believe that the destruction was complete. In the following year, according to the Annals, Olaf and Ivar went from Scotland to Dublin with 200 ships and a great booty of British, English and Pictish slaves.

These references, then, establish the importance of Clyde Rock for the study of Early Historic defended places and political centres in northern Britain. We may now turn to examine the character of the Rock itself, and also its wider setting.

CLYDE ROCK AND ITS SETTING (illus 1)

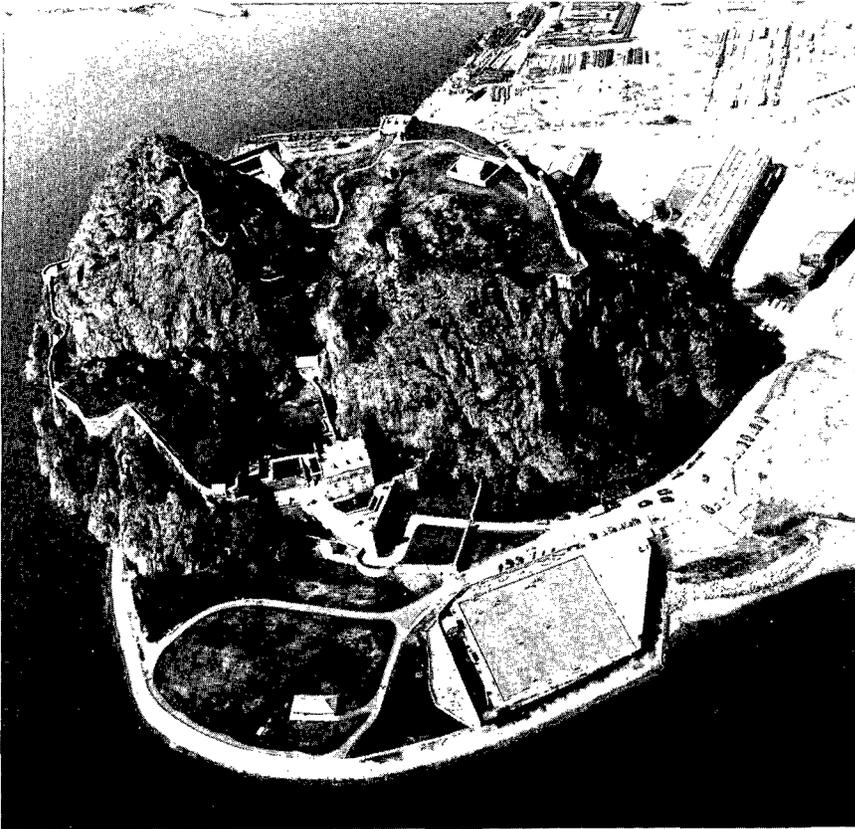
Clyde Rock rises precipitously from the north (true right) bank of the river Clyde to a height of 74 m (240 ft) above Ordnance Datum in the form of twin summits separated by a deep cleft. It is in fact a volcanic plug, comparable with other conical hills in the Campsie Fells to the north-east (Whittow 1977, 91); but it is visually by far the most striking. Its crags make it naturally defensible, and its location at the confluence of two navigable rivers, the Clyde and the Leven, give it the strategic importance which is revealed in the historical references.

Upstream, the Clyde was barred to ocean-going vessels by a rock barrier at Dumbuck, some 2 km above the Rock, until the 18th century when the cutting of an artificial channel made it possible to sail to the heart of Glasgow. In earlier centuries, however, the Dumbuck barrier could be crossed at high tide by vessels of shallow draught, and in any case would have involved no more than a short portage. This would have given access to fertile lowland either side of the river; and ultimately to the moorland grazing of Upper Clydesdale (Gilfillan & Moislely 1958).

The Leven gave access to other arable lowlands between the Campsie and Kilpatrick Fells and the Southern Highlands. More importantly, it issued from Loch Lomond, an important waterway in itself, which also led, by short portages, to rivers flowing east into the upper Forth basin, and ultimately to the North Sea. These were probably among the routes used in the great Viking slave raid of AD 871. Certainly a Viking connection with Loch Lomond is shown by a warrior burial at the outfall of Glen Fruin (NGR NS 3585, Grieg 1940, 15). Beyond the head of Loch Lomond, a narrowing valley skirts *Clach nam Breatann*, 'Stone of the Britons', a dramatic natural rock formation which is traditionally regarded as marking the northern limit of the British kingdom of Strathclyde.

Below the Rock, the Clyde widens into an estuary, with sea-lochs such as Long and Fyne penetrating deeply into the Highlands, and offering communications, a rich sea-harvest, and occasional cultivable areas along their shores. Often these were mere pockets; but in Ayrshire they were both extensive and rich. Beyond the Mulls of Galloway and Kintyre lay not only the Irish Sea, with Viking raiding and trading ports at Dublin, Waterford and Wexford, but ultimately the Atlantic façade of Europe.

Turning now to the archaeological background to Clyde Rock: this is to be seen, ultimately, in the brief Roman intervention represented along the right bank of the Clyde by the Antonine Wall.



ILLUS 3 High oblique air view of Clyde Rock. The pointed summit to the left is White Tower Crag; the lower area to the right is The Beak, with the eastern spur forming the righthand skyline. (Photo: Glasgow University Photographic Unit)

Scraps of Roman pottery and occasional trinkets have also been found on sites of native character, including duns and crannogs (Robertson 1970), but their significance for dating such sites is debatable. We shall see that this is also the case with Romano-British pottery from the Rock itself. What is certain is that some of these enclosed places of potentates (Alcock, E A 1988) were occupied at the same time as Early Historic Clyde Rock (Alcock & Alcock 1987, 130–2). These would include at least eight duns in Argyll and one in Ayrshire, as well as crannogs in both Argyll and Ayrshire (illus 1 & 19). It should be stressed here that sites are only included on the map (illus 1) because their date is known from excavation; possibly contemporary, but unexcavated, sites are deliberately excluded. Consequently, the map cannot be used for inferences about the overall distribution of contemporary sites, nor for spatial analysis.

The map also shows the certain or probable location of six other sites of the period which are mentioned in written sources, and which were probably of a high status comparable with Clyde Rock itself. Of the chief fortified places of Dal Riata, only Dunollie is not accessible from the Firth of Clyde. Dunadd lies 6 km over low-lying ground from Loch Gilp, a bay off Loch Fyne; while Tarbert and Dunaverty (*Aberte*), if they are correctly identified, are beside its shore. To the east, Dundurn may be approached by way of Loch Lomond, and then a series of portages and mountain passes; and

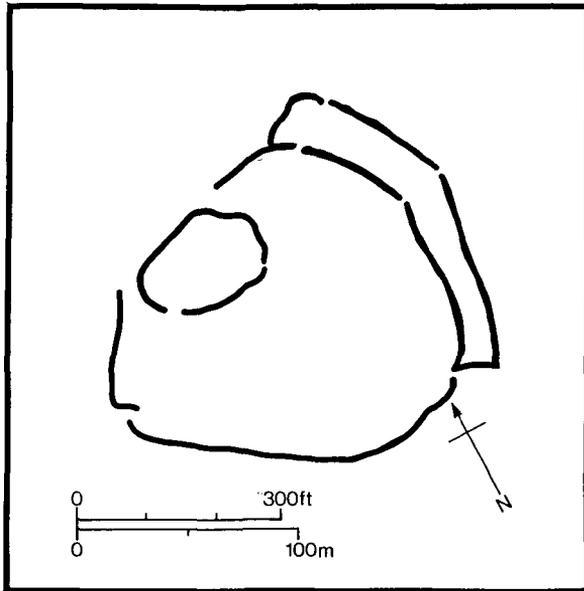


ILLUS 4 Clyde Rock from sea-level, looking SE across the river Leven; White Tower Crag to the right, eastern spur on the extreme left

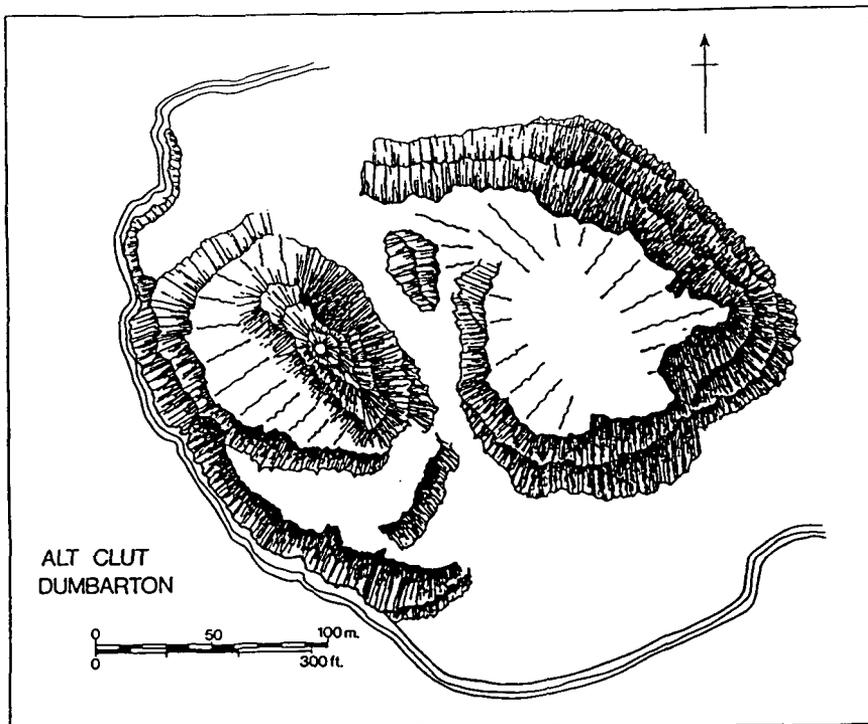
Stirling (if is correctly identified with Bede's *urbs Giudi*) is accessible from Loch Lomond by the upper reaches of the river Forth.

One other fort should be mentioned here, despite the fact that it is not historically-referenced, because of its size and proximity to Clyde Rock: Carman (illus 5). This overlooks the Rock from a height of about 230 m and at a distance of 6 km. Carman has two elements: an inner oval wall, 60 m on its long axis, which crowns the summit of an isolated hillock; and an outer wall, doubled on the north-east (the side of readiest access), with an overall diameter of 180 m. It thus belongs to the class of 'citadel-plus-outwork' (*Hauptburg/Vorburg*) sites, a sub-class of hierarchically-organized forts, which have been discussed in relation to Dundurn and other 'nuclear' forts (Alcock *et al* 1989). Wherever there is evidence for dating them, such fortifications appear to belong to the early medieval period rather than to the pre-Roman Iron Age. This immediately makes it necessary to discuss the possible relationship between Carman and Clyde Rock.

There is another reason for doing this. Whatever the date of Carman, it is in terms of western Scotland a large fort. Among the royal strongholds of Dal Riata, Dunollie in its entirety could be fitted inside the inner enclosure of Carman; and the major Dal Riata fort of Dunadd covers only about one-quarter of the area enclosed by the outer wall. This must surely imply a major concentration of military and political power at Carman. It is difficult to see how this could have co-existed with the royal presence at Clyde Rock. A possible explanation might be that Carman was the immediate precursor of Clyde Rock (illus 17); that it shows the beginnings of a concentration of political and military power realized by means of a hierarchically-organized fortification; but that its position, some 4 km inland, became inconvenient as kings came to require ready access to the sea, not least in



ILLUS 5 Carman: simplified plan after Feachem 1966, fig 16, based on a survey by RCAMS



ILLUS 6 Alt Clut, Clyde Rock: a subjective presentation of the topography

order to import the luxury goods which helped to reinforce their status as bestowers of hospitality. In the absence of excavation at Carman, such explanations remain hypothetical; but the relationship of Carman to Clyde Rock cannot be ignored.

We may now return to the Rock itself. Viewed from sea level, it gives an immediate impression of craggy inaccessibility, even impregnability. While it is not at all difficult to see how, as a topographical feature, it could have resisted the Norse siege for four months, it is hard to picture it as a seat even of barbarian kings, still less as a *civitas*, the term in which Bede described it.

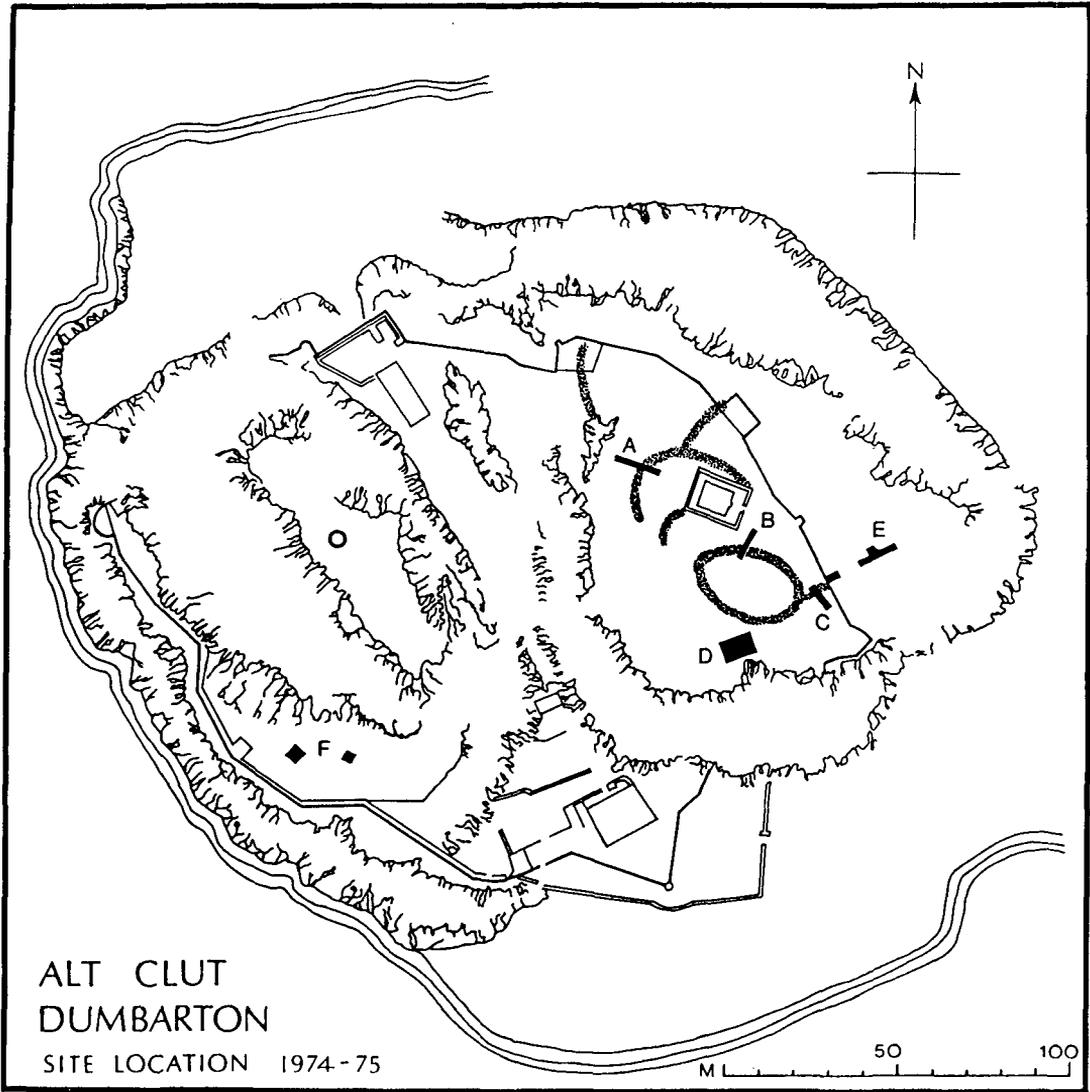
Closer inspection, stripping away the overlay of High Medieval and later fortifications, modifies these first impressions (illus 6). It is true that the higher, western summit, the so-called White Tower, is too pointed for occupation as anything more than a look-out. The eastern top, The Beak, however, has a more or less level summit some 30 by 20 m in extent. Excavation in Cutting B revealed that originally this had been more broken and rocky than it now appears; but it would still have presented an area suitable for occupation. The cleft between the two peaks provided an access route, albeit rugged, to The Beak, especially from the north. Moreover, the eastern peak, and the lowest slopes of the western one, are far from uniformly precipitous, especially on the Clyde-ward face. The slope is broken by a number of more or less level terraces, of varied size, capable of being improved for human occupation. In making this observation originally, we had in mind the terraces on the peripheral slopes at Tintagel. These certainly accommodated buildings, formerly regarded as monastic cells, but now identified as secular dwellings within a great stronghold (Radford 1935a; 1935b; Thomas & Fowler 1985; Thomas 1986). Finally, at the foot of the crags, but above high water mark, there are extensive level areas beside both the Clyde and the Leven. What is not certain is how far these are the result of recent build-up, whether natural or artificial.

It was the recognition that the level summit of the eastern peak was very suitable for a citadel, with subordinate occupation on the lower terraces, which led to the placing of Clyde Rock among the broad class of hierarchically-organized sites, among which nuclear forts are a major sub-class (Alcock *et al* 1989). The belief that Clyde Rock was such a nuclear fort has, indeed, a long history. Following a hint from Christison that 'Dunadd may not inaptly be compared to Dumbarton Rock', Stevenson wrote in his seminal paper (1949, 196)

'The Britons who chose the Rock . . . clearly shared the remarkable preference for an isolated and craggy hill shown at our other sites (ie Dalmahoy, Dundurn, Dunadd, Ruberslaw), and to which the nuclear pattern of fortification was above all adapted'.

Between 1949 and 1973 there appears to have been no attempt to follow up Stevenson's comments on the ground, though there was a vague oral tradition that traces of ramparts appropriate to a nuclear fort could still be seen within Dumbarton Castle. When the authors first studied the site with critical eyes in 1973, it was immediately obvious that, on The Beak, there were pronounced scarps which could readily be interpreted as the collapsed and eroded ramparts of a citadel with looping-out lower enclosures: the essential nuclear fort plan (illus 7). It was also evident that this interpretation could be readily tested by an economical excavation. The scarps were therefore surveyed, with assistance from Sylvia Leek (Stevenson), as a basis for the first phase of the excavations which are described below.

It was no part of the overall campaign of excavations on Early Historic fortifications to examine the High Medieval and later fortifications which overlay some of these sites, and most conspicuously, that on Clyde Rock. Nothing is said here, therefore, about the masonry fortifications and the buildings within them, though it must be said that they had a considerable, and wholly deleterious, effect on the early remains. A well researched and documented account of Dumbarton Castle may be found in MacPhail (1979), and a briefer account in MacIvor (1958; impressions of this post-1986 regrettably lack a site plan).

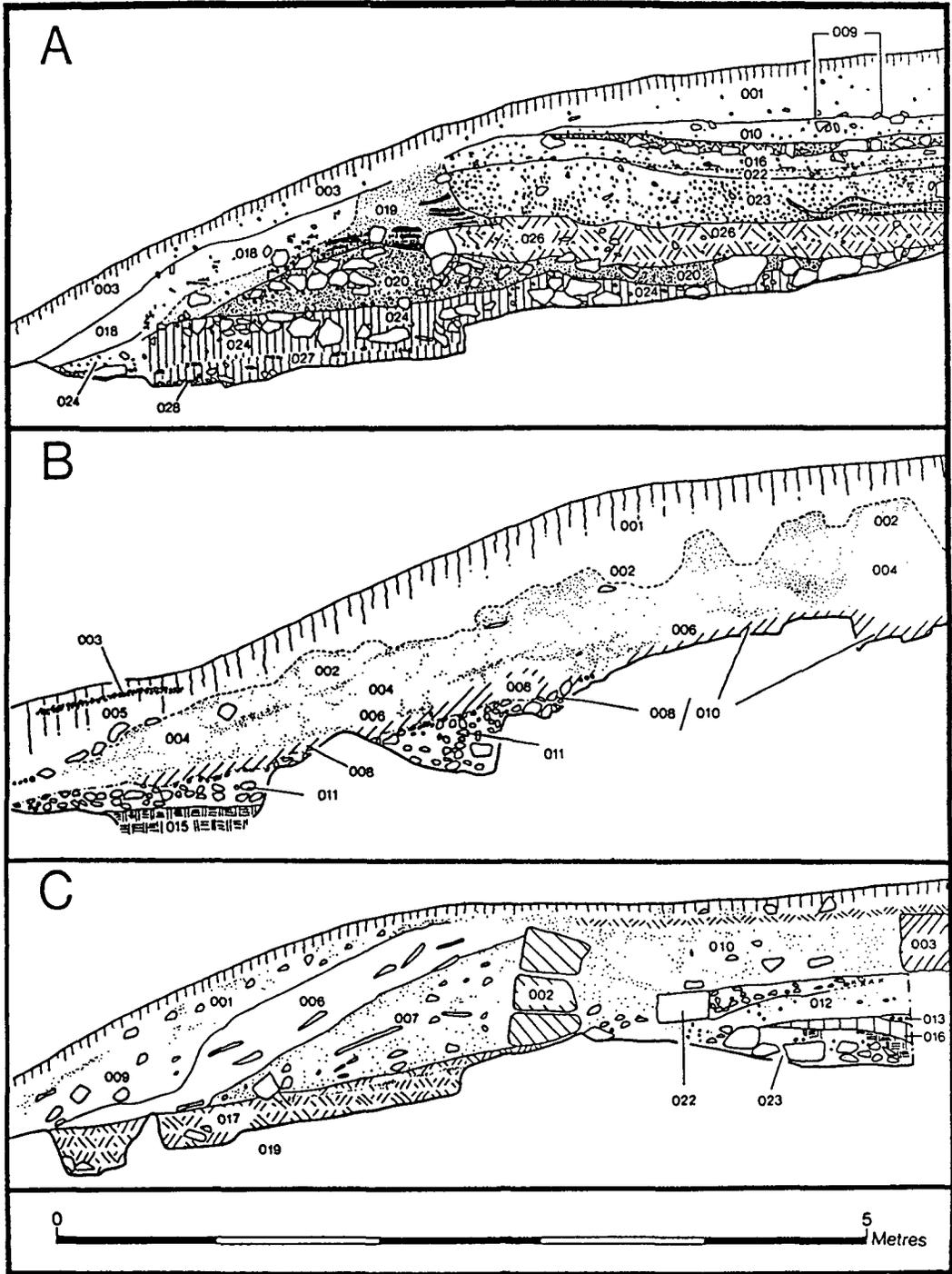


ILLUS 7 Alt Clut, Clyde Rock: plan showing the supposed nuclear fort and the location of excavation cuttings A to F. (Base plan after MacIvor 1958)

THE EXCAVATION: STRUCTURE & FINDS

THE SUPPOSED NUCLEAR FORT: CUTTINGS A, B & C (illus 7 & 8)

The preliminary survey of the eastern summit revealed a number of gentle but definite scarps between 1.5 and 3.0 m in height around and concentric with the summit boss itself. Despite their gentle angle, these were suggestive of collapsed and eroded rampart faces, with subsequent infilling to the rear. This is a phenomenon well known to excavators of earthwork and rubble defences. A good example can be seen in the early medieval defences of Dinas Powys, where the level interior of the site concealed, on its eastern side, a rampart which was still preserved to a height of 2.0 m, and which was indicated by a gentle external scarp (Alcock 1963, fig 15; 1987, fig 1.5).



ILLUS 8 Sections of Cuttings A, B & C

Using such indications, it seemed reasonable to predict, at Clyde Rock, the presence of an oval citadel, about 30 m on its longer axis, on the summit itself. This was defined by a scarp up to 2 m in height, forming the edge of the central level area in an arc running from west through north to south-east. In its summital position, the whole configuration suggested a decayed oval dun, and recalled the citadel of the classic nuclear fort of Dunadd (Christison 1905; Stevenson 1949; RCAMS 1988, item 248). The scarp was tested in Cutting B.

To the E, the supposed citadel was linked to the eastern crags by a short length of bank, suggestive of the short stretches of wall which link crags in classic nuclear forts. This was therefore examined in Cutting C. To the NW, the approach to the citadel from the central cleft of the Rock appeared to be covered by no fewer than the four ramparts, two of which likewise appeared to link up with crags or outcrops. The most prominent of these was tested in Cutting A. All three cuttings were laid out at 2.0 m wide, but only Cutting B was excavated to bedrock throughout.

To summarize the results: in Cutting B, no rampart was found surrounding the supposed citadel; the scarp was no more than the gentle tailing off of an artificially-levelled area. This had been built up with a deep deposit of ash, cinders and soil (illus 8, B 004, 006), which had certainly been deposited later than a billon hardhead of James VI (cat no 8), found in B 008. This had been issued in November 1588, but in the view of Dr Donal Bateson, had not been lost before 1600. Moreover, the ashy soil itself yielded three copper 'Stirling' turners (two-penny pieces) of Charles I issued 1632–9, and probably lost in the latter part of the decade 1632–42.

The east bank, in Cutting C, rode over a drystone revetment wall (illus 8, C 002) which reused red sandstone blocks from the masonry castle. The revetment in turn overlay a pack of pinkish-white sandstone chips (C 013). These were probably masons' chippings, either from the nearby 'peppercot' sentinel box, a work of 1735, or from the new magazine of 1748 (MacIvor 1958; 1972, 8–12).

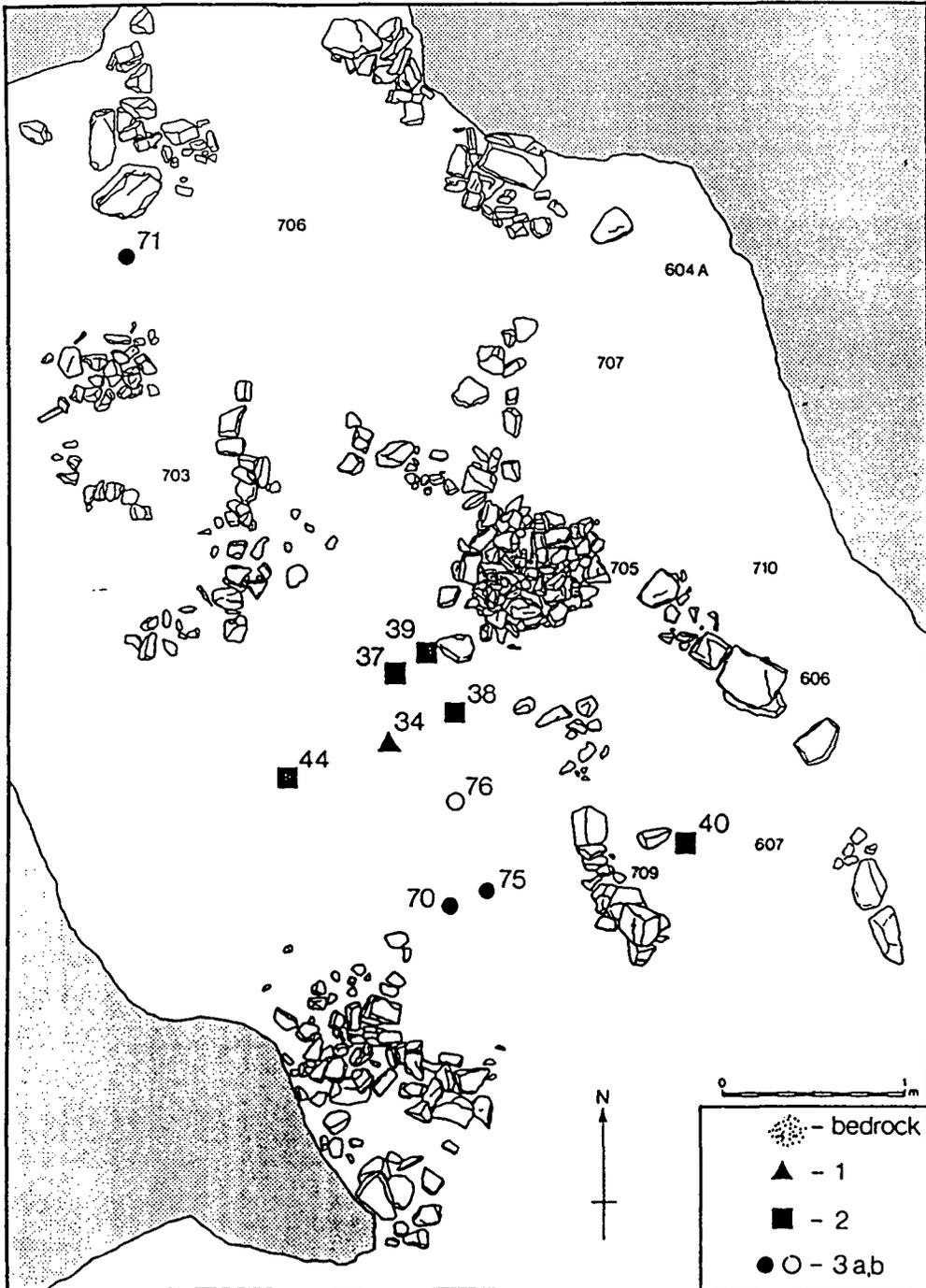
The core of the scarp in Cutting A was a turf stack (illus 8, A 019), set on a rough raft of boulders (A 020), and apparently revetting a bank of mixed clay and soil (A 025, 026). It was considered at first that this was a crude, and therefore later, imitation of the Antonine Wall. This interpretation was reinforced by the discovery of a very weathered sherd of decorated samian (cat no 29) from A 020. It was disproved, however, by the recovery from the base of the section (A 028) of green and olive-green glazed pottery of the 13th century or later.

In short, wherever it was tested, the hypothetical nuclear fort of early medieval date proved to be non-existent.

SOUTHERN TERRACE OF THE BEAK: CUTTING D (illus 9)

South and south-west of the supposed citadel on The Beak, the ground becomes somewhat broken, and even rocky, before the plunge of the main crags to south and west. Round much of this arc, however, there is a more or less level terrace, which appears on some air views of the Rock as a *light* (ie high-lighted) band. Given its southern aspect, and a little shelter from the east and especially the north afforded by the highest ground of the summit, it was thought that this terrace would make an excellent stance for human occupation; and that this might be reflected in the presence of buildings. Cutting D was laid out to test this hypothesis, and was explored in 1974 and more widely in 1975.

The cutting was treated as an open area excavation, dug by small tools – trowels and small picks – in a series of shallow scrapes or spits. It had been hoped that these would encounter a genuine stratification of floors, building levels, natural ground surfaces and so on, which could then be followed throughout the cutting. Unfortunately, the whole area was found to have been deeply disturbed. No genuine stratification markers were discovered, so the scrapes became arbitrary spits, at the base of which the stones which had been exposed were carefully planned.



ILLUS 9 Plan of Cutting D at the general level 603/604, showing the amorphous character of the stone 'features', and the distribution of sherds of: 1, colour-coated Romano-British bowl; 2, amphorae of classes Bi & Bii; 3, 'exotic'/'germanic' glass - a, precisely located, b, approximately located. (Numbers refer to the finds catalogue)

It had also been hoped that, by this means, traces of walls and other structural features might be recorded; but this hope was similarly frustrated. In a generally stony fill, there were indeed some concentrations of stones, some of which rose through two or more scrapes. There were also occasional very crude alignments of stones, but none of these ran for more than 1.90 m, none had returns or parallel alignments, none suggested coherent plans at any level.

In 1974, Cutting D yielded a small sherd of E-ware (cat no 49), which was indeed the only artefact of early medieval date to be discovered that season. The slight promise which it offered was, however, fulfilled in 1975, when Cutting D yielded the greatest concentration of Romano-British and early medieval pottery, and also of exotic glass, to be found on the Rock. This included amphorae of classes Bi (cat nos 37, 38) and Bii (cat no 39–45), datable to the later fifth and the sixth century; three sherds of later imported pottery of Class E, with a date centred on the seventh century (cat nos 49, 50, 52); six sherds of exotic glass vessels which might belong to the sixth–seventh centuries (cat nos 66, 68, 70, 71, 75, 76), and two others (cat nos 67 & 72) which may be as early. Evidence of fine jewellery-making is provided by small thin-walled crucibles, possibly but not certainly of sixth–eighth century date, all seven of which came from Cutting D (cat nos 56–62). (See illus 13–15 for significant finds.)

Finally, with the exception of a decorated Samian sherd (cat no 29) from Cutting A, all the Romano-British pottery from the Rock was found in Cutting D. It consists of three sherds of decorated Samian (cat nos 29–31), two sherds of undecorated Samian (cat nos 32, 33), one from an orange-red colour-coated bowl (cat no 34), a colour-coated handle, (cat no 35), and a coarse sherd from a flanged bowl (cat no 36). The collection ranges in date from c 70–85 AD to the fourth century, and probably represents the ‘reliquary’ occurrence of Samian and other high-status Roman pottery on a post-Roman site (Warner 1976; 1981).

There was, in fact, a definite scatter of Romano-British and early medieval finds running north-east/south-west across cutting D in a band up to 1.40 m wide, starting between 3.50 m and 3.90 m from the north edge of the trench. There was, however, no observable correlation between this and any of the rough stone ‘features’. The same scrape yielded Saintonge ware and other medieval pottery, so there was no stratigraphical significance in the location of the finds of earlier date.

These results, so disappointing in terms of structures, have determined the method of presenting Cutting D in this report. The character of the ‘features’ in plan is demonstrated solely with one example of an individual survey, that at level 603/604, the base of the third scrape in the eastern half of the trench (illus 9). This also records the distribution of finds of early medieval date from that area.

THE DEFENCE OF THE EASTERN SPUR OF THE BEAK: CUTTING E (illus 10, 11, 12)

Towards the end of the 1974 season of excavation it became clear that any early medieval deposits within the walls of the masonry castle must have suffered massive disturbance as a result of building and demolition activities, not least at the end of the 1939–45 war. It was clearly desirable to find, for excavation in 1975, an area suitable for occupation, but lying outside the castle walls. Given that the trace of the walls was largely carried round the edge of the steepest and most craggy slopes of Clyde Rock, it seemed unlikely that these criteria could be met. However, a somewhat adventurous reconnaissance of the eastern spur of The Beak (illus 10 & 11) did reveal two ledges, or at least easements, in the otherwise steep slope, which might have been suitable for human occupation. One of these was chosen for a major effort in 1975, and designated Cutting E.

The basic assumption was that the easement in the slope of the spur might have been utilized for human activities, on the rather vague analogy of the terraces on the slopes around the central plateau of Tintagel, as these were interpreted at that time (Radford 1935a; 1935b; but see now Thomas 1986; Thomas & Fowler 1985). In particular, it was thought that a position on the periphery of the main area

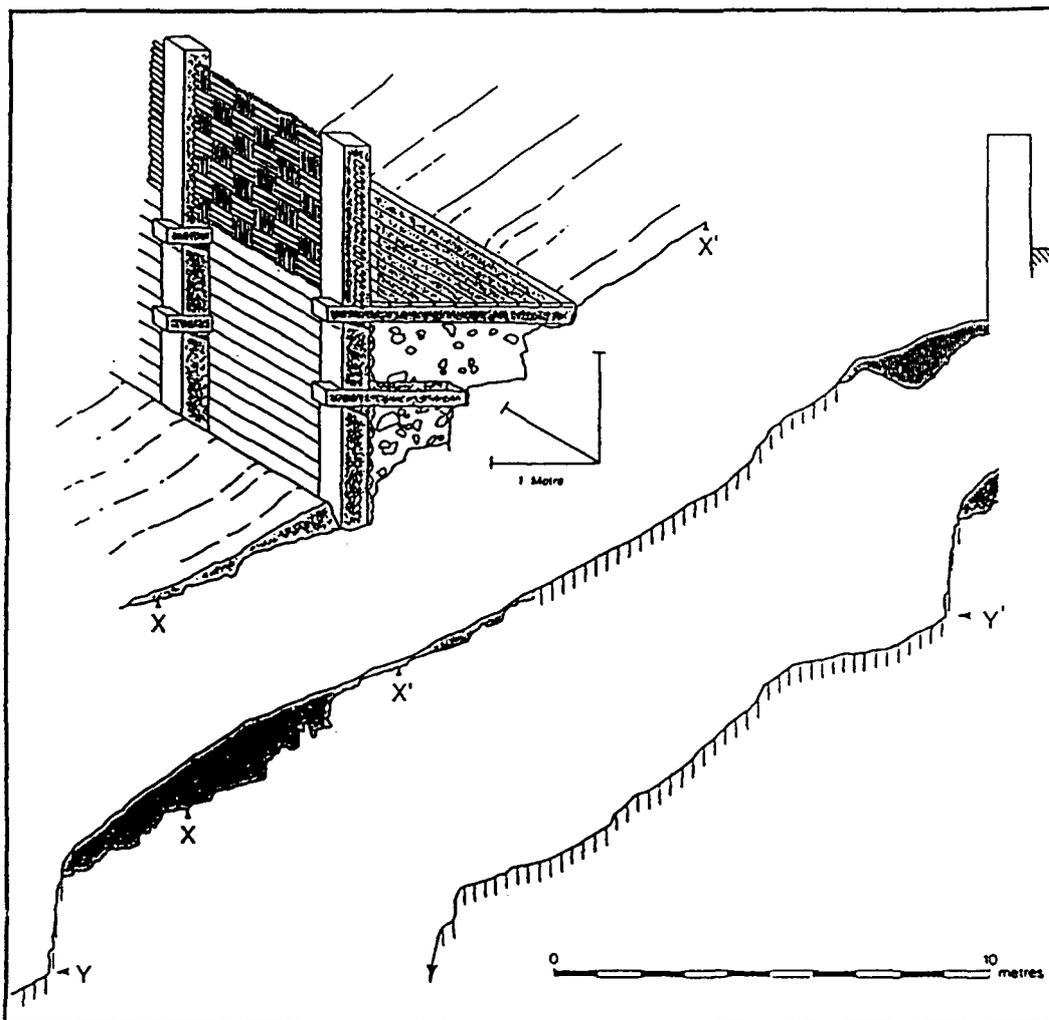


ILLUS 10 The eastern spur of The Beak. Cutting E ran down from the access ladder seen against the castle wall, roughly parallel to the skyline

of occupation (assumed to be located on The Beak), might have been used for metalworking, so as to keep the noisome smells and fire-hazard away from the main domestic area. If this hypothesis had indeed been correct, then an open-area excavation might have been expected to produce any or all of crucibles, moulds, motif-pieces, scrap-metal, slag, or even industrial hearths.

At first, the hypothesis did appear to be justified by the discovery of abundant charcoal, vitrified stones, and even traces of fire on the solid bedrock. Other evidence for metalworking was, however absent, except for fragments from two flat-bottomed crucibles or heating trays (cat nos 54, 55), and a glass mount (cat no 80) from some decorated object. At this stage, however, it was realized that Cutting E probably overlay the rear of a timber-and-rubble rampart, which had been destroyed by fire. It was then necessary to change the method of excavation from an open area to a cross-rampart section. This was only completed, and the section (illus 12) drawn, in the last hours of the excavation season.

In attempting to understand the structure of the rampart, and in essaying a reconstruction (illus 11), the following observations must be taken into account. Below the natural rock step at the mid-point of Section A-A' are layers with much charcoal, as well as some vitrified rock and burnt bone: these are features 408=409; and 410 which contains the densest concentration of charcoal. These features partly overlay 413, a powdery soil with little charcoal, bone that is unburned, and unburned

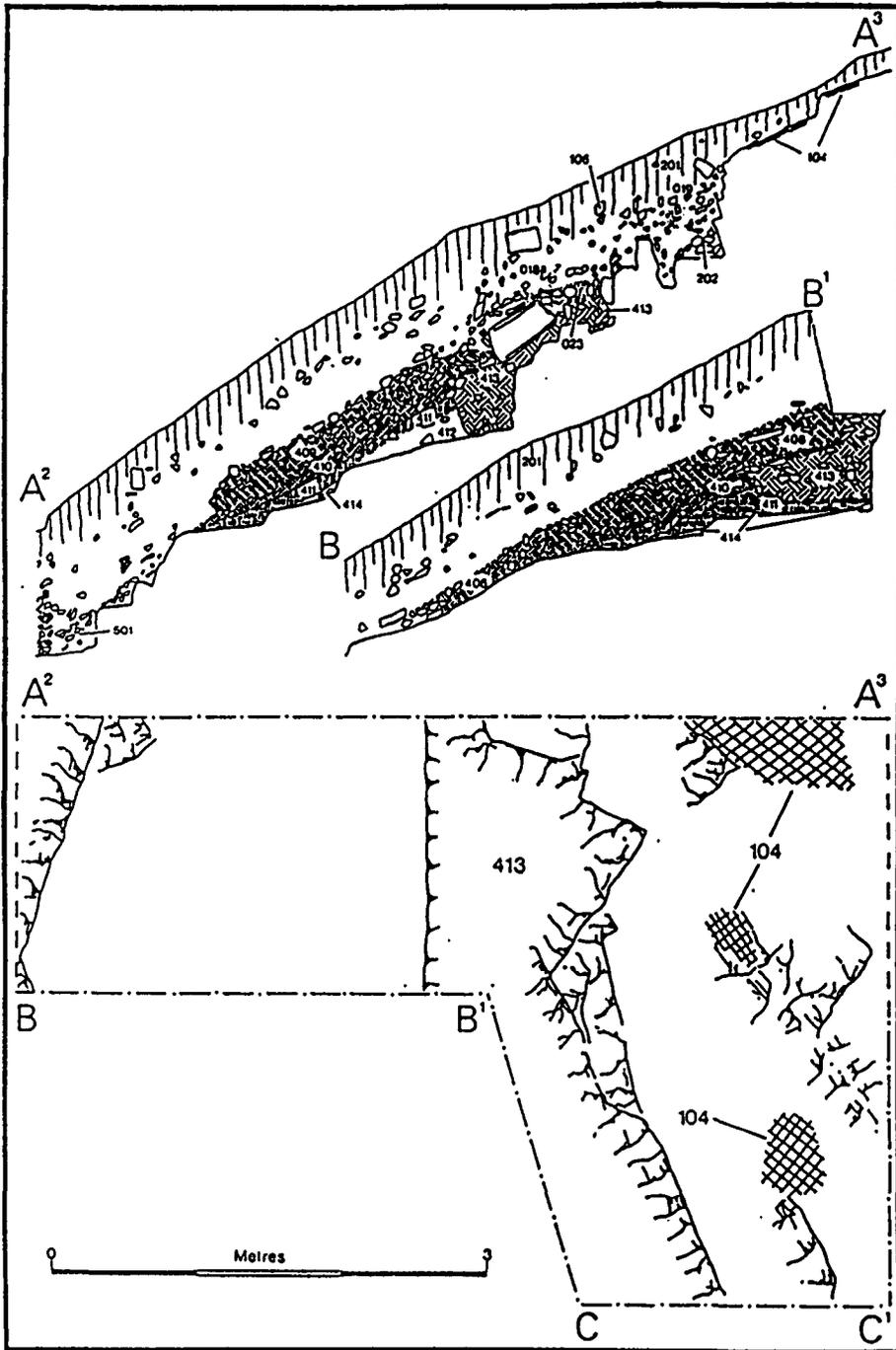


ILLUS 11 Profile of Cutting E, and schematic reconstruction of the timber-and-stone defence

stones; 413 lies in a trench cut into 411 and 412, and runs along the contour line. This trench, shallow though it is, is interpreted as the front bedding-trench of an earth, rubble and timber rampart.

The most definite component of that rampart is the timber. Apart from the charcoal in layers 408, 409, 410, the main charcoal deposit is above the step in 023. This was mostly very fragmentary, suggesting considerable disturbance after the timber had been burned. As a result, the largest piece of timber that was observed was about 220 mm by 130 mm, and even this was so shattered that it could not be lifted in one piece. However, using the growth rings observable in the larger fragments, Dr Camilla Dickson has calculated that the timbers came from trees up to at least 200 mm in radius; from these it would have been possible to cut beams up to 300 mm square. The timber appears to have been entirely oak.

On the more level rock above the step, and about 2 m behind the downhill edge of the supposed bedding-trench, 413, are fire-reddened patches of bedrock (plan, illus 12, 104), of variable area, but about 1.4 m apart (ie centre to centre). These mark where timber beams, burning strongly, had been in contact with rock; and they suggest that at these points the inner ends of beams which had tied back



ILLUS 12 Cutting E: plan and sections of the burned defence

the front face of the rampart had rested. The fact that the ends of these beams had burned so strongly suggests that they had been open to the air. On the other hand, the occurrence of charcoal, as well as vitrified stone, in deeper layers like 203 and 205 (Section C–C') may imply that there were other beams running through the core of earth and rubble. In the absence of iron nails, we must suppose that the timber work had been fastened with carpentry joints and tree-nails. There is no evidence of the existence or character of any breastwork, but one may surely be expected.

It is doubtful whether built dry stonework formed an element in the rampart face. It is true that in Section A–A', a large block at the end of the step appears suitably placed for such a purpose; but no other blocks were observed in similar positions, nor was there any tumble of large blocks below the step. It seems likely that this particular block was merely a chance element in the rubble of the core.

Given the character of the evidence, it would be impossible to press this attempt to reconstruct the rampart any further. The drawn reconstruction is deliberately vague in detail. It is however possible to suggest that the rampart was about 2 m wide, and stood to a height of at least 2 m without taking a probable breastwork into account. In itself, this is far from being a massive defensive work; but it must be considered in relation to its position on a slope rising at an angle of about 35° above vertical crags (illus 11). As for its military significance, that arises from its location on the spur which overlooks, and indeed commands, the isthmus which links Clyde Rock to the mainland; and which, for all its steepness and cragginess, is none the less one of the easiest approaches to the summit of The Beak (illus 10).

The chronology of the rampart itself is based on radiocarbon age-estimates from charcoal from the core (023), calculated by the Palaeoecology Laboratory of The Queen's University, Belfast. These have already been discussed by Alcock (1976, 109–111); but Dr G W Pearson has kindly re-calibrated them for the present report in terms of the latest available calibration curve (Stuiver & Pearson 1986), at one and two standard deviations, and has used the opportunity to re-calculate the error terms which had been quoted originally.

UB 2060	AC/E 023/1	AD 550–640	450–660
UB 2061	AC/E 023/2	AD 609–657	569–669
UB 2062	AC/E 023/3	AD 664–775	650–858

These, of course, give the felling dates for the timbers incorporated in the rampart; and they establish the earliest possible date for its construction. Dr Pearson has further commented that, given the size of the original timbers as calculated by Dr Camilla Dickson, all these dates could have come from a single tree, or from trees cut down at the same time. In that case, we must consider that the rampart had been built not earlier than the mid-seventh century AD; it might even have been as late as the second half of the ninth century. On the other hand, the difference between the date from E 023/3 and those from the other two samples allows the possibility that it had come from a tree which had been felled later. In that case, the rampart could possibly have been built originally as early as the later sixth century; and the later date for E 023/3 could represent a repair no earlier than the mid-seventh century. From the constructional point of view, such a repair is certainly a possibility in a wooden structure. A yet further interpretation should be kept in mind. If we accept that the structural timbers may have come from trees that were two centuries or more old at the time of felling, then the radiometric evidence would not rule out the possibility that the rampart in Cutting E had been erected in response to an anticipated threat of the Irish–Viking raid of AD 870. Unfortunately, the scale of destruction which the rampart had suffered, combined with the inherent imprecision of C-14 age-estimates, make it impossible to decide between the alternatives.

A number of finds of early medieval date come from Cutting E (illus 13 & 14). They include two iron knife blades with thick backs and heavily whetted blades (cat nos 24, 25); imported amphorae of

Class Bii (cat nos 46–48) and a sherd of E-ware (cat no 51); two crucibles or warming trays of a form known from Mote of Mark (cat nos 54, 55); and a glass inlay or mount (cat no 80). All these objects are likely to fall within the later fifth to eighth centuries AD.

An extension of activity into the ninth century is represented by a pommel bar from a Viking sword of Petersen Class I (cat no 26) and a lead weight, ornamented in characteristic Viking fashion with a fragment of jewellery, in this case a segment from an Irish glass bangle (cat no 27).

Finally, it should also be noted that a number of sherds of the 13th and later centuries, including at least seven examples of Saintonge-ware, were recorded in a limited zone in the rear of the rampart core, as well as uphill from it. There is, indeed a scatter of such pottery all the way up the slope; and its incorporation in the rampart can be accounted for by the activity of burrowing animals exploiting the one place on the hillside where there was a good depth of soft soil.

TERRACES ON THE WESTERN HILL: CUTTINGS F 000/100 & 200/300

The south face of the western hill or White Tower Crag has a sunny aspect, sheltered especially from the north, and to a lesser extent from the east as well, by the main bulk of Clyde Rock. Below the main band of crags, a number of small, more or less level terraces may be detected. It seemed reasonable to believe that these might have been used as building stances. In 1975 two were selected for excavation, on the grounds that they were markedly flatter than neighbouring terraces, and that each was large enough to have carried a building.

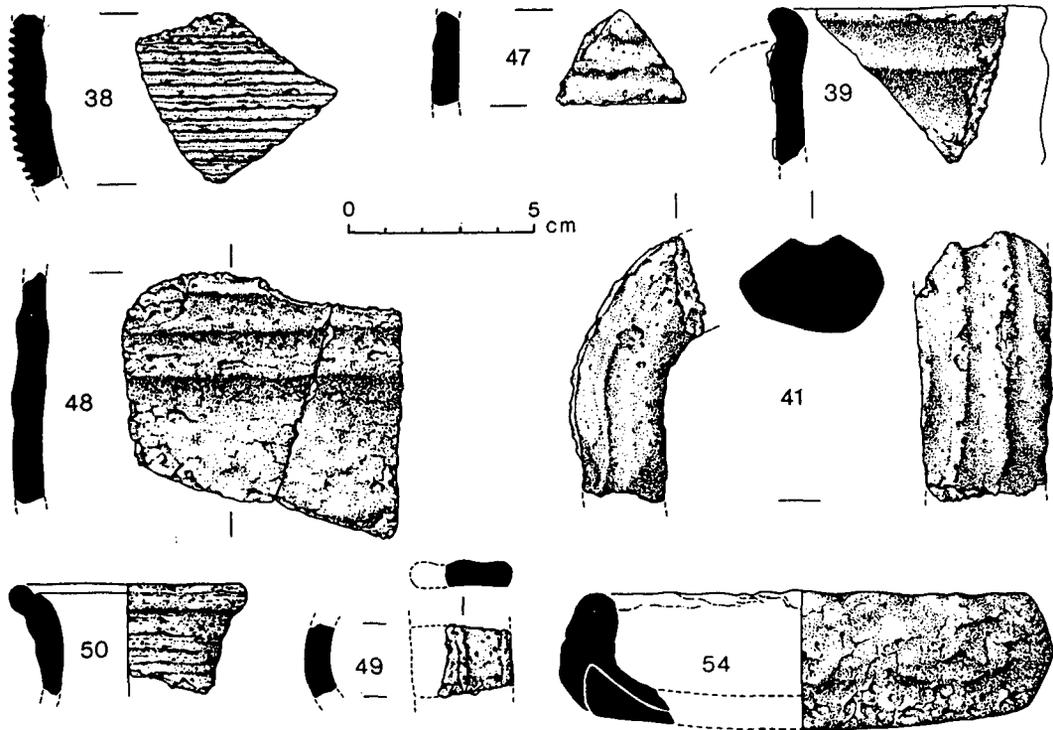
Despite the discovery of an Edward I silver penny, the most characteristic finds were iron nails and bolts and the heel plate of a boot; medieval and especially post-medieval and modern pottery; modern glass including medicine bottles; and clay pipe bowls and stems. It was concluded that the terraces had originally been borrow pits for minor building purposes, and that they were subsequently used by the castle garrison as garden plots.

SYNTHESIS: HISTORY, ARTEFACTS & STRUCTURES (illus 13 & 14)

The following finds are relevant to the chronology and character of the early medieval occupation of Clyde Rock. Among Class B amphorae, the only two examples of Bi came from AC/D (cat nos 37, 38), as did seven out of the ten examples of Bii, the other three coming from AC/E (cat nos 39–48). These probably represent a total of seven or eight amphorae in which wine had been imported from the Mediterranean in the sixth century AD, and perhaps even as early as the late fifth. Clyde Rock marks the northernmost point of this distribution as it is now (1990) known from archaeological evidence.

A later group of imported pottery, E-ware, consists of high-quality kitchen and table ware, suitable for potentate-households in the absence of any local pottery-production. It was imported from undiscovered centres in Gaul, beginning perhaps in the late sixth century AD, running through the seventh, and then for several decades at least into the eighth century as well. Three sherds of Class E came from AC/D, a fourth from AC/E (cat nos 49–52), and a more doubtful one from AC/A (cat no 53).

Six sherds from glass vessels which, in Dr John Hunter's view, 'are best defined as "germanic"', and which 'might belong to the six–seventh centuries' were recovered from D (cat nos 66, 68, 70, 71, 75, 76) (illus 14 & 15). Moreover, two other sherds from D, and possibly from the same vessel (cat nos 67 & 72), may also be this early: and a further two from Cutting B 'cannot be excluded' from a 'pre-conquest role' (cat nos 63, 64). This gives a total, for Clyde Rock, of six probable glass vessels, plus a further three possible ones. Unfortunately, all these pieces are so small that it is not possible to establish complete forms for any of the actual vessels, but they appear to have included beakers (both conical and funnel-shaped) as

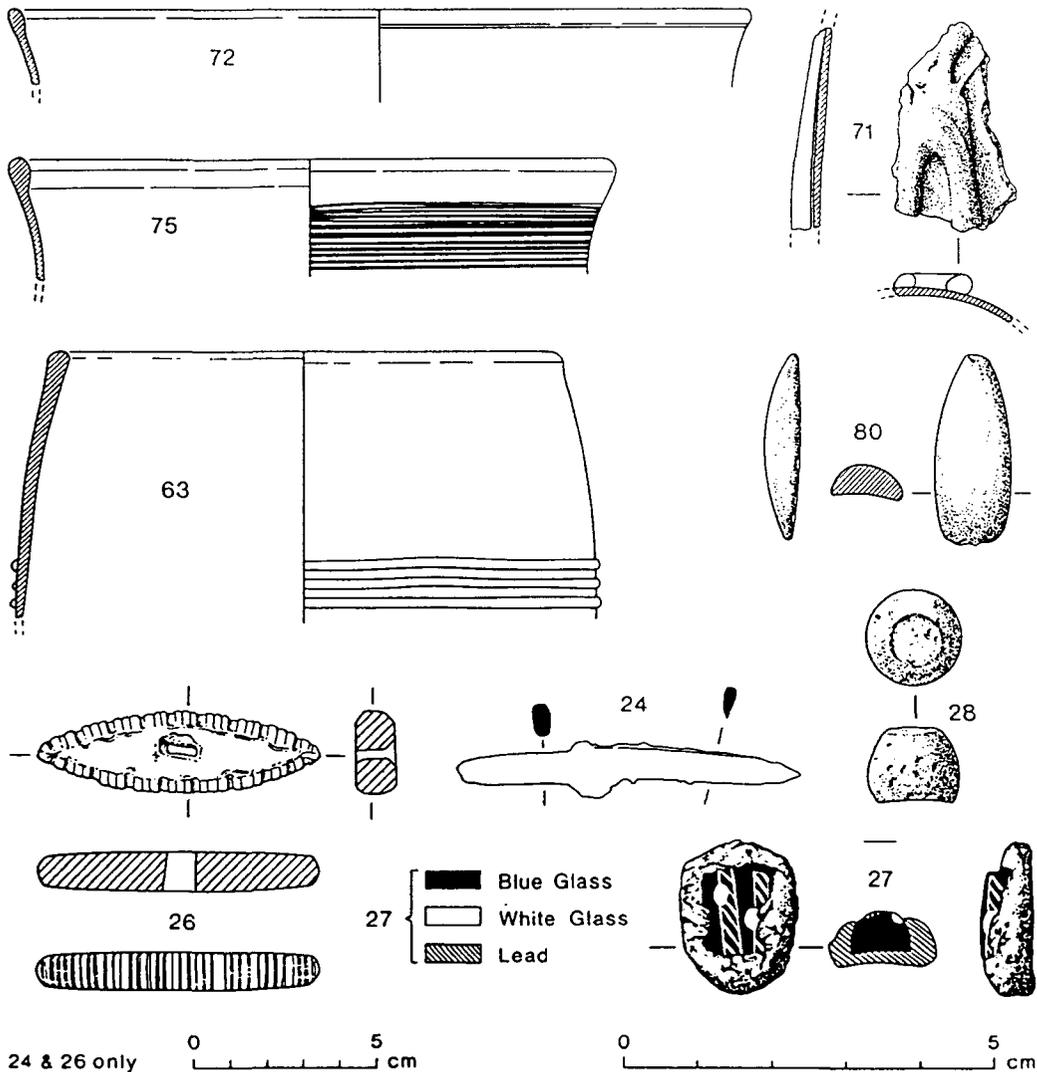


ILLUS 13 Representative early medieval pottery: 38, Bi amphora; 39, 41, 47 & 48, Bii amphorae; 49, 50, E-ware handle and rim; 54, crucible or heating tray. (Numbers refer to the finds catalogue)

well as cups or bowls. In colour they range through colourless, light green, yellow green, light blue and dark opaque. Numbers 63 and 75 are decorated with applied or marvered horizontal trails, while no 71 has a loop or lattice trail. Number 70 has moulded ribbed decoration characteristic of sixth- and seventh-century jars, and no 64 has mould-blown bosses or dimples.

These glass vessels are no less evidence of trade than are the Mediterranean wine-jars or the Gaulish class E pottery. It has been commonly held in the past that they had come to northern and western Britain and Ireland as broken glass or cullet, intended for reworking locally into beads, bangles and vitreous inlays. Recently, however, this view has been reconsidered, and it would now be accepted that the sherds do represent actual vessels on site. The reasons for this reinterpretation, and its implications in terms of trade, are discussed below (pp 124–7). Its implication for the Britons of Clyde Rock is that we can restore to them the glass vessels, brimming with wine attributed in heroic poetry to their Gododdin cousins in *Din Eidyn*, Edinburgh (Jackson 1969, 102, 142; Jarman 1988, 42–43, 58–9).

None the less, glass bowls and beakers were broken on Clyde Rock and elsewhere, and the fragments might then have been collected and used as cullet. Indeed, from AC/E came an oval glass inlay with a parallel at Dundurn (Alcock *et al* 1989, cat no 32), intended for a brooch, casket, or other decorated metal object (cat no 80). Other evidence of fine jewellery-making is provided by the small thin-walled crucibles, possibly but not certainly of sixth–eighth century date, all seven of which came from Cutting D (cat nos 56–62). On the reasonable assumption that rubbish dispersal is more likely to have occurred in a downward, rather than an uphill direction, these finds imply the existence of a well-to-do household on the summit area of The Beak to the north of Cutting D. Over a period of several centuries they imported wine from the Mediterranean, and probably from Gaul as well, and



ILLUS 14 Representative early medieval finds of glass and metal: 24, iron knife-blade; 26, iron pommel-bar; 27, lead weight with inset fragment of glass bangle; 28, possible lead weight; 63, rim, dark opaque glass, with horizontal applied trails; 71, body sherd, light yellow/green glass decorated with applied trailing of loop or lattice design; 72, rim, bright yellow/green glass; 75, rim, colourless glass, decorated with opaque white marvered trails; 80, decorative mount, dark brown glass. (Numbers refer to finds catalogue)

drank it from glass cups and beakers of germanic origin. In the vicinity, bronze was probably being worked to create high class jewellery. In the context of the early historic references to Clyde Rock, this household must have been a royal one.

It is against this background that we must interpret the Romano-British material from the Rock. With the exception of the decorated Samian sherd (cat no 29) from Cutting A, this was all found in Cutting D. The unusual character of this assemblage must be emphasized. There are no bronzes, no coins, and only one coarse-ware sherd (cat no 36). The bulk of the material consists of three sherds of decorated Samian (cat nos 29-31), two sherds of undecorated Samian (cat nos 32, 33),

one from an orange-red colour-coated bowl, probably from the Oxford region (cat no 34), and a colour-coated handle, probably from the Nene valley (cat no 35). The chronological range is also remarkable, in that these eight sherds cover the period from c AD 70–85 to the fourth century. Except for no 29, all of them were found in Cutting D; and in two cases, the site records note that there were 'Dark Age' finds in the immediate vicinity. These were a Bii sherd (cat no 42) with no 32, and an E-ware flagon neck (cat no 50), with nos 35 and 36.

It is reasonable, therefore, to see this as an example of the 'reliquary' occurrence of Samian and other high-status Roman pottery on post-Roman sites in northern and western Britain, and no less in Ireland (Warner 1976; 1981; Alcock & Alcock 1987, 131 with ref).

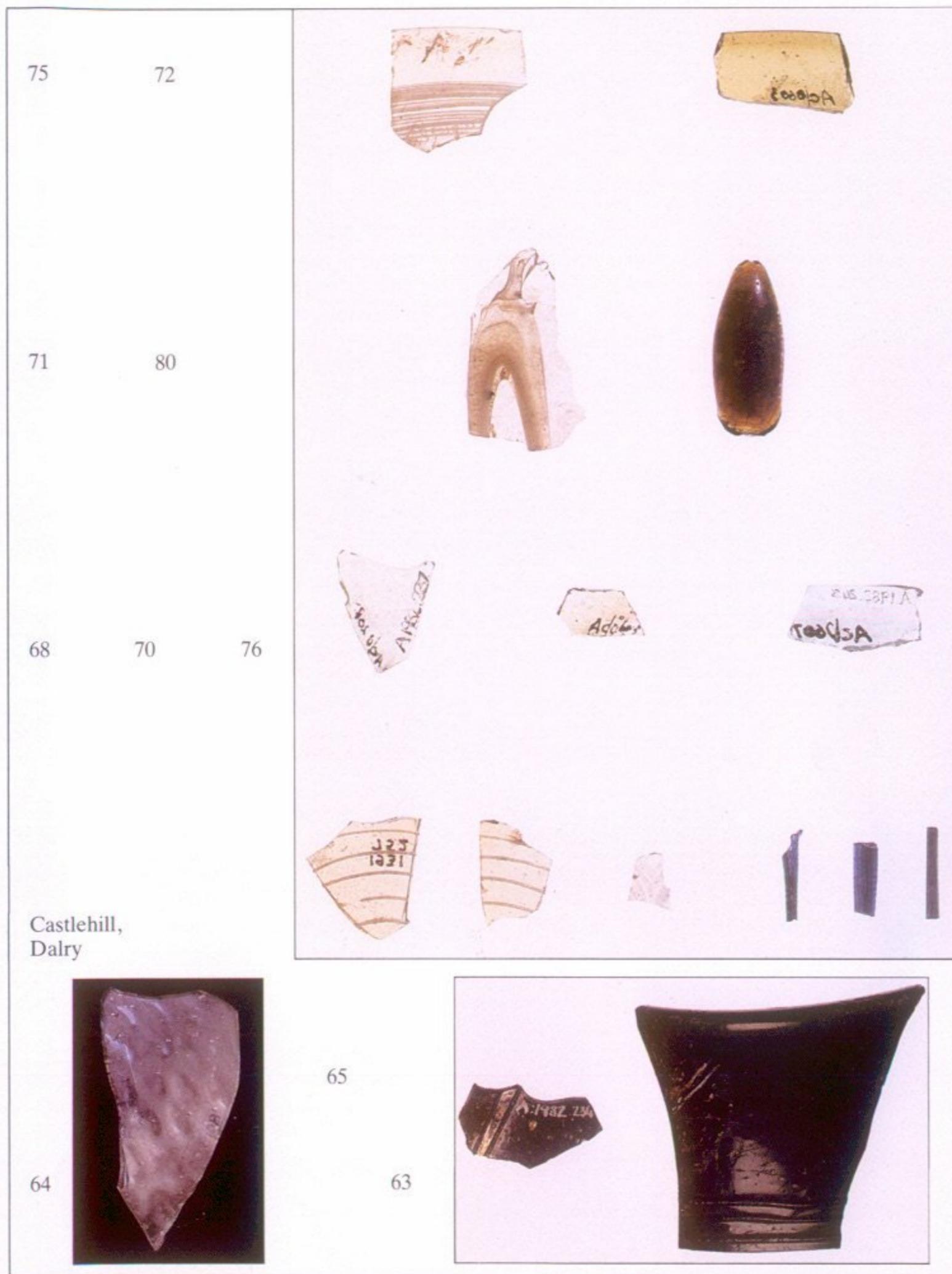
The early medieval finds, and the radiocarbon age-estimates for the rampart, may now be correlated with the historical records of Clyde Rock. For a start the probable dates for the imported pottery and glass vessels from Cutting E, and in greater quantity from Cutting D, are consistent both with the Bedan reference in AD 731, and with the evidence for the Rock as a royal seat, probably from the later sixth century, in the time of Columba and King Roderic son of Tothal. They could not, however, be used either to confirm or refute Muirchu's attribution of the Rock to that Coroticus who fell foul of Patrick. Moreover, a rampart built in the later seventh century, or repaired at that time after having been constructed originally in the later sixth century, would fit very well Bede's description of Clyde Rock as: 'a strongly defended political centre up to the present day', *usque hodie*.

Bede's actual designation of Clyde Rock is as *civitas Brettonum munitissima* (HE I 1), and also as *urbs* (HE I 12). He uses the same terms of Bamburgh, but with a royal, rather than a national, qualifier: *in urbe regia* (HE III 6), *in regia civitate* (HE III 12). In northern Britain, *urbs* is also used by Eddius Stephanus of Dunbar in a context which implies that it too was royal (VW 38). These terms should not be translated as though they were in Classical Latin: indeed, any attempt at interpreting them should be based as much on the evidence of archaeology as on that of the written sources. Bede's words for places have been discussed for Britain as a whole by J Campbell (1979), and from a more archaeological perspective for northern Britain in Alcock (1988b). It seems reasonable to interpret *civitas* as a major political centre, and *urbs* as simply a political centre; both are likely to be defended, by nature as much as by art.

In addition to its secular status, Bamburgh had an important religious role in the Northumbrian kingdom, for the church of St Peter housed relics of King Oswald in a silver shrine. Dunbar, it may be inferred, was a focus for periodic royal progresses; it was also permanently in the charge of a *praefectus*, a royal official who has been seen as the forerunner of the medieval thanes who administered Scottish shires (Barrow 1973). Such information is lacking for Clyde Rock, simply because of its remoteness from Bede's monastery of Jarrow. We may ask whether he knew of it as anything more than a renowned political centre in a remote land. Certainly his use of the national qualifier 'of the Britons' suggests that he was ignorant of the royal status which is so manifest in the Irish (including Ionan) sources.

Indeed, combining the written evidence with that from the 1974–1975 excavations, we can see Clyde Rock as another instance of the consolidation of kingship over much of northern Britain through the seventh and into the early eighth centuries. Other instances would be Dunadd, Dundurn, Dunollie, and probably Dunbar as well. At Clyde Rock, where kings were able to obtain imported pottery and exotic glass by the sixth century, the process of consolidation must have begun already by that date. This would, of course, be consistent with the earlier dating proposed for the rampart in Cutting E: that is for a rampart first built in the sixth century and repaired in the later seventh, rather than for one that had not been constructed before the late 600s.

On the evidence of datable finds, the early medieval *floruit* of Clyde Rock ended in the early decades of the eighth century. Its terminus is marked by the cessation of imports of E-ware, possibly



ILLUS 15 Glass vessel sherds from Clyde Rock with catalogue numbers; and glass sherds, and canes supposedly for bead-making from Castlehill, Dalry, after Smith 1919. (Photo, courtesy of Royal Museum of Scotland). Scale: slightly under actual size. For details of colour and dimensions, see catalogue.

[facing p. 116]

as early as AD 720 to 730. There is then a hiatus in the finds until the appearance of the first Viking artefacts perhaps as early as AD 800, or alternatively as late as the Viking siege, plundering and destruction of the citadel (*arcem*: AI s.a.869) of Clyde Rock in 870. On the other hand, a somewhat doubtful reference to the capture of *urbs Alcwith* by Picts and Northumbrians in 756, and a mention of its burning in 780, suggest that the Rock had been occupied throughout the eighth century.

On that assumption, we must ask first, what datable artefacts might fill the hiatus; and second, what might be our expectation of finding them. For the eighth and early ninth centuries, we might for a start expect exotic glass of the kind reported from Middle Saxon *Hamwih*, or from late Pictish Brough of Birsay (Hunter 1980; 1982); or Carolingian pottery, again like that from *Hamwih* (Hodges 1981), or hinted at in northern Britain by a Carolingian sherd from Dundurn (Alcock *et al* 1989, cat no 36). Altogether more likely would be brooches of the St Ninian's Isle type (Wilson 1973) or the moulds for casting them; penannular brooches comparable with that from Hunterston (Stevenson 1974); or Irish metalwork of similar date (ó Floinn 1989). On a large and diffuse hill like Clyde Rock, however, and given the high degree of intra-site variability which can be demonstrated on a small and compact enclosure like Dinas Powys (Campbell forthcoming), we should not expect our limited excavations to yield finds appropriate to the whole range of the site's history.

Whatever further excavations might reveal about the missing century or more, the end of early medieval Clyde Rock is marked structurally by the destruction of the earth, rubble and timber rampart in Cutting E. This immediately recalls the Ulster Annals account of the destruction of the citadel in AD 870, at the end of a four-month siege by two Norse kings, Amlaib (Olaf) and Ivar (Ivar). It is tempting to attribute the only two objects of definite Viking character excavated on the Rock to this episode as well: the pommel bar from a Viking sword (cat no 26) which comes from the core of the rampart; and the ornamented lead weight of Viking type (cat no 27) which came from its immediate rear. When, however, we recall the extremely complicated movements of the Viking kings of York and Dublin between Northumbria, Ireland, and northern Britain (Smyth 1977; 1984, chapter 5), it is evident that this may be too simple an explanation; there would have been many occasions, both peaceful and warlike, when such objects could have reached Clyde Rock between AD 800 and 870.

Given the four-month siege, it is evident that the Rock was a considerable prize for Olaf and Ivar, and it may be surmised that the destruction of the citadel was an important strategic objective. In the following year, the two kings went from northern Britain (Alba) to Dublin with 200 ships and a great booty of slaves from the Angles, the Britons and the Picts. Again it would be an oversimplification to see the siege and destruction of the citadel as the decisive event which opened up Alba to Viking slave-raiding; but it cannot have been negligible either. It is, indeed, possible, given the location of Clyde Rock at the entrance to major waterways leading into the interior of Scotland, that its major role in the ninth century had been similar to that of the anti-Viking forts which the Franks were erecting at this time along the North Sea coast, as well as on the Seine and its tributaries (Sawyer 1982, 81-90).

Finally, there is a hint that the Rock may not have been totally abandoned between 870/871 and the first building of the masonry castle in the early 13th century. Some time before 1958, fragments of two cross-slabs (illus 16), with interlace decoration, dated by John Higgitt to the 10th century (Appendix 3), are said to have been found in the Nether Bailey; that is, on the lower southern slopes of the Rock. It has been suggested that they indicate the former presence of St Patrick's chapel in this area (MacIvor 1958, 6). This may indeed have been so, and it might indicate at least ecclesiastical activity on the Rock in the 10th century. On the other hand, as we know them, the slabs are simply reused building material, which might have been brought to the Rock from elsewhere in the vicinity during any of the building phases of the masonry castle. Even if this had been the case, they would still be evidence for a Christian presence in the Dumbarton area in the 10th century.



(1)



(2)



(3)



(4)

ILLUS 16 Recumbent cross-slabs, 10th century AD. 1, Fragment of a recumbent cross-slab (lower end), Dumbarton Castle (Historic Scotland); 2, Lower two of three fragments of a recumbent cross-slab (righthand side) before conservation, Dumbarton Castle (Historic Scotland); 3, Recumbent cross-slab, Inchinnan (no 1) (The Royal Commission on the Ancient and Historical Monuments of Scotland); 4, Recumbent cross-slab, Govan (no 35) (Trustees of the National Museums of Scotland)

In summary, then, Clyde Rock is a craggy hill set beside a major seaway, and with river communications into the hinterland. Although no traces were found of a supposed nuclear fort, the form of the hill lends itself to a hierarchical organization of space, from the summit boss, down a series of terraces to the estuarine flats. The summit was a seat – perhaps the principal one – of the royal family of Strathclyde, including such documented rulers of Clyde Rock as Roderc son of Tothal, Guret, and Donald son of Owen. On its most vulnerable eastern side, where it was joined to the mainland, a rampart of earth, rubble and timber defended the linking spur. Radiocarbon age-estimates suggest that this rampart was part of the defences implied by Bede in AD 731. Its destruction by fire may be attributed to the Norse kings Olaf and Ivar in AD 870.

An aspect of Clyde Rock which now requires fuller discussion is the significance of its location beside a natural harbour, especially in relation to trade with both the Mediterranean and Gaul, and in the context of a concept much discussed in Anglo-Saxon and north European circles, that of *emporia*.

DISCUSSION: EARLY MEDIEVAL HARBOUR SITES & TRADE

It has already been remarked that Clyde Rock is pre-eminently a stronghold with connections by water: from wider seas by way of the Firth of Clyde; and into the hinterland, both north and south, by way of the Leven and the Clyde itself. In this respect, it is matched by many other early medieval strongholds in both northern and western Britain. Moreover, on most of these sites, a major part of the evidence not only for dating but for economy and society as well comes from imported pottery and glass, which necessarily imply water-borne trade. It seems appropriate, therefore, to use this report as the focus of a discussion of the significance of locations beside tidal waters for our understanding of such sites.

In the case of the contemporary inland sites, it is easy to establish a negative relationship. (For the location of the sites, see the map, *illus 19*, and *Gazetteer*, Appendix 1. The numbers cited in the text are those of the map.) A reasonable sample of inland examples would include Cadbury (66), Dinas Emrys (62), Dundurn (25), Ruberslaw (43), Tynron Doon (55), and Yeavinger (49). Approaching the coast, however, ambiguities arise. Clear cases of centres with adjacent harbours, or at least anchorages, would include Clyde Rock itself (40), Dunbar (45), and Tintagel (67). Other forts, such as Kirk Hill (47) or Cruggleton (90), are actually on top of sea-cliffs; but it is doubtful if they have any easy access to the sea. The rock stacks and knolls of Dunollie (28) and Degannwy (59) are not actually washed by the tide, but both are close to safe havens. Degannwy, like Clyde Rock, might have controlled a major waterway into the interior, the Conwy; and Dunollie doubtless guarded the approach to Loch Linnhe, and thus, ultimately, to the Great Glen. At a rather greater remove, Moncreiffe (79) overlooks the tidal waters of both the Tay and the Earn at a distance of about 1.5 km, and Craig Phadrig (15) has a similar relationship to the river Ness and the Beaully Firth.

Another group of sites with clear evidence of imported pottery and glass none the less lacks any direct contact with tidal waters. Dunadd (32) is 2.0 km from the present tidal reach of the Add; but this is in a straight line across the recently drained moss of Moine Mhor, and the possibility of access in the seventh–eighth centuries AD is quite uncertain. Dinas Powys (64), copiously supplied with imports, lacks even visual contact with the sea, which is at its nearest in the Ely estuary some 3.0 km distant. Whithorn (89) is 5.0 km from its natural harbour at Isle of Whithorn. In this instance, it is natural to ask whether the unexcavated double-ramparted promontory fort which overlooks the harbour is contemporary with the early settlement at Whithorn itself.

In theory, it is possible to tabulate three leading categories, with subdivisions in the first:

- A 1, direct relationship with harbour or anchorage
- A 2, nearby harbour or anchorage
- A 3, cliff-top, with no apparent sea-access
- B, between 0.5 and 5.0 km from tidal waters
- C, inland.

The preceding discussion, however, which did no more than outline the problems, made it plain that sites cannot be assigned to categories merely by applying a scale rule to a map. Especially in the subdividing of Category A, matters of interpretation arise, which can only be resolved through a close knowledge of the ground. We would claim such knowledge in Scotland, and to a lesser extent in Wales. In Cornwall, we are grateful to A P Jones and N Johnson for supplementing the published lists in Johnson and Rose 1982. Nevertheless, in the table which follows, and even in the fuller detail of Appendix 1, we have left Category A undivided. In addition to the three categories relevant to the nearness of harbours or tidal waters, we have noted whether an early medieval fort had already been occupied in the Pre-Roman Iron Age (I) or the Roman period (RO), or had produced Roman material in reliquary context (RR). Finally, we recognize that not all the sites listed in Appendix 1 can be assigned to the period AD 450–850 with equal confidence; and we have therefore distinguished the more certain examples by names in upper case, as BAMBURGH (50), compared with those where such a dating is less certain, as Aberffraw (72). In the table numbers derived from the fuller, less critical, list are placed in brackets.

TABLE A

	A	B	C	Sum	I	RO	RR
South Britain ie	5	4	6	15	7	9	2
Wales & south-west England	(10)	(7)	(8)	(25)	(12)	(11)	(9)
North Britain,	8	2	5	15	4	2	3
south of Highland Line	(11)	(7)	(15)	(33)	(6)	(5)	(4)
North of Highland	9	3	2	14	2	1	4
Line	(23)	(10)	(5)	(38)	(5)	(2)	(8)

(Note that the Western and Northern Isles, where few sites could fall into Category C, have been excluded).

The observation that, north of the Highland Line (that is, a line roughly from Arran to Stonehaven), 86% (87%) of early medieval forts are within 5 km of tidal waters, and 64% (61%) are definitely coastal, causes little surprise. Essentially, it reflects the fact that, except in Buchan, most habitable land is close to the coast at the foot of the mountains. South of the Highland Line, the comparable figures of 63% (60%) in Categories A and B combined, and 43% (36%) in Category A, are no less striking, and certainly reflect a marked tendency to favour near-coastal locations.

When, however, we compare the distribution of early medieval forts with those assigned to the Pre-Roman Iron Age, the coastal tendency of the former becomes even more apparent. It is true that some of the early medieval examples had been occupied already in the earlier period; but despite this, the overall pattern of Iron-Age fort building was inland. It is altogether beyond the scope of this paper to document this generalization; but it can be readily appreciated from standard maps of the distribution of Iron-Age forts, such as those in Hogg 1975, figs 1–3, or Avery 1976, figs 1 and 2. Such comparisons make it clear that between the first century BC and the sixth or seventh century AD there was a marked change in the distribution pattern of forts. Given that many of the later sites were new foundations, or were re-occupied after a break of some centuries, it would be misleading to write of a re-orientation of distribution. What we are seeing is a quite new interest in locations beside natural havens or harbours, or only a brief journey away from them.

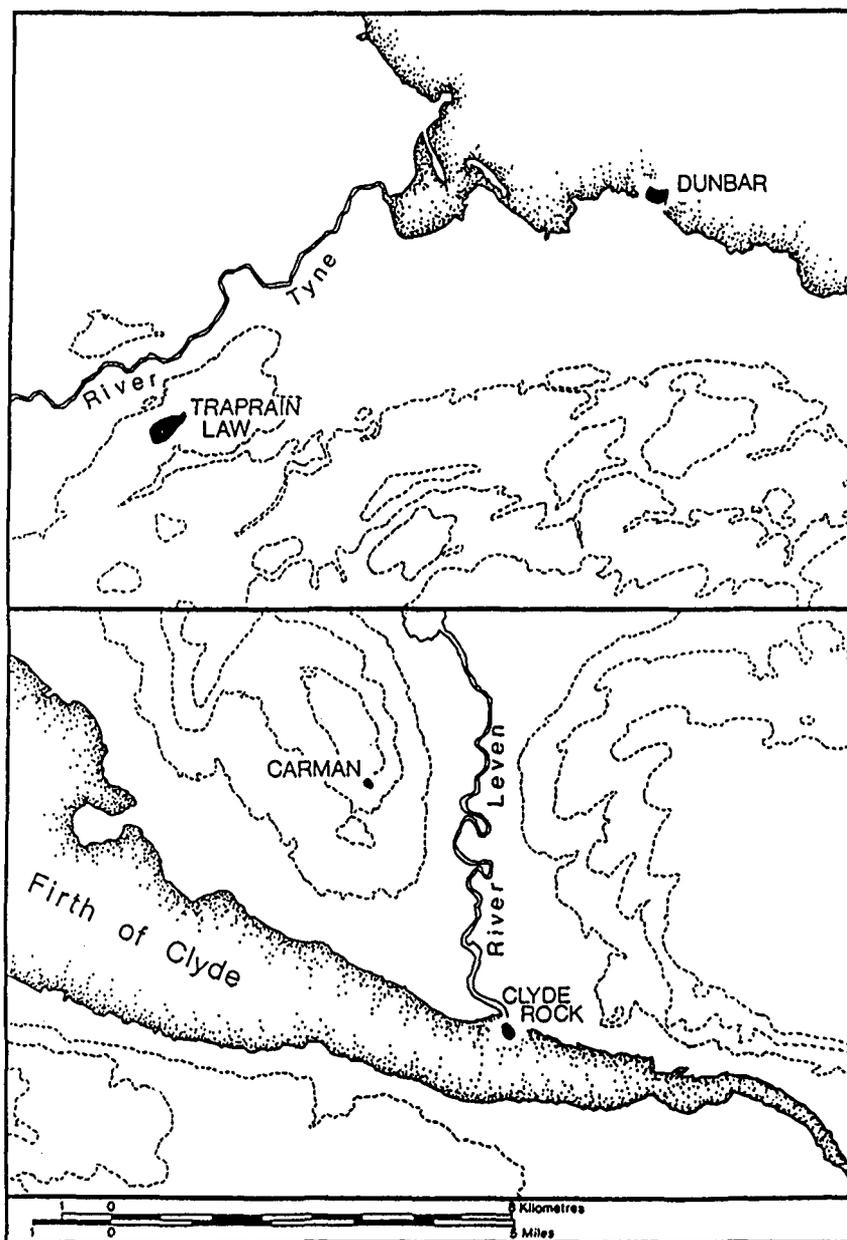
There are, indeed, occasions when we may suggest that an earlier power-centre, inland and somewhat upland as well, had been re-located by a harbour. Such a relationship has already been suggested between Clyde Rock and the earlier fort of Carman, which overlooks the Rock from an altitude of about 230 m and at a distance of just under 6.0 km (p 101 above). Another possible pair is Traprain Law and Dunbar (illus 17). Traprain was a large hillfort of the Pre-Roman Iron Age, which continued to be a social, economic, industrial, and probably political centre throughout the Roman Iron Age. The well-known Traprain Treasure, when correctly seen not as loot from the Roman Province, but as a diplomatic gift, shows that Roman official recognition survived to the very end of the fourth century, if not indeed into the fifth. The accepted chronology of the metalwork actually produced at the fort suggests, however, that it had been abandoned by AD 450 or a little later. By the 680s Dunbar is known to have been a royal centre (*urbs regis*), in charge of a royal official (*praefectus*). The chronological gap between the archaeological date for the abandonment of Traprain and the first historical reference to Dunbar may be bridged, in part at least, by the recognition that the earliest recorded form of the place-name, *Dynbaer*, shows it to be of British origin. In other words, the fort implied by the **din* element was in existence before the Anglian take-over of SE Scotland, which is normally dated to the siege and presumed capture of *Etin*, *Din Eidyn*=Edinburgh in AD 638.

Some of the coastal and near-coastal sites in Appendix 1 have evidence not only for trade with the Mediterranean or the continent, but also for industrial activity, especially iron-working, jewellery-making, and the utilization of antler and bone. They therefore deserve to be compared with the chronologically-overlapping class of emporia, which have been widely studied along the coasts of north-west Europe. In attempting a gazetteer of emporia in 1982, Hodges mentioned only one of the sites listed below, namely Bantham (94) (Hodges 1982; 1989, 67). (He also referred to the small lightly fortified island of Dalkey in Dublin Bay, but this is outside the scope of this paper). In 1982, Bantham was known merely as an area of sand dunes which had yielded a few B-ware sherds and antler combs. Now, however, it is revealed as a promontory of about 10 ha guarding a good natural anchorage, with evidence of structures, and perhaps some industry, as well as B-ware imports.

If emporium status is assigned, at least provisionally, to Bantham, then it is appropriate to add a further seven coastal or near-coastal sites to Hodges's gazetteer: Adomnan's *caput regionis*, (probably Dunollie, (28)), where Columba is reported to have met Gallic sailors (but see now Thomas 1990b); possibly Dunadd (32), especially because of its industrial activity; certainly Clyde Rock (40), by virtue of its size, its range of imports, and its known political status; Whithorn (89), because of a near urban density of population, covering an area of about 3 ha, in addition to its imports and the evidence for industrial activity; perhaps Mote of Mark (56), on the evidence of exceptionally rich metalworking, and the assumption that its craggy knoll is the centre of a more extensive settlement at its foot; Dinas Powys (64), again on the basis of its exceptional range of imports and industry; and above all, Tintagel (67), because of its size, its protected haven, the evidence for numerous internal buildings, and its primacy in terms of the quantity of imported pottery.

Other sites might be suggested on grounds of size, even though the excavated evidence is at present inadequate for any degree of certainty. They would include Burghead (17), Dunbar (45) and Bamburgh (50).

It must be recognized, however, that none of these sites in western and northern Britain would rank in importance alongside Anglo-Saxon emporia (Hodges 1989, espec 80-104) or Scandinavian examples of the Viking-age such as Hedeby or Birka (Hodges 1982); nor does the available evidence allow us to fit them into Hodges's over-refined typology of gateway communities and emporia. On the other hand, they should certainly be ranked above Dalkey Island; and in terms of size, Whithorn compares favourably with Aarhus; while Bantham may prove to be considerably larger. In other



ILLUS 17 Locational relationships between Traprain Law and Dunbar, Carman and Clyde Rock. Contours at 76, 152 & 229 m

words, even by Scandinavian standards, Whithorn should be regarded as a small emporium. We should also notice that it is one of the only three sites in Appendix 1 which survives as an urban centre to become a burgh in the middle ages, the others being Dunbar and St Andrews.

We may now examine the archaeological evidence for the trade which the sites in categories A and B were so well fitted to receive. Finds of pottery and glass define two chronologically distinct trade nexuses. The earlier one, perhaps beginning as early as AD 450-475, and not continuing later

than AD 550×575, was with the Mediterranean; especially with its eastern end, the Aegean and the coasts of (modern) Turkey, but also with the northwest coast of Africa, principally Carthage. The evidence comes in the form of sherds from a range of large pottery amphorae, conventionally classes in Britain and Ireland as B-ware. They can be dated reasonably closely in the Mediterranean, where they were used for the transport, especially by sea, of wine, olive oil, and even various dry goods. Oil seems an unlikely import to a site such as Clyde Rock, where animal fats would have been readily available; but the heroic poetry provides evidence for the demand of princes and nobles for wine. The amphorae – which were of course primarily containers – were often accompanied by fine red-slipped table wares; but important though these are for the modern student in defining sources and chronologies, they were never a major component in the trade.

Thomas has attempted to analyse the mechanics of this trade, especially in the light of the exceptionally large numbers of both amphorae and red-slipped dishes found at Tintagel. At one stage in the development of his interpretation, he held that the entire collection of imported pottery of the Mediterranean phase need represent no more than a single cargo (Thomas 1988a). More recently he has adopted for western waters a concept originally developed in the Mediterranean itself, of a cargo-boat travelling from port to port, discharging and loading cargoes as and when they were available: the antique equivalent of a tramp-steamer. Such ships, with already mixed cargoes, may have penetrated occasionally into the Atlantic, and so eventually to the Severn Sea, the Irish Sea, and even beyond. In a brilliantly imaginative discussion, he has charted no less than four voyages through Insular waters, following the distribution of the pottery (Thomas 1990a). This concept has been independently confirmed, at least by implication, by Fulford (1989), who has shown that the bulk of both A- and B-ware came to Britain in ships which had originated in the East Mediterranean, but which had picked up a lesser part of their cargo at its western end.

A major problem in attempting to assess this trade quantitatively arises from the failure of excavators to locate and excavate contemporary middens. Consequently, we are ignorant of contemporary patterns of breakage and rubbish disposal on the relevant potential sites. Some knowledge, or at least estimate, of these is essential before we can establish the validity of our modern rates of recovery by excavation. This is especially critical in the case of large, and not particularly robust, pots like the Class B amphorae, which might be expected to yield large numbers of sherds. Observations derived from a number of sites do not wholly support this expectation. Indeed, they demonstrate rather that the recovery rate by excavation is low; disturbingly so if we wish to estimate the total number of amphorae originally present on an individual site, let alone the overall scale of the trade. (The details which underpin these conclusions are set out in Appendix 2.)

It is possible that the Mediterranean trade was accompanied by imports from the coast of western Gaul at a level appropriate to the mixed cargoes of Thomas's new model. The evidence for this comes from occasional sherds of a stamped grey ware: the *sigillée paléochrétienne grise* of French archaeologists, Insular post-Roman D-ware. Its decoration shows that Insular D-ware certainly originates in the Bordeaux region. In Tours, it occurs through the sixth century (Campbell 1988, 125), which is consistent with its occurrence, along with both A- and B-ware at Cadbury/Camelot, as an element in the first trade nexus. Except at Dinas Powys, D-ware only occurs at the level of one or two sherds on Insular sites. This may not be inappropriate for a mixed cargo; but given an origin in the Bordeaux region, an alternative possibility is that it is merely the imperishable token of a much more intensive trade in wine in wooden casks, which have normally disappeared completely. Indeed, although more expansive claims have been made, especially for Ireland, it is difficult to find any acceptable evidence for such casks, other than a single yew-wood hoop, probably from a cask about 600 mm diameter, from Lough Faughan crannog (Collins 1955, fig 14, 87).

Likewise, if some of the 'germanic' glass found on western and northern sites is as early as the

sixth century (and John Hunter proposes a sixth–seventh century date for that from Clyde Rock), then it might have been collected from a port or harbour to the north of Bordeaux, as part of the first trade nexus. On the other hand, the apparent absence of ‘germanic’ glass from major sites of the first series, such as Tintagel and Cadbury/Camelot, makes it likely that its main period of importation belongs to the second trade nexus, which is with western or northern Gaul. This begins in the last decades of the sixth century, when the Mediterranean trade had largely declined.

The second trade nexus has hitherto been most widely recognized through the discovery, on sites both in northern and western Britain and in Ireland, of sherds of the pottery classed as E-ware. Implicitly, if not explicitly, this has been regarded in the past as a rather down-market pottery, perhaps because of its coarse-looking finish. On the other hand, it is hard-fired and extremely robust, and to that extent ideal for carriage, whether by sea or pack-animal. It should be thought of as providing potentate-households with a suite of serviceable jars, cooking pots, flagons, beakers, bowls and lids which were not available from any local pottery industry; and which, in relation to the available vessels of treen and leather, had the additional social cachet of being imported. The continental source is still uncertain, though the region between the Loire and the Seine seems most likely. Site evidence in Britain and Ireland, notably that from Clogher (Warner 1986, 76), shows that it is later than the red-slipped wares and the Class B amphorae, though it may overlap with D-ware. A terminal date of AD 720×730 has been argued on the grounds of its absence from Middle Saxon *Hamwih*, which was probably founded about that time (Hodges 1981, 44b–47a). But this argument does not allow for the possibility that the absence reflects a difference in patterns of trade rather than in date. At Dunollie, it has been argued that the main period of importation of E-ware, and therefore of the second trade nexus, covered most of the seventh and eighth centuries (Alcock & Alcock 1987, 121–3 & 143).

Exotic glass also occurs commonly on sites with E-ware in western Britain, but more rarely in the north-east or in Ireland. The term ‘exotic’ is preferred here to ‘Teutonic’, ‘Germanic’, ‘Merovingian’, or ‘Anglo-Saxon’, all of which beg questions about the source of the glass which cannot at present be answered; ‘exotic’, merely denotes that the vessels from which the sherds come had not been blown in an Insular glass-works. A continental source, broadly in the same area as E-ware, is considered most likely.

The first recognition of such exotic glass in a northern or western context was at Mote of Mark, where, in 1913, Curle found 22 sherds which he regarded as probably representing 14 different vessels. He assigned an ‘Early Christian’ date to the glass, meaning by this ninth century; and he speculated briefly on its Continental source (Curle 1914, 152–6). Shortly afterwards, three comparable fragments were found at the small dun-like site of Castlehill, Dalry, along with ‘canes’ of blue and white glass or vitreous paste for making beads, and actual beads, probably manufactured on the site (Smith 1919, 123–9). Given Curle’s percipient realization of the significance of the Mote of Mark glass, which was followed by Smith at Dalry, it is disappointing that the glass recovered 10 years later, during the second season of excavation at Dunadd, was dismissed as ‘seven fragments of this glass, brown, yellow and green’.

The first systematic account of exotic glass in northern and western Britain was published by D B Harden in 1956, as an inevitably minor part of a comprehensive study of glass vessels in Britain and Ireland, AD 400–1000. At the same period (1954–8) excavations at Dinas Powys were yielding over 250 sherds of exotic glass, representing a minimum of 33 vessels, which were catalogued and illustrated by Harden for the excavation report (Harden 1963; 1987). On the basis of this large collection, Harden commented that the proportion of fragments with opaque white trailing was ‘much greater than . . . in Anglo-Saxon graves, and it may be that these fragments were specially chosen for bringing to the west’. Implicit in this comment is the belief that the glass did not represent

the on-site occurrence of complete vessels which had been imported into western lands; but merely broken fragments, intended for melting down to make beads or ornamental inlays: in other words, cullet.

Harden dated the Dinas Powys glass 'in the fifth or sixth centuries' (1963, 179; 1987, 144). At the same time, he reconsidered his 1956 dating of the glass from Mote of Mark. Originally he had placed this in the sixth to early-eighth centuries, but in 1963 he revised this to not 'beyond the sixth or, at the very latest, the early seventh century'. In broad terms this chronology for exotic glass from settlement sites in western Britain was maintained in Harden's later general surveys in 1971 and 1978. So was the view that the glass had come to the west as cullet rather than as complete vessels. This carried the further implication that its occurrence was merely incidental to the wider trade in E-ware pottery. This interpretation was repeated as recently as the second report in the present series, that on Dunollie (Alcock & Alcock 1987, 141).

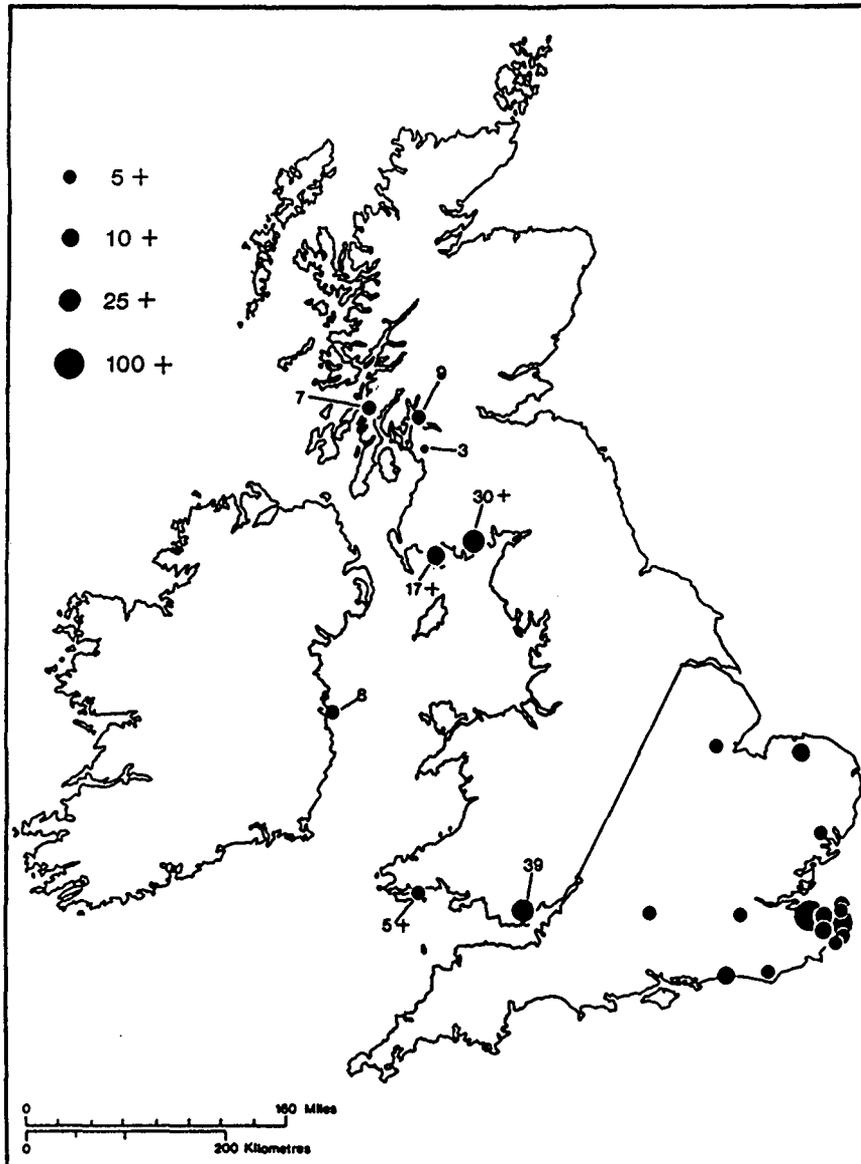
More recently, however, the recovery of new finds of glass from Mote of Mark and Whithorn, together with the reconsideration of existing evidence, and especially Ewan Campbell's detailed study of the Dinas Powys glass, have led to new interpretations of its chronology and significance. Firstly, the overall site evidence from western Britain, though rarely conclusive on any one site, favours a date in the later sixth and seventh centuries, but certainly not extending back into the fifth century. A major reason for this chronological revision is the observation that glass classed as 'Teutonic' or 'germanic' is not normally associated with imported pottery of the earlier trade nexus in the later fifth and earlier sixth centuries: this has, rarely, its own accompanying glass from the Mediterranean. By contrast, 'Teutonic' glass occurs normally in association with E-ware, and therefore should be attributed to the second trade nexus.

Secondly, the belief that the site finds, which occur only as sherds, and often as very small ones at that, came west and north as cullet rather than as complete vessels, has been largely modified, even if it has not been abandoned completely. An important factor in this very major reinterpretation has been Campbell's partial restoration of the profile of a typical cone beaker from Dinas Powys. Equally important has been the recognition that, even within a community which possessed complete vessels to bury in its graves, the glass from settlement sites occurs as small sherds similar to those from Insular fortifications and settlements. This has been most strikingly demonstrated in Näsman's study (1984) of the Vendel-period glass from Eketorp, Sweden. In northern and western Britain, of course, we lack comparable furnished graves, with complete vessels, to set beside the fragments from settlements.

Thirdly, if a majority of the sherds came from actual vessels on site, then we have to recognize that we are dealing with large numbers; and indeed that glass vessels had been far more common than pottery ones. At Dinas Powys a minimum of 33 glass vessels was originally estimated, as against nine of E-ware (Harden 1963, 138; 1987, 122). Curle, from his excavation of Mote of Mark, claimed 14 glass vessels (modified in Harden 1956, 149–50 to 16), compared with Thomas's estimate of eight E-ware pots (1981, 22). This disproportion between glass and pottery is repeated in the current excavations at Whithorn, and the research of E Campbell and others has tended to widen it even further. This is most effectively demonstrated by listing the most recent available (February 1990) figures for minimum numbers of vessels from the three leading sites: Dinas Powys, glass 39, E-ware 13; Mote of Mark, glass 30–40, E-ware 11+; Whithorn, glass 17+, E-ware 6.

It becomes clear from this that the importation of glass, from some still undefined continental source, was a major element in the second trade nexus in northern and western Britain. No doubt it was of considerable social significance as well. It is clear that, against my earlier scepticism (for instance, Alcock 1987, 248), I must now restore 'the wine of brimming glass vessels' (Jarman 1988, 58) to the heroes of Gododdin.

A recent paper by J W Huggett (1988) allows us to make an interesting comparison between the importation of glass vessels into Anglo-Saxon England and into western and northern Britain. A version of his original map, (modified on the basis of further information which is gratefully acknowledged), is presented here as illus 18, alongside the distribution of sites in the west and north



ILLUS 18 Distribution of 'exotic' glass vessels, mainly 6th-7th cent, in Anglo-Saxon England, and west and north Britain and Ireland. Sites with fewer than three vessels are omitted. Anglo-Saxon England after Huggett 1988 with further information from the author; northern and western sites largely based on information gratefully acknowledged to E Campbell, with further information from D Longley (Mote of Mark) and P Hill (Whithorn). See postscript on p 149

which yield sherds from more than three vessels each of exotic glass. (The basic information here is gratefully acknowledged to the researches of E Campbell.) The essential difference in the source material from the two areas is that in the south-east it is derived entirely from cemeteries, whereas the western and northern sites are all settlements, overwhelmingly fortified.

In comparing the two areas, certain biases must be recognized in favour of the Anglo-Saxon cemeteries. To the advantage of a short sea journey must be added that of the strong links between the Kentish and Frankish courts. Moreover, some of the glass deposited in Anglo-Saxon graves had not been imported at all, but had actually been made in Kent. Given such biases in favour of the south-east, it is evident that the quantity of exotic glass that had been imported into south Wales and south western Scotland was very far from negligible. Another interesting observation is the virtual absence of glass vessels from eastern Britain, whether we consider Anglian, British or Pictish areas. (Note that occurrences of one or two vessels are ignored.) Rare singletons in Pictland, for instance at Dundurn, like the equally rare E-ware vessels, are considered to have been re-distributed from western centres such as Dunadd and Dunollie, along the Great Glen, Strath Earn, Strath Tay and other waterways. The implication is that we are certainly not observing a North Sea exchange nexus. The beginnings of specifically North Sea connections were marked by the appearance, rather later, of glass with reticella ornament of probable Carolingian origin, at sites like Brough of Birsay and Whitby (Näsman 1984).

This discussion has so far been confined to the hard evidence of pottery, whether as containers and vessels from the Mediterranean, or vessels from Gaul; and of glass vessels also from Gaul. This has also allowed us to infer a wine trade, in amphorae from the Mediterranean and in wooden casks from Gaul. In addition, once we allow the probability of mixed cargoes, then other luxury goods may also be considered. At present, the evidence is confined to fine metalwork, such as the decorated helmet from Dumfriesshire recognized by de Paor (1961); or, in Ireland, the weapons and harness from the royal seat of Lagore which Hencken (1950) claimed as Frankish. Luxury items were also moving west from Anglo-Saxon England, as is demonstrated, for instance, by the finding at Dinas Powys of sherds from a squat jar of blue glass and a glass claw-beaker, as well as bronze items, all of English manufacture, and not all imported as scrap (Alcock 1963; 1987; Campbell 1989; Graham-Campbell forthcoming). The implication of these observations is that we have scarcely begun to recognize the rich variety of the goods imported from the Continent and the Mediterranean into the Irish Sea and the Atlantic waters to the north of it during the later fifth to eighth centuries.

As for the exports which paid for the trade, they can only be a matter of speculation. To discuss them at all, it is necessary to reject the doctrine, widely held since Grierson's analysis (1959) of commerce in the Dark Ages, that a major part of what might appear to have been commerce should really be interpreted as gifts which involved reciprocal obligations; with the implication that the artefacts exchanged were never regarded as commodities. 'What is true of the Trobriand Islands in the twentieth century is not necessarily true of fifth-century Kent or the seventh-century Hebrides'. Sawyer's comment (1977, 141) is so obvious as to be almost a truism; yet its significance has largely been ignored. It cannot be emphasized too often that many of the social transactions of the early middle ages were presented in the form of gifts, despite lacking the voluntary essence of a gift. The king gave protection to his people: the people gave food and services to the king. Likewise, the king gave weapons and hospitality to his warriors: the warriors gave their lives for the king. It is obvious, however, that the two halves of each of these paired relationships are not equally balanced in terms of voluntariness.

Against the theoretical concept of gift-exchange, we may set W Davies's detailed and subtle analysis of the very complex concept of gifts among the Britons of Wales; an analysis equally relevant to the Britons of south-west Scotland, with the added advantage that it is based upon a quantity of

written evidence which is not available in the north (Davies 1982, chap 2, espec 41–57). A single quotation must suffice here: ‘some transactions took place that may reasonably be described as “sale”’ (Davies 1982, 53). From the written evidence alone we might judge such transactions to have been rare; but increasingly the archaeological evidence would suggest that in luxury goods they were far from uncommon even in the absence of a money economy. (For a fuller and wider discussion of these issues, see Sawyer 1977.)

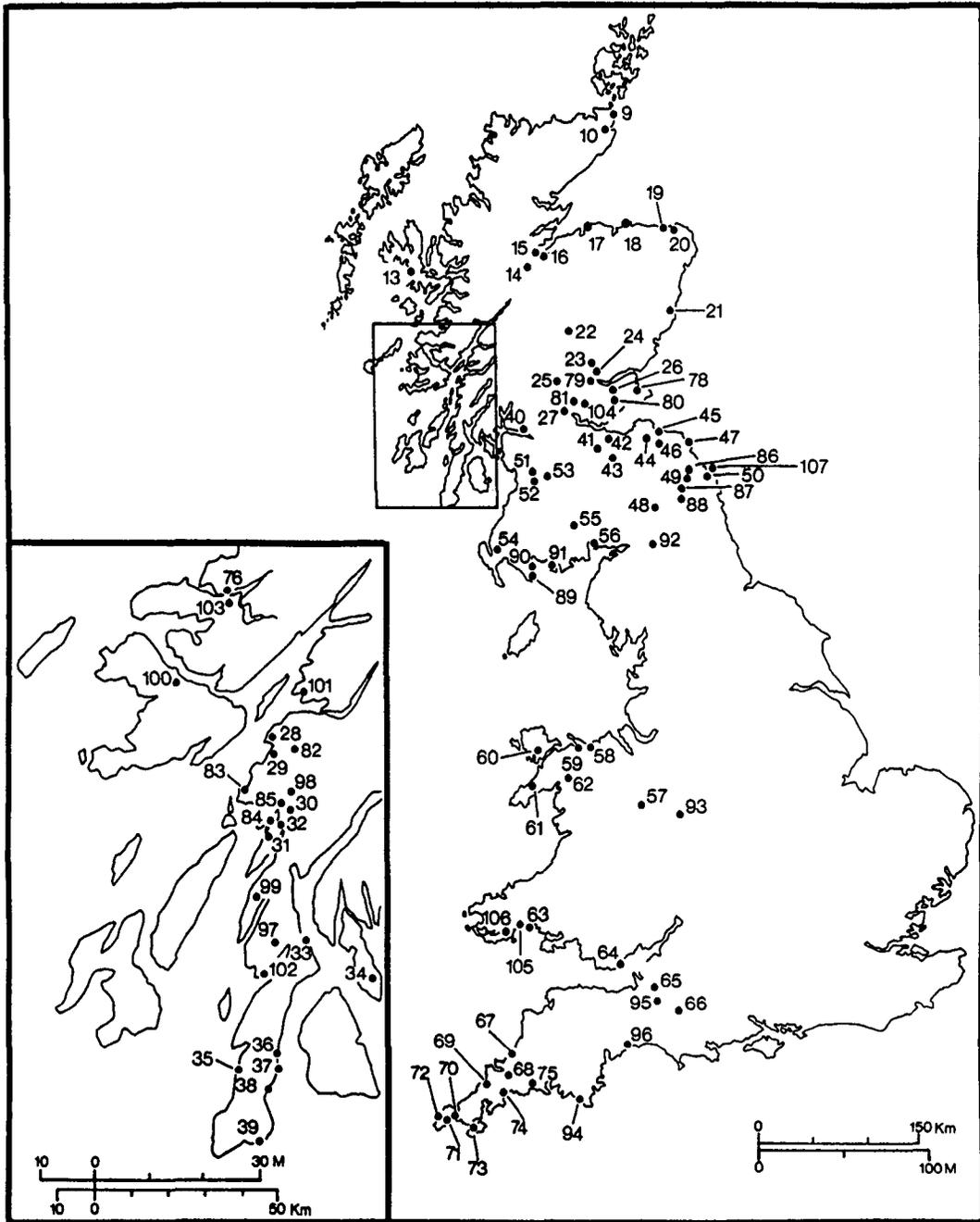
Fulford’s thesis that cargoes of wine in Class B amphorae had originated in the East Mediterranean now gives a further twist to the argument; for it is difficult to believe that the rulers of Byzantium had entered into reciprocal gift-giving obligations with the rulers of Clyde Rock, or even of Tintagel. Moreover, if we reject as improbable the idea of occasional storm-driven ventures out of the Mediterranean into Atlantic waters, then we can begin to think in reasonable terms of planned voyages driven by consumer demand in the Mediterranean and Gaul. And so we come back to the question: what had the barbarian west and north to offer in barter-exchange for wine or pottery or glass?

Before the advent of the Vikings, evidence for slave-trading round the Irish Sea and neighbouring waters is too slight to provide a major economic motive. Thomas is no doubt correct to suggest that at Tintagel, tin was a major export; but it seems likely that the sources of gold, argentiferous lead and copper that are scattered throughout Wales and Scotland were too scanty to be of similar interest. By contrast, the raw or finished products of both domestic and wild animals – cow-hides, or finer kid-skins and vellum, or seal-skins, as well as woollen cloth – would have been readily available. However, the main desirable features in commodities for long-distance trade are that they should be light, imperishable, and in the customer’s eyes, luxurious.

Among the natural products of northern (and to a lesser extent, western) Britain which meet such criteria are furs: not so much those of bear and beaver, but, in terms of luxury, sable, ermine, and those other white furs, the winter coat of mountain hares, and the fur of the newly born pups of grey seal. To these might be added the feathers of over-wintering geese, and the down of eiders, a bird of northern waters. Finally, there are good quality pearls from the fresh water mussels of northern rivers. This, of course, is no more than a list of potential exports. Apart from Bede’s mention of pearls (HE 1, 1), which does not necessarily refer to those from fresh water, we lack any written evidence for these possible Insular exports. By contrast, our knowledge of the flourishing fur trade between northern Europe and the Byzantine and Islamic worlds is almost entirely derived from written sources (Lombard 1969; Martin 1986). Likewise it is from the written account of Ottar’s visit to the court of King Alfred that we learn of the importance of furs, skins and feathers in north-western Europe (Sawyer 1977, 149).

To summarize this account of early harbour sites and trade: the major sites are naturally and artificially defended royal centres – Clyde Rock pre-eminently, Dunollie and Dunadd, and by implication, Tintagel as well (Padel 1981). Thomas perhaps exaggerates the inhospitable character of Tintagel as a permanently-occupied seat of kings (1988a, 429–30), but the economic basis of barbarian kingship required that king, court and bodyguard should move around a kingdom on periodic progresses, so that any one centre might be visited two or more times in a year (Alcock 1988a; 1988b). We might recall here that H Clarke has suggested that periodically-occupied royal centres had a special role to play in the early development of urbanization in Anglo-Saxon England (1988). Royal progresses would have provided the opportunity for fairs at which commodities, some of them gathered as tribute, might have been exchanged by barter.

The locations of these major coastal centres were equally well fitted for defence – including the royal protection of traders – and for the overseas export of luxury commodities acquired by kings through renders in kind as well as from enforced tribute. The evidence from excavation reveals that



ILLUS 19 Map: enclosed places, AD 450-850. Details as Appendix 1

they were also centres of industrial activity, especially the working of bronze (and more rarely of gold), of recycled glass and of bone and antler. In the absence of evidence for the buildings within the defences, the density of their populations is unknown. Nevertheless, they should be seen as the equivalent of the emporia of the English Channel, the North Sea and the Baltic.

Despite this, with rare exceptions they do not represent the beginning of continuous urbanization in the west and north (Spearman 1988). The exceptions are the *urbs regis* of Dunbar; and two primarily ecclesiastical centres, St Andrews and Whithorn, of which the latter is further anomalous because it is not actually a harbour site. None of the others appear to have continued as centres of trade and industry after the mid-eighth century, with the uncertain exception of Clyde Rock itself. This very probably retained a defensive role, and perhaps an administrative one as well, until its destruction in AD 870. It is certainly worthy of comment that the Vikings themselves did not adopt any of the northern sites as harbour-towns for their own purposes.

APPENDIX 1

GAZETTEER OF COASTAL AND INLAND SITES, AD 450–850 (illus 19)

This appendix lists, as at 31 October 1990, all the sites which form the basis for the statistical table on p 120 above, using the categories set out there: A, on or close to tidal water; B, between 0.5 and 5 km from tidal water; C, inland. Because of the problems outlined above (p 120), no attempt has been made to subdivide category A.

Sites are listed in alphabetical order, but the site name is preceded by a number. Numbers 9–75 refer to the text and map in E A Alcock 1988: higher numbers refer to sites added to that list, (1–8 are in the Northern Isles while 11 and 12 are in the Outer Hebrides; they are therefore irrelevant here). The site name is followed by the old county name; a four-figure grid reference; the coastal/non-coastal category, A, B or C; where appropriate, an indication of occupation in the pre-Roman Iron Age (I), or in the Roman period (RO), or the occurrence of Roman material in a 'reliquary' context as at Clyde Rock (RR); the evidence for the chronology of the site; and finally, summary bibliographical references.

A single * shows that the site-entry has been modified since its inclusion in the list in E A Alcock 1988. Two ** show that the site is an addition to that list. Sites in capitals are considered probable; those in lower case only possible. These distinctions have been reached independently; but it may be mentioned that in Wales and SW England they conform with the critical comments of Dumville 1990.

72 Aberffraw, Anglesey (SH 3568)
A; character and stratification of rampart
White (1980)
Alcock (1987, 166)

22 Aldclune, Perthshire (NN 8964)
C; RR; jewellery
Triscott (1980; 1981)

82** An Dun, Clenamachie, Argyll (NM 9228)
C; rotary querns in dun wall
RCAMS (1975, 77–8)

31* ARDIFUIR, Argyll (NR 7896)
A; RR; metalworking, imported pottery (E)
Christison (1905)
RCAMS (1988, 171–2)

** Arthur's Seat see *Din Eidyn*

Stevenson (1947; 1970)

50 BAMBURGH (*Din Guoaroy, Bebbanburh*), Northumberland (NU 1834)

A; I, RO; literary references

HE III, 6; III, 12; III, 16

Hope-Taylor (1966)

Alcock (1983)

94** BANTHAM, Devon (SX 6643)

A; RR; imported pottery (B, E), antlerwork, metalwork, jewellery

Fox (1955)

Silvester (1981)

Griffith (1986)

92** Birdoswald, Cumberland (NY 6766)

C; RO; post-Roman halls

Wilmott (1989, 288–9)

54 Black Loch Crannog (Loch Inch-Cryndi), Wigtownshire (NX 1161)

B; bonework

Munro (1882, 57–60)

85** Bruach an Druimein, Poltalloch, Argyll (NR 8297)

B; beads

RCAMS (1988, 204)

58 Bryneurn (*Receptaculum ursi*), Dinarth (Din Eirth), Denbighshire (SH 8379)

B; literary reference

DEB 32, 1

Sims-Williams (1983, 8)

53 BUISTON CRANNOG, Ayrshire (NS 4143)

C; RR; imported pottery (E), bonework, jewellery, metalworking

Munro (1882, 190–239)

Alcock (1983)

17 BURGHEAD, Moray (NJ 1069)

A; RO; C-14 age-estimates, Pictish stones

Small (1969)

Edwards & Ralston (1978)

Shepherd (1983)

66* CADBURY/CAMELOT, Somerset (ST 6325)

C; I, RO; imported pottery (A, B, D), jewellery

Alcock (1972; 1982)

65* CADBURY/CONGRESBURY, Somerset (ST 4465)

B; I, RO; imported pottery (A, B, D), trinkets, metalwork, metalworking, glass

Fowler, Gardner & Rahtz (1970)

Burrow (1981)

77** *CAPUT REGIONIS* (possibly Dunollie), Argyll

A; literary reference

VC 31a

106** CAREW, Pembrokeshire (SN 0403)

A; RO; imported pottery (E).

A royal site by the 11th cent, on evidence of ECMW 303 (Nash-Williams 1950)

Information from D Austin.

- 61 Carreg y llam, Caernarvonshire (SH 3343)
A; wheel-thrown pottery
Hogg (1957)
- 104** Castle Craig, Tillicoultry, Clackmannanshire (NS 9197)
C; hierarchical plan
Feachem (1955, 1980, 73–4)
Alcock, Alcock & Driscoll (1989, with illus 12:3)
- 75 Castle Dore, Cornwall (SX 1054)
B; I; post-Iron Age structures, imported pottery?
Radford (1951)
Rahtz (1971)
- 91** CASTLE HAVEN, Borgue, Stewartry of Kirkcudbright (NX 5948)
A; jewellery
Barbour (1907, 68–80)
RCAMS (1914, 46–8)
- 51* CASTLEHILL, Dalry, Ayrshire (NS 2853)
C; RR; trinkets, glass
Smith (1919)
- 16* Castle Hill, Inverness (?*Brudei Munitio*), Inverness-shire (NH 6645)
A; literary references
VC 74b, 79b, 81b, 114b
Henderson (1975, 91–108)
- 42* Castle Rock, Edinburgh, see *Din Eidyn*, Arthur's Seat
- 76** Castle Tioram, Moidart, Inverness-shire (NM 5848)
A; metalwork
Kilbride-Jones (1937)
Simpson (1954)
- 70 CHÛN CASTLE, Cornwall (SW 4033)
B; I; imported pottery (B)
Leeds (1927, 1931)
Thomas (1981)
- 26 CLATCHARD CRAIG, Fife (NO 2417)
B; I, RO; imported pottery (E), C-14 age-estimates, metalworking
Close-Brooks (1986)
- 63 COYGAN CAMP, Carmarthenshire (SN 2809)
A; I, RO; imported pottery (A, B)
Wainwright (1967)
- 15 CRAIG PHADRIG, Inverness-shire (NH 6445)
B; I; C-14 age estimate, imported pottery (E), metalworking
Small (1972)
Small & Cottam (1972)
Alcock (1984)
- 90** CRUGGLETON, Wigtownshire (NX 4842)
A; I; C-14 age-estimate, timber building
Ewart (1985)
- 19 Cullykhan, Castle Point, Troup, Banffshire (NJ 8267)
A; I; C-14 age-estimate
Greig (1971, 1972)
Shepherd (1983)

41 Dalmahoy, Midlothian (NT 1366)

C; jewellery, metalworking

Stevenson (1949)

Alcock (1983)

59 DEGANNEWY CASTLE, Caernarvonshire (SH 7879)

A; RO; imported pottery (B), annalistic references

Annales Cambriae s.a. 812, 822

Alcock (1967)

**Din Eidyn*, Midlothian

B; I, RO, (Castle Rock); RR (Arthur's Seat); literary and annalistic references

AI s.a. 638

Jackson (1969)

Alcock (1981, 165–6; 1983)

62 DINAS EMRYS, Caernarvonshire (SH 6049)

C; I, RO; imported pottery (B, E), metalworking, glass

Savory (1960)

64* DINAS POWYS, Glamorgan (ST 1671)

B; I, RR; imported pottery (A, B, D, E), bonework, jewellery/trinkets, metalworking, glass

Alcock (1963, 1987)

46 DOON HILL, East Lothian (NI 6875)

B; building-plans and stratification

Hope-Taylor (1980)

Reynolds (1980)

Alcock (1983)

40* DUMBARTON ROCK (*Alcluith*), Dunbartonshire (NS 4074)

A; RR; C-14 age-estimates, imported pottery (B, E), glass, metalworking, literary and annalistic references

HE I, 1; I, 12

Alcock & Alcock, this report

81** Dumyat, Stirlingshire (NS 8297)

B; place-name, defence plan and sequence

RCAMS (1963, 69–71)

Alcock, Alcock & Driscoll (1989)

100** Dun, Cnoc na Sroine, Island of Mull, Argyll (NM 5343)

B; hierarchical plan

RCAMS (1980, 99–100)

Alcock, Alcock & Driscoll (1989)

83** Dun, Leccamore, Island of Luing, Argyll (NM 7510)

B; ironwork

RCAMS (1975, 91–2)

97** Dun a'Choin Duibh, Argyll (NR 8064)

B; hierarchical plan

RCAMS (1988, 183–4)

Alcock, Alcock & Driscoll (1989)

99** Dun a'Chrannag, Argyll (NR 7275)

B; hierarchical plan

RCAMS (1988, 169–70)

Alcock, Alcock & Driscoll (1989, illus 11:6)

- 32 DUNADD (*Dun Att*), Argyll (NR 8393)
 B; RR; imported pottery (D, E), metalwork, metalworking, annalistic references
AI s.a. 683, 736
 Christison (1905)
 Craw (1930)
 Lane (1980, 1981)
 RCAMS (1988, 149–59)
- 29* Dun an Fheuran, Argyll (NM 8226)
 A; RR; bonework
 Ritchie (1971)
 RCAMS (1975, 82–3)
- 13 Dun Ardtreck, Isle of Skye (NG 3335)
 A; ?I; imported pottery (E)
 MacKie (1965a, 1965b)
- 39 Dunaverty (?*Aberte*), Argyll (NR 6807)
 A; annal reference (note Watson's reservation about the identification, Watson (1926, 237 n.1))
AI s.a. 712
 Alcock (1981, 157)
- 45* DUNBAR (*Dynbaer*), East Lothian (NT 6779)
 A; I; timber buildings, coins, literary reference
 VW chap. 38
 Alcock (1981)
 Hall & Holdsworth (1989)
- 98** Dun Chonallaich, Argyll (NM 8503)
 B; hierarchical plan
 RCAMS (1988, 183–4)
 Alcock, Alcock & Driscoll (1989)
- 20 Dundarg Castle, Aberdeenshire (NJ 8964)
 A;
 suggested in Shepherd (1983, 330)
 Fojut & Love (1983)
- 25* DUNDURN (*Dun Duirn*), Perthshire (NN 7023)
 C; C-14 age-estimates, imported pottery (E & ?Carolingian),
 jewellery, metalworking, glass, annalistic reference
AI s.a. 683
 Alcock, Alcock & Driscoll (1989)
- 35* Dun Fhinn, Argyll (NR 6530)
 A; RO; bead
 RCAMS (1971, 83–4)
- 101** Dun mac Sniachan, Argyll (NM 9082)
 A; hierarchical plan
 RCAMS (1975, 68–9)
 Alcock, Alcock & Driscoll (1989), illus 11:4
- 28* DUNOLLIE (*Dun Ollaigh*), Argyll (NM 8531)
 A; RR; C-14 age-estimates, imported pottery (E), bonework, metalworking, annalistic references
AI s.a. 686, 698, 701, 714, 734
 Alcock & Alcock (1987)
- 21 Dunottar Castle (*Dun Fother*), Kincardineshire (NO 8883)
 A; annalistic references
AI s.a. 681, 694
 Alcock (1981, 171–2)

- 102** Dun Skeig, Argyll (NR 7557)
 A; hierarchical plan
 RCAMS (1971, 70–1)
- 80** East Lomond, Fife (NO 2406)
 C; Pictish ox plaque
 Corrie (1926, 32–4)
 RCAMS (1933, 244)
- 84** EILEAN RIGH I, Argyll (NM 8002)
 A; ironwork, jewellery
 RCAMS (1988, 194)
- 9 Freswick Sands Broch, Caithness (ND 3866)
 A; bonework
 Anderson (1901, 143–4)
 Stevenson (1955)
- 95** GLASTONBURY TOR, Somerset (ST 5138)
 C; imported pottery (B, Saxon)
 Rahtz (1970)
- 71 Goldherring, Cornwall (SW 1969)
 B; I, RO; platters compare Gwithian
 Guthrie (1969)
- 73* GRAMBLA, Cornwall (SW 6928)
 C; RO; imported pottery (B)
 Saunders (1972)
- 18 GREEN CASTLE, Portknockie, Banffshire (NJ 4868)
 A; I; C-14 age-estimate;
 Ralston (1978)
 Shepherd (1983)
- 43 Harehope, Peeblesshire (NT 2044)
 C; palisade typology
 Feachem (1960)
 Alcock (1983)
- 96** High Peak, Devon (SY 1085)
 A; imported pottery (B)
 Pollard (1966)
- 88** Humbleton Hill, Northumberland (NT 8427)
 C; ?I; defence plan
 Jobey (1965, 35–6)
- 24 Inchtuthill, Perthshire (NO 1139)
 C; re-used Roman masonry
 Abercrombie, Ross & Anderson (1902, 230–4, fig. 206)
- 89** Isle of Whithorn/WHITHORN, Wigtownshire (NX 4836/NX 4440)
 A/B; imported pottery (B, D, E), glass (all at Whithorn)
 RCAMS (1912, 160ff, 177)
 Radford & Donaldson (1953)
 Hill (1988a; 1988b)
- 10 Keiss broch, Caithness (ND 3561)
 A; I, RR; bonework
 Anderson (1901, 122–7)
 Stevenson (1955)

- 38 KILDALLOIG, Argyll (NR 7518)
A; imported pottery (E)
RCAMS (1971, 87–8)
- 37* KILDONAN BAY, Argyll (NR 7827)
A; RR; C-14 age-estimate, trinkets
RCAMS (1971, 88–90)
Fairhurst (1939)
Peltenburg *et al* (1982)
- 68 KILLIBURY, Cornwall (SX 0173)
C; I; imported pottery (B)
Miles *et al* (1977)
- 28 King's Seat, Dunkeld, Perthshire (NO 0142)
C; place-name, defence plan
Watson (1926, 21–2)
Feachem (1966, 73–5)
- 47* KIRK HILL, St Abbs (*Colodaesburg, Urbs Coludi*), Berwickshire (NT 9187)
A; C-14 age-estimates, literary references
HE IV, 19; IV, 25
Alcock, Alcock & Foster (1986)
- 107** Lindisfarne (*Broninis urbi regis*), Northumberland (NU 1341)
A; name possibly British **bronn innis*=‘breast island’, referring to Bebloe Hill, a conical basalt outcrop with possible degraded drystone ramparts, crowned by Lindisfarne Castle
VW chap 36
Hope-Taylor (1977, 292 with n 340)
Jones (1977, 64–6)
- 39 LITTLE DUNAGOIL, Isle of Bute (NS 0823)
A; RR; imported pottery (E), bonework, glass
Marshall (1964)
- 30* LOCH GLASHAN CRANNOG, Argyll (NR 9193)
B; imported pottery (E), jewellery
RCAMS (1988, 205–8)
- 52* Lochlee Crannog, Ayrshire,
site now omitted; evidence for date: ringed pin of 10th century
- 105** LONGBURY BANK, Pembrokeshire (SS 1199)
B (? originally A); RO/RR ?; imported pottery (A, B, D, E), glass
Lane & Campbell (1988, 22–4)
Campbell & Lane (1989, 64–5)
- 72 Maen Castle, Cornwall (SW 3425)
A; I; grass-marked base
Crofts (1955)
- 86** Milfield (*Maelmin*), Northumberland (NT 9533)
C; literary reference
HE II, 14
Gates & O'Brien (1988)
- 79** Moncrieffe Hill, Dunbarney, Perthshire (NO 1319)
B; defence plan and sequence
Feachem (1955)
Alcock, Alcock & Driscoll (1989)

56 MOTE OF MARK, Stewartry of Kirkcudbright (NX 8454)

A; imported pottery (D, E), C-14 age-estimates, bonework, metalworking, jewellery/trinkets
 Curle (1914)
 Longley (1982, 132–4)
 Alcock (1983)

57 New Pieces, Breiddin, Montgomeryshire (SJ 2913)

C; RR; glass (identified by J R Hunter, ex inf C R Musson)
 O'Neil (1937, 107–12)
 Musson (1976)

43 Ruberslaw, Roxburghshire (NT 5815)

C; re-used Roman masonry
 Curle (1905, 219–32)
 RCAMS (1956, 102–5)
 Alcock (1979)

78** ST ANDREWS (*Kinrimond*), Fife (NO 5016)

A; carved stones, annalistic and literary references
AI s.a. 747
 Fleming (1931)
 Anderson (1974)

27 Stirling (?*Giudi*), Stirlingshire (NS 7993)

B; literary references
HE I, 12
HB chap 64
 Alcock (1981, 175–6)
 Jackson (1981)

33 Tarbert (*Tairpert Boitter*), Argyll (NR 8668)

A; annalistic references
AI s.a. 712, 731
 Alcock (1981, 177)

67 TINTAGEL, Cornwall (SX 0489)

A; RO; imported pottery (A, B)
 Radford (1935a; 1935b)
 Burrow (1973)
 Thomas (1986)
 Thomas (1988b)

103** The Torr, Shielfoot, Argyll (NM 6670)

B; hierarchical plan
 RCAMS (1980, 88–9)

74 TRETURGY, Cornwall (SX 0355)

B; RO; imported pottery (A, B, E)
 Miles & Miles (1973)

69 Trevelgue, Cornwall (SW 8263)

A; I, RO; ?imported pottery (?B)
 Andrew (1949)

55 TYNRON DOON, Dumfriesshire (NX 8293)

C; bonework, jewellery, iron knife
 Williams (1971)
 Alcock (1983)

36 UGADALE, Argyll (NR 7828)

A; metalworking, glass
 Fairhurst (1956)
 RCAMS (1971, 94)

14* URQUHART CASTLE, (*Airchartdan*), Inverness-shire (NH 5328)

C; C-14 age-estimates, literary reference

VC 115a

Alcock (1981, 159–61)

Whithorn see Isle of Whithorn

93** The Wrekin, (? *Pengwern*), Shropshire (SJ 6208)

C; I; ? place-name

Kenyon (1943)

Richards (1973)

49 YEAVINGING (*Ad Gefrin*), Northumberland (NT 9331)

C; architectural comparisons, literary reference

HE II, 14

Hope-Taylor (1977)

Alcock (1979, 136)

87** Yeavinging Bell, Northumberland (NT 9229)

C; I, RO; palisade-typology

Jobey (1965, 31–5)

APPENDIX 2

THE RECOVERY RATE OF BI AMPHORA SHERDS

As a preliminary to any attempt to establish the economic and social significance of Mediterranean and Continental imports into Britain and Ireland, it would be useful to be able to determine the actual number of pots which had been imported, simply because, along with glass vessels, these are the most readily identifiable and the most plentiful of the imports. For the modern student, the number of pots that had been imported is, strictly speaking, unknowable: it can only be an inference from the observed numbers of sherds recovered by excavation. Between observation and inference, a whole series of taphonomic problems are interposed: how were the pots used on site? how easily were they broken? how were the fragments dispersed or disposed of? Above all, we need to know how reliable are the recovery rates achieved in excavation: in other words, from any one broken pot are we likely to recover 50% of the resultant sherds, or 5%, or 0.5% or . . . ?

As a basis for establishing such percentage recovery rates, a simple beginning may be made by analysing them for Bi amphorae, on the dual grounds first that, when such vessels occur in quantity as in the Yassi Ada wreck (Bass 1982, 157–60), they are seen to be highly standardized; and second that the sherds themselves are highly distinctive, and in any assemblage recovered from an early medieval Insular site we can reasonably believe that we have picked out all the Bi examples.

For the present exercise, we can take a Bi amphora to be spherical, with a radius of 21 cm. The calculation for the area of a sphere is $4\pi r^2$; so for the area of Bi amphora we have $4 \times 3.14 \times 441 = 5539$ sq cm, or for convenience 5540 sq cm. We should now be able to establish how many sherds any single amphora might produce when broken by dividing the area of the sphere by the average surface area of the sherds found in excavations.

Unfortunately, the results are not very consistent. The area in square centimetres of typical Bi sherds recovered from a sample of individual sites is as follows:

Cadbury:	21 sherds, maximum 19, mean 9, minimum 3 cm ²
Clyde Rock:	2 sherds, each 16 cm ²
Degannwy:	1 sherd, 12 cm ² .

If we divide the amphora-area by the average areas of sherds from these sites, we may obtain theoretical figures for the number of sherds which a single pot might be expected to produce. These range from 346 at Clyde Rock, through 464 at Degannwy, and 616 for the Cadbury mean, to as many as 1850 for the smaller Cadbury sherds.

We should next notice that these estimated figures are at variance with actual site experience. When detailed comparisons are made of the fabric and combing ('decoration') of Bi sherds from an individual

site, with a view to establishing minimum numbers of vessels, then it appears that most Bi amphorae are represented by no more than a single sherd. For instance, the two sherds from Clyde Rock (cat nos 37 & 38) are each from a different amphora; while the 21 sherds from Cadbury appear to represent as many as 19 vessels.

At Dinas Powys, by contrast, it is suggested that 34 sherds all came from the same Bi vessel. Moreover, another amphora from that site, now classed by Thomas among his B Misc group (1981, 17–18), yielded 26 joining sherds plus another 58 from the same vessel (Alcock 1963, 130–3). Obviously we are here facing interesting, but disturbing, problems of finds-dispersal and excavational-recovery. Dinas Powys is a small, compact enclosed site, and a very large proportion of its interior was excavated under ideal conditions. The other sites mentioned are all large and diffuse, and excavation has been less intensive. Moreover, the small size of some of the Cadbury sherds reflects the probability that they are the scraps left behind after the sweeping out of a noble feasting hall.

These figures, culled from a reasonably representative sample of western British enclosed places, do not encourage us to believe that we are recovering a high percentage of the Bi amphorae which had originally been present on potentate sites. In contrast with the percentage recovery-rates suggested in the first paragraph above, a figure of 0.2% might be justified: it is in any case more likely to err on the side of optimism rather than pessimism. It does not encourage us to believe that the evidence currently available can enable us to quantify the scale of the early medieval import trade into western and northern Britain and Ireland.

APPENDIX 3

EARLY MEDIEVAL SCULPTURE AT DUMBARTON

John Higgitt

Amongst the fragments of carved stone preserved in the Guard House at Dumbarton Castle are two which have been identified as ‘gravestones with debased interlace’ and attributed to the 10th or 11th centuries (MacIvor 1986, 8 & 12). He states that they were found ‘some years ago during excavation of one of the garden terraces in the Nether Bailey’. Their presence there suggested to him that the medieval chapel of St Patrick had stood in that area.

One of the two fragments (illus 16, 1) is a slab which is about 0.67 m in length. It is broken at one end and was originally longer. Its breadth tapers from about 0.38 m near the break to about 0.29 m at the other end (measurement taken just above the chipped corner). The slab is roughly 0.13 m thick. One of the two broad faces carries weathered and damaged carved interlace decoration. The carving is flanked by narrow borders on the long sides and by a broader uncarved area across the narrower of the two short sides. A rough break cuts the decoration on the opposite (broader) of the narrow sides. At this (broken) end an apparently rectangular uncarved area intrudes into the decoration.

The dimensions and the tapering shape and the fact that decoration is confined to one broad face suggest that this is the lower end of a recumbent grave-slab. The uncarved rectangle separated from the carved area by a groove is therefore very likely to have been the base of a cross. It would then closely resemble the recumbent slabs decorated with an uncarved Latin cross set into a field of decoration (usually interlace) at nearby Govan and Inchinnan (illus 16, 3 & 4) (Allen & Anderson 1903, 3, 457–59, 465–71; Radford 1967a; Maxwell 1899; Stevenson 1985, 106–9).

In its present condition the interlace is hard to analyse. In the lower part of the stone the strands are broad and they still show clear traces, in spite of heavy erosion, of having been ‘median-incised’ (ie enlivened by a shallow incised line running along the centre of the strand). In the upper section the design seems to have been composed of thinner strands to allow the pattern to continue into the narrower fields flanking the stem of the cross. It is not entirely clear how the transition from one to the other was managed. The same combination of thin strands above thicker median-incised strands appears on one of the Govan slabs (no 38) (Allen & Anderson 1903, 3, 471, fig 500). It can also be seen on a Northumbrian cross at Gainford (Co Durham), which has recently been attributed to the second quarter of the 10th century (Cramp 1984, 1.1, 80; 1.2, pl 57).

The broad-strand pattern was probably derived from closed circuit patterns combining rings and diagonals (Cramp 1984, 1.1, xxxii, fig 24; Allen & Anderson 1903, 2, 222, 224). If so, it would have been comparable to the patterns below the crosses on two recumbent slabs at Govan (nos 28 and 35) (illus 16, 4) – but apparently even more irregular (Allen & Anderson 1903, 3, figs 492 & 498). Two rings and the

connecting diagonal strand forming an angle between them can be traced on the right-hand side. The other side, which is more damaged, is harder to read. The rings on that side seem to have been pushed-up in this compressed pattern rather than, as would be usual, being on the same level as those on the right, giving a syncopated effect. The thinner strands on the left side of the cross either continued the closed circuit pattern or else formed a four-cord plait, to be seen, for example, on Govan no 28 (Allen & Anderson 1903, 2, 202; 3, fig 498).

The other fragment (illus 16, 2) seems also to have been part of a recumbent cross-slab of the Govan and Inchinnan type. Unlike the first fragment it has been deliberately cut down, presumably for reuse as a building stone. Because of more recent breaks it is now in three pieces. The maximum overall length of the three stones fitted together is in the region of 1.27 m. The breadth of the sculpted face varies from about 0.25 m on the upper piece to 0.26 m on the main fragment and the thickness of the stone is around 0.16 to 0.18 m.

The fragment is sculpted on one face. The original edge only survives on one of the two long sides and it is marked by a moulded border. An incomplete panel of interlace about 0.12 m across runs beside the edge moulding for about 0.59 m. This panel is separated by another narrow moulding from an uncarved area. This must have been the stem of a plain Latin cross. Similar mouldings run around the edges of the crosses on one of the recumbent slabs at Inchinnan and of several at Govan (illus 16, 3 & 4) (Allen & Anderson 1903, 3, figs 476, 490–92, 495 & 497). At what was presumably the bottom of the cross enough of the moulding remains to show that it turned through 90°. The surface of the top of the largest piece is very abraded, as is that of the middle piece. There is no recognizable carving left on the uppermost piece. The edge moulding of the cross can be traced on the two lower stones as it defines the right arm of the cross above the interlace panel. The shallow depressions in the inelegantly named ‘armpits’ of this cross appear to have been rounded hollows of the sort found on the majority of the crosses on the Govan and Inchinnan recumbent slabs.

The interlace is composed of broad strands. In the bottom of the grooves that separate the strands the pock-like pits left by the sculptor’s point were not smoothed away and are still visible. Interestingly, similar pocking can also be seen on the Inchinnan no 1 slab (illus 16, 3) (Allen & Anderson 1903, 3, fig 476). The interlace pattern appears to be what Allen described as ‘Figure-of-eight Knots placed vertically in a Single Vertical Row’ (1903, 2, 220). This is a common pattern in Insular art and it occurs at Govan on one of the recumbent cross-slabs (no 27) (Allen & Anderson 1903, 3, fig 497).

Above the right arm of the cross there are slight traces of sculpture. In the bottom right-hand corner of this panel there is a form that was probably an angled turn in an interlace pattern. This interlace strand, if that is what it is, seems to have been median-incised.

Whilst it is quite possible that these two fragments were brought to the castle from outside at some date as building stones, it is perhaps more likely that they represent burials in an early medieval church or its associated burial ground on the Rock. If they could be shown to have come from the Rock itself, they would provide further important evidence for its use, at least for ecclesiastical purposes, in the early Middle Ages. The dating of these fragments is therefore a matter of some interest.

The preceding discussion has shown that these stones are fragments of two recumbent slabs closely related in form and decorative motifs to several at Govan and to one at Inchinnan. Unfortunately there is no documentary evidence for the early histories of these two foundations. Strathclyde resembled other British areas (Wales and Cornwall) in lagging behind the Angle-Saxon, Pictish and Iona areas and Ireland in the development of sculpture. Stevenson (1959, 49–50) and Radford (1967a; 1967b, 117, 124–26) are agreed in dating none of the Strathclyde sculpture to before the 10th century.

There are two or three distinct styles represented in the sculpture of Govan and Inchinnan (Maxwell 1899; Allen & Anderson 1903, 3, 456–59, 462–71; Radford 1967a) and these need not be contemporary. The hogbacks at Govan have been linked with ‘Viking-Age’ sculpture in Cumbria and elsewhere (Lang 1974; Bailey 1980, 98, 226–29) and have been dated by Lang to the mid and late 10th century. The Govan sarcophagus follows an older and more orthodox Christian form than the hogbacks and may represent a slightly earlier and less secularized phase of Govan’s history. Its hunting scene suggests links with Pictish or Picto-Scottish sculpture. The recumbent cross-slab at Inchinnan with carvings of confronted and processing quadrupeds as well as of a Daniel scene has been compared with sculpture at Meigle (Stevenson 1959, 49; Radford 1967a, 182–83). Its decoration is considerably more sculptural than that of other pieces from Govan and Inchinnan. Its comparatively high and rounded relief contrasts with the flat designs of the rest. Radford was probably right to suggest that it ‘stands near the beginning of the series’, which he dated to c 900 or the early 10th century. The more sculptural quality makes a somewhat earlier date, before the end of the ninth century, quite possible.

The other cross-slabs follow Inchinnan no 3 in the use of a Latin cross. The majority of the slabs share the round hollow armpits and the plain surface of its cross. The other Govan and Inchinnan slabs substitute interlace for the animal decoration of Inchinnan no 3. Some of the Govan slabs (illus 16, 4) have a simplified form of the cylindrical features carved on the four corners of Inchinnan no 3. None has decorated sides and all restrict their carving to one broad face.

The plain Latin cross with round hollowed armpits occurs at Iona, Lindisfarne (on St Cuthbert's Coffin) and in Pictland (Henderson 1990, n 40). The best series of analogies for slabs with plain Latin crosses with round hollowed armpits is at St Andrews (Fleming 1931, 1–52 *passim*). The St Andrews series, which has more finely executed decoration and a wider range of motifs, is likely to have started some time earlier in the ninth century. The St Andrews slabs lack Pictish symbols and so date perhaps from a period after the end of Pictish independence around the middle of the ninth century, although secular symbols of that sort might have been thought inappropriate on monastic monuments even before that date. It may be that the Strathclyde sculptors or their patrons chose to imitate the monuments of the monastery in St Andrews. Stevenson has already drawn attention to similarities between cross-shafts at Govan and St Andrews (1959, 49); and we have seen above that the higher relief of Inchinnan no 3 has a possible background in sculpture in Eastern Scotland.

The Strathclyde slabs differ, however, from those in St Andrews in a number of respects. The St Andrews slabs have decoration on both faces and were designed to stand upright unlike those at Govan and Inchinnan, which were almost certainly all recumbent. The Strathclyde sculptors had a different and more limited repertoire of ornament. Their reliance on interlace with frequent use of closed circuit patterns and of median-incised strands recalls the 'Whithorn School' of the 10th and perhaps 11th centuries (Allen & Anderson 1903 3, 480–94; Collingwood 1923, 218–27). Closed circuit-patterns and median incision in Northumbrian sculpture are attributed to the same sort of period by Cramp (1984, 1.1, 18).

The main group of recumbent cross-slabs at Govan and Inchinnan, with which the Dumbarton fragments belong, perhaps borrowed their form from the St Andrews series, which originated some time in the ninth century, but their decoration is not likely to be much removed in time from the 10th- and 11th-century Whithorn School. If the Govan hogbacks represent a Scandinavianizing secular taste and the earliest is correctly dated to the mid 10th century (Lang 1974, 212–13, 224), it seems likely that the Strathclyde cross-slabs with interlace decoration were first developed somewhat earlier in the century, although they may well have continued through the hogback period and have indicated burials of a differing status. (The Inchinnan slab with animal carvings was perhaps carved earlier still, possibly in the later ninth century.) Too little is known of the history of Strathclyde to allow this tentative chronology to be related to dated historical events, but there is some evidence of contact with the Scottish kingdom during the later ninth and 10th centuries (Jackson 1955, 85–87; Kirby 1962, 84–92). Strathclyde seems to have been in alliance (or according to Smyth (1984, 205)) in 'a permanent client relationship' with the Scots in the 920s and 930s, fighting alongside them against Athelstan at Brunanburh in 937. Unfortunately one cannot go further than saying that such circumstances would provide a reasonable context for sculptural borrowings from the east of Scotland.

More detailed work on the sculpture of Strathclyde and of the Whithorn School is needed and would probably help to refine or revise this chronology. In the meantime the Dumbarton fragments can be dated with some probability to the 10th century. It is unlikely that they were carved before the destruction of Clyde Rock in 870 and therefore they strongly suggest that the Rock was again in use, at least for Christian burials, a few decades later, provided, that is, that the fragments were not brought in from outside (perhaps on the demolition of Dumbarton old parish church (Macgibbon & Ross 1897, 423–26)) as building material some time in the later Middle Ages or the early modern period. Even if that had been the case they would still indicate a Christian presence in the Dumbarton area in the 10th century.

Postscript

I wrote the above before reading Alan Macquarrie's very interesting paper (1990) on the historical context of early medieval Govan. He starts with a brief review of the sculpture of the 'Govan school', which in common with most writers he sees as belonging mostly to the 10th and 11th centuries. His conclusion that this sculpture had its origins at a time of increasing Gaelic influence when 'the British kingdom of Dumbarton was losing its independence, at least temporarily, in the face of the advances of the dynasty of Kenneth mac Alpin' (Macquarrie 1990, 6, 16–17) is similar to what is argued above, although it is based on a much fuller assessment of the historical evidence. More speculatively he sees the sculpture as coming out of a context in which 'the Gaelic aristocrats settled in Strathclyde by the kings of Scots and their Strathclyde

client kings' turned their backs on the British cult of St Kentigern at Glasgow and instead gave their patronage to St Constantine at Govan, a cult which he suggests that the Scots had brought with them (Macquarrie 1990, 10–14).

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The majority of the drawings, in their final form, are by L McEwan: but the finds have been drawn by S J (Leek) Stevenson.

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POSTSCRIPT

When this paper was at proof stage, Professor P A Rahtz kindly informed us of the results of Dr A J Price's analysis of the imported glass from Cadbury-Congresbury (Appendix 1, illus 19, no 65). A minimum vessel count of 53, while including a little Roman and fifth-century Mediterranean glass, consists principally of Anglo-Saxon and Continental glass of the sixth and seventh centuries. Illus 18 should therefore have a 25+ symbol for Cadbury-Congresbury.