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Chapter 3

The Outcome

Introduction

Fieldwork at Portmahomack and on the peninsula ran from 1994 to 2007, and post-excavation analysis from 2007 to 2013. It was always a principle of archaeological engagement, as practised by the authors, that a project must have a design and a programme of work, and when that programme is complete the project stops and is reported. At this moment it enters the public domain and takes its place, for better or worse, on the international stage. It is worth reiterating this principle, since many of our visitors and friends, including the Trustees and even some professional archaeologists, expressed dismay that the project followed the logic of its own design and terminated, instead of continuing to look for more discoveries. Readers may feel the same way. However there is little doubt that conforming to a pre-agreed programme is the only ethical procedure for archaeology and underpins any respect we merit from other professionals. The downside of this principle is the discomfiture of leaving problems unsolved, as we must. This project opened a new view of the early medieval period in Scotland, but its limitations will be acknowledged and discussed in the chapters that follow.

The design of the project and the history of the investigation were summarised in the last chapter; a summary of the results is presented in this one. The excavation was deployed in four *sectors* that were spatially detached from each other (Illus 3.1). Here we present the structures, features, activities and assemblages recovered in each sector and the argument for placing them in a dated chronological order. This is followed by a brief account of the findings of the scientific analysis of the human, artefactual, faunal, vegetable and mineral parts of the *assemblage*. Lastly, there is an overview of the results of *survey on the peninsula* and a concordance of events at Portmahomack and beyond, designed to provide a 'road map' to the narrative as a whole (Table 3.1, see end of chapter).

Chronology

The first chronological tool employed was the stratigraphy. This was strong in Sectors 2 and 4 and is presented in its entirety for both sectors in OLA 6.2.2 and 6.3.2, and in summary form in Illus 3.13 and 3.21. Summaries of the stratigraphy will be found below, but having the complete sequence to hand helps give transparency to sometimes unfamiliar material and detailed argument. This stratigraphic sequence was supported or qualified by seventy-two radiocarbon dates supplied through the good

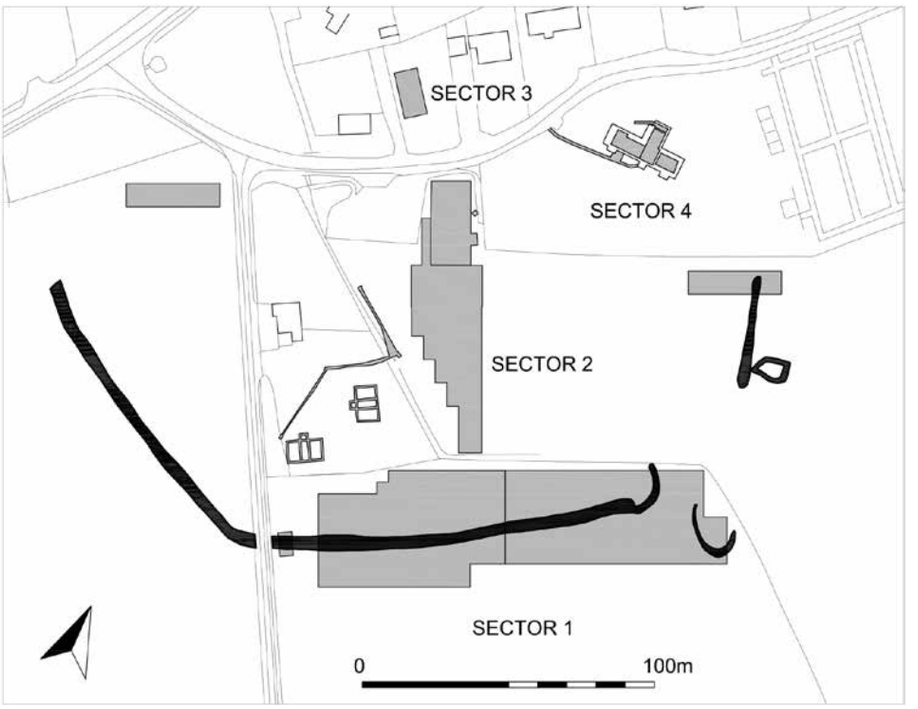

Illustration 3.1
The sectors investigated

Illustration 3.2
Master plan of Sector 1

offices of Historic Scotland (see Digest 3.2). These have been primarily used to provide spans of 95% probability, even if the spans were sometimes broad. In a few cases, a series of contexts could be dated that were stratigraphically consecutive, for example five burials in the later medieval cemetery. These offered an opportunity for Bayesian refinement. Bayesian analysis was also applied to provide spans for periods and any proposed hiatus between them. Where these differed from the conclusions of the stratigraphy, the latter was given primacy (see below, p 66). A third source of chronology was provided by datable objects, present in all periods and most sectors to a greater or lesser degree.

Having taken account of the possible residuality of objects or radiocarbon samples, evidence from each type of dating was reconciled to give the best fit for each sector. The dating evidence is presented together in Table 3.1 (p 68), which provides the master chronology across all three sectors. This will be found at the end of the chapter. The sequences in all three sectors laid alongside each other offer an overall narrative for the site. This was summarised in more general terms in Chapter 1 (Table 1.2).

Excavation sequences by sector

South Area, Sector 1 (OLA 6.1)

The overall geography of Sector 1 as excavated can be seen in Illus 3.2. The large enclosure ditch proved to be one of two; the shallower and earlier was defined to the north, and this has been called the *first enclosure ditch* (S15), as opposed to the *second enclosure ditch* (S16), which was the feature located by air photography (see Chapter 2, p 19). At the west end, north of S16, was the *bag-shaped building*, S1, which began life as a metal workshop and later served as a kiln barn. S3 was the south wall of a structure that resembled S1 in form, but the little of it that lay within the excavation area was poorly preserved. S2 and S6 were slight rectilinear features, each eventually determined as being neither early nor a structure. S8 was a *well* adjacent to S1. Beside it to the east was an area of the backfilled *first enclosure ditch* (S15) that had captured part of a *metalworking zone*. On the east side, the second enclosure ditch terminated in a butt-end. South of the enclosure here were S12, a small *penannular enclosure* and (cutting it) S5, a partially defined *bag-shaped building*. Widely distributed over the excavated area in its earliest phase were parallel scratch-plough marks or ard marks, which represented a widespread episode of scratch ploughing preceding the medieval rig and furrow (Chapter 4, p 93).

The sequencing of this sector relied on stratification, horizontal association and radiocarbon: the ard marks had cut through a podzol, a grey sand with a characteristic composition that also helped to label some of the earliest contexts. Both enclosure ditches (S15 and S16) cut the scratch-plough-mark system (Illus 3.3). Bag-shaped building S1 respected enclosure ditch S16. Metalworking debris found within S1 was paralleled in the top backfill of enclosure ditch S15. Bag-shaped buildings S1 and S3 were set in echelon. Bag-shaped building S5 cut pennanular structure S12, which in turn stood at the limit of the scratch ploughing. The rig and furrow overran both enclosure ditches. Radiocarbon dating proved helpful in phasing S1 and S5 (Table 3.1). Taken together, this information was used to generate a period plan for Sector 1 (Illus 3.4).

Period 0/1 – before the late seventh century

The penannular S12 was spatially associated with the widespread scratch-plough cultivation (they were mutually exclusive), but the plough marks produced no assemblage, no plough pebbles, and no radiocarbon dates. The plough marks were cut by both enclosure ditches, S15 and S16; preceding S15, the plough marks and S12 could be therefore be seen as belonging to Period 0 (pre-sixth century), but could equally belong to the early developments of Period 1. The absence of prehistoric pottery (from any sector) raised some doubts about the features encountered in Sector 1 belonging to a prehistoric settlement (Period 0). The *first enclosure ditch* (S15) could belong to Period 1 on the grounds that it was superseded by another (S16, securely in Period 2) on a similar line, although enclosing a larger area. The verdict given in Chapter 4 is that both enclosure ditches belong in Period 2, with the plough marks and S12 either in Period 0 (prehistoric) or more probably in the early part of Period 1 (fifth/seventh century).

Illustration 3.3
Scratch-plough marks cut by the first enclosure ditch S15

Illustration 3.4
The sequence in Sector 1 by period

Period 2 – eighth century

The *first enclosure ditch* (S15) was located along the northern edge of the sector and when excavated proved to be over 1.80m wide and up to 1.30m deep. Excavation conditions were often difficult due to groundwater, and profiles had sometimes to be determined by auger. The first enclosure ditch appears to have had two phases: initially V-shaped with a narrow flat bottom, it developed with a gentler slope to the north. This may have been a recut, or a wear pattern caused by access to water, perhaps by cattle. However there was no lining and it collapsed easily and could not have functioned as a water carrier. There was no direct dating evidence for the construction of the first enclosure ditch. It was later than the ard marks (Period 0 or 1) and earlier than the craft debris found in its final fill (below). It could therefore be Period 1, but it more probably initiated Period 2 on the basis of its similarity to its successor (Chapter 5.5).

The *second enclosure ditch* (S16) was cut through sand subsoil into the pink stony clay-sand that lay beneath. Examined at two points (in addition to Int 1, p 4), the depth of the ditch was *c* 1.6–2.0m below ground level. Where the profile of the ditch was intact, it appeared to have a relatively wide flat-bottomed base 2.6m across with possibly stepped sloping sides widening to a maximum width of *c* 7.2m. Inside and on the shoulders of the ditch there were traces of a wattle fence, probably designed to revet the upper (sand) shoulders. A radiocarbon date obtained from the wattles was 670–890 cal AD (Table 3.1). There was probably a bank implied by upcast eventually returned to the ditch, but its footprint was elusive. The ditch is thought to have functioned as a collector and distributor of water (Chapter 5.5).

A *craft area* had been located over the western end of the refilled first enclosure ditch, near the point at which it vanished under the north baulk of Sector 1. The evidence took the form of a cluster of crucible and mould fragments, indicating the working of precious metal, glass and enamel, and included an opaque white glass stud and a blue glass stud inlaid with silver wire. There were associated scoops and hollows and some post-holes, but these were not resolved into convincing structures. This activity area had survived because it had sunk into the dished backfill of the first enclosure ditch, taking it out of the reach of later ploughing. The inference is that it was a part of a craft zone that was originally more extensive. There were no radiocarbon dates, but the debris as a whole belongs to products of the eighth century (Chapter 5.7).

The *bag-shaped building*, S1, was the most intact early structure recovered in the campaign (Illus 3.5, 3.6). It consisted of a set of post-holes with post-pads designed to support a roof, and a trench filled with cobbles designed to support a wall. There was an entrance on the north side, a hearth at the origin point of the east semicircle and a contemporary pit containing metalworking debris. Radiocarbon dates obtained from the hearth were 690–940 cal AD on calcined animal bone and 670–870 from a charred hazelnut shell. The evidence for the involvement of S1 in glass- and metalworking is presented in Chapter 5.7, and the architecture of the building is discussed in Chapter 5.9. To the north of S1, the small and poorly preserved part of S3 examined suggests that it was a building of similar kind (Chapter 5.9). S1 and S3 also became the focus for the distribution of large quantities of animal bone (Chapter 5.8).

Immediately east of S1 and S3 was a plank-lined *well* S8 (Illus 3.7, 3.8). The original construction consisted of a large circular 'bowl' measuring 3.0m in diameter narrowing to 2.30m at its base. It was cut *c* 0.30m into pink clay-sand, to a total depth of 1.20m (OLA 6.1.1, 51). Within the portion of the feature that is likely to have experienced the fluctuations of the water table, a small component in the sticky clay fill was recognizable as wood and interpreted as the remains of timber plank lining. It saw extensive use, creating an access lobe to the north-east. In Period 2, this well is considered to have served the metalworkers (see Chapter 5.7, p 211).

Both the *bag-shaped building* S1 and the *well* S8 proved to have a second phase of development assigned to Period 3.

Illustration 3.5
S1 with the post-holes excavated, looking west. The well S8 is under excavation to the right. In the background, the archaeological campsite and offices (left) and disused farm buildings (right)

Period 3 – ninth to eleventh century

S1, which saw metalworking in Period 2, was adapted to new use in Period 3 (Illus 3.6). It was rebuilt with double post-holes suggesting increased load bearing, and thus an upper floor; a lined flue was admitted through the south wall, which included a reused rotary quern fragment. It is argued that these provisions indicate its use as a kiln barn (Chapter 6, p 276). Carbonised grain from the flue gave a radiocarbon date of 1020–1210 cal AD. S1 was eventually dismantled, some posts removed while they were still sound.

S8 was also modified in Period 3, with stones piled around the well pit, a long channel developed to the north-west and the whole was ultimately backfilled with black sand (Illus 3.7).

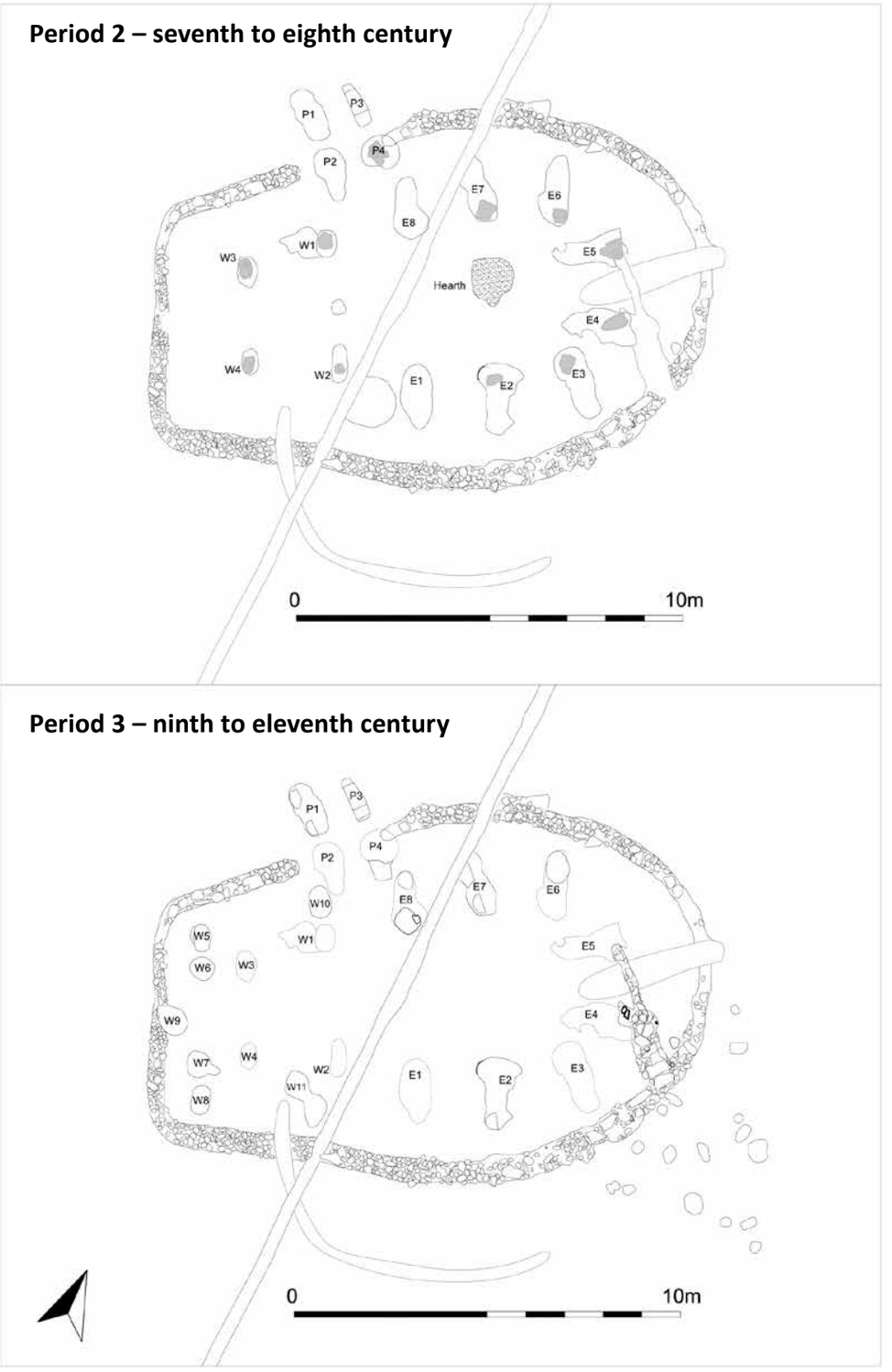

Illustration 3.6
S1 in its two phases, Period 2 (above) and Period 3 (below)

Illustration 3.7
S8, before and during excavation

The modification of the structure may have been prompted by the silting up of the main bowl, possibly hand in hand with the decay of the original plank lining. The form and function of S8 in Period 3 was uncertain but it continued to give water (Illus 3.8).

The building at the east end of Sector 1, S5, which was concerned with crop processing, gave a radiocarbon date from its central hearth 680–900 cal AD and from its enclosing ditch of 890–1030 cal AD. Enclosure ditch S16 may have been disused as early as 680–940 (determined from twigs in its fill). Along the enclosure ditches, subsidiary leats were dug, or developed, carrying water north towards the valley. One of these (F18) was disused after 780–1020 cal AD (Chapter 6, p 280).

These dates imply that the rebuilt form of S1 and the well S8, the kiln S5 and the second enclosure ditch were in use in Period 3 and were concerned with farming grain. They were slowly abandoned in the later part of this period, from the tenth into the eleventh century (Chapter 6, p 281).

Period 4 – twelfth to sixteenth century

The lowest layers contained in the second enclosure ditch were peaty, probably formed when the water had stopped flowing. In one place, the ditch had been rapidly backfilled with branches and tree stumps, followed by soil and clay-sand. A sherd of Scottish Redware (thirteenth to fifteenth century) was found in the final fill. This pottery also occurred in the plough furrows that ran over the backfill (Chapter 7).

Period 5 – seventeenth to twentieth century

The area remained in agricultural use in post-medieval times. A large number of ditches, including cobble drains, were laid in a N–S direction. These may have been intended to relieve puddling caused by the now buried enclosure ditches, but local opinion also suggested that they provided a system of water collection for the early modern village of Portmahomack.

Central area, Sector 2 (OLA 6.2)

The three parts of Sector 2 were very different in their surviving stratification (Illus 3.9). Early features at the *north* end were near the surface: they included a stone-lined tank (S4) and two areas used for vellum-working (S9 and its yard), beside a paved road (S13). In the *centre*, deposits lay deep over the stone foundations

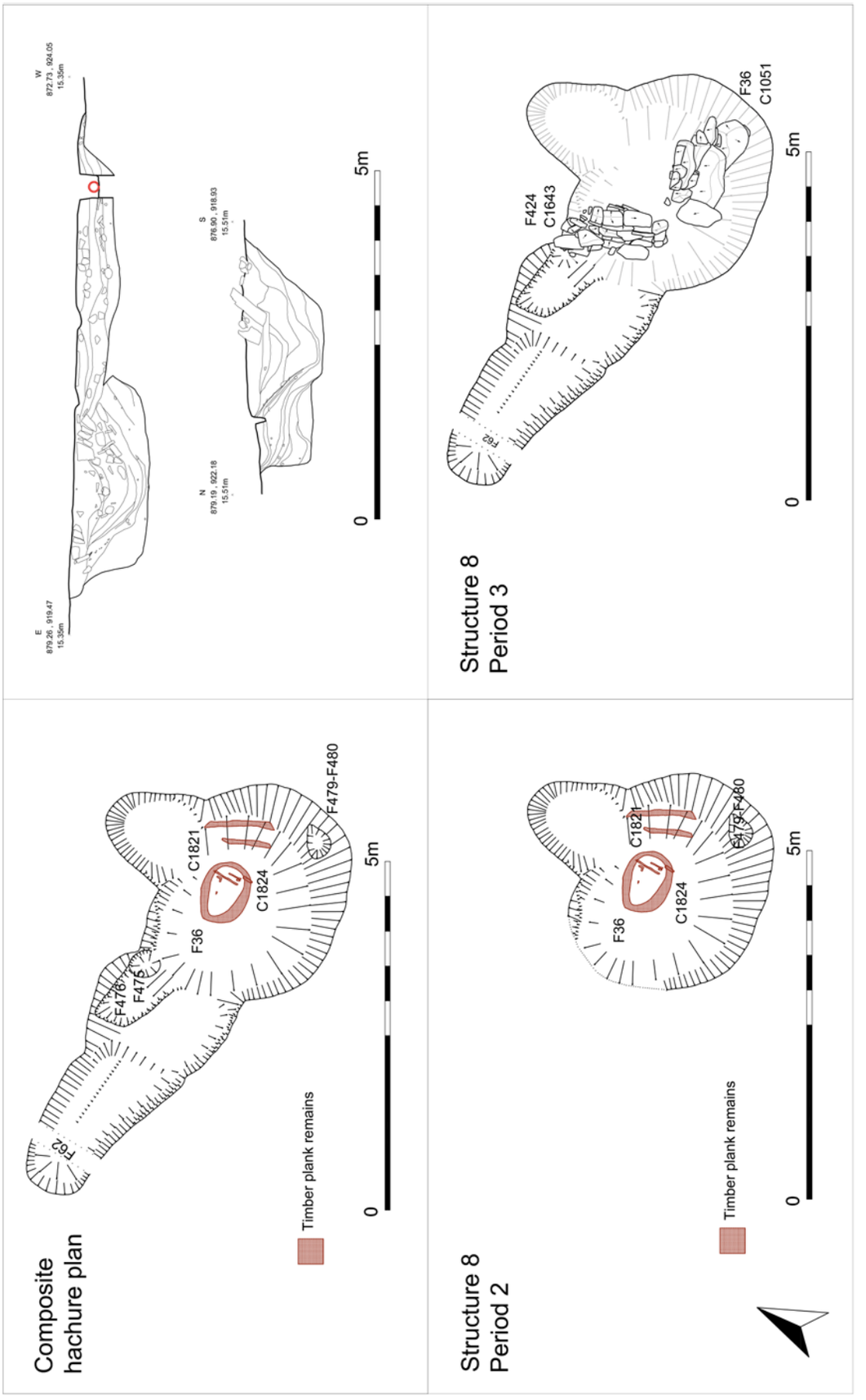

Illustration 3.8

S8: (a) composite plan (b) section (c) in Period 3, wood-lined well (d) in Period 3, with stone lining

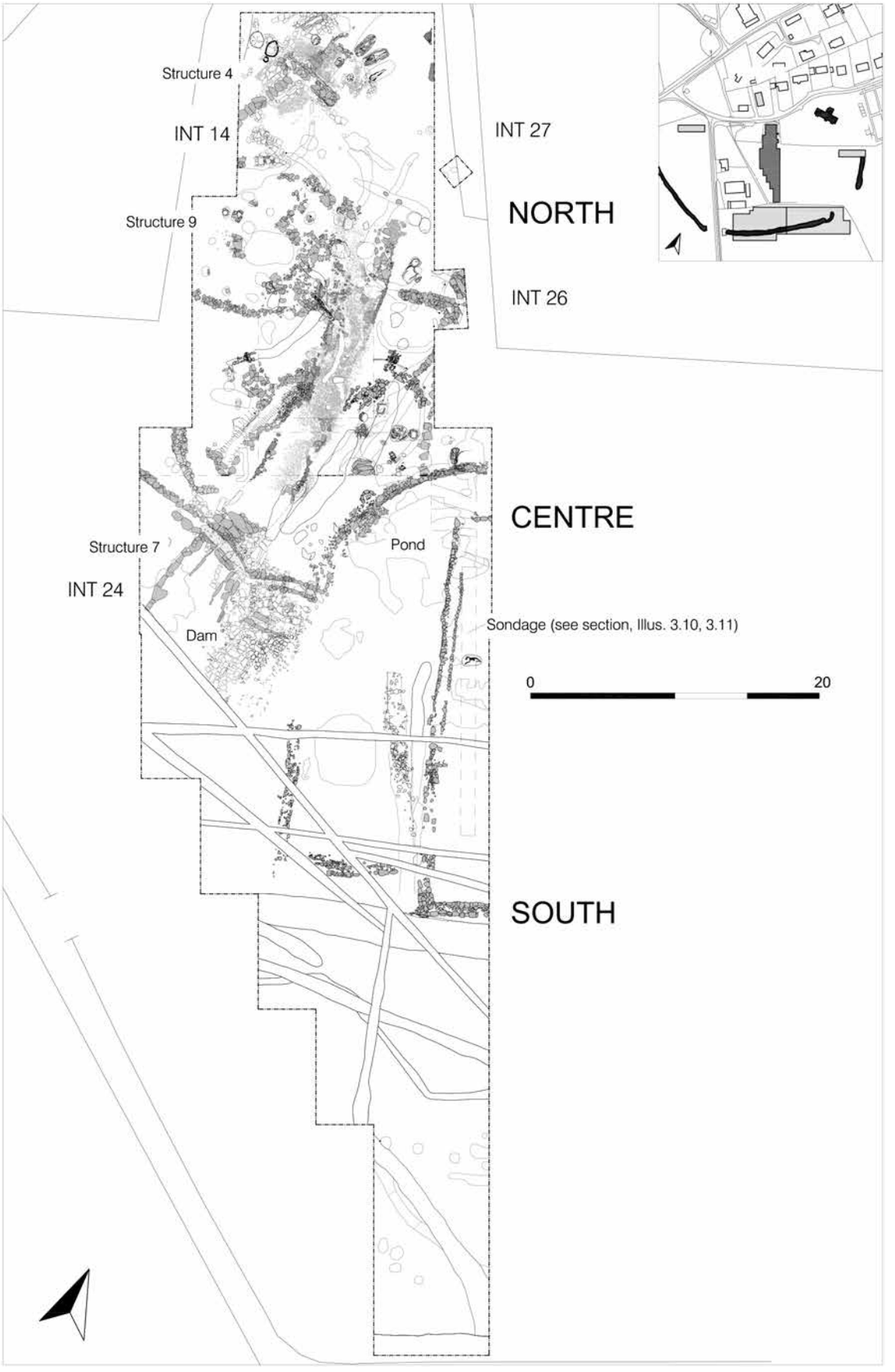

Illustration 3.9
Master plan of Sector 2

of boundary walls, road, bridge and dam (S7). In the *south*, the area was laced by working agricultural drains. The lowest part of the site was the west side, centre. Here the dam acted as a subterranean plug, impounding water coming from the east and creating a wet patch. Excavation was possible with constant pumping, and subsoil was reached and confirmed beneath the bridge. Removing the dam completely during the excavation was inadvisable, since it would have altered water retention over a considerable distance eastwards, affecting farmers and the golf club (Illus 2.3).

The sequence through the pond and into the marsh beneath it was captured on the east side in a 20m-long sondage (Illus 3.9 (location), 3.10, 3.11). Here it proved possible to chronicle the plant

Illustration 3.10
Sondage through the east side of the pond

and insect signatures from the Iron Age marsh through to the final backfilling of the pool in Period 3 (Digest 7.4) (for a N–S profile across all Sector 2 see OLA 6.2, Fig 5). The central area of Sector 2 resembled urban strata in its complexity, as illustrated by an E–W profile (Illus 3.12). An abridged version of the stratigraphy is included here for ready reference (Illus 3.13).

Period 0 – before the mid-sixth century

The subsoil was proved over about 50% of Int 14, along the west baulk (Illus 2.16), in a trench through the pond base and in the area of the dam and bridge S7. The subsoil consisted of sand and turf layers at the north end and hard gravelly sand in the valley bottom. A stream (now underground) ran westwards along the valley. Marsh deposits had formed at the stream edge, together with natural peat that gave radiocarbon dates spanning 770–380 cal BC. A dozen flint implements were found, ranging from the Mesolithic to the Bronze Age in date, but without a significant distribution pattern. The only sign of settled activity was a pit containing charcoal (F573), probably the remains of charcoal-making clamp. It was dated 130–380 cal AD (Chapter 4, p 75).

Period 1 – mid-sixth to late seventh century (Illus 3.14)

The earliest features at the north end of Sector 2 were three long-cist graves, aligned NNE–SSW (heads to the SSW), dated fifth to seventh century and contemporary with the earliest burials found under the church (Sector 4, below). One of these, Burial 188, was crowned with a mound and close to a ditch. There were curvilinear ditch segments both to the north (S14) and south (S10) of these burials. The interpretation of these cist graves as belonging to a barrow cemetery was enhanced by the detection of a burial cluster (possibly in a mound) under the church (see below) and a post-War air photograph that showed ring ditches in the area on the crest overlooking the firth (see Illus 4.11).

The first sign of residential occupation was a circular structure, S11, with a central hearth (F535). Fragments of slag, a whetstone, a blade and deposits of ash from the hearth and its surroundings indicated a metalworking site. Key finds were iron dress pins and a gilt-bronze roundel from a sixth/seventh-century horse bridle, comparable with one from Sutton Hoo. East of S11 was a network of water-management facilities, including a wicker-lined well (F527) connected to a cistern and a gulley in use at the same time as the hearth. Further south, a number of W–E gulleys and a wattle fence suggested delineation of the settlement area from the marsh. Radiocarbon dates were obtained from the burials (430–610 cal AD and 540–650 cal AD), from the wicker lining of the well F527 (600–675 cal AD), and a charred hazelnut shell from the final use of the hearth F535 (640–770 cal AD) (Chapter 4).

Period 2 – eighth century (Illus 3.15)

A spread of sterile windblown grey sand (C3537) may imply a short hiatus after Period 1. The redevelopment that then followed in Period 2 was the most significant seen at Portmahomack. Spreads of clayey silt (eg C2809) were used to consolidate the ground at the pond's edge, while the ground to the north was levelled in preparation for workshops and a road. Stratigraphically, the *road with its ditches* (S13), the *boundary walls, the dam, the bridge* and *pool* (S7) were all of one build, and inferentially of a single integrated design (Chapter 5.5). The *tank* (S4), *workshop* (S9) and the *yard* that lay on the west side of the road were also of contemporary build and use and interpreted as a craft area dedicated to the production of vellum to make books (Chapter 5.6).

Each of the major structural areas experienced episodes of individual biography. There were two decommissioned inlet channels into the tank S4, but this is not thought to have indicated any change of its use, interpreted as for washing or preserving hides. The hearth in S9 had two phases (F495/F529). The industrial activities generated a large amount of ash, which

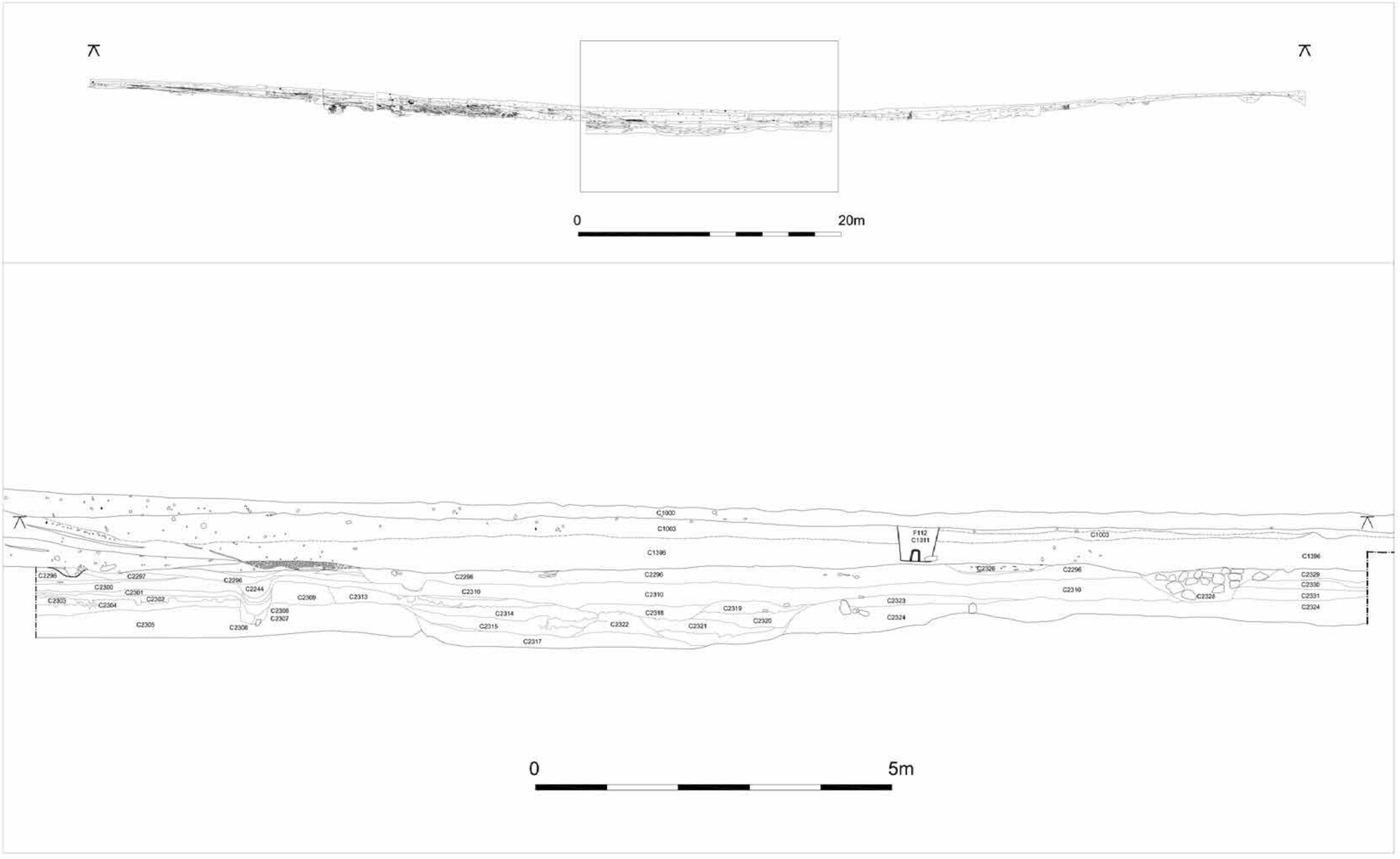

Illustration 3.11
Extract from the N–S profile through Sector 2, showing the sequence in the pool

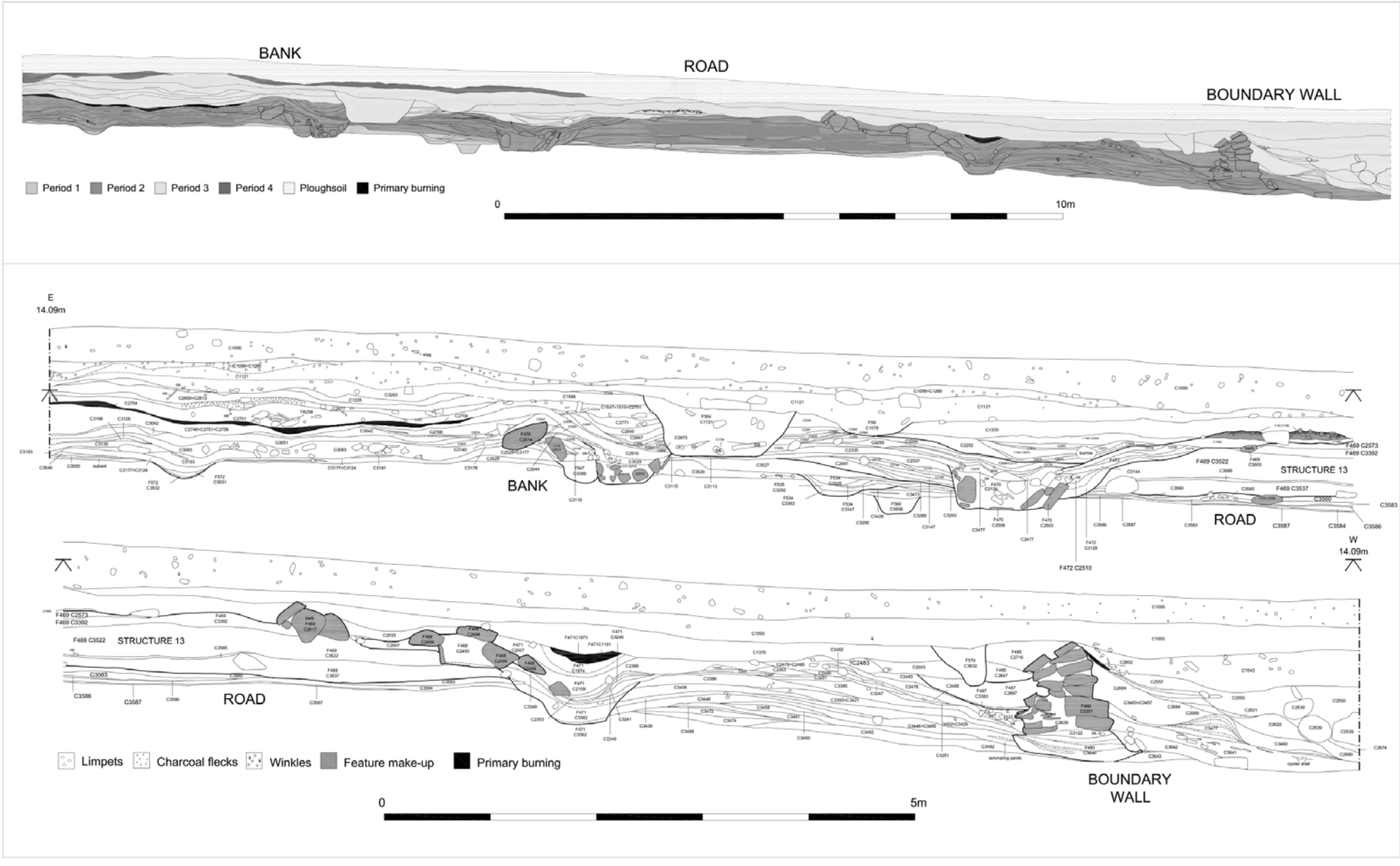

Illustration 3.12
E–W section through the central area of Sector 2 showing the road (S13) and the boundary wall F480

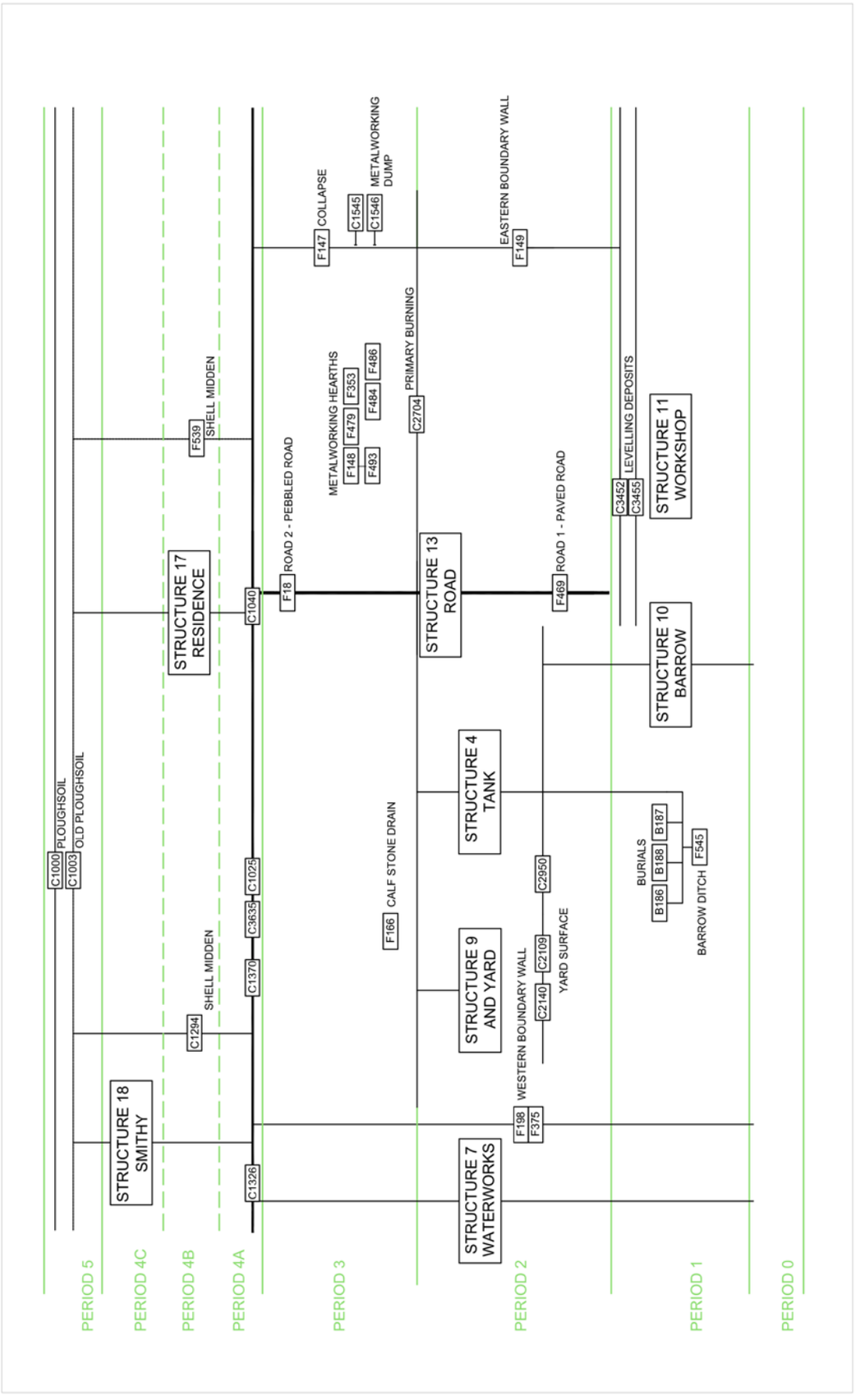

Illustration 3.13
Summary stratigraphic diagram for Sector 2

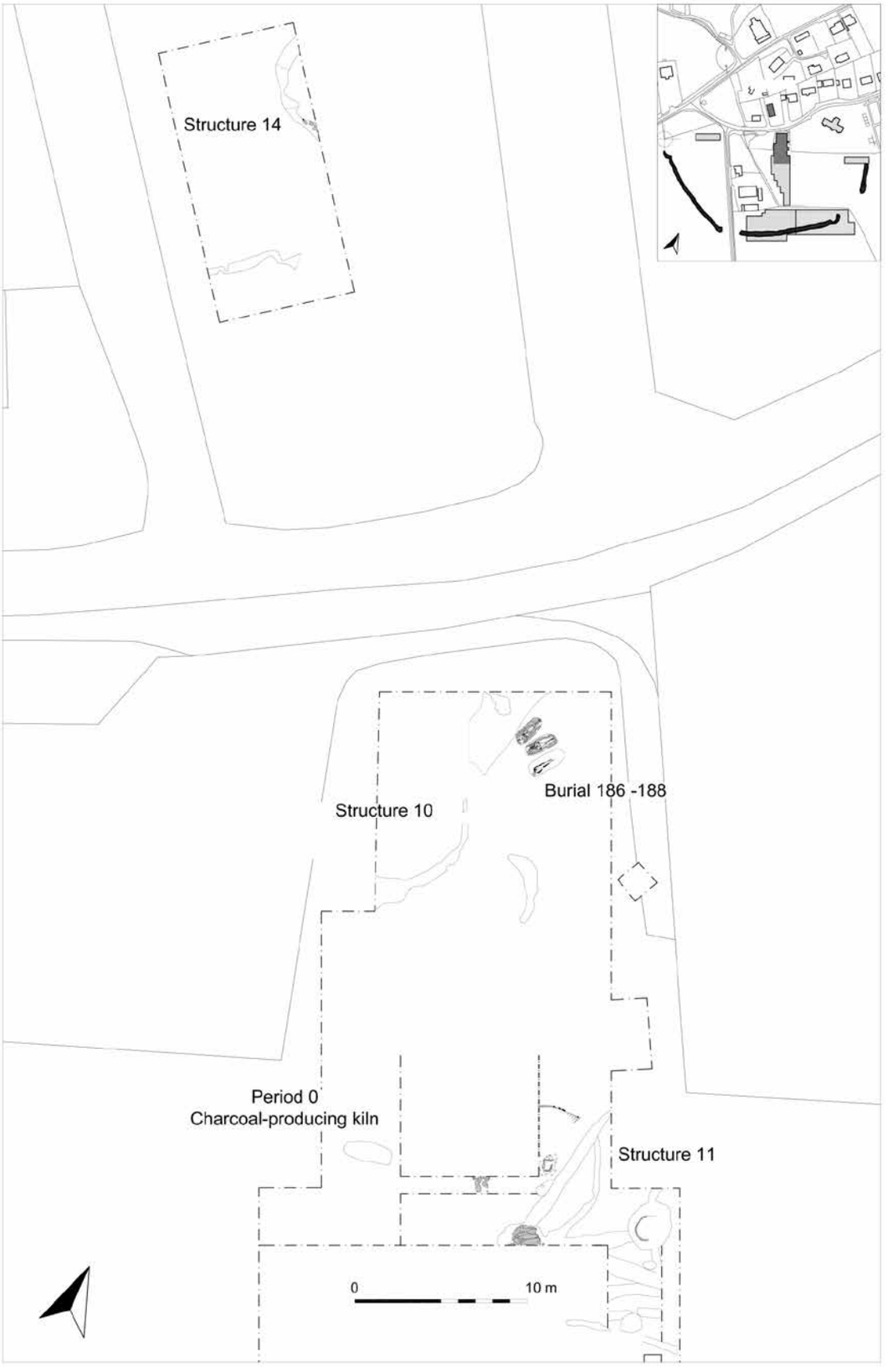

Illustration 3.14
Period 1 features in Sectors 2 and 3

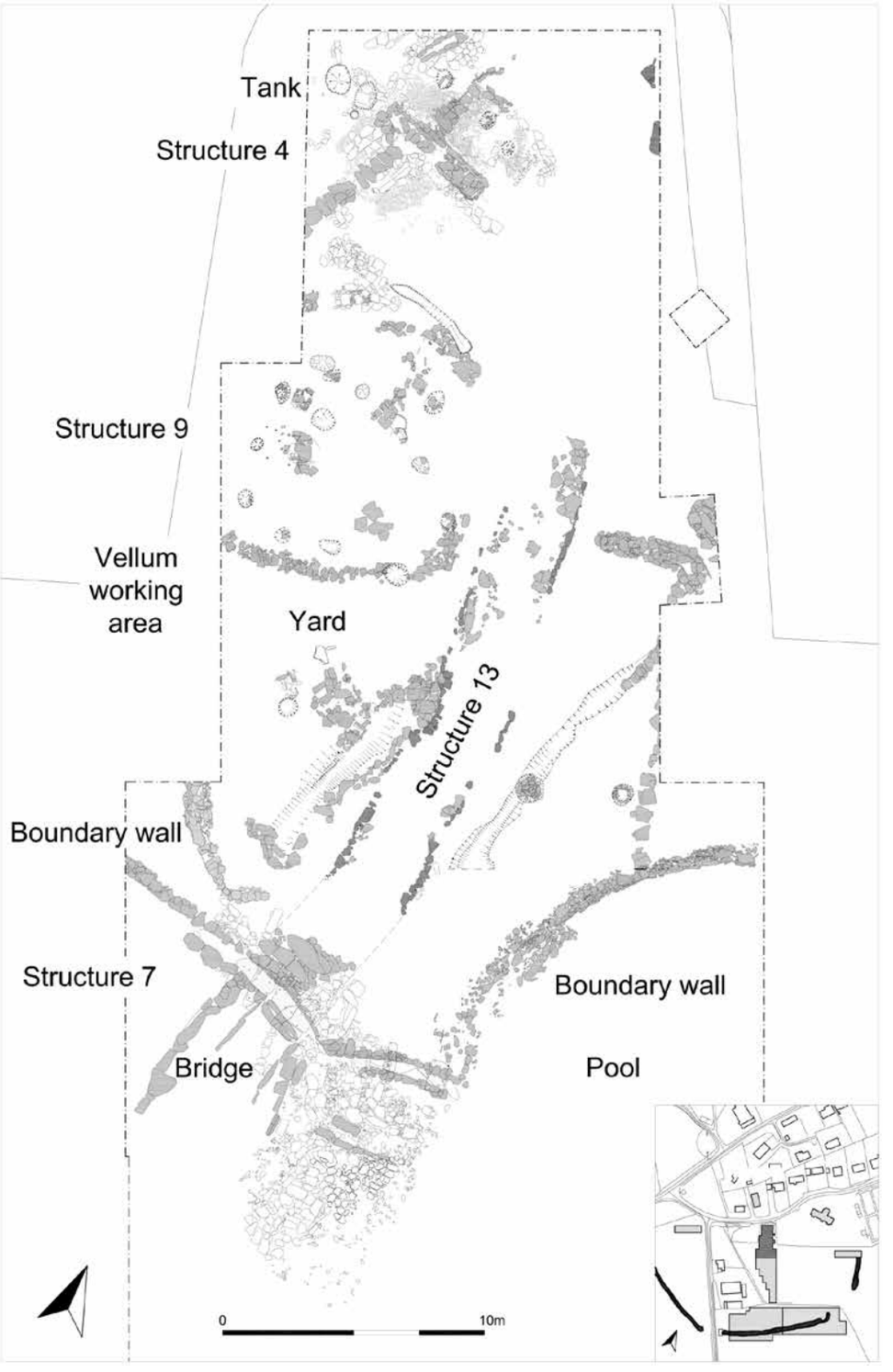

Illustration 3.15
Period 2 features in Sector 2

built up the ground level at the south end. Ashy silts had been used to patch the road, and spilled into the roadside ditches. Both the roadside ditches were originally lined with timber and designed to canalise water down the hill towards the pool. The west ditch F471 was provided with a stone baffle (F533) and the east ditch F472 with a stone-lined pit F470; these were probably measures designed to assist drainage as the ditches became choked with ash. There was a large assemblage of animal bones and a good sequence of plants. These are combined with the evidence from stable isotope analysis (see below) to report on the subsistence and economy (Chapter 5.8). The form of S9 recalled that of S1, the bag-shaped building in Sector 1, but it had survived less well. Its architectural feasibility is discussed in Chapter 5.9 (p 242).

Illustration 3.16
Excavating pieces of broken sculpture over the layer of burning that terminates Period 2 (Sector 2)

The water management complex S7 consisted of a dam (F440) constructed of stone rubble above a clay dump, crossed by one, or possibly two overflow culverts F431, F432. Where the road ended there were massive capstones over the culvert F431, a wall F394 and a setting of large stones on edge (F577). These are thought to have been elements of a bridge, crossing the outflow from the pool. The disposition of the pool and dam generated strong expectations of a mill, but no traces of a penstock, a wheel pit, a wheel, paddles or millstones were found. A dry-stone wall bounded the pool to the east and north (eastern boundary wall, F149) and another ran northwards on the west side of the road (western boundary wall, F480). These boundary walls and the road were connected to the dam and bridgehead, leaving little doubt that pool, road, dam, bridge and boundary walls came into being at the same time (Chapter 5.5).

There were eight radiocarbon dates placing the activities in this period between 590 and 810 cal AD (see Digest 3). The earliest deposit in the pool (C2296) was dated 590–760 cal AD and animal bone under boundary wall F480 was dated 640–770 cal AD. Bayesian analysis gave a start date between 645 and 685 (at 50% certainty). A broad bracket for the start of development in Sector 2 is taken as between AD 660 and AD 700, abbreviated to '*c* 680' (Table 3.1). The six dates from the workshop were very close to each other (640–780) suggesting a short life for the monastery.

The end of Period 2 was marked by a major fire, followed by the deposition of numerous pieces of broken sculpture (Illus 3.16). The fire horizon ('primary burning') was signalled by a series of brightly coloured ash layers at the same stratigraphic level lying over the northern area (Int 14) and extending southwards down to and over the boundary walls (Chapter 5.11). The sculptural fragments (over 200 of them ornamented) were scattered in and around the eastern roadside ditch F472, and over the boundary walls both east and west, where they had sunk beneath the water or into soft mud. A large piece was found on the far side of the west boundary wall F480, other large fragments over the eastern boundary wall F149, one adjacent to the mouth of culvert F431, and another at the east limit of the terrace, where it had sunk to the level of Period 1 well F527. Burning affected S9 and S4, and together with a layer of windblown sand within S4 marked the permanent loss of interest in vellum production.

Radiocarbon determinations gave a variety of dates for the fire, partially dependant on what was dated: burned oak timbers (from Int 26), 330–550 cal AD; a hazel stake (F490), 400–570 cal AD; burned wattle from the east terrace wall (F483/2584), 610–690 cal AD; charred wattle (C2704), 650–810 cal AD; latest deposit in the pond (C2296), 650–840 cal AD. The date from the most contemporary context (the charred wattle) is unfortunately very broad, but the event should have take place before AD 810. A stick pin (24/4576) from C1878 underneath one of the destruction layers (C1662), serves to draw the episode into the ninth century, as does the sculpture buried in Sector 2, which was generally not weathered and should date to the late eighth to early ninth century AD (Chapter 5.3, p 166). It will be argued in Chapter 5.11 that the raid took place between AD 780 and AD 810.

Period 3 – ninth to eleventh century (Illus 3.17)

Events assigned to Period 3 in this Sector focus on a metalworking industry that arose on the remains of the burnt out workshop (Period 3A). The smithing hearth F148 (last use dated 660–880) was carefully dissected, showing that its stratigraphic position followed closely on the primary burning. The technology of the industry resembled that practised in Period 2, but the crucibles were larger and the products more secular. Among the finds associated with this industry were a smith's hammer, a carnelian cabochon, stone moulds, a fire-gilding mortar, a silver-gilt copper-alloy stud and a painted pebble. Major deposits of crucibles, moulds and slag were recovered

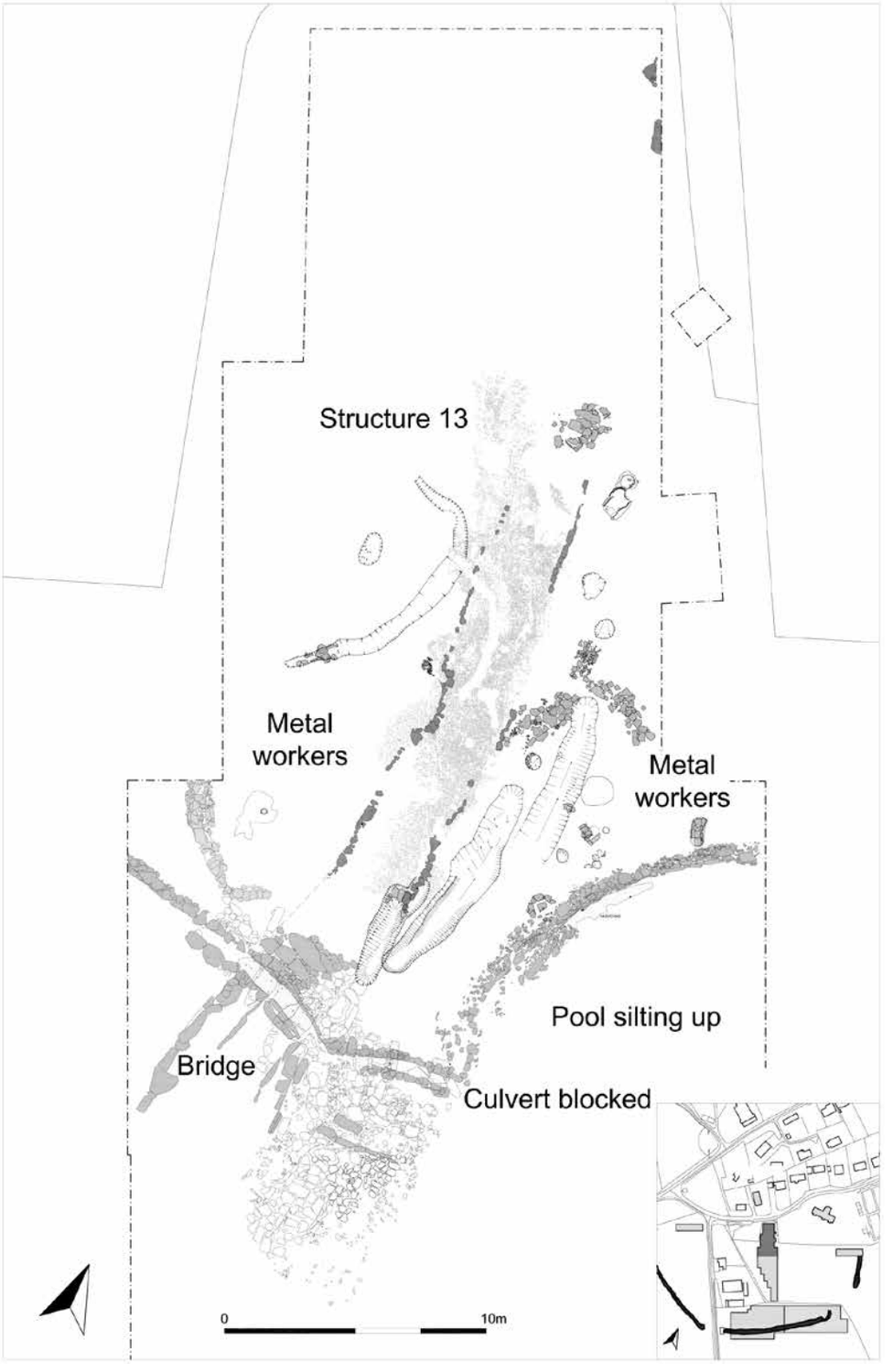

Illustration 3.17
Period 3 features in Sector 2

Illustration 3.18
Period 4 features in Sector 2

from the far side of boundary wall F480 and from the pool beside boundary wall F149. Among these the most significant were moulds used to make bronze weights, implying trade. It could be concluded that the pool continued to hold water. However, at a given moment the overflow culvert F431 was blocked, suggesting that attempts were being made to conserve the level of the water impounded, and subsequent deposits within the pool showed that the area was drying out. The road S13 remained in use but was resurfaced with small pebbles (Illus 2.13).

The end of Period 3 is marked by a blanket of grey sterile silt (C1121), which also overlay the road. A butchered cow buried in a pit cut into the Period 3 metalworking horizon gave a radiocarbon date of 820–1020 cal AD. There is no medieval pottery from contexts certainly within Period 3, which should therefore have ended before the twelfth century. In the overall chronological model (Table 3.1), the metalworking technology and radiocarbon dates place the industry between 780 and 880 (Period 3A), and this was followed in Sector 2 by a lengthy period of disoccupation, 880–1050 (Period 3B).

Period 4 – twelfth to sixteenth century (Illus 3.18)

The chronology of Period 4 in Sector 2 was divided in to three. Period 4A, assigned to the building of the parish church in the twelfth century, saw very little activity in Sector 2. The coin series indicated two later periods of occupation with a gap between them: from the thirteenth century to *c* 1350 (Period 4B) and from *c* 1450 to *c* 1550 (Period 4C) (Digest 6.11). These reflected the two main periods of settlement in Sector 2.

Features in the north that had cut the blanket of grey silt over the pebbled road of Period 3 included a well (F13), an oven (F3) and numbers of gulleys and post-holes that were interpreted as marking up the footprint of a dwelling, S17. In the centre, the infilled pond was overlaid by spread middens, containing quantities of shells and fishbones. Both residence and middens were associated with Redware pottery suggesting a date in the thirteenth/fifteenth century (Period 4B).

In a second development, post-dating the residence and middens, Sector 2 was given over to iron-working. A smithy (S18) was built in the central area, and ironworking spread widely beyond the sector: quantities of slag were found in Int 8 to the east and reported under the churchyard (Chapter 2, p 17). Dating evidence from coins, medieval pottery, horseshoes and a leather spur strap with fleur-de-lys mounts suggested a fifteenth/sixteenth-century date (Period 4C). By Period 5 (seventeenth to twentieth century), the land in Sector 2 had been given over to agriculture (Chapter 7).

Across the Road: Sector 3 (OLA 6.2/2.2, 3.5)

An opportunity to investigate the built-up area on the dunes to the north of Tarbatness Road was presented by a vacant plot opposite the end of Sector 2. An intervention 8 × 16m (two modules) was excavated to natural subsoil at *c* 14.5m AOD (Illus 3.19). Two early features here took the form of shallow gulleys, one of which (S14) was a segment of a ring ditch (above). An air photograph dated 1945 showed a large number of ring ditches in this area (Illus 4.13). For this reason S14 is tentatively interpreted as a barrow and included in Period 1 (Chapter 4). Stratigraphically later activity in Sector 3 was expressed by a large numbers of pits, which appeared to have been dug to extract the clean sand of the dunes. The presence of Scottish Redware dated these to the Middle Ages; they were perhaps connected with the building of the later medieval church (Period 4) (Chapter 7).

Illustration 3.19
Master plan of Sector 3

The Church area: Sector 4 (OLA 6.3) (Illus 3.20)

Excavations in the church took place in the north aisle (Int 17), the crypt (Int 19) and various trenches and sondages outside the church in association with its restoration and connection to the main services (Int 16, 18 and 22; Illus 2.18). However the principal stratigraphic sequence came from excavations in the nave (Int 20) where some 200 burials and other features were defined. The resolution of this sequence was aided by certain horizons indicating construction or disuse, which also assisted in making connections with the architectural sequence obtained by analysis

Table 3.2
Sequence in Sector 4* [after Fraser & Munro 1988, with additions]

Period	Date	Burials	Church	Memorials	* Documentary
1	*c* 550–680	Period 1 long cists	–	–	Columba in north-east Pictland Colman at Lindisfarne
2	*c* 680–810	Period 2 burials	Church 1 [?]	Grave markers and standing cross slabs	710 Nechtan expels Columban clergy Curatan active in Easter Ross
3	*c* 820–1100	Period 3 burials	Church 1 ruinous [?]	Broken cross slabs	Vikings active in Orkney and Sutherland 1035 Battle of Torfness
4A	*c* 1100–1200	Burial 117	Church 2/3 built	Some sculpture incorporated in foundations	
4B	*c* 1200–1350	thirteenth/ fourteenth-century burials	Church 4 and crypt built	Grave slabs at west and east end	1220 Abbey of Fearn founded 1255 a parish church at Portmahomack 1274 Revenues assigned to a Canon of Fearn
4C	1450–1620	Vault inserted in crypt fifteenth/sixteenth-century burials			Church burnt Relics of St Colman in the crypt at Tarbat *c* 1560 Reformation
5	1623–1756	Cartouches of James and Jeane Cuthbert 1623 William Mackenzie, Minister buried in North Aisle (1642) Vault in North Aisle	Church 5	Memorials in the churchyard	1626–8 Parishes of Fearn and Tarbat separated 1690 Revolution settlement. St Colman's under local control George Cromartie heritor 1709 x 1728 Construction of the Manse 1721 Church ruinous 1739 Church very ruinous
5	1756–1800		Church 6	Memorials in the churchyard	1756–1762 Church rebuilt Bell refounded 1780–5 major repairs. N aisle lengthened by 10 feet
5	1800–1843	Memorial to William Forbes 1841	Church 7	Memorials in the churchyard	1804–7 Churchyard wall built
5	1843-1946		Church 8	Memorials in the churchyard	1843 The Disruption 1853 Congregation numbers 85 1856 Extensive repairs recommended 1868 Churchyard extended 1893 Churchyard extended 1928 Church transferred from heritors to Church of Scotland 1946 Church declared redundant

of the building fabric (Int 23). On this occasion, therefore, the sequence below ground and that above ground were integrated, and anchored in real time with thirty-one radiocarbon dates, mainly on human bone (Stratigraphic diagram for Sector 4, OLA 6.3.2). The sequence is summarised in Illus 3.21 and see Table 3.1 for the dates. The later parts of the sequence could also be aligned with the history of the church recorded in documents (Table 3.2).

The cemetery was stratigraphically continuous from Period 1 to 3, sixth through to eleventh century. Burials assigned to Period 1 (there were sixteen) employed either the cist or the simple burial rite. Those of Period 2 and 3 (fifty-eight) were head-support or head-box or simple burials. Of these, seventeen could belong to

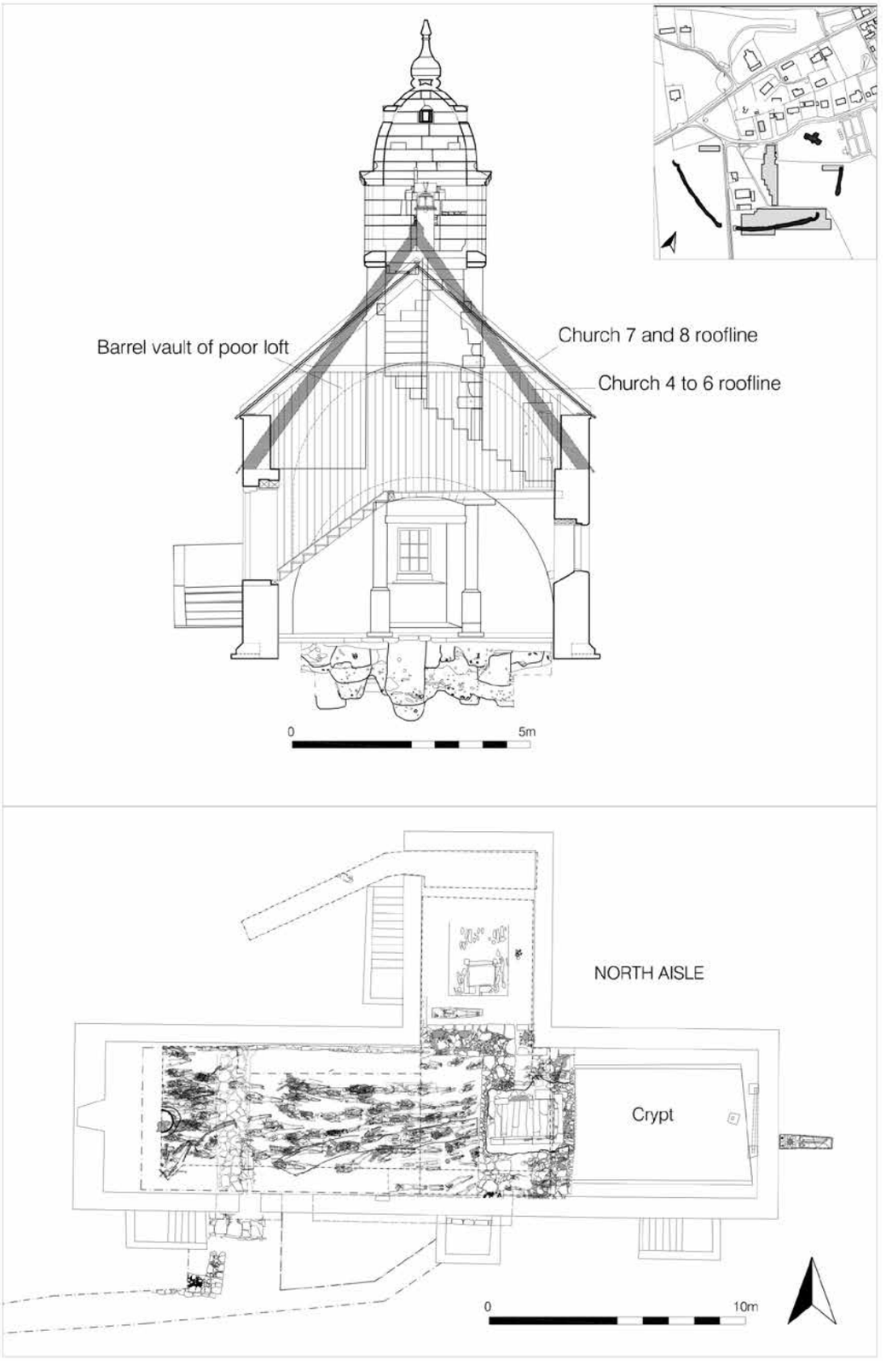

Illustration 3.20
Investigations in Sector 4, showing a section N–S through the church and the area excavated

Table 3.3
Distribution of the major primary assemblages

	Sector 1	Sector 2/3	Sector 4
Period 0/1		Lithics Human remains Iron-working slag Plant remains (hearth) Plant remains (marsh)	Human remains Burnt grain (F129)
Period 2	Moulds, crucibles Glass, slag Plant remains (enclosure ditch)	Vellum manufacture Plant remains (hearth) Plant remains (pool) Animal bone Winkles and whelks	Human remains Carved stone
Period 3	Burnt grain Animal bone	Moulds and crucibles, iron-working slag Animal bone	Human remains
Period 4		Fish and shellfish, fishing equipment Iron-working slags Grindstones Coins Pottery Rotary querns	Human remains Coffin wood Woollen hose Leather shoes Window glass Pottery Carved stone Coins
Period 5			Human remains

the later Period 3 (ninth to eleventh century). In Period 4A, just one grave was recognised as belonging to the twelfth-century parish church (Church 2), while burial in the nave of Church 4 started in the late thirteenth or fourteenth century (Period 4B). Most of the medieval burials could be placed by stratigraphy and radiocarbon in Period 4C, the fifteenth to sixteenth century. After the Reformation, burial inside the church was rare, although a minister, William Mackenzie, was buried in the north aisle in 1642. Stratigraphically, cist graves had primacy (Period 1), followed by head-support or head-box burials in Period 2 and 3. Those of medieval date (Period 4) included examples with shrouds and wooden coffins (Illus 3.22c).

The evidence for a church in the Pictish period (Church 1, Period 2) was elusive (Chapter 5.4). The first well-defined church was Church 2 in the twelfth century, which was developed as Church 3 and 4 during Period 4 (Illus 3.23). These were followed by post-medieval (Period 5) Churches 5 to 8, terminating in 1999 when the building became a museum (Chapter 7).

Period 1 – sixth to seventh century

Period 1 burials were cut through a posolized buried soil (C1383). Sixteen burials were assigned to this period, of which twelve were long cists. Six of the persons were males, four females, and six indeterminate. The orientation was generally NE–SW. A tightly bunched group in the south-west corner of the excavation was of three females, one possible female, one male (Burial 162), an adult and a possible sub-adult. These rose above the contemporary ground level and are proposed as being inside or forming a mound. The only other Period 1 feature was a ditch (F129), timber lined and containing burnt grain. Radiocarbon dating shows that none of the certain cist graves or the ditch was later than AD 690 (Chapter 4).

Period 2 – eighth century and Period 3 – ninth to eleventh century

There was stratigraphic continuity between the fifty-eight burials interred between Period 1 and Period 4, which shared an age/sex profile (middle-aged men) and a burial rite (head-box). These burials had cut cist graves and were cut by the foundations of the first medieval church (Church 2). They had been formally laid out in four or more rows, orientated E–W, while the more easterly burials adopted a more ENE–WSW alignment. There was a dense cluster in the north-west corner of the excavation area, which included the latest burials. Of fifty-eight burials, seventeen had stone slabs either to the side or on top of the head (head-support and head-box burials; see Illus 3.22b). There were fifty-four identified males, one female, one probable female, one ungendered adult, and one child. Twenty-eight of the males and one of the women (67%) had died at ages of forty-six and over, five of them over sixty. This was a highly unusual population profile, dominated by mature males (Chapter 5.2, Table 5.1).

It is likely that it was these burials that had been served by at least fourteen grave markers that had been disturbed and reused by later church builders (Chapter 5.3). There was probably a church in Period 2 but its presence was inferential: some pieces of sculpture appeared to be architectural, and the alignment of the east wall of the crypt and of the more easterly Period 2 burials suggested the stance of a building somewhere to the east. The various possibilities are considered in Chapter 5.4.

Of fifteen radiocarbon dates on Period 2/3 burials, nine had terminal dates in the ninth century or earlier and were assigned to Period 2. Three of the other six (Burials 147, 158, 159) had end dates in the tenth century, and three others (Burial 111, 136, 156), the latest in the stratigraphic sequence, were interred after 970 (Table 3.1). Out of the seventeen stratigraphically latest burials, all respected the rows except Burials 147, 136, 156 and 111. The implication is that the majority of the Period 3 burials were interred in the ninth century (coeval with the Period 3A metalworkers in Sector 2), and only a few others were added

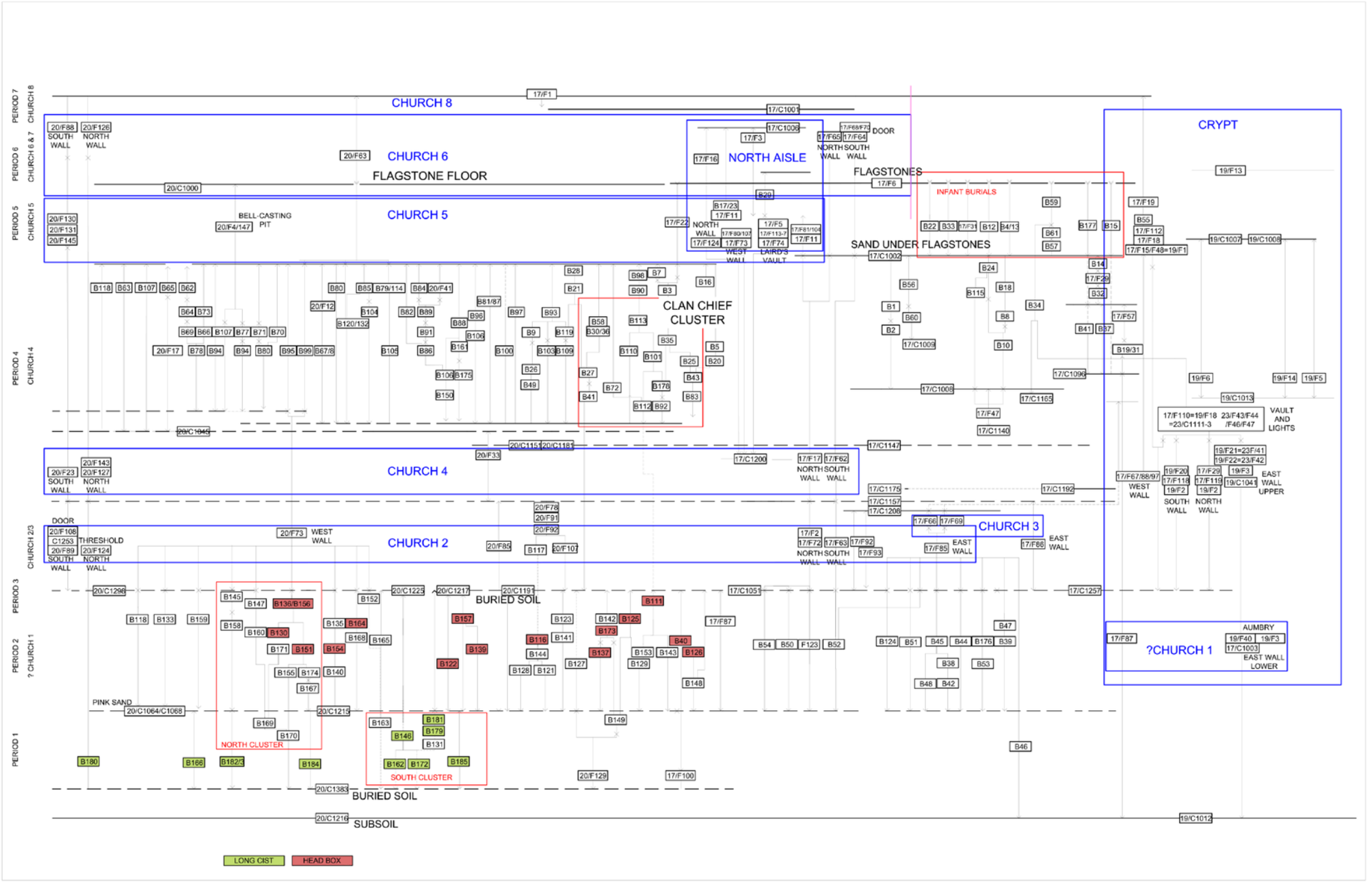

Illustration 3.21
Summary stratigraphic diagram for Sector 4

Illustration 3.22
Types of burial: (a) long cist under excavation in the nave (Burial 172); (b) head-box Burial 40; (c) coffined Burial 21

intermittently over the tenth, eleventh and twelfth centuries (Chapter 6).

Period 4 – twelfth to sixteenth century

The first medieval church, Church 2 was a rectangular foundation of cobbles surmounted with sandstone ashlar, of which the east and west walls, and part of the north wall, were recorded (Illus 3.23). A rectilinear chancel was appended to the east end to give Church 3. Six pieces of ornamented Pictish sculpture were incorporated into the foundations, which show them to be later than the eighth century. A single male burial (117) was interred in Church 2/3. He had died of a violent blade attack from behind and was laid with his head to the south-west at a date between 1150–1270 cal AD. A bell-casting pit (dated 1040–1260 cal AD from charcoal) was located centrally to the foundations. Architectural analogies for Church 2/3 would place it in the twelfth century (Chapter 7).

Church 4 represented a major rebuilding, assigned to the thirteenth century. The west end was extended to house a belfry and the east end to provide a crypt. The exterior walls were embellished with a chamfered plinth course at knee height. The crypt was excavated at the east end and provided with four vertical walls, of which the east wall, on a different alignment, was perhaps adapted from an early church (Chapter 5.4). The first medieval burials followed in the nave. The crypt had been commissioned by the mid-fourteenth century when a grave covered by a stone slab with a floriated cross carved in relief was placed against the exterior of the east wall.

Scorch marks from a fire were recorded on the east and west walls of the crypt, following which a barrel vault was inserted. A majority of the eighty-eight Period 4 burials were cut into a mortar floor (C1175) laid following the fire, and sealed by a flagstone floor. Most burials were orientated E–W, twenty-five had coffins, ten had shrouds, and three had both. There were thirty-nine males or probable males, twenty-four females or probable females and three undetermined adults, eighteen children, three infants and one juvenile. A group of high-status males occupied a prime position opposite the entrance to the crypt, the central coffin being occupied by two males accompanied by four additional skulls (Burial 30/36). A total of twenty-one infants were clustered near the crypt entrance, a group possibly augmented in Period 5. Associated objects place most of the graves in the fifteenth to sixteenth century. Burial 43 included low boots and woollen leg hose of the early fifteenth century and Burial 24 included two billon pennies of James IV dated 1500–1520.

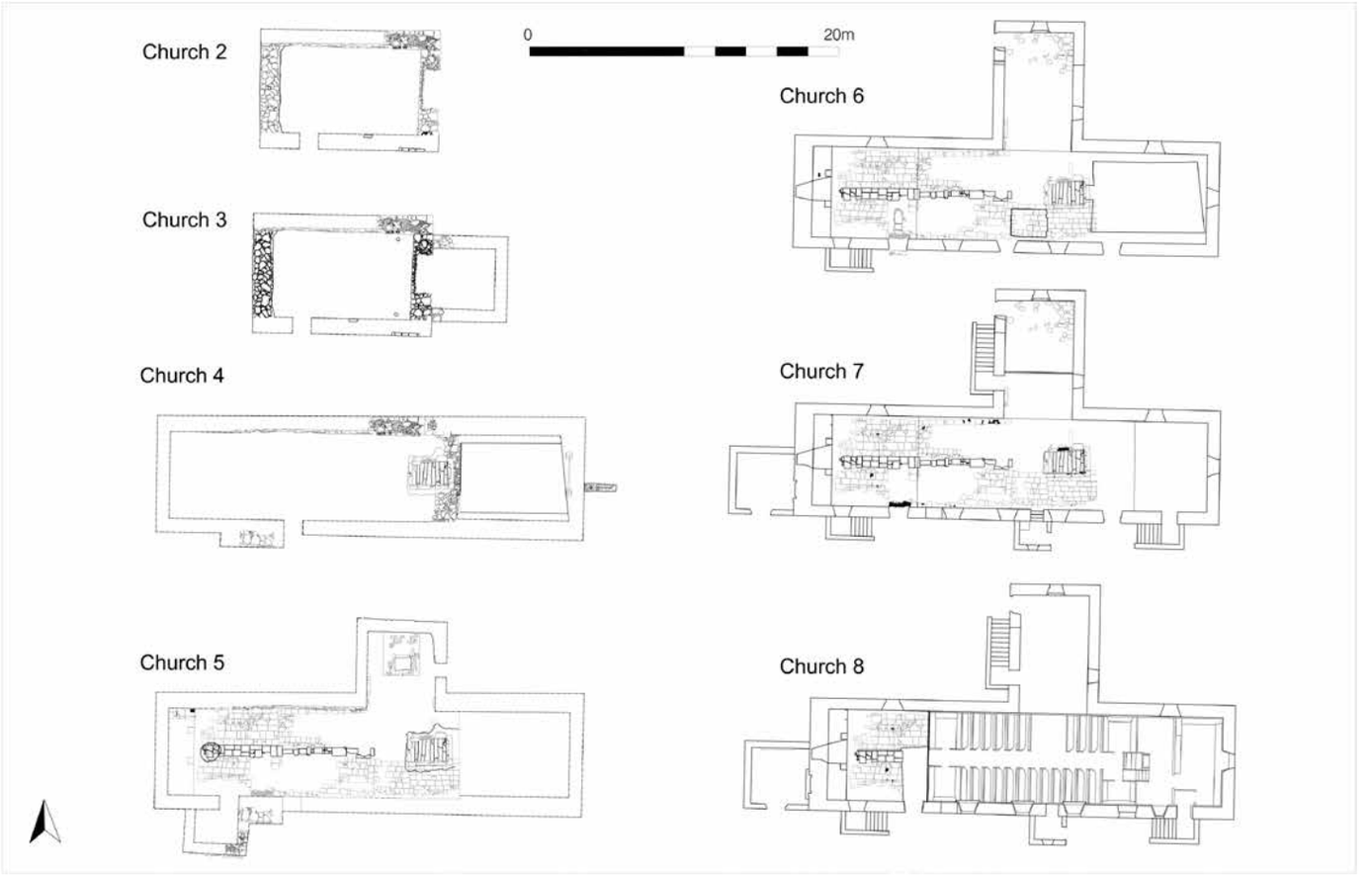

Illustration 3.23
Plans of Churches 2–8

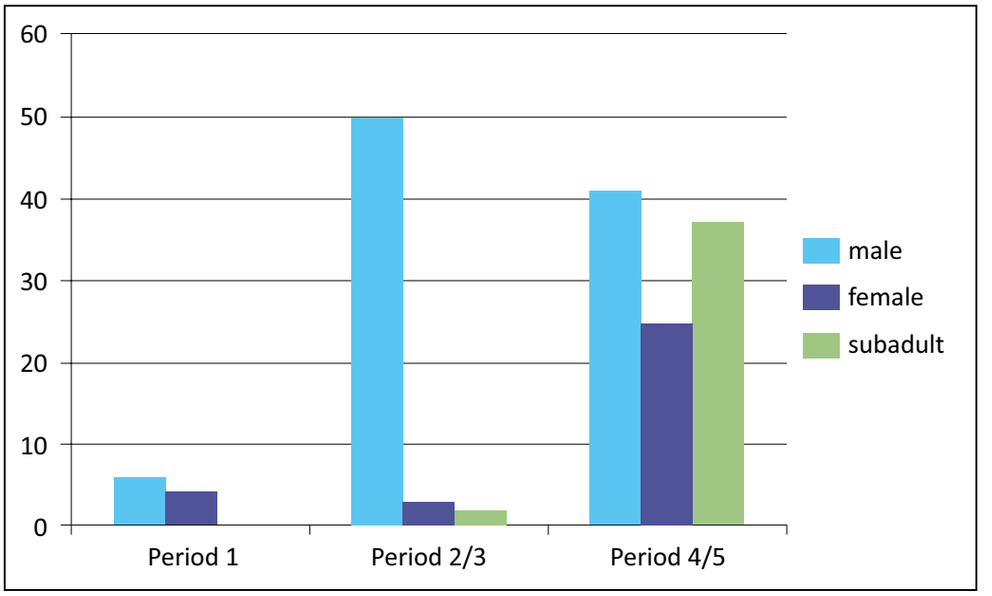

Illustration 3.24
Differences in population, Periods 1, 2/3 and 4/5 (King)

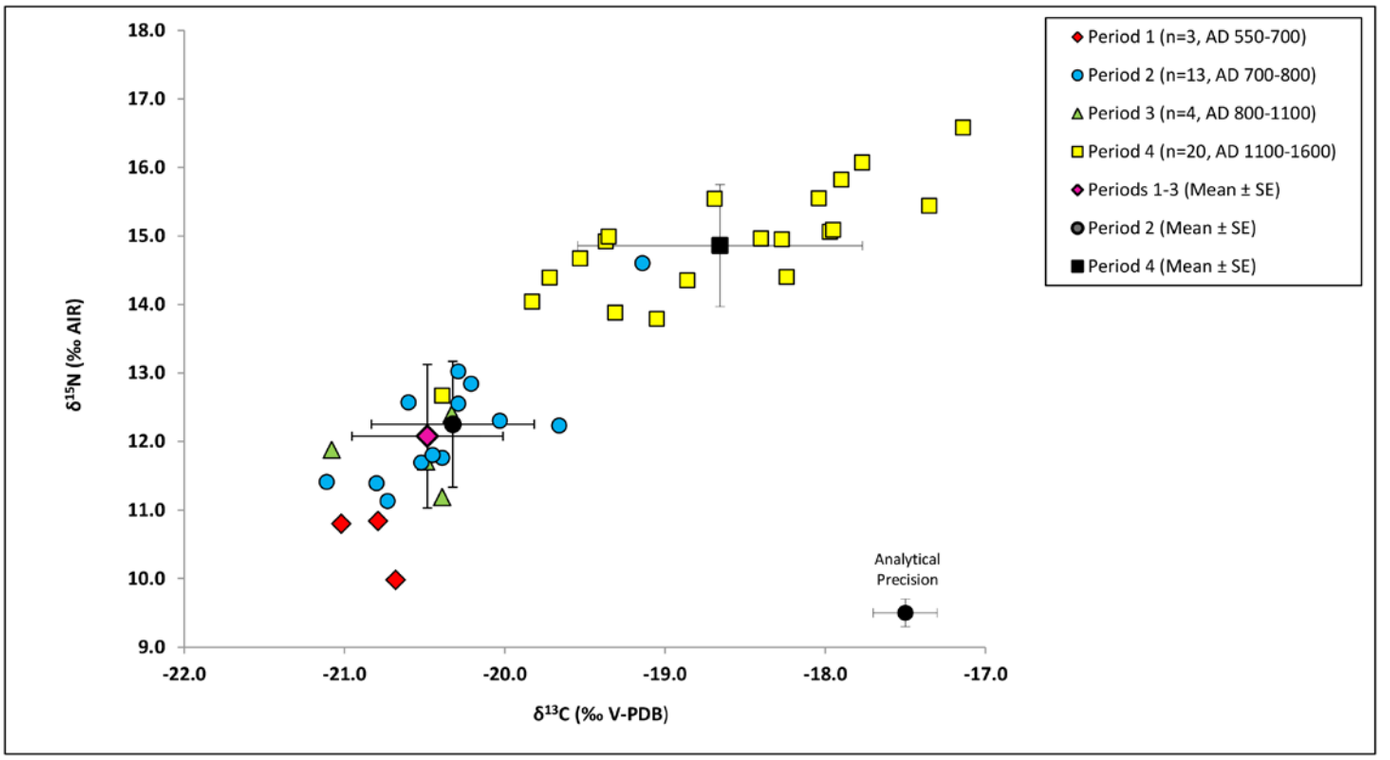

Illustration 3.25
Differences in diet, Periods 1–4

Correlation with events in other sectors places Church 2/3 in Period 4A (twelfth century), which has no dated activity in Sectors 1 and 2. The construction of Church 4 and its crypt and return of burial is contemporary with the rise of the village in Sector 2 and ploughing of Sector 1 (Period 4B, thirteenth/fourteenth century). The surge of burial in the nave of a refurbished Church 4 coincides with the township and its ironworking industry in Sector 2 (Period 4C, fifteenth/sixteenth century) (Chapter 7).

Period 5 – seventeenth to twentieth century

The Reformation arrived at Portmahomack in the later sixteenth century, and its effects were felt in the early seventeenth. These included a redesign of the church to create Church 5 (1623–1756). Interior space was reorganised to suit the new liturgy: the congregation now faced the south wall, where a pulpit was built. On the north side an annexe (the north aisle) was added which provided a family vault in the centre of the aisle and a privileged burial place for William Mackenzie, minister, who died in 1642. The floor was paved with flagstones, sealing a coin of James VI dated 1623. Two memorials built into the north aisle were also dated 1623.

Church 6 (1756 to *c* 1800) represents a rebuilding following a well-documented state of disrepair in the first half of the eighteenth century. A new stone belfry, constructed in the mid–late eighteenth century, adorned the west end, the north-aisle roof was raised to make room for an upper floor (the 'Laird's Loft') and galleries were built at the east and west ends to provide additional seating for a growing community. The crypt was now used as a fuel store. The erection of stone memorials within the churchyard burgeons during this period.

Church 7 represents refurbishments from 1800 to 1843, in which year the church was largely abandoned by its congregation in favour of the newly created Free Church.

Church 8 (1843–1946) saw the small surviving congregation seated in box pews and returned to their former E–W orientation, with the preacher on a dais at the east end. The north aisle was boarded up and the crypt finally disused.

An abbreviated integrated sequence for Sector 4 is presented in Table 3.2, from which it can be seen that the site of the church provides an effective theatre of social commentary over a span of some 1,400 years.

Assemblage

Artefacts

The assemblages included a wide range of artefacts and animal, mineral and vegetable remains, but they were not evenly distributed (Table 3.3; Digest 6). A silver *sceat* was the only pre-medieval coin (Digest 6.2). *Metalworkers* were encountered in a modest form in Sector 2, Period 1, where they are seen as a secular prelude to the monastic craftsmen of Period 2 who in their turn left a rich legacy of moulds, crucibles and slag in Sector 1. The output

of these latter workshops is argued to be ecclesiastical (Chapter 5.7). The metal-smiths of Period 3 were evident in Sector 2, where they also left a well-preserved assemblage of crucibles, moulds and tools. The techniques practised were similar to those of their antecedents, but the output had changed to pins, finger rings, brooches and weights (Chapter 6). Ironworkers occupied Sector 2 in the fifteenth century (Period 4), possibly engaged in making weapons. They produced a dense and widespread consignment of slag (Chapter 7; Digest 6.9). *Vellum-working*, deduced from iron tools, bone pegs, pebbles and ash occurred in Period 2, Sector 2 (Chapter 5.6). *Carved stone* reached its apogee in Period 2 (Chapter 5.3), but there were some examples of monumental carving in the medieval period too (Period 4; Chapter 7). *Coins* and *pottery* occur in this region only from the thirteenth century, and were found in the church and in the residential and midden areas of Sector 2 (Digest 6.14, 6.18). The church also produced some *coffin wood* and a burial with preserved *woollen hose* and *leather boots* (Digest 6.19, 6.16, 6.17; Chapter 7).

Human remains

Human bone was preserved in five groups: in Period 1 there were three burials in Sector 2, and sixteen in Sector 4, the site of the future church (Digest 4.1). The remaining four groups were excavated inside the nave of the church: fifty-eight (predominately adult males) in Period 2 and 3, eighty-eight (men, women and children) in Period 4 and three in Period 5. The main basis for comparison was thus provided by Period 2/3 (eighth century, interpreted as monastic) and Period 4 (medieval, interpreted as parochial). The *anatomy* of all burials was examined for age, sex, health, trauma and disability (Sarah King and Shirley Curtis-Summers, Digest 4.2). *Stable isotopes* of carbon and nitrogen were studied to deduce diet (Shirley Curtis-Summers, Digest 4.3), and of oxygen and strontium to deduce childhood provenance (Lauren Walther Digest 4.4). *Starch* extracted from calculus also provided an indication of which foods were being eaten: they featured oats, wheat, barley and beans (Table 3.4; Becca Walters Digest 4.5).

There were dramatic differences between the Period 2 and 4 populations. The Period 2/3 group was dominated by adult males in comparison with the more normal age and sex profile seen in Period 4 (Illus 3.24). The Period 2/3 and 4 populations differed greatly in their diet, the earlier consuming meat but no fish and the later with a broad pattern of foodstuffs including deep-sea marine fish (Illus 3.25). The mobility of the Tarbat population was quite unexpected. After the sixth century, only 18% of the people tested were local (five out of twenty-seven), the rest being immigrants (Table 3.4; Illus 3.26). During Period 2, when the community was ostensibly monastic, three out of seven were local, two were immigrants from elsewhere in eastern Britain and two were immigrants from Scandinavia. None was from the west coast. On the other hand after the raid, from the ninth century to the sixteenth century, everyone tested was an immigrant bar one (Burial 117). Eight came from western Britain and five from elsewhere on the east coast. This might appear counterintuitive, since the historical model would expect immigrants from the west to be powering the monastic movement, and the medieval inhabitants to be thoroughly entrenched in the locality. However, the Period 1 and 2 provenances accord well with a Pictish origin for the Tarbat monasticism (see p 255). By contrast the medieval sample was mainly of the fifteenth century and later,

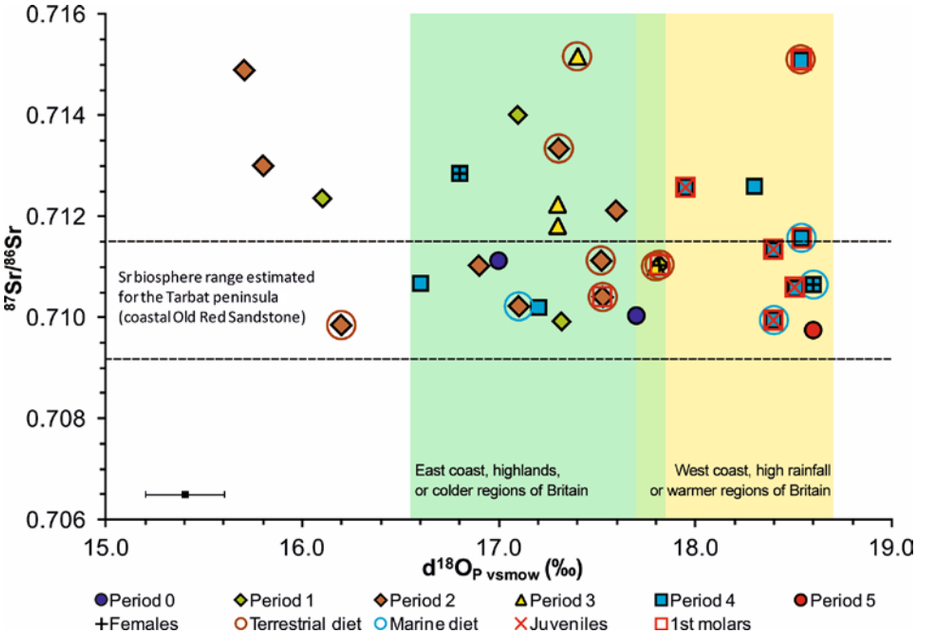

Illustration 3.26
Differences in childhood home, Periods 1–5

Table 3.4
Summary of results of starch analysis
(adapted from Walters in *Digest* 4.5)

Period	Burial	Starch source
1	Burial 149	undetermined
2	Burial 127	oat or wheat
	Burial 144	barley
4	Burial 100	oat or wheat
	Burial 91	beans
	Burial 16	oat, wheat and beans
5	Burial 88	oat or wheat

when pressure was being felt from the Western Isles (Chapter 7, p 319). The latest western family to dominate Easter Ross was the Mackenzies, and the latest isotope measurement corroborates a western origin for the Rev William Mackenzie who died in 1642 (above).

The Late Iron Age/early Pictish (Period 1) population is presented in Chapter 4, the late Pictish (Period 2) is discussed in Chapter 5.2, and the medieval in Chapter 7. For Period 2, the stable isotopes of carbon and nitrogen are combined with evidence for diet from animal and plant remains to underpin a study of subsistence and economy (Chapter 5.8).

Animal bones (after Krish Seetah Digest 7.1)

Of the bones that underwent full analysis, 15,629 (93%) of the fragments were recorded from Sector 2. Here the largest assemblage was from Period 2 (7820), then Period 3 (3863), then Period 4 (3372) and lastly Period 1 (303). The Period 2 assemblage was not only the largest but had also the most secure contexts and so attracted the most intensive analysis (Chapter 5.8). Nevertheless, it was possible to make useful comparisons between periods. Among the domestic species, cattle is dominant throughout, although there is a slight proportional increase in numbers from Period 1–3, and subsequent decrease in Period 4. This is matched by a reduction in numbers of pig, and an increase in the numbers of ovicaprids in later periods (Table 3.6). As compared with English sites, the representation of sheep/goats is relatively low, showing a slight increase only in the medieval period (Period 4). When positive distinction was made between sheep and goats, the identification was always goat. The proportion of pigs declines steadily.

The occupants had access to a wide range of animals and birds in all periods (Table 3.7). The Period 2 community was hunting red deer and roe deer, trapping wild geese and capercaillie and acquiring plenty of seals, with some whale and dolphin (Chapter 5.8). In comparison, Period 4 saw a large relative increase of horse and dog and cat, an increase in chicken at the expense of goose and an increased cull of whale and dolphin (Chapter 7).

Table 3.5
Summary of results from Oxygen/Strontium isotope analysis
(adapted from Walther et al in *Digest* 4.4)

Period 1	**Source**	**Provenance**
0	Balnabruach A	East Britain (local)
	Balnabruach C	East Britain (local)
1	Burial 170	Local
	Burial 172	*Western Britain*
	Burial 186	Britain
	Burial 187	East Britain
2	Burial 54	Local
	Burial 127	Local
	Burial 129	*Scandinavia*
	Burial 130	*East Britain (not local)*
	Burial 140	*East Britain (not local)*
	Burial 144	Local
	Burial 153	*Scandinavia*
3	Burial 147	*Western Britain*
	Burial 158	*East Britain (not local)*
	Burial 111	*East Britain (not local)*
	Burial 156	*East Britain (not local)*
4	Burial 16	*Western Britain*
	Burial 30	East Britain (not local)
	Burial 35	*Western Britain*
	Burial 36	*Western Britain*
	Burial 41	*Western Britain*
	Burial 62	*East Britain (not local)*
	Burial 86	*Western Britain*
	Burial 88	*Western Britain*
	Burial 110	*Western Britain*
	Burial 117	Local
	Burial 119	*Western Britain*
5	Burial 17 (W Mackenzie)	*Western Britain*

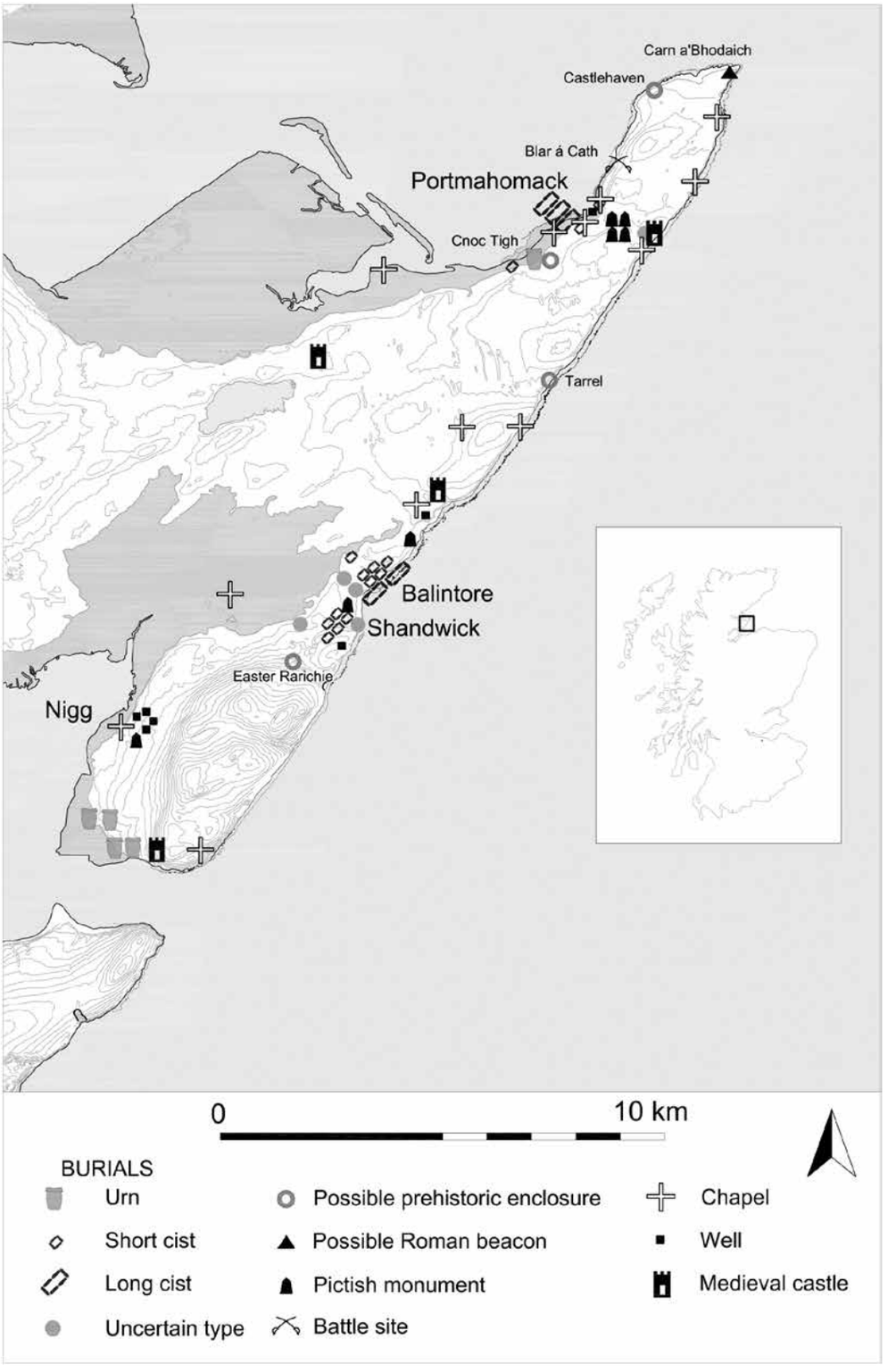

Illustration 3.27
Multi-period sites on the peninsula

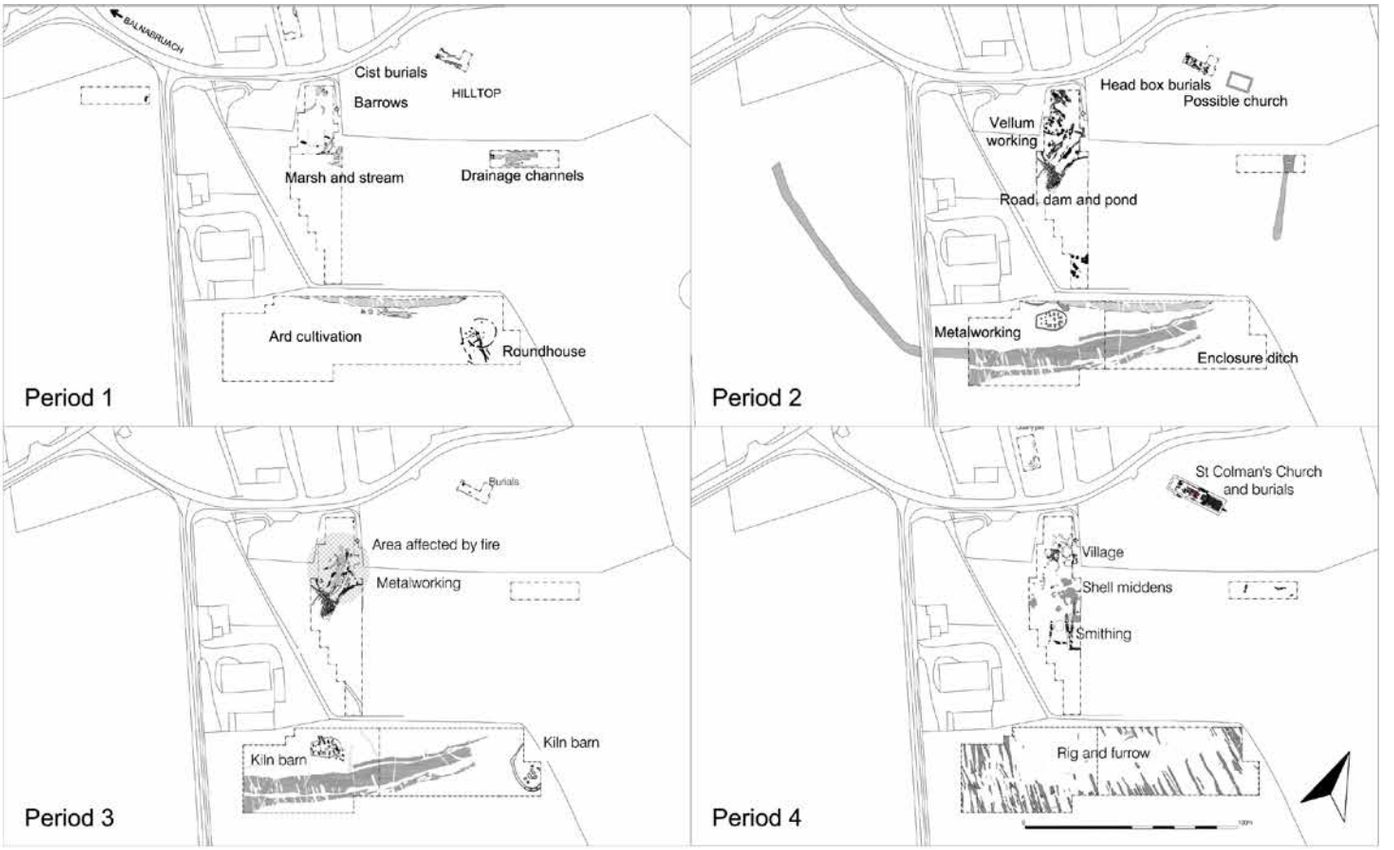

Illustration 3.28
Summary of major structures across the excavated sectors in Periods 1–4

The use of calves to make vellum was evident in the assemblage (Chapter 5.6). There was a sufficient number of calves for the purpose, but in general the cattle were being kept into adulthood. As well as supplying milk, the adults were also being eaten and it is likely that their hides were being made into leather.

In Period 2 there was also a widespread use of animal bone as fuel ('bone coal'). As well as being found incinerated in Sector 2, there was a significant assemblage of fragmentary cattle bone (96%), focused on the hearth in S1 apparently in use by metal-smiths. The industrial scale of the use of the cattle bone as fuel

Table 3.6
Numbers of domestic animals represented by period

Period 1			**Period 2**		**Period 3**		**Period 4**	
SPECIES	%NISP	MNI	%NISP	MNI	%NISP	MNI	% NISP	MNI
Cow	67.11	8	75.69	102	79.06	56	58.57	87
Pig	20.13	3	12.60	41	10.28	13	6.41	12
Ovicaprid	4.70	1	3.31	6	4.51	6	8.85	15
SUM of raw NISP fragment count and MNI for food domesticates ONLY								
Σ	**137**	**12**	**2770**	**149**	**1497**	**75**	**1301**	**114**

Table 3.7
Numbers of animals of all species represented by period

	Period 1			Period 2			Period 3			Period 4		
SPECIES	NISP	%NISP	MNI	NISP	%NISP	MNI	NISP	%NISP	MNI	NISP	% NISP	MNI
Cow	100	67.11	8	2289	75.69	102	1261	79.06	56	1032	58.57	87
Pig	30	20.13	3	381	12.60	41	164	10.28	13	113	6.41	12
Ovicaprid	7	4.70	1	100	3.31	6	72	4.51	6	156	8.85	15
Horse	–	–	–	3	0.10	–	16	1.00	–	174	9.88	–
Dog	–	–	–	62	2.05	–	8	0.50	–	198	11.24	–
Cat	–	–	–	2	0.07	–	1	0.06	–	8	0.45	–
Fox	–	–	–	22	0.73	–	1	0.06	–	8	0.45	–
Wolf	–	–	–	1	0.03	–	2	0.13	–	1	0.06	–
Hare	–	–	–	–	–	–	–	–	–	1	0.06	–
Cervid	–	–	–	2	0.07	–	–	–	–	–	–	–
Red deer	1	0.67	–	44	1.46	–	22	1.38	–	24	1.36	–
Roe deer	2	1.34	–	21	0.69	–	7	0.44	–	5	0.28	–
Otter	–	–	–	5	0.17	–	–	–	–			–
Chicken	1	67.11	–	5	0.17	–	6	0.38	–	8	0.45	–
Anser sp.	–	–	–	24	0.79	–	4	0.25	–	4	0.23	–
Raven	–	–	–	1	0.03	–	1	0.06	–	–	–	–
Razorbill	–	–	–	–	–	–	7	0.44	–	–	–	–
Gull	–	–	–	2	0.07	–	–	–	–	–	–	–
Cygnus sp.	–	–	–			–	1	0.06	–	–	–	–
Shag	–	–	–	11	0.36	–	–	–	–	–	–	–
Gannet	–	–	–	1	0.03	–	–	–	–	–	–	–
Redshank	–	–	–	–	–	–	–	–	–	1	0.06	–
Curlew	–	–	–	–	–	–	–	–	–	2	0.11	–

Table 3.7
Numbers of animals of all species represented by period (*cont.*)

	Period 1			Period 2			Period 3			Period 4		
SPECIES	NISP	%NISP	MNI	NISP	%NISP	MNI	NISP	%NISP	MNI	NISP	% NISP	MNI
Capercaillie	–	–	–	2	0.07	–	–	–	–	–	–	–
'Wader'	–	–	–	–	–	–	–	–	–	1	0.06	–
Whale size	–	–	–	2	0.07	–	4	0.25	–	7	0.40	–
Porpoise / dolphin size	–	–	–	1	0.03	–	1	0.06	–	7	0.40	–
Seal	8	5.37	–	44	1.46	–	10	0.63	–	7	0.40	–
MMU	–	–	–	2	0.04	–	3	0.12	–	6	0.34	–
ULM	82	30.37	–	1368	28.15	–	732	28.23	–	775	26.87	–
UMM	38	14.07	–	429	8.83	–	261	10.07	–	329	11.41	–
USM	–	–	–	1	0.02	–	–	–	–	–	–	–
UUB	1	0.37	–	35	0.72	–	5	0.19	–	17	0.59	–
UUF	–	–	–	1	0.02	–	–	–	–	1	0.03	–
UUM	33	10.89	–	2960	37.85	–	1270	32.88	–	488	14.47	–
Σ NISP = 303				Σ NISP = 7820			Σ NISP = 3863			Σ NISP = 3372		

Species percentages are out of 149 (P1); 3024 (P2); 1595 (P3) & 1762 (P4). Element percentages (MMU, ULM, UMM, USM, UUB, UUF) are out of 270 (P1); 4860 (P2); 2593 (P3) & 2884 (P4). UUM percentages are out of 303 (PI); 7820 (P2); 3863 (P3) & 3372

Table 3.8
Sources of bones from Sector 1 relating to Periods 2 and 3
(Source Seetah Catalogue OLA 7.3.1.2)

Context	Period	Cow	Pig	Sheep/g	Other
1250 craft working in S15	2	18	12	6	1 Red deer 1 Seal
1733 S1 Post-hole F455	2	36	1	3	
1209 S1 post-hole F149	2	2	–	–	
1179 S1 post-hole F128	3	25	2	–	
1180 S1 post-hole F129	3	76	1	–	
1207 S1 Pit F147	3	29	3	–	
1237 ditch F165	3	26	–	–	
1026 ditch F18	3	4	–	–	
1480 S1 area		66	–	–	
1823 S1 area		14	1	–	
s/Total S1					
in Period 2		38	1	3	
s/Total S1					
S1Period 3		130	6	–	
s/Total area S1 residual		110	1	–	
s/Total S1		278 (96%)	8 (3%)	3 (1%)	
s/Total S15		18 (50%)	12 (33%)	6 (17%)	
TOTAL		296 (91%)	20 (6%)	9 (3%)	

finds a contrast in the other well-defined assemblage from Sector 1, that found with metal-smiths' debris in a hollow in the filled-in ditch S15. Here the signature was more domestic (cattle 50%, pig 33%, sheep/goat 17%; see Table 3.8).

Fish and Shellfish (Matilda Holmes Digest 7.2, 7.3)

Winkles and whelks were collected by Sector 2 artisans in Period 2, where they were being burnt for lime (Chapter 5.6). Shellfish were abundant in the middens of Sector 2 in the medieval period (thirteenth to fourteenth century), where they were most probably being collected for food (Chapter 7). The fish-bone assemblage comprised a few small samples from Period 1 to 3 features, and a considerable assemblage from the middens in Period 4. This latter included flatfish (plaice, halibut and possibly dab), conger eel, haddock and saithe, all of which could be caught from close to the shoreline, as well as herring, cod, and pollack which would require expeditions further out to sea (Chapter 7).

Plant and insect remains (Allan Hall & Harry Kenward Digest 7.4)

A wide variety of samples was collected including spot finds of charcoal and uncharred wood, and other charred and waterlogged plant material. The environmental sequence was charted through the successive layers that formed the marsh and the pond that succeeded it in Sector 2, Periods 0–2. Evidence for the use of turf as a building material and heather and straw as a roofing material came from Period 1 (ditch in Sector 4) and Period 2 (hearths in Sector 1 and 2). Samples from the second phase of S1, and from S5 in Sector 1 (both Period 3) confirmed an association with cereals. Samples from S16 the enclosure ditch in Sector 1 demonstrated its disuse through Period 3 and 4.

Overall, evidence for plant foods at Tarbat was limited (Digest 7.4). Although cereal grains were quite frequently encountered, in some cases in moderately high concentrations, the grains were more usually scattered in ones or twos through many of the samples. The records for wheat, with a single exception, and for rye, are all from Period 1 deposits. Rachis fragments from samples from the Period 1 ditch (F129) have allowed us to show that free-threshing hexaploid wheat, barley and rye were all then being exploited. The cereals from the later periods (after 700 AD) were barley, with (occasionally) oats. Rye is perhaps the more likely crop to have been grown successfully so far north.

The insect assemblages reported here, though for the most part limited by sample size and/or quality of preservation, offer evidence (primarily through records of dung beetles and the chafer *Phyllopertha horticola*) for grazing land at various stages through the period of occupation of the site, especially Period 2. The insects proved a useful indication of when the pond had finally dried out.

Micromorphology (Claire Ellis, Digest 7.5) was also important in determining deposit formation, confirming that undisturbed subsoil was reached in Sector 2, north and centre (beneath the pool and bridge). The investigation mapped a site-wide prehistoric podzol (in all Sectors), and identified the nature of the intermediate layers that terminated Period 1 in Sector 2, the first enclosure ditch in Sector 1, and the end of the Period 3 occupation in Sector 2. These were mainly windblown deposits, each representing a brief hiatus in the sequence (Chapter 4, p 99; Chapter 5, p 260).

Survey on the Peninsula (Illus 3.27)

Initial surveys mapped the possible prehistoric, Roman and medieval sites already known on the peninsula, together with the likely Norse and Pictish place-names (Digest 8). In the prehistoric period there appeared to be at least four forts and three main burial areas (Bronze Age to Iron Age) on the peninsula (Chapter 4). In the Pictish period, the sites of Hilton, Nigg and Shandwick were places of importance in addition to Portmahomack, as their great cross-slabs signify. Preliminary site surveys were undertaken at each of these (Chapter 5.10; Chapter 2, p 28). Place-names imply some post-Pictish activity by Norse settlers at Cadboll, Bindal, Geanies, and Arboll – all good farmland. In the Middle Ages, the peninsula was well colonised, with Fearn Abbey as the new cult centre and castles on the cliffs. There were numerous chapels and wells and half a dozen likely harbours (Digest 8; Chapter 7).

Possible portage routes were reconnoitred. The more convincing of these climbed the rise above Loch Inver, crossed Loch Eye and then descended via Fearn Abbey to the Bay of Nigg. The latter part of this route had been canalised to drive the Fearn Abbey mill. The portage would have been more worthwhile if the sea level was higher, and hypothetical landscapes were drawn which showed the coastline at the 10m mark (Illus 3.27). This received some justification from early maps, which implied a more extensive Bay of Nigg (see Chapter 5.10, Illus 5.10.2). Such a portage, if it existed, would probably not have survived the improvements, reclamation and soil dumping owed to the Abbey of Fearn (Chapter 7), and its heyday would be in the later first millennium (Chapter 5.10).

Chronological concordance between sectors

The evidence for the sequence and the use of space obtained from each Sector has been integrated across the site, to produce a general concordance. The research from the survey on the peninsula was also broadly phased and incorporated into each period. The events assigned to each chronological period have been reconciled in Table 3.1 (Illus 3.28 for a visual summary of events at the site).

In Sectors 2 and 4 the sequences were deduced from the stratigraphy, dated artefacts and radiocarbon dates. There were strong sequences in Sector 4, where more than 100 burials could be ordered stratigraphically, of which thirty-one were radiocarbon dated, and in Sector 2 where a stratigraphic sequence with sixteen usable radiocarbon dates was interrupted by a widespread burning horizon. Sector 1, with six usable radiocarbon dates and little stratification, was less certainly ordered. Having taken account of the stratified relationships within sectors, the lack of them between sectors and the evidence for hiatus, Bayesian analysis was applied to give its own probable limits for the start and end date of each period and the likely intervals between them. On this basis the periods were modelled as follows (Digest 3.1; probability 95% except as indicated).

With regard to the intervals between periods, the results of this analysis were qualified by the specialist as follows: 'It should be noted that based on the radiocarbon data alone, there is no clear evidence for a hiatus between any of the periods. The calculation of the difference between the end probability for one period and the start of the next always begins in the negative, which indicates the possibility for no hiatus' (Table 3.9). The estimates have therefore been refined where they are complemented by securely dated stratigraphic events. The adopted dates are shown in the left hand column of Table 3.1.

A start date for the Period 1 cemetery between AD 525–600 is compatible for the cist burials in both Sectors 2 and 4. In the Sector 2 settlement, the well (F527) had been constructed before AD 680, and the wood-lined ditch on the hilltop (F129) had received discarded barley before AD 660. All the dated samples in the period that follows have dates starting after AD 640 or 650. There are small-scale interruptions represented by windblown sand in Sector 2 (C2353; Digest 7.5) and possibly the pink sand horizon in Sector 4 (C1064). If these are witness to a hiatus it will have been considerably less than eighty-five years. There is no sign of vegetation growth and the interval is assessed as one to five years. Support for this comes from a start date for Period 2 as AD 645–685 (at 50%). The adopted date for the end of Period 1 and the beginning of Period 2 is placed at *c* AD 680.

All the major structures of Period 2 appear to have been constructed at the same time, and all the radiocarbon dates are compatible with a span between AD 680 and 780, including the enclosure ditch and S1 in Sector 1, the vellum-working, the boundary ditch (F480) and all the infrastructure that is attached to it (road, culvert, bridge, dam, pond) in Sector 2

Table 3.9
Limits and intervals determined by Bayesian analysis

	Sector 1	Sector 2	Sector 4
start: Period 1		cal AD 525–650	cal AD 420–600
end: Period 1		cal AD 635–730	cal AD 645–725
Hiatus		Up to 85 years (68%)	Up to 55 years (68%)
start: Period 2	cal AD 610–780	cal AD 645–685 (50%) or cal AD 735-765 (45%)	cal AD 670–760
end: Period 2	cal AD 700–840	cal AD 710–780	cal AD 690–790
Hiatus	Up to 60 years (68%)	5–150 years (68%)	[none]
start: Period 3A	cal AD 740–880	cal AD 735–965	cal AD 720–895
end: Period 3B	cal AD 1025–1250	cal AD 775–1130	cal AD 1025–1175
Hiatus			Up to 110 years (68%)
start: Period 4			cal AD 1085–1245
end: Period 4			cal AD 1470–1690

and the burials of Sector 4. Activity in Sector 2 is brought to a sudden end by an extensive fire, which is argued from stratigraphy, radiocarbon, sculpture and other artefacts to lie between AD 780 and 810 (see Chapter 5.11). This allocates a maximum span of little more a century *c* AD 680 to *c* 810 to the life of the monastery.

No stratigraphic hiatus was observed in the Sector 4 cemetery or following the fire in Sector 2. Period 3A begins with the onset of metalworking which is immediate (hearth F148); but on typological grounds this metalworking is unlikely to have endured beyond the ninth century. This suggests Period 3A could be confined to *c* AD 780 to *c* 880. It is argued that the Period 3 burials in the church belong to the same period, bar a few spasmodic late interments in the tenth and eleventh centuries (see above). The conversion of S1 into a kiln barn in Sector 1 belongs to the same period, although its last use is later than 1020 showing it as an enduring feature within an increasingly empty landscape.

The interval between Period 3A and 4 is the one where a hiatus of up to a century is reasonably certain. Period 4 falls into three sub-periods that correlate well across all three Sectors, using pottery and coins in Sectors 1 and 2 and radiocarbon dating in Sector 4 (the church). The first medieval church (Church 2) is built in Period 4A, and such activity as there is remains focused there during the twelfth century. In Period 4B the building of the new church (Church 4) coincides with the rise of a medieval village in Sector 2 and the arrival of the refounded Fearn Abbey on the peninsula. In Period 4C (fifteenth/sixteenth century) an increased frequency of burial in the church coincides with the development of the metalworking township.

In order to breathe as much life as possible into this narrative, we have chosen to present it in four chapters in chronological order, gathering all the evidence together that bears on each topic in each period. Chapter 4 describes the events of the fifth to seventh century (Period 1), seen as relating to an aristocratic estate centre or cemetery-settlement. Chapter 5 presents an establishment of the long eighth century, interpreted as a monastery, with studies on its burials, the sculpture, the elusive church, the infrastructure, vellum manufacture, precious metalworking, the economy, building methods, the peninsula and a Viking raid (5.1–5.11). In Chapter 6, events of the ninth to eleventh century (Period 3) are collected and assessed. In Chapter 7, the course of the Middle Ages at Portmahomack is described and a tailpiece takes the story of the church up to the present day (Periods 4 and 5). The essential evidence of specialists is placed to hand in the Digests, while the full database and history of the project is available on open access in the online archive at the Archaeological Data Service (Digest 9).

In each of these chapters an attempt is made to put the events into historical context, both on the peninsula and further afield. Chapter 8 reviews the trends between periods, and between regions, hoping to show how the changes captured here raise Portmahomack and Pictland to the rank of significant players in the wider European story.

Table 3.1
Chronological concordance for Periods 1–4
The radiocarbon dates given here are drawn from *Digest* 3.1 and 3.2 and are at 95%, unless indicated. Bayesian projections are in italics. The alphanumeric prefixes refer to dated material in stratified sequences (A1, A2, …)

Defined Period	Sector 1 [South Field]	Sector 2 [Glebe Field]	Sector 4 [Church]	The Tarbat Peninsula
PERIOD 0 **Before AD 550**				
Bronze Age		Flint arrowheads	Carved stone ball	*Short cists at Balintore, North Sutor and Balnabruach*
Iron Age **third/fifth century**	*Ring ditch S12* *Ard cultivation (or Period 1)*	Earliest marsh C2310 [S-13264] **770–400 BC** Earliest marsh C2310 [S-14990] **720–380 BC** *Charcoal Pit* F573 [S-33422] **170–380**		*Long cists at Balintore, Nigg and Balnabruach* *Forts at Easter Rarichie, Tarrel, Lower Seafield and Castelhaven* *Burials at Balnabruach* Balnabruach A [S-13257] **410–230 BC** Balnabruach B [S-13261] **240–420** Balnabruach C [S-13282] **260–530**
PERIOD 1 Late Iron Age **fifth/seventh century** AD 400–680		*Start: 525–650* *Cemetery* Cist Burial 186 [S-13256] **420–610** Cist Burial 187 [S-33416] **540–650** S14 barrow (Sector 3) S10 barrow *Settlement* S11 workshop Hearth F535 in S11 [S-33420] **640–770** Well F527 [S-33421] **610–680** Marsh Stake in marsh F436 [S-13277] **640–770** *D1*. Latest marsh C2296 [S-14989] **600–760** *Flat-headed pins (fifth/sixth century)* *Copper-alloy disc (sixth/seventh century)* *Plough pebbles* *End 635–730*	*Start: 420–600* *Cemetery* Cist Burial 162 [O-13483; S-13255] (mean) **430–575** Cist Burial 172 [O-9699; S-37079] (mean) **570–650** *A1*. Plain burial 170 [S-33413] **580–660** *A2/B1*. Plain burial 169 [S-33412] **610–680** Plain burial 163 [O-13484] **640–690** Cist (?) Burial 146 [S-37078] **660–780** *Settlement* Ditch F129, with grain [S-13263] **540-660** *End: 645–725*	*Burials on the ridge above the Firth*

Defined Period	Sector 1 [South Field]	Sector 2 [Glebe Field]	Sector 4 [Church]	The Tarbat Peninsula
HIATUS *1–5 years*				
PERIOD 2 Monastic **eighth century** AD 680–810	*Start: 610–780* *Infrastructure* First enclosure ditch S15 Second enclosure ditch S16 Stake in enclosure ditch [O-10159] **670–890** *Bag-shaped building S1* Last use of hearth in S1 phase 1, F65 [S-2621] **700–940;** [S-33415] **670–870** *Bag-shaped building S3* *Well S8* *Metal-working in and around S1*	*Start: 645–685/735–765* *Infrastructure* Pool, dam and bridge S7 Road S13 *Boundary walls* *D2*. Animal bone under boundary wall F480 [S-13266] **640–770** *D3*. Earliest pool C2296 birch twigs [S-14994] **590–760** *Vellum workshops* *S4 tank* *S9 yards* *D4*. Hearth in yard F445 **640–770** *D4.* Bone pegs in yard F393 [S-13267] **640–770** *D4*. Butchered bone C2335 [S-13265] **650–780** Hearth in S9 F495 [S-13581] **650–780** *D4.* Stake by dam F404 [S-13276] **650–780** *D4*. Bone row C2000 [S-13271] **660–810** *Sceat* of **715–735** (F185)	*Start: 670–760* *Cemetery with grave markers* HS burial 128 [O-13487/fish] **640–770** *A3*. Burial 171 [S-33414/fish] **660–850** Burial 165 [O-13509] **650–780** Burial 129 [S-33404] **670–880** Burial 153 [S-33410] **650–780** Burial 144 [O-13488/fish] **680–890** *A4*. Burial 130 [S-33405] **660–780** *B2*. Burial 160 [O-13486/fish] **680–880** HS Burial 116 [O-13489/fish] **680–880** *Cross-slabs, grave markers, sarcophagus* *Crosses A–D* **late eighth-early ninth century**	*The portage?* *Monumental cross-slabs at Portmahomack, Hilton of Cadboll, Shandwick and Nigg mid-eighth-ninth century*
RAID 780-810	*End: 700–840*	*Burnt workshops* Timber 26/C1030 [O-9664] 330–550 (Prob. *c* 800: old wood) Hazel stake F490 [S-13273] 400—570 (Prob. *c* 800; old wood) Wattle on terrace F483 [S-13274] 610–690 (Prob. *c* 800; old wood) *D5*. Burnt wattle C2704 [S-13275] **650-810** Sculpture broken up **after late eighth-early ninth century** *End: 710–780*	*Conjectural victims of raid* Burial 158 [GU-9296] **680–900** [Blade wound, healed] HS Burial 152 [GU-9297] **780–1000** [Blade wound, fatal] *End: 690–790*	

Defined Period	Sector 1 [South Field]	Sector 2 [Glebe Field]	Sector 4 [Church]	The Tarbat Peninsula
HIATUS *1–5 years*				
PERIOD 3 **ninth/eleventh century** 3A Resurgence *c* 780–900	*Start: 740–880* *Farming* S1 re-used as kiln barn S5 Kiln barn Disuse of Enclosure ditch F132 [GU-3265, 6, 7] 140-410, 250-530, 350-580 (secondary peat deposit) Last use of S5 Hearth in S5 F13 [S-13283] **680–900** Willow twigs from disuse of enclosure ditch F132 [S-13286] **680–940**	*Start: 735–965* *Metal-workers* *D6* Metal-working hearth F148 [S-13281] **660–880** *D7*. Latest deposit in pool C4863 [S-14995] **650–840** Crucible and mould typology, **before *c* 800** Culvert F431 blocked	*Start: 720–895* *Cemetery* *B3*. Wicker Burial 147 [O-13485/fish] **720–960**	*The Portage?* *Norse settlement at Cadboll, Arboll, Bindal, Geanies, Shandwick*
3B Abandon 900–1100/1150	Backfilling of tributary ditch F18 [O-9662] **790–1020** Backfill of ditch around S5 [S-13284] **890–1030** Last use of flue of S1, F79 [S-13285] **1020–1210** *End 1025–1250*	Disuse of Road 2: Cow burial F304 [S-13282] **830–1020** *End: 775–1130*	*A5*. HS Burial 136 [S-33406] **970–1040** Burial 156 [S-33411] **970–1040** *C1*. HS Burial 111 [S-33402] **1020–1170** *End: 1025–1175*	*Hoard of ring-silver and coins deposited north of the church in c 1000*
HIATUS *c* 150 years 1000–1150			*up to 110 years*	
PERIOD 4 **Medieval twelfth-sixteenth century** PERIOD 4A Church 2/3 built 1100–1200 AD			*Start: 1085–1245* *Church 2/3* **twelfth century** Bell casting pit F107 [O-10536] **1040–1260** *Aquamanile* Burial 117 [GU-9298] **1150–1270** [Blade wound, fatal]	*Parish churches founded c 1170*
PERIOD 4B Church 4 built thirteenth to fourteenth century	*Ploughed fields* Pottery **thirteenth/fifteenth century**	*Residence S17 and fish middens* Coins **thirteenth century–*c* 1350** Pottery **thirteenth/fifteenth century**	*Church 4 and crypt built* Burial 112 [S-33403/fish] **1280–1420** Burial 110 [O-13490/fish] **1290–1410** Burial 113 [O-13491/fish] **1290–1430** [blade wound, healed] Grave cover **mid-fourteenth century**	*Fearn Abbey founded c 1235*

Defined Period	Sector 1 [South Field]	Sector 2 [Glebe Field]	Sector 4 [Church]	The Tarbat Peninsula
PERIOD 4C Church 4 refurbished fifteenth to sixteenth century	*Ploughed fields*	*Smithy S18* Coins ***c*1450–*c*1550** Pottery **fifteenth–sixteenth century**	*Church 4* *Fire; Addition of vault to crypt* Burial 30/36 Burial 101 [S-33401/fish] **1440–1630** Burial 90 [O-13521/fish] **1460–1660** Burial 98 [S-33400/fish] **1420–1620** Burial 97 [O-13762/fish] **1440–1640** Burial 43 Boots of early fifteenth century *End: 1470–1690*	*Church burnt c 1485*