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Roman Camps in Scotland

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CHAPTER 7

The field evidence

7a Defences

The significant elements of a camp that enable it to be detected archaeologically are the enclosing rampart and ditch and any gate defences (illus 25), although the majority in Scotland are only visible as cropmarks where all surface indications have been ploughed flat. If a camp was not defended by the erection of a bank and/or the cutting of a ditch, then it is very unlikely that it would survive to be detected by modern methods. For example, Germanicus pitched camp in Germany with earthworks to front and rear and palisades on his flanks (Tacitus *Annals* I.49). Only the earthworks would be likely to leave an archaeological trace, although the recovery of palisades is well documented in the archaeological record. But the incidences of two parallel narrow linear cropmarks occurring together are so frequent as to preclude their identification as Roman without excavation and further supporting evidence. Furthermore, if the camp was originally contained within defences that were slight or without a ditch (Vegetius *Epitoma* I.24), then little might survive to be detected today.

Illustration 25
View of a section of upstanding rampart and ditch of Kirkbuddo, surviving in Whig Street Wood.

Camps are often first identified from the air through the regularity of the linear cropmarks, any evidence of a protection for a gate or perhaps a change of alignment at an entrance break, and their rounded corners. It is this regularity in defensive line and corner that often enables a short stretch of cropmark, for example **Applegarthtown** in Dumfriesshire (illus 26 & 76), to be identified as Roman with some confidence. In previous years, aerial surveyors seeking to confirm their observations have mounted active excavation campaigns on the perimeter defences, and these have often been only fleetingly reported on in summary articles (St Joseph in various *Journal of Roman Studies* articles; Maxwell & Wilson 1987). The body of evidence that has now been gathered from aerial survey rarely requires a trench to confirm a V-shaped ditch before a site is published as Roman in date (for example, **North Slipperfield** – Keppie 1996a); although at times, the excavation evidence has been deceptive. At Logie, just north of the Montrose Basin, repeated excavations by St Joseph on a linear cropmark with a V-shaped ditch led him to claim the site as a probable camp (1973: 226). Further extensive trenching at the site led him to retract

Illustration 26
Aerial view of the north corner of Applegarthtown and stretches of the adjacent sides, taken from the south in 1989. © Crown copyright: RCAHMS. SC1164054. Licensor www.rcahms.gov.uk.

the statement, preferring to see the remains as those of post-medieval boundary ditches (St Joseph 1978a: 279n). However, not all the work by St Joseph and others was aimed at confirming whether a site was Roman; elsewhere excavations were conducted to assess the continuation of a ditch identified by air photographs in an attempt to understand more about the size and further details of the camp (eg **Logie Durno** (illus 27) – St Joseph 1978a).

The impact that St Joseph had on temporary camp studies has already been mentioned (Chapter 4; Jones 2005a), with excavation subservient to the primary aim of discovery and confirmation (Leslie 1995). Yet a glance through his notebooks held by RCAHMS confirms the volume and scale of St Joseph's operations on camps in the north. Between 1956 and 1984, there were only three years when he was not conducting excavations of any type on a camp in Scotland, but in those three years he was excavating either elsewhere in Britain or on other Roman sites in Scotland, such as the fortlets at Cargill and Gatehouse of Fleet. Moreover, of the camps now known or suspected north of the Forth–Clyde isthmus, some 70% have been subjected to some form of excavation by St Joseph, and his influence on camp studies through excavation as well as aerial survey cannot be underestimated. However, in the same group of camps north of the isthmus, some 39% have been subject to some form of excavation or watching brief by others, ranging from early 20th-century excavations at **Gask House** (Christison 1901: 35–6) to more recent watching briefs such as in the interior of the camp at **Little Clyde** (Sneddon 2007), where nothing was found.

Evidence for internal features at most sites remains slight (see 7f below), partly because of a lack of investigation, but also because they are likely to be relatively slight owing to their temporary occupation in comparison to more permanent forts. This is one reason why camp excavations have tended to concentrate on the defences and entrances. Perhaps unsurprisingly, given the area enclosed, their

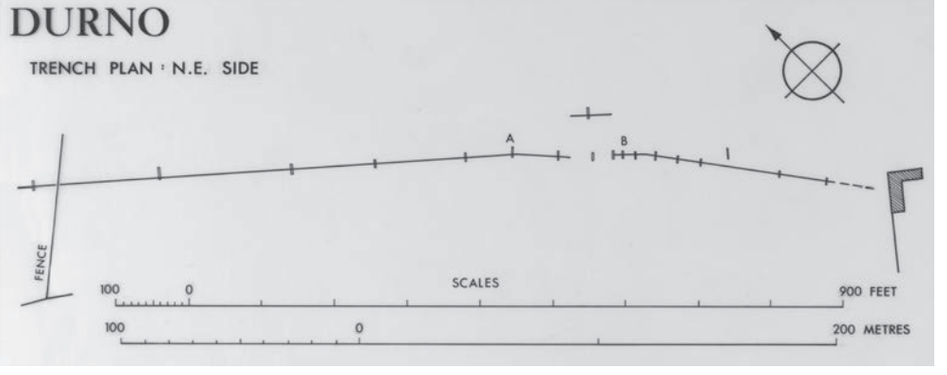


Illustration 27
Example of the small-scale trenches cut through Roman camps to detect continuation of lines recorded through aerial photography – excavations on the north-east side of Logie Durno, conducted by Professor J K St Joseph in 1977. © Courtesy of RCAHMS (Professor J K St Joseph Collection). DP071206. Licensor www.rcahms.gov.uk.

perimeter dimensions in terms of the height, depth and width of the rampart and ditch also vary considerably. Some camps, such as those at **Burnswark** and **Pennymuir**, survive as upstanding remains with their bank visible to a considerable height, with a clearly discernable ditch. The ditches at **Little Clyde** and **Raedykes** may have been rock-cut in places, although this has not yet been proved by excavation. **Ward Law** (originally believed to be a Roman fort) did display a rock-cut ditch on excavation (Truckell 1950: 203–4; Truckell 1952: 142), as did **Channelkirk** (St Joseph 1957: 13) and both camps at **Hillside Dunblane** (Robertson 1969). This represents a surprising amount of labour for something that was probably occupied for a short period of time. Excavations at **Tollpark** revealed a large boulder in the bottom of the ditch, which appeared to have been partially cut through to continue the V-shape of the ditch (White forthcoming). The camps at **Burnswark** also demonstrated on excavation to have ditches that were rock-cut in places (Barbour 1899), but if they did relate to a genuine siege (see Chapter 2 above), then perhaps a greater level of permanency in the defences could be expected.

Elsewhere, only a small proportion of upstanding remains may survive, such as **Kair House**, where two short stretches of the north-east side are preserved in a conifer plantation and overgrown grass field and **Kirkbuddo** (illus 25 & 160), where part of the perimeter is clearly visible in woodland. At **Battledykes**, **Oathlaw**, only a single *titulus* survives, with most of the remainder of the camp now known from cropmarks. The history of the levelling of this camp can be partially traced through the archaeological literature since its discovery by Captain Melville in 1754 (Balfour-Melville 1917: 123n; Jones & Maxwell 2008). Roy's plan of the camp, dating to the following year, depicts most of the north, east and south sides and part of the west, along with five gates protected by *tituli* (1793: Pl. XIII; Jones & Maxwell 2008). By the time that Crawford planned the site, only parts of the east and south sides survived, along with a *titulus* on the north side (1949: 95–7). By 1958, all that remained of the camp was the *titulus* (OS Recorder 1958), which can still be seen today within a plantation, with much of the rest of the camp recorded as cropmarks on air photographs (illus 28, 29 & 84).

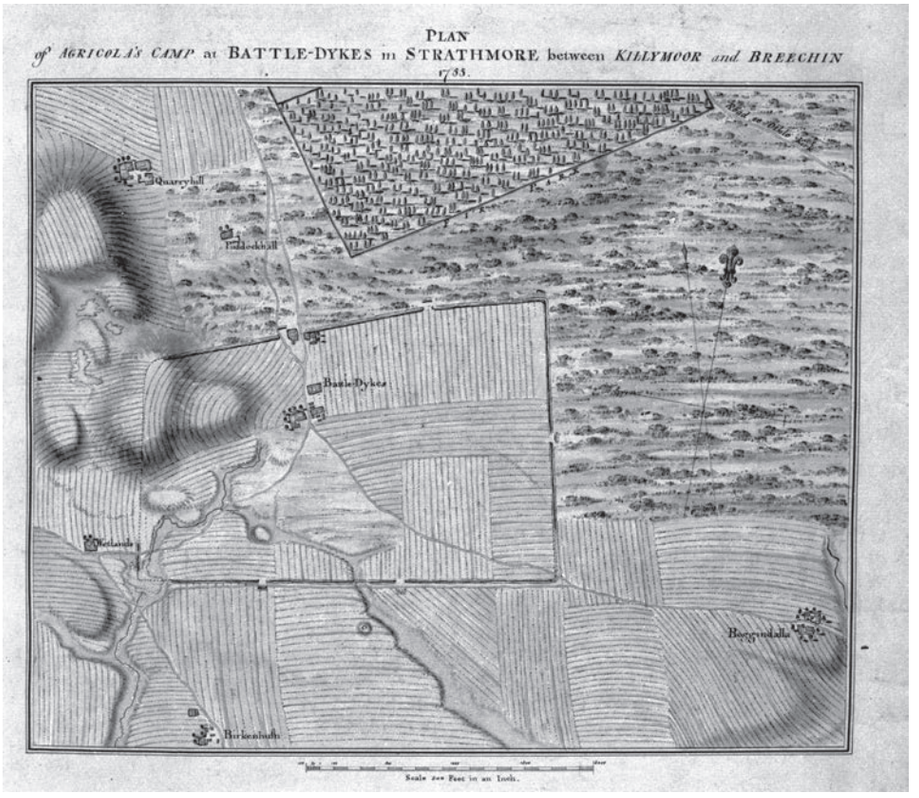


Illustration 28
Plan of Battledykes, Oathlaw, made by William Roy in 1755 (Plate XIII from 'Military Antiquities of the Romans in Britain'). © Courtesy of RCAHMS (Society of Antiquaries of London). SC923908. Licensor www.rcahms.gov.uk.

Excavations through upstanding ramparts of camps are rare, but the rampart of the camp at **Pennymuir III** was observed in the cutting for a drainage trench as being formed of mixed peat and sand from the ditch, measuring some 2.1m wide and 0.3m high (RCAHMS 1956: 376–7). That in Innerpeffray Wood (part of **Innerpeffray East**) was also composed of upcast material from the ditch (RCAHMS St Joseph Collection: Notebook 4). At **Ythan Wells I**, the excavators noticed that the rampart was constructed of loose earth and stones, on a bed of clay some 7cm thick (Macdonald 1916: 357–8). Excavation at Pen-y-Gwryd in Caernarvonshire demonstrated a turf-packed rampart within a turf revetment, although there were traces of a

Illustration 29
Aerial view of the north-west corner of Battledykes, Oathlaw, and stretches of the adjacent sides, taken from the north in 1990. One of the probable souterrains recorded in its interior can be seen just to the left of the centre of the photograph. © Crown copyright: RCAHMS. SC1164090. Licensor www.rcahms.gov.uk.

stone revetment at one corner (Davies & Jones 2006: 101). Vegetius refers to the use of turves in the construction of the rampart (*Epitoma* I.24; III.8), and Welfare & Swan comment that turf was the preferred construction material (1995: 17). The visible field evidence in Scotland broadly confirms this observation, but many of the surviving upstanding stretches of rampart are now grass-covered and their firm attribution to a turf construction cannot be made without intrusive examination. The excavated evidence, however, demonstrates that far more than just turves were in use, and gives further weight to support Hyginus' summary of a 'rampart of turf, stone, rocks or rubble' (*de munitionibus castrorum*: 50), depending on the available materials.

The traces of rampart visible in the archaeological record give an indication of the massive and imposing nature of the camps, and can only begin to conjure up the visual reality and activity of a camp occupied by thousands of troops. At sites like **Raedykes**, **Kirkbuddo**, **Burnswark** and **Pennymuir**, the sheer scale of the rampart and ditch can begin to be appreciated (illus 25). Historical sources, such as Roy and his successors, play a valuable role in furnishing additional information subsequently removed by the plough, such as information about **Battledykes**, **Oathlaw** (illus 28 & 29), details on the gates at **Dalginross** (see 7b below) and further information on **Raedykes** (Roy 1793: Pl. XI, L).

Evidence for the ditches of camps is equally varied, and the size of ditches regularly differs between one side of a camp and the other. This is likely to be partially due to survival rates in the intervening millennia, but could represent real choices made during their construction; after all, if it is possible to mix banks with palisades across the perimeter of the camp (Tacitus *Annals* I.49), the differences in the scale of ditches should not surprise us. Furthermore, not every group of troops might construct their sector of rampart and ditch identically to the next group, and the ground conditions will naturally play a significant part. St Joseph undertook excavations on the camp at **Craigarnhall** on four separate occasions, and the ditch varied from 3m wide and 1.5m deep to only 1.5m wide and 0.4m deep (RCAHMS St Joseph Collection: Notebooks 6 & 7). Although this can be partly explained by differing survival rates, the lack of uniformity may also be due to the work of different units, the nature of the subsoil, and possibly the perceived threat to that side if there were additional natural defences. Similar variety in ditch dimensions has also been observed at **Kirkpatrick-Fleming I** (Leslie forthcoming). Nevertheless, there must have been a general size of ditch to which all the work parties were attempting to conform. The ditch of the camp at **Kintore** has revealed slightly differing dimensions at different points on the circuit during various excavations, although the majority of trenches have revealed a substantial ditch, ranging from 1.4–4.0m wide and 0.5–1.8m deep (Shepherd 1987; Rees 1996; Alexander 2000; Cook & Dunbar 2008: 126–30).

The camp at **Raedykes** has revealed the largest ditch so far on excavation, but this should perhaps be expected in a camp where preservation and survival have been extremely good. However, the ditch of the camp at **Newstead V** may be even larger (6m wide and 2m deep). Although the excavators were not certain that this was the camp ditch that they were excavating (Clarke & Jones 1994), it does seem likely from its location. Macdonald's excavations at **Raedykes** identified that the ditch was V-shaped, about 4.5m wide and 2.1m deep, and faced with puddled clay up to 5cm thick. In some trenches he noted that it was far smaller, measuring only 2.6m wide and 0.45m deep, and he noted that where the ditch was smaller, the rampart was also smaller. These lesser dimensions were apparently employed in areas on

the camp where the ground rendered an attack from that angle unlikely (1916: 332–5).

Elsewhere, camp ditches have quite a varied survival rate, and in some instances the defences have survived owing to their incorporation into later landscape features (7h below). Excavations at **Lochlands VI** revealed only the remains of the base of the ditch, the rest presumably having been ploughed away (see gazetteer). This ditch has only occasionally been visible on air photographs and the degraded remains explain why the cropmark has proved so elusive during repeated years of aerial reconnaissance. St Joseph excavated the camp at **Auchinhove** on several occasions, observing in 1959 that the ditch measured only about 0.85m in width by about 0.7m in depth (RCAHMS St Joseph Collection: Notebook 2). His other excavations on this site in 1956 and 1971 do not give detailed dimensions, but the sketches in his notebooks again depict a very small V-shaped ditch (RCAHMS St Joseph Collection: Notebooks 1 & 6; St Joseph 1958: 93). Excavations at **Finavon** (in 1963–4) also produced a small ditch, noted as being 'only 4½ft. wide and 2½ft. deep [*c* 1.4m wide by *c* 0.75m deep], dimensions close to those of the tiny ditch of the camp at Auchinhove' (St Joseph 1965: 83). These dimensions were used to suggest that the camp could be of Stracathro-type (see section 7b), but further excavation at the entrance gap failed to produce evidence of a projecting ditch (St Joseph 1969: 111), and, indeed, *tituli* have been subsequently recorded through aerial survey (illus 127). Neither can the presence of a small ditch, as at **Finavon**, or a large ditch, as at **Raedykes**, necessarily be taken to be an indicator of gate type or camp size. The camp at **Stracathro** itself had a fairly typical ditch for a camp whose above ground features have been levelled, measuring some 2.9m in width by 1.2m in depth (RCAHMS St Joseph Collection: Notebook 4), while the ditch at the Stracathro-type camp at **Beattock Bankend** ranged up to 2m wide and up to 0.9m deep (Leslie 1995). It is apparent from all the excavations conducted thus far that sections across the defence perimeter will reveal quite varied results, often from the same side of the same camp.

Illustration 30
Aerial view of the west side of the camp at Normandykes, taken from the north in 1982. © Crown copyright: RCAHMS. SC355259. Licensor www.rcahms.gov.uk.

Occasionally this may be hinted at in the cropmark evidence. The west side of **Normandykes** exhibits a slightly irregular cropmark, relatively unusual in Roman camps, but clearly part of the camp, owing to the presence of an entrance (illus 30 & 185). Only the north side and the north-west corner appear to have been subject to any form of excavation (Simpson 1943: 57–8; RCAHMS St Joseph Collection: Notebook 6). A further interesting feature on the perimeter of **Normandykes** is a pronounced kink in the south side, east of a gate. There may be a corresponding kink in the north side, but the line of rampart and ditch in this area is blurred by the edge of a plantation and its accompanying drains. Nevertheless, the excavations on the north-west corner did suggest that the camp ditch ran almost under the modern stone dyke and, if this is the case along the rest of the western part of the north side, then a slight bend just before the plantation can be suspected. Changes in alignment normally occur at entrances to camps (for example **Girvan Mains East**; **Grassy Walls** (eg illus 46 & 140); **Innerpeffray East** and **St Leonards**), and the reason for the slight bend in the sides at **Normandykes** is not readily explained: the ground is reasonably flat and there is no obvious topographical justification. One

suggestion could be that it relates to the reuse of the site, or that a camp was extended on the arrival of more troops. However, the (admittedly small-scale) excavations demonstrated no evidence for reuse, and there are no other visible linear cropmarks connecting the sides near the kink. Another explanation could be that the camp was laid out by two groups of troops, perhaps surveying from either end, who needed to adjust their sides upon meeting. The camp on the north side of **Burnswark** Hill also displays unusual changes of alignment in its north-west and south-east sides. This camp almost gives an impression of two camps stuck together, built on different alignments then connected in the central sector, if at all, because there is a poorly drained wet area on the north-west side and a full ditch may not have been excavated in this sector, perhaps just a palisade being employed (illus 44 & 92). As with **Normandykes**, there is no obvious topographical reason for the sudden change, unlike the camp at Milestone House on the Stanegate, which narrows significantly at the east end owing to the presence of a steep escarpment (Welfare & Swan 1995: 116–18).

The camp at **Kintore** exhibited an additional undefended break in the south side, west of the likely entrance location and close to the south-west corner. The reason for this was the location of a palaeochannel, also clearly visible on air photographs (illus 31), which is assumed to have been a watercourse during the Roman occupation (Cook & Dunbar 2008: 128–34). Watercourses are visible in a number of camps, and there is no reason to assume that all have eroded through the camps after the Roman occupation, or were old and filled in before construction. At **Kirkbuddo**, part of the south-west side is invisible on air photographs owing to the presence of an area of wet ground, and this has been the case since the camp was recorded by Melville in 1754 (Roy 1793: Pl. XIV, illus 32). There is a slight change of direction at this point, which may indicate that the wet ground was present in Roman times, because the change of direction does not appear to have been at the point of an entrance. **Burnswark South** has been bisected by a stream, known as 'Agricola's Well', presumed to have been contemporary with the occupation of the camp (Barbour 1899: 223) (illus 8 & 92). Elsewhere, the Gelly Burn meanders through the eastern part of **Innerpeffray East** (illus 148), and the Evan Water and Clydes Burn cut through the north-western section and the south-east corner of **Little Clyde** (illus 165). In some parts of the country, the inclusion of a small burn may have been inevitable in the search for a camping ground suitable for holding a sizeable force. Certainly **Innerpeffray East** occupies a significant area of land, and any attempt to take in nearly 56ha (138 acres) would be likely to include some less desirable ground, particularly if the camp builders were also attempting to avoid the nearby camp of **Innerpeffray West** (although it is curious that this avoidance of the neighbour has clearly not been of importance in the two similarly sized camps at **Ardoch**). While **Little Clyde** is significantly smaller than **Innerpeffray East**, it seems likely that the desire by the camp builders to site the camp on level ground close to the Roman road took precedence over any concerns regarding the streams.

Illustration 31
Aerial view of the south-west corner and stretches of the adjacent sides of the camp at Kintore, taken from the east in 1976. The palaeochannel which runs through the south side of the camp can be clearly seen in the upper left part of the photograph. © Crown copyright: RCAHMS. SC909305. Licensor www.rcahms.gov.uk.

The corners of camps are usually rounded, because the creation of a sharp angle would present a constructional weak point and be easier to destroy, particularly if it was built of turf. It has been observed in masonry structures that rounded corners are easier to build when using unskilled labour (Hill 2006, 100). Hyginus stated that the corners should be at an angle of 90° (*de munitionibus castrorum* 54), but this is not always strictly adhered to, particularly where there has been a change of alignment partway along a side of the camp (for example, **Auchtermuchty**; **Innerpeffray East**), or the camp exhibits an irregular form (for example, **Woodhead II**). Certainly, a gently rounded angle avoids

a sharp point, which would be easier to attack, and also provides additional defence in terms of the number of men who could be employed on the perimeter.

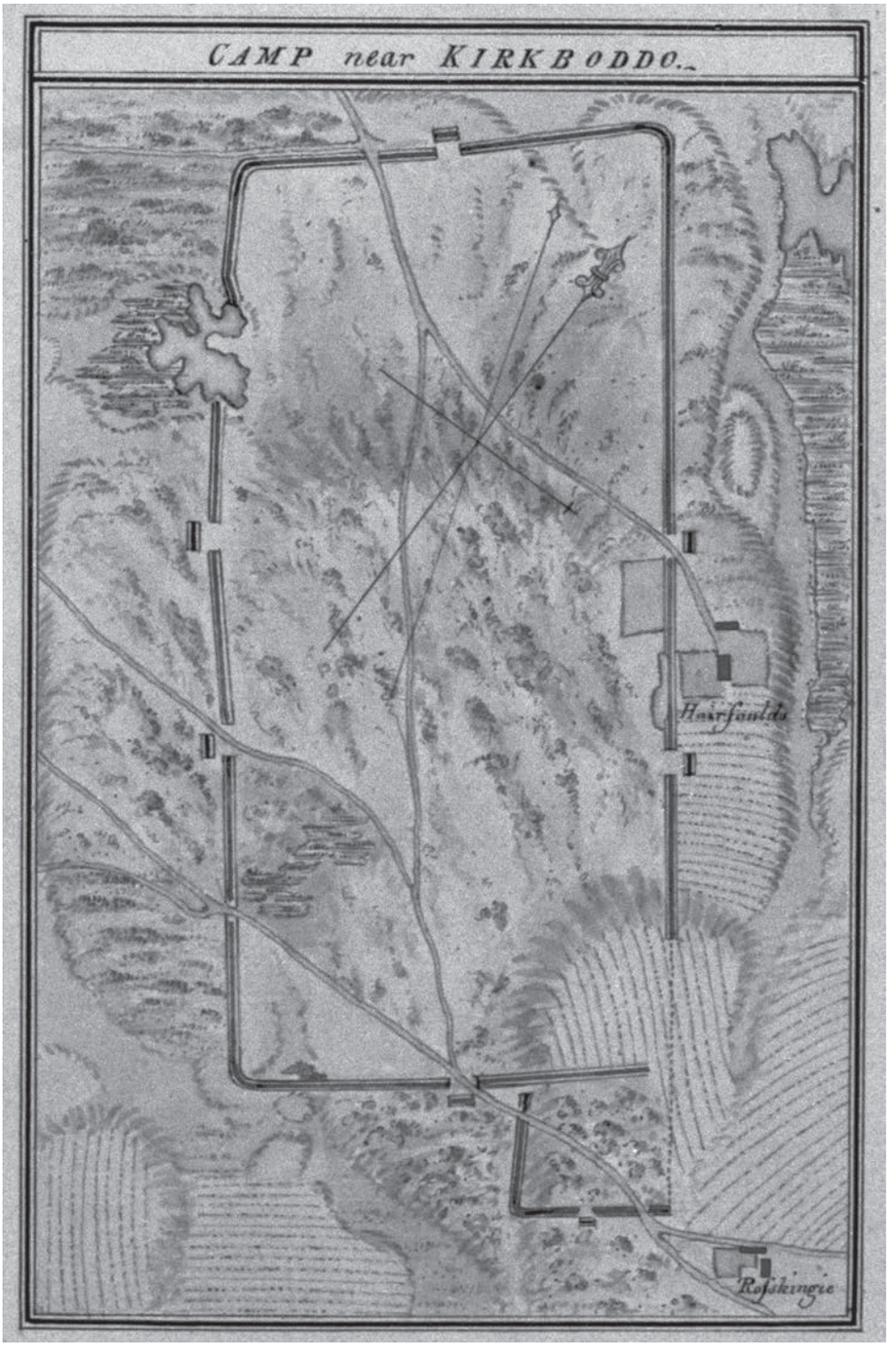


Illustration 32
Plan of Kirkbuddo made by William Roy in 1755 (part of Plate XIV from 'The Military Antiquities of the Romans in Britain'). The camp is drawn with its south-east side at the bottom of the illustration. © Courtesy of RCAHMS (Society of Antiquaries of London). SC923914. Licensor www.rcahms.gov.uk.

Additional defences for camps, such as a breastwork or palisade (illus 33), are attested in classical literature (Gilliver 1993b), but leave little or no archaeological trace. Both Livy (XXXIII: 5) and Vegetius (*Epitoma* I.21, 24; III.8) refer to a palisade atop the rampart, and Varro refers to V-shaped or forked sticks on a camp wall (*de Lingua Latina* V.117). It has been suggested that the so-called *pilum murale* (or *pila muralia*) found at Great Chesters on Hadrian's Wall and elsewhere could have been used to form some sort of additional defence around a temporary camp (Bennett 1982). The provision of a central 'grip' or 'waist' in the middle of these sharpened stakes (or *valli*) has given rise to the suggestion that they could have been lashed together in the form of a caltrop, like the small examples in iron known from various locations (eg Newstead, Curle 1911: Pl. XXXVIII, 14), but it would equally have made them easier to carry. They were also sharpened at both ends, which reinforces the suggestion that they would have pointed out towards the enemy rather than just have been lashed together as a palisade. A strong palisade placed somewhere on the rampart of a camp would be expected to leave a trace in the upstanding remains where these survive to a sufficient height, although there has not been enough excavation or other detailed analysis to test this. However, possible stake holes were identified during excavations on the *claviculae* entrances at **Castledykes I** and **Dalginross I**, and these may be a hint of additional contemporary defensive features. But, if caltrops were used, these might only rest on the surface, leaving the archaeological evidence slight or non-existent. Hyginus refers to five possible

Illustration 33
View of a reconstruction of a section of the defences of a Roman marching camp with a palisade at Carnuntum, Austria (taken in 2005).

types of camp fortifications: ditch, rampart, stakes, stockade and weapons (*de munitionibus castrorum* 48), and goes on to state that the use of these depends on the location and availability of various building and defensive materials. Gilliver has highlighted the 'barbed wire effect' of having overlapping caltrops placed on, alongside, or in place of ramparts (Gilliver 1993b: 51, fig 1), and this is amply demonstrated at the former reconstruction of a small part of a Stracathro-type camp at Archaeolink Prehistory Park in Aberdeenshire, which utilised caltrops set onto the upper front face of the rampart (illus 34).

Caesar makes reference to an *ericus*, a beam studded with spikes in front of the entrance (*de Bello Civili* III.67; Gilliver 1993b: 52–3; Bennett 1982: 204). Whether or not an *ericus* deployed across an entrance would leave trace in the archaeological record depends on how it was placed into the ground. There is no obvious evidence for such, although the additional ditch across the entrance at **Eskbank I** was interpreted as a trench for temporary hurdling, and similar features elsewhere have been interpreted as drains (Maxfield 1975: 144–7).

Caesar also reported that he utilised large forked branches above the palisade of his siege camp at Alesia, and dug *lilia* in front (*de Bello Gallico* VII.72–3). Forked branches and other brushwood could also have been used to provide additional defences around a camp, and hawthorn was found buried in the ditch of the structure below the fort at Bar Hill, which may have been employed in a defensive capacity (Jones 2005b). No evidence has been uncovered for any *lilia* constructed outside temporary camps, although admittedly there have been very few excavations of areas outside temporary camps. Pits are visible on air photographs at some sites (for example, **Glenlochar** and **Inchtuthil** both have numerous pits within and outside the camps; see section 7f), but their date and function is unknown. Certainly, there is no evidence from air photographs of defensive pits constructed outside a camp in the regular manner of those known on Hadrian's Wall and the Antonine Wall, although a regular line of pits is clearly visible on air photographs outside the west side of **Drumlanrig I** (illus 114). The labour expended in the construction of the camp was presumably enough

Illustration 34
View of a reconstruction of a section of the defences of a Roman marching camp with 'caltrops' at Archaeolink Prehistory Park, Aberdeenshire (taken in 2004).

for a temporary occupation without digging such extra features unless extreme circumstances prevailed.

The presence of an 'ankle-breaker' slot has been noted during excavations on a few camps. These are additional small trenches at the bottom of the V-shaped ditch. Although recently dismissed as a feature of the ditch on Hadrian's Wall (Wilmott 2006), such slots are occasionally recorded on camps. They are often seen to identify regular cleaning of the camp ditch (rather than performing a function to break the ankle of anyone falling into the ditch at an awkward angle), but the possibility that they may have held an additional constructional defensive feature is rarely entertained. The sharp V-shaped ditch at **Lochlands VI** that was the only feature to survive could equally be interpreted as a palisade trench (information from G. Bailey, who visited the site during its excavation). That such slots at the base of ditches, or even in place of ditches, could have held a form of an *ericus*, stockade or forked branches and brushwood, remains a possibility.

One final observation can be made regarding the defensive perimeters of camps, and this relates to additional outer works or structures seemingly designed to provide extra defence. As discussed earlier, defensive pits are unknown, but possible outer defences are recorded at a number of camps. At **Islafoot Drumlanrig**, the camp occupies a bend in the River Nith opposite Drumlanrig fort, some 800m north of the likely crossing point of the Nith at Castlebank Ford, later guarded by the medieval stronghold of Tibbers Castle. The Roman road to Crawford is visible on air photographs as a series of quarry pits running from the ford to the north-east. The camp appears to have been accompanied by a flanking outwork, protecting the sides of the camp not afforded additional protection by the river (illus 35 & 114). The provision of this outwork, if Roman in origin, is curious, as it appears to demonstrate that the camp required an additional level of protection. It is possible that it demarcated an area for camp followers, although it runs close to the east side of the camp and there is therefore no space for extra provisions or camping on this side. This outer work is largely unparalleled at other camp sites, except perhaps for the outer polygonal enclosure at **Woodhead** (illus 212).

Illustration 35
Aerial view of Islafoot Drumlanrig and its outwork, taken from the NNE in 1997. © Crown copyright: RCAHMS. SC1164178. Licensor www.rcahms.gov.uk.

This additional enclosure has been proposed as a storage compound for timber (possibly for the construction of the fort at Elginhaugh, some 7km to the north-east, Maxwell 1983). This explanation is also possible for **Islafoot Drumlanrig**, because it is located across the river from the fort and only 800m from the fording point. But there is plenty of suitable camping ground near the fort, with one or two camps located on the low-lying ground beneath the fort towards the ford, and plenty of level ground north of the fort under Drumlanrig Castle and policies. However, it is possible that the **Islafoot** camp was the location and logging point for the timber sourced for the construction of the fort. The additional space given by the outwork here is over 7ha, assuming that the course of the river Nith has not changed considerably since antiquity. That at **Woodhead** is larger, enclosing an additional almost 10ha outside the camp.

Outer defensive works are known at a number of forts (Wilson 1984). The outer work at **Malling** connects the two camps and may have operated as an additional defence for the fort. Both camps and fort are believed to be Flavian in date, and the earthwork may have been employed to connect the defensive perimeters of the camps while both or all three sites were in occupation (illus 36 & 173). The Lake of Menteith provided additional defence to the east.

At **Inchtuthil**, the two linear earthworks on the plateau are usually interpreted as relating to the fortress (illus 145 & 146). The Western Vallum cuts across the reduced camp (III) and is, therefore, unlikely to be contemporary with either camp II or III and would block access to the fortress from camp I. However, if the Outer Masking Earthwork were contemporary with camp III, it would provide additional protection from the west. This outer work runs from the corner of camp III, and there are, therefore, similarities between this and **Malling**, where the earthwork runs from the corner of camp I to camp II.

Elsewhere, the polygonal enclosure at **Carpow** (I) may be an outwork to the fortress, but it is equally possible that it is distinct from the fortress and relates to an earlier occupation of the ground by the River Tay (illus 97). At **Raedykes**, a linear earthwork is visible in a small wood some 220m south of the camp, which has been associated with the camp as an outwork (RCAHMS 1984: 32). However, there is no evidence to support this observation, and the earthwork may be much later in date. A similar

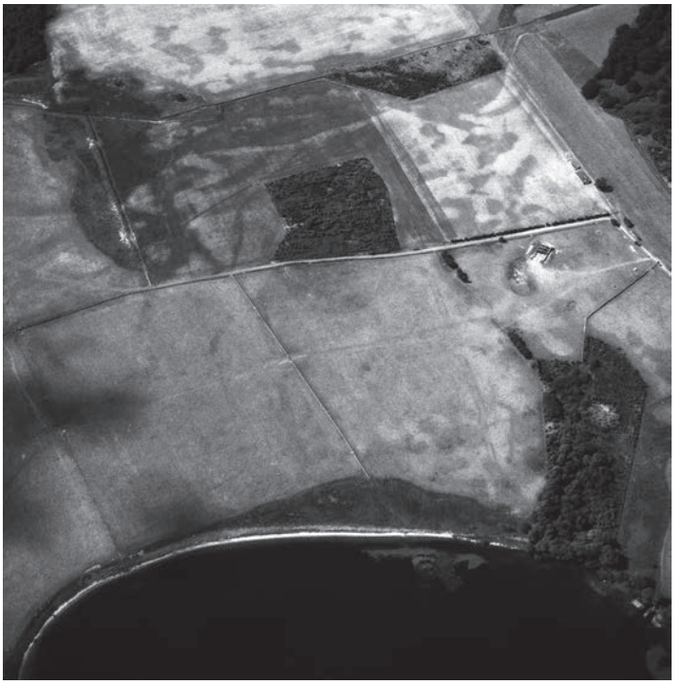


Illustration 36
Aerial view of the Roman fort at Malling (foreground, just above the Lake of Menteith), showing the outer work connecting the two camps (to its right and left), taken from the ENE in 1983 (also see illustration 173). © Crown copyright: RCAHMS. SC1164522. Licensor www.rcahms.gov.uk.

later date is proposed for the additional earthwork on the south-west side of the camp at **Raeburnfoot**, which is far more substantial than the camp earthworks and may relate to a medieval or later enclosure or something to do with flood control of the River White Esk.

Therefore, while Roman camp defences usually do exhibit certain regular defensive features, such as the classic 'playing-card' – rectilinear or square shape and rounded corners – these were by no means rigorously adhered to at all times. Where upstanding perimeters of camps survive, these exhibit more irregularity than is usually expected of Roman sites. This evidence should change our expectations of Roman temporary camps in terms of their defensive elements. Variations in the dimensions of ditches and ramparts around sites are common, and not all can be attributed to differential survival rates. The majority of camps in Scotland are only visible as cropmarks, and irregularity in form can be identified in the cropmark record, such as the changes of alignment observed in the ditches at **Kirkbuddo** and **Normandykes**. Additional defensive features such as outworks have been observed at a small number of camps and the contemporaneity of these features with the occupation of the camp may be suggested on occasion, but is currently impossible to prove. It seems possible that the outworks were provided in areas where the traditional defence of single rampart and ditch was not deemed sufficient, and some sectors of camp perimeter were strengthened presumably to counter a perceived threat on that side, or to compensate for a lack of additional natural defences.

7b Gates

The entrances to a camp represented defensive weak points on the circuit, and it should be expected that these would be kept to a minimum without impeding the ability of the army encamped inside to go about its business. If a camp were to be occupied for several days or weeks, it might be expected that access in and out of the camp would be an important element to consider during its construction. The camp perimeter could represent an obstacle to those inside if, for example, a small unit found itself cornered inside a large camp (Austin & Rankov 1995: 180). In addition, not all the business of a camp was conducted within the interior and, therefore, access to the exterior was important. Vegetius and Hyginus commented that camps should be built near sufficient supplies of water (*Epitoma* I.22; *de munitionibus castrorum* 57), and usually this water source is outside the camp perimeter.

A typical camp, according to Hyginus, was provided with six entrances, and a number of camps in Scotland are known with this number of gates (particularly the larger examples). However, camps are frequently known with fewer gates, possibly as few as one (**Gallaberry** – illus 14 & 132). Three camps in northern England exhibit multiple gateways: at Rey Cross, nine of a possible eleven are known; at Crackenthorpe some ten have been identified; and at Plumpton Head at least seven are known from three sides (Welfare & Swan 1995: 57–60, 34–6, 43–4). In Scotland, only **Burnswark South** has three gates on a single side, but this is not mirrored on the opposing side (illus 8 & 92). These three entrances (the 'Three Brethren') face the hill and are protected by large obstacles of rampart and ditch set forward from the entrance gap. It has been suggested that the enhanced protection afforded by these three mounds was in order to act as defence against heavy objects being rolled down by the besieged towards the Romans (Campbell 2003: 28–9), another interpretation was that they were *ballistaria*, or artillery emplacements (Collingwood 1927: 52). Presumably the purpose of having three entrances facing the hill was to provide advantage in attack.

Illustration 37
Aerial view of the camps I and II at Pennymuir, showing the *tituli* protecting the entrance gaps. Taken from the SSW in 1995. © Crown copyright: RCAHMS. SC505325. Licensor www.rcahms.gov.uk.

These three entrance mounds appear to be enhanced *tituli*, and the *titulus* – a traverse, usually a rampart and ditch, set forward from the entrance gap – was the most common gate form in use in Scotland and in Britain as a whole (illus 37 & 40c). However, it has not been possible to record any entrance at all at over 20% of camps in Scotland, owing to incomplete cropmarks, and a further 20% are known only by simple entrance gaps (although in these instances the gap can be clearly identified and perhaps any ditched gate defence, such as a ditched *titulus*, might have been visible depending on the conditions of survival and recording). Thus, other gate types may also have been prevalent, but perhaps were delineated only in rampart form and cannot now be recorded easily following centuries of ploughing.

Camps with *tituli* are known from elsewhere in the Roman Empire. At the unique probable battlefield site of El Pedrosillo in southern Spain, over a hundred *tituli* are recorded forming freestanding obstacles (Rodríguez Martín & Gorges 2006; Morillo *et al* in prep). Probably the earliest recorded examples are in Spain, at the siege works near Numantia (in the 2nd and 1st century BC – Schulten 1914–31). They are also recorded across the Empire from the Netherlands to Romania, and probably farther afield (see Bogaers & Rüger 1974: 33–5; Cătăniciu 1981: 55; Stefan 1997). Several of the practice camps in Wales exhibit *tituli*, particularly those around the forts of Tomen-y-Mur and Castell Collen (Davies & Jones 2006: 178–85, 187–94). No *tituli* are recorded on Trajan's Column, but it has been suggested that this was due to the difficulty in illustrating them clearly (Lepper & Frere 1988: 263). With regard to dating, camps with *tituli* are assumed to be in use from the 2nd century BC to the later part of the Roman Empire. In Scotland the camps that are proposed as relating to the campaigns of Septimius Severus in the 3rd century AD are accompanied by *tituli*, although none has yet produced firm dating evidence to confirm this assumption (Chapter 10). Certainly, the stratigraphically latest camp recorded at **Ardoch** (camp I) had entrances protected by such means, as did the exceptionally large camp at **St Leonards**, presumed to be of Severan date. Few *tituli* have been excavated, but that at **Lochlands IV** produced a *denarius* of Hadrian in the upper fill of its ditch (Thomson 1968: 262), and sherds from a BB2 bowl, probably dating to the Antonine period, were recovered from the fill of the *titulus* ditch at **Dunning** (Dunwell & Keppie 1995).

Some 45% of camps in Scotland exhibit *tituli*, but over 75% of these are known exclusively from cropmarks, and a further 17% from both cropmarks and earthworks. But in many other camps, the position of the entrance gap is not always clear in the cropmark record. At **Eskbank I**, excavations at the gate revealed an additional small ditch covering most of the gap, interpreted by the excavators as a feature to hold temporary hurdling. This feature has also been noticed at other camp excavations, and could blur some of the cropmark evidence (Maxfield 1975: 144–7), as is possibly the case at Walton II in Wales (Davies & Jones 2006: 139). Furthermore, if a camp had been utilised on more than one occasion, then the location of the entrance may have been blocked or moved, and this is almost impossible to detect from the cropmark evidence alone. At the multiple phase site of **Beattock Barnhill II–IV** a *titulus* is clearly visible outside a continuous ditch, indicating either that the camp ditch was deliberately filled in for a second phase or that the gate was subsequently closed (illus 38 & 85). Welfare and Swan report that some of the entrance gaps on the multiple-gated site of Rey Cross show signs of blocking, based on field survey of the upstanding remains (1995: 23, 57–60).

Surviving *tituli* are rare and have only been recorded at a handful of sites, including **Battledykes**, **Oathlaw**,

Illustration 38
Aerial view of Beattock Barnhill II–IV showing the two *tituli* on the west side of the camps, including the blocked gate (the northern of the two), taken from the east in 1977 (also see illustration 85). Camp I is visible towards the top of the image.

Illustration 39
Aerial view of the north-west gate with four *tituli* and the blocked south-west gate at Ward Law, taken from the north-east in 1984. © Crown copyright: RCAHMS. SC360860. Licensor www.rcahms.gov.uk.

where a single *titulus* is the only earthwork surviving in a camp now largely visible as a cropmark (illus 28 & 29). The camp at **Ward Law** appears to have four *tituli* outside one entrance, a complex arrangement, and it seems likely that there may have been a training element in the construction of so many obstacles at a single gate (illus 39). In contrast, no *titulus* was found at another entrance on the same camp despite the placing of 'a long trench outside the gateway' (St Joseph 1952b: 118–19). Thus it appears that the utilisation of the same entrance protection throughout a camp may not have been a prerequisite. Different entrance types on the same camp are recorded at **Burnswark North** (although this camp is unusual in other ways – illus 44 & 92), and at Bellshiel in Northumberland, both known as earthworks.

Hyginus refers to the use of a *titulus* or *titulum* (see Henderson & Keppie 1987) at gateways (*de munitionibus castrorum* 49–50). However, he refers to this gate defence in tandem with an internal *clavicula* (*de munitionibus castrorum* 55), a semi-circular rampart constructed to expose the unshielded side of the camp entrant to the camp defenders (illus 40b). The use of both *claviculae* and *tituli* at the same entrance has only been recorded on a handful of camps, and none as yet in Scotland.

Unsurprisingly, all the camps where this use of two differing defensive gate features has been recorded are upstanding earthworks, owing to the difficulty in recording *claviculae* when the camp has been ploughed out. They lie in Northumberland and upland parts of Wales, the best examples being Chapel Rig and Glenwhelt Leazes in Northumberland (Welfare & Swan 1995: figs 68 & 83). All these camps are fairly small (the largest, Glenwhelt Leazes, is only 1.2ha), but larger camps exhibiting *claviculae* and *tituli* at the same entrance have been recorded at Comãrnicel (camp I, both phases) and Vârful lui Petru in Romania (Stefan 1997).

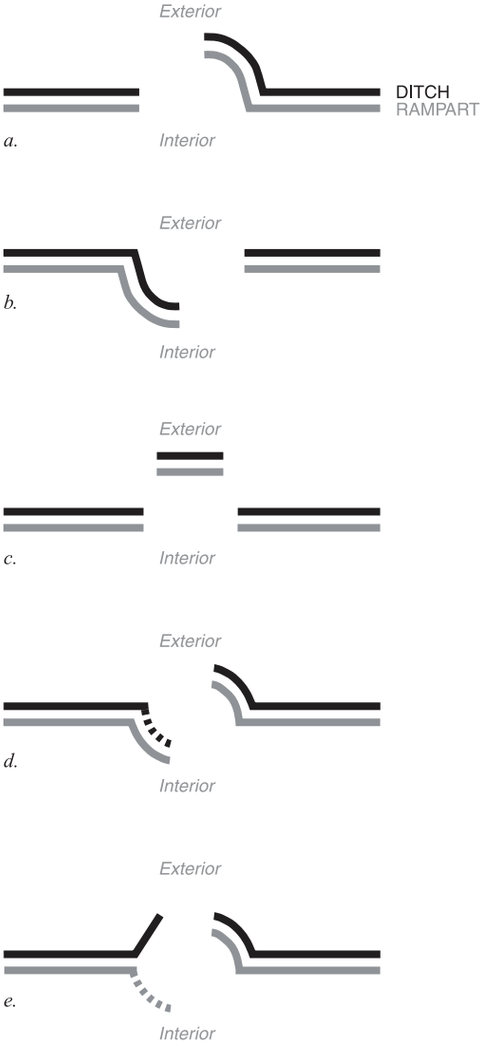


Illustration 40
Illustration of different gate types: (a) external *clavicula*; (b) internal *clavicula*; (c) *titulus*; (d) cuspate entrance; (e) Stracathro-type gate.

Illustration 41
Aerial view of the eastern external *clavicula* gate at Milrighall, taken from the north-west in 1984. © Crown copyright: RCAHMS. SC1164052. Licensor www.rcahms.gov.uk.

North of Hadrian's Wall (excluding the camp at Greenlee Lough, grouped with the Wall camps) only 11 camps are known to have been protected by *claviculae*, (excepting the Stracathro-type, see below), but given the lack of upstanding remains of ramparts and the ease with which such features can be ploughed away, it is likely that the figure would have been much higher, particularly if the *clavicula* manifested itself only in rampart form and was not accompanied by a curving ditched element.

The presence of both internal and external *claviculae* ('cuspate' gates – illus 40d) is uncommon, with the only current recorded examples in Britain being **Oakwood** (illus 187) and, in England, Troutbeck 2 and 3 (Welfare & Swan 1995: 44–50), although one fort and annexe at Cawthorn is also provided with such an entrance (Welfare & Swan 1995: 140–2). However, the camp at **Milrighall** survives only as a cropmark with external ditched *claviculae* recorded, and, although accompanying internal *claviculae* are not visible, they may have been present in rampart form (illus 41 & 179). External *claviculae* (illus 40a) are generally rare in Britain, with only a few examples currently known: the cuspate-gated sites already mentioned, **Milrighall**, possibly **Lochlands II**, Hoole in Cheshire (Philpott 1998), and the unusual camp of Cawthorn C in North Yorkshire (Welfare & Swan 1995: 137–42). However, the number of camps in Scotland with only entrance gaps in the ditch or where entrances have not yet been recorded, indicates that many upstanding *claviculae* may have been destroyed by the plough. External *claviculae* have also been recorded as far afield as Tell Abara in Jordan (Kennedy & Riley 1990: 107–8), Nahal Hever in Israel (Aharoni 1961; Lenoir 1977: 705) and Qasr Ibrim in Egypt (Maxfield 2009: 70–3), confirming that this was not an unusual practice confined to Britain.

While seemingly rare in Scotland, owing to the lack of upstanding remains, *claviculae* are identified elsewhere in *Britannia*, and some 68 of various forms are now known in camps of a range of shapes and sizes across the province (Jones 2009c: 13–15). The majority of surviving upstanding camps with internal *claviculae* lie in Northumberland and in parts of upland Wales, the two areas in Britain where Roman camps are best preserved. They are also recorded on a number of practice camps in Wales, most notably on the common west of the forts at Gelligaer, Glamorgan (Davies & Jones 2006: 169–73).

Use of *claviculae* is generally attributed to the 1st century AD and the earlier part of the 2nd century AD in Britain (Jones 2009c). Camps with *claviculae* elsewhere

Illustration 42
Aerial view of the south-east gate at the eponymous type-site of Stracathro, taken from the west in 1979. © Crown copyright: RCAHMS. SC1164182. Licensor www.rcahms.gov.uk.

in the Empire have a broader range of dates. Certainly a number are known which are likely to be of Republican date (eg Alésia in France: Reddé 1995; Qasr Ibrim in Egypt: Maxfield 2009: 70–3; Peña Redonda in Spain: Morillo 2003). Amongst the most securely dated camps with *claviculae* anywhere in the Empire are those at Masada in Israel (illus 7), associated with the siege in AD 72–3 (Richmond 1962; Yadin 1966: 218). The latest dates currently proposed for camps with *claviculae* are the two at Nahal Hever in Israel, dated to the Bar-Kokhba War of *c* AD 132–5, although the possibility that these could date to the Jewish War of the AD 70s has been noted (Aharoni 1961: 161–2; Lenoir 1977: 715).

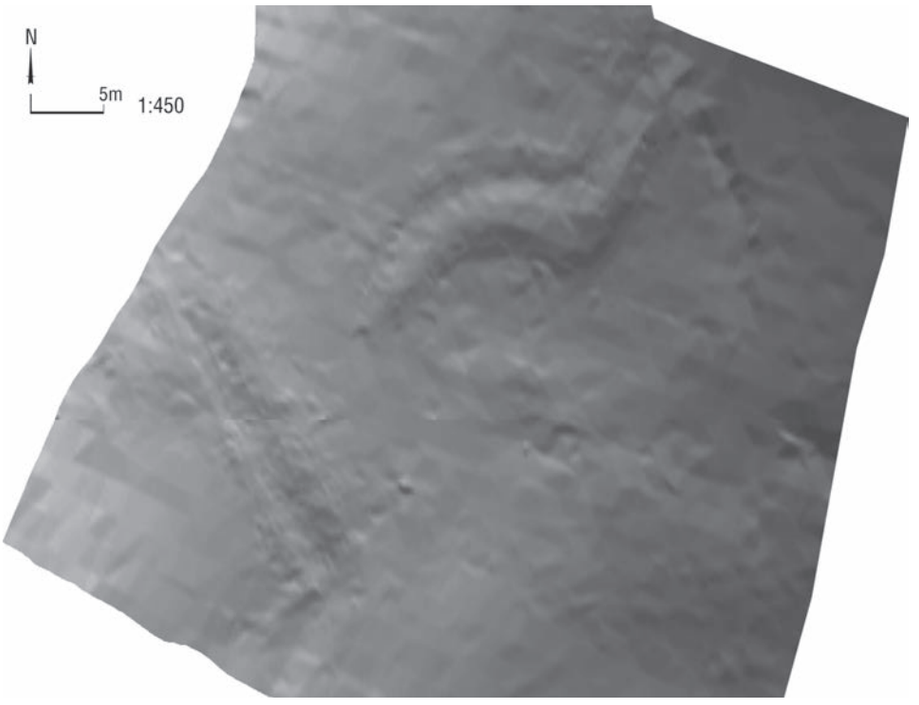


Illustration 43
Three-dimensional contour model of the north-west gate at Raeburnfoot, surveyed using a differential Global Positioning System and with a ×3 exaggeration. © Crown copyright: RCAHMS. Licensor www.rcahms.gov.uk.

One of the more unusual variants of the *clavicula* gate is found only in Scotland and is known as the 'Stracathro-type', named after the site where the phenomenon was first observed by St Joseph (1955: 87). It consists of an external *clavicula* ditch with an oblique traverse guarding the entrance gap (illus 40e & 42), possibly accompanied by an internal curving rampart. Roy planned the camp at **Dalginross** in 1755 (illus 13), recording the unusual gateway and commenting on its potential similarity to the camps at Cawthorn (1793: 65, Pl. XI). With the exception of **Dalginross** and the upstanding camp at **Raeburnfoot**, first recorded in 2004 (Jones & McKeague 2009), all the other camps known with this variant gate form are recorded only as cropmarks.

Roy illustrated the earthworks of internal *claviculae* at three of the four entrances at **Dalginross**. At **Raeburnfoot**, the only upstanding camp with these gates, the earthworks are severely degraded, but at the north-west and north-east gates no internal *claviculae* can be detected despite detailed field survey and contour modelling (illus 43). However, on the south-east side, opposite the north-west gate, an earthwork feature has survived which is strongly suggestive of an internal *clavicula*. The camp rampart does not appear to break for an entrance at this point, but the camp in this area has been disturbed by later field banks and enclosures, and the ground outside the likely entrance has been scarped, removing any signs of an external *clavicula* and oblique traverse (illus 192). It therefore seems likely that some of the gates also possessed internal *claviculae*, but that those elsewhere at **Raeburnfoot** have eroded and are no longer detectable on the ground. Any traces of internal *claviculae* banks at **Dalginross** and at all other Stracathro-type camps have been obliterated through ploughing. The possibility that other Stracathro-type camps may have also had internal *claviculae* should be noted. Their absence at the two visible external Stracathro-type gates at **Raeburnfoot** may be genuine, although the survival of the earthwork of this camp is so poor that they could have eroded (Jones & McKeague 2009).

St Joseph created one of his 'series' of camps around those with Stracathro-type gates (1958: 87; 1969: 113–14) but recognised that their wide range in size and other variations (including location) militated against their assignation to a particular campaign (1973: 229). Nevertheless, some scholars have attempted to assign these camps to the campaigns of Agricola (Ogilvie & Richmond

1967: 62–3), but the evidence cannot support such a specific attribution. Much has been credited to Agricola as a 'leading innovator' in the design of defences (Jones 1975: 118), but it has been commented elsewhere that had this gate type been his invention then surely more should be recorded in Britain (Breeze 1981: 18) and, indeed, no doubt Tacitus would have obliged us with further embellishment. At present, no firm dating evidence has been recovered from any of these sites. However, on the basis of location, with some sited next to Flavian forts, others representing the earliest sites in a gathering ground (eg **Beattock Bankend**: Jones 2009a), and two of the five most northerly camps exhibiting this gate design, a Flavian date does seem the most likely attribution (Jones 2009c).

It has been suggested that this gate type could be characteristic of a single legion (Wilson 1974: 344; Maxwell 1998b: 19–20). Their seemingly irregular distribution could be due to a handful of officers (presumably the senior tribune or *praefectus castrorum* was responsible) posted in northern Britain with a specific legion for a limited period of time (Jones 2009a: 870–2).

Although only a few Stracathro-type camps are known, the note of caution regarding the attribution of gate types to camps where no gate is known remains valid. The camp at **Eshiels I** has been known since 1962, but its Stracathro-type gate was only identified following a reappraisal of existing air photographs in 1995 (Keppie 1996a: 405) (illus 124). It is possible that some of the camps already recorded possessed Stracathro-type gates but have not yet been identified as such. If the gate form can be credited to a small number of officers from a particular legion, then perhaps the variability in size and shape also suggests that there was more flexibility in garrison sizes than has hitherto been propounded. Garrisons may have been so well established that there was no flexibility for movement, division and regathering together in a single campaign, but this is perhaps unlikely and there may have been much more flexibility. Tacitus informs us that Agricola split his force into three battle groups in his sixth season (*Agricola* 25), but this need not have been the only occasion this happened, the reason for it being specifically mentioned relating to the subsequent attack on the ninth legion. It is likely that legionary detachments and auxiliary regiments may have been able to brigade together in different groupings in different places depending on the demands of the terrain and of that particular conquest or manoeuvre. Perhaps the so-called Stracathro-type series is one of the indicators of a versatile army. Attempts (most notably by St Joseph) to group camps of similar size and proportions together into rigid specific campaigns (and then tie these to the literary evidence) perhaps belie the versatility of the army on campaign, although these series do have their validity (see Chapter 9). It is clear from sources such as Tacitus and Josephus that the army was regularly divided for campaigns and manoeuvres, perhaps hinted at by the Stracathro-type camps, if they do indeed represent the work of one or more camp prefects.

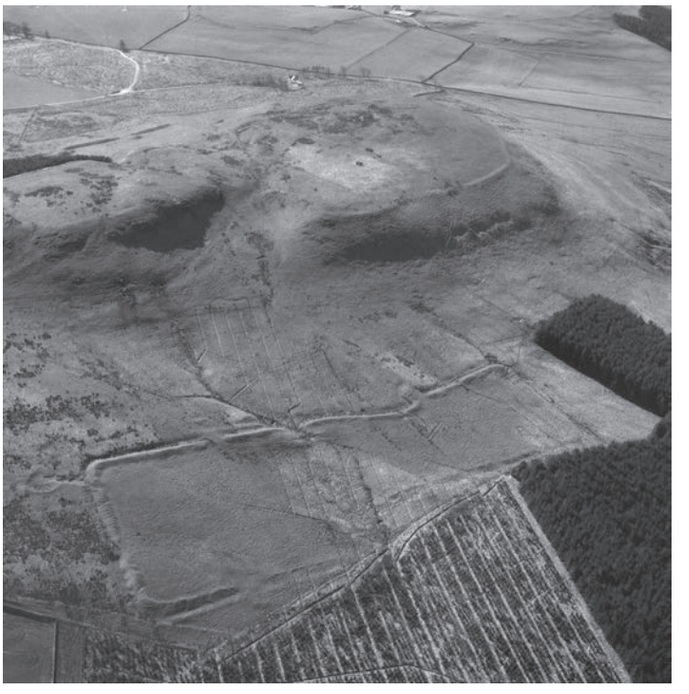


Illustration 44
Aerial view of Burnswark Hill and the North camp, taken from the NNW in 1990. © Crown copyright: RCAHMS. SC1164089. Licensor www.rcahms.gov.uk.

7c Proportions and morphology

Roman camps are usually square or rectangular in shape, with some occasionally deviating from the norm, usually owing to topographical factors. Vegetius commented that once the campsite had been selected, the camp could be built 'square, circular or triangular' (*Epitoma* III.8). Camps of the latter two forms are unknown in Scotland (and in Britain), but such an unusual site, if it were visible as a cropmark, might not be identified as Roman in date and might therefore be given a different designation. However, the large camp at **Channelkirk**, of which parts of three sides are known, could almost be triangular, depending on where the west side of the camp is sited (illus 103). The shape of the more unusual camps in Britain (Twyn-y-briddallt in Wales; Cawthorn C, Milestone House and

Plumpton Head in England and, in Scotland, **Burnswark North**, **Raedykes** and possibly **Channelkirk** and **Carpow II**) can sometimes be attributed to topography or the avoidance of an existing structure such as a permanent fort. Certainly there is a broad range of shapes in Scotland, particularly amongst the larger camps where availability of suitable ground would have taken precedence over conforming to a particular form.

The Roman military manuals give instructions for general camp layout, and Vegetius and Hyginus both advocated that the length be one third longer than the width (*Epitoma* III: 9; *de munitionibus castrorum* 21). The proportions are known for 160 camps in Scotland and can be estimated for a further fifteen camps (representing some 60% of the known, probable and possible camps in Scotland). Of these, some 19% have a ratio of 3:2, that is a coefficient of between 1.44 and 1.6 (average 1.5). (The coefficient is the number produced by dividing length by width; see table 3.) If this is expanded to include those camps with ratios of 5:3 and 7:5, the number increases to 27%. This is only slightly higher than those camps which are classed as square (that is, they have a ratio of 1:1 and a coefficient of 1.0 to 1.14), some 22% of the total.

Therefore it can be observed that, unsurprisingly, the majority of camps in Scotland are square to rectangular in shape, with only a few exhibiting more extended forms. These elongated camps (those with a coefficient above 2.0) include **Burnswark North**, which almost has the appearance of two adjoined camps and lies on gentler sloping ground on the NNW side of Burnswark Hill (illus 44). **Carlops Spittal I** lies along a ridge above the Roman road on the east side of the Pentlands (illus 96), **Pennymuir II** is tucked into the corner of **Pennymuir I** (illus 37 & 191), and **Kirkbuddo** has no obvious topographic reason for its oblong shape, although it deviates around a boggy area on its west side (illus 32 & 160). Finally, **East Carmuirs** at **Lochlands** (illus 167) may also have an elongated shape, but its east side is unconfirmed and its overall dimensions are only an estimation.

Maxwell has argued that camps which exhibit a square rather than rectangular form are more likely to date from the 1st century AD (1981: 28–9). This reasoning used as an example the rhomboid camps at **Dunning** and **Carey**, frequently placed together on the basis of geography and size (illus 118 & 95). However, further work has questioned their Flavian attribution, and the grouping of two camps is too small to start to establish much by way of a meaningful discussion in terms of a campaign series. **Dunning** displays evidence for reuse, with probable Antonine sherds from a BB2 bowl recovered from the fill of the *titulus* ditch (Dunwell & Keppie 1995), whereas **Carey** is apparently a single-period Flavian site on the basis of small-scale trenching and a single samian sherd (St Joseph 1973: 220), which can no longer be located (Dunwell & Keppie 1995: 60n). Therefore, while both camps could have been Flavian in their original construction, their attribution to the 1st century is not confirmed, nor is the dating of many other square camps. For example, **Durisdeer I** was not listed by Maxwell as a possible Flavian camp (1981: 37) but is almost square in shape (illus 119). It lies on the Roman road running from Nithsdale (close to Drumlanrig) to the Clyde at Crawford, and is close to the Antonine fortlet of the same name. The exact course of the Roman road at this point is not known, but it is presumed to lie under the modern road. If this were the case, then the camp could predate the road and be 1st century in date, adding further confirmation to the theory that square camps were Flavian. **Steeds Stalls**, **Gourdie** (illus 50 & 198), is also almost square and again is assumed to be 1st-century in date, accompanying the nearby fortress at Inchtuthil. However, the almost square camp at **Beattock Barnhill I** has been argued as being both Flavian and Antonine, the former owing to its shape, the latter owing to it overlying

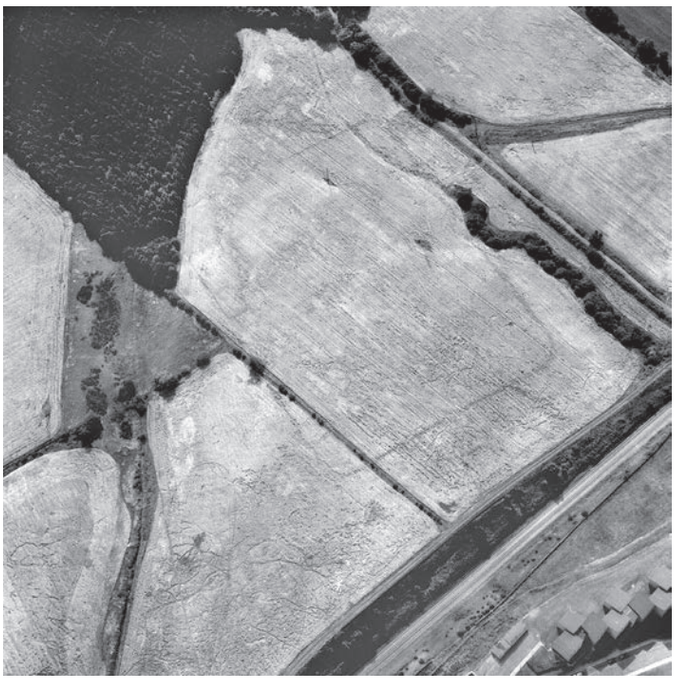


Illustration 45
Aerial view of the Antonine Wall camp of Tamfourhill from the north-east, taken in 1984. © Crown copyright: RCAHMS. SC354115. Licensor www.rcahms.gov.uk.

a fortlet of unknown date (Maxwell 1981: 40–1; Hanson & Maxwell 1986: 67; Maxwell & Wilson 1987: 21, 25) (illus 85). Recent work on the alluvial history of the gravel deposits and palaeochannels of the nearby Evan Water has suggested that it may be Antonine or later in date (Tipping 1997: 25; Jones 2009a: 871–2).

One group of camps for which the dating is reasonably secure are those argued to be construction camps for the Antonine Wall (Hanson & Maxwell 1986: 117–21; Jones 2005b). However, again a number of these exhibit a square form (for example, **Easter Cadder** – illus 121) although they range to more rectangular shapes (eg **Tamfourhill** (illus 45 & 205). While they have a fairly narrow size range, a square shape need not necessarily imply a dating to the 1st century AD – though, admittedly, this does not disprove the argument that there is an apparent tendency for some 1st-century camps to be square. Furthermore, the camps in Wales, the vast majority of which are likely to be 1st century in date, exhibit a range of forms from almost square (Carn Caca) to elongated in a ratio of 3:1, or coefficient 3.0 (Blaen-cwm Bach) (Davies & Jones 2006).

While Maxwell noted that a tendency to squareness was not the sole defining characteristic of Flavian camps, many of the camps for which a Severan date has been argued do exhibit a more rectangular defence perimeter, almost a tertiate plan (that is, a 3:2 or more elongated ratio – coefficient 1.5). However, evidence from the rectangular camp at **Kintore** (coefficient 1.3), while exhibiting a range of dates, broadly supports the idea of a Flavian foundation (Alexander 2000; Cook & Dunbar 2008). Whether the camp was reoccupied in a later period does not detract from its probable original construction in the 1st century AD, and, indeed, the neighbouring camp at **Logie Durno**, one of the proposed locations for the battle of Mons Graupius (St Joseph 1978a) exhibits a coefficient of 1.47, almost Vegetius and Hyginus' ratio of 3:2. Furthermore, so few camps have produced cogent dating evidence that it is not possible to argue for a Flavian date for the square camps on much more than coincidence and supposition. The so-called Stracathro-type camps exhibit a wide range of proportions, although do seem to be constructed in the 1st century AD (Jones 2009c).

A number of camps exhibit more irregular forms, and this is a tendency of the larger camps (eg **St Leonards** (illus 195) and **Raedykes** (illus 193)). The large 56ha camp at **Innerpeffray East** has projecting corners on its eastern side (illus 148). Corners represent weak points on the circuit (*de munitionibus castrorum* 54), and such acute angles would have been harder to defend; there is no obvious topographic reason for these projections, although they do serve to funnel any camp visitors towards what is possibly the *porta praetoria*. A similar but less spiked arrangement is visible on the western side of **Girvan Mains East**, where the camp markedly bows inwards for the gate (illus 136);

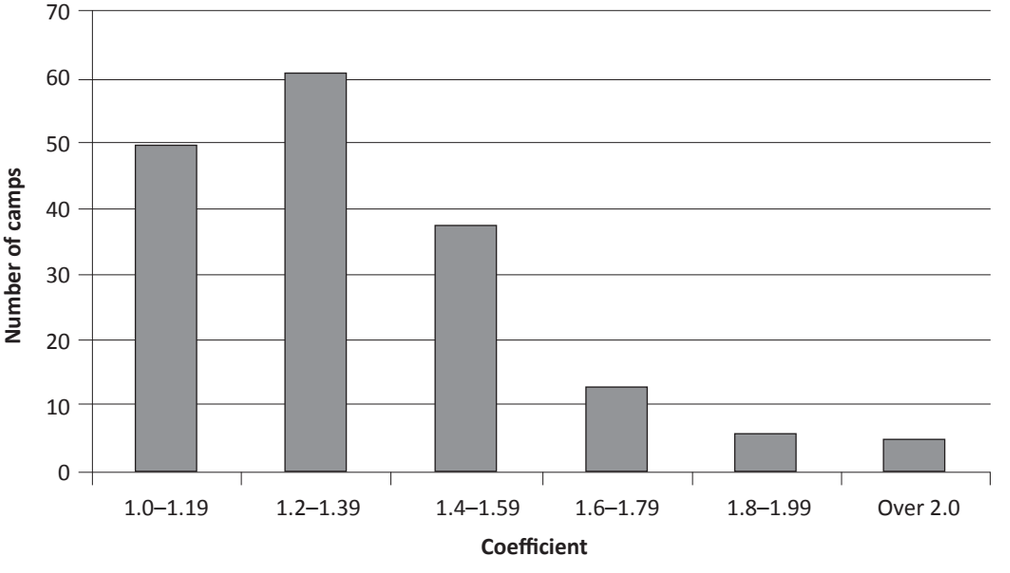


Table 3
Coefficient proportions of camps in Scotland.

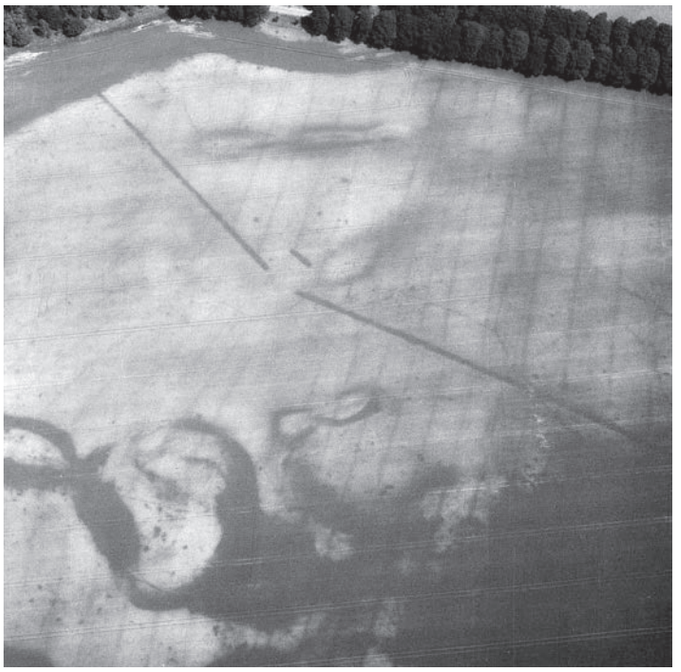


Illustration 46
Aerial view of the east side and change of alignment at the gate of Grassy Walls, taken from the south-west in 1989. © Crown copyright: RCAHMS. SC777927. Licensor www.rcahms.gov.uk.

at **Grassy Walls**, the sides bow in to meet the two known gates on the north and east sides (illus 46 & 140). The defensive perimeter of the camp changes alignment at the gates at a number of sites, again often for topographic reasons (eg **Logie Durno**, where the camp bends to follow the contour – illus 169). Changes of alignment can therefore help to predict gate location (eg **Househill Dunipace** – illus 144), although there are exceptions, one being **Normandykes**, where the south side appears to change direction subtly just east of a gate rather than at the gate (illus 185). There is no obvious topographic reason for this perimeter movement, which may also be echoed on the north side, almost as if two camps were conjoined. The change of alignment at **Bankhead Carnwath I** could be owing to the crossing of a preexisting Roman road, with the gates constructed to enable the road to pass through the camp (illus 82). St Joseph observed that the removal of a stretch of rampart and ditch of camp II at **Ardoch** was owing to the presence of street lines within the later camp I (1976: 17).

Thus the internal layout of all the slightly irregular camps must have been adjusted to suit any alignment change, but the continuation of internal symmetry can usually be observed from the location of the side gates opposing one another. Despite the vast range of sizes known in Scotland, a glance at illus 47 and the gazetteer demonstrates the consistency of Roman camp construction, with most camps exhibiting square or rectangular shapes, opposing gateways, centrally placed *porta praetoriae*, with deviations to the norm often attributable to topographic considerations.

7d Orientation

Historical sources and Roman military manuals provide a level of information about the layout of camps (see Chapter 2). Polybius, for example, informs us that Republican camps were constructed by a simple ordered formula relating to the selection of the site, its internal layout, and the construction of the rampart and ditch (VI.27–34). The later authors Josephus (*Bellum Iudaicum* III.117) and Vegetius (*Epitoma* II.7) suggest that the internal space was allocated before construction of the perimeter defences, and Hyginus also explains the internal layout before describing the rampart and ditch. The choice and location of the camp was the task of the camp prefect (*praefectus castrorum*), a senior army officer who also had responsibility for the soldiers' tents and baggage (Vegetius *Epitoma* II.10). Although identifying the space required for the internal layout of the camp first is, of course, logical, an army marching from camp to camp would presumably have required exactly the same space and therefore could start constructing the perimeter rampart and ditch once the necessary troops arrived, before the interior layout was completed.

Camps could be provided with a number of gates (see 7b above), but most were supplied with a front gate (*porta praetoria*), rear gate (*porta decumana*) and two side gates (*porta principalis dextra* and *porta principalis sinistra*). The headquarters or general's tent (*praetorium*) faced towards the front of the camp, with one road leading out through the *porta praetoria* and the cross road in front of the *praetorium* leading out through the side gates. Owing to the forward position of the *praetorium*, these side gates were often located closer to the front of the camp than the rear. Both Hyginus and Vegetius (*de munitionibus castrorum* 56; *Epitoma* I.12) tell us that the camp should face the enemy, or the line of march, or east, and that the rear portion of the camp should be at its highest point. No doubt the achievement of all these ideals was rare, particularly in some of the larger camps in Scotland where availability of enough suitable ground would have taken preference over concerns of orientation. Indeed, it is clear from the topographic location of the majority of camps in Scotland that the primary concern for the

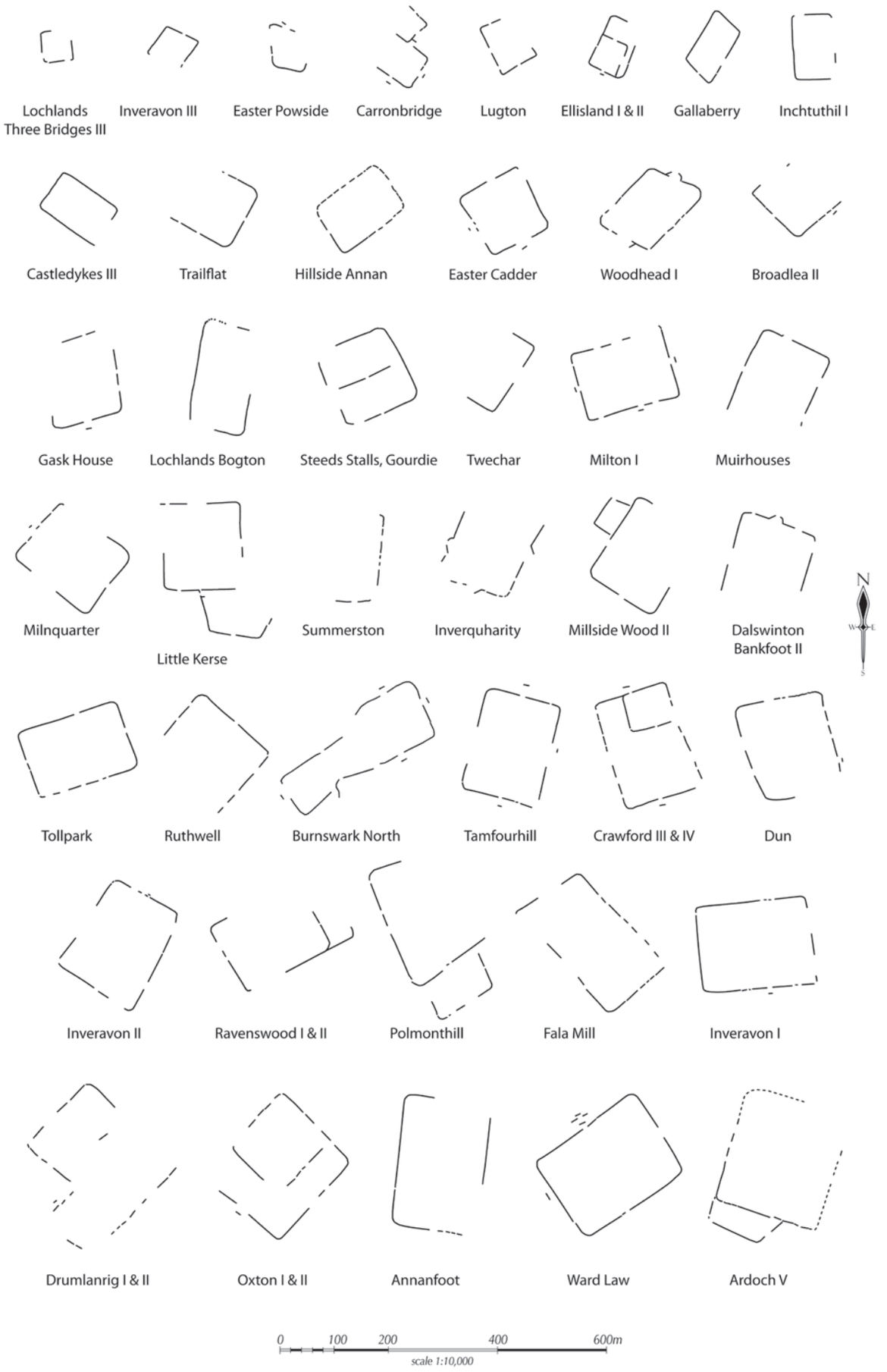
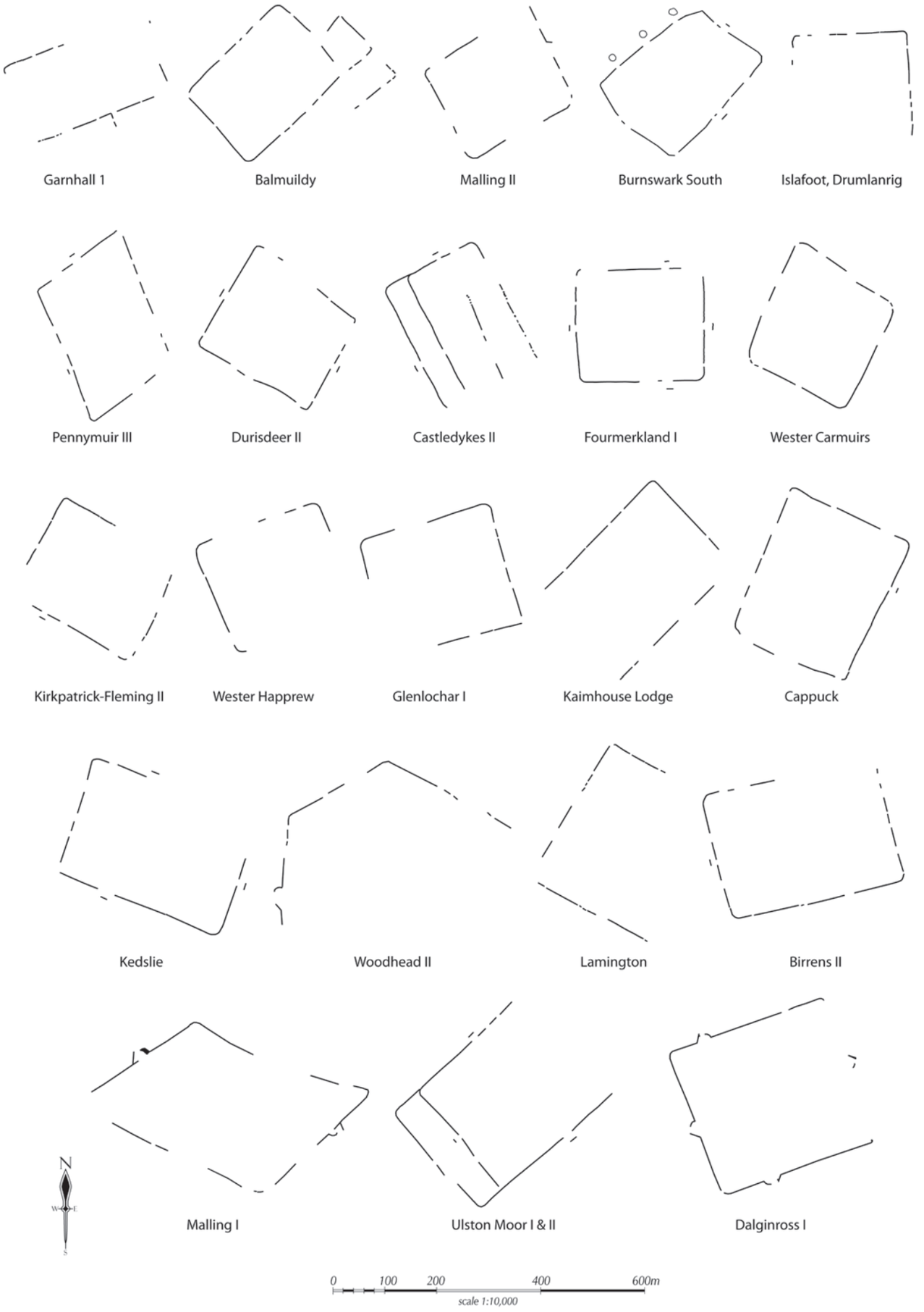
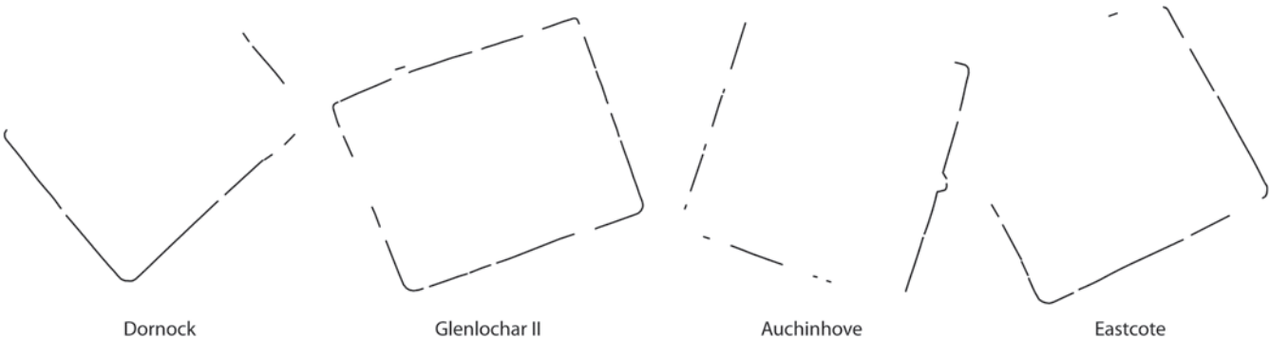
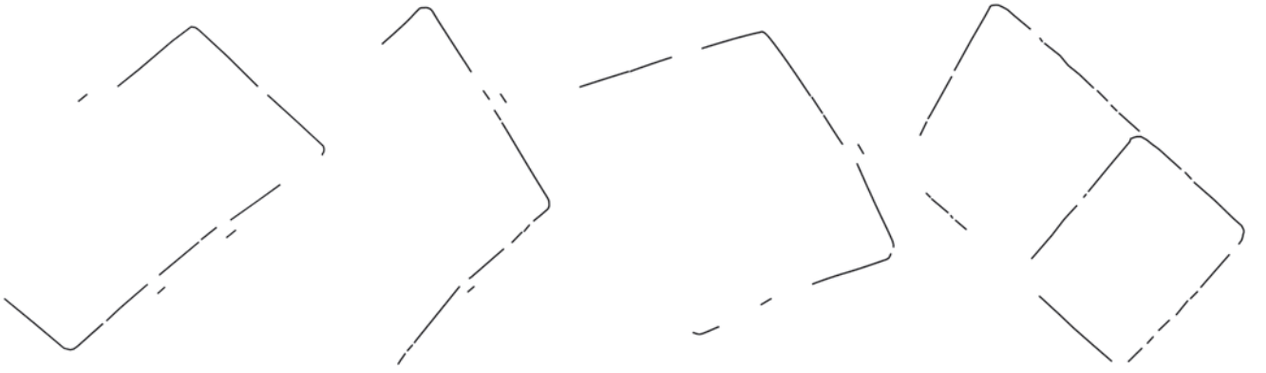


Illustration 47
Comparative plans, to a common orientation and scale of all camps for which the perimeter is known or can be inferred.

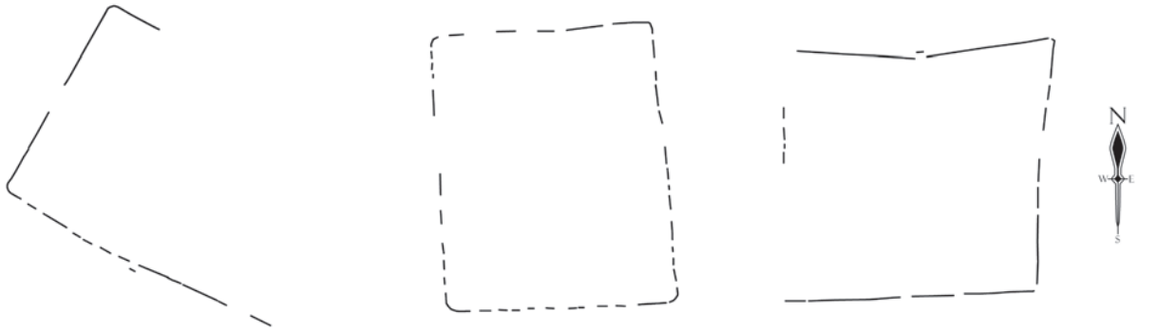

Garnhall 1
Balmuildy
Malling II
Burnswark South
Islafoot, Drumlanrig
Pennymuir III
Durisdeer II
Castledykes II
Fourmerkland I
Wester Carmuirs
Kirkpatrick-Fleming II
Wester Happrew
Glenlochar I
Kaimhouse Lodge
Cappuck
Kedslie
Woodhead II
Lamington
Birrens II
Malling I
Ulston Moor I & II
Dalginross I
N
W
E
S
0
100
200
400
600m
scale 1:10,000



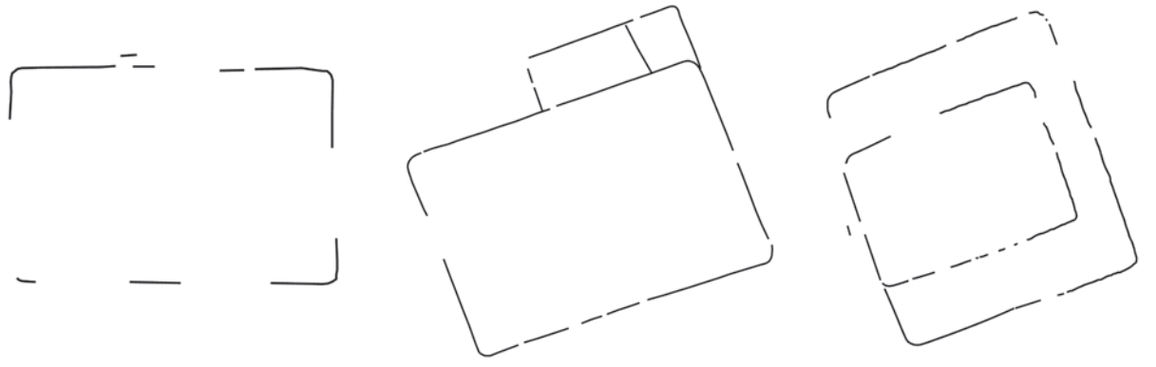
Dornock Glenlochar II Auchinhove Eastcote



Gilnockie Cavers Mains Beattock Barnhill I Ardoch III & IV

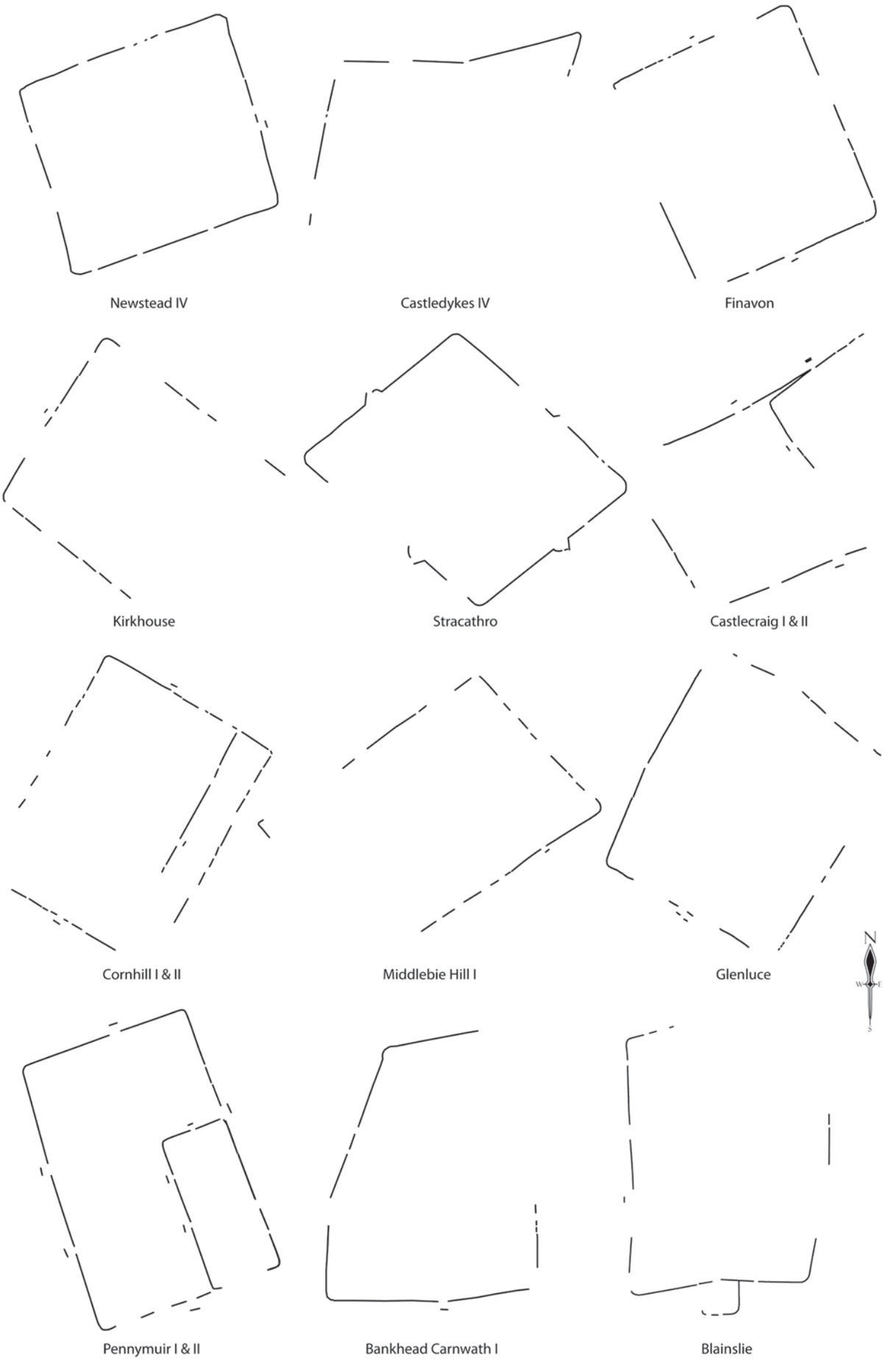


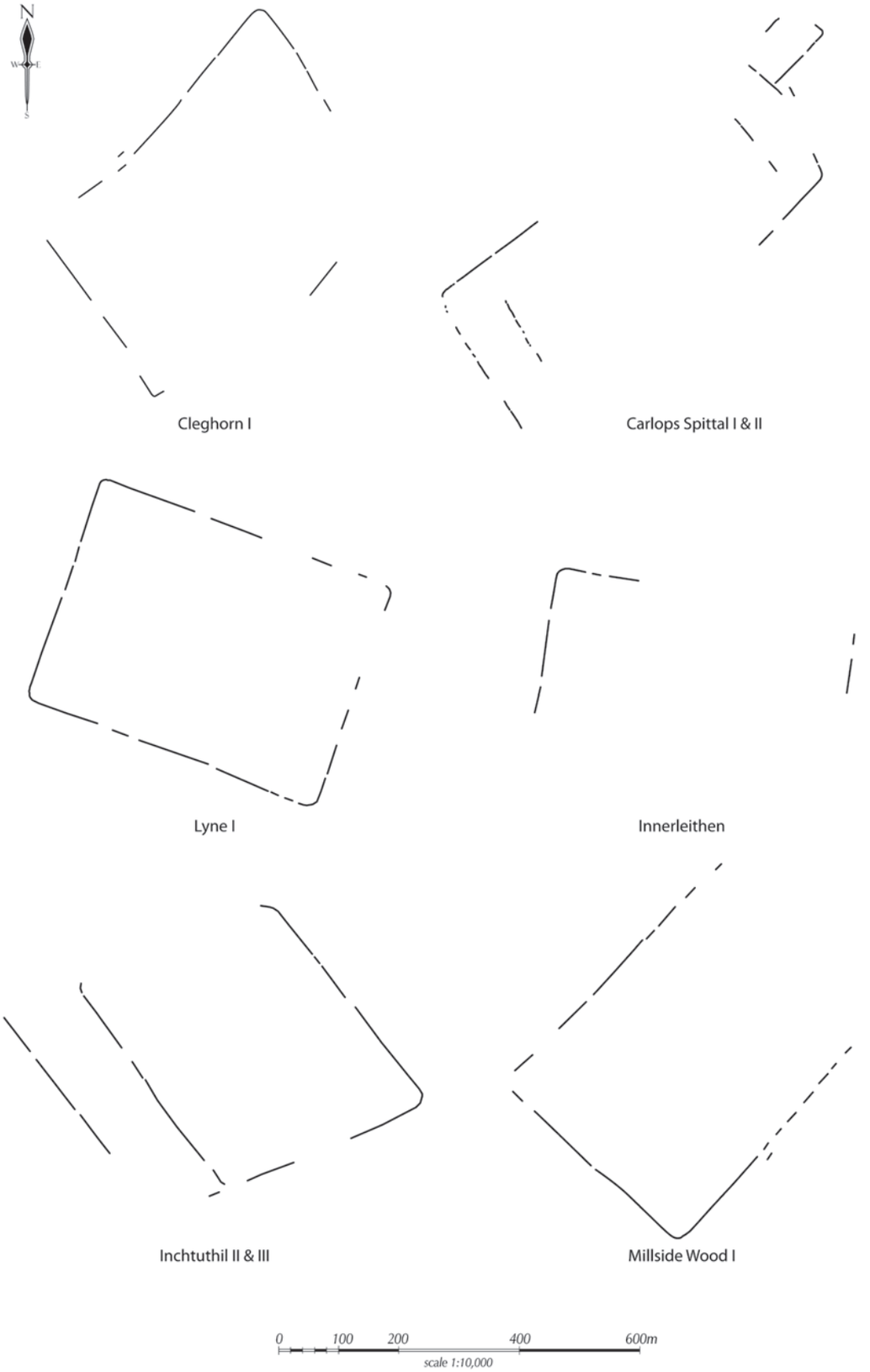
North Slipperfield Amisfield Tower Bankhead Carnwath II

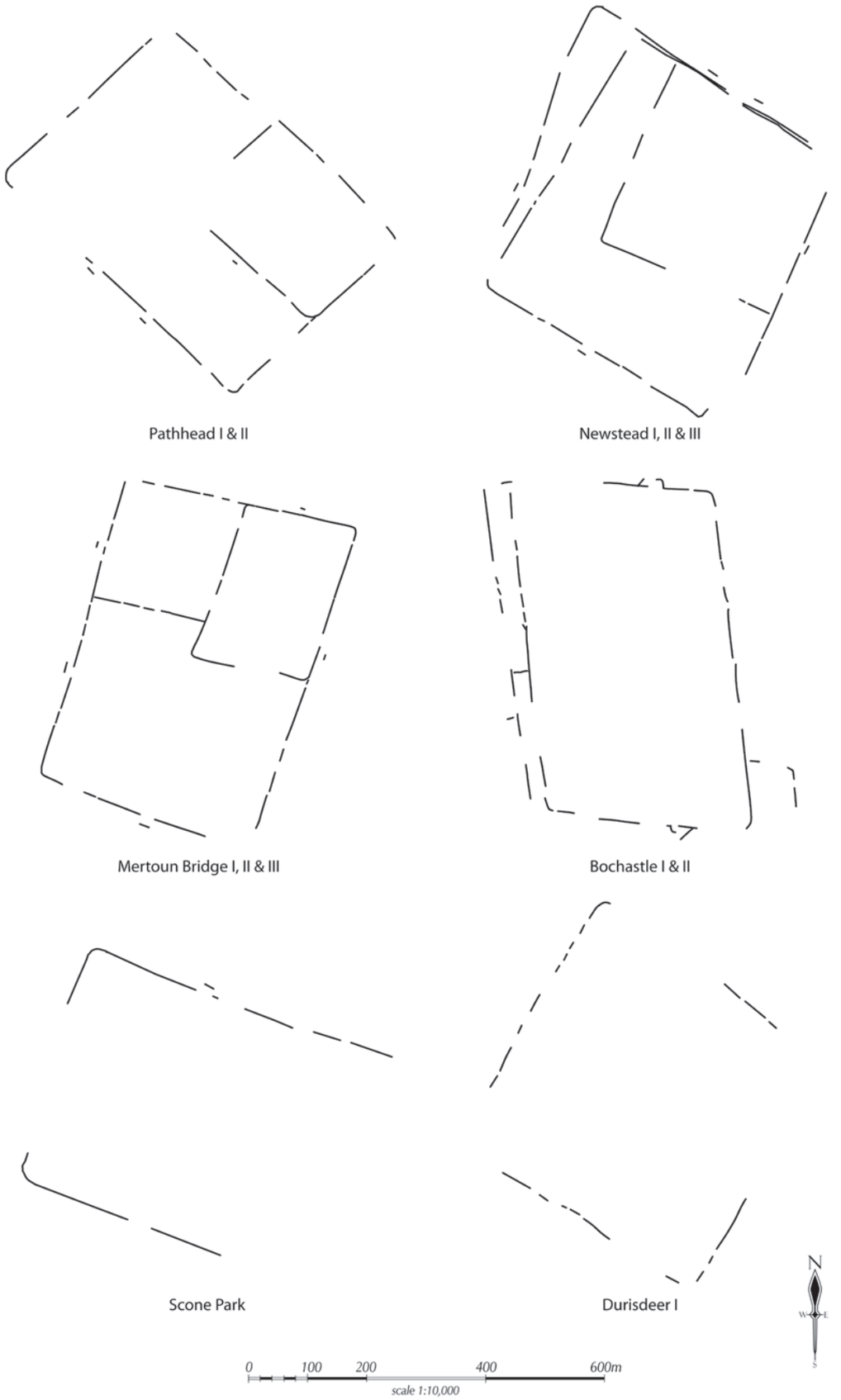


Little Clyde Glenlochar V Hillside Dunblane I & II

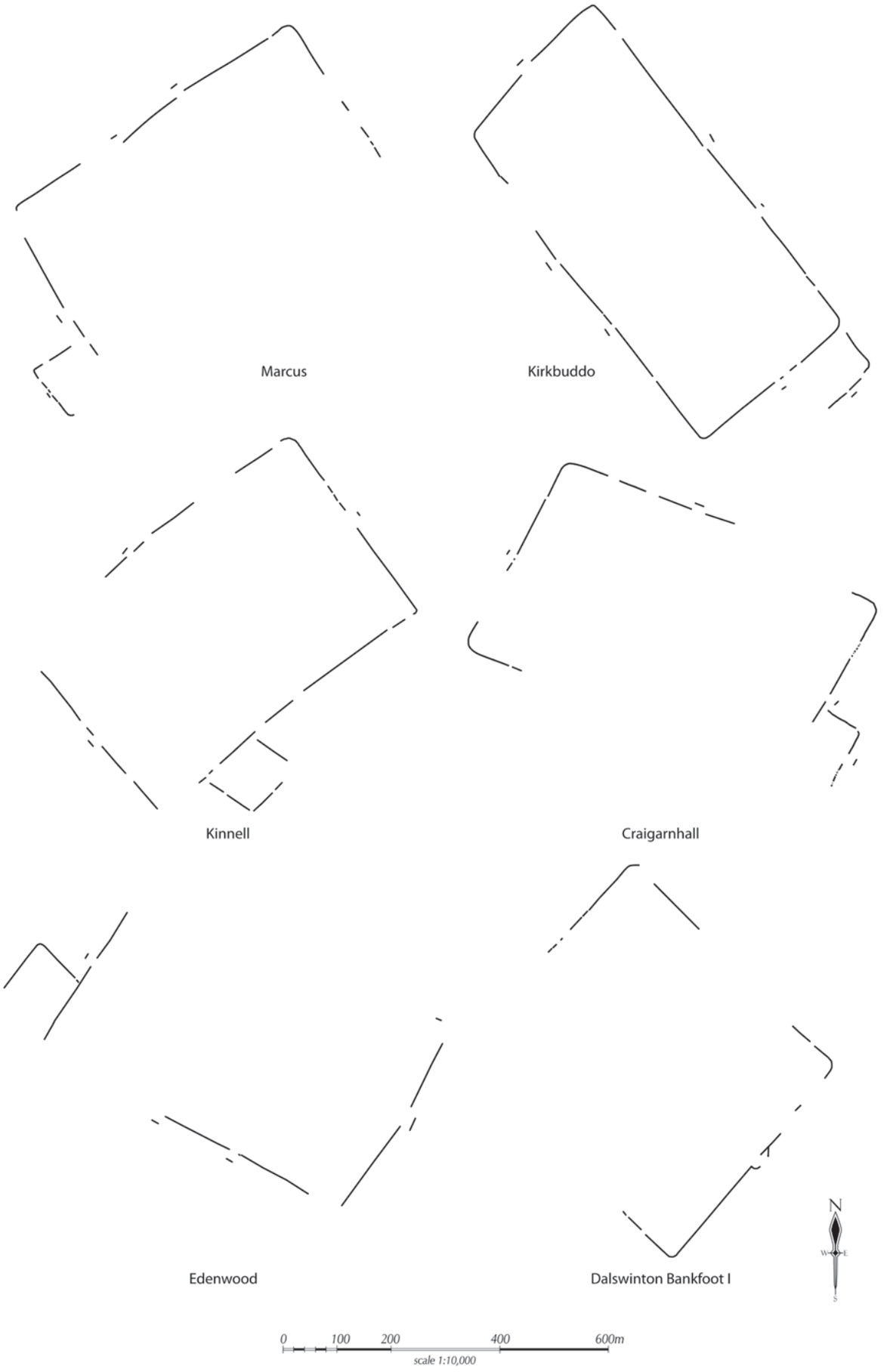

N
W
E
S
Dalkeith
Raeburnfoot
Oakwood
Lyne II
Ythan Wells II
Eshiels I & II
Strageath Cottage
Blackchester
Milrighall
Lochlands III
Torwood
Beattock Barnhill II, III & IV
0
100
200
400
600m
scale 1:10,000

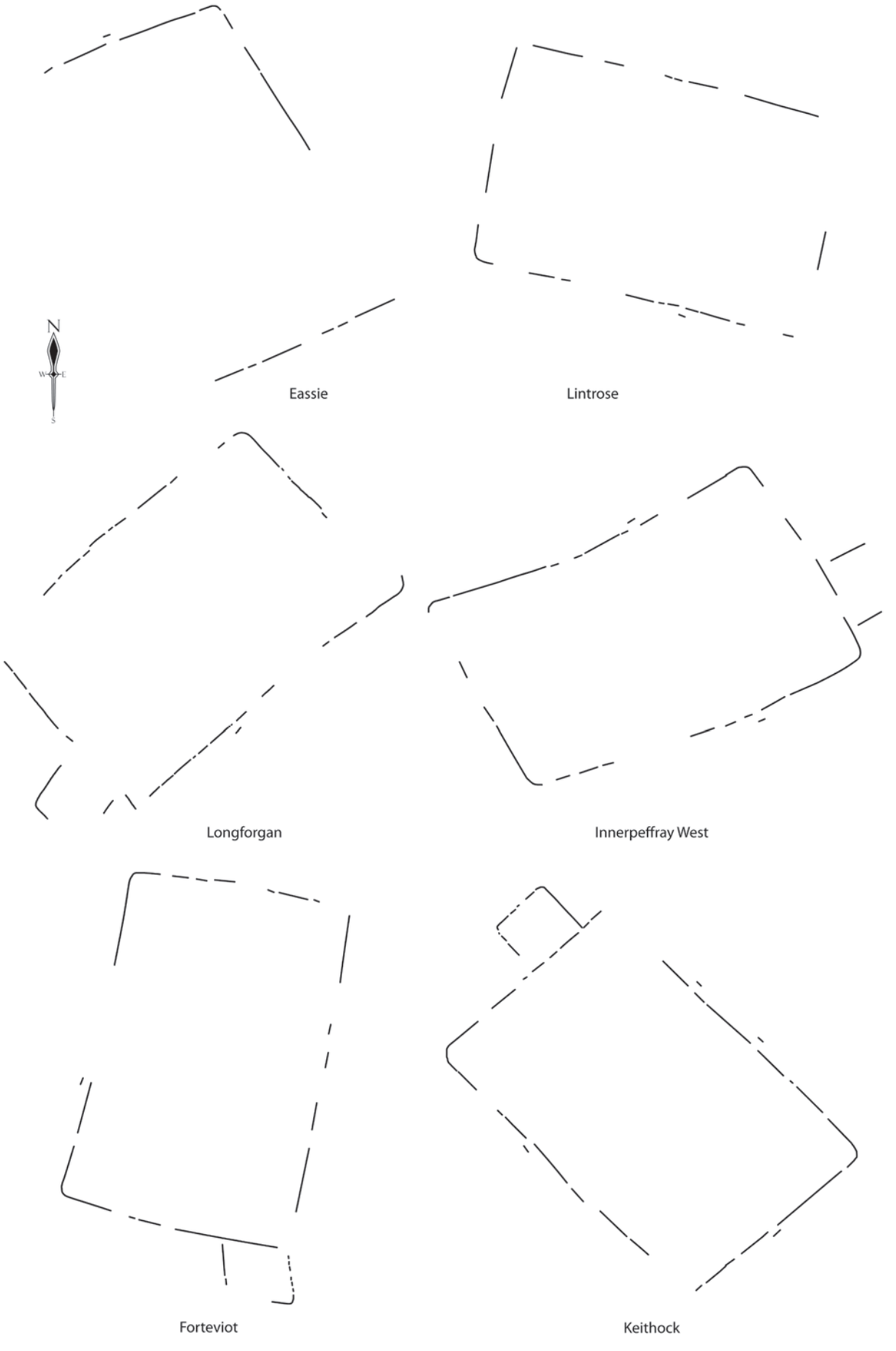

Newstead IV
Castledykes IV
Finavon
Kirkhouse
Stracathro
Castlecraig I & II
Cornhill I & II
Middlebie Hill I
Glenluce
N
W
E
S
Pennymuir I & II
Bankhead Carnwath I
Blainslie
0
100
200
400
600m
scale 1:10,000

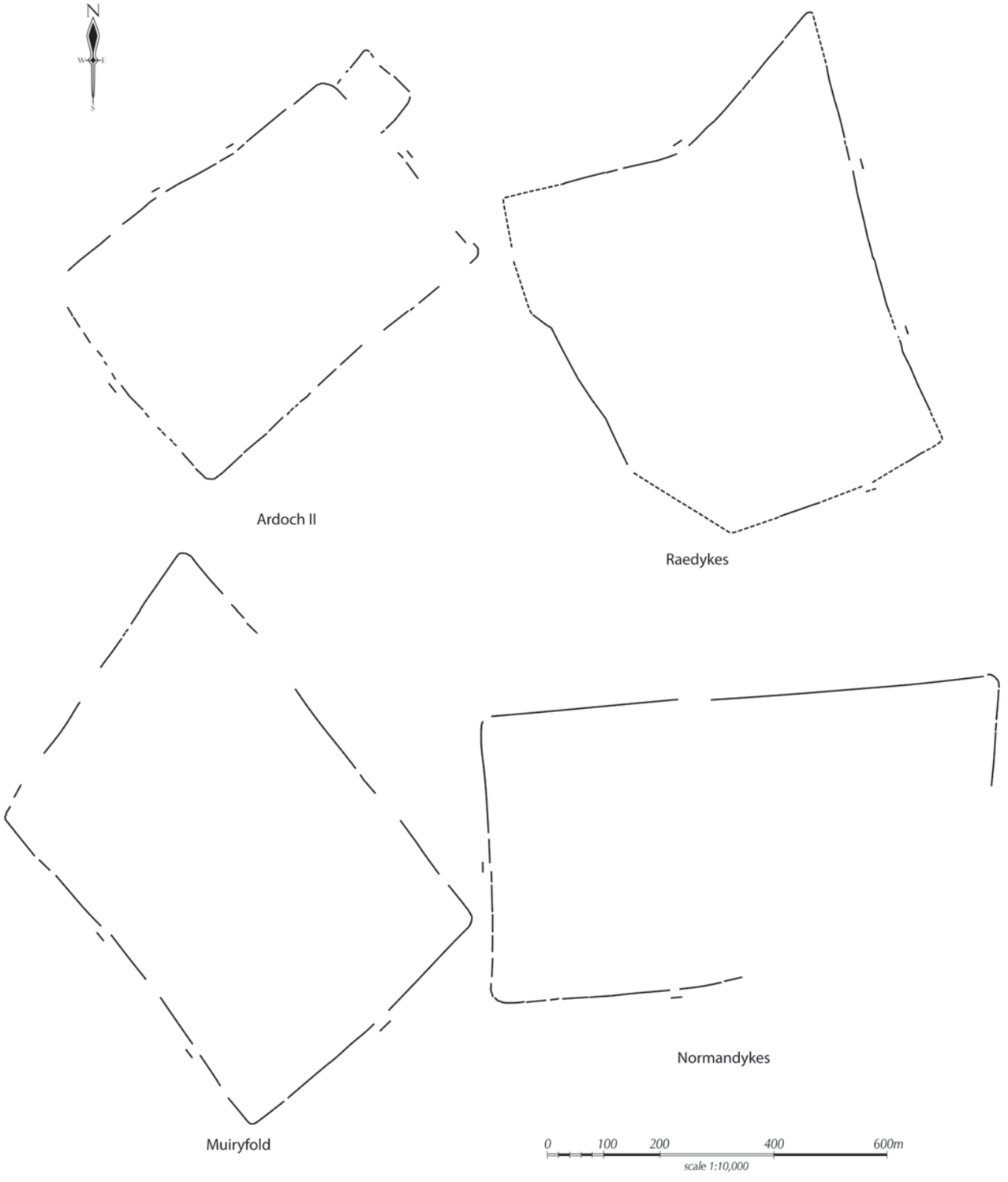

N
W
E
S
Cleghorn I
Carlops Spittal I & II
Lyne I
Innerleithen
Inchtuthil II & III
Millside Wood I
0
100
200
400
600m
scale 1:10,000

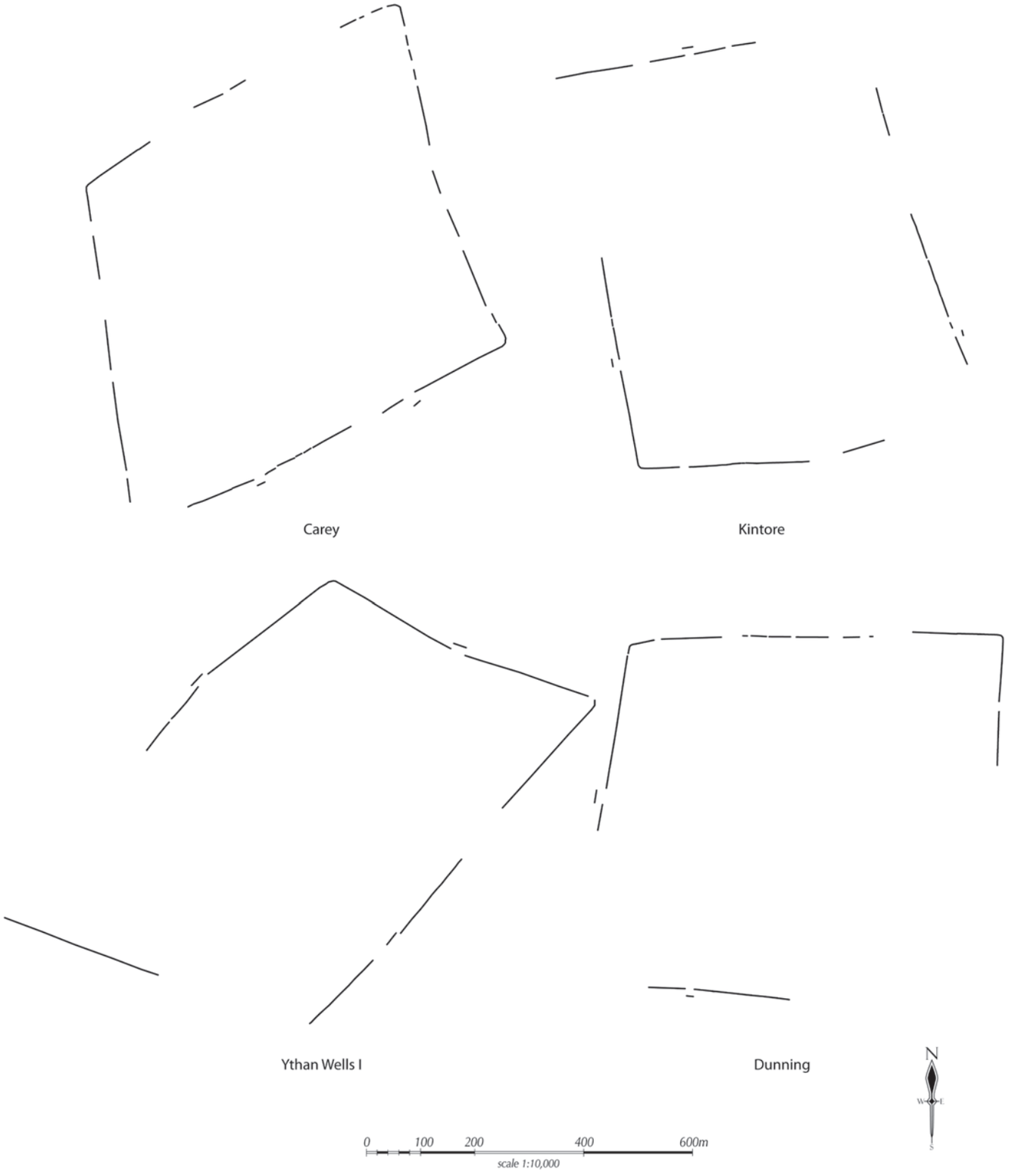

Pathhead I & II
Newstead I, II & III
Mertoun Bridge I, II & III
Bochastle I & II
Scone Park
Durisdeer I
N
W
E
S
0
100
200
400
600m
scale 1:10,000

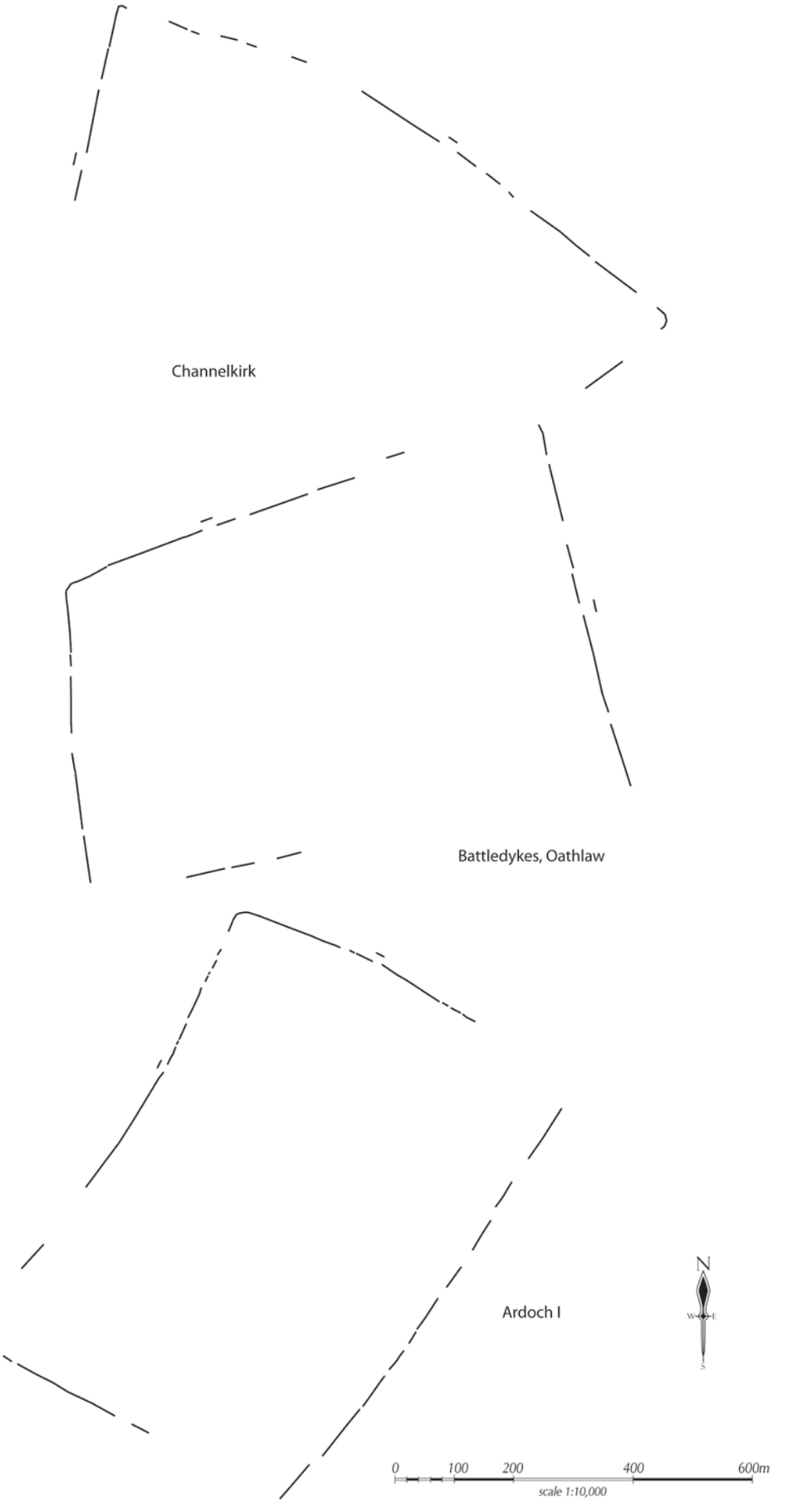

Inveresk I & II
Girvan Mains East
N
W
E
S
Lochmaben
Auchtermuchty
Castledykes I
Kirkpatrick-Fleming I & III
0
100
200
400
600m
scale 1:10,000

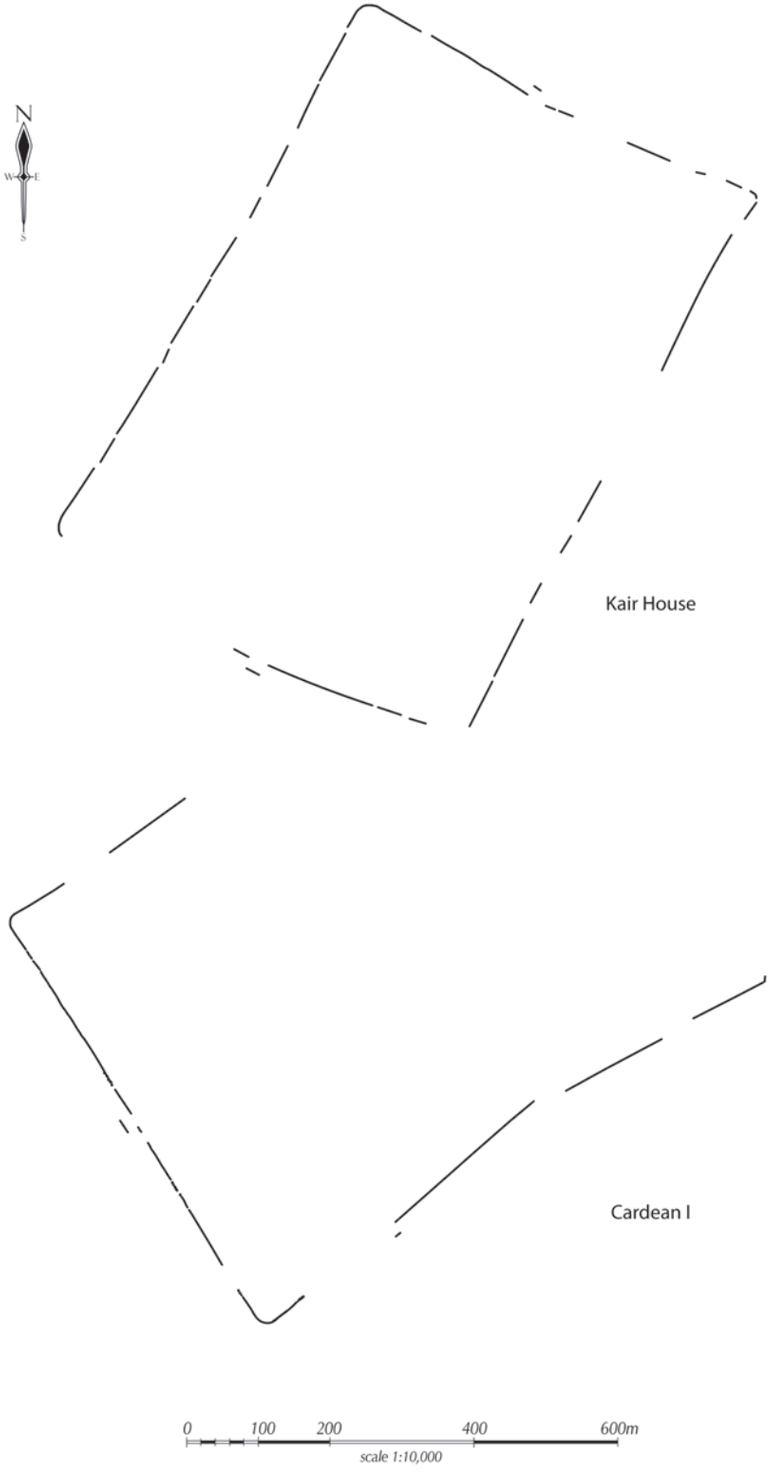

Marcus
Kirkbuddo
Kinnell
Craigarnhall
Edenwood
Dalswinton Bankfoot I
N
W
E
S
0
100
200
400
600m
scale 1:10,000

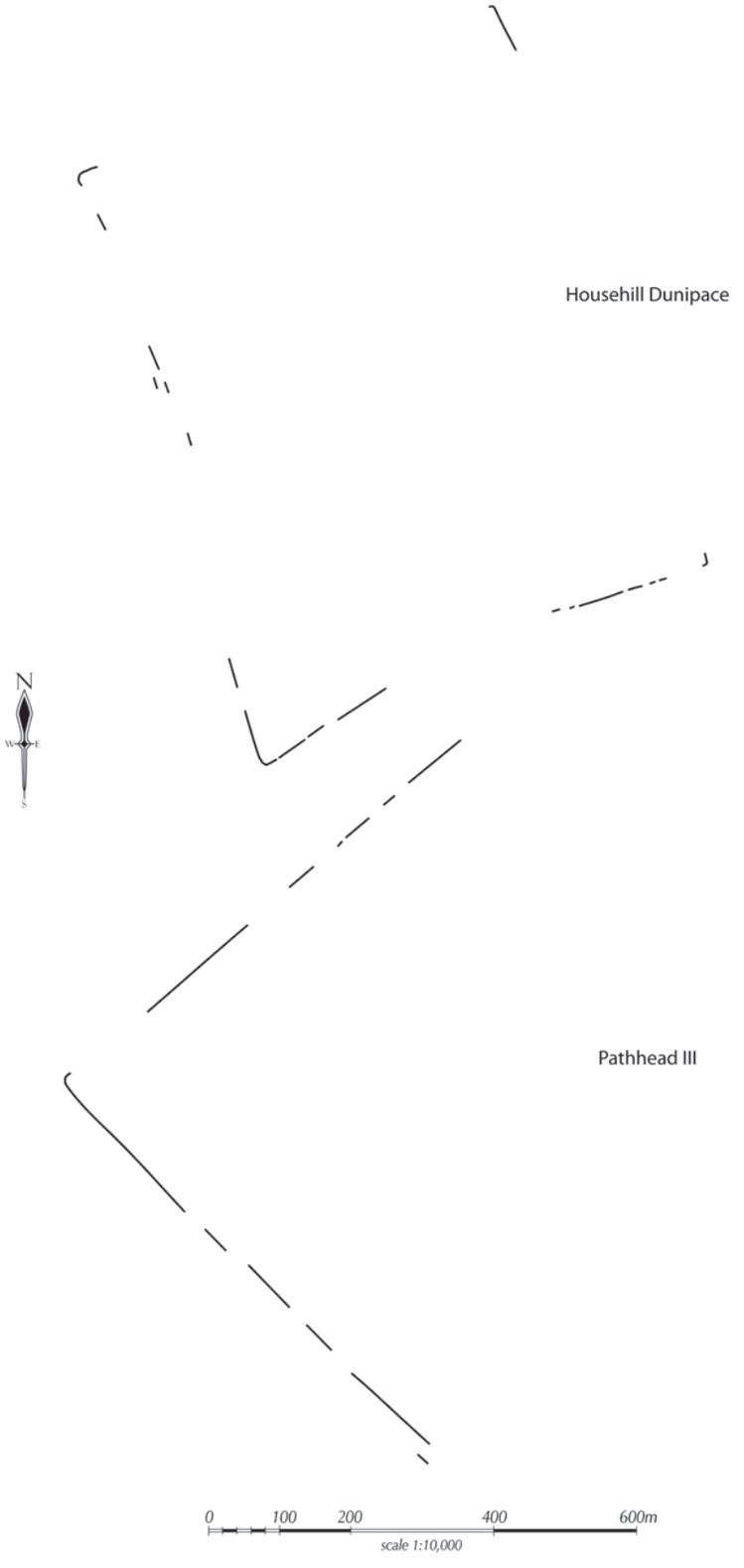

N
W
E
S
Eassie
Lintrose
Longforgan
Innerpeffray West
Forteviot
Keithock
0
100
200
400
600m
scale 1:10,000

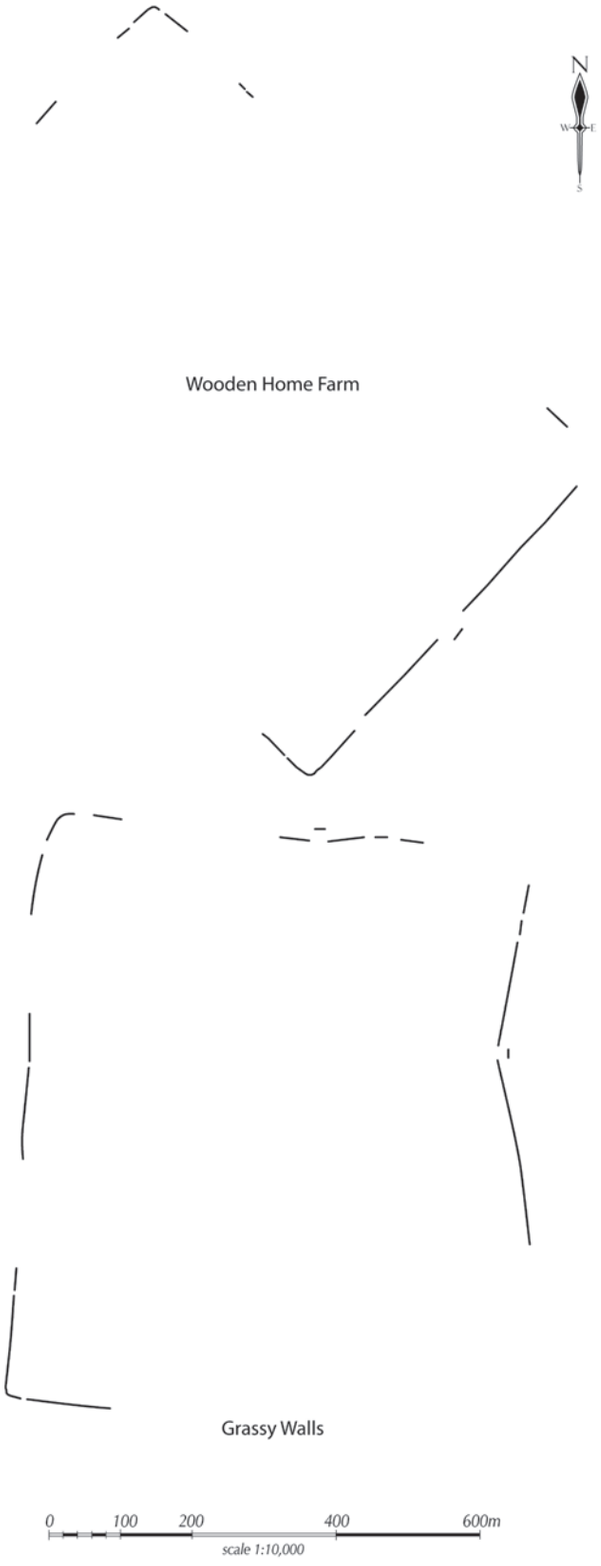

N
W
E
S
Ardoch II
Raedykes
Muiryfold
Normandykes
0
100
200
400
600m
scale 1:10,000

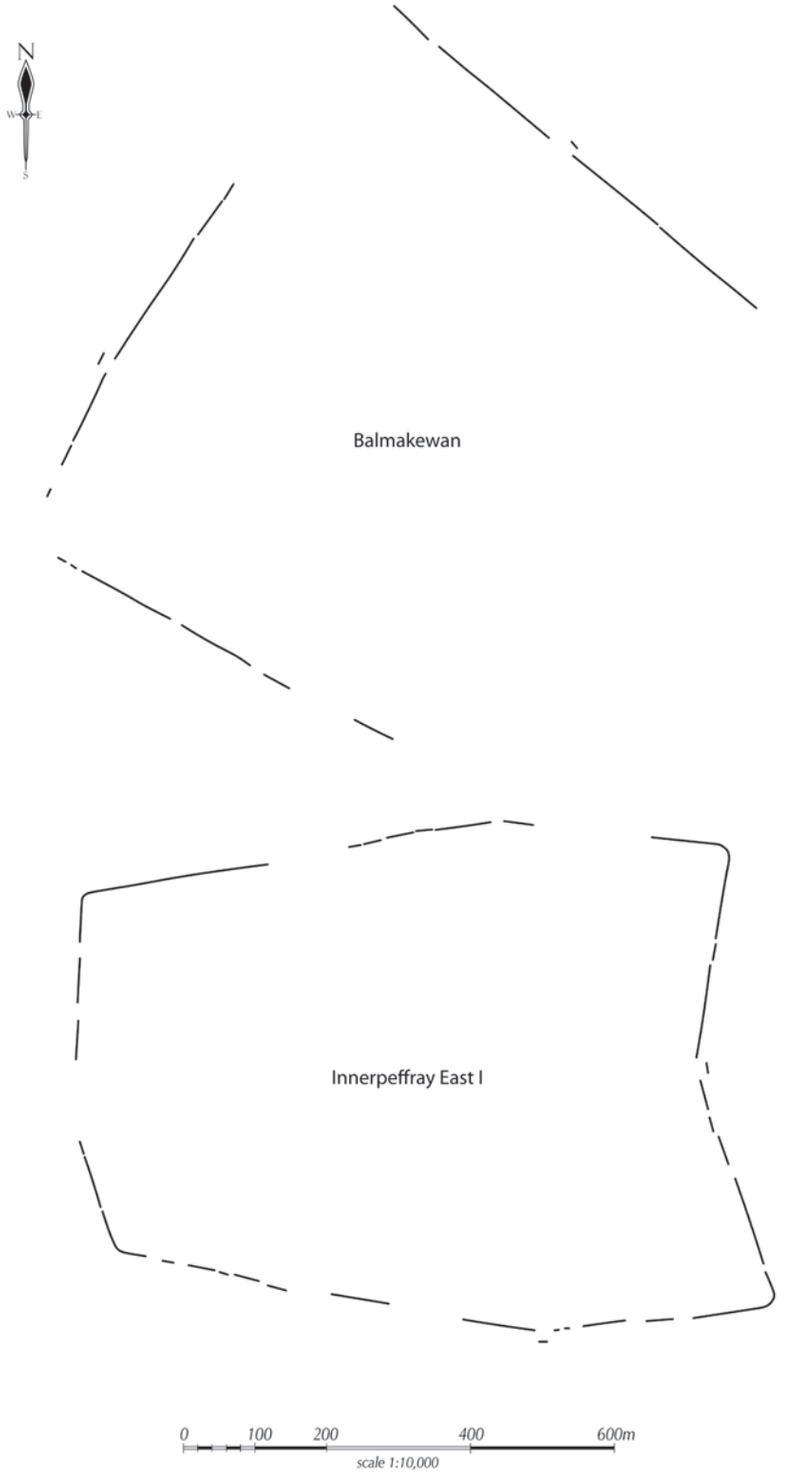

Carey
Kintore
Ythan Wells I
Dunning
N
W
E
S
0
100
200
400
600m
scale 1:10,000

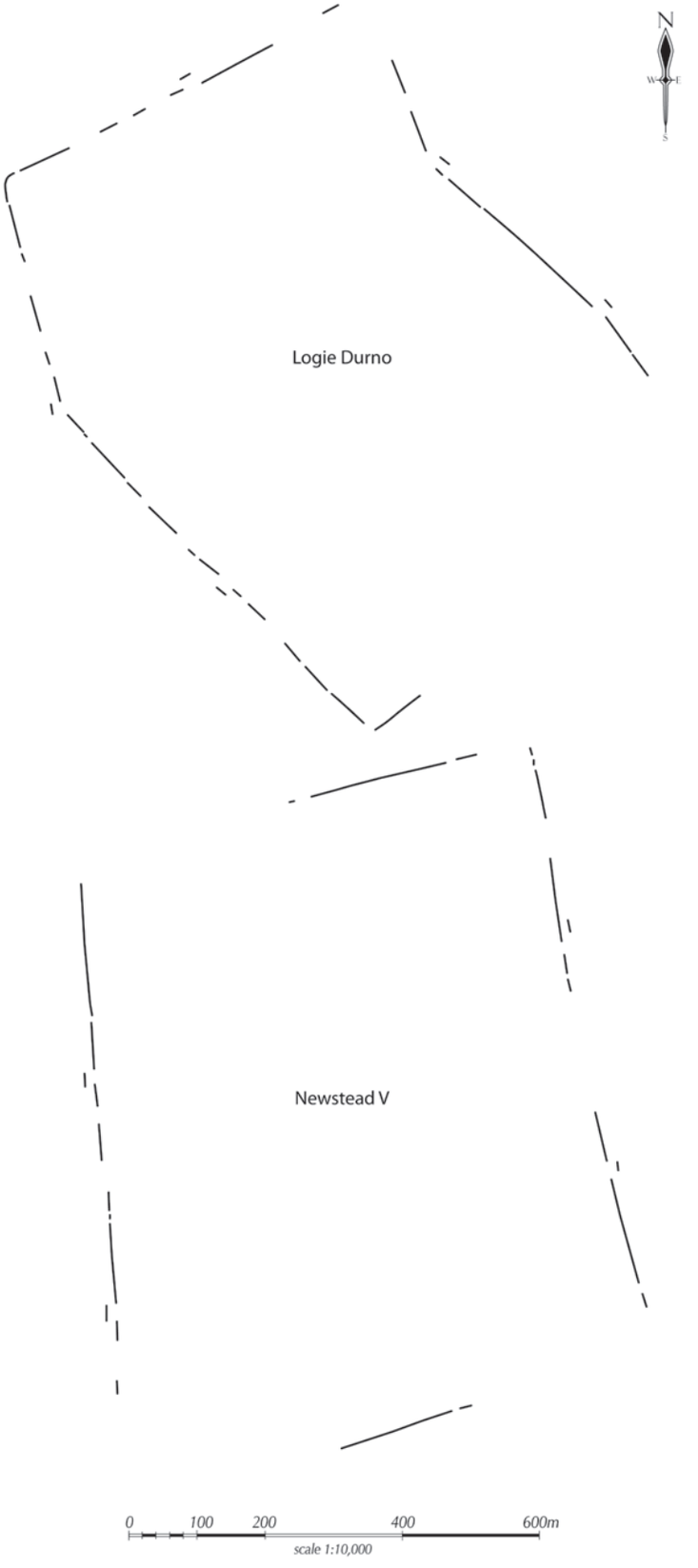

Channelkirk
Battledykes, Oathlaw
Ardoch I
N
W
E
S
0
100
200
400
600m
scale 1:10,000

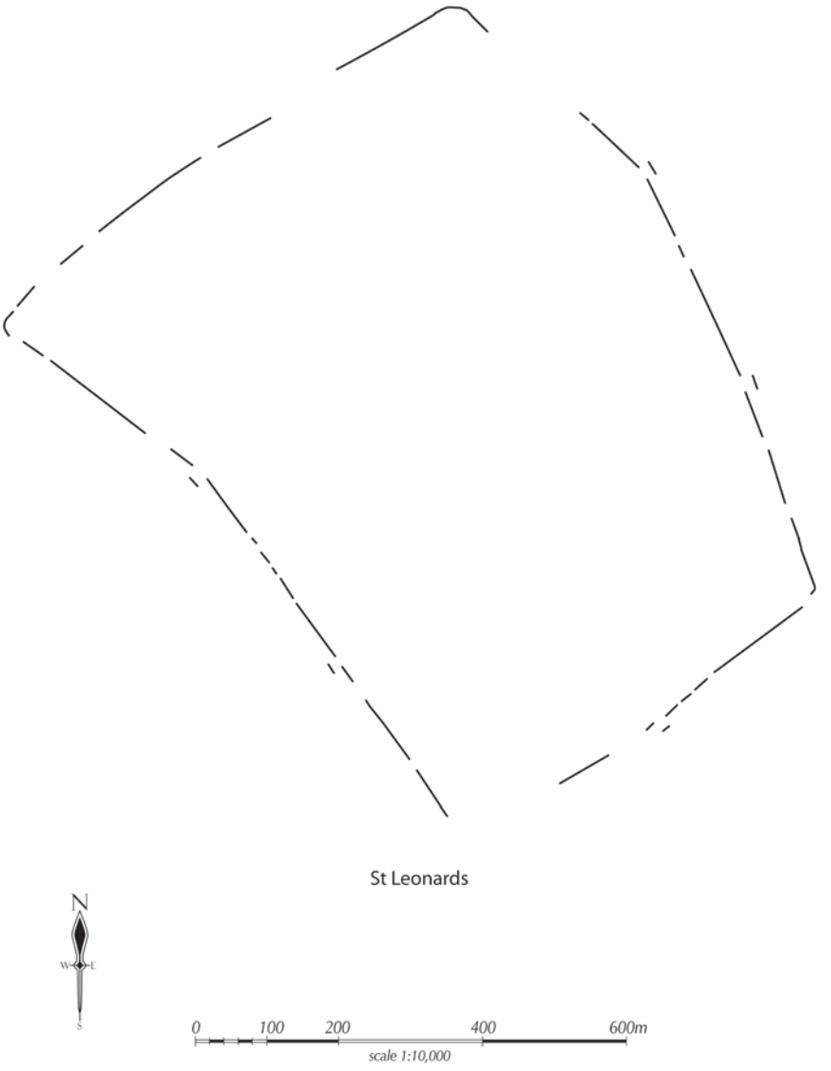

N
W
E
S
Kair House
Cardean I
0
100
200
400
600m
scale 1:10,000


Househill Dunipace
N
W
E
S
Pathhead III
0
100
200
400
600m
scale 1:10,000


N
W
E
S
Wooden Home Farm
Grassy Walls
0
100
200
400
600m
scale 1:10,000


N
W
E
S
Balmakewan
Innerpeffray East I
0
100
200
400
600m
scale 1:10,000


N
W
E
S
Logie Durno
Newstead V
0
100
200
400
600m
scale 1:10,000



camp builders was to identify a piece of ground suitable for camping.

Yet, despite the indications given by the archaeology (eg the position of the side gates), it is difficult to state with confidence the orientation of many of the camps in Scotland. We can be reasonably confident of the orientation of around 30% of these, and there are two options for a further 40%, usually owing to uncertainty over the position of the side gates, or because the camps have two gates in their longer sides (six gates in total). However, in the case of the latter, other factors such as topography and direction of march may help to assess the camp direction, although determining this assumes that we know the route and objective of the travelling army. It is often presumed that many of the camps in Scotland represent the halting points for invasion forces into territory (enabling speculation over the direction of march), but other interpretations can be made for many of these (see Chapter 2.2 above). The instruction that the camp should face the enemy probably relates more to camping in advance of pitched battle than to an army operating generally in northern Britain, where it appears evident from the classical texts that pitched battles were infrequent.

It is not known why Vegetius states that a camp should face in an easterly direction. Milner comments that it may have been a Christian influence (1996: 24n), but the Persian king Cyrus (over five centuries before Christ) also made it his custom to have his tent pitched facing east (Xenophon *Κυρου Παιδεια* VIII.5.3), and it may

be something as simple as facing the rising sun. Yet, some 59% of those camps for which we can be confident of the orientation do appear to face that general direction.

The camps for which orientation is considered known include a number along the line of the Antonine Wall. These camps, broadly lying to the south of the Wall, all face in a northerly direction (including north-east and north-west) towards the line of the Wall. Elsewhere, a number of camps face a nearby fort, demonstrating that this was the focus, and thereby suggesting an archaeological relationship between the two (but not necessarily implying that the camp was a labour or construction camp for the fort). For example, the various phases of camps at **Castledykes** (illus 101) face in the general direction of the fort (except **Castledykes IV**, the orientation of which we do not know, and the unknown southern side of this camp may have a relationship with the fort annexes). The camp at **Raeburnfoot** faces the fort to the south-west (illus 192), although, on current evidence, the camp is believed to be of Flavian date (owing to the presence of Stracathro-type gates, see 7b above), whereas the fort has yielded evidence for only Antonine occupation thus far (Robertson 1962). The date and orientation of the camp reinforce suggestions that the Antonine fort had a Flavian precursor, as yet undetected (Jones & McKeague 2009). On Dere Street, quite a number of camps appear to directly face the road (eg **Cappuck** (illus 93) and Featherwood West, the latter in Northumberland) possibly suggesting that they post-date its construction, whereas others probably face the general direction of march northwards up the route of the road, but the relationship between these camps and road is uncertain. Although only an either/or direction can be ascertained for some of the camps along Dere Street and elsewhere in Scotland, it is worth considering this further. Many camps are sited on a level terrace or ground which gently undulates, but occasionally there is a noticeable slope. On these occasions, a further handful of camps can be assigned an orientation if the surveyor adhered to the classical dictum of placing the *porta decumana* on higher ground; of these, exactly half face in a general easterly direction.

Thus we cannot state with any certainty that the camps in Scotland attempted to face in an easterly direction, despite Vegetius' dictum (*Epitoma* I.23). When looking at the directions for camps for which orientation can be proposed, about 46% face in a northerly direction (although 26% of the total face north-east and are therefore in both the north and the east facing groups). It is worth observing that Hyginus says nothing about facing a particular compass direction, instead proposing that the camp should always face the enemy (*de munitionibus castrorum* 56).

Unsurprisingly, if all camps faced the enemy, then the enemy was located in all directions, because there is little obvious symmetry (see illus 47). This is perhaps to be expected of an army campaigning in possibly hostile territory beyond the existing conquered part of the province. However, there is a tendency for the camps along Dere Street to either face the road or the route of the road northwards, and quite a number of the camps in Dumfriesshire face in a westerly direction, presumably the general route of march in that area. Along the western routes into Scotland, camps sometimes face the road, but there is little consistency. However, where orientation can be determined along some of the river valleys, such as in the Tweed Valley and along the Lyne Water, it appears that many of the camps face the river. This is not the case for camps in the Upper Clyde Valley, although establishing orientation for many of these is problematic. Those for which direction can be suggested in this area seem to orientate on the nearby road rather than the river, confirming that the road took priority. At the large camp of **St Leonards**, close to Dere Street, it is clear that the prime concern of the camp builders was to orientate the camp to suit the topography: terrain was the prime motivator of orientation.

North of the Antonine Wall, some camps appear to face either the north-easterly or south-westerly route along which they were presumably travelling, but where camps can be grouped together (see Chapter 9), there is little cohesion in their general direction. For example, in the *c* 44ha (110 acre) camp group (if the assessment of orientation according to topography is correct) **Normandykes** faces east, **Kintore** to the south, **Ythan Wells I** to the north-east and **Muiryfold** to the south-east.

Finally, it is worth commenting on the orientation of those few camps which have attached camps or annexes (see 7e below). Most of these are sited on fairly flat ground and the direction in which they face is often not easy to discern. However, the majority of camps with annexes are in the 25ha (63 acre) group (St Joseph 1969: 116–18; 1973: 230–1; Chapter 9) and, although these camps have six gates, it may be possible to assign orientation to many if we assume that the rear section of the camp (*retentura*) was on higher ground. In this group, orientation can be suggested for **Auchtermuchty** (south-east), **Craigarnhall** (south-east), **Edenwood** (north-west), **Innerpeffray West** (possibly south-west), **Keithock** (north-west), **Longforgan** (probably south-west), and **Eassie** (north-west). The others are all sited on reasonably flat ground.

With the exception of **Innerpeffray West** and **Eassie**, the other five camps above all have the annexe situated outside the *porta praetoria*, attached onto the front of the camp. **Innerpeffray West** could be similarly laid out, if we assume that the camp faced north-east, the presumed direction of march and the side to which the annexe is attached, rather than south-west, where the ground drops away to the River Earn (the fort of Strageath lies across the river). No annexe is currently recorded at **Eassie**, but if this assumption of the annexe being outside the *porta praetoria* is correct, and camps such as **Eassie** were equipped with an annexe which has not yet been located, then this would suggest that the place to look at **Eassie** would be on its north-west side. Both **Lintrose** and **Scone Park**, the other two confirmed camps in this group without known annexes, are sited on ground that is too flat to determine direction with any confidence.

Therefore it appears that topography and the availability of a suitable amount of ground on which to house the troops were the primary factors in determining choice of site and layout of the camp. Welfare & Swan observed that in England there appears to be a preference for siting the rear of the camp on the crest (1995: 7–8) and a similar situation seems to occur in Wales (Davies & Jones 2006: 14–15). This also appears to have been the case at a number of sites in Scotland, and enables us to assign orientation to a number of camps for which this was uncertain (such as those with six gates). It surely must have been the case that the allocation of a sufficient amount of usable space to house troops and conduct the other necessary activities of the camp was paramount, alongside access to suitable water supplies. All this would have been far more important than minor degrees of latitude and longitude in orientation (*contra* Richardson 2005).

7e Annexes

The provision of annexes on temporary camps is uncommon, with less than 5% of all known camps in Britain exhibiting such additions and, of these, over 50% are broadly within the 25ha (63 acre) camp group in Scotland (St Joseph 1958: 93; 1965: 81; 1969: 116; 1973: 230). Three of the presumed construction camps for the Antonine Wall also exhibit annexes. The function of such annexes or attached camps is unknown.

It has been observed from the consideration of camp orientation (7d above) that many of the 25ha camps appear to have their annexes attached to the outside of the front of the camp, to one side of the *porta praetoria*. If this is the case, then not only can this advise on where to look for annexes outside other camps in this group, but it also signifies the importance of their function. Of the camps in this group, **Kinnell** (illus 158) is unusual in that it has an annexe which is located on one of the longer sides of the camp, the others all having theirs on the shorter ends. Quite why the camp at **Kinnell** is different is unknown, because there is no obvious topographical reason to locate the annexe to the side, the camp being sited on flat ground. **Glenlochar V** (a 12.8ha camp – illus 137) has an annexe on one side of the camp, and this exhibits an internal partition. Unlike the rest of that camp, where numerous pits are visible in the interior, the annexe appears to be devoid of such features, suggesting that it may have been used for a different purpose. The small camp at **Millside Wood II** (2.37ha – illus 177) also has a very small annexe (0.25ha) on its longer side, just behind the *porta principalis dextra*. The only other possible annexe located on the long side of a camp is that at **Bochastle** (illus 89), although it is unclear whether the enclosure on the east side of the camp is an annexe or perhaps a later feature utilising the Roman remains.

Farther afield, the camp at Moss Side II, lying just to the south of Hadrian's Wall in Cumbria (Welfare & Swan 1995: 41–2), appears to be the only camp in Britain outside Scotland to possess an annexe (also on its longer side), although an earthwork on one end of the camp at Arosfa Garreg in Carmarthenshire has also been claimed as a possible annexe. However, there is debate as to whether this is Roman in date or later (Davies & Jones 2006: 20, 103–4). Interestingly, this alleged 'annexe' lies close to the *porta decumana* of Arosfa Garreg, and if the argument that most marching camp annexes are usually located to the front is correct, then this would support the case against this additional earthwork being of Roman construction.

The camp at **Kirkpatrick-Fleming I** (illus 162) revealed a possible annexe on its WNW side on excavation (Leslie forthcoming). This may be an annexe located on the front of the camp, like the other 25ha camps, because the army was probably travelling in this direction given its strategic location just north-west of Carlisle. Only a small amount of the structure is known, but it appears smaller than other 25ha camp annexes, may have intersected with a possible Roman road also recorded in the camp (Leslie forthcoming), and probably also came very close to, and even covered, the entrance gap, the presumed *porta praetoria* on that side. An alternative scenario would be that it is a very small camp or roadside post unrelated to the camp and did not function as an annexe, because no relationship could be established between this feature and the main camp (A F Leslie pers comm) While the possibility that

an annexe would cover the *porta praetoria* seems unlikely, a similar situation can be observed at the camp at **Blainslie** (illus 88), where the annexe appears to enclose the southern gate of the camp. This gate is probably the front entrance, given that the camp slopes to the south and the location of the known side gate suggests that it faces in a southerly direction.

Outwith the 25ha camps and those mentioned above, the other camps with annexes in Scotland are three camps on the Antonine Wall (**Balmuildy** (illus 81), **Little Kerse** and **Polmonthill** (illus 166)), and also **Carlops Spittal I** (illus 96) and **Ardoch V** (illus 77). **Balmuildy** is unusual in that it appears to have a second annexe located alongside the first. The small camp at **Ardoch V** exhibits an annexe on its south side, and the unusual 'temporary' enclosures under the forts at **Bar Hill** (illus 83) and **Croy Hill** (illus 217) on the Antonine Wall both had curious forms of annexes. It is also worth noting that **Drumlanrig II** could be a large annexe to **Drumlanrig I** rather than a separate camp (illus 114). On the other side of the Nith, the camp at **Carronbridge** (illus 98) overlies an earlier enclosure, but, given a lack of dating evidence for the latter and its relationship to the camp, it is possible it continued in use as an annexe-type feature.

Illustration 48
Aerial view of the south-west side and annexe of the camp at Marcus, taken from the south-east in 1986. © Crown copyright: RCAHMS. SC1164042. Licensor www.rcahms.gov.uk.

With regard to chronology, the three camps on the Antonine Wall are probably Antonine in date and, indeed, **Little Kerse** has produced Antonine pottery (McCord & Tait 1980). The small camp at Moss Side in Cumbria may be Flavian to Hadrianic in date, although there is no dating evidence to confirm this suggestion (Welfare & Swan 1995: 41–2). The dating of the 25ha camps is unknown (despite St Joseph's claims of a Severan date: 1969: 116; see discussion in Chapter 10). **Bochastle**, **Glenlochar V** and **Ardoch V** could be Flavian camps, sited outside Flavian forts, although the forts at **Glenlochar** and **Ardoch** both had Antonine occupations. **Ardoch V** is probably earlier than the '*Procestrium*' attached to the fort, but the date of this earthwork is unknown. The date of **Carlops Spittal I** and **Millside Wood II** is also not known, both being located beside Roman roads.

There is a difference in the size of annexes, the most uniformity unsurprisingly being demonstrated by those attached to the 25ha camps (eg **Marcus** – illus 48 & 174). Except for the curious feature next to **Kirkpatrick-Fleming I** (which is geographically removed from the other camps in this group), the 25ha camp annexes range in size from 1ha to 1.27ha (except for **Longforgan** which is larger at 1.52ha). Their length ranges from 108m to 131m, and width from 86m to 113m. In other camps, the annexe to **Glenlochar V** is the largest known (1.74ha) and demonstrates an internal partition, potentially reducing the area to two enclosures measuring 1.2ha and 0.54ha. Elsewhere, annexes range in size from 0.25ha (**Millside Wood II**) to 0.84ha (**Carlops Spittal I**). Apparent outworks are also noted at the camp at **Islafoot Drumlanrig**, sitting within a larger enclosure demarcating the area on one side (the river restricting the other). If this enclosure is Roman in date then it demarcates an additional area next to the camp.

While uniformity is demonstrated in the 25ha group in terms of general location and size, this does not explain their function, nor that of the annexes attached to other camps in Scotland. The lack of knowledge about the function of annexes attached to permanent forts has been recognised (Barclay 1997: 31), although this has been variously discussed. For example, Bailey proposed multifunctional purposes to annexes, with specialised production zones, noting that many of the Antonine Wall fort annexes housed bathhouses (1994: 310). This was in contrast to earlier suggestions that annexes were used to house civil settlements (eg Collingwood & Richmond 1969: 89), although it had also been suggested that Antonine Wall annexes were military, and performed a similar function to the area enclosed within the Vallum

to the south of Hadrian's Wall (Salway, 1965, 158). Recent excavations on the annexe at the Flavian fort at Elginhaugh support a military function (Hanson 2007). But there is no general consensus as to the function of annexes on more permanent structures, and even less work has been undertaken regarding the purpose of annexes in the context of more temporary *castra*. Excavation work on annexes, as on the camps themselves, has concentrated on the ditches, although work at **Longforgan** revealed a small circular scoop of uncertain date or function within the annexe; analysis of the fill suggested that the annexe ditch was backfilled quickly, although the excavators could not say whether this was a result of deliberate back-filling or rapid weathering (Neighbour 1998).

It has been commented that a detachment of troops might often have been left behind to guard a camp when the main body was temporarily absent (Jones 1958: 85) and St Joseph proposed that annexes to the 25ha series might have served for a small holding-garrison while the main body of troops were campaigning elsewhere (1965: 81). These ideas have been further developed by Maxwell, noting Tacitus' comment that Vocula left behind small groups of men to guard the command posts during the Batavian revolt in AD 69 (*Historiae* iv.35; Maxwell 1989: 63–4). Maxwell also suggested that the annexes could have functioned as accommodation for personnel not otherwise housed in the confines of the camp enclosure, such as scouts and hostages (1989a: 63–4). While these arguments may be valid for an army on campaign, possibly those occupying the 25ha group and other marching camps in Scotland, they cannot apply to an army stationed temporarily in an area while undertaking construction work, such as the camps on the Antonine Wall, thereby suggesting differing functions for different annexes.

The suggestion of small units attached to the camp is intriguing. Such units, forming a crucial role in reconnaissance, for example, could be expected outside the front of the camp. But this still begs the question that, if these troops were travelling with a larger army, why would they need to camp in an annexe rather than within the main body of the camp? Perhaps they were travelling separately and arrived at a different time to the main force, or perhaps it was easier for access and rapid movement to be housed outside the camp. If they were travelling separately and joined a main force later, then this could explain their seemingly random distribution in the camps outside the 25ha group, because at other times they may have camped with the main force if there was space allocated for them within the camp perimeter (Jones 2009a: 873–4). But this does not explain the lack of pits in the annexe at **Glenlochar**, nor the rarity with which annexes are found. If the annexes housed hostages, again settlement activity such as pits would be expected, and presumably hostages, as with most additional baggage, could be located anywhere. In addition, one might argue that these should be housed in the main body of the camp, where they would be under stronger guard than outside the perimeter.

Whether or not camp annexes performed some sort of industrial function cannot be identified without further work. Excavations at **Kintore** have illustrated that a certain level of industrial activity was carried out by the army on campaign within the confines of the camp. It is possible that this was carried out within the main perimeter by the army that occupied the 44ha camps, but those in the 25ha camps preferred to conduct this work outside the camp, but still protected by a ditch and rampart within the annexe. However, if this involved ongoing repairs and routine maintenance of weaponry, then again, perhaps, one would expect such important items to be repaired in the more secure confines of the main camp perimeter. The annexe at **Glenlochar V** is the only area of that camp which does not appear to be full of pits and ovens. This demonstrates that this annexe was used for different activities to those conducted within the main camp perimeter. If industrial activity was being undertaken in the annexe, then perhaps we should expect some internal features to be visible in the aerial record (such as pits). This does not appear to have been the case at **Glenlochar**, although further work is required to determine if this supposition is correct, and this theory does not necessarily need to be applied to all camp annexes.

Annexes to three camps along the Antonine Wall may have been used for a different purpose than those attached to marching camps. An army engaged in construction work on the mural barrier may have needed additional space to store tools and other supplies, although this does not explain why they are recorded at only three camps, two (**Little Kerse** and **Polmonthill**) being located only 300m apart. More of these 'stores' or small camps should be expected along the Wall, and perhaps some can be identified at **Inveravon III** (illus 149), and in the **Lochlands Three Bridges** area (illus 167), and several sites must be lost through modern building developments as well as the agricultural practices of recent centuries.

Some classical texts refer to camp followers (*lixae*), and, although these sometime appear to have been inside the camp (Sallust *de Bello Jugurtha* XLIV–XLV), elsewhere they appear to have camped outside the rampart (Caesar *de Bello Gallico* VI.37). Whether these would have

been provided with their own attached enclosure is unknown, and again does not explain the absence of pits at **Glenlochar V**. Camp followers appear to be almost invisible in the archaeological record. We do not know how important they were to an army on campaign (or even manoeuvres), nor how frequently they followed the army. Caesar records that traders and camp followers camped outside the rampart, noted above, but elsewhere suggests they were allowed within the camp defences (eg *de Bello Gallico* VI.36). However, whether such followers were frequently housed within the main body of the camp by the time of the Flavian and later campaigns in north Britain is debatable. If camp followers were in the annexes, this does not explain why these were so important to the army occupying the 25ha camps that they should be housed outside the *porta praetoria*, because such comings and goings could have been conducted through the side and rear gates, unless these *lixae* performed a vital function to that army. If the 25ha camps date to the campaigns of Septimius Severus and Caracalla, it could be argued that they may have housed elements of the imperial party. But it seems more likely that such important travellers would have been housed within the main body of the camp.

Annexes on camps may well relate to activity that was usually conducted within the camp elsewhere, but for some reason was relegated to the annexes on the 25ha camps, and the handful of other camps with such features. Perhaps it relates to the predilections of the camp commanders, in the same way that the construction of Stracathro-type gates on camps may have been down to the choice of an individual *praefectus castrorum* (see 7b above). One possibility is that the annexes were used to enclose something which the commanders did not want in the camp on some occasions (such as in the 25ha campaign group), but were essential for the army, which is why they were at the front. They may, for example, have housed mules, baggage animals and wagons for the army on campaign. Indeed, the fortlet at Oxton (close to the camps at **Oxton** and **Channelkirk**) possesses annexes on three sides, that on the south-east extending for some 225m. Owing to its location on a low ridge in the Lammermuir Hills, just before Dere Street climbs over Turf Law, Dun Law and Soutra Hill, it has been proposed as a wagon park for the traffic using the road (Maxwell & Wilson 1987: 25–6). This seems the most likely explanation for this particular extended feature, and demonstrates the possible use of annexes to house vehicular traffic (wagons and mules). There is no reason why this analogy cannot be applied to the annexes on camps, some commanders preferring to house such commodities within the camp, others within the annexe.

Maxwell has recently highlighted the similarity in size between annexes and some of the small camps in Britain (2005). The size range of annexes, approximately 0.8–1.5ha, sits quite happily in the range of overall sizes known for camps across Britain, with over forty now recorded of this size. It is also worth commenting that the four camps now known outside the legionary fortress at York (Bootham Stray I and II, Welfare & Swan 1995: 135–6; Monks Cross East and West, Burnham 2003: 313) are within this size range, as are many of the camps in the vicinity of the legionary fortress at Chester (Philpott 1998). This demonstrates that it was a common size to house troops on the move and, more specifically, their presence outside legionary fortresses hints at small detachments of legionaries. What these troops were doing is unknown, but legionary (and indeed auxiliary) reconnaissance troops could have operated in small detachments in camps of *c* 1ha, and this could be the size employed for a single cohort. The small camp on the **Inchtuthil** plateau (**Inchtuthil I**) is just under 0.9ha in size and, given its location, is probably early in the sequence of works, possibly representing the earliest force of reconnaissance troops or scouts at the site (illus 145).

Whatever the function of the annexes, it is apparent that they were a standard element of the army that utilised 25ha camps, reinforcing this group as a coherent 'series' (see Chapter 9) and indicating that these were linked, probably in the same campaign. The most likely interpretation of the annexes is that they were multifunctional. Some may have housed mules and wagons and other items that could easily be excluded from the main body of the camp for reasons of noise, smell and general convenience; some may have been utilised for industrial activities; and others may have housed small reconnaissance troops, perhaps a regular feature of the 25ha army camp in Scotland.

7f Internal features

Until recently, little attention has been paid to camp interiors, which were commonly believed to be largely devoid of archaeological features. Consequently, there has been far more focus on the perimeters of camps, often with the hope that these would confirm that the sites were Roman and yield evidence for their dates. Indeed, pottery has been found in the ditch fill at several camps (eg **Carey**, **Dullatur** and **Dun**), enabling the excavators to assign those camps to particular periods.

However, camps accommodated many thousands of men and their accompanying horses, baggage and mules (Hyginus *de munitionibus castrorum* 1). These soldiers,

Illustration 49
View of a reconstruction of Roman tents at Archaeolink Prehistory Park, Aberdeenshire (taken in 2004).

housed in leather tents (illus 49), would have required places for cooking (hearths and ovens), latrines, and general rubbish pits. The length of time during which a camp was occupied is unknown and no doubt would have varied greatly depending on the circumstances of occupation and the purpose of the camp. It might be expected that construction camps, such as those identified along the Antonine Wall, would have housed troops for a longer period than normal and, therefore, be more likely to provide evidence for internal settlement. However, in the limited excavations on the camps along the Antonine Wall, few internal features have been found (except at **Lochlands**, north of the Wall). Several trenches were placed in the interiors at **Dullatur** and **Tollpark**, but no features were recorded (Lowe & Moloney 2000: 239–41; White forthcoming). At **Inveravon I**, two possible stone-packed post-holes were recorded in the interior of the camp (Keppie & Walker 1990: 143).

At siege camps, where the occupation may also have extended over a protracted period, greater information on internal structures has been recorded, particularly at camps in the Near East, such as Masada, where the main construction material was stone (Richmond 1962; Yadin 1966). At **Burnswark** Hill, prolonged occupancy of the southern camp was suggested by the discovery of paved roads and building debris during excavations in the late 19th century (Barbour 1899: 224–31); this could not be relocated during later excavations, although paving was noted (Jobey 1978: 79–82).

Excavations in other camp interiors have also revealed areas of cobbling or paving. Light cobbling and post-hole depressions were identified in the interior of **Hillside Annan**, and cobbling and burning, which was presumed to be contemporary, in the structure under the fort at **Bar Hill**. In contrast, exploratory trenches 'cut as near the centre of the camp as was practicable' at **Ythan Wells I** failed to locate any features (Macdonald 1916: 358). However, looking at the camps with internal features visible on air photographs (see below), the centre of the camp

Illustration 50
Aerial view of Steeds Stalls, showing the upstanding and cropmark 'stalls', taken from the NNW in 1977. © Crown copyright: RCAHMS. SC1164186. Licensor www.rcahms.gov.uk.

appears to be one area with less evidence for activity that leaves an obvious archaeological trace.

Interior features of camps could be expected to give clues as to their function, and it is arguable that more features should be expected from those sites which had a longer period of occupation (although this has not yet been observed at 'construction' camps, noted earlier). Maxwell has commented on the potential use of some temporary camps as 'seasonal bases' with a longer occupancy, citing **Dalginross** (1981: 35) and **Inchtuthil** (1982a: 113), largely on the basis of the aerial photographic evidence for internal features (see below).

One camp with clear internal structures is that at **Steeds Stalls**, **Gourdie**, where a suite of 'stalls' are upstanding within the interior of the camp, with further tadpole-like potential 'stalls' visible as cropmarks (illus 50 & 198). An internal dividing ditch is also visible as a cropmark, with all but one of the 'stalls' located in the northern half. These stalls were originally identified as quarry test pits because the camp lies close to a probable Roman quarry from which it is suggested that material was taken for the construction of the nearby fortress at Inchtuthil (Pitts & St Joseph 1985: 255–6). They have also been interpreted as probable lime-kilns (RCAHMS 1994: 83). (Another explanation that they were related to a stone victory monument (Woolliscroft & Hoffmann 2006, 71–2) seems implausible.) The purpose of the dividing ditch could be to separate the areas of industrial activity from other activities within the camp, and although the presence of a solitary cropmark 'stall' in the southern half could militate against this theory, that 'stall' could have been abandoned early in the life of the camp or represent a late addition. The contemporaneity of these structures with one another and the camp perimeter is not proven, but highly likely.

Illustration 51
View of an Oven (O087) from the excavations at Forest Road, Kintore. Copyright: AOC Archaeology Group.

In the 1990s, Alan Leslie's work on excavations at Roman camp sites highlighted the need for investigations within their interiors, and two of his sites, **Inveresk I** and **Beattock Bankend**, revealed ovens and pits during small-scale investigations of their interiors (1995). Furthermore, since developer-funded fieldwork has led to larger areas of camp interiors being excavated, many of his observations continue to be confirmed through the discovery of features believed to be contemporary with the occupation of the camp, none more so than at **Kintore** (see below).

Ovens

A broad range of features, in different states of preservation, is now known from camp interiors. Bipartite ovens (illus 51), by far the most common type recorded, are known at a number of sites; features variously described as oven pits, cooking pits and fire pits are also recorded. On permanent forts and fortresses, ovens are often located in the *intervallum* area, close to the fort rampart, and this scenario is usually assumed for more temporary structures.

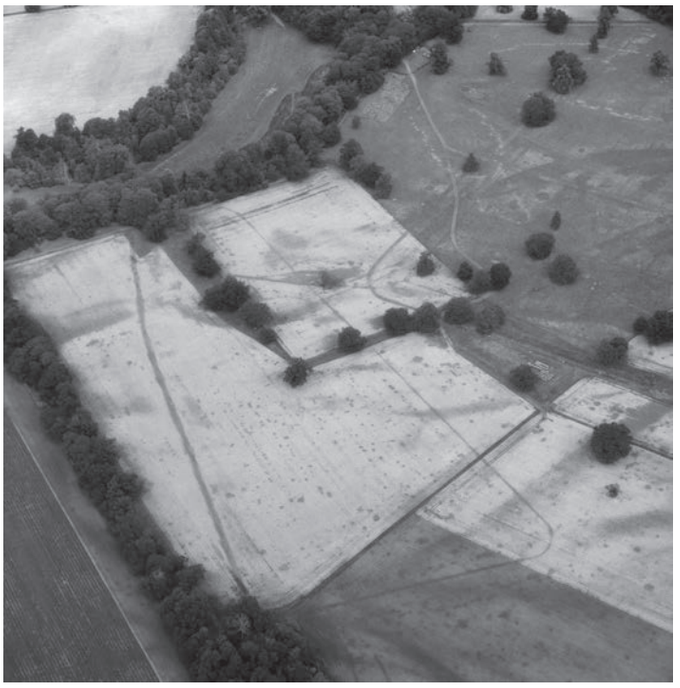


Illustration 52
Aerial view of the eastern part of Inchtuthil II/III with adjacent fortress, showing the number of pits within and outside the camps and the 'western vallum' (taken from the south in 1984). © Crown copyright: RCAHMS. SC1164047. Licensor www.rcahms.gov.uk.

At **Inchtuthil**, the pits located close to the perimeter of camps II–III have been interpreted as cooking-ovens (Maxwell 1982a: 107–8; Frere 1985b: 229–30). These have not been excavated, but their cropmark remains have the appearance of slightly elongated hollows reminiscent of ovens, and are closely spaced around the perimeter in the areas in which they are visible (illus 52, 145 & 146). Some of the other pits visible in the interior of **Inchtuthil** were excavated, and interpreted as rubbish pits related to rows of tents (Frere 1985b). Elsewhere, probable ovens and cooking pits have been recorded during excavations at over a dozen sites. Some were located close to the camp perimeter (eg **Lochlands III**); at others (eg **Inveresk I**) they were a little further into the camp. At **Kintore** (see below), they are scattered throughout the camp. Excavations at **Lochlands Three Bridges** recorded pits, some of which were proposed as ovens or possibly even kilns, arguing for a semi-industrial purpose to the camps there, which lie close to the fort at Camelon (Bailey 2000). Earlier excavations between the Three Bridges area and Camelon recorded a series of 'fire pits', originally proposed as cremation pits, probably Roman in date (Breeze & Rich-Gray 1980). It is possible that these lie within one of the camps in the area, although they may also relate to activity outside the nearby forts, independent of the camps.

Elsewhere in Britain, probable ovens have occasionally been excavated, eg Blaen-cwm Bach, Glamorgan (Chouls & Townsend 1970); Bromfield, Shropshire (Hughes *et al* 1995). At the latter site, the ovens appeared to have been fired on several occasions, something that has also been observed at **Kintore** (see below).

Pits and ovens are occasionally observed outside camp perimeters. At **Inchtuthil**, outside camps II and III and south-west of the fortress, numerous pits are visible (illus 52, 145 & 146). It is possible that these are part of a larger enclosed area on the Inchtuthil plateau, with the perimeter so far unknown, unless either the 'Western Vallum' or 'outer masking earthwork' represent the remains of this enclosure, which would therefore be later than the 'labour camps' because these earthworks are demonstrably later. However, it is equally likely that they indicate the presence of camp followers (Frere 1985b: 229). This is one of the few areas where such remains occur of a potential group of people largely ignored or invisible in the archaeological record. At **Glenlochar**, where quarry pits are visible in the area around the fort and camps, numerous pits are visible on the air photographs within camp V (illus 54 & 137). A few pits are also discernible just outside the camp on its south side, possibly also indicating settlement outside the camp, although they need not necessarily be contemporary with its occupation. Elongated pits are also visible to the south of the main complex at **Lochlands**. At **Drumlanrig II**, a series of pits is visible running parallel to, but outside, the south-west side of the camp. These are slightly irregular in appearance, although regularly spaced, and could relate to contemporary settlement outside the camp perimeter. However, it is equally likely that they represent convenient later use of a boundary feature – the remnants of the camp ditch and rampart. Pennant refers to oblong hollows outside the north side of **Dalginross** filled with wood-charcoal (1776: ii, 98), which Crawford then interpreted as possible *lilia* (1949: 43), but again these could also hint at camp followers close to the fort at **Dalginross**. In contrast to **Inchtuthil** and **Drumlanrig**, where the pits outside the camp ditch appear to be contemporary or later (in that they respect its line), at **Carronbridge** a probable oven was recorded cutting an earlier enclosure, which could conceivably also be Roman in date. This oven was interpreted as belonging to the occupation of the camp (Johnston 1994: 258–9).

However, not all bipartite ovens need necessarily be anything to do with the Roman army in Scotland. At **Kintore**, radiocarbon dates taken from excavated ovens include occasional late assays of from the 4th to 6th centuries AD (Alexander 2000: 31–2). Excavations at **Dalkeith** revealed two probable ovens within the camp, one of which was radiocarbon dated to the 5th century AD (Dunwell & Suddaby forthcoming). Whether these dates indicate post-Roman activity by the local communities, contamination of the samples, or problems with the radiocarbon dating programme cannot be ascertained without further corroborating evidence.

In addition, ovens of apparent Roman character are sometimes recorded away from Roman military sites. At Melville Nurseries, some 500m west of the Flavian fort at Elginhaugh, two bipartite pits dating to the Roman period were excavated and are of very similar character to Roman military ovens (Raisen & Rees 1996: 40–1, 44). Alternatively, these could relate to settlement within or outside unknown annexes to the Roman fort (although they are sited a considerable distance away) or to the Iron Age features in the vicinity. A similar structure is recorded close to a souterrain at Cowiehall Quarry, east of Bannockburn (Strachan 1999). Pits, which would have been used for burning and therefore possibly cooking, are not particularly uncommon in Scotland, with bipartite pits representing an efficient construction for a cooking oven. Burning pits are known at various sites, including Myrehead near Linlithgow (Barclay 1983: 69), 'dumb-bell' pits with charcoal from the prehistoric settlement at Dundee High Technology Park (Gibson & Tavener 1989: 86–7) and a possible medieval example was noted cutting the palisaded homestead at Bannockburn (Tavener & Rideout 1996: 208, 211). Similar 'figure-of-eight' pits with evidence for burning are recorded at other sites (eg Dalladies, Kincardineshire and Newmills, Perthshire, proposed as bowl-furnaces for iron-working within later Iron Age settlements: Watkins 1981a: 133, 161; 1981b: 182–3, 197).

Pits

Pit-like features are also frequently recorded on air photographs of Roman camps, but their contemporaneity can rarely be proven. It is only when a level of regularity can be seen, such as at **Dalginross**, **Inchtuthil II** and **III** and **Glenlochar V** (see below), that a level of confidence as to their Roman attribution can be accepted. Some 'pits' visible through cropmarks, such as those close to the north-west perimeter of **Inveresk I** (illus 150), could be the remains of ovens, as has been proposed for some of the features visible just inside the ditches at **Inchtuthil** and **Glenlochar V**. Excavations have added further information with, for example, pits with evidence of burning recorded at **Edenwood** and **Lochlands III**, but dating evidence is frequently hard to come by. It is also worth noting that hardly any internal features were visible on the air photographs of **Kintore**, and the pits recorded there demonstrate little regularity. Excavations of cropmark sites generally produce far more information than can be gleaned from the air photographic evidence alone, **Kintore** proving a case in point (see below); geophysical survey can also furnish additional data.

Pits are visible within numerous camps, eg scattered across the interior of **Ardoch IV** (illus 77) with no obvious consistency, and clustered in the north quadrant at **Lochlands III** (illus 167). At the latter site, excavations revealed charred wood, ashes and burnt earth within the pits. No dating evidence was obtained, but the excavators thought that they might be Roman in date (Maxwell & Wilson 1987: 39). **Stracathro** also exhibits a series of random pits in its eastern quadrant (illus 200). It is interesting to note that, at both **Lochlands** and **Stracathro**, the pits are clustered in a particular area and, if Roman in date, could indicate demarcation of a particular area of the camp for activities which required the excavation of pits (whether used as latrines, rubbish pits, cooking hollows and ovens, or concerned with the upkeep of horses and mules). However, the dating of the **Lochlands** pits are unconfirmed, and no excavations have taken place within the interior of the camp at **Stracathro**.

Excavations at **Carronbridge**, as well as locating the oven outside the camp, also revealed seven irregular post-holes (six almost in a line) just inside the entrance, each containing charred emmer wheat (Johnston 1994: 258). The purpose of these post-holes is unknown, but could have had a cooking function or been involved in a fence line which may have demarcated an area for winnowing or some other such function.

The dating of pits has been problematic. Radiocarbon dating often gives a wide range of possible dates, although it can be used to tie evidence down to the Roman period; artefacts recovered need to have secure contexts. While the timescale of occupation of camps may make some carbon-14 dating close to useless, unless enough has been carried out to enable Bayesian statistics, this, combined with other evidence, such as stratified artefacts, can aid in suggestions of contemporaneity and thus the analysis and interpretation of sites. One of the pits at **Kintore** yielded a Roman folded beaker dating to the late 3rd/early 4th

century AD, but excavators noted that the possibility remained that it was a late Iron Age deposition of a Roman import (Cook & Dunbar 2008: 132).

Excavated evidence from Kintore

Following extensive excavations at **Kintore**, some 180 bipartite features, interpreted as Roman field ovens (illus 51), are now known from the site, along with at least 60 rubbish pits and a plethora of non-Roman features (Shepherd 1987; Alexander 2000; Cook & Dunbar 2008; Cook *et al* forthcoming). The Roman ovens appear to be scattered throughout much of the interior of the camp, with little obvious formal organisation or symmetry. In the south-west corner, some ovens are tucked into the back of the rampart, lying some 7–8m from the ditch. At the south-west entrance, one lay just south of the ditch terminal on the same alignment (the relationship between the two could not be determined owing to a later pit); this oven produced one of the late assays from the site (Alexander 2000: 31). However, during excavations close to the south-east entrance in 2004, potential alignments in the lines of ovens were identified (Cook & Dunbar 2004: 86; Cook in prep). In this area, the ovens do not appear to start until some way within the camp ditch and lie in four slightly irregular lines.

At various places in the camp, some of the ovens appear to respect one another, others cut through one another, providing evidence for more than one phase of activity (or at least a period of repair and rebuild), although the time gap between the two cannot be ascertained. Some appear to be 'double-ovens', with two cooking ends sharing a single ash pit (Cook & Dunbar 2008: 134). There is also considerable variability in styles (stone- and cobble-lined and unlined cooking pits), orientation and size of the ovens, some of which no doubt reflect their location and survival patterns, but also intriguingly possibly indicate different units and the different backgrounds of serving soldiers (Jones 2009a). In addition, as with the camp at Bromfield in Shropshire (Hughes *et al* 1995), some of the ovens demonstrated evidence for more than one firing. Indeed, one produced evidence for up to five firings (Cook & Dunbar 2008: 136). The time delay between firings is unknown, but is likely to have ranged between daily and weekly, suggesting occupation of the camp between five days and five weeks. This is on the assumption that the ash pit was not cleaned out; but if it had been, then this would be a minimum time period for camp occupation. A 7th-century military treatise of Leo VI refers to the need for the army to keep moving regularly for reasons of health (quoted in Toynbee 1973, 308), but presumably if certain levels of sanitation could be met, the forces could have stayed in one place for more than two or three nights.

One of the ovens at **Kintore** had burnt alder *in situ*, and many of the other ovens had charcoal fragments from oak, hazel, ash, elm and birch. This could suggest the difference between timber for oven construction and fuel for burning. Some of the wood may have come from the burning of any disused wooden structures or artefacts carried by the army (eg ash and elm) as well as local timber supplies. Heather found in the ovens may have indicated part of the roofing structure of the oven, or equally the use of turf as fuel. (During a winter campaign in Gaul, Caesar referred to his troops constructing and thatching shelters over the tents (*de Bello Gallico* VIII.5). While it is possible that turf could have been used as a thatch, it seems unlikely that structures were built at Kintore that have escaped detection through the extensive excavations undertaken.) Dung may also have been used as a fuel in the ovens (Cook & Dunbar 2008: 360). Again, the use of different fuels could indicate preferences between separate units, although the use of wood (of the various species) as a fuel was predominant.

There are excavated areas within the camp seemingly devoid of ovens. While the usual warnings regarding 'absence of evidence' are noted, it is possible that these gaps represent genuine absence, and that they could reflect areas of the camp zoned for activities other than tented settlement for troops (if it is reasonably assumed that the ovens were sited close to where the soldiers were housed), or that the housing of the men in this area left little archaeological trace. They could also reflect areas for storage, animals, or perhaps the position of the headquarters and officers' accommodation.

The pits at **Kintore** appear to be randomly scattered throughout the camp. While fewer are known than ovens, it is possible that some of the undated pits recorded through excavations may be Roman in date, and that other pits, particularly some of those with Neolithic dates, may have been contaminated in the process of cutting through earlier horizons. Those Roman pits that have been examined for ecofactual data do not furnish further evidence, suggesting that they had been used as latrines, but the free-draining soils on site mean that faecal parasites may not have survived. These were interpreted as probably containing general waste products, including food debris and general refuse, with some charred plant remains found within the pits, interpreted as indicating possible crop processing on site. This appears to have been a cleaned crop, with the grain becoming charred through drying or food processing. There was also an absence of grain from

the ovens, suggesting that large-scale processing of whole grain was not being undertaken; it is suggested that a meal or flour-based product was being cooked (Holden *et al* 2008: 268–71).

The majority of the ovens at **Kintore** are assumed to have been constructed for the purpose of baking bread. However, some of the ovens produced a small amount of material associated with metalworking, although some of the slag may have been redeposited (Heald 2008: 209). Certainly the army would have had to make ongoing repairs and carry out routine maintenance on their equipment, particularly when located some distance from a permanent fort, so evidence for metalworking should not be wholly unexpected. It is also worth noting the presence of carbonised wooden bowls in the artefact assemblage, confirming that the army carried wooden vessels alongside metal and pottery on campaign (Crone 2008: 238–9). A few of the pits and ovens contained metal finds comprising tools, fittings and fastenings, nails, hobnails and other fragments. Many of these objects were iron bindings such as staples, fasteners, linch pins, and binding strips ripped off wooden objects, such as storage chests, with the wood presumably being salvaged for other purposes such as fuel (noted above). Other objects included the remnants of a metal scythe, potentially indicating the gathering of fodder for horses, also possibly indicated by the presence of a tethering peg (Hunter & Heald 2008: 194).

Illustration 54
Aerial view of Glenlochar V with some of the internal pits visible. Taken from the south-west in 1984. © Crown copyright: RCAHMS. SC1164051. Licensor www.rcahms.gov.uk.

Illustration 53
Aerial view of Dalginross showing some of the lines of pits in its interior, taken from the south-west in 1996. © Crown copyright: RCAHMS. SC1164173. Licensor www.rcahms.gov.uk.

Samples from **Kintore** have been subject to an extensive radiocarbon dating programme. As might be expected, the majority of the dates simply bracket the period from the 1st to the 3rd century AD, but do appear to cluster in the late 1st/early 2nd century AD (Cook & Dunbar 2008: 32–3), although there are also some late assays. As revealed by the internal structures – ovens and pits – and the find of a possible 3rd-century axehead from one of the ovens (Hunter & Heald 2008: 192) and a late Roman folded beaker from a pit (3rd to 4th century AD – Wallace 2008: 189), the camp at **Kintore** may have been used on numerous occasions over a considerable period of time, although sections through the perimeter ditch have revealed no evidence of any reconstruction or refurbishment.

At **Kintore**, a four-post structure was excavated, which was argued to be a Roman watchtower overlooking a gap in the perimeter ditch for a palaeochannel, but there was no supporting dating evidence (Cook & Dunbar 2008: 350–1). This would be the first structure of its kind found

within a temporary camp, but given the presence of Iron Age four-post structures on the site, the identification of a solitary example as Roman on the evidence of square post-holes is unproven.

Aerial and geophysical evidence

Three camps have shown clear evidence of internal features, presumed to be contemporary with the occupation of the camp, from aerial photographs: **Dalginross I** (illus 53 & 109), **Glenlochar V** (illus 54 & 137) and the two-phase 'labour camp' at **Inchtuthil** (II and III) (illus 52 & 145). A fourth, **Dalswinton Bankfoot I**, has revealed numerous internal features, probably ovens, as a result of geophysical survey in 2009 (Hüssen *et al* 2009a). All four lie a short distance from a Roman fort: **Dalginross** close to a Flavian fort (Robertson 1964b), possibly with an Antonine occupation (Woolliscroft 2002c); **Glenlochar** close to a fort which demonstrated evidence on excavation for both Flavian and Antonine occupation (Richmond & St Joseph 1953) and is surrounded by a cluster of temporary camps; **Inchtuthil**, outside the uncompleted Flavian legionary fortress (Pitts & St Joseph 1985); and **Dalswinton** encloses a site presumed to have been a fort but now reclassified as a more temporary structure (St Joseph 1973: 217; Hüssen *et al* 2009a) and close to the Flavian fort at Dalswinton Bankhead (Richmond & St Joseph 1957).

Both the **Dalginross** and **Inchtuthil** camps have been tentatively proposed as 'seasonal bases', mainly owing to the significant amount of evidence for internal occupation revealed on the aerial photographs (Maxwell 1982a: 113), but **Kintore** has demonstrated that significant features can be located within camps which are not revealed on air photographs. It is, of course, likely that some of the 'pits' visible in the interior of these camps are not contemporary, and could represent prehistoric features or even later tree roots. Certainly, at **Glenlochar** there are a couple of ring-ditches of unknown function and date. If a line is drawn between the presumed *porta praetoria* and *porta decumana* in the three camps (**Dalginross I**, **Glenlochar V** and **Inchtuthil II-III**), however, the area through which this line runs is remarkably devoid of pits, reinforcing the interpretation of their contemporaneity with the camp occupation (it is too early to say whether the same is true of **Dalswinton Bankfoot I**).

All four sites have a mixture of pits visible close to the perimeter, as can be seen elsewhere (eg **Inveresk I** – illus 150). Such pits are usually interpreted as ovens, owing to the frequency with which ovens are found in the *intervallum* area within Roman forts (eg at the Inchtuthil fortress, ovens were located at the back of the rampart (Pitts & St Joseph 1985: 197)). Certainly, clear perimeter lines can be discerned at **Glenlochar**, **Inchtuthil** and **Dalswinton**, less so at **Dalginross**. These lie, on average, at least 6m within the ditch, thereby allowing sufficient space for berm and rampart.

The significance of the rows of pits within **Inchtuthil II–III** has been discussed at length by Maxwell (1982a) and Frere (1985c). There is little more to add without further excavation and/or geophysical survey taking place. Their interpretations of the double lines of pits as potential streets between groups of tents seems likely, and both have observed that the longest 'street', in the south-west part of camp II is close to the 720 Roman feet (213m) that Hyginus has allocated to a cohort (*de munitionibus castrorum* 2). Nine pits in one of these double rows were excavated. These were U-shaped and contained a small amount of pottery and probable sheep-ribs, thereby strongly indicating that they were rubbish pits. If two cohorts camped back to back, then the distance between these double rows is insufficient to represent space for tents but must signify the roadway between such cohorts (Frere 1985c: 232). It is also worth reiterating that the presence of the rows in the south-west part of the camp indicates its phasing – two rows ignore the reducing line for the second phase of the camp and are, therefore, presumably earlier, going with the primary occupation of the camp, whereas two respect this and are probably, therefore, contemporary with its later occupation.

At **Dalginross**, two parallel lines of pits are noted in the northern part of the camp, but these are different to the parallel lines at **Inchtuthil**, being significantly shorter and wider. Their length corresponds approximately to the twenty tents of two Roman centuries camping alongside one another (adapting measurements from Hyginus); the presence of two rows could indicate four centuries camped within this segment of the camp. Farther south within the camp lies a further line of similar length, which could again represent the tents of two centuries camped side by side. Other pits within the camp occur in small groups, presumably indicating clusters of activity, whether representing areas where troops were stationed or rubbish pits for other disposal activity, perhaps relating to the quartering of animals.

Glenlochar, by contrast, exhibits less regularity than its counterparts, although various lines and groups of pits can be discerned. It is also interesting to note that **Glenlochar V** is the only camp of the three to possess an annexe (which exhibits an internal partition), but there is minimal evidence for internal structures within the annexe,

reinforcing the suggestion that it was used for different activities than those conducted within the camp itself. At **Dalswinton** there is also limited regularity in the pits within the camp, recorded through the recent geophysical survey, excepting the line of probable ovens which have been located running inside the western perimeter of the camp.

Goldsworthy commented that, 'marching camps are rarely excavated in an intensive way, since if the army only stopped there for a night or two it is unlikely that they would have left much trace' (2003: 171). Assumptions that Roman camps will contain little contemporary evidence for the Roman occupation of the site has led to little interest in their interiors, but this can now be challenged by the body of data being collected through remote sensing techniques and excavation. **Kintore** is an example of what can be found in the interior, on a site that gave little indication of internal features on air photographs but a wealth of information on excavation. We can only mourn the lost interiors of camps (such as **Hillside Dunblane**, **East Carmuirs**, **Garnhall I**, all now under housing; and **Lochlands III** under an industrial estate) which have not been subject to similar detailed analysis. It is, therefore, only possible to speculate whether **Kintore** is an unusual site, possibly housing the Roman army for longer than would usually be expected. While watching briefs and small-scale excavations in camp interiors frequently record no Roman features (eg **Innerleithen**, **Milnquarter**), a body of data is gradually being accumulated which indicates that the interiors of these sites are worthy of more detailed study.

Illustration 55
Re-use of the perimeter of Oxton I by Oxton II, taken from the east in 1984.

7g Camp reuse in the Roman period

The propensity for the Roman army to reuse existing locations, including the same camp sites, is clearly evidenced from an analysis of their distribution (see 6 above). The major gathering grounds in northern Britain (**Ardoch**, **Castledykes**, **Dalswinton**, **Glenlochar**, **Lochlands** and **Newstead** – illus 21) all contain camps which either overlap in their use of space, reuse part of an earlier camp perimeter, or both. Despite Josephus' assertion that 'they fire the camp, which they can easily reconstruct if required, lest it might some day be useful to the enemy' (*Bellum Iudaicum* III.90), this does not appear to have been standard practice in north Britain. Returning to a camp site and reusing part or all of the perimeter of a previous camp could represent an economy of effort, assuming that the ground occupied by the camp was not too foul from its previous occupation, 'if a multitude of soldiers stays too long in autumn or summer in the same place, then drinking-water contaminated by pollution of the water-supply and air tainted by the foul smell itself give rise to a most deadly disease' (Vegetius *Epitoma* III.2). Onasander gives a similar warning to avoid areas where disease might spread (*Στρατηγικός* VIII.2). This might explain some instances of camps being constructed alongside one another rather than reusing perimeters, such as at Walton I–III in Wales (Davies & Jones 2006: 139–41), and also Farnley I–III in England (Welfare & Swan 1995: 96), and some of the numerous examples of pairs or more of camps located next to each other. It is possible that the Walton examples were chronologically close, the arrival of consecutive troops affecting a concentration, or alternatively arriving too soon after the previous occupation to wish to use the area occupied by the preceding force (Davies & Jones 2002: 835).

Vegetius also informs us that 'The camp should be built according to the number of soldiers and baggage-train, lest too great a multitude be crammed in a small area, or a small force in too large a space be compelled to be spread out more than is appropriate' (*Epitoma* I.22). This would have had an effect on the size of the area to be reused (if an area was to be reused at all), although elsewhere the classical sources refer to commanders housing a small

number of troops in a large camp, or a large number of troops in a small camp, so as to confuse the enemy as to their true numbers (Frontinus *Strategemata* I.I.9).

North of Hadrian's Wall, a number of sites exhibit clear evidence for perimeter reuse (eg **Oxton** – illus 55 & 189). The majority of these camps are evidenced through aerial photography with only limited excavation. It is usually assumed that the smaller camp which uses some of the same sides as a larger one, will be the later of the two, as demonstrated through excavation at **Dullatur**. But, as a note of caution, the upstanding earthworks of the overlapping camps at Tomen y Mur East in Wales suggest that the smaller, inner camp (I) might be the earlier, its remains being slighter than camp II, which appears to overlie it on one side (Davies & Jones 2006: 122–4). The majority of the camps where part of the perimeter is reused are known only through cropmarks, and, therefore, excavation would be required to ascertain the relationships between the structures.

A key site for camp reuse in the Roman period is that at **Ardoch**, subject to several small excavations by St Joseph from 1969–78, plus further small-scale trenching (Hanson 1978a; Glendinning & Dunwell 2000). The camps here are located to the north of the multi-phase fort at **Ardoch**, with a second small possible fort lying to the east (**VI**, see illus 77). The Roman tower at Blackhill Wood clearly underlies camp I at **Ardoch**. This area was an important staging post in the Roman period, and is crucial for understanding the relationships between the various camps and their potential chronologies, which is important when attempting to assess some of the camp 'series'.

Five camps are now known on the plain north of the fort at **Ardoch** (illus 24 & 77). Excavations here, concentrating on camp intersections, appear to have established the following sequence: **Ardoch III** and **IV** may be earlier than camp II, which is earlier than camp I (demonstrated through the removal of stretches of camp II for the construction of camp I – St Joseph 1976: 17). **Ardoch V** is also earlier than camp I, which, as noted above, is later than the Flavian Gask Ridge tower in Blackhill Wood. St Joseph also reported that **Ardoch III** was earlier than IV (1970a: 167–9), but this cannot be confirmed because the interpretation was based on the supposedly differential ditch filling of camp III beneath the presumed line of the rampart of camp IV, rather than any stratigraphic relationship between the ditches. **Ardoch V** is wholly contained within the *Procestrium*, an earthwork enclosure, probably an annexe to the Roman forts. Its date is unknown, but as the latest occupation date for the fort is Antonine, and on the assumption that this earthwork is an annexe, camp V is probably earlier than late Antonine because the Procestrium blocks all visibility from the camp. The earthwork appears to be overlain by camp I on its east side (although the relationship between the two at the western intersection is ambiguous due to later recutting of field boundaries). The implications of this for the dating of camps in northern Scotland will be discussed further in Chapter 10. **Ardoch** is one of several sites where camps intersect one another on different alignments, as well as those (III and IV) which reuse part of their neighbour's perimeter.

Illustration 56
Aerial view of Castlecraig I & II, taken from the north in 1992, showing the double *tituli* at one of the gates on the north-west side. A settlement enclosure lying within the camps is clearly visible in the centre of the image.

The camps at **Castlecraig** are also worthy of comment because the inner camp (II) shares the same entrance gap as the outer (I), but two *tituli* are clearly visible at this point (illus 56 & 100). The route of camp II east of this entrance is unknown, and the two may share sides at this point, which would mean a change of alignment at the gate of camp II.

Chew Green (Northumberland) is the only site in northern Britain where the intersecting camps survive in earthwork form, and it is possible to distinguish from field evidence that camp I is earlier than camp III (Welfare

& Swan 1995: 85–90), which was also confirmed by excavation (Richmond & Keeney 1937: 136). The most extreme example of an upstanding site with overlapping perimeters is Y Pigwn in Wales (illus 57), where the smaller camp is fitted into the earlier, larger camp at an oblique angle with only a slight overlap at the perimeter (Davies & Jones 2006: 95–8). At **Eskbank**, where a similar oblique relationship can be observed in the cropmark record (illus 125), excavations demonstrated that camp II was later than I (Maxfield 1975). **Newstead** 'great camps' complex also reveals camps lying at oblique angles within one another, when surely reuse of the perimeter of earlier camps would present lesser effort (illus 183 & 184). This only appears to have been the case at one of the camps in this complex (camp III representing a reduced form of camp I). Elsewhere, excavations at **Ythan Wells** (illus 17 & 213), where there is a clear overlap between the two camps, confirmed that camp II was the earlier (St Joseph 1970a: 175–7). Unless the remains survive as earthworks, it is usually difficult to determine chronological relationships between camps without excavation. However, at **Bankhead Carnwath** (illus 82), the road running through the camp (following the route of the Roman road) may provide additional clues as to chronology. The road alignment kinks when it reaches the eastern side of camp I, and the west side of that camp changes alignment as the road exits. This suggests a relationship between the road and the remains of the camp. It is possible that the camp is later than the Roman road, with the gates aligned on the existing road, but the kink on the east could also indicate that the modern road is avoiding an existing obstacle, such as the camp perimeter. No such relationship can be observed between the road and camp II, which suggests that camp I was either better preserved at the time of the construction of the Roman road, or that it was sighted to take advantage of the route of the road. Camp I could conceivably be later than camp II, which may have been partially slighted for the construction of its larger neighbour, which subsequently remained the more dominant earthwork. Certainly, the cropmark record of the camps suggests that camp II had a slighter ditch than its neighbour. It is also almost square in form (with a slight change of alignment at the northern gate), and therefore fits into the camps for which a 1st century date has been proposed, although this reasoning is not infallible (see section 7c). The date of camp I cannot be easily allocated to a particular period without further work.

Illustration 57
Aerial view of the two superimposed camps at Y Pigwn, Wales, taken from the north-west in 1988.

At a handful of sites in northern Britain, camps lie completely within the perimeter of larger examples. At Birdhope I, II and III (Northumberland), where III lies within II which itself lies within I, the perimeter of camp II is so well preserved that it is presumed to be the latest feature of the three (Welfare & Swan 1995: 77–9). Unfortunately none of the examples farther north survives in earthwork form, but again it is usually assumed that the inner camp is the later of the two, potentially utilising the perimeter of the larger camp for extra protection. However, this situation may also present an area where troops could be trapped between open ground and the safety of the occupied camp, and it would more than double the required manpower to have troops manning two perimeters. If the outer camp were constructed later,

presumably the rampart and ditch of the inner would be slighted, which was observed at Birdhope III.

Finally, in a few cases, a recut of the perimeter ditch has been observed during excavation, but no additional internal ditch can be seen in the cropmark record, potentially indicating that the entire perimeter was used, or that any reducing earthwork had little or no ditch that might be recovered through aerial survey. At **Dunning**, the excavators noted a reuse of the north entrance and a recutting on the west, although not on the accompanying *titulus* ditch (Dunwell & Keppie 1995). However, a linear cropmark is visible within the north-east corner of the camp and this may also represent reuse with the camp reduced in size (illus 118). At **Dalginross**, small-scale excavations on the east Stracathro-type gate recorded that it had been recut (Rogers 1993: 277–86). The cropmarks of the rest of the camp are so good that any additional reducing ditch should be visible, suggesting that perhaps the entire perimeter was reused (illus 53 & 109). Excavations at **Finavon** recorded a recut V-shaped ditch, although the excavators did not confidently ascribe a Roman date to the recut (Halpin 1992: 173–5, 178–9), and St Joseph also dug a series of trenches around the perimeter, at no point recording a recut (RCAHMS St Joseph Collection: Notebooks 3 & 4). In contrast, excavations on the camps at **Lochlands** frequently record recut ditches in the area around camp III, but it is not possible to say if any represent reuse of an entire perimeter rather than part of the camp because of the complexity of the cropmark remains (illus 167).

The evidence for reuse of entire perimeters is therefore slight, and primarily relies on the excavated evidence of recut ditches. However, at **Kintore**, the finds assemblage suggests more than one phase of occupation, but excavation of substantial areas of ditch produced no trace of a recut. The upstanding remains of some camps are still so good that one wonders to what extent a recutting of the ditch and/or refurbishment of the rampart would be required if the defences were left in good condition and the timescale between reoccupations relatively short. Perhaps only minor rampart repair and ditch cleaning would be required, in which case the reoccupation could be almost invisible archaeologically through field survey or small-scale excavation. Alternatively, if the recut ditch were larger than its predecessor, then the recut could remove all traces of the earlier ditch. But when two camps overlap, their relationship can usually be ascertained through detailed field survey on upstanding sites and through excavation of the intersections on cropmark sites. When one camp partially reuses the same perimeter of another, it is more likely that the smaller of the two is the later (as is usually assumed), although further work is required and each site would have to be taken on its own merits given the vast range of sizes of camps (eg illus 47). These sizes are dependent on the scale of troop movements and the numbers of troops requiring to be housed, and if a larger force was in operation than that which previously occupied the camp, then it is assumed that a new camp would be built from scratch, as is evidenced by the number of camps which overlap but do not reuse part of the perimeter.

7h Survival and non-Roman reuse

The number of upstanding camps known across Britain demonstrates that not all were slighted on departure (as was suggested by some ancient authors such as Josephus; see section 7g above). While turves are occasionally recorded in the ditch fills of camps during excavations (eg **Dalginross I**: Rogers 1993), some may be the result of natural slippage rather than the deliberate forcing of the rampart into the ditch, and the remarkable state of preservation of camps at places like **Pennymuir** and **Raedykes** argues against attempts to deliberately destroy the remains. Departure from a camp may not always have been viewed as permanent, with the recutting of the ditch, presumably to reoccupy the site, attested on several occasions (eg **Dalginross I**, **Lochlands**, see section 7g). In addition, the existence of a camp in the landscape would have been testament to the might and power of the Roman army, and a reminder of such to the local population.

Cropmarks are frequently recorded within camp perimeters, but it is difficult to associate these with the occupation of the camp without further evidence. Exceptions include **Inchtuthil**, where the pits in the interior of camps II and III produced a small amount of Roman pottery (Frere 1985b: 230), **Dalginross I** and **Glenlochar V**, where the pits in the interior are similar to those at **Inchtuthil** and some regularity in the layout suggests contemporaneity (see section 7f above). Elsewhere, cropmarks and earthworks may indicate later use of the site. At Esgair Perfedd in Wales, a series of hollows have been dug into the inside of the upstanding rampart, and probably represent training exercises by the military in the 20th century (Davies & Jones 2006: 135). At other sites, the layout of the later landscape sometimes reflects the perimeter of the camp, with the ditch utilised as a field drain and the rampart as a field boundary. The utilisation of such monuments in the

relatively recent past again indicates their permanence in the landscape.

Information about contemporary settlement is difficult to ascertain, whether within the camp perimeter or in the immediate vicinity, owing to the difficulty in dating individual structures and the ephemeral nature of camp occupation. Nonetheless, souterrains are occasionally recorded within the perimeters of camps, for example, at **Battledykes**, **Oathlaw**, where one or two are recorded within the perimeter of the camp (see illus 29). The majority of excavated souterrains have suggested their abandonment in the 2nd century AD, and Armit has argued that their proliferation related to the supply of the Roman army and their demise to the departure of the military (1999: 592–4). In response, Hanson has pointed to the reuse of Roman masonry from forts in some souterrains (2004: 148), although these are in the southern examples and usually considered to be slightly later in date (Armit 1999: 588). The excavated souterrain at Shanzie, near Alyth, was not deliberately dismantled, and the excavators suggested that it could not be so specifically linked with the Roman occupation as proposed by Armit (Coleman & Hunter 2002: 97).

The date of the construction and use of the camp at **Battledykes**, **Oathlaw** is not known. Both Flavian and Severan dates have been proposed (St Joseph 1958: 93; 1973: 231–3), although a Severan date is generally preferred for this camp (see Chapter 9), so that the chronological relationship between the camp and souterrains can only be guessed at, with the construction of the souterrains pre- or post-dating the camp. The surviving perimeter of the camp does not appear to have played any part in the selection of the location for a souterrain and accompanying settlement. Souterrains in Angus and the Mearns range in date, but some have been dated to the 1st millennium BC (eg Dalladies in Kincardineshire just north of **Stracathro**, Watkins 1981a) and so it is likely, without any further evidence, that the souterrain and presumed accompanying settlement is earlier. In which case, it is possible that some souterrains, such as those inside **Battledykes**, **Oathlaw**, could represent an example of the Roman army clearing away a settlement which occupied suitable ground for their military encampment.

The fortlet and camp at **Inverquharity** are surrounded by cropmarks (illus 152), including probable ring-ditches presumably representing part of an Iron Age settlement (with a possible souterrain recorded through geophysical survey – Woolliscroft 2002b; 2005b: 229). However, chronologies and relationships are again difficult to establish. Woolliscroft has further noted the regular juxtaposition between Roman temporary camps and 'native communities' represented by round-houses and souterrains in the vicinity of camps and forts, concentrating on the Gask Ridge and its environs, including **Cardean** and Cargill (2005b). However, examination of the remains recorded through aerial photography in the arable fields of eastern Scotland suggests considerable exploitation of the land over several millennia, and little more can be argued about chronological relationships without more secure dating evidence, as is beginning to be provided by the recent excavations at **Kintore**. Here, there is a gap in the settlement record from the later prehistoric until the early-historic period, with the exception of a round-house which lay outside the perimeter of the camp (Cook & Dunbar 2004: 87). It has been argued that this indicated that there was a deliberate avoidance of the area occupied by the camp, possibly following negotiations between the Roman army and the local tribes (S P Halliday pers comm), though other interpretations are possible. This camp certainly survived in earthwork form until the 19th century (Watt 1865; Courtney 1870).

Hanson comments on the limited impact that the Roman army appears to have had on the Iron Age population (2004: 157), and certainly the camps themselves furnish us with sparse information. This is unsurprising owing to their transient use, and it is only large-scale excavations (such as those at **Kintore**) that are likely to help to build up the picture. Recent research on tribal boundaries in the north of Scotland has looked at the possible continuity of these from Iron Age territories to Pictish provinces (Maxwell 2004), and the way in which some medieval parish boundaries coincide with the find spots of Pictish stones and cemeteries (Fraser & Halliday 2007: 135). These could represent earlier settlement boundaries and the general geo-political landscape (S P Halliday pers comm) This continuity from prehistoric to early medieval periods reinforces suggestions that the Roman presence had a limited impact on the existing settlement remains. Presumably, if the land contained within a camp was suitable for habitation or other purpose, then it would have been utilised, unless there was very limited pressure on the land, or it was, indeed, seen as belonging to the Romans, perhaps following treaty negotiations, or was in some way 'tainted' by virtue of its association with the Roman army. Frontinus recorded that Domitian compensated farmers in Germany for the loss of their crops when their lands was taken over for fortifications (*Strategemata* II.XI.7). It is possible that the ground inside the camp at **Kintore** was seen to be owned or was otherwise 'unsuitable' in some way until the early historic period; certainly there

is little or no evidence for occupation within the camp for several centuries after it was built. Whether or not the ground contained within the camp was deemed 'Imperial territory' and had been effectively purchased from the local tribes is not currently possible to ascertain.

Evidence of overlapping settlement, potentially dating to the pre- and post-Roman Iron Age, can be noted at some sites, with the relationships between the features clearly demonstrable on occasion. At **Burnswark**, a scooped settlement partly overlies the south-west side of the South camp, and round-house platforms overlie and cut into an alleged Roman fortlet in its north corner (RCAHMS 1997: 181–2). The round-houses appear to have partly utilised the perimeter of this small fortlet (illus 58). All are later in date and post-date the Roman occupation of the site, although the classification of this rectangular enclosure as a fortlet has recently been questioned (H Welfare & S P Halliday pers comm) However, elsewhere it is not possible to establish the relationship between probable Iron Age settlement and Roman camp occupation without excavation. Even then, unless an actual stratigraphic relationship can be observed, the chronology may still not be understood. At **Lamington**, a small enclosure, probably an Iron Age fort or settlement, overlaps the perimeter of the camp (illus 163). The relationship between the two is unknown and has not been tested, although there are a number of similar lowland enclosures in Lanarkshire (RCAHMS 1978a: 144–58), and it is quite possible that the camp cut through the perimeter defences of an earlier settlement. At **Wooden Home Farm**, a similar double-ditched enclosure lies immediately east of the north-east side overlooking the Mellendean Burn (illus 211). On this occasion, the camp just avoids the ditch of the nearby settlement, so chronological relationships can only be conjectured. Camp perimeters only rarely seem to respect existing sites rather than demolish or ignore them in their construction. **Dalginross I** incorporates some standing stones within its perimeter, possibly the remnants of a stone circle (illus 109). It is curious that these stones with cup-markings were apparently left standing, unless they were re-erected after the departure of the Roman army.

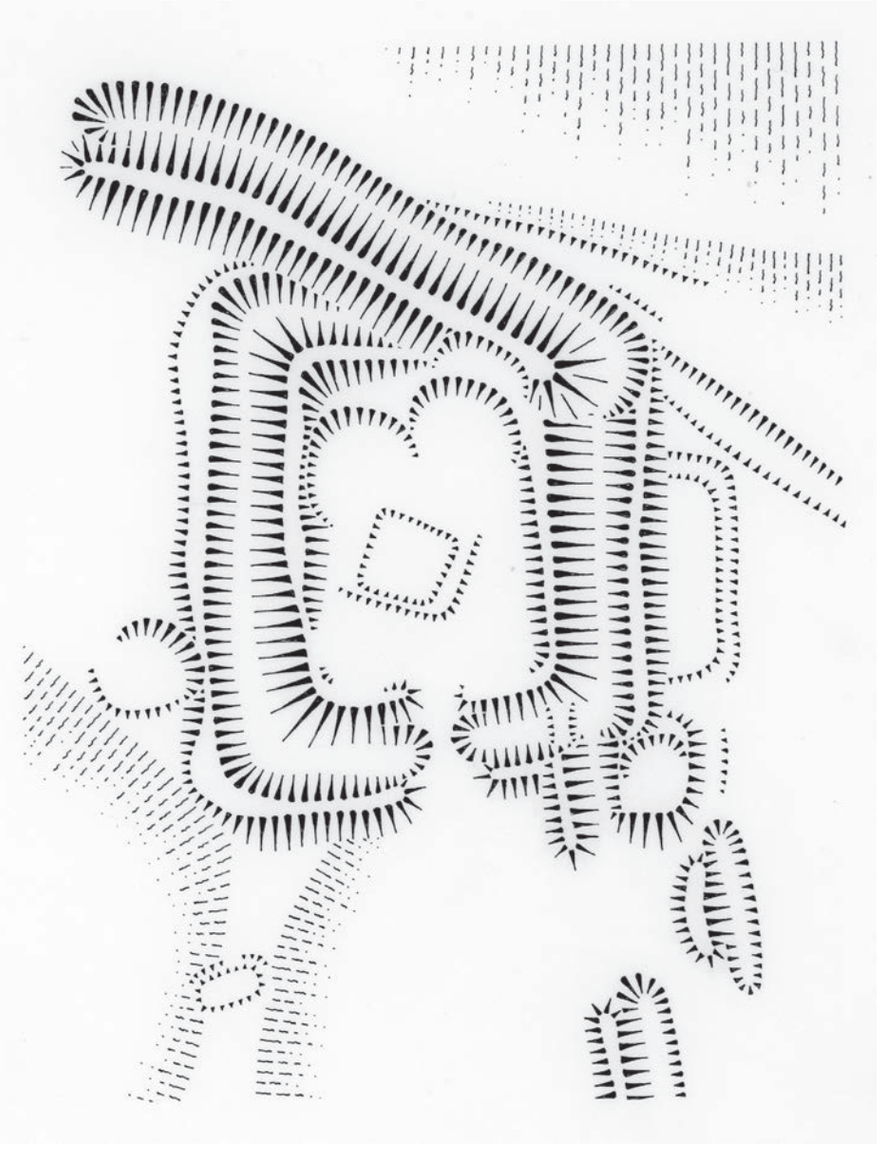


Illustration 58
Plan of the settlement overlying the presumed fortlet in the corner of the south camp at Burnswark, drawn by RCAHMS during a survey of the site in 1996. © Crown copyright: RCAHMS. DP077624. Licensor www.rcahms.gov.uk.

One interesting cropmark example of respect for earlier features that can been observed is at Llanfor in Wales, where the camp perimeter kinks to avoid a probable round barrow, though this was subsequently ignored and possibly obliterated when a Roman 'stores compound' or polygonal enclosure was later constructed, wholly incorporating it within the defences (Davies & Jones 2006: 120–2).

The camp north of the fort at **Castledykes** (**II**) is one of the few examples of the physical residues of the site clearly being utilised by later settlement, probably in the early historic/early medieval period. Here, a field system is visible in the cropmark record, with linear cropmarks, pits, and sunken features reminiscent of *grübenhäuser* (illus 59 & 101). While this field system overlaps several of the camps in the area, part of it, including what appears to be a trackway, utilised the entrance of **Castledykes II**. Thus a chronology can be established in this part of the field system which is therefore proposed as later in date (although it is possible, but unlikely, that the camp entrance was located at a convenient spot – the site of a trackway that already existed).

Illustration 59
Aerial view of Castledykes II with its overlapping field system (and part of camp I including a gate visible to top left), taken from the south-east in 1984. © Crown copyright: RCAHMS. SC1164046. Licensor www.rcahms.gov.uk.

Short stretches of upstanding camp perimeter occasionally survive owing to their reuse in the later landscape, but only on a single occasion in Scotland, at **Steeds Stalls**, **Gourdie**, do internal features survive as upstanding remains. However, it is clear from the aerial photographic evidence that at least a further six 'stalls' have had their surface traces removed and are only visible as cropmarks, along with the perimeter ditch of the camp (illus 50 & 198). An examination of the maps made by Roy and other antiquarians compared to the modern record indicates how many camps have had their surface traces obliterated by predominantly agricultural land-use in the intervening centuries. Of the camps recorded by antiquarians prior to the 20th century, over 30% are now known exclusively through cropmark remains (eg **Ward Law**), others being rediscovered through aerial survey, such as **Carlops Spittal**, **Invergowrie** and **Dalginross**. Sites such as **Pennymuir** in the Scottish Borders and numerous camps in Northumberland have survived through being sited on marginal land and moorland areas later considered suitable only for rough grazing. Other sites, such as **Raedykes**, have been under pasture for prolonged periods and the remains have only been slighted by the plough in a few places.

On quite a few sites where parts of the camp perimeter survived owing to the conditions identified above, more recent plantations and managed woodland regimes have continued to preserve the upstanding remains. While forestry ploughing and tree plantation inevitably cause damage to the monuments, they have provided protection from the ravages of ploughing and other modern agricultural developments. Examples include stretches of the camps at **Ardoch I**, **Cleghorn**, **Edenwood**, **Gilnockie**, **Grassy Walls**, **Innerpeffray East**, **Kair House** and **Kirkbuddo**, which all survive in plantations. At **Balmakewan** and **Cardean**, parts of the perimeter ditch appear to survive as forestry drainage ditches, although they have been significantly damaged by such use.

Illustration 60
Aerial view of the former plantation bank earthwork thereby preserving the north corner of North Slipperfield, taken from the north-east in 1996.

Unsurprisingly, in arable areas, ditches have often been reused as drainage ditches, and in the case of the camp at **Cardean** it is not clear which of the two most prominent ditches visible as cropmarks east of Crow Wood represents the continuation of the south side of the camp and which are later drains (illus 94). At **Battledykes**, **Oathlaw**, the south side of the camp is partially visible as a cropmark, the remainder of the side recorded as a drain accompanying a field boundary (illus 84). Many camp perimeters have been utilised as field boundaries, which has preserved them to some extent when the rest of the area has been ploughed. Examples include **Ythan Wells I**, where part of the south-west and south-east sides survive under hedgerows (illus 213), and **Beattock Barnhill II**, where a drystone wall marks the northern perimeter of the camp (illus 85). Confirmation that this wall represents the north defences is provided by the presence of a cropmark *titulus* just north of the boundary and through excavation (Neighbour *et al* 1994). Indeed, a slight depression running to the north of this field wall marks the position of the ditch. Other stretches of camp defences preserved either under or in the outline of field boundaries include **Torwood**, **Channelkirk** and **Dalginross I**. At the latter site a collapsed field wall covered the eroded remains of what may have been the external *clavicula* bank of the Stracathro-type gate on the east side (Rogers 1993: 280–1).

Elsewhere, earthen banks enclosing plantations have utilised parts of earlier camp defences. At **North Slipperfield**, a relict plantation bank sits on top of the extremely denuded remains of the north corner and stretches of the adjacent sides (illus 60 & 186), and at **Battledykes**, **Oathlaw** the north side of the camp is at the edge of a plantation. The north defences of the camp at **Normandykes** lie under a stone wall for the west part of that side, and the east sector appears to be accentuated by a plantation bank and ditch (illus 185). At **Millside Wood II**, parts of two sides with a rounded corner appear demarcated by a plantation (illus 177).

Modern road layouts appear also to have been affected on occasion, but it is more common for these to have been influenced by the Roman roads which are sometimes located not far from the camps. At **Dullatur**, the local road kinks on entry to the camp, possibly marking the position of an entrance (illus 116). This is reinforced by the suggestion that the layout of the village indicates the position of

Illustration 61
Aerial view of Muirhouses and other cropmarks in the vicinity, taken from the south-west in 1996, showing the road bending around the south side of the camp.

the perimeter of the camp (Lowe & Moloney 2000). Elsewhere, roads either appear to mark the perimeter, as in the presumed southern part of the east side at **Dunning** (illus 118) and the south-west side of **Kaimhouse Lodge** (illus 153), or seem to bend to avoid the defences, as seen on the south side of **Muirhouses** (illus 61). At **Pathhead**, the A68 bends slightly at the point at which the east part of the north side of camp III approaches the road (illus 190). No continuation of the cropmark east of the road is recorded, and it is possible that the road changes slightly in alignment to avoid an existing obstacle, such as the corner of the Roman camp. However, the danger in assuming that the routes of more modern roads reflect the locations of the defences is illustrated by the camp at **Kirkhouse**, where excavation recorded the ditch beyond the modern road, which was thought to be on the line of the Roman road (illus 161). If this is the Roman road route, then the excavators suggested that the camp pre-dated the road which subsequently traversed it (Maxwell & Wilson 1987: 33). At **Kirkpatrick-Fleming** the excavators recorded a stretch of the probable Roman road and further observed a snow line, suggesting that the larger of the two camps (I) may have been deliberately sited on the pre-existing road (Leslie 1991: 18) (illus 162).

Thus the surviving elements of temporary camps, usually the perimeters, have played a part in shaping the later landscape. That various earlier and later structures have been recorded in the interior is hardly surprising given the large area occupied by some of the camps. However, the significance of these camps and their attribution to the armies that traversed Scotland can sometimes be noted etymologically, indicating a potential local memory, which can also be preserved in myth and folklore. No doubt, in the 18th century, General Melville was attracted to visit and discover/recognise at least two of Strathmore camps owing to their local names: **Battledykes**, **Oathlaw** and Black Dykes or Wardykes (**Keithock**). Similarly, **Lintrose** was also known as Campmuir. Other camps were known through etymology as military structures, but attributed to the Danish army, such as **Normandykes**, believed to date to the time of William the Conqueror (Sinclair 1795b: xvi, 380–1) and **Kirkbuddo**, originally recorded as Norway Dikes (Gordon 1726: 33, 154). Temporary camps played a lesser role in defining the later landscape than more dominant Roman features, such as Roman roads, which cover a wider area, lasted for longer, and were probably still utilised as roads for a considerable period after the departure of the Roman army. Many stretches of these can still be detected across southern parts of Scotland, often surviving in the lines of hedgerows and modern roads.

The current evidence from upstanding and cropmark sites demonstrates that camps stood, and in some areas still stand, in an evolving landscape, being utilised for a wide range of later enclosures and boundaries, including fields and plantations, with some roads changing alignment to avoid their perimeters. The decision to slight a camp on departure does not appear to have been the normal procedure in the Roman army, hence some of the substantial monuments that survive today. Whether then camps were considered to be tainted ground or regarded as Roman territory through local folklore or some form of treaty negotiation is unclear. Although the significant gap in settlement evidence from **Kintore** following large-scale excavations is noteworthy, the existence of settlement elsewhere (such as **Burnswark**) suggests that this was not the case at all sites. While leaving such structures in the landscape could provide defensive enclosures to be exploited by the local population, undoubtedly their remains were testament to the might and power of the Roman army, in the same way that the remains are today.