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BEN LAWERS: AN ARCHAEOLOGICAL LANDSCAPE IN TIME
Results from the Ben Lawers Historic Landscape Project, 1996–2005

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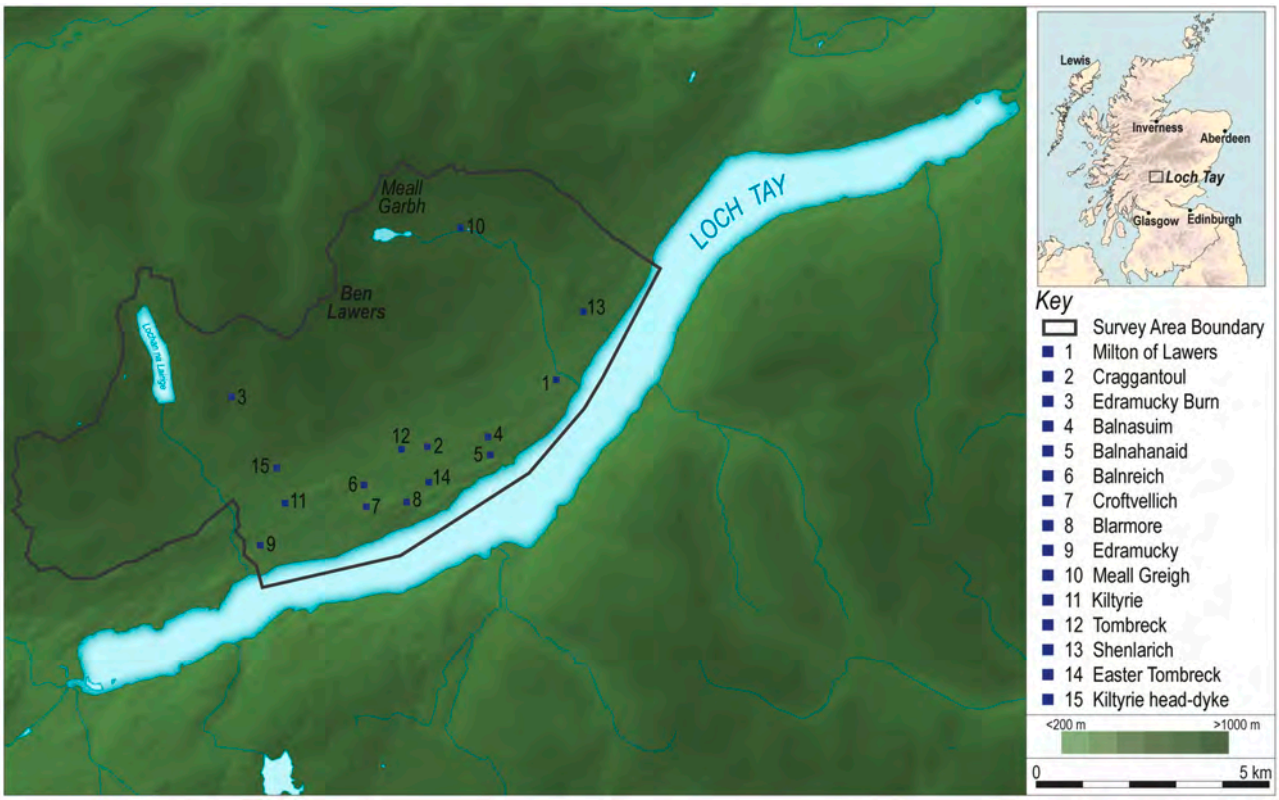
1. INTRODUCTION

This volume presents the results of archaeological investigations between 1996 and 2005, carried out as part of the Ben Lawers Historic Landscape Project, a multi-disciplinary project based on north Loch Tayside in the Central Highlands of Scotland. Archaeological surveys and excavations formed the core of the Ben Lawers Project, but many other disciplines also contributed to researching this landscape. Some of these partner projects are reported here, while others have been presented elsewhere (Tipping et al 2009), and some have formed part of doctoral research projects (Watters 2007). The results of the 13 field seasons, particularly the nine evaluation and excavation seasons, together with the results of the partner projects, specialist studies and scientific analyses, have provided a body of evidence which permits the story of the land of Lawers to be told. The historical continuum in that story can be used to curate and manage this landscape for generations to come. This chapter presents an introduction to Loch Tay, to the Project, and to subsequent chapters which outline the chronological development of the landscapes of Loch Tay.

1.1 BACKGROUND TO THE PROJECT

The Ben Lawers Historic Landscape Project, as a concept, was formed in the head of Robin Turner, then Head of Archaeology with the National Trust for Scotland (NTS), some time prior to my first meeting with him in 1995. Following fruitful discussions and site visits, we decided to develop a project based around the surviving cultural landscapes of Loch Tay. These landscapes are dominated by later historic remains, sometimes known as Medieval or Later Rural Settlements (MoLRS) or deserted rural settlements. The Ben Lawers Project would seek to investigate these remains, and any others of the last 1000 years, within the National Trust for Scotland's property boundary (some 68km^2), or beyond by agreement with local landowners who held the agricultural lands between the head-dyke and the loch-shore (Illus 1.1). Although much of the land along the northern shores of the loch had



Illus 1.1 Location-map defining the project area and key sites

(Above) Illus 1.2
Glasgow University students surveying, March 1996

(Left) Illus 1.3
NTS Thistle Camp volunteers surveying, March 2002

historically been part of the Breadalbane Estates, the project was limited to current ownership boundaries where access could be guaranteed or negotiated, where relationships already existed with the NTS. In an ideal world the project area would have used the historic limits of estate ownership to increase the pool of potential sites and thereby provide the greatest opportunity to address key research questions.

In order to kick-start the project, a survey was carried out at Easter 1996 (with students, working with the late Dr Alex Morrison of Glasgow University) of two sites – Milton of Lawers and Cragganester (Illus 1.2) – which had been previously surveyed by the Association of Certificated Field Archaeologists (ACFA) (MacInnes & Alexander 1998) and the Centre for Field Archaeology (McKeague & Sangster 1991). This was followed by a pilot season of trial excavations, targeted on the two surveyed sites as well as on features in the high shieling-group along the Ben Lawers Nature Trail. This latter group had previously been surveyed

Table 1.1: Fields of study and Ben Lawers project partners, 2002–2005.

Project	Project partners	Institution
Archaeological Field Schools	John Atkinson	GUARD, University of Glasgow
Community Outreach and Education	Derek Alexander and Debbie Jackson	The National Trust for Scotland
Geophysical Survey	John Hunter, Ron Barker and Margaret Watters	University of Birmingham
Grazing History	Robert Dodgshon	University of Aberystwyth
Landscape Context and Maps	Steve Boyle	RCAHMS
Landscape Values Project	Camilla Priede	University of Aberdeen
Land Use History	Richard Tipping	University of Stirling
Multi-element soil analysis	Clare Wilson	University of Stirling
Oral History	Gary West	University of Edinburgh
Placename Studies	Simon Taylor	University of Edinburgh
Settlement History	John Harrison	
Soil Micromorphology	Donald Davidson and Caitlin McFarland	University of Stirling
Underwater Archaeology	Nick Dixon and Barrie Andrian	Scottish Trust for Underwater Archaeology
Woodland History	Mairi Stewart	University of Stirling

by ACFA (MacInnes 1996). Our aim was to gather enough evidence to design a multi-disciplinary project, with archaeology at its core, and to attract substantial funding. It was clear that many of the visible surviving remains were of later Historic date, but at this stage no terrestrial excavations had been undertaken along the northern shores of the loch.

The complexities of attracting large-scale funding meant that one pilot season became two and then three. This was followed by a post-excavation and analysis project and another student survey in 2000. The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) also conducted a detailed survey of the entire project area as part of a study into grazing patterns. By 2001 the applications for core funding for a three-year, multi-disciplinary project had been submitted by the NTS, and by 2002 GUARD had been successful in winning the project, to be based at Glasgow University. As a precursor to the main project, a preliminary survey of Easter Carwhin land-division was undertaken in March 2002 (Illus 1.3). This was followed by three years of survey and excavation projects, culminating in a final excavation season in June 2005.

Although field archaeology – in the form of field-schools operating through the NTS Thistle Camp system, at which professional archaeologists provided training – formed the core discipline of the main Ben Lawers Historic Landscape Project, other partner projects had important roles to play. These included Nick Dixon's Underwater Archaeology Project, Meg Watters' Geophysics Project and John Harrison's Settlement History Project, all three of which are reported on here. In addition, other projects covering history and local traditions, and scientific research studies on the soils and pollen of the area, were also pursued (a full list of partner projects is provided in Table 1.1). The aim of the many partner projects was to provide a definitive review of the land and its people through time; this would, for the first time for this class and period of site, represent a holistic reflection of how the land was peopled and used during the last millennium.

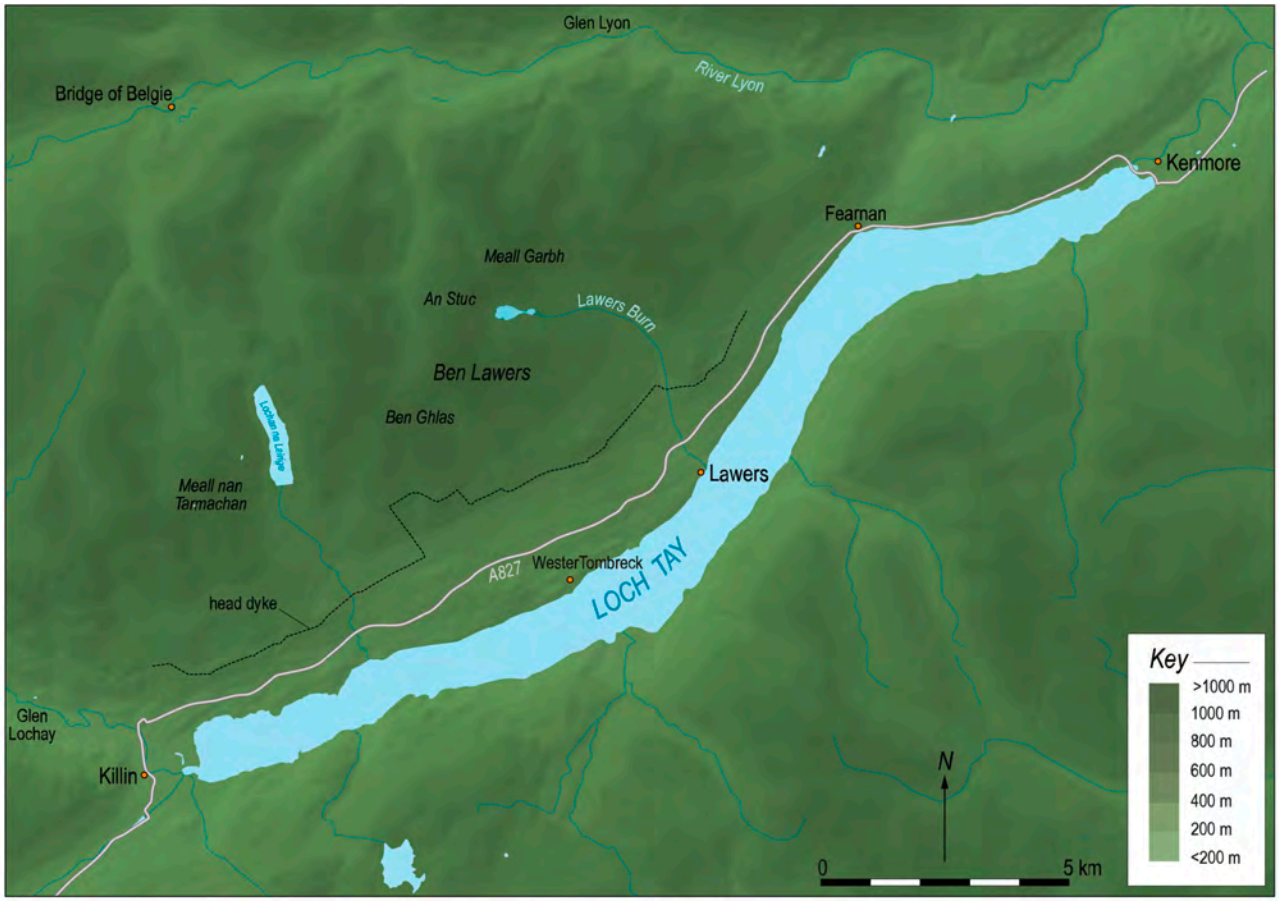
Illus 1.4 Loch Tay from Killin

1.2 LANDSCAPE, TOPOGRAPHY AND GEOLOGY

Loch Tay is the largest body of fresh water in Perthshire, and the sixth largest loch in Scotland. It is 14.5 miles (23.4km) long and *c* 150m (490ft) deep (Illus 1.4). The northern shores of the loch are flanked by Ben Lawers, Scotland's tenth highest mountain at 1214m (3983ft), and seven other Munros (over 3000ft high), including Ben Ghlas, An Stuc and Meall Greigh. This gallery of massive hills stretches from Glen Lochay on the outskirts of Killin to Fearnan at the eastern end of the loch, and in effect creates a curtain between the Tay and Glen Lyon to the north (Illus 1.5). Two access routes to Glen Lyon cut through this curtain: the first runs up the Lawers Burn and across the shoulder of An Stuc, and the second runs via Lochan na Lairge and down into Bridge of Balgie. The latter route is the only one used today and carries a surfaced road that is traversable once the snow-gates are opened for the summer months. To the south of the loch lies another range of substantial hills, although not quite as high as those on the north.

For much of the north side, and particularly within the project area, the land begins to rise immediately from the loch-side. This sloping topography rises relatively steeply to *c* 200m above Ordnance Datum (OD). At this point it levels off and rises more gently to around the 250m contour, and then rises much more steeply up the flanks of Meall nan Tarmachan, Ben Ghlas, Ben Lawers and Meall Greigh. It is noteworthy that this demarcation in landform around the 200m contour has traditionally been the point at which the quality of the land changes, along with its ability to sustain a yearly crop. The more freely-draining lower slopes generally comprised the infield (cropped annually), while the more level area above 200m is more commonly associated with outfield cultivation (cropped every 2–3 years). The limit of cultivation is marked by the head-dyke (at 250–300m), which separated the outfield lands from the grazing, where signs of occupation are much sparser. Even here, however, within the lower pastures beyond the head-dyke, natural terracing of the landscape has meant that human impact is evident at this elevation, with shieling-groups often occurring between 400m and 650m above OD. Occupation on the lower slopes, particularly within the infield, tended to occur in bands on minor terrace-shelves within the relatively steep slopes. It is also notable that the latest farms and buildings in the sequence have tended to be built beside the road that runs along the south edge of the outfield terrace, linking the two main settlements of Killin at the west end and Kenmore at the east.

Loch Tayside's geology lies at the very heart of the area's steep and terraced topography, with its covering of heathland and thick grassland deposits. Beneath the visible landscape, glacial drift covers most of the hillsides surrounding Loch Tay, with glacial erratics apparent over much of the Ben Lawers range and the slopes below. A blanket of boulder-clay covers the lower ground, with mounds of moraine clearly evident across many of the terraces. Beneath the drift layers, the solid geology is much more complicated. The main rock-types consist of thick and varied sedimentary and volcanic successions, which underwent deformation and metamorphism during the Lower Ordovician Grampian Orogeny. The area has also been subjected to periods of volcanic activity, including complex patterns of repeated thrusting, folding and deformation; as a result, the rocks of the Loch Tay area face downwards: the older Ben Lawers schists lie on top of the younger Ben Lui schists, which lie above the even younger Loch Tay Limestone.



Illus 1.5 Topographic context of Loch Tay

1.3 STRUCTURE OF THIS REPORT

Although the overall framework for this report is chronological, the aim was always to provide a thematic coherence to each chapter wherever possible. This has been more feasible in some chapters than others. The first three chapters (2–4) are chronologically based and deal with sites prior to the documented period on the loch-side, from earliest foraging activities on the sides of Ben Ghlas in the late 8th to early 7th millennia BC (the Mesolithic period) to traces of life during the mid 6th to late 10th centuries AD (the early medieval period). Although these chapters are arranged chronologically, the results are presented where possible as themes within this framework (for example, Chapter 2 deals with hunting in the high shieling areas and discusses later ceremonial activities on the low-lying landscapes of the loch-shore). By Chapter 5, the volume of information available for later periods allows the themes to be discussed in more depth. This chapter deals with the later medieval expansion into, and contraction from, high-pasture areas, which today lie beyond the head-dyke – the limit of cultivation. It is followed by Chapter 6, which also deals with the period between the beginning of the 12th and the end of the 16th centuries AD. Here, however, the focus is very much on the landed classes and in particular the minor lairds, often directly related to the Earls of Breadalbane, who held lands along the north shores of the loch.

Themes associated with occupation, ownership and landscape use are presented in Chapters 7 and 8 within the context of the tenantry, whose histories are traceable in the Breadalbane Muniments (see Chapter 6). Both chapters cover the early 17th to late 19th centuries. They explore the contrasts between the traditional agricultural system, with its areas of infield, outfield and pasture, and the new system of farming which was introduced after 1797. These changes occurred during a period which also marked the beginning of the end for mass occupation along the loch-side, which has

led to the relict cultural landscape visible today. Chapter 8 includes the role of industry, dealing with events which occurred concurrently with the changes in the agrarian landscape. The final theme is the continuous, seasonal use of transhumance sites or 'shielings'. They had a key role in the pre-1797 system of farming along the loch-shores, and their longevity of use allows the development of an understanding of these sites over a long period. Chapter 9 discusses the excavations of shieling-huts as part of the Ben Lawers Project, presenting evidence for seasonal occupation and use from the 14th to the 19th centuries.

Chapter 10 presents an over-arching, discursive view of the landscapes of Loch Tay. Here, artefact specialists present contextualised summaries of the main assemblages discovered during the project. This chapter also offers an interpretation of the radiocarbon-dating sequences for many of the sites, and summarises our understanding of the excavated buildings and their construction materials in the context of comparable discoveries elsewhere in Scotland. Throughout the report radiocarbon dates are consistently presented in the calibrated form (as BC or AD) at the two-sigma level of confidence; any exceptions are cited as 'bc' or 'ad'.

1.4 ACKNOWLEDGEMENT OF CONTRIBUTORS

As might be expected from the scale and complexity of the Ben Lawers Project, the number of individual contributors is high. In cases where an author's contribution is easily defined (for example, specialist analysis of finds), the author's name is provided at the start of the section. In other cases, where the author's role is less clear (for example, he or she supervised the excavation), acknowledgement is given for the field results only. All other unacknowledged text in the monograph is the sole responsibility of the principal author. The only exception to this is Chapter 2, which was drafted by secondary authors. Finally the principal author is indebted to Ronan Toolis for his work on post-refereeing edits and changes throughout the document.

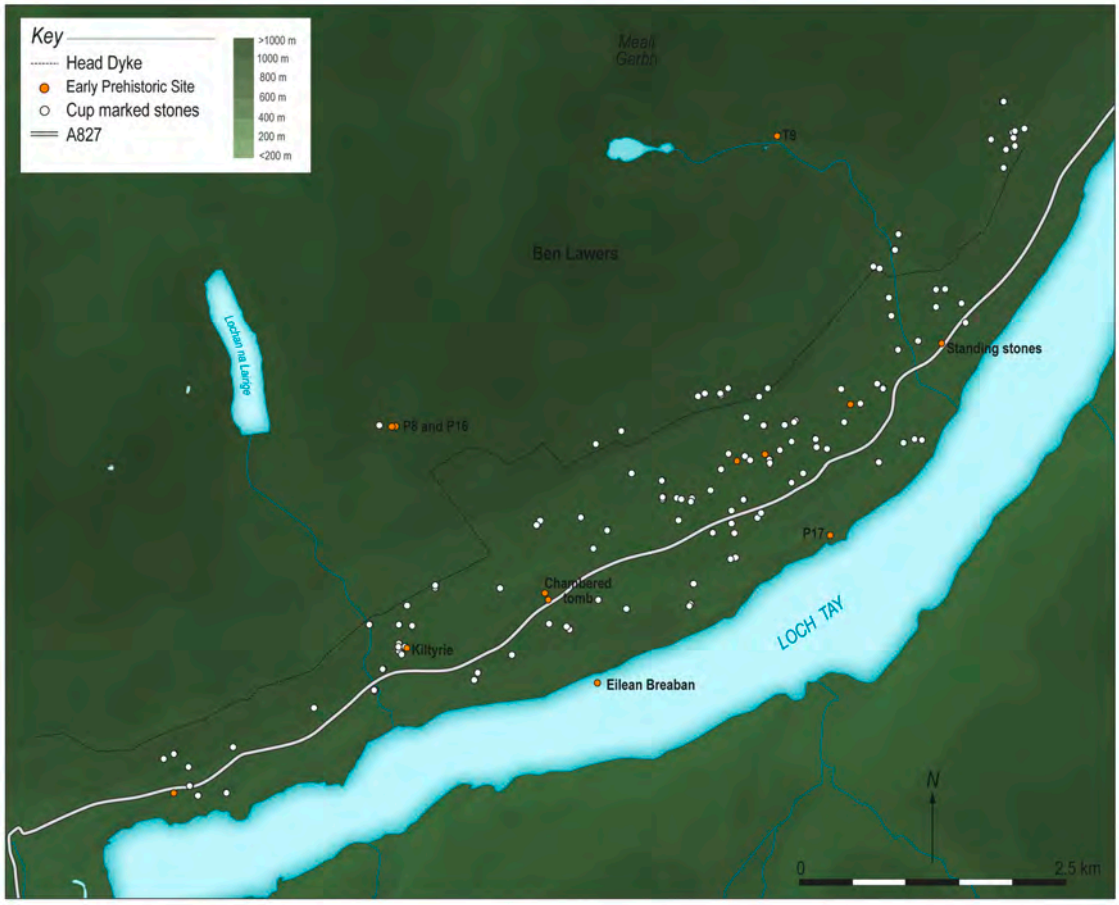
1.5 CONCLUSIONS

Over the nine years of active research on the landscapes of Loch Tayside, the entire project area and beyond was surveyed by the RCAHMS, with detailed additional surveys of particular groups of sites undertaken by the project itself during six field-seasons. The results of these surveys were presented in interim reports during the period (a full list is appended in the Bibliography). In addition to this, seven excavation seasons were undertaken, each lasting between two and four weeks. In total, 70 trenches were excavated across the project area, ranging in size from 1m^2 to 170m^2; all were excavated by hand by volunteers. A further 208 trial-pits were excavated at Easter and Wester Tombreck in 2005 in order to test the value of this method for identifying medieval settlements. In all, *c* 330 volunteers took part in the project; some have continued in archaeology and now work as professionals, while for others it was a one-off experience or an annual pilgrimage to the Scottish Highlands. This volume is testament to their energy and enthusiasm in sometimes challenging circumstances.

2. EARLY SETTLERS IN THE VALLEY OF THE TAY

Gavin MacGregor & Ronan Toolis

The main goal of the Ben Lawers Historic Landscape Project was to reveal the story of the last 1000 years on Loch Tayside. However, with such extensive survey, and excavation of so many trenches, across such a large area of landscape, it was inevitable that earlier remains would be encountered. This chapter reveals the evidence for the earliest phases of human activity within the project area (Illus 2.1). This evidence was derived from four main sources: the identification of previously-unknown upstanding sites during walkover-surveys; the excavation of negative features, frequently sealed beneath later episodes of activity; the recovery of background scatters of struck stone at sites indicative of earlier phases of activity; and the identification of prehistoric remains during underwater survey of the loch.

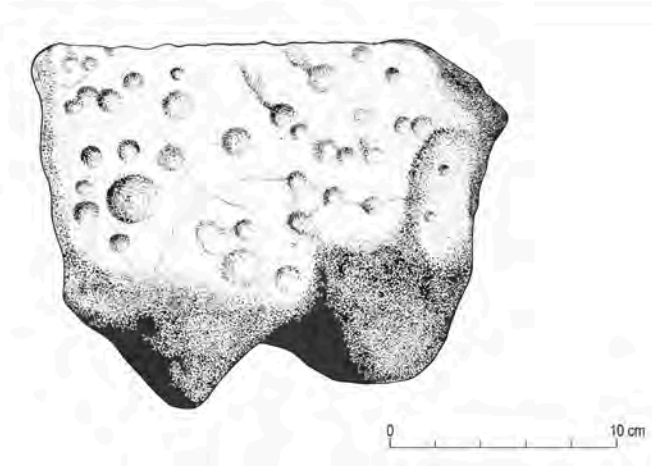


Illus 2.1 Distribution of early prehistoric sites on Loch Tayside

2.1 THE TERRESTRIAL EVIDENCE

Prior to 1996 the earliest known evidence for occupation along the shores of Loch Tay had been recovered from the nearby stone-axe factory at Creag an Caillich (Edmonds et al 1992; Tipping et al 1993) and from Margaret Piggott's 1965 excavations of the 3rd- to 2nd-millennium BC stone-circle at Croft Moraig, beyond the loch's eastern end (Piggott & Simpson 1971) (Illus 2.2).

In addition to these limited investigations, a scattering of monuments and prehistoric findspots was known along the north side of the loch. Remains from the Mesolithic period were missing from the archaeological record, although sparse traces survived of Neolithic and Bronze Age activity. These included two standing-stones, at Machuim (NN 6820 4015) and Easter Croftinygan (NN 6706 3942), stone-



(Top) Illus 2.2 Croft Moraig stone-circle

(Left) Illus 2.3 Pitchstone blade found by RCAHMS (courtesy of Eve Boyle)

(Right) Illus 2.4 Cup-marked quoin at Carwhin

circles at Killin (NMRS NN53 SE12) and Fortingall (NMRS NN74 NW3) and a number of cup-marked rocks. Prehistoric stray finds included a carved stone ball from Balnasuim (Marshall 1979), three stone axes (one of which is decorated with interlace work) from Balnahanaid (Mackenzie 1901) and a flat bronze axe from Cragganester (Cowie & Reid 1987); these point to other, long-lost sites within the arable zone. While the investigation of early prehistoric sites was not one of the primary research goals of the Ben Lawers Project, as early as 1996 the project encountered traces of Mesolithic activity in

Illus 2.5 Chambered tomb at Kiltyrie

the form of a lithic scatter associated with a late medieval turf shieling-hut, part of the Edramucky group along the Ben Lawers Nature Trail (see 2.4.2.1). This monument had been identified by ACFA in 1995 (MacInnes 1996) as part of a group of undated huts set on mounds along the 630m contour. The project's investigation of two of the huts identified evidence for quartz-working and the use of flint microliths, and dated pre-hut activity to the 8th and 7th millennia BC.

Further evidence of early activity was encountered during the project and by RCAHMS surveyors in 2000 (Illus 2.3). Pitchstone blades were recovered from excavations at the later historic site of Easter Tombreck (T30) and from a molehill in a shieling-group at the head of the Lawers Burn. These could indicate that Mesolithic hunting-groups ranged far more widely across this landscape than had previously been considered (*pace* Boyle 2000: 3). Certainly the RCAHMS survey work has considerably broadened our knowledge of the Neolithic period on north Loch Tayside. Their identification and recording of 121 decorated stones, 95 of which include cup-marks, with 26 combining cups and rings (Hale 2003), has radically altered our perception of prehistoric land-use on Loch Tayside. While the majority are in situ, about 10% have been re-used in dykes, walls or buildings (Hale 2003: 8). A good example is the large cup-marked rock used as a quoin in a 19th-century building at Carwhin (Illus 2.4).

The RCAHMS surveyors also discovered a chambered cairn of the Clyde group at Kiltyrie (NN 6341 3706) (Illus 2.5), a standing-stone at Tirarthur (NN 5887 3472) and at least two other burial-cairns at Kiltyrie (NN 6337 3714) and Cragganester (NN 6570 3874), with a possible third at Kiltyrie (NN 6265 3717) (Boyle 2003: 3–4). A small lithic assemblage was recovered from excavations at Kiltyrie (T6), including a flint tool of the Late Neolithic to Early Bronze Age. Trench 6 lies close to the possible Kiltyrie cairn, and the lithics recovered may support its credibility as a prehistoric monument. Other

evidence of Late Neolithic activity was recovered in the form of an All-Over-Cord Beaker, found during excavations at Balnahanaid (P17), and a hearth-spot and accompanying flint flake recovered from T9 at Meall Greigh.

2.2 BENEATH THE WATER

Nicholas T Dixon

Underwater and shoreline surveys for the Ben Lawers Historic Landscape Project were carried out in three seasons from 2003 to 2005 (Dixon 2003; 2004b; 2005). The objectives were to examine the impact of humans on Loch Tay and how they interacted with, and exploited, their environment.

The underwater survey identified an area of fallen trees and stumps to the south of Balnahanaid. It consists of a strip of submerged land, *c* 160m long × *c* 15m wide. Within this area 56 tree-stumps projected up through the loch-bed, together with other timbers at different angles, which appeared to be the remains of fallen trees. Samples were taken and the species of each noted. The great majority were oaks, although a few alder and two examples of pine were also apparent. Ten samples were selected for radiocarbon dating: eight oak, one alder and one Scots pine. The resultant range of dates was unexpected.

Two timbers, *c* 100m apart, sampled in 2005, produced radiocarbon dates of 2480–2280 BC (2σ, SUERC-6489) and 3540–3370 BC (2σ, SUERC-6490). The implication is that an area of Neolithic woodland existed on the edge of the loch for at least 900 years, during a period when the loch would have to have been at least 4–5m lower than today for the trees to have grown.

In 2007 a further phase of work, funded by Historic Scotland, was undertaken by the Scottish Trust for Underwater Archaeology to try to define more clearly the area of submerged trees and to assess how they had been deposited. A trench was excavated with the aim of establishing the depth of the root-systems of two upright timbers under the loch-bed. It was hoped that this would produce a base-level for the old land-surface on which they had grown. However, with excavation to a depth of *c* 1.2m it became obvious that the root-systems were deeply embedded and the deposits around them are probably the result of land-slippage in the past and therefore the trees are not in their original position.

The stratified deposits in the trench are made up of typical shoreline gravels, sands and silts with occasional layers of more earth-like material. It is possible that these are deposits which have slipped into the loch at different times, overlying loch-bed layers of material, which have been washed in and then intermixed with similar deposits over time. The results of radiocarbon dating from the 2007 work revealed tree-remains ranging in date from the 9th millennium BC to the 6th century AD.

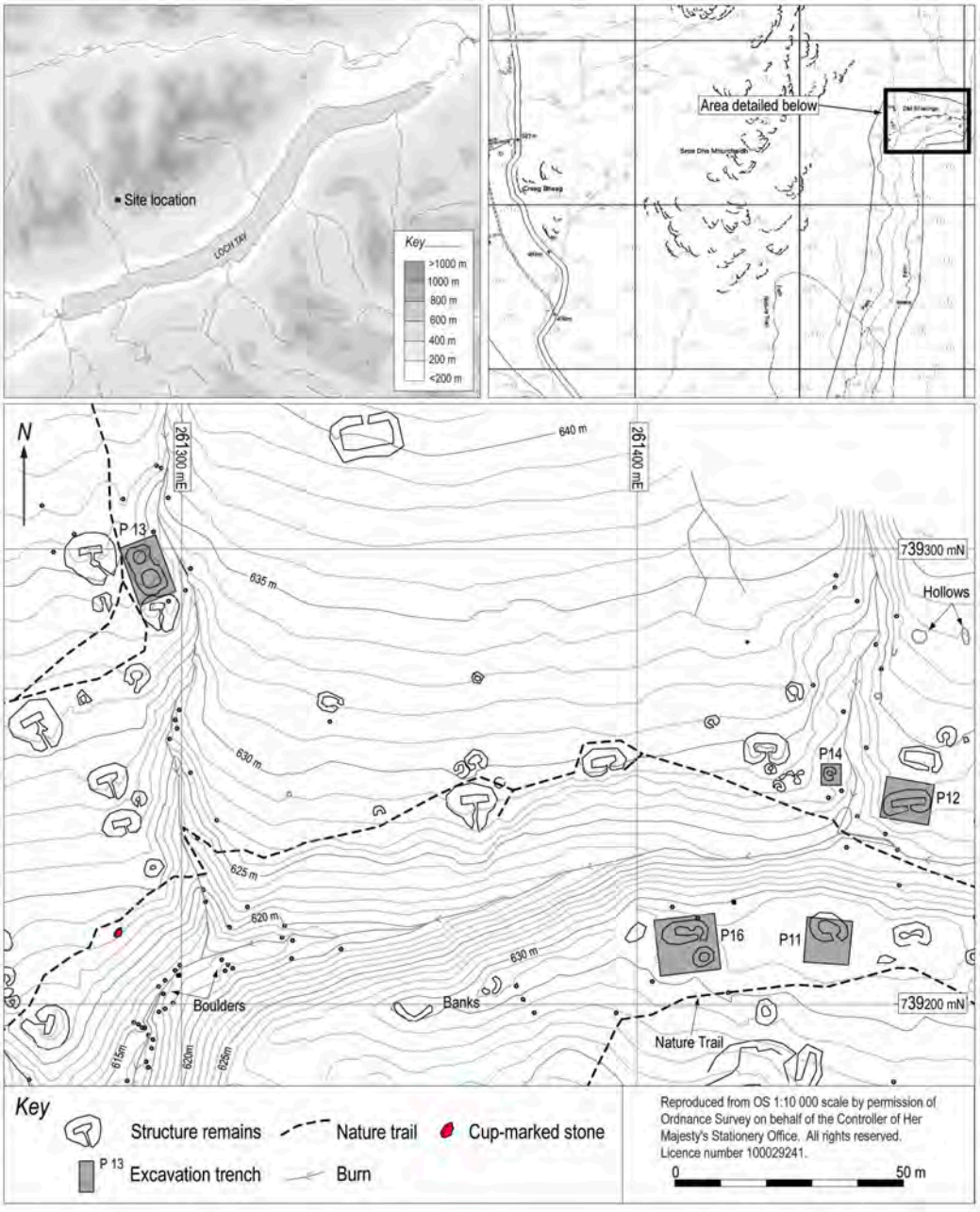
2.3 BENEATH THE LAND

At three sites, Edramucky Burn, Meall Greigh and Balnahanaid, excavation identified in situ earlier prehistoric activity. At each site the remains were slight, comprising a single negative feature and at Meall Greigh an associated hearth.

2.4 EXCAVATIONS ON THE EDRAMUCKY BURN

Excavations on the Edramucky Burn (Illus 2.6) were undertaken on slight turf structures located along the moraine bank at the head of the burn during 1996 and 1997 (Atkinson et al 1997; 1998; Atkinson 2000b). In each season this resulted in the recovery of a small assemblage of struck lithics from Trenches P8 and P11, which was clearly suggestive of prehistoric activity, potentially dating to the Mesolithic. Struck lithics recovered from P8 comprised 26 pieces of worked quartz, and from P11, 113 pieces of worked quartz and three pieces of flint, including a possible scalene-triangle microlith (see 2.4.2.1 below). Radiocarbon dating of the denuded turf structure established it to be late medieval in date (see Chapter 9). Consequently, the majority of the lithic assemblage had either been disturbed through the cutting of turves to build the structures, or pre-dated the building of the turf hut.

Further excavation in 1998 (Atkinson et al 1999) was targeted on two adjacent structures, which lay further west along the moraine bank (Illus 2.7). The first was located on the crest of a mound and appeared to be an elongated double-celled structure, while the second was located towards the foot of the mound and was sub-circular in form. A trench



Illus 2.6 Location-plan of Edramucky Burn trenches

(P16), 13m × 11.5m, was opened centred on these structures (see also Chapter 9). Excavation followed normal principles, with the removal of topsoil, cleaning, planning and excavation of individual features. Stratigraphic control was retained within the baulk sections (Illus 2.8).

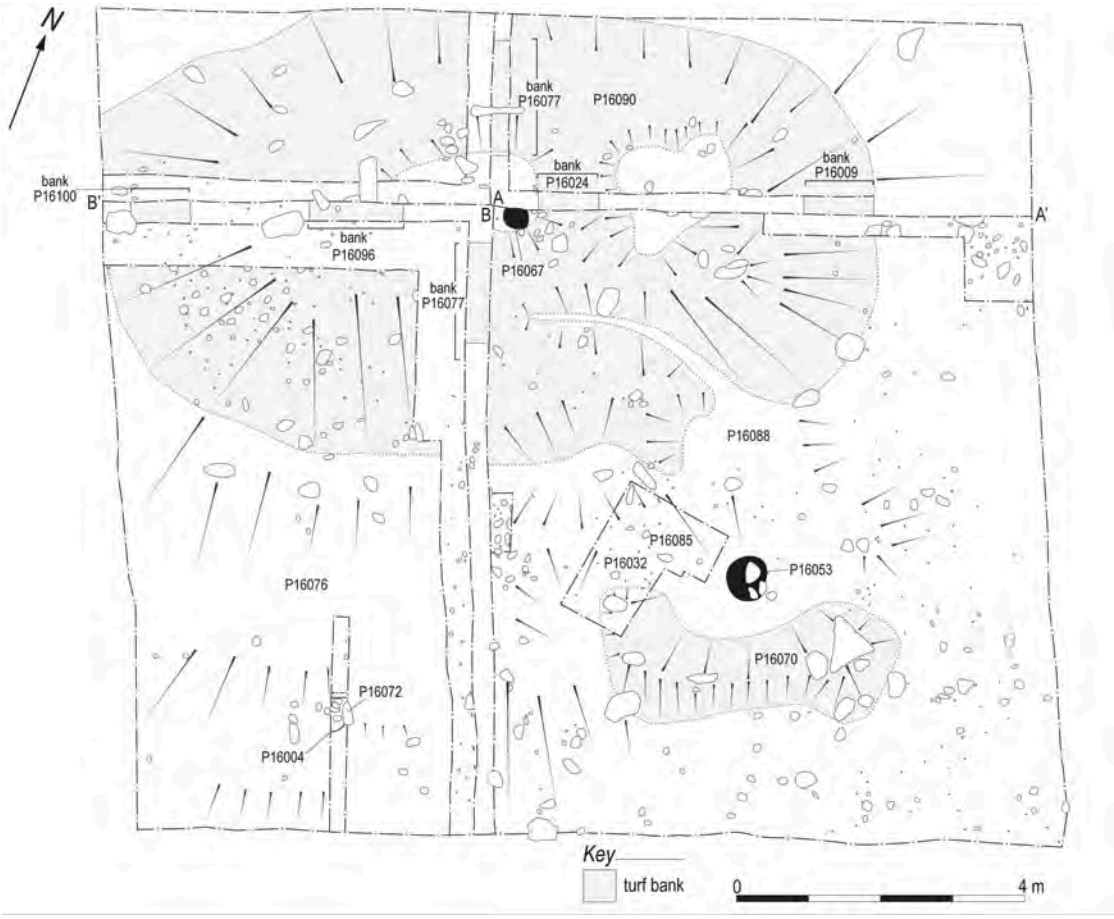
2.4.1 Deposits and Stratigraphy

2.4.1.1 Summary of Phasing for P16

Phase 1 – late 8th to early 7th millennium BC
Phase 2 – late 15th to mid 17th century AD

2.4.1.2 P16 – Phase 1

A pit (16067) was discovered beneath the remnants of an old ground-surface (16049), which was sealed under Bank 16024, which was related to Phase 2 of occupation (Illus 2.9). The pit-fill was mixed dark-brown silt-clay (16066), with frequent cobbles and a moderate quantity of birch, heather, hazel, willow and rowan-type charcoal (see 2.4.3 below). A radiocarbon date was obtained from the willow charcoal from Fill 16066 of 7200–6700 BC (2σ, OxA-8967). Deposited within the pit was a cache



Illus 2.7 P16 trench-plan

Illus 2.8 P16 under excavation in 1998

of quartz including unworked lumps as well as a few flakes, partially-worked lumps and a small quantity of angular shatter (see 2.4.2.1 below).

2.4.2 Finds

2.4.2.1 Lithics

Michael Donnelly

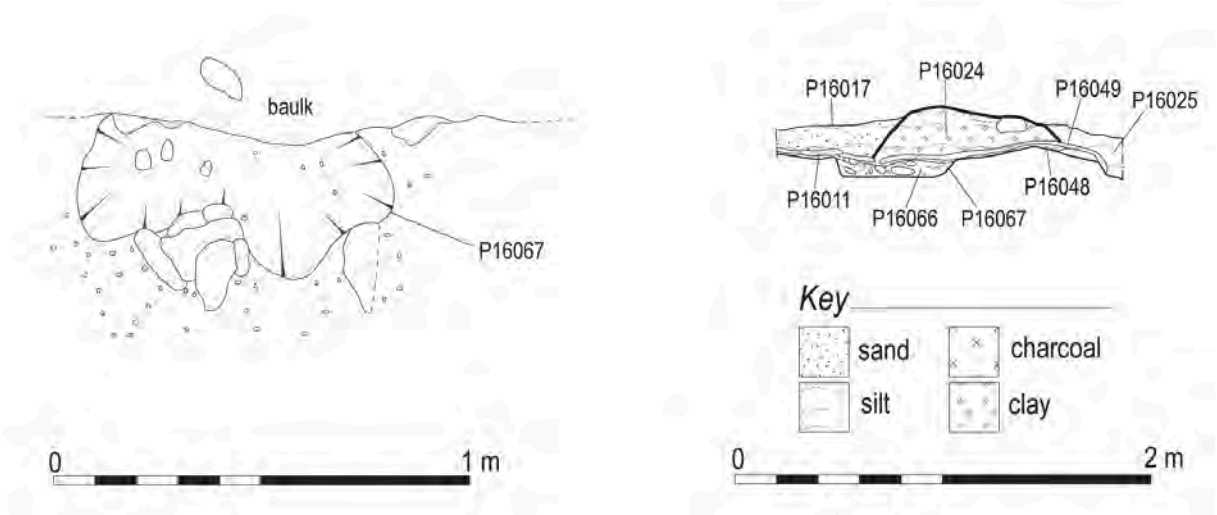
The assemblage from Trench P8/P11 consists of five main types of quartz. Rock quartz (type 1) is most common, but translucent crystal (type 6) and vein quartz (type 3) are also important. There are also three flint pieces from three separate pebbles; a broken, heavily edge-damaged flint blade (SF 57), the burnt distal tip of a retouched tool or possibly a microburin (SF 36), and a chip.

The quartz assemblage was classified according to the degree of authenticity: genuine 46.53%, probable 34.03% and possible 19.44%. The assemblage appears oriented towards the production of flakes (52.11%), although this may relate to difficulties in producing true blade-forms from quartz (such blades may also have been removed from the site for use). Waste-products in the form of angular shatter are also common (36.62%), many of which are the equivalent of irregular flakes less than 10mm long. The assemblage also contains small, yet significant, quantities of cores and blades (4.23% each). Definite examples of tools are absent; one of the flakes resembles a scalene-triangle microlith and one of the cores may be a form of core scraper; both are heavily rolled.

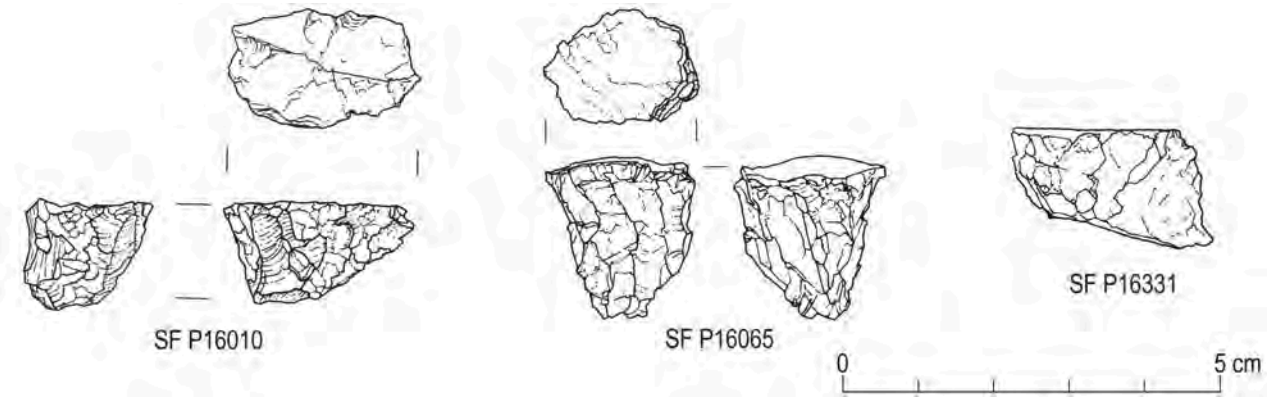
The cores are dominated by single platforms, unifacial flake removals and tabular shapes (50%) (Illus 2.10). Bipolar cores are present (SF 4) but are rare (16.33%). One core (SF P16010) of quartz crystal displays parallel narrow blade-scars (16.33%); another core has two flake-platforms at 90°.

Flakes display a tendency towards irregular examples (40.5%), although regular flakes are also quite common (31.1%) in the overall assemblage. Cortical flakes are less frequent (10.8%) though flakes representing core preparation are common (17.6%). Three of the four blade-forms are of the better-quality translucent quartz crystal, the other of rock quartz. The remainder of the assemblage consists of fragments of quartz, chunks and angular shatter, much of which could be considered problematic. Many pieces (9.2%) display signs of edge damage and possible retouch. Diagnostic forms within the assemblage are rare, if not entirely absent. The possible quartz scalene triangle is very dubious. However, the edge-damaged bladelet and the quartz blade-cores are likely to signal a Mesolithic date, although an argument could also adequately be made to suggest a later Early Neolithic date for the blade component of the assemblage.

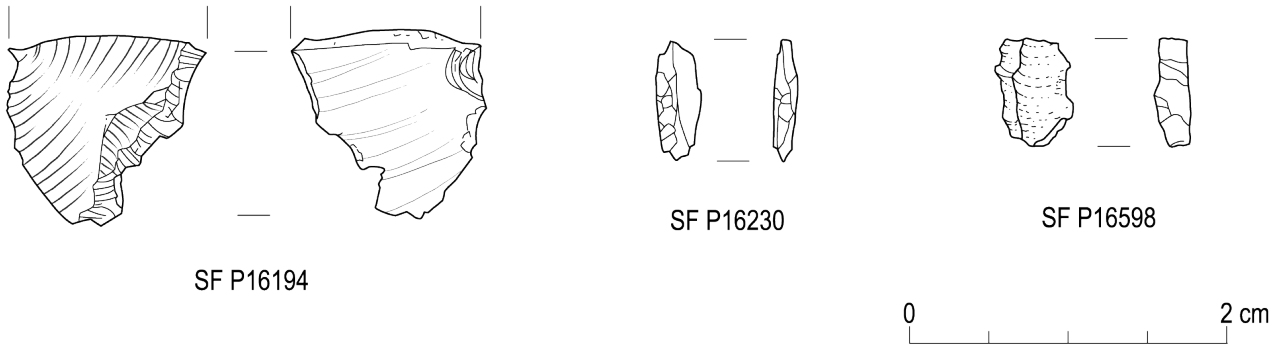
A large lithic assemblage of some 988 pieces was recovered from Trench P16, much of it fine angular shatter recovered from the grid sampling of an occupation floor (16032). Five main types of quartz, with a predominance of rock quartz (type 1) and similar proportions of quartz crystal (type 6) and vein quartz (type 3) were recovered: 33.81% is



Illus 2.9 P16 pit, plan and section



Illus 2.10 Quartz cores from P16



Illus 2.11 Flint blades from P16

considered genuine, 40.73% probable and 25.46% possible.

The flint component of the assemblage comprised 12 pieces and displayed a wide range of colours, indicating the use of several separate pebbles and the introduction of flint as pre-made tool types. However, the majority of the assemblage was biased heavily towards fine, angular waste-fragments of quartz. Much of this material would appear to be genuine, including 741 pieces obtained through the analysis of bulk-sample residues (including 532 pieces from 141 sub-samples of P16032, almost all <10mm in size). Such densities of small-fraction shatter were not recovered from any of the other site-assemblages during the Ben Lawers Project and therefore lend a high degree of likelihood to the interpretation of this site as a primary knapping location.

The four flint pieces from Occupation Floor P16032 comprise a blade, a blade-like flake and two tool-forms (Illus 2.11). This includes a heavily edge-damaged distal fragment in grey flint (SF P16194), similar in character to the snapped tool form from trench P8/P11, and a tiny microlith, a backed bladelet of orange-red flint (length 7mm; SF P16598). With regular, abrupt retouch along the left-hand side, this piece retains both its bulb and distal termination. The use of complete bladelets for producing microliths is not uncommon in Scottish assemblages (Finlay 2000; Saville 2004). This piece originates from the small fire-spot (P16011), which could suggest that it had arrived in prey caught on the slopes and brought back to the site for consumption, but equally it could represent an episode of retooling around the hearth.

The quartz component of the assemblage, by far the most common material used, contains numerous flakes and 16 cores along with the large quantities of angular waste. The flakes display a tendency towards regular (30.4%) and irregular (43%) examples as opposed to decortical (7.6%) and preparatory flakes (17.7%). Over half the cores relate to pebble-testing and are single-platform tabular forms with flake removals. There are two examples of bi-directional

(13%) and one example of an opposed-platform core (6.25%). Multi-platformed examples are quite rare, with only three examples, and a further four exhibit bipolar reduction. One quarter of the cores display blade or blade-like negative removal scars testifying to blade production. One of the blade-cores (SF P16331) is a classic example of the level of control that can be realised while working quartz. The piece displays parallel blade-scars on a conical, single-platform core. One possible microlithic fragment of quartz was recovered (SF P16230) as were several blade fragments. Overall 3% of the quartz assemblage displays signs of edge damage/retouch.

Quartz material was unevenly distributed throughout the structures and any observable pattern in distribution may owe as much to recovery methodology as to the actual patterns of quartz knapping or use. Pit 16067 contained a cache of quartz and would appear to indicate that the knappers viewed even low-quality quartz as significant enough to curate stocks carefully. Some of the pieces from Pit 16067 represent unworked lumps of quartz as well as a few flakes, partially-worked lumps and a small quantity of angular shatter. The concentration also provides classic examples of the difficulty in determining human action in relation to quartz material.

2.4.3 Environmental Evidence

Jennifer Miller & Susan Ramsay

Analysis of the fill of Pit P16067 (Sample 16) identified one large, well-preserved fragment of willow charcoal with eight growth-rings, indicative of a tall shrub-willow. Recovery of rowan-type charcoal from 16066 is also significant here, as it includes rowan itself, but also many other genera including hawthorns and apples, all of which can be a constituent of scrub-woodland. However, rowan will grow at high altitude and on rocky outcrops which do not support most other tree taxa.

This evidence in favour of the local presence of scrub-woodland in the shielings-zone at an altitude of over 600m above OD during the Mesolithic and late medieval periods is an important discovery, since high-altitude scrub-woodland is absent today. Charcoal assemblages from such high-altitude occupation-sites are not frequently encountered in the archaeological record, and consequently the information revealed by them is important, in terms of both customs and preferences, and the impact of past communities on the surrounding landscape. High-altitude scrub would not have been extensive, and the charcoal evidence suggests that it was primarily birch, or else birch was preferred for its excellent burning properties and a high tar content (Edlin 1973). But the frequency of remains of other carbonised taxa including especially dwarf shrub ericaceous heath indicators would tend to suggest that availability rather than choice governed the selection for fuel. The site's elevation (625m above OD) is within the altitude-range for all the tree taxa found, including birch, hazel, willow and rowan. Birch-stumps can be seen to this day buried in deep peat just below Lochan nan Cat, at 770m above OD on the north-east side of Ben Lawers.

2.4.4 Interpretation of the Evidence

The recovery of evidence for earlier prehistoric activity at high altitude in the highland zone is of considerable importance, as it represents the first securely-dated evidence in Scotland for human activity from the Mesolithic in such a landscape context. The presence of such remains should, however, be no surprise, as evidence from elsewhere in northern Europe suggests that highland zones were extensively exploited during this period. Furthermore, with models for the period for seasonally-mobile groups (Mellars 1976; Spikins 2002), we might anticipate that such exploitation would have taken place in the Scottish Highlands, perhaps during the summer months.

The detailed nature of activity at Edramucky Burn is, however, difficult to interpret, as the majority of the evidence of earlier prehistoric activity derives from struck lithics which have been incorporated into secondary contexts through the late medieval use of the shieling-grounds. Nonetheless, several important points arise from the discovery, which may give some indications to its wider significance. The evidence from Pit 16067 indicates that people were exploiting the margins of the scrub-woodland from the late 9th or early 8th millennium BC. The presence of flint at the site, including a possible

Illus 2.12 The Moraine Bank above the Edramucky Burn

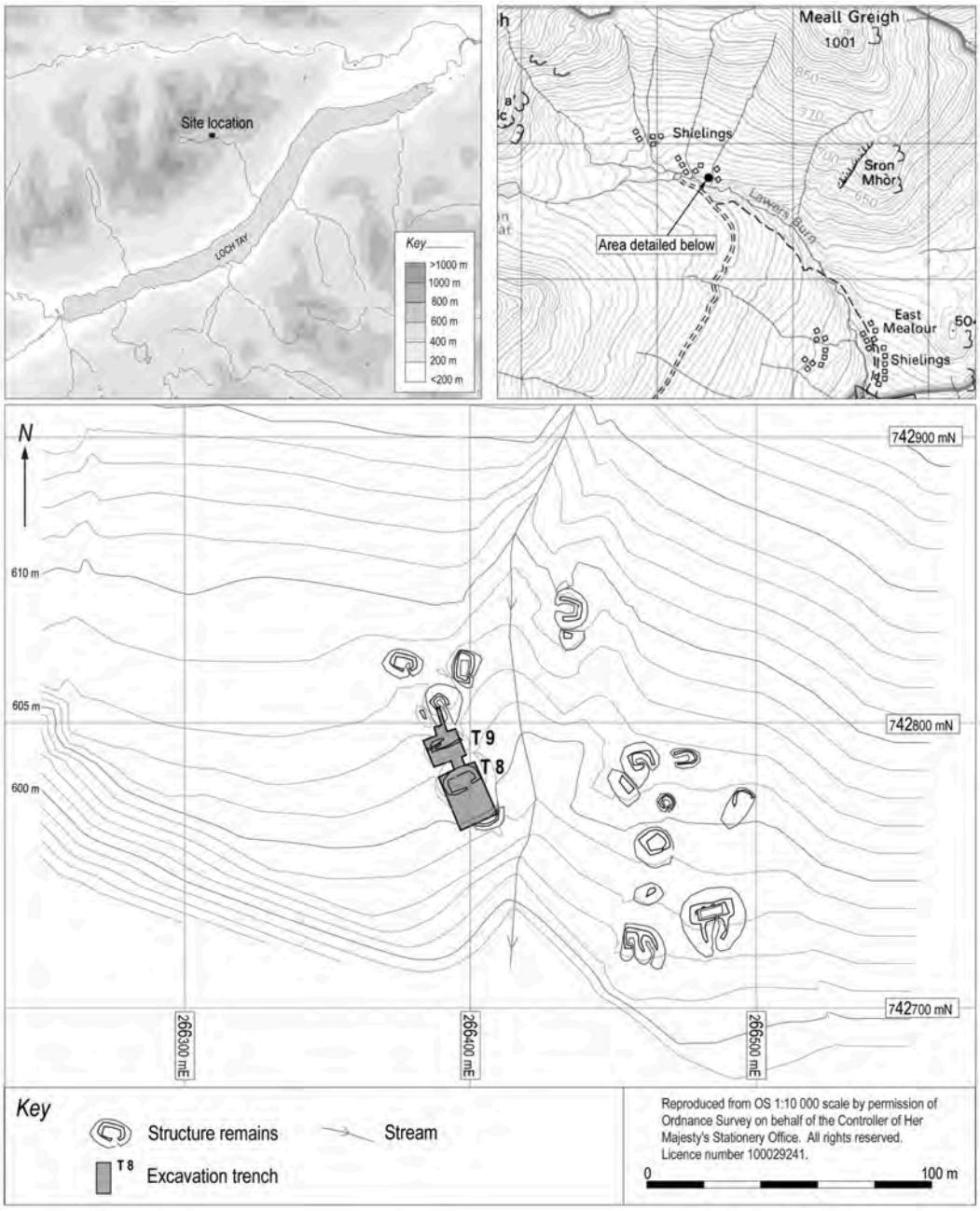
scalene-triangle microlith, suggests that they had probably brought flint from elsewhere and discarded small quantities. The lithic assemblage confirms that they were also making extensive use of local resources, particularly the readily-available quartz. Yet, despite the wide availability of quartz, the deposition of nodules of quartz in the pit is suggestive of a cache of materials. This may indicate that the knappers viewed even low-quality quartz as significant enough to curate stocks carefully. More importantly, perhaps, it also suggests that they had perhaps intended to return to the location at a later date.

The site is located on the top of the moraine bank at the head of the Edramucky Burn (Illus 2.12). Such a position affords extensive views, but more importantly guards the approach to a pass between Loch Tay and Glen Lyon. It is possible to speculate that there was a hunting-stand at this point to which people may have returned intermittently or seasonally. In this respect, it is also notable that a large cup-marked boulder, perched on the lip of the slope above the Edramucky Burn, and the discovery of a pitchstone blade, attest to other earlier prehistoric activity in the vicinity.

2.5 EXCAVATION OF T9 AT MEALL GREIGH

The experience of the pilot seasons on the Edramucky Burn had suggested that the shieling-sites – particularly those on routes which could be used to cross the Ben Lawers range into Glen Lyon – were likely to be fruitful targets for identifying multi-period occupation-sites. In consequence the decision was taken in early 2003 to undertake a detailed topographic and geophysical survey of the main group at the head of the Lawers Burn (Atkinson et al 2003b; Watters 2003). Located to the east of the Lawers Burn, on the lower flanks of Meall Greigh, the shieling-group was positioned at the mouth of the corrie that contains Lochan nan Cat (Illus 2.13).

Survey in April 2003 revealed *c* 65 structures and hinted at the presence of many more as denuded humps and bumps in the heath. This group had been identified by the Ordnance Survey in 1867 as 'old shielings' (Illus 2.14) and offered the potential for identifying medieval or Early Modern transhumance activity and potentially early occupation. One site in particular, which became known as T8 (Illus 2.15) (see Chapter 9) seemed to provide evidence



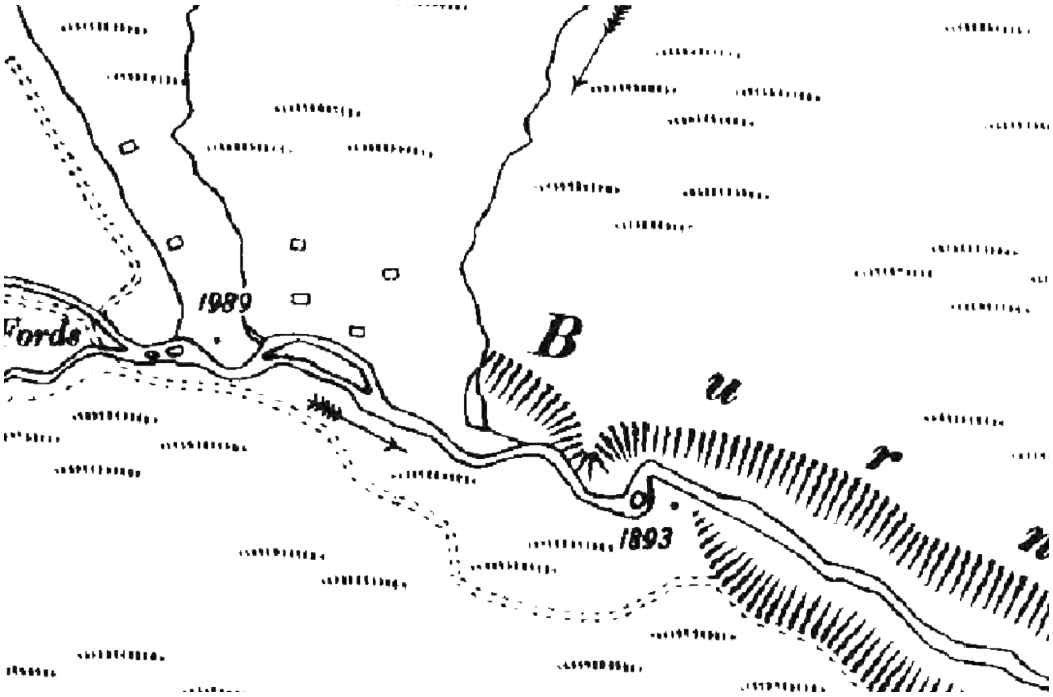
Illus 2.13 Meall Greigh trench location-plan

of multiple phases and had previously been the location for the discovery of a pitchstone blade by RCAHMS surveyors (see 2.7 below).

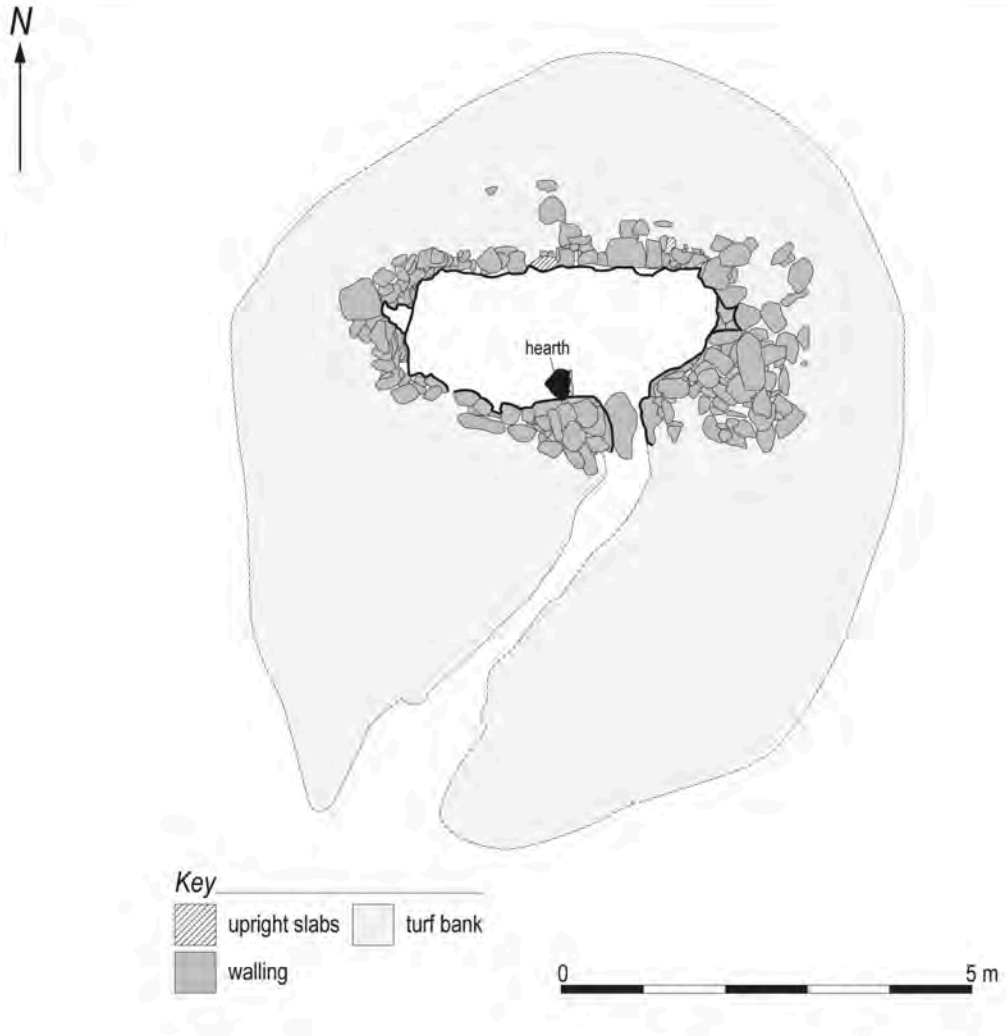
Following the survey it was decided that a phase of excavation should be pursued at Meall Greigh in September 2003 (Atkinson et al 2004a). Four trenches were proposed, two (T10/T11) in support of the geophysics (both provided negative results) and two targeted on features associated with the T8 group. This section deals with Phase 1 of occupation at T9, with Phase 2 being presented in Chapter 9 together with the results from the work at T8.

2.5.1 Excavation Strategy

T9 was located *c* 2m to the north of T8 to investigate a possible sub-rectangular structure (Structure 59) surveyed by the project in April 2003 (Atkinson et al 2003b). It measured *c* 5m north/south by 6m east/west, with an L-shaped extension to the north which measured 4.7m north/south by 2m, narrowing to 0.5m along the northern 3.2m of its length (Illus 2.16). This extension was opened to clarify the relationship between a stone structure, and the platform on which it was built, to deposits in the



Illus 2.14 OS map extract of 1867 for shieling-grounds on the Lawers Burn



Illus 2.15 T8 plan prior to excavation

northern part of the trench. Excavation followed normal principles with stratigraphic control being retained through the use of a central baulk section.

2.5.2 Deposits and Stratigraphy

2.5.2.1 Summary of Phasing for T9

Phase 1 – 3rd millennium BC
Phase 2 – 14th to 18th century AD?

2.5.2.2 T9 – Phase 1

Phase 1 of occupation within T9 was represented by three features, two areas of burning (9024 & 9015) and a negative cut feature (9022), located at the northern end of the trench (Illus 2.17). The basal deposit was a sub-rectangular feature (9024), with rounded corners, measuring *c* 0.5m north/south by 0.4m east/west. Excavation of 9024 established it had a depth of 4mm and comprised pinkish-orange sand-silt with moderate inclusions of alder and birch charcoal (see 2.5.4 below). There was no evidence for a cut for 9024. Radiocarbon dating of a fragment of birch charcoal from 9024 provided a date-range of 2880–2620 BC (2σ, SUERC-9706).

Feature 9024 was sealed by Layer 9015, an irregular spread of birch and alder charcoal, and burnt hazelnut shells (see 2.5.4 below), extending over an area of up to *c* 0.9m east/west by *c* 0.6m north/south. Radiocarbon dating of a fragment of hazelnut shell from spread 9015 provided a date-range of 2790–2570 BC (2σ, SUERC-4919). A flint scraper (SF 9033) (see 2.5.3.1 below) (Illus 2.18) was discovered during the excavation of the sediments (9016) incorporating Layer 9015.

Feature 9022, in contrast, appeared to be an L-shaped cut, measuring 0.35m × 0.25m and up to 80mm wide. Partial excavation established that it was a narrow slot within which two possible stake-holes had been inserted. One was placed vertically, and had a diameter of up to 60mm and a pointed end at a depth of *c* 0.15m. The second was positioned at *c* 45° at the southern end of the feature and had a diameter of *c* 70mm and was 0.18m long. Cut 9022 was filled with friable reddish-brown sand-silt with occasional flecks of charcoal. The Phase 1 activity was sealed by a layer of friable yellow sand-silt (9023) which showed little evidence of anthroprogenic activity, and sealed by an old ground-surface (9012/9013). Subsequent activity in T9 is discussed in Chapter 9.

2.5.3 Finds

2.5.3.1 Lithics

Nyree Finlay

An irregular flint scraper (9033; length 38mm) was recovered from T9 (Illus 2.19). This piece has regular inverse retouch at the proximal end of a regular grey-brown tertiary flake which augments platform preparation. The piece is typologically relatively generic but probably dates to the Late Neolithic or Early Bronze Age periods. The retouch on the scraper has augmented a prepared flake platform; such preparation is typical in Grooved Ware contexts.

2.5.4 Environmental Evidence

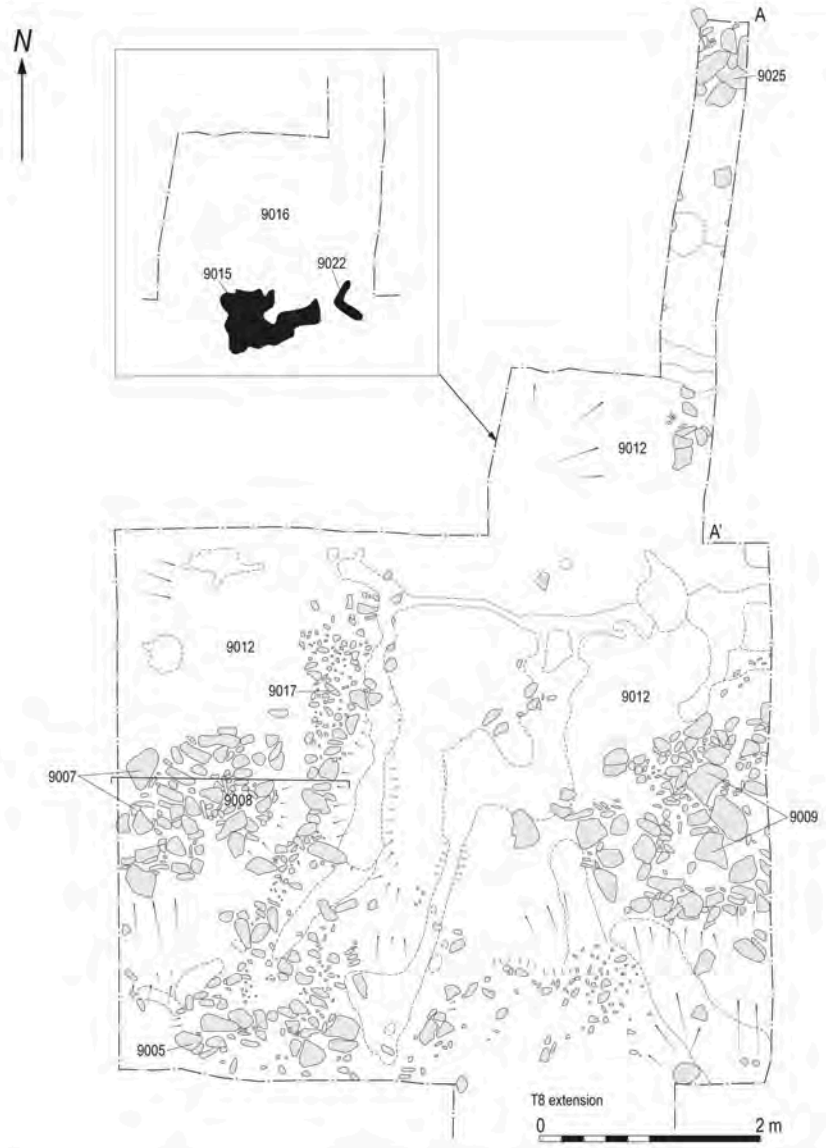
Jennifer Miller & Susan Ramsay

The assemblage from T9 comprised predominantly alder and birch charcoal, with smaller quantities of Maloideae and hazel. The only exception was a later old Ground-Surface 9028 (see Chapter 9) which had large quantities of heather-type charcoal. In this respect, the carbonised material from the spread (9015) and hearth (9024) was significantly different. The predominance of wood charcoal in 9015 on this high-altitude site is highly reminiscent of the evidence from very early occupation. Also of note was a significant quantity of hazelnut shell from 9015.

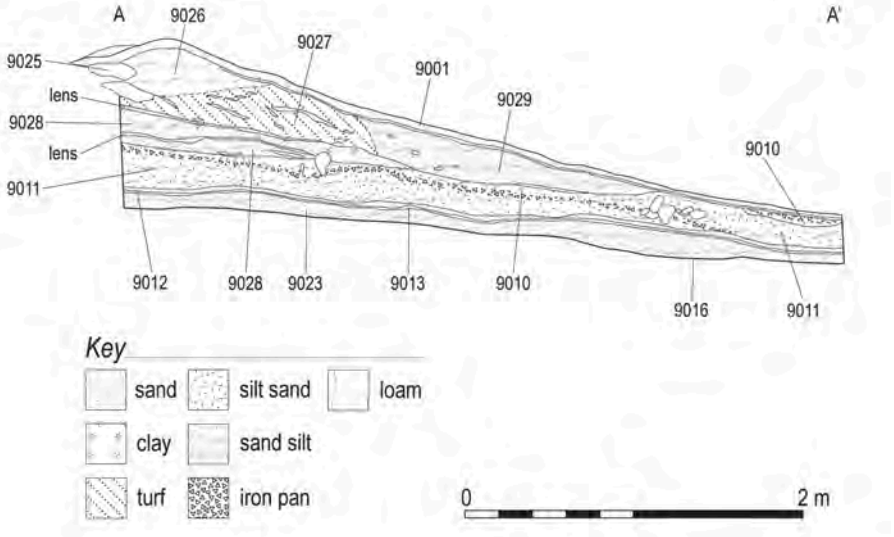
2.5.5 Interpretation of the Evidence

The discovery of human activity at high altitude on the flanks of Meall Greigh dating to the 3rd millennium BC is of considerable importance. The archaeological remains are perhaps suggestive of a short episode of activity, a small hearth (9024) with possible flimsy structural elements (9022) associated. The presence of a single scraper and evidence of hazelnuts suggests people were undertaking a range of activities, perhaps relating to the seasonal exploitation of upland woodlands.

Significantly, the closest dated evidence for activity during the 3rd millennium BC comes from the axe-factory at Creag na Caillich, located 11km to the south-west of Meall Greigh. The radiocarbon

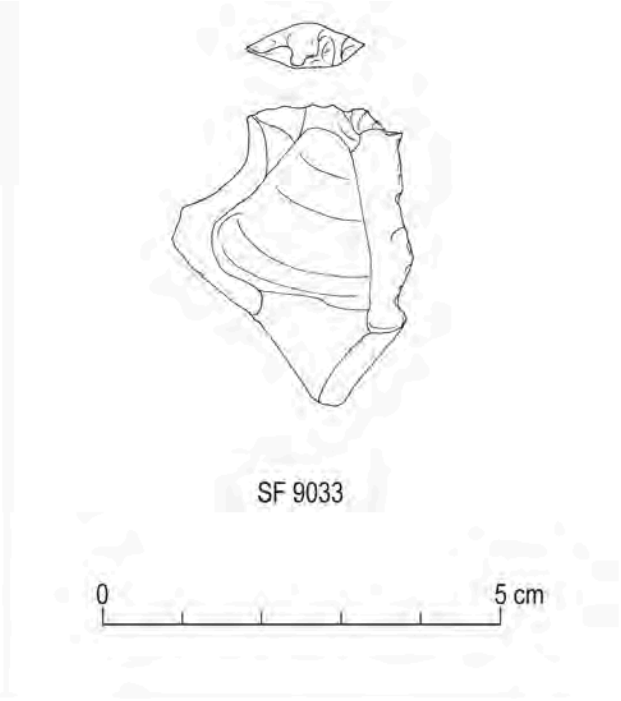


Illus 2.16 T9 trench-plan



Illus 2.17 T9 section

Illus 2.18 Flint scraper being recovered at T9



Illus 2.19 Flint scraper from T9

dates from peat sealing deposits at Creag na Caillich (Edmonds et al 1992) may, however, suggest the axe-factory was no longer being exploited when activity was taking place at Meall Greigh. Nonetheless, collectively the sites are suggestive of more extensive exploitation at high altitude during the 3rd millennium BC.

2.5.5.1 Erosion or Deforestation?

Also of significance was the discovery at Meall Greigh of the sequence of Sediments 9011, 9012, 9013, 9023 & 9016, which sealed the 3rd-millennium BC remains. While the processes that resulted in their formation are not entirely clear, there were clearly two phases of old ground-surface represented. Importantly, a later Ground-Surface 9028, which sealed 9011, was radiocarbon dated to the 14th or 15th century AD (see Chapter 9). Furthermore, palaeo-environmental evidence suggests that scrub-woodland may have still been present at this altitude during the 3rd millennium BC. Two layers (9023 & 9011) are suggestive of inundations of sediments, probably washed down from up-slope, perhaps after

the clearance of trees. As such there is potential that two episodes of erosion or clearance took place some time in the 2nd millennium BC to 1st millennium AD. Only after this, the evidence suggests, was the landscape heather-covered peatland.

2.6 EXCAVATION OF P17 AT BALNAHANAID

The programme of work at Balnahanaid was solely conducted during the 1998 field-season (Atkinson et al 1999). Balnahanaid was selected for geophysics and trial-trenching as it represented a good example of a location where John Farquharson had surveyed on behalf of the Breadalbane Estate in 1769 a number of buildings which had left no traces in the modern period (McArthur 1936; Boyle 2004) (Illus 2.20). Work focused on a number of the Farquharson structures, together with other anomalies suggested by the geophysical survey. In total ten trial-trenches were targeted at six separate locations in the two fields to the south and west of Balnahanaid mill (Illus 4.2). Of particular note was the group of Trenches P17A, P17B & P17C, which form the core of this section and are also discussed in relation to a second phase of activity at the site in the early historic period (see Chapter 4).

2.6.1 Excavation Strategy

Following the geophysical prospection of the east field, a series of trenches was laid out over possible anomalies. These included Trenches P17A–C, which started as 1m-square trial-pits, and in the case of P17A & B were enlarged to 2m-square trenches. Excavation followed normal principles, with the removal of topsoil, cleaning, planning and excavation of individual features. Stratigraphic control was retained within the baulk sections (Illus 2.21).

2.6.2 Deposits and Stratigraphy

Michael Donnelly

2.6.2.1 Summary of Phasing for P17

Phase 1 – early 4th to late 3rd millennium BC
Phase 2 – mid 7th to late 8th century AD

2.6.2.2 P17 – Phase 1

Expansion of Trench P17B revealed a pit (P17016) (Illus 2.22) in which sherds of Beaker pottery were clearly visible. The cut of Pit 17016 was a flattened U-shape, almost a scoop, measuring 0.75m × 0.6m × 0.16m, orientated NNE/SSW. The upper portion of the pit-fill (P17007), a mottled dark-yellow-brown silt-sand, with some flecks of charcoal, appeared to be almost identical to the lower fill (P17052). An All-Over-Comb-Decorated Beaker had been deposited on its side within the pit (Illus 2.23). Palaeo-environmental analysis of the fill identified birch, heather, hazel and elm charcoal as well as hazelnut shell and an indeterminate cereal. Radiocarbon dating of a fragment of hazel charcoal from Fill 17007 provided a date-range of 3970–3750 BC (2σ, OxA-8972) and clearly relates to residual material from an earlier phase of activity.

Other undated features were present in Trench 17C which could be prehistoric in date. These were sealed by a deposit (P17010) from which a slightly-rolled regular flint flake (SF P171208) was recovered; this had possibly been prepared for hafting and has fine edge-retouch and slight edge-damage. Below the deposit were irregular scoops (P17032/P17028) filled with charcoal-rich, red-brown clay (P17027). Fragments of probable cremated human bone were recovered from these features (see 2.6.3.2 below).

Illus 2.20 Extract from Farquharson map of 1769 depicting Balnahanaid

Illus 2.21 P17 trench-plan

2.6.3 Finds

2.6.3.1 Beaker Vessel

Alison Sheridan

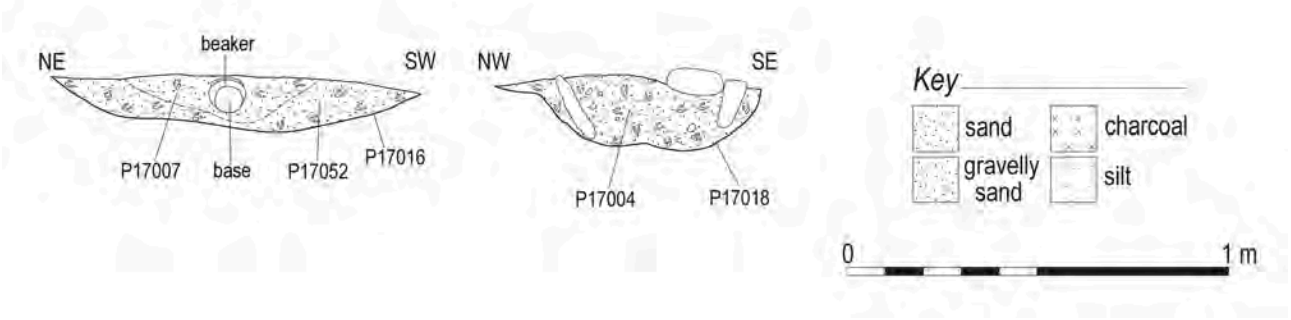
A small Beaker, complete but for a small part of its rim and neck (and now reconstructed), was recovered from Pit P17016 where it had been found lying on its side, in pieces. The vessel is 123mm tall, with a rim-diameter of 100–105mm, base-diameter of 60–61mm and wall-thickness of *c* 5–7mm (Illus 2.23). The rim is gently squared off and (with the uppermost part of the neck) slightly everted; the rest of the long neck is straight; the carination is gentle and lies a little below the pot's middle section; the belly is very slightly bulbous; and the base is dished on the outside and flat on the inside, its inner surface joining the belly in a continuous curve.

The vessel is thin-walled and fine-textured, and has been skilfully made. It has been formed by adding flattened coils to a base; there are very shallow thumb-tip hollows around the bottom of the wall, where the base was shaped. The rim has been flattened off using a spatulate tool and the interior may have been scraped, to judge from the nearly-imperceptible broad faceting visible over parts of the interior. The slight dishing to the outside of the base resulted from the practice of slapping the base while the clay was still moist, to prevent shrinking and cracking while drying (Hammersmith 2005).

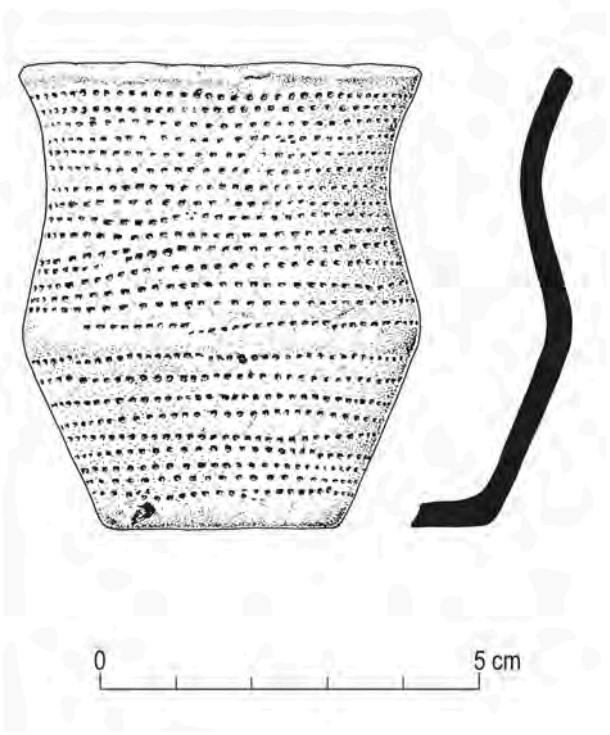
The surfaces have been carefully smoothed and have the appearance of having a thin coating of slip, although this effect could have been produced through wet-smoothing. The interior surface has a network of hairline-cracks around the neck. The exterior has been buffed to a very low sheen, enhanced by the abundant tiny platelets of glittery mica present in the clay. Virtually the whole of the exterior, from just below the rim to just above the base and excluding a narrow zone around the carination, is decorated with roughly-horizontal lines of comb-impressions, with up to 15 on the neck and eight to nine on the belly (Illus 2.24). These have been made using a square-to-round-toothed comb, 46mm long and with 22 teeth. Some of the lines on the neck slope down towards the carination. An additional, unintentional impression is that of a hulled barley grain (pers comm J Miller), on the exterior just above the base; the medial ridge of the short, plump grain (6.6mm × 4.1mm) is clearly visible.

The exterior colour varies from a mid-brown to light-brown, orange-brown and greyish-brown; the interior is similarly variegated but slightly darker; and the core is blackish (indicating a rapid firing, where the organics naturally present in the clay had not been burnt out). Inclusions are small, up to *c* 2.5mm × 2mm and sparse (occupying 3% or less of the vessel's fabric). They consist mainly of gold-coloured and pearly mica platelets (many of which may well have been present naturally in the clay) and sub-angular and rounded pieces of white quartz or quartzite; there are also occasional pieces of a shiny black mineral, and at least one fragment of a white-and-black-speckled crystalline stone.

Clues as to the pot's original contents are provided by small traces of thin encrusted organic material, found on the interior and exterior of the pot's most complete side. On the interior these are to be seen (especially under the microscope) as specks of material, while on the exterior there appears to be a roundish droplet stain on the upper neck and a vertical drip lower down the neck. These



Illus 2.22 P17 sections



Illus 2.23 Beaker from P17

encrustations have the appearance of representing the last remains of a liquid that has evaporated, rather than being burnt on.

2.6.3.2 Human Remains

Julie Roberts

Two fragments of probable human burnt bone were retrieved from a deposit (P17027). They weighed a total of 0.6g, and measured 11mm (SF P17057) and 9.5mm (SF P17058) in diameter. SF P17057 was completely white, indicating that it had been burnt at temperatures in excess of 700°C. SF P17058, however, was white on the outer surface but very light grey on the inner, implying that combustion was not quite complete.

2.6.4 Environmental Evidence

Jennifer Miller & Susan Ramsay

Samples 3 and 4 represent the fill of Pit P17007. Sample 3 had scant remains of birch (*Betula*) and heather (*Calluna vulgaris*) only, but Sample 4 produced small quantities of birch, hazel and elm as well as hazelnut shell and an indeterminate cereal. These remains are typical of a domestic-occupation fire. Modern remains in this sample were from ruderal habitats, reflecting an open, disturbed environment following the deposition of the charcoal.

2.6.5 Interpretation of the Evidence

The discovery of the Beaker deposit at Balnahanaid is significant. It complements the evidence from the 19th century, with the discovery of axes (one of which was decorated) in the vicinity (Mackenzie 1901; Gillies 1938), together with recorded instances of cists (NMRS NN63 NE9) at this location. On balance, the evidence suggests that there was some focus of ceremonial or ritual activity at this location during the 3rd and 2nd millennia BC.

2.7 OTHER LITHIC FINDSPOTS

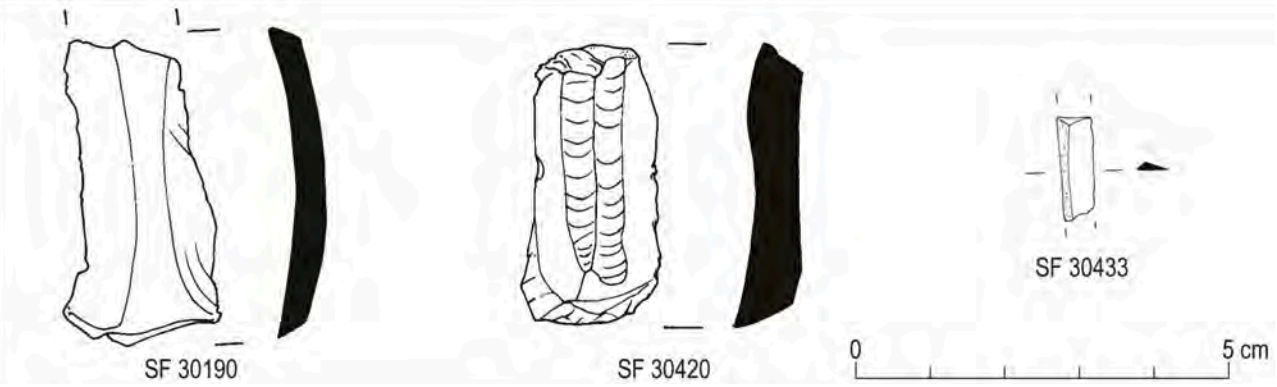
Nyree Finlay

During the course of excavations at most locations, small assemblages of struck lithics were recovered. The majority of these comprise potentially struck quartz and are essentially undiagnostic, but could represent episodes of activity during the earlier prehistoric period. However, in four cases the assemblages contained diagnostic forms or further points of interest, as set out below.

A prehistoric element was present in the T6 artefact assemblage in the form of a flint edge-retouched flake (ERF) and two honey-brown small fraction flakes, one of which probably relates to pressure flaking. The ERF is a small piece (6004; length 17mm) with invasive retouch along one lateral edge. These pieces are consistent with a date in the Late Neolithic/Early Bronze Age. The reduction of smoky-brown translucent quartz is evident with two chunks and two cores, one a fragment in the same material. The cores are amorphous flake cores. The rest of the quartz includes three flakes in different types of quartz and three splinter flakes, one bipolar as well as three pieces of small fraction with at least one a complete flake. Two unmodified pebbles are also present.

The quartz finds from T17 are characterised by pebbles and chunks as well as three flakes with thin and medium edge-angles. Small debitage flakes of smoky quartz appear worked as well as some unmodified larger chunks. The splinter-flake of vein quartz has a series of steep removals on alternate faces at either side to form a convex scraper (17007).

Illus 2.24 Beaker recovered from P17



Illus 2.25 Pitchstone blades from Trench 30 at Easter Tombreck

The small flint assemblage of rather cherty material with scree pebble cortex comprises three small black chunks (one <10mm); a slightly-rolled brown secondary flake, and two small, burnt debitage flakes. There is also a small bipolar flake fragment of chalcedony. A single, intensively worked flint-flake multi-platform core (length 20mm) worked on a round flint pebble came from T18 prior to the trench being abandoned due to flooding.

The assemblage from T30 is an interesting collection, with flint and pitchstone present as well as quartz (Illus 2.25). There are two irregular flint flakes, one an orange-red irregular flake from a multi-platform core and a smaller patinated flake. There is a small burnt microblade, 16mm long. These pieces document platform-reduction techniques and the burnt blade is consistent with the use of soft-hammer direct percussion. The three

regular small blades of aphyric Arran pitchstone are possibly all from the same reduction, given the character of the raw material, but this cannot be demonstrated. One is a medial blade segment, one is missing the proximal end (21mm long) and has lateral-edge damage, and the complete secondary blade is struck from a small, water-rolled pebble 18mm long. The quartz assemblage comprises two pebbles, one chunk and an inner flake as well as a possible straight-side scraper on a primary coarse-grained flake.

Also of note was the discovery of a pitchstone blade by the RCAHMS from a molehill at the top of the Lawers Burn, close to T8 (at NN 66397 42749). The blade was in good condition (Illus 2.3), originated from the Corriegills source on Arran, and is probably Mid to Late Neolithic in date (pers comm Torben Ballin).

2.8 BLADES AND MICROLITHS IN THE UPLANDS DURING THE MESOLITHIC

Nyree Finlay

It is unlikely that the activity identified at sites P11 and P16 represents the totality of Mesolithic activity in this area. Located at 630m above OD along a moraine bank, the material is the first to be identified from the highland zone and remains difficult to interpret given the character of the assemblages and the general paucity of associated features and comparable sites.

The default explanation for Mesolithic sites in upland locations is as short-term hunting-camps (Mellars 1976; Spikins 2002). While this location would have afforded clear views over parts of the valley, this is only one possible explanation. This may have been a favoured spot for transitory camps across the landscape, since it is located on a natural routeway to the north, close to fresh running water. The smoke and light from hearths lit here would have been visible over extensive distances. This place could have been the location of a wide suite of activities, for initiation, seclusion or ritual instruction as well as more subsistence-oriented purposes.

We can archaeologically only demonstrate lithic reduction and the use of a pit. The evidence in terms of features gives the impression of quite limited and ephemeral activities. Only a few flint artefacts were recovered and, while the quartz component is noteworthy and indicates in situ knapping activity, the human modification, dating and association of much of this material remains in question. The small, backed-blade microlith and worked distal fragment were recovered from the amorphous pit at T16, and willow charcoal from the same pit produced the important radiocarbon date of 8045±55 BP (OxA-8967), calibrated to 7300–6700 BC (2σ). While it is probable that much of the quartz assemblage relates to this period, this cannot be conclusively demonstrated. It does, however, raise the possibility of a very different aspect to the Mesolithic of the Highlands, predicated on the basis of raw-material availability; this would create its own challenges for the identification of similar assemblages in the quartz-rich upland zone.

The Scottish Mesolithic is traditionally seen as a coastal phenomenon, dominated by the rich evidence from the islands and coastal fringe of the west coast (for recent summaries of research see Finlay et al 2002; Saville 2004). While numerous surface-scatter sites have been identified along the river-valleys of the east coast, such as the River Tweed (Mulholland 1970; Warren 2001), and at notable sites further north such as Nethermills along the Dee (Boyd & Kenworthy 1992), activity in the highland and upland areas has remained something of an enigma. The first Mesolithic assemblage to be identified from the Cairngorms was recovered in 2003 on the Mar Lodge Estate, Braemar (Fraser 2003), when a surface-scatter comprising *c* 100 pieces was collected during footpath maintenance by the NTS along the River Dee at an elevation of *c* 410m above OD. Preliminary analysis of the assemblage has identified a few diagnostic Mesolithic elements in a blade-rich, predominantly flint assemblage (Ballin 2004). The evidence from Ben Lawers also indicates a blade-based platform technology, apparently including microlith production at this date, which is comparable with the evidence from sites on the west coast.

Elsewhere in Scotland, upland sites have been the focus of excavation and sustained research. In the southern uplands, excavations at Loch Doon (Edwards 1996) and Daer Reservoir (Ward 1997), which are at much lower elevations, have produced quite extensive lithic assemblages in flint and chert,

while Daer has some of the earliest dates for human activity in Scotland. At present, while it is a very welcome addition to the distribution-maps and dating of known Mesolithic activity, the evidence from Ben Lawers only gives us a tantalising hint of regional diversity; the character of Scotland's Highland Mesolithic still remains largely an unknown quantity.

2.9 THE BALNAHANAID BEAKER: BURIAL PRACTICES DURING THE NEOLITHIC?

Alison Sheridan

The Balnahanaid Beaker is of a typologically early type: 'Low Carinated' in Needham's scheme (2005: 183–8), even though most pots in this class have a higher neck-to-belly ratio than the 60:40 seen here. According to Clarke's scheme (1970), this would be an All-Over-Comb-impressed European-type Beaker, and according to the schemes put forward by Lanting & Waals (1972) and Shepherd (1986), it would fall within their steps 1–2. It shares similarities in overall shape and in decorative layout with some All-Over-Cord-decorated (AOC) Beakers (eg Castle Huntly, Angus, with its blank area around the carination: Clarke 1970: fig 4). It is most likely to date to the third quarter of the 3rd millennium BC: a radiocarbon-dated AOC Beaker from Sorisdale, on Coll, closely comparable in shape and design but for the presence of horizontal lines inside the rim, has recently been dated to 3879±32 BP (2470–2230 cal BC at 2σ: Sheridan 2007: 97, 109). This means that the Balnahanaid Beaker may be among the earliest Beakers in Scotland, dating to a time when their use was rare.

Needham has recently stressed that the majority of AO Comb-decorated Beakers are to be found in Wessex, and that in general the distributions of AO Comb and AOC Beakers are mutually exclusive (2005: 183). Nevertheless, the Balnahanaid AO Comb Beaker is not alone in Scotland (cf for example Kilcoy on the Black Isle, Clarke 1970: fig 96). In terms of the overall distribution of early Scottish Beakers, Balnahanaid lies at the western edge of the east-coast distribution; the next nearest early-style Beakers are to be found at Aberfeldy and Auchterarder, Perth & Kinross (Clarke 1970: fig 17). Like many AOC Beakers in Scotland, it is smaller than later Beakers from funerary contexts.

The discovery of this pot raises three main questions: What was its context? How was it used? And how did the practice of using such Beakers reach this part of Scotland? The contextual information is frustratingly ambiguous: had the pit been a grave, or was it part of settlement (or other) activity? No traces of obviously domestic activity were found in the vicinity. A funerary function is suggested by the fact that the pot was found on its own, in the manner of a grave good, and, despite the pit's relatively small size, one cannot rule out the possibility that it had housed an unburnt crouched body. The presence of burnt bone, which may be cremated human bone from another feature in the vicinity, suggests that the area could have been used for burial (albeit slightly later, since early Beaker graves are associated with the practice of inhumation, Suddaby & Sheridan 2006; Sheridan 2008a). Furthermore, the presence of organic residues suggesting the former presence of a liquid that had evaporated is consistent with what is known about the use of Beakers in graves to contain offerings of liquid nourishment for the deceased's journey into the afterlife. However, given the absence of positive evidence for a corpse, the interpretation of Pit P17016 as a possible, truncated grave must remain speculative.

A recent review of the earliest Beaker graves in Scotland (Sheridan 2008a) has concluded that there is a strong link with the Netherlands (and a possible Atlantic connection in the west); we may, indeed, be dealing with a 'diaspora' of small numbers of Continental immigrants, as seems also to be the case elsewhere in Britain and Ireland (see Needham 2005 on the likely areas of origin and patterns of this human movement in different parts of Britain). If the user of the Balnahanaid Beaker (or that user's parents or grandparents) formed part of this movement, then the possible motives for coming to Loch Tay might have included a search for copper. (For a discussion of the various motives for long-distance movement by small numbers of Beaker users, see Sheridan 2008b.)

2.10 SUMMARY AND CONCLUSIONS

Human occupation of Loch Tay probably began some time after the Loch Lomond stadial

c 10,000 BP with the return of warmer conditions (Housley 1991: 26) and the retreat of the glaciers. The evidence from the primary occupation of two of the Edramucky Burn sites (P11 & P16) suggests that the hills surrounding the loch were certainly being used by hunter-gatherer groups by at least the late 8th millennium BC (see below). The evidence from Ben Lawers of upland exploitation in the Mesolithic is the first encountered in the Highlands and therefore makes an important contribution to our understanding of the period (see 2.8 above).

Although the evidence of Mesolithic activity on the lip of Coire Odhar, sandwiched between Ben Ghlas and Sron Dha Mhurchaidh, is fleeting, this spot does occupy a position which afforded extensive views towards the loch, as well as across Leacann Ghlas to the east and towards Meall nan Tarmachan to the west. The adoption of nodal points in the landscape, in this case the use of natural gravel mounds sitting on an elevated bank of lateral moraine, is interesting; it must have enabled even greater visibility. This high degree of visibility is likely to have contributed to the use of the moraine bank during prehistory, but whether that related to more ritually-based activities or purely functional use is unclear.

Both the Edramucky Burn sites (P11 & P16) were partially excavated and in consequence the true extent of their use is far from clear. However, the presence of other mounds on the same ridge, particularly to the west of P16, offers a tantalising possibility that occupation here may have been more extensive during this period or potentially later. There is evidence of later activity in close proximity to the Mesolithic sites, in the form of a large boulder at the mouth of the Edramucky Burn. It was decorated with nine cup-marks, and suggests that exploitation of this area may have continued during the Neolithic.

Certainly by the early 4th to mid 3rd millennium BC exploitation of the upland zone was occurring, and it probably extended across much of the loch-side as well. The discovery of traces of human exploitation, including a hearth, a flint tool and structural evidence at Meall Greigh (T9) is important. It probably represents the first tentative evidence of Neolithic activities beyond the limits of arable cultivation in the Highlands. Once again, a site with high visibility was adopted. Located on the western flank of Meall Greigh, T9 sat at the mouth of the large coire that contains Lochan nan Cat and the headwaters of the Lawers Burn. Similar to the Edramucky Burn sites (P11 & P16) in aspect, T9 also offered extensive views towards the loch-side, and it is tempting to view their functional roles as being somewhat similar.

The project was also able to identify tentative traces of Neolithic occupation within the plough-zone in the form of artefactual deposits, such as the remarkable Balnahanaid Beaker and a number of lithic scatters. These traces, although fragmentary, further augment the local body of archaeological and historical evidence for the period, mainly in the form of stray finds, a few surviving stone-circles, burial-cairns and rock-art from Glen Lochay to Strath Tay. The assemblage of rock-art, mainly consisting of cup-marked boulders, occasionally including rings, is the most notable trace of the ancient peoples of Loch Tay. It has formed the core of recent studies (Bradley 1995; Hale 2003), which indicate that much of it may be Late Neolithic in origin (Bradley et al 2012: 29).

The discovery of a chambered cairn of the Clyde group at Kiltyrie by the RCAHMS in 2000, together with at least one, and possibly two, round barrows lying close by, was also notable (Boyle 2003). Although earlier prehistoric settlement-evidence and ritual monuments are scant on the agricultural lands along the loch-side, it is likely that later generations recycled many of the Neolithic and Bronze Age monuments of Loch Tay. Early prehistoric occupation of the northern shores of the loch may have been fairly extensive and similar in character to elsewhere in Strath Tay (Stewart 1961; Coles & Simpson 1965), but much more dedicated research will be needed to confirm this view.

Although the results discussed here present evidence that was recovered incidentally, and not based on a coherent research strategy, they add considerably to our knowledge of earlier prehistoric activity in the Central Highlands. These incidental discoveries have established that people were present in the uplands of the Central Highlands of Scotland from perhaps the late 9th millennium BC and that they probably continued to exploit this environment until the 3rd millennium BC. The results of the

Ben Lawers Historic Landscape Project have also produced significant evidence for the changing nature of the prehistoric landscape. The evidence for upland episodes of erosion as evident in T9, and the possible episodes of erosion evident in the loch, is particularly striking; the correlation between these would bear further study.

Collectively, the earlier prehistoric evidence gives an impression of a landscape that was extensively used during this period, with activity testified from the loch-side up into the mountain passes and corries. The nature and temporality of such exploitation is not clear from such slight glimpses of people's activities. However, this project has clearly demonstrated the high potential of further early prehistoric research on Loch Tayside.

It is notable in recent reviews of Mesolithic and Neolithic Scotland (Mithen 2000; Finlay et al 2002; Phillips & Bradley 2004; Saville 2004; Brophy 2006) that the Central Highlands still remain relatively devoid of new discoveries. However, research and commercial work on the loch-side at Fortingall and Weem have recently stimulated interest in rock-art and ceremonial sites of the area (Halliday 2002; Millican 2007; pers comm R Bradley). It is hoped that this work, together with the tantalising glimpses offered by this project and the major discoveries of the RCAHMS along the loch-shores, may foster greater interest in the early prehistory of the Highland glens. After all, Loch Tay is but one of many areas where occupation may stretch back for millennia.

3. IRON AGE FARMERS ON LOCH TAYSIDE

Iron Age studies on Loch Tayside and more generally within western Perthshire have tended to be limited, with the exception of Nick Dixon's work on the crannogs of the area (1982; Dixon et al 2007). This has led to a rather skewed distribution of known settlement-sites, in comparison to the denser distributions of house-types for this period in south-east and north-east Perthshire (RCAHMS 1990; 1994). It is worth noting the apparent absence of many common house-types (such as hut-circles and ring-ditch houses) within the project area prior to work beginning in 1996. Although Watson (1913; 1915) and more recently Taylor (1990) had presented evidence for the existence of homestead sites along the north shores of the loch, few other commentators had noted sites before the RCAHMS survey of the study area in 2000 (Boyle 2000; 2003).

Discovering Iron Age sites along the loch was never an intended goal of this research programme. In both cases where sites of this period were found, they were investigated in order to assess their potential as medieval settlements. The first site was T3 at Croftvellich, which was initially discovered during the survey of Easter Carwhin in March 2002 (Atkinson et al 2002). T15 at Tombreck was identified in April 2004, and presented an opportunity to use the combined techniques of topographic survey, geophysical survey and ground-truthing (Atkinson 2004: 10; Watters 2004). The results from Tombreck did not provide definitive evidence of Iron Age occupation, so a further season of excavation was undertaken at the site in September 2004 (Atkinson et al 2005a). In addition to terrestrial research, the project also pursued a programme of investigation of the crannogs on the loch (see Dixon 2003; 2004b; 2005); this work made an important contribution to our understanding of how the area was occupied during the 1st millennium BC and early 1st millennium AD. This chapter presents the results of the investigations into sites T3, T15 and the crannogs, in order to reconstruct a temporal and cultural framework for the period.

3.1 LIVING ON THE WATER DURING THE IRON AGE

Nicholas T Dixon

As noted above, Iron Age evidence around Loch Tay is relatively sparse in comparison with earlier remains, represented by cup-marked rocks (see Hale 2003 & Chapter 2). During the Ben Lawers Project the strongest evidence for Iron Age occupation was identified through work on five crannogs, Morenish Crannog, Morenish Boathouse Crannog, Milton Morenish Crannog, Eilean Breaban and Tombreck Crannog (Dixon et al 2007). All had previously been surveyed, in 1979 and 2000 (Dixon 1982; Dixon 2004a). The aim of this latest phase of work was to acquire samples for radiocarbon dating and environmental analysis from each site.

3.1.1 Morenish Crannog

The top of Morenish Crannog (NN 595 346) is almost circular, with a diameter of only 5m. The rectangular base is 17m across the widest point and 13m across the narrowest. In spite of its apparent small size, it is one of the deepest of the Loch Tay crannogs, with the top *c* 1m below the surface and the bottom edge from 1.7m to 5.6m deep. The crannog lies on a steep slope (1 in 4, or 25%) and is surrounded by thick deposits of fine silt. Its base is embedded in firmer, creamy silt. A single timber-sample was taken for radiocarbon dating (see Table 3.1), and a sample of the organic matrix in which the timber was embedded, for environmental analysis.

The radiocarbon sample produced a calibrated date of 50 BC–AD 220 (2σ, GU-12125). Three other samples were subsequently acquired, giving very similar calibrated dates of 50 BC–AD 90 (2σ, SUERC-7310) from the top of the mound, 40 BC–AD 140 (2σ, SUERC-7306) from the side of the crannog and 40 BC–AD 130 (2σ, SUERC-7311) from the mound's bottom edge. These close dates suggest that the crannog had one occupation-phase, roughly contemporary with Tombreck Crannog (see 3.1.6).

The environmental sample produced evidence of arable agriculture in the form of barley, spelt wheat and flax along with various weeds related to cultivation. Hazelnuts, raspberries and brambles show that the crannog-dwellers were exploiting the

Table 3.1: Radiocarbon dates from crannogs in the Ben Lawers survey area (lab numbers with a GU-prefix are radiometric measurements and those with a SUERC- prefix are AMS measurements)

Sample code	Crannog	Material & context	14C age (yr BP)	$\delta^{13}C$ (‰)	Calibrated range (2σ)
GU-12125	Morenish (9)	Alder: half-way up mound	1940 ± 50	–29.1	50 BC–AD 180 (93.2%)
SUERC-7310	Morenish	Alder (S1): top of mound	1970 ± 35	–24.0	50 BC–AD 90 (92.4%)
SUERC-7306	Morenish	Alder (S2): side of mound	1930 ± 35	–25.2	40 BC–AD 140 (95.4%)
SUERC-7311	Morenish	Alder (S3): base of mound	1950 ± 35	–25.7	40 BC–AD 130 (95.4%)
SUERC-6487	Morenish Boathouse (8)	Oak: walkway	2425 ± 35	–25.2	750–400 BC (95.4%)
SUERC-6488	Morenish Boathouse	Alder: walkway	2400 ± 35	–27.3	750–390 BC (95.4%)
SUERC-9746	Morenish Boathouse	Birch: top of crannog mound	2055 ± 35	–25.9	170 BC–AD 30 (95.4%)
SUERC-9747	Morenish Boathouse	Hazel: top of crannog mound	2045 ± 35	–30.7	170 BC–AD 30 (95.4%)
GU-12123	Milton Morenish (7)	Oak: loch-bed pile	2530 ± 50	–24.1	810–500 BC (93.9%)
SUERC-7305	Milton Morenish	Alder: loch-bed pile	2400 ± 35	–24.4	750–390 BC (95.4%)
SUERC-7315	Eilean Breaban (6)	Alder: earlier site phase	2430 ± 35	–24.0	760–400 BC (95.4%)
GU-12124	Eilean Breaban	Oak: later site phase	1520 ± 50	–26.0	AD 420–640 (95.4%)
GU-12126	Tombreck (5)	Alder: bottom edge of mound	1950 ± 50	–27.8	60 BC–AD 180 (94.0%)
SUERC-7312	Tombreck	Alder: top of mound	1970 ± 35	–26.1	50 BC–AD 90 (92.4%)
SUERC-7313	Tombreck	Alder: base of mound	2040 ± 35	–26.5	170 BC–AD 50 (95.4%)

woodlands around them for food. Other habitation evidence included cut wood-chips, moss, bracken, charcoal and burnt bone (Miller 2004: 6).

3.1.2 Morenish Boathouse Crannog

The Morenish Boathouse Crannog (NN 600 347) is very small, with a diameter of *c* 10m, and very low, standing less than 1m above the loch-bed on all sides. It is possible that it has silted up more heavily than others in the area, but there is no clear reason why this should be the case. It lies beside rich pasture-land which may have been cleared of trees in the past, causing more severe run-off than elsewhere and greater silt accumulation offshore, but little evidence exists to support this suggestion.

The crannog produced two samples, of birch and hazel, from a small sondage on the top of the site; these gave two calibrated dates of 170 BC–AD 30 (2σ, SUERC-9746 & SUERC-9747). Arrays of timbers extending from the shore appear to be the remains of a walkway leading to the site. An oak pile and an alder pile were sampled. The oak

pile gave a calibrated date of 750–400 BC (2σ, SUERC-6487) and the alder pile a calibrated date of 750–390 BC (2σ, SUERC-6488). The walkway appears to represent an early phase of construction, while the samples from the top are from a later phase of occupation.

3.1.3 Milton Morenish Crannog

Milton Morenish Crannog (NN 613 353) lies *c* 50m off the shore, and the top is just exposed when the water-level is low. It is slightly oval, measuring 30m across the longest axis and 24m across the shortest. The bottom edge is from 2.42m to 4.55m deep. Examination around the crannog's periphery at loch-bed level brought timbers to light in several places, and also organic material from habitation, including charcoal, nuts, twigs and other vegetation, as well as ash with flecks of charcoal and burnt bone. An array of oak and alder piles was uncovered, set close together and embedded in the ashy layer which projects from underneath the large stones which cover the site. A sample from an oak pile produced a calibrated radiocarbon date of 810–500 BC (2σ, GU-12123). A second sample, from the west side at loch-bed level, produced a calibrated date of 750–390 BC (2σ, SUERC-7305). These ages are very similar to those for Oakbank Crannog, near the east end of the loch, which has been excavated over the last 25 years (Miller et al 1998: 806).

The ashy deposit in which the timbers were embedded contained a range of material almost identical to that found at Oakbank Crannog. Barley, spelt and emmer wheat and flax, along with weeds of cultivation, clearly point to arable agriculture; some of the waste evidence suggests that grain was being processed on the site. There was evidence that the crannog-dwellers exploited wild plants, in the form of hazelnuts, raspberries and brambles, and that they roamed far and wide in search of such food, as there was evidence in the remains of heather, of bilberries and, most significantly, of cloudberries, which only grow above 700m. Bracken, burnt bone, charcoal and worked wood all derived from the occupation of the dwelling (Miller 2004: 6).

3.1.4 Eilean Breaban Crannog

Eilean Breaban (NN 641 362), near the north shore of the loch, is exposed all year round to a height of *c* 2m. It is substantially artificial but an outcrop of bedrock, which can be seen under water on the west side, has provided a solid foundation. The island is *c* 50m in diameter with *c* 3m of water on the south side and *c* 1m on the shore side. The actual shape of the crannog is markedly different from the structure visible above water. The mound extends to the south-west beneath the surface for *c* 20m, giving a roughly oval shape. Gillies (1938: 38) refers to a charter of 1526 transferring superiority of the lands of Carwhin, including the island referred to as Ila Brebane, from Haldane of Gleneagles to James Campbell of Lawers. He refers to another charter of 1546 in which it is called Ilane Brebane. In Blaeu's Atlas of 1654 it is shown as Ellan a Brippan, and it is the most likely candidate for the central of the three sites depicted in Loch Tay on Mercator's map of 1620.

A timber sample from the east edge of the site and related to the later, higher part of the structure gave a calibrated date of AD 420–640 (2σ, GU-12124). Another sample from the west end of the site and related to the earlier, lower phase gave a calibrated date of 600–400 BC (2σ, SUERC-7315), similar to the dates from Oakbank Crannog and Milton Morenish (see 3.1.3). The dating evidence supports the theory that the crannog had at least two occupation phases, 800 years apart.

3.1.5 Tombreck Crannog

Tombreck Crannog (NN 659 371) lies 30m offshore, to the east of the outlet of the Allt an Tuim Bhric below Tombreck Farm. It is 22m along the longest axis and 16m along the shortest. The highest point is 0.89m below the water-surface and the bottom edge is from 1.68m to 3.81m deep. The crannog is always submerged and lies near sloping woodlands, with useful agricultural land *c* 200m to the east.

A small sondage was cut into the bottom edge of the mound, and some small branches were uncovered beneath the stones of the crannog. A small timber was taken for radiocarbon dating and the organic matrix in which it was embedded was sampled for environmental analysis. The

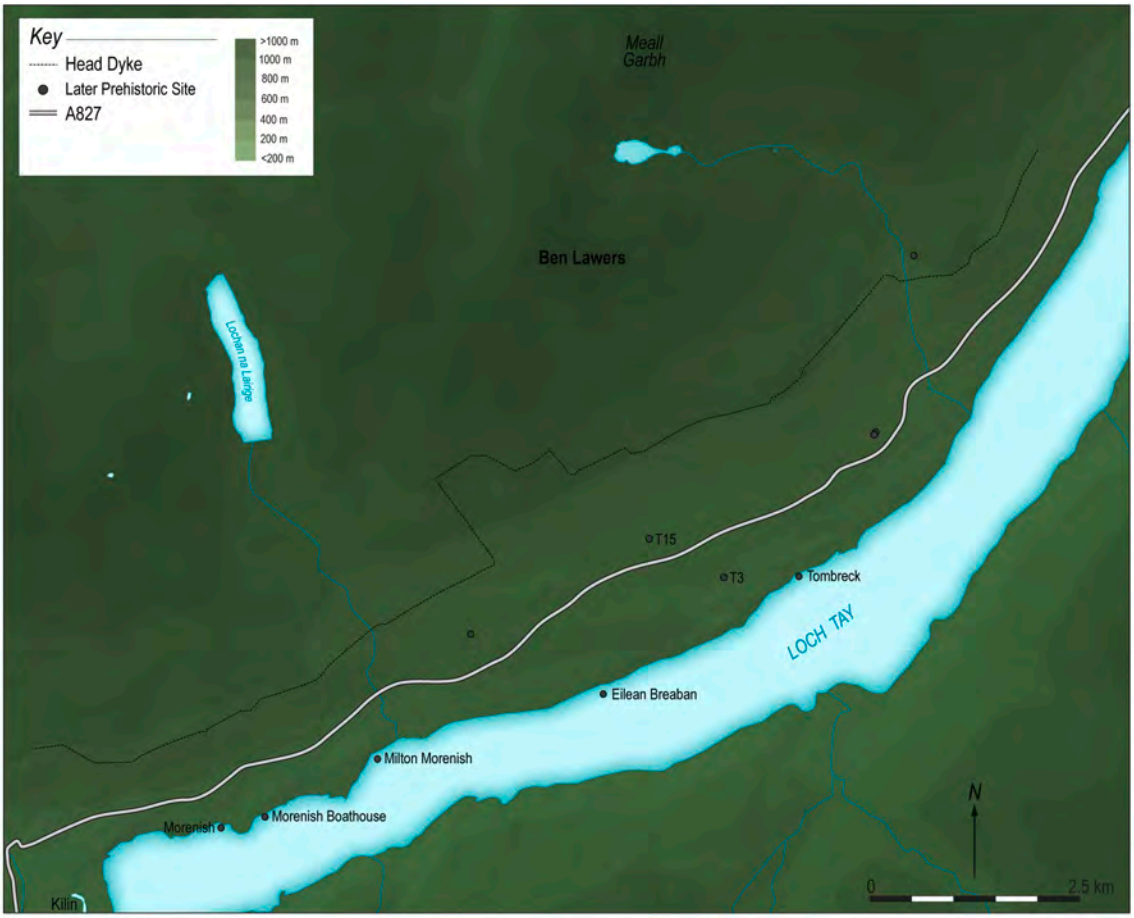
calibrated radiocarbon date proved to be 60 BC–AD 180 (2σ, GU-12126). Subsequently, two other calibrated dates were acquired: 50 BC–AD 90 (2σ, SUERC-7312) from the top of the mound and 170 BC–AD 50 (2σ, SUERC-7313) from the bottom. All three results are statistically indistinguishable, indicating a single phase of construction during the same period as Morenish Crannog.

The environmental sample from the area of the first radiocarbon date showed clear evidence of occupation in fragments of hazel (possibly the remains of hurdles), bracken, burnt bone and charcoal (Miller 2004: 6). However, it produced no evidence of arable crops or associated weeds. Given the lack of good agricultural land on the adjacent shore, this may suggest a different function for this site.

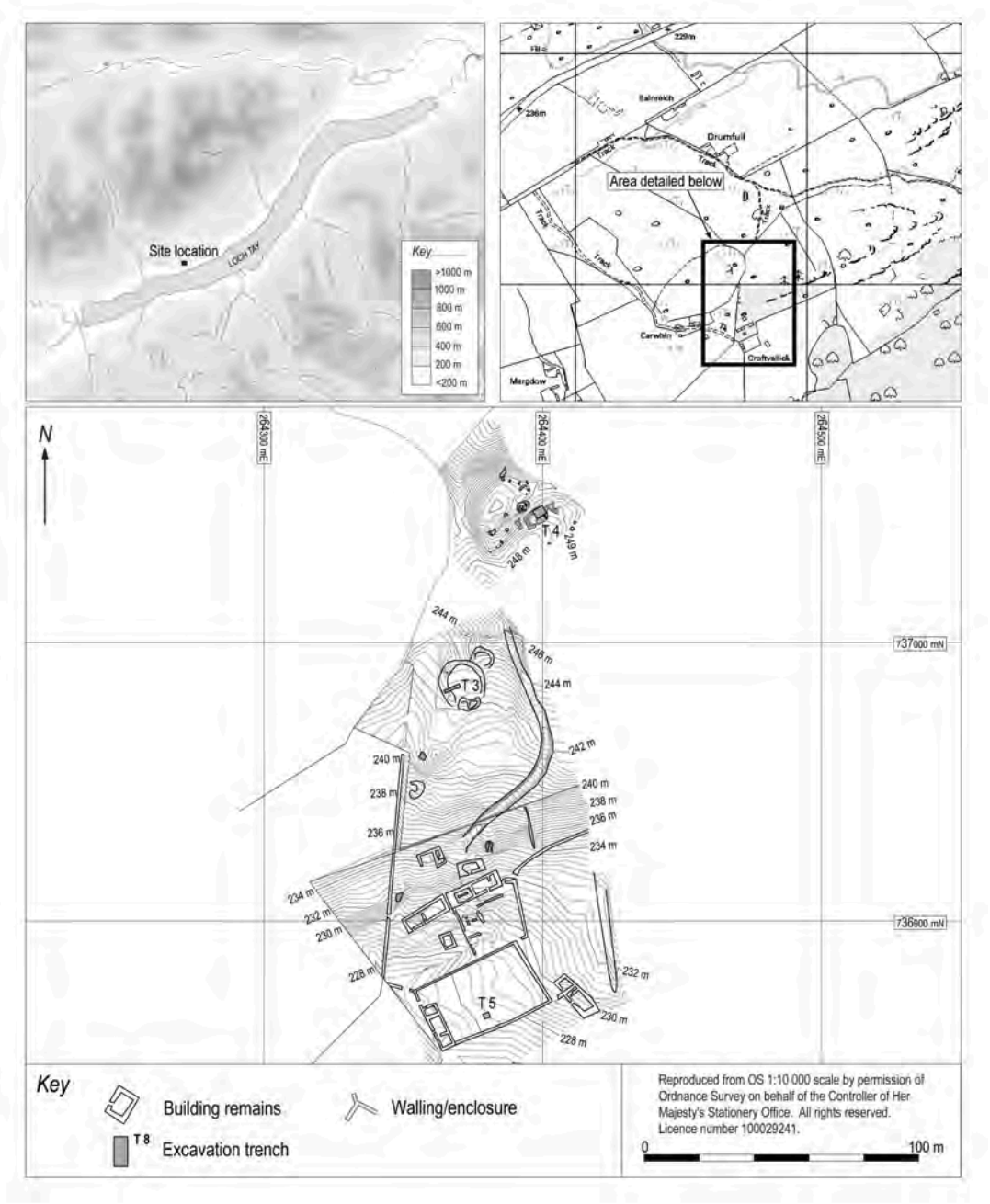
3.1.6 Discussion

Taken in conjunction with dates obtained from other projects – the Perthshire Crannog Survey, supported by Perth and Kinross Heritage Trust, and two small projects in conjunction with the Scottish Universities Environmental Research Centre – it is possible now to view the Ben Lawers dates as part of a larger Loch Tay group of 13 radiocarbon-dated crannogs (Dixon et al 2007) (Illus 3.1). For many years the Loch Tay crannogs have been seen as a relatively mixed group, but it is now possible to see closer associations between them.

The site of Milton Morenish is contemporary with eight other crannogs in the loch, including Oakbank Crannog and the one adjacent to it at Fearnan Hotel. The fact that the environmental sample from Milton Morenish produced very similar material to that from Oakbank supports the view that they were important places in the landscape of the Early Iron Age, exploiting the nearby agricultural land and natural resources on the higher ground further away. Morenish and Tombreck Crannogs are clearly of the same Late Iron Age period, but they produced less obvious agricultural evidence than Milton Morenish and Oakbank. The early medieval date from Eilean



Illus 3.1 Iron Age site-distribution map



Illus 3.2 Location of Croftvellich hut-circle

Breaban is similar to the dates from *c* AD 560–880 from two other sites on the opposite shore at Dall North and Craggan, indicating re-occupation during this period.

3.2 BUILDING T3: AN IRON AGE HUT-CIRCLE AT CROFTVELLICH

In March 2002 survey work was undertaken within the bounds of Easter Carwhin (Atkinson et al 2002). The discovery of a putative hut-circle (NGR NN 6438 3697) above Croftvellich settlement, sitting on a terrace *c* 243m above OD (Illus 3.2), introduced an unusual dimension to the landscape of Carwhin, which was otherwise dominated by later historic settlement evidence (Illus 3.3).

Detailed survey of the remains suggested that much of the original diameter of the building had survived, although the south-west side showed signs of considerable modification. A possible extension was also noted on its eastern side. Although the structure had the characteristics of a later prehistoric

Illus 3.3 Surveying at Tomour and Croftvellich in 2002

site, it lay close to the peat-track that led away from Croftvellich, and could therefore have been associated with this later settlement-site or with one of its predecessors. This potential association led to its trial excavation during the first season of the main Ben Lawers Project in September 2002 (Atkinson et al 2003a). Known as Building T3, the Croftvellich hut-circle measured *c* 11.5m in diameter, with banks extending up to 3m wide × 0.4m high.

3.2.1 Excavation Strategy

A trial-trench was excavated on the west side of the putative hut-circle; measuring *c* 6m long × 0.9m–1.3m wide; this trench extended over the bank and continued for some 3.5m into the interior (Illus 3.4–6). The strategy was simply to excavate enough of the building to characterise deposits and its likely function, and to place it into a chronological framework. As such, excavation was minimal; it relied upon the removal of a section of bank and the excavation of negative features cut through the interior occupation-horizons.

3.2.2 Deposits and Stratigraphy

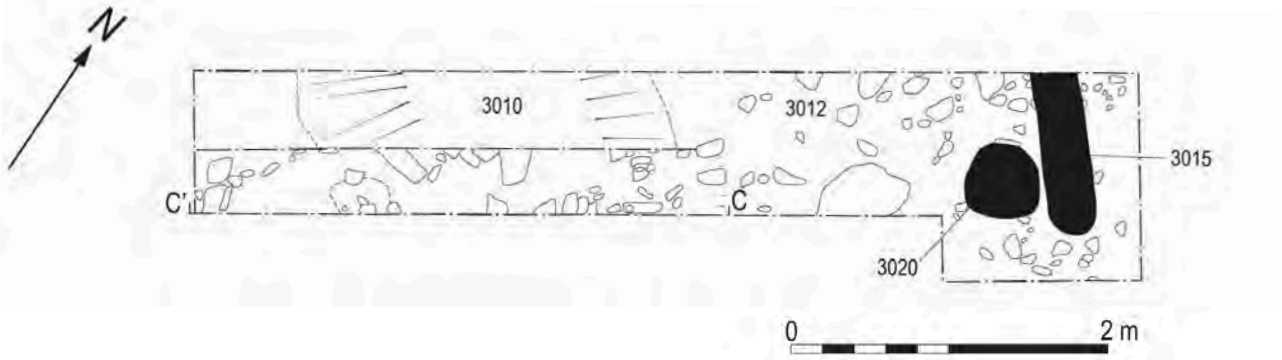
Gavin MacGregor

3.2.2.1 T3 – Phasing

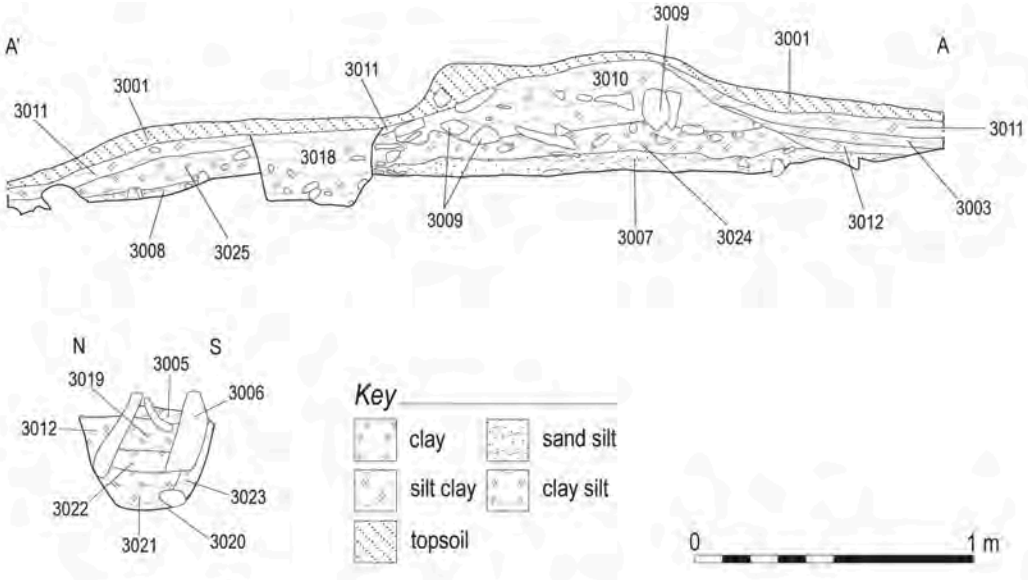
Although the excavation found hints of more than one phase for the structure (see Atkinson et al 2003a: 28), there was no definitive evidence. On balance, it seems likely that the site was constructed and used over a fairly short period during the Late Iron Age (see 3.2.5).

3.2.2.2 T3 – Sequence

Although only a small part of T3 was excavated, a clear sequence for the interior and bank deposits was apparent. The structure was built on a natural terrace. There was no sign of artificial scalping of the



Illus 3.4 T3 trench-plan



Illus 3.5 T3 sections

Illus 3.6 Evaluation of T3 by volunteers, September 2003

natural subsoil, which sloped gently from north-east to south-west. Deposition probably began with the construction of the outer bank (3002). Although no evidence of an old ground-surface was noted under it (cf Atkinson et al 2003a: 27), the basal layer (3007) may in fact represent trample associated with the construction of the bank. A charcoal-rich layer was noted on the surface of 3007; analysis revealed it contained small quantities of wood charcoal and a fragment of burnt hazelnut shell (see Table 3.2 and 3.2.4 below). Radiocarbon dating of the hazelnut fragment provided a calibrated date-range of 1530–1410 BC (2σ, SUERC-4922), while a sample of hazel charcoal returned a 95% probability date-range of 380–110 BC (2σ, SUERC-4921). Both dates are discussed further below.

The basal layer (3007) was sealed by the body of bank material, including a layer of clay-silt into which a course of stonework (3009) was embedded. This was in turn sealed by the upper bank layer (3010). A fragment of bloomery-slag (SF 3733) was recovered from the upper horizon of the bank (see 3.2.3.2 below). The initial occupation of the interior created Horizon 3012. Cut through this layer were two features (3015 & 3020). Feature 3015 was linear, 1.1m long and packed tightly with upright chocking-stones (Illus 3.4). Wood charcoal in its fill included oak and hazel, possibly the remains of uprights and wattlework panels (3.2.4 below), together with lesser amounts of birch and willow. Feature 3020 was a sub-circular pit which also contained upright packing-stones (Illus 3.5). Analysis of its fill (3019) found abundant hazel charcoal, as well as fragments of oak and Scots pine which may indicate destruction of structural members (see 3.2.4 below). Radiocarbon dating of a fragment of hazel from this deposit provided a date-range of 370–110 BC (2σ, SUERC-4920). Fill 3019 was also the only context with evidence for the working of quartz in T3 (see 3.2.3.1 below).

Following the destruction of the internal features, several silt layers accumulated across the interior, including 3003, 3011 and 3005 (not illustrated). A fragment of ceramic (SF 3721) found in Silt-Layer 3005 is late in date and probably the core of a modern sherd (pers comm Ballin Smith). Silting deposits were also evident outside the hut-circle (3025 & 3011), as was a cut feature (3018) that appeared late in date and was filled with a loose, organic silt.

3.2.3 Finds

3.2.3.1 Lithics

Nyree Finlay

A small, but complete, debitage flake *c* 8mm long (SF 3008b) and a struck chunk (SF 3008a) were recovered from Fill 3019. The struck chunk, however, is probably the result of a natural event.

Table 3.2: Palaeo-botanical results from T3 at Croftvellich

Context no.	3007	3017	3019	3021
Charcoal				
Alnus	2			
Betula	3	4		5
Corylus	4	10	15	
Ericales				
Pinus sylvestris			1	
Quercus		9	2	
Salix	1	1		
Indet charcoal			2	
Carbonised seeds				
Corylus avellana (nutshell)	1			

Table 3.3: SEM-EDAX analyses of metallurgical waste recovered from T3 excavation (all results are normalised to 100% n/d not detected)

Sample	MgO	Al_2O_3	SiO_2	$P2O_5$	SO_3	Cl	K_2O	CaO	TiO_2	MnO	FeO	BaO	Total	N/UN
Analysis 1: oxidised area 1	8.15	20.82	57.39	n/d	n/d	n/d	3.19	n/d	n/d	n/d	10.7	n/d	99.98	N
Analysis 2: oxidised area 2	n/d	16.25	55.17	n/d	n/d	n/d	6.65	1.01	0.91	1.7	18.3	n/d	99.99	N
Analysis 3: silica grain/ glassy matrix area	7.15	23.08	59.42	n/d	n/d	n/d	4	0.71	n/d	n/d	5.63	n/d	99.99	N
Analysis 4: iron-rich/iron oxide/fayalite area	6.61	12.07	37.87	n/d	n/d	n/d	1.97	2.06	n/d	2.41	37	n/d	99.99	N
Analysis 5: non-crystalline iron ore grain	2.97	n/d	1.37	n/d	n/d	n/d	n/d	n/d	n/d	1.88	93.77	n/d	99.99	N

3.2.3.2 Metallurgical Waste

Effie Photos-Jones

A single fragment of metallurgical waste (SF 3729), *c* 40mm × 30mm, was recovered from T3. It displays gradient in both colour (dark brown to orange-red) and vitrification (glassy to heated). SEM-EDAX analysis (Table 3.3) suggests it represents a fragment of metallurgical ceramic, which has come into contact with and reacted to iron ore. This is manifested by iron-rich phases like fayalite and magnetite as well as non-crystalline, manganese-rich iron ore. The manganese content is indicative of bog-iron ore (Hall & Photos-Jones 1998) and suggests the sample is a fragment of furnace-wall or -lining.

3.2.4 Environmental Evidence

Jennifer Miller & Susan Ramsay

The basal layer (3007) pre-dating the bank contained a variety of carbonised remains, including alder, birch, hazel and willow, together with hazelnut shell. Charcoal from the fill (3019) of Pit 3020 was fairly abundant, and the combination of hazel, oak and Scots pine that it contained is suggestive of structural elements, perhaps from a destruction event. Oak, hazel, birch and willow were also recorded from Linear Feature 3015 and may also represent structural remains, possibly uprights and wattlework panels.

3.2.5 Interpretation of the Evidence

Although only limited excavation was pursued over T3, the results of the work allow us to comment on issues of date and function. It seems likely that the building was occupied during the later Iron Age and was in use during the Phase 1 occupation of the nearby Roundhouse A at Tombreck (see 3.3.4 below). Dating of a fragment of hazelnut shell from beneath the bank of the hut-circle has suggested that the site saw an earlier phase of activity in the Bronze Age (mid 2nd millennium BC). While this may have been the case, it is probably best to view the single fragment of nutshell as residual, having found its way into this layer by any number of means.

It is possible to comment, however, on the likely function of the site. The presence of a post-hole just inside the defining bank may have been part of a ring of posts which would have supported a roof.

The linear trench, packed tightly with upright slabs and containing evidence of wattlework panels and supports, certainly points to some form of division of the interior, a feature that is common in other excavated hut-circles in the Highlands (Rideout 1995: 188). Although no trace of a hearth and no cereals or other carbonised foodstuffs were found in the small sample of excavated interior deposits, it seems likely that humans occupied Building T3, rather than beasts. Constructed with its entrance facing south-east, it certainly adopted the favoured orientation for other roundhouses in the Highlands (RCAHMS 1990: 2).

Very few artefacts were found in T3, which is typical for sites of this period in the Highlands. With the exception of the intrusive, badly-damaged sherd of modern ceramic, the only finds of note were the debitage flake (SF 3008b) and the bloomery-slag (SF 3733). Neither provides particularly strong evidence for craft-work by the Iron Age occupants, but it is possible that the quartz flake is a waste-product from knapping in the building. The slag, however, came from the upper part of the bank and could easily be intrusive. Its chemical composition indicates that it was produced from bog-iron ore in the bloomery process. As such, it may be evidence for re-use of the hut-circle long after abandonment, rather than contemporary smelting. Although numerous bloomery sites have been excavated in the Highlands, few have been accurately dated. Those that have, generally fall within the 13th to 15th centuries AD (Atkinson 2003). However, unpublished examples such as Tarvas near Forres (pers comm Bob Will) have indicated that the process itself stretched back into the Iron Age.

3.3 T15 AT TOMBRECK

Gillies was the first commentator to mention the possibility of a homestead or a 'round fort' on the banks of the Allt na Tuim Bhric in the Tombreck outfields (1938: 31, 401). There was clearly local knowledge of an ancient site there in 1769, as Farquharson names the field in which it lies as 'An Caisteal', the castle. He did not, however, illustrate the site and it is therefore likely that it had been substantially robbed before his survey. Although the exact form and nature of the site was unclear, Taylor suggested it was in fact a circular homestead (1990: 78), a characterisation that was broadly accepted by the RCAHMS following their survey of 2000 (Boyle 2000).

Circular homesteads or ring-forts have been recognised and researched as a distinct category of monument in the landscapes of the Central Highlands for many years (Watson 1913; 1915; Taylor 1990; Hingley et al 1997; Atkinson et al 2001; Strachan & Winlow 2005). Found mainly in north-west Perthshire (see Taylor 1990), the few that have been excavated have provided contradictory dating evidence. The artefactual assemblages from Borenish II, Litigan, Queen's View and Aldclune all indicated occupation from the middle or later centuries of the 1st millennium AD (cf Hingley et al 1997: 460). It was only with radiocarbon assays on samples from Aldclune that dating of this site, and by extension other homesteads, could be more accurately assessed. Aldclune's main phase of occupation was during the Late Iron Age (Hingley et al 1997), but in terms of character it differs from the typical homesteads of the region.

These differences, in terms of construction and particularly topographic location and the presence of defensive features, suggest that Aldclune may belong to a slightly different class of later prehistoric house than sites such as Litigan or Queen's View. It has been noted that Aldclune I & II lie at the interface between an area containing homesteads and an area containing more extensive, open settlements made up of clusters of huts (Hingley et al 1997: 457). As such, they may not be typical examples of homesteads. It is also worth noting that radiocarbon dates obtained for two other sites – Litigan and

Table 3.4: Late 1st millennium AD radiocarbon dates from homesteads

Site name	Lab ref	Material	Uncalibrated BP	Calibrated 1σ	Calibrated 2σ
Litigan	R.2728/1	charcoal	1020 ± 90	ad 940–1060	AD 800–1220
Bunrannoch	GU-11931	hazel charcoal		?	AD 660–880

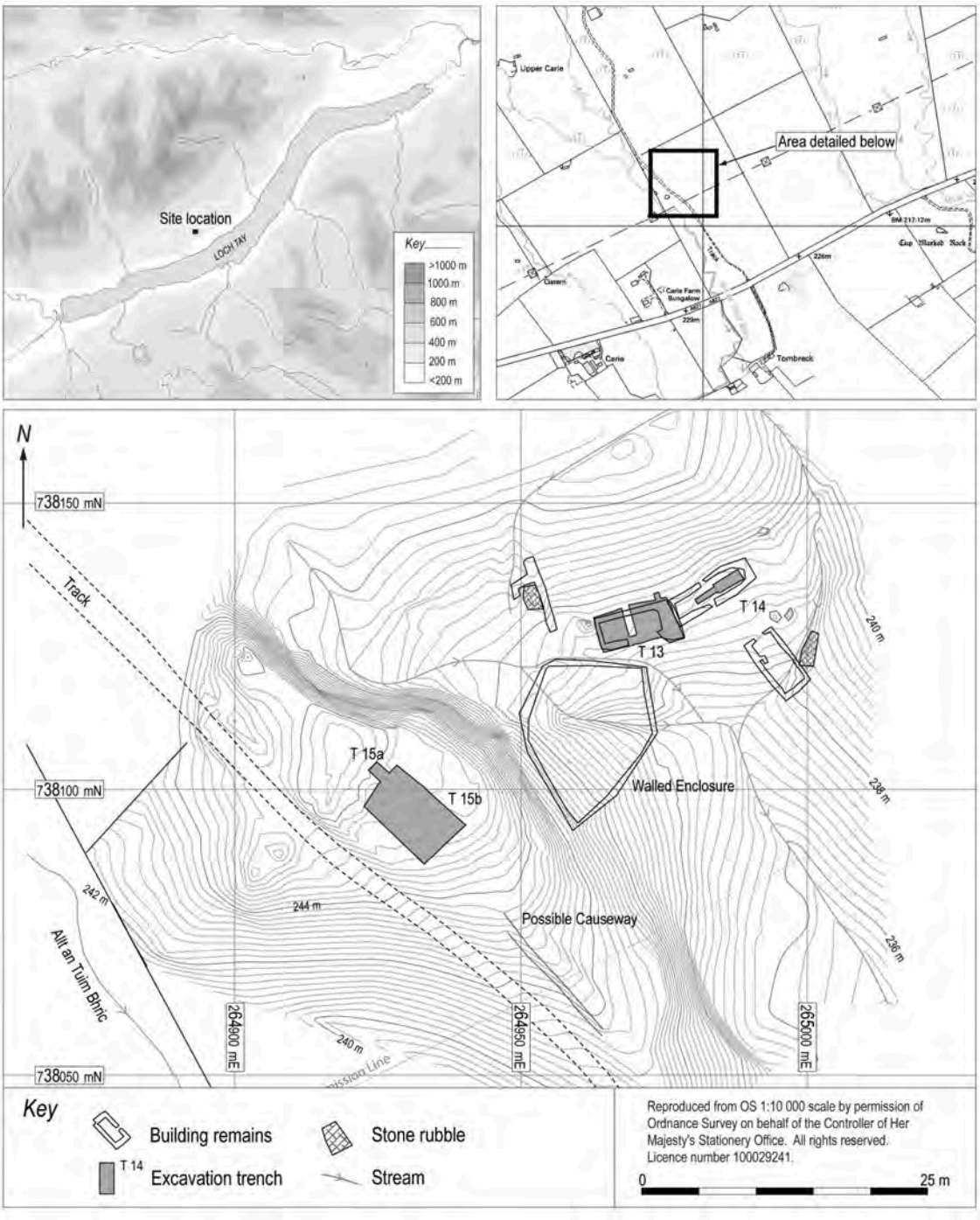
Illus 3.7 T15 at Tombreck under excavation, September 2004

Bunrannoch (Table 3.4) – point to later occupation or possibly occasional use during the second half of the 1st millennium AD. Although the Litigan date is contentious, as the sample dated was recovered from an insecure context, stronger evidence from artefactual assemblages at other homesteads (for example Aldclune and Queen's View) also points to a phase of activity during this period.

It was with this in mind that the site of T15 at Tombreck was selected initially for trial investigation and subsequently for excavation in 2004 (Atkinson et al 2004b; 2005a) (Illus 3.7). Located by the track to the east of the Allt na Tuim Bhric (at NGR NN 6493 3809), T15 sat atop a small knoll that had been levelled to form a flat platform covering an area of 22.5m × 18m. Traces of a possibly artificial, raised, curved edge were apparent on the east and north sides. The platform provided undisturbed views to the south, east and west (Illus 3.8). There was also evidence of a raised, linear ramp approaching the platform from the south-east, although the exact nature of this remains unclear. This section presents the results of the excavations at T15 and places them within the context of other homestead-sites in the region and other settlement-sites of the period.

3.3.1 Homesteads on Loch Tayside

Although Watson (1913: 45–6) refers to the two forts on Loch Tayside mentioned by Pennant in 1769, he was unable to locate either during his survey of circular forts in north Perthshire. One of the sites may be the remains of the homestead at Edramucky (NN 6240 3676). This site, although much denuded and damaged by forestry planting, is relatively well preserved in comparison to the other Loch Tay homesteads. Other sites have been postulated since Watson's survey. Taylor argues for the presence of four homesteads on the northern shores of the loch (1990: figs 11, 59; sites 51–4, 77–8). There are monuments at Tombreck (NN 6493 3809), Rhynachulig (NN 6150 3650) and Croftintygan (NN 6710 3940) at similar elevations (230–250m above OD) as Edramucky. All three are mentioned by Taylor, who cites Gillies (1938: 29–32), but more recent investigators have been

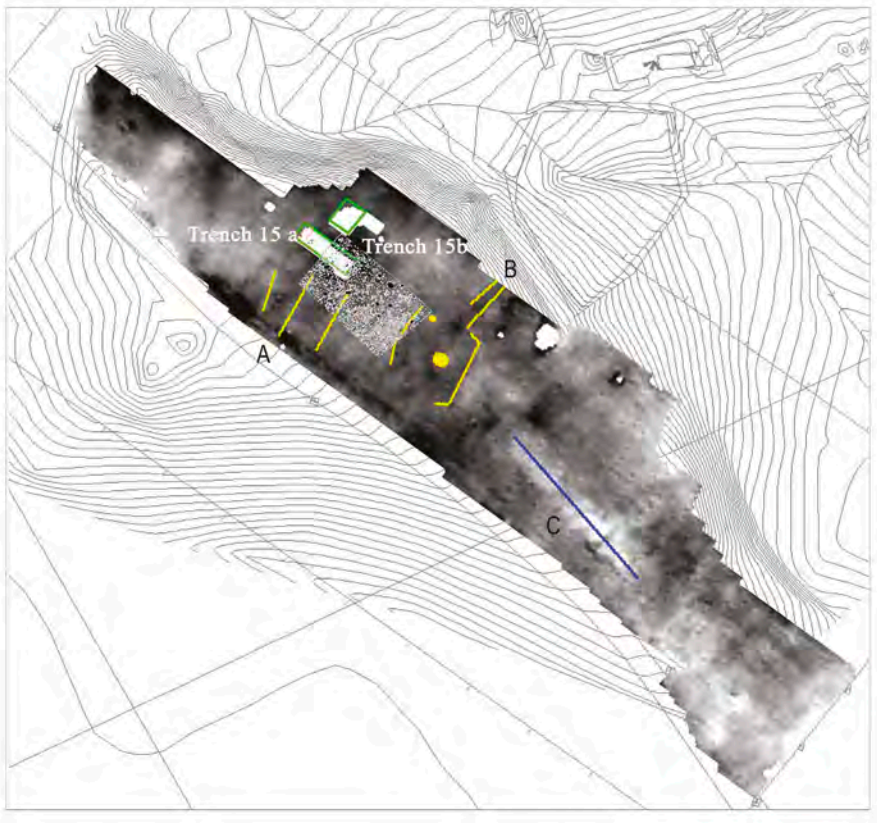


Illus 3.8 Tombreck outfield location-plan

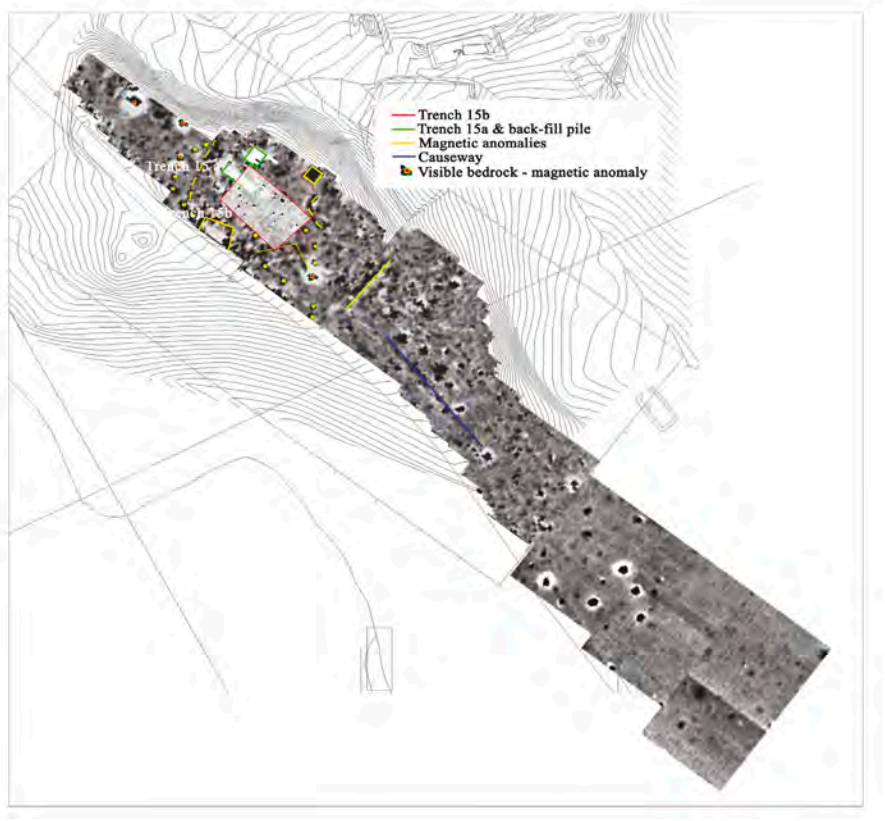
unable to confirm the presence of remains at Rhynachulig and Croftintygan.

It is worth considering the arguments presented by Gillies for the existence of circular homesteads on Loch Tayside. His evidence seems to have been based on an 'atlas' which showed 'castles' within fields on these farms (see 1938: 30). He also suggests that one of the sites mentioned by Pennant was probably on the farm of Rhynachulig, and that both Tombreck and Croftintygan were known by place-name evidence as 'An Caisteal' and 'An Caisteal Mor' (Gillies 1938: 31). It seems likely that he is referring to Farquharson's map of 1769 and the accompanying book of reference (NRS RHP973) when he uses the term 'atlas'. It is therefore probable that the evidence for the Loch Tay homesteads is principally drawn from the names of the fields in 1769, rather than from surviving physical evidence.

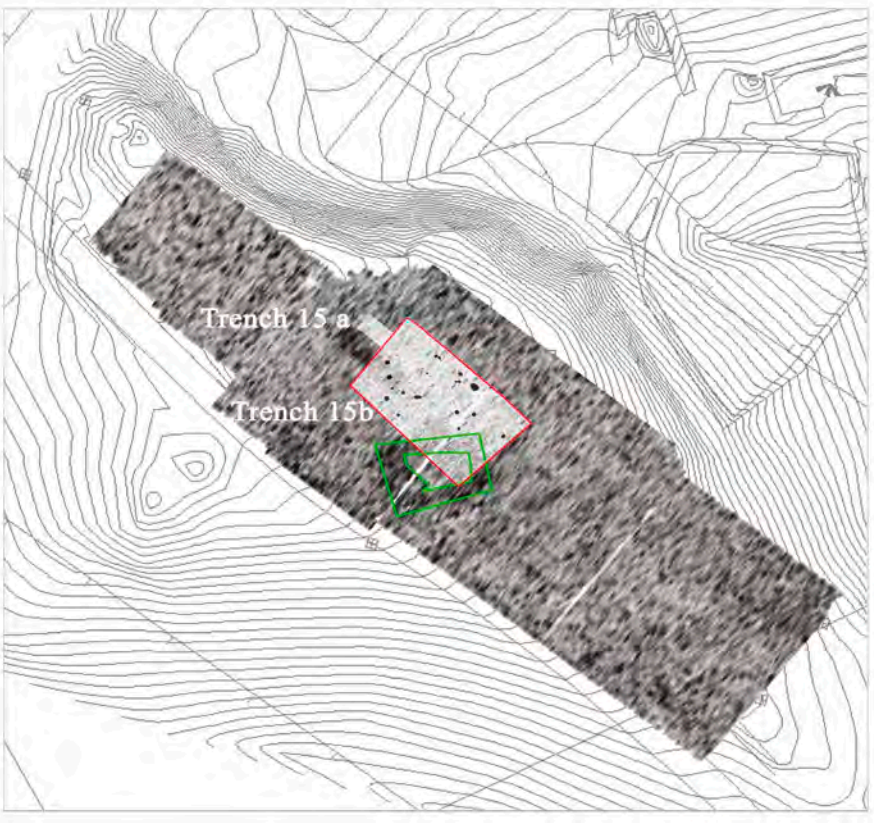
Illus 3.9 Geophysical survey area and excavation-plans



Illus 3.10 Resistance survey at T15



Illus 3.11 Magnetic survey at T15



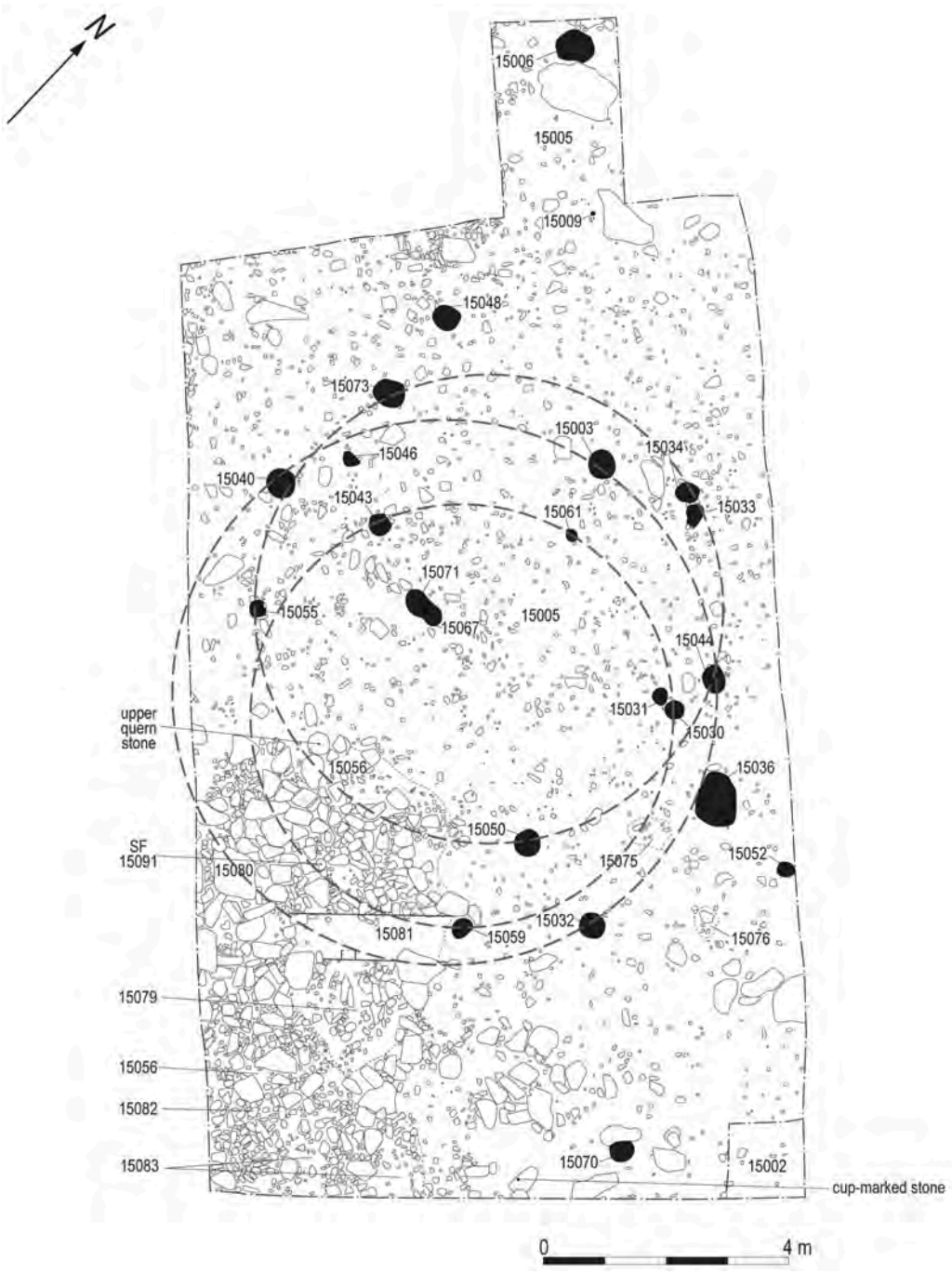
Illus 3.12 GPR survey at T15

3.3.2 Geophysical Surveys at An Caisteal, Tombreck

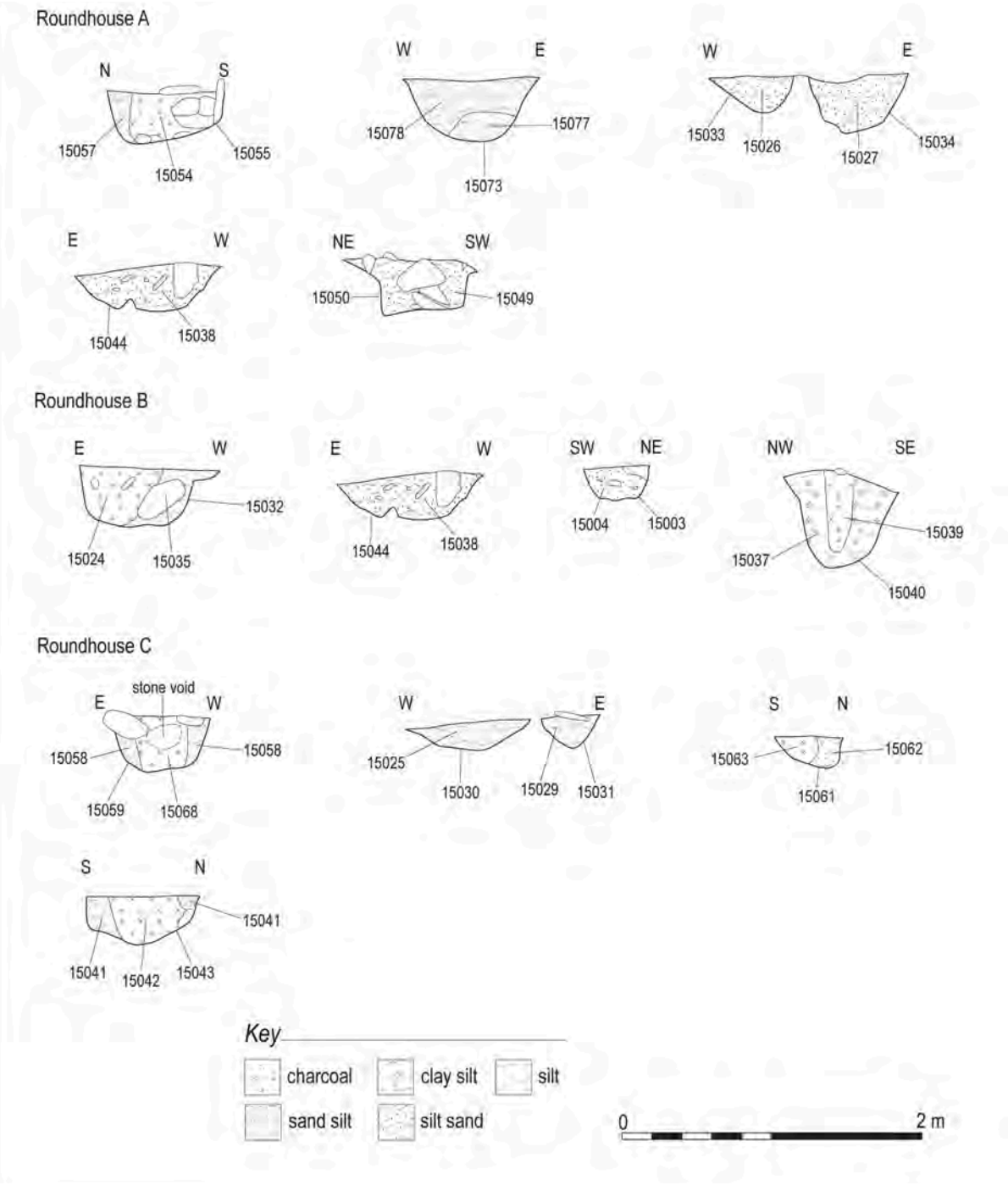
Meg Watters

The Tombreck geophysical surveys were undertaken in late summer 2004 around the area of the putative homestead, identified by trial excavations in spring 2004 (Illus 3.9) (Trench 15 in Atkinson et al 2004b), and before open-area excavation of the site (Atkinson et al 2005a). The geophysical surveys collected magnetic gradient, resistance and ground-penetrating radar data. Preliminary results identified a number of potential archaeological features (Watters 2004).

The resistivity survey mapped two parallel linear features which may be remnants of agricultural activity and could correspond with similar linear features excavated in Trench 15 (Illus 3.10, A). This survey mapped additional linear features to the south of the excavation trench (Illus 3.10, B), along with traces of the causeway (Illus 3.10, C). The magnetic



Illus 3.13 T15 excavation-plan



Illus 3.14 T15 post-hole and pit sections

survey mapped a number of anomalies (Illus 3.11). Generally, the bedrock was highly magnetic, so many of the point-anomalies reflect either exposed outcrops or buried bedrock (Illus 3.10, A). The magnetic and resistance surveys failed to map any conclusive evidence of the features excavated in Trench 15. The ground-penetrating radar (GPR) survey mapped evidence of the structure revealed in the southern corner of Trench 15 in late 2004. Illus 3.12 shows the plan of Trench 15 with the rectangular feature (in green) interpreted from the GPR survey results.

The geophysical surveys mapped a number of potential archaeological features. However, in general these surveys do not appear to have been effective in mapping the buried archaeology at Tombreck, given the failure of the resistance and magnetic surveys to record the structural feature

in the southern corner of Trench 15 and the lack of correspondence between anomalies and excavated features. Although the surveys did map the possible causeway, and perhaps the southern edge of the monument's bank, these features are clearly visible in the landscape, so the resistance and magnetic surveys did not add anything of value to the investigations. The GPR survey was the most successful in mapping a feature that corresponds to the structure excavated in Trench 15.

3.3.3 Excavation Strategy

Trench 15 was extended following evaluation work undertaken in April 2004 (Atkinson et al 2004b), which revealed a post-hole and a pit. In general, the aim of the September excavation was to elucidate further the nature, date and character of the features revealed during the trial-trenching work, and to establish the nature of the anomalies mapped during geophysical survey of the site. A large trench, measuring 16.5m north/south by 10m east/west, was excavated over the top of the platform (Illus 3.13) and open-area excavation was pursued by hand.

3.3.4 Deposits and Stratigraphy

John A Atkinson & Ingrid Shearer

3.3.4.1 T15 – Phasing

Although in radiometric terms the different phases of the site are indistinguishable, in the sense that calibration of the eight dates obtained suggests a fairly uniform phase of occupation covering a period of up to 400 years, the character of the stratigraphy points to three phases of occupation.

Phase 1 – raising of, and dwelling in, Roundhouse A *c* 370–100 BC

Phase 2 – construction and use of Roundhouse B between 260 and 240 BC

Phase 3 – building and occupation of Roundhouse C from 210 BC to AD 10

It is likely that the occupation of the site was continuous, which has led to the considerable overlap in date-ranges. This point is discussed more fully in Chapter 10, section 10.2.

3.3.4.2 T15 – Sequence

The knoll on which T15 was built appeared to have been scalped prior to its construction, although excavation was unable to prove this. It is likely, however, that construction activity began with the flattening of a natural deposit of ground moraine to form a level platform. The construction of Roundhouse A may have followed shortly afterwards. Roundhouse A was built of timber posts, set into holes in the ground and packed with chocking-stones (Illus 3.14). Up to five post-holes were identified, defining a circular structure of *c* 7.5m internal diameter (Illus 3.15). Although no artefactual material was recovered from the earthen fills of the post-holes, analysis of charcoal from the fills suggests that birch may have been used for the principal timber members of this building; the only exception was Post-Hole 15050, where alder was dominant (Table 3.5). The lack of hazel charcoal from these fills was also notable (see 3.3.9 below).

A single calibrated radiocarbon date was achieved from a sample of birch charcoal from Post-Hole 15054, suggesting deposition between 370 and 100 BC (2σ, SUERC-9710). No internal features could be confidently ascribed to this phase of use, but an area of Paving 15080 – with a fragment of upper quern-stone (SF 15092) set into it – leading into the south-western arc of the roundhouse may indicate the location of the building's entrance during this and later phases (see below for further discussion).

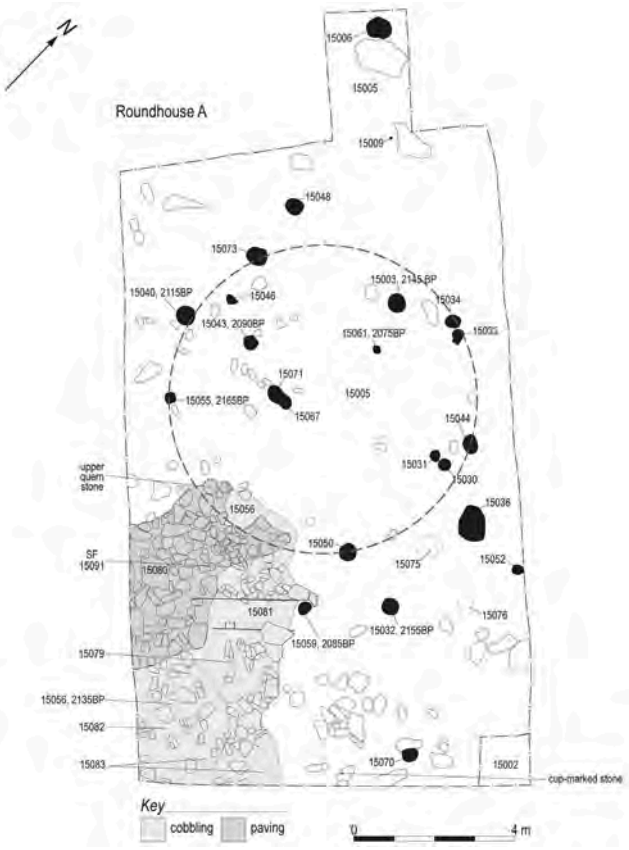
The second phase of activity may have seen the construction of a building (Roundhouse B) similar to Roundhouse A, following its abandonment and removal. This structure was also circular, *c* 8.8m internal diameter, and built of timber posts set into the ground with packing-stones in the post-holes (Illus 3.16). Four evenly-spaced posts defined this building. Palaeo-botanical analysis of the fills suggests that birch and hazel predominated in two post-fills each. It may be noted, though, that hazel charcoal was present in sufficient quantities to imply its use during this phase. Radiocarbon dating of birch, alder and hazel charcoal from Post-Holes 15003, 15040 & 15032 respectively provided a closely-clustered range of calibrated dates (Table 3.6), suggesting deposition between 260 and 40 BC (2σ, SUERC-4911/9707/9708). As

Table 3.5: Palaeo-botanical results from T15 at Tombreck

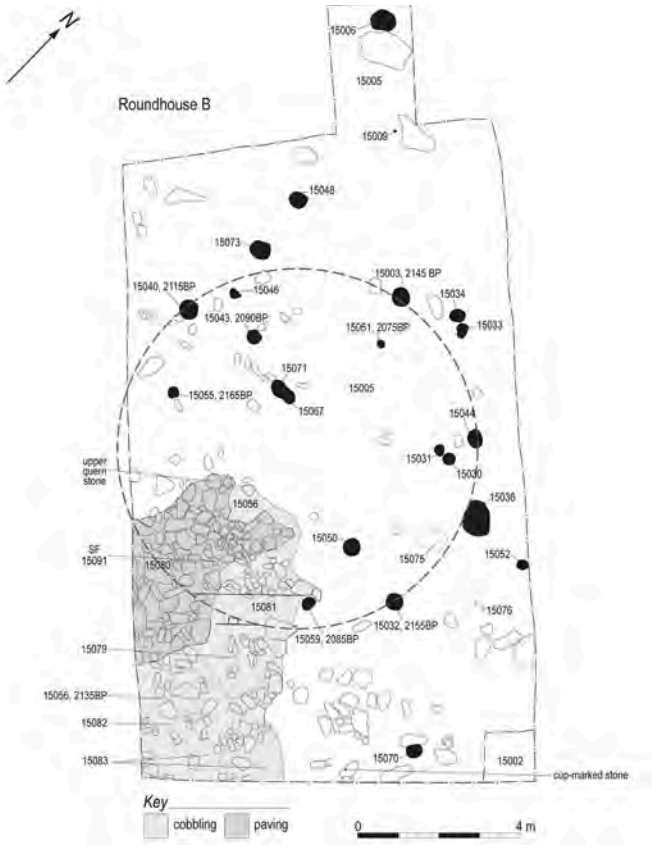
	15004	15011	15015	15022	15024	15025	15027	15028	15029	15035	15037	15038	15039	15041	15042	15047
Charcoal																
Alnus	6	2	3			2		4		5	4	2	13	13	10	
Betula	21			1			5	2			11	17	6	2		
Corylus	9		1	2	18	1	10		4	13	5		1	4	10	1
Ericales						2		19								
Pinus sylvestris type	2				2		1			2		1				
Prunoideae								1								
Quercus	1			1			1									
Salix	1															
Indet charcoal														1		1
Cinder	+				+					+	++		+			
Burnt peat/dung															+	
Carbonised cereals																
Avena sp	3														1	
Hordeum vulgare sl	1														3	
Indet cereal															2	
Carbonised seeds																
Monocot stems/ rhizomes															27	
Prunus avium								1								

Table 3.5: cont.

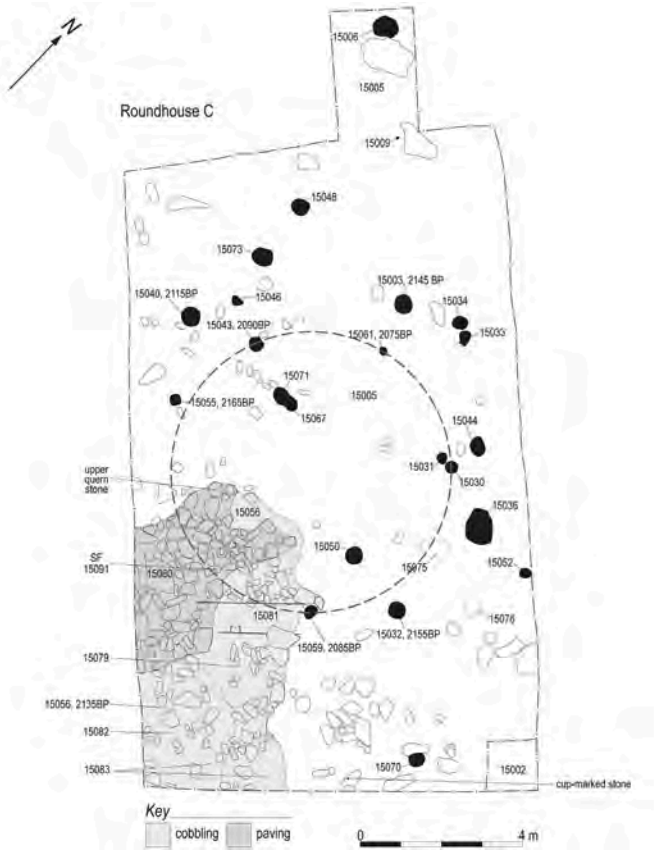
	15049	15051	15054	15056	15057	15058	15062	15063	15064	15066	15068	15069	15072	15078	15079	15081
Charcoal																
Alnus	13		3	24	4	6	6	18	5	6	8	7	7	1	17	2
Betula	5		12	48	7	8			5	3		2	10	2	2	1
Corylus	2			24	1	6			8	6	6	8	1	1	1	
Ericales		5		13	7	3			2	3						
Maloideae												1				
Pinus sylvestris type									2							
Quercus				3						1		1	2			
Salix			5								6	1				
Indet charcoal					1											
Carbonised cereals																
Hordeum vulgare var *vulgare*					1	5		1								
Hordeum vulgare sl	1		2				1						4			
Triticum sp					1											
Indet cereal													2			
Carbonised seeds																
Corylus avellana (nutshell)						2							3			
Monocot stems / rhizomes								1	7							
Prunus avium																
Scirpus sp									1							



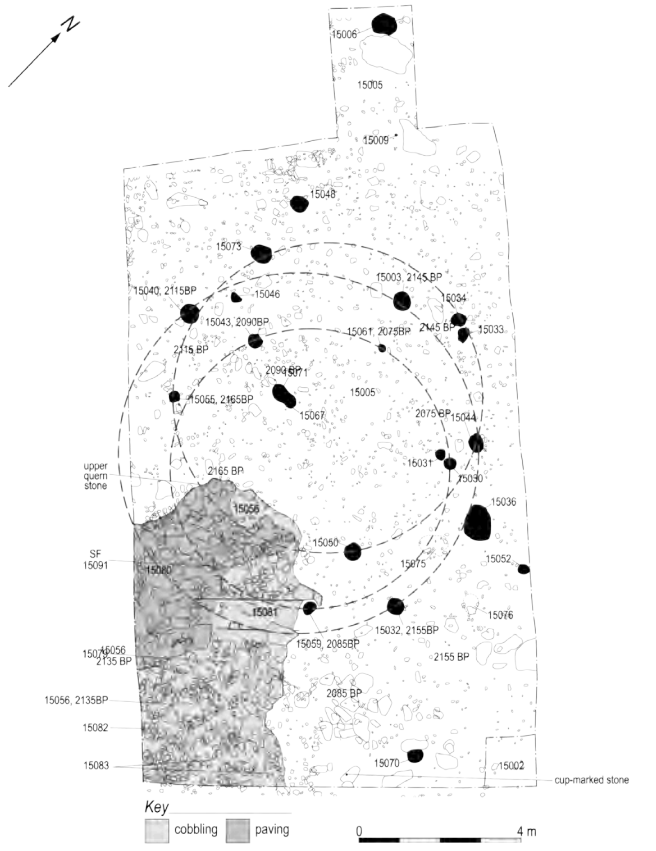
Illus 3.15 Plan of Roundhouse A



Illus 3.16 Plan of Roundhouse B



Illus 3.17 Plan of Roundhouse C



Illus 3.18 Composite plan of all roundhouses

with Roundhouse A, no finds or internal features could be confidently ascribed to this building. However, the Cobbled Area 15080 which led into Roundhouse B from the south-west may indicate the entrance location. This is supported to a degree by radiocarbon dating of hazel charcoal from the Silt Layer 15056 directly beneath and between the paving (15080), which returned a contemporaneous calibrated date of 230–50 BC (2σ, SUERC-9711).

3.3.5 Roundhouse C

The final building to be constructed was Roundhouse C, after Roundhouse B had been taken down. This structure was evidenced by four evenly-spaced post-holes which formed a circle of *c* 6.8m diameter on a similar ground-plan to both Houses A and B (Illus 3.17–18). A fifth possible post-hole (15075) was noted within this ring, but time did not allow for this to be excavated. Excavation of the four post-holes revealed similarities with other post-holes at the site, including the presence of packing-stones and multiple fills (Illus 3.14). Although no finds were recovered, the post-holes did contain abundant evidence of the palaeo-environment, including six-row barley, hulled six-row barley and other carbonised seeds (Table 3.7). Three of the post-features (15043, 15059 and 15061) contained large quantities of burnt alder, suggesting this may have been the principal timber used in construction, and that fire may have played a role in this building's abandonment. Large quantities of hazel were also found in two of the fills, implying that wattlework was used along with the posts. Radiocarbon dating of material from three of the post-holes suggests a closely-dated sequence for deposition in this building (Table 3.6). A combined calibrated date-range of 210 BC–AD 10 (2σ, SUERC-9709/9712/9716) points to the slightly later use of Roundhouse C (see Chapter 10, section 10.2 and below for further discussion). Although no features can be categorically associated with this building, a perforated weight (SF 15091) was found set within paved Layer 15080, immediately within the arc of the roundhouse, and may have been related to the structure's door arrangement.

3.3.6 Pits, Paving and Cobbles

A group of pits was also excavated; these generally lay around the periphery of the buildings. Recovery of cherry and wild cherry from Pit 15036, apple from Pit 15070 and hazelnut shells from Pit 15071 all suggest that domestic waste was deposited in these features. It is notable that oak was present in three of the six pits, but was generally absent from the post-holes.

As noted above, an extensive area of paving (15080) and cobbles (15082) was uncovered in the south-western part of the trench. These surfaces are postulated as the main approach to the roundhouse buildings during all phases of use. They were set on a widely-spread layer (15056) of fuel-residue (3.3.8.1 below). Radiocarbon dating (see 3.3.4.2 above) of a sample from this layer confirms this view. Although the paving appeared to be the final in situ event in this area (Atkinson et al 2005a: 20), its relationship with the cobbles could not be proved.

Table 3.6: Radiocarbon dates from Trench 15 at Tombreck

Context no.	Material dated	Uncalibrated date (BP)	Calibrated date (2σ)	Lab ref
15004	Birch	2145 ± 35	260–50 BC	SUERC-4911
15068	Alder	2085 ± 35	200 BC–0 AD	SUERC-9716
15024	Hazel	2155 ± 35	260–90 BC	SUERC-9707
15039	Alder	2115 ± 35	210–40 BC	SUERC-9708
15042	Hazel	2090 ± 35	210–20 BC	SUERC-9709
15054	Birch	2165 ± 35	370–100 BC	SUERC-9710
15056	Hazel	2135 ± 35	230–50 BC	SUERC-9711
15063	Alder	2075 ± 35	200 BC–10 AD	SUERC-9712

Table 3.7: Occurrence of carbonised cereal grains in features at Tombreck by phase of occupation

Context	Phase	Oats	Six-row barley	Six-row barley (hulled)	Wheat	Indet
15003	2	3	1	0	0	0
15043	3	1	3	0	0	2
15050	1	0	1	0	0	0
15055	1	0	2	1	1	0
15059	3	0	0	5	0	0
15061	3	0	1	1	0	0
15071	n/a	0	4	0	0	2
Totals		4	12	7	1	4

Much of the central part of the paving and cobbles was subsequently obscured by tumble (15053), including heat-damaged cobbles (see 3.3.9 below for interpretation). Four large fragments of dressed masonry (SFs 15100, 15101, 15103 & 15104) were also found, together with two quern-stone fragments (SFs 15085 & 15086) and three hammerstones (SFs 15095, 15096 & 15098). This material is discussed further below.

Tumble 15053 and the rest of the site were subsequently covered by a broad band of silt (15002) which, although not anthropogenic, retained traces of agricultural activity in its surface (for example, clearance-cairns and shallow furrows). A mixed assemblage of artefacts was found in this layer, including 152 pieces of mainly natural and unworked quartz (see 3.3.7.2), a selection of 18th- and 19th-century finds, six hammerstones (SFs 15042, 15048, 15055, 15066, 15075 & 15080), a possible smoother/rubber (SF 15054), an unfinished weight/anvil (SF 15074) and a possible rotary quern (SF 15102).

3.3.7 Finds

3.3.7.1 Coarse Stone

Ann Clarke

This trench yielded the largest and most varied assemblage of coarse stone tools of all the excavations (Table 3.8). It includes nine plain hammerstones, most of which bear spreads of irregular, rough pecking over parts of their faces, particularly the ends. None of these cobbles had been used to any great extent except for SF 15080, which is the largest tool and has signs of heavy use around the faces and ends. They were clearly used as hammerstones, either to shape or break up material or to hammer something such as a nail or a chisel. It is possible that they were used to break up quartz. However, it is unlikely that they were used as knapping hammerstones for the production of quartz tools, as the wear-traces on the cobble tools consist of simple random pecking; if they had been used for skilled knapping they might be expected to have worn facets and concentrated end-wear (Clarke 2006: 47). The quantity of cobble tools from Tombreck also makes it unlikely that they were used for knapping; it is not common for so many knapping hammerstones to be found together, particularly on a Scottish mainland site.

A single smoother/rubber was shaped by breaking a rectangular cobble across a bedding-plane. This broken face was then worn flat and smooth in parts. A number of other cobbles were collected during the excavations, but these do not appear to have been used. Heating damage was observed on some of these, and on others in the cobble surface (15082), and these were interpreted as possible pot-boilers (Atkinson et al 2005a). An alternative use for heated stones was to parch cereals. For small-scale domestic use, hot stones were placed alongside grain in a straw basket in order to dry it before grinding (Fenton 1987: 134).

A perforated weight (SF 15091) was formed from a sub-circular slab of phyllite. The perforation was made just off-centre by pecking from both faces. There is another, probably unfinished, weight (SF 15074) of slightly smaller dimensions. On this

Table 3.8: Coarse stone tools from Trench 15 at Tombreck

Find	Context	Description	Dimensions
querns tones			
15102	15002	Large slab of micaceous schist. Broken down length. Sub-oval in plan. A circular hollow has been made slightly off-centre. The inside of hollow does not appear worn so unlikely to have been used as pivot stone. Possibly unfinished rotary quern.	Max diameter 580mm; MTh 55mm; diam hollow 52mm
15085	15053	Upper stone of rotary quern. Broken down length truncating most of central perforation. Made on rounded slab of garnetiferous schist. Outline angular. Base tooled and flat.	Diameter max 360mm; MTh 78mm; diam upper perf 60mm
15086	15053	Slab of garnetiferous micaceous schist. Upper stone. Too fragmented to get much detail. Central perforation is funnel-shaped. Base is tooled.	Cannot determine dimensions. MTh 60mm; diam perforation top 46mm; bottom 19mm
15092	15053	Slab of micaceous schist. Lower stone. Complete. Small, parallel-sided central perforation – worn smooth by metal spindle. Slightly oval in plan. Worn face is concave in cross-section.	Diam 380mm; MTh 45mm; diam perforation 18mm
Hammerstones			
15042	15002	Oval water-worn cobble of schist. Irregular rough pecking on faces and ends.	ML 98mm; MW 74mm; MTh 55mm
15048	15002	Oval water-worn cobble of schist. Irregular rough pecking on faces and ends.	ML 70mm; MW 63mm; MTh 54mm
15055	15002	Sub-oval cobble of schist. Deep irregular patches of pecking on ends and faces. One end badly damaged from use.	ML 90mm; MW 73mm; MTh 51mm
15066	15002	Irregular-oval cobble of schist. Rough pecking on either end.	ML 104mm; MW 67mm; MTh 47mm
15075	15002	Flat oval cobble of micaceous schist. On one end there is irregular bifacial flake removal from bashing.	ML 153mm; MW 79mm; MTh 35mm
15080	15002	Very large elongated cobble of micaceous sandstone. Localised patches of heavy pecking on surface and ends. Heavy hammer.	ML 275mm; MW 99mm; MTh 81mm
15095	15053	Flat oval cobble of micaceous schist. Some irregular pecking over parts of surface.	ML 120mm; MW 85mm; MTh 46mm
15096	15053	Sub-oval cobble of fine-grained metamorphic rock. Some breakage at one end. Spread of heavy pecking on surviving end.	ML 130mm; MW 85mm; MTh 79mm

Table 3.8: cont.

15098	15053	Fragment of a water-worn cobble of micaceous schist. Patch of heavy pecking on surviving end. Possibly burnt fragment.	ML –; MW 80mm; MTh 60mm
Other worked stones			
15054	15002	Sub-rectangualr cobble of fine-grained bedded stone. Broken across bedding plane. This face is flat and smooth in parts and may have been used as a smoother/rubber.	ML 122mm; MW 75mm; MTh 35mm
15072	15002	Thin slab of phyllite. Sub-circular in plan. The rounded edges look natural rather than worked.	ML 115mm; MW 115mm; MTh 11mm
15074	15002	Flat sub-circular cobble of micaceous garnetifierous schist. Unworked with the exception of a shallow dished surface made by pecking in the centre of one face. Could be an unfinished perforated weight or small anvil.	ML 115mm; MW 97mm; MTh 21mm
15091	15053	Sub-circular slab of phyllite with damaged edges. Perforation made just off-centre. Pecked from both faces to form biconical cross-section.	ML 133mm; MW 123mm; MTh 25mm; diam hole 10mm

piece, a shallow dished surface has been pecked in the centre of one face. There is no sign of working on the opposite face, so it may be unfinished, or a small portable anvil.

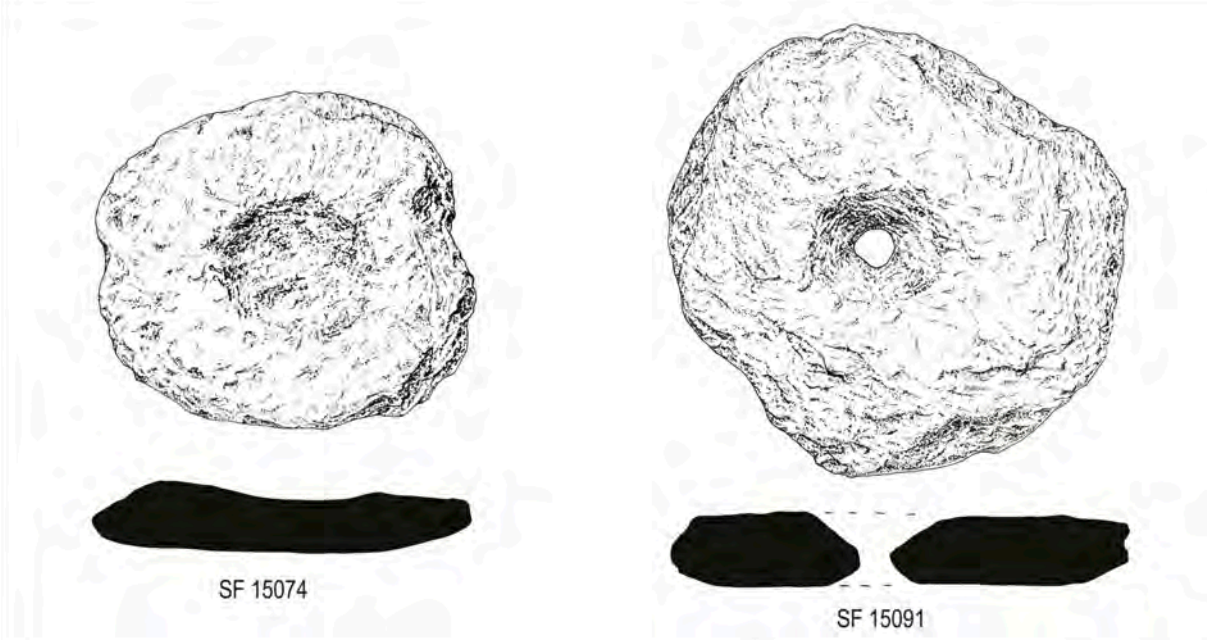
Three rotary querns were found, all from Tumble Layer 15053 (Illus 3.19–20). The two upper stones are fragmented. On SF 15091, the central hole has been pecked from both faces to form a biconical cross-section; on SF 15086, the central hole is funnel-shaped. The lower faces on both stones are tooled. The lower stone (SF 15093) has a small, straight-sided, central perforation that has been worn smooth by a metal spindle. This lower stone appears to be made of micaceous schist, while the upper stones are garnetiferous schist. The diameter of the upper stone (SF 15085) at 360mm compares with that of the lower stone (SF 15093) at 380mm, suggesting that they could have been used as a pair. The other quern-stone is too fragmentary to measure. The use of a spindle on the lower stone indicates that the querns could be adjusted to grind various textures of meal and flour. There is no evidence on the fragmentary upper stones for rind-slots to indicate that the spindle balanced the upper stone in this way.

From Silt-Layer 15002 there is a larger fragment of a possible rotary quern (15102). This is a large slab of micaceous schist, broken lengthwise. The breakage truncated a circular hollow (52mm in diameter) pecked in the centre of the slab. Since the inside of the hollow has not been worn smooth, it is unlikely to have been used as a pivot-stone, and it could be an unfinished rotary quern, perhaps broken during manufacture. This would have been larger (580mm in diameter) than those from Layer 15053.

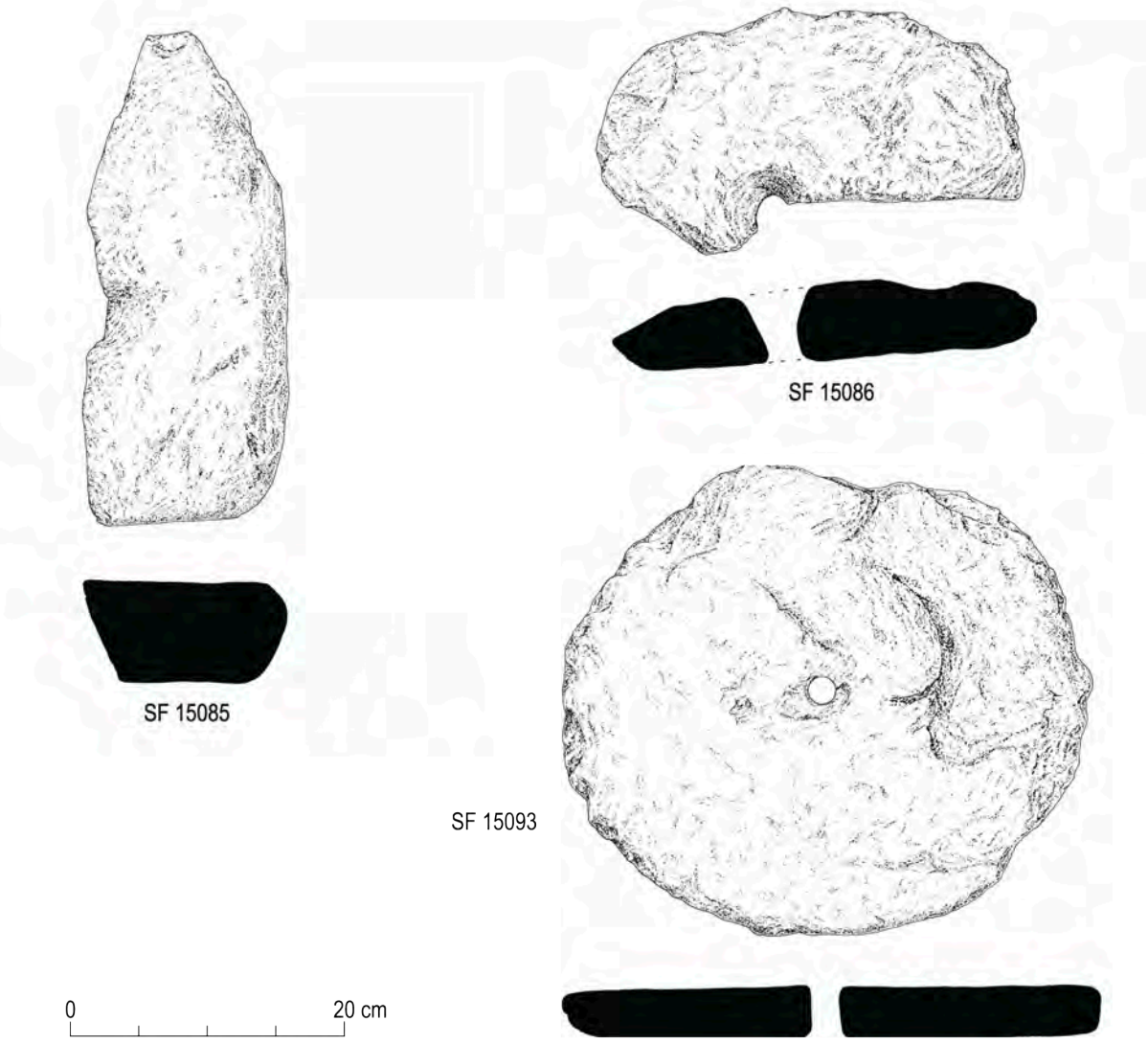
3.3.7.2 Lithics

Nyree Finlay

This assemblage of 152 quartz pieces is composed primarily of unmodified small pebbles and natural chunks. There is one angular core (length 31mm) from coarse-grained (type 6) quartz with two sequential removals. Worked chunks are present in quartz types 2 and 4, with bipolar reduction also evident. Three chunks are noteworthy. Two tabular pieces of fine-grained quartz from the



Illus 3.19 Quern-stones from T15



Illus 3.20 Small finds from T15

same original block have short lengths of abrupt steep removals along the break-facets. These two pieces (15028 & 15035) are probably perfunctory side-scrapers; alternatively, they bear evidence of trample-damage. Another fine-grained chunk has a short length of steep bifacial removals. The flakes display evidence of deliberate reduction, with a large, coarse-grained, thick primary flake from a water-rolled pebble (15001, length 60mm) and a secondary flake with a concave working-edge (15015). A couple of the splinter-flakes are also worked.

3.3.8 Environmental Evidence

3.3.8.1 Thin-Section Micromorphology

Ian A Simpson & Joanne T McKenzie

Two kubiena samples were taken from the sequence of layers south of the entrance to Roundhouses A, B & C. They offer insights into the nature of the infilling process (Table 3.9). The sample sequence through Layers 15081, 15056 & 15079 shows two contrasting, clearly-identifiable floor-surfaces, separated by a distinctly-different dump of fuel-residue material. The lower deposit (15081) was a densely-packed, probably trampled surface, which was deliberately constructed. This deposit shows little anthropogenic influence, with inclusions suggesting that human activity, though ongoing in the vicinity, was not focused in the immediate area. Above this, a sharp boundary suggests that poorly-sorted fuel-residue material (15056) was dumped directly onto this surface, probably in one episode.

Further occupation-activity above this point, represented by Layer 15079, appears to have started slowly or intermittently, with a very diffuse boundary with the underlying fuel-ash deposit (15056). The lower part of this upper context shows discontinuous, opposing laminations, indicating an initially ad hoc build-up of material. In the upper part of Layer 15079 these laminations become clearer and more horizontal as the frequency of anthropogenic inclusions also increases. Charcoal and large amounts of unburnt peat are evident. This is the most complex and anthropogenically-rich area of the sample-set, and indicates intensive activity at this point in the sequence. It is possible that there is evidence for a floor partly constructed from peat-like material.

Table 3.9: Micromorphological results from T15

Site	Context number	Thin section sample	Coarse mineral material (< 10µm)											Coarse organic material				Fine organic material					Pedofeatures						Microstructure	Coarse material arrangement	Groundmass b-fabric	Related distribution
			Quartz	Feldspar	Biotite	Mica	Garnet	Hornblende	Olivine	Compound quartz	Sandstone	Siltstone	Metamorphics	Phytoliths	Bone	Rubified mineral	Fine mineral material	Fungal spores	Lignified tissue	Parenchymatic tissue	Charcoal	Cell residue	Amorphous (black)	Amorphous (brown)	Amorphous (yellow-orange)	Amorphous (inclusions)	Organic coatings	Clay infills	Silt infills	Amorphous crypto-crystalline	Depletion	Excremental (mamillate)	Excremental (spheroidal)				
Tombreck: Trench 15	15044	1a	"	"	"	"	"										Brown organo-mineral heterogeneous																			
		1b	"	"	"												Brown organo-mineral heterogeneous																	Intergrain microaggregate to granular	Random Poorly sorted	Mosaic speckled	Porphyric
		2a	"														Dark brown/black organo-mineral, heterogeneous																	Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric
		2b	"	"	"												Light brown mineral, occasional brown organo-mineral heterogeneous																	Compact grain	Random Poorly sorted	Mosaic speckled to isotropic	Porphyric

Frequency class refers to the appropriate area of section (Bullock et al. 1985): t Trace * Very few ** Few ***Frequent/Common **** Dominant/Very dominant
Frequency class for textural pedofeatures (Bullock et al. 1985): t Trace * Rare ** Occasional *** Many

3.3.8.2 Botanical Remains

Jennifer Miller & Susan Ramsay

Although significant quantities of charcoal were recovered from post-abandonment Silt 15002, the assemblage was similar to that from features sealed beneath this layer. The only exception was a single fragment of ash wood from the silt, which suggests that it may have seen some modern contamination; artefactual evidence from the layer supports this. Furthermore, the charcoal assemblage from some of the post-holes (notably 15003) contained oat grains which must have migrated down the soil profile long after use of the feature. Although it was not possible to determine with confidence whether the oats were of cultivated types, the grains are large enough to be so, and as such are more likely to date to medieval rather than Iron Age cultivation.

Other points to note from T15 include the significant volume of charcoal from Spread 15056 underneath the paving. The charcoal assemblage from this spread was entirely similar to the post-hole fills, and like them it appears to have derived from the re-use of general domestic-fuel detritus. In terms of evidence for contemporary food-remains, hazelnut shell was recorded from several features, together with wheat (from Post-Hole 15055) and six-row barley.

3.3.9 Interpretation of the Evidence

3.3.9.1 Temporal Context for Tombreck

Given the tightly-grouped nature of the eight radiocarbon dates for the site, there is little doubt that T15 was occupied during the later Iron Age. The first dated phase of activity was the use of Roundhouse A, some time between the second half of the 4th and the end of the 2nd century BC. Although this phase is certainly the most contentious on dating grounds, the form and distribution of the post-holes may indicate the ground-plan of a circular building at this stage (Illus 3.15). Stronger evidence, both in dating terms and in the distribution of post-holes, exists for the construction and use of Roundhouses B & C. Roundhouse B seems to have been in use almost continuously with Roundhouse A, which may imply remodelling of the original house or accidental destruction and immediate rebuilding. In use between the mid 3rd and mid 1st centuries BC, this house was larger than its predecessor. Although the exact date of its abandonment is unknown, a third roundhouse (C) was certainly built on the site between the end of the 3rd century BC and the beginning of the 3rd century AD. The vagaries of the calibration curve do not permit greater precision about these dates. Whatever the exact chronology, it is likely that the gaps between Houses A, B & C were relatively short, perhaps a few decades or up to a generation long.

In comparative terms, the only other radiocarbon sequence of comparable length from a homestead site is that from Aldclune (Hingley et al 1997). Ashmore's assessment of those dates allows us to contrast them with the three phases of occupation at T15 (see Ashmore 1997). Phases 1 and 2 at Tombreck appear to have occurred prior to the occupation and use of the Aldclune sites. The dating of Phase 3 is statistically the same, in both uncalibrated and calibrated terms, as the initial phase of dwelling in Alclune 2; they were contemporary structures (Table 3.10). The construction of Aldclune 1 probably occurred after the abandonment of the Tombreck site, which was in general an earlier settlement.

3.3.9.2 Tombreck: A Farmstead of the Iron Age?

Clues to the function of Tombreck come from a range of evidence recovered during the excavations. The presence of a variety of cultivated cereal-grains, quern-stone fragments and other stone tools possibly associated with cereal-preparation or food-processing suggest a domestic use for the site. Six-row barley (hulled and processed), wheat and oats were all discovered on site, although the oats may have been intrusive (see 3.3.8.2 above). Certainly six-row barley predominated, accounting for 68% of the cereals recovered, from features across all three phases (Table 3.7). Interestingly, the cereals were specifically associated with post-holes rather than pits, which tended to contain small assemblages of uncultivated species such as wild cherry, apple and hazelnut (see 3.2.4 above). The meaning of this distribution is unclear, but it may suggest that charred grains were deliberately put into post-holes before the posts were inserted. Alternatively, the charred grains may have migrated from the floor of the buildings into the post-holes as

Table 3.10: Comparison of C14 dates for Tombreck and Aldclune

Lab code	Site	Phase	Date (BP)	Calibrated 1σ	Calibrated 2σ
GU-1543	Site 1, Aldclune	1	2020 ± 90	100 bc–ad 80	340 BC–AD 220
GU-4375	Site 1, Aldclune	1	1850 ± 50	ad 120–240	AD 70–330
GU-4372	Site 1, Aldclune	1	1870 ± 50	ad 80–230	AD 60–320
GU-1545	Site 2, Aldclune	1	1975 ± 60	30 bc–ad 110	100 BC–AD 150
GU-4373	Site 2, Aldclune	1	2080 ± 50	170–10 bc	200 BC–AD 50
GU-1544	Site 2, Aldclune	1	2075 ± 60	170 bc–ad 10	330 BC–AD 70
GU-4374	Site 2, Aldclune	1	2080 ± 70	180 bc–ad 10	350 BC–AD 80
SUERC-9710	Tombreck, T15	1	2165 ± 35	360–290 bc	370–100 BC
SUERC-4911	Tombreck, T15	2	2145 ± 35	210–110 bc	260–50 BC
SUERC-9707	Tombreck, T15	2	2155 ± 35	210–160 bc	260–90 BC
SUERC-9708	Tombreck, T15	2	2115 ± 35	200–90 bc	210–40 BC
SUERC-9711	Tombreck, T15	2	2135 ± 35	210–100 bc	230–50 BC
SUERC-9716	Tombreck, T15	3	2085 ± 35	170–50 bc	200 BC–AD 0
SUERC-9709	Tombreck, T15	3	2090 ± 35	170–50 bc	210–20 BC
SUERC-9712	Tombreck, T15	3	2075 ± 35	120–40 bc	200 BC–AD 10

the posts began to decay and loosen in their sockets.

Whatever the mechanism for the grain's deposition, it was clearly part of the lifestyle of these houses. Other accoutrements associated with grain-processing were also found. The numerous heat-damaged cobbles, found in Layer 15053 immediately south-west of the buildings, are of interest. Clarke (above) has concluded that they are likely to have been used for the small-scale parching of grain prior to grinding. A similar group of 'five water-worn pebbles – some fire-cracked' was recovered from the partial excavation of Litigan in 1969 (Taylor 1990: 17), and these could have likewise been used for parching grain. In the case of the Tombreck stones, their place of deposition could indicate that parching was undertaken outside the buildings; alternatively, the stones were simply deposited outside after use. Four fragments of quern-stone, two of which may be a matching pair of upper and lower stones, were also recovered, suggesting that grain was being ground into flour at the site. Clarke's identification of the use of a spindle in one quern-stone (SF 15092), to allow different grades of flour or meal to be produced, indicates something of the technological sophistication at hand during the period.

3.3.9.3 The Form and Layout of Tombreck Homestead

Little evidence for the internal layout of the Tombreck site was found during the excavations. Although the entrance was clearly on the south-west side of the three buildings, there were no traces of internal partitions or other features. The only exception to this was the large, shallow pit close to the centre of Roundhouse A. All other pits were either outside the buildings or along the lines of the walls. It is notable that no trace of a floor-deposit was encountered within any of the structures and, with the exception of the paving and cobbling in the southern part of the trench, no other stratified layers existed beneath the alluvium (15002) that sealed the site. This lack of formal flooring has been a consistent feature on other homestead excavations. At Litigan no recognisable floor was found in the interior (Taylor 1990: 15). The same was true of Queen's View, Loch Tummel, where the only evidence of flooring survived from a presumably-later iron-working phase (Taylor 1990: 36).

Finally, it is worth noting that the Tombreck trenches were not positioned to reveal anything of the outer stone wall which is such a diagnostic part

of all homesteads of this group. In fact, there is little to indicate the existence of a large stone wall at the Tombreck site. Traces of the wall may exist on the north-west and north-east sides of the platform, but these could easily be rock outcrops. This suggests that the outer wall of Tombreck (if one ever existed) must have been robbed-out in the distant past.

3.4 SUMMARY AND CONCLUSIONS

Evidence for the population of Loch Tay during later prehistory was revealed by the Ben Lawers Project, through the excavation of a probable homestead at Tombreck and a hut-circle at Croftvellich, together with the dating of a number of crannogs and the discovery of a small group of hut-circles and ring-ditch houses by the RCAHMS in 2000 (Boyle 2000).

Prior to the Ben Lawers Project, few remains of Iron Age settlement were known, with the exception of the crannogs (for example Dixon 1982; Miller et al 1998) and the postulated survival of homesteads along the loch by authors such as Gillies (1938) and Taylor (1990). Taylor argued for the presence of homesteads at four places: Carie, Rynachuilg, Greenacre and Tombreck; however, the RCAHMS surveyors could only identify the badly-disturbed Greenacre site as a homestead with any degree of confidence (Boyle 2000: 4). In comparison with eastern Perthshire, there was so little known evidence of Iron Age settlement to the west of the natural boundary created by the Rivers Tay, Tummel and Garry, that Harris suggested the boundary may have limited the expansion of hut-circle settlement into this area (1984: 199). Whether the rivers' presence was the key reason for this difference in hut-circle distribution is unclear.

However, north-eastern Perthshire, with its 845 hut-circles and at least 40 ring-ditches, does contain one of the densest concentrations of prehistoric settlement-remains in Scotland (RCAHMS 1990: 2–4). This heavy distribution of hut-circles continues beyond the RCAHMS survey area; it was also apparent in Moulin (Rideout 1995) and Blair Atholl parishes to the west and north. However, smaller groupings have also become apparent to the west of the Tay, including groups of huts and field-systems in Strath Braan and its tributary glens, to the west of Dunkeld (Cowley 1997: 161–2). Here hut-circles and field-systems have been noted in an area which also contains homesteads and Pitcarmick-type buildings (see below). It has been noted that most of the homesteads sit to the west of the main concentrations of hut-circles in Perthshire (Hingley et al 1997: 462), but there is clearly some overlap in distribution.

The new evidence, revealed by the Ben Lawers Project, for later prehistoric settlement of the landscape further west is therefore significant. This evidence included previously-unidentified occupation-sites, found during the RCAHMS survey and the March 2002 preparatory survey season at Easter Carwhin. A substantial survey, sampling and dating programme was also carried out on the crannogs of Loch Tay. The RCAHMS's survey added two well-preserved ring-ditch houses at Easter Croftintygan and a hut-circle at Carie to the later-prehistoric dataset. Another hut-circle was identified at Croftvellich during the 2002 survey season, and proved to be Late Iron Age in date (T3). The project also investigated the possible site of a homestead on a knoll to the east of the Allt an Tuim Bhric, in a field that Farquharson had annotated as 'the castle' in 1769. The geophysical, topographic and excavation evidence gathered showed that the knoll was occupied during the Late Iron Age (T15) and may be the remains of a badly-denuded homestead (see below). In addition to the later prehistoric terrestrial remains, a whole new body of evidence on the occupation of the crannogs of Loch Tay was recovered after 2002. This included the sampling and dating of five crannogs along the north shore, which provided evidence for occupation from the Early to Late Iron Age (see 3.1 above).

Hingley et al have argued that the differences between hut-circles and homesteads may lie in their construction: homesteads generally cover a larger area, have more-substantial walls and usually have entrances facing to the south-west rather than the south-east common in hut-circles (1997: 461). The evidence from the Ben Lawers Project would suggest that both classes of site, together with a number of crannogs in the loch, were occupied in the second half of the 1st millennium BC and early centuries of the 1st millennium AD. This confirms Armit's view of the broadly-contemporary occupation of homesteads and crannogs (2005: 34), and appears

to indicate that date might not be the defining characteristic between forms. It is possible that homesteads formed an entire domestic unit, while individual hut-circles may have grouped together to form a similar unit (cf Hingley et al 1997: 447), or that homesteads might reflect a difference in social standing. Certainly the evidence from both forms points to domestic use, but the exact meaning of the structural differences is not clear.

Although a better understanding of the Iron Age of Loch Tay was not one of the project's goals, the results from both the underwater and terrestrial investigations since 2000 have proved surprising as well as illuminating. It is certainly true that the quantity of new data on the distribution, dating and survival of Iron Age sites along the northern shores and shallows of the loch is much greater than might have been considered possible before the project began. This increase in data has changed our comprehension of the landscape. The discovery and survey of a range of settlement-forms along the loch, including hut-circles, ring-ditch houses, homesteads and crannogs, implies that settlements may have been much more densely distributed here during the Iron Age than was previously thought. This evidence, together with the results of excavations and sampling and dating programmes, has begun to provide some clarity on what form that occupation took.

Other classes of site may have existed along the loch during the past, but the currently-known variety and spread of Iron Age house-types is sparse in comparison to their distributions in eastern Perthshire or even in nearby Strath Braan (Cowley 1997). On Loch Tayside, the RCAHMS discovered only two ring-ditch houses, three possible hut-circles and one confirmed homestead (Illus 3.1). The discoveries of the Ben Lawers Project have added two further sites to this meagre distribution, at Croftvellich and in Tombreck outfield (see T3 and T15). It seems likely that the survival of so few Iron Age house-sites is the result of several factors, including more-recent population pressure, land-quality and topography. Pennant, during his tour of 1769, certainly noted a high level of occupancy along the loch-shores (2000: 118), which would inevitably have led to the cultivation of all possible areas of ground. This pressure may have been magnified by the changes of the late 1790s and the conversion of the outfield into farmsteads (see Chapter 8) – leading, in effect, to the destruction of any surviving monuments across the outfields. The topographic character of much of the north shore, with its steep slopes rising sharply from the broad terrace that defines much of the outfield, may have provided limited ground for Iron Age occupation over 250m above OD. This point is particularly important: the occupation of considerably higher ground elsewhere in Perthshire (between 400 and 500m AOD in places) is a common characteristic of the Iron Age settlement-pattern (see RCAHMS 1990: 2 for further discussion).

In addition to the terrestrial landscape with its somewhat paltry distribution of sites of this period, the work of Nick Dixon and his team has provided a much clearer view on the date of the crannogs in the loch. This work, and other separately-funded projects, has led to the dating of 13 crannog sites (see Dixon et al 2007) and highlighted the contrast between their occupation and settlements on land during the Iron Age. Comparing the radiocarbon dates from the crannogs and the excavated structures shows that occupation may have been contemporaneous in some cases. For example, the radiocarbon dating of Roundhouse C (T15) in the Tombreck outfield is statistically similar to the date achieved from the base of Tombreck Crannog. The crannog lies *c* 1200m to the south-east of the roundhouse; the two sites might have been occupied by people who knew each other or even by members of the same kin-group. Other relationships may have existed between adjacent sites on Loch Tay. Eilean Breaban is located *c* 700m to the SSW of Hut-Circle T3, although in this case the radiocarbon dating of both suggests that the crannog may have been occupied prior to the hut-circle. As has been suggested above (see 3.3.9.1), the occupation of T3 and Roundhouse A at T15 may well have been simultaneous events.

The spread of dates achieved from the underwater work and the field excavations during the Ben Lawers Project has, for the first time, begun to populate the landscape during the 1000-year period between 800 BC and AD 200. The two main clusters of radiocarbon dates obtained suggest that crannogs such as Milton Morenish, Eilean Breaban and Morenish Boathouse were constructed during the Early Iron Age, with a further cluster of sites, including Morenish Boathouse (phase 2), Morenish

Crannog and Tombreck Crannog, existing at the same time as Hut-Circle T3 and Homestead T15 during the later Iron Age. It is clear that further research opportunities exist along Loch Tayside into the use and occupation of the landscape during this time. The Ben Lawers Project has provided a suitable staging-point for further research to be pursued into this period in western Perthshire's history.

4. EARLY HISTORIC LOCH TAYSIDE

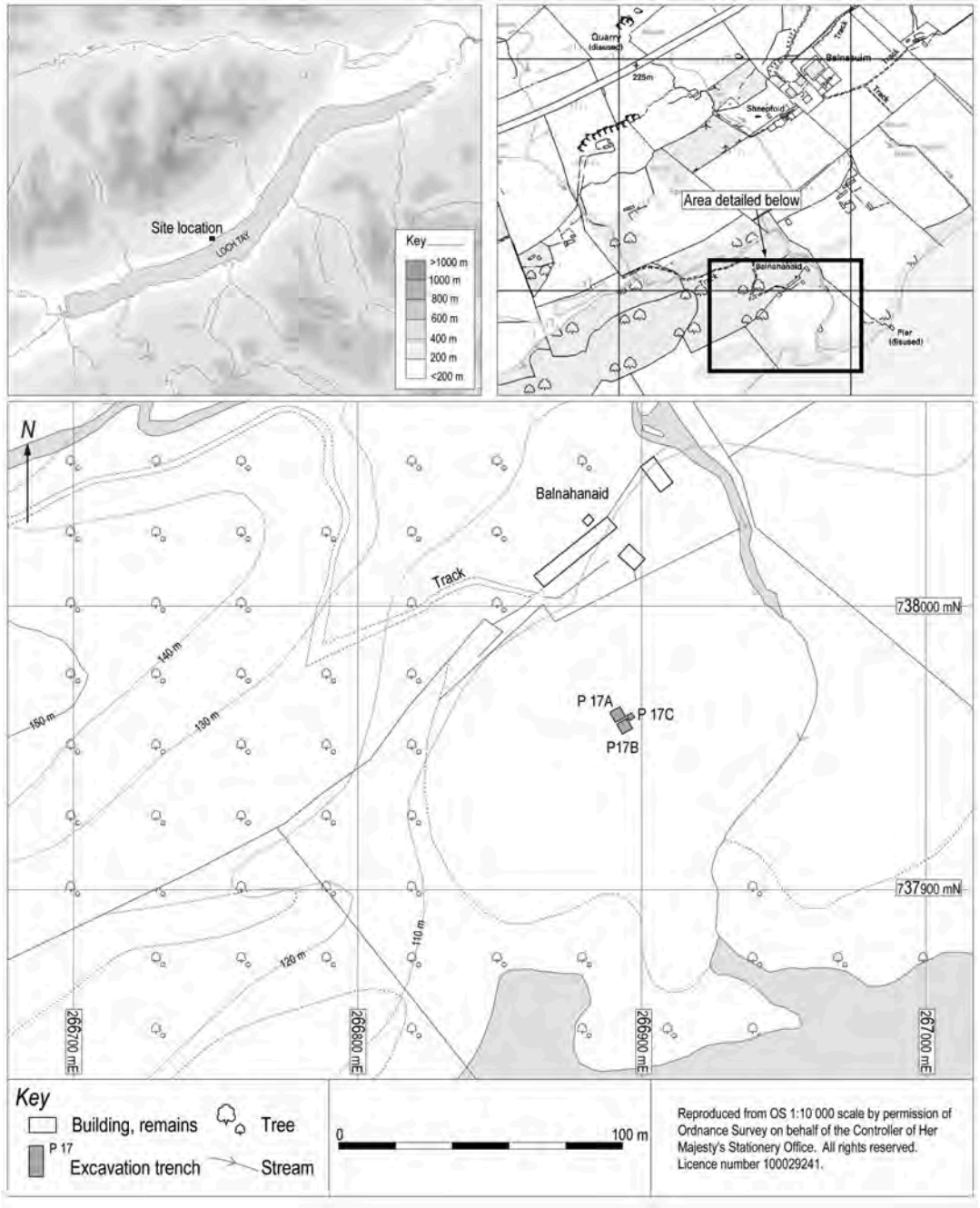
The discovery of early historic sites during the Ben Lawers Historic Landscape Project was, in general, by chance rather than design. Excavations during the summer of 1998 and again in 2004 and 2005 revealed elements of the religious and social past of 1st-millennium Loch Tayside. Although not inevitable, targeting of any location with a place-name which implies an abandoned early Christian church-site (Watson 1928) always has the potential to reveal remains of this period (Illus 4.1). This was, however, not the case for sites pursued in later phases of the project. Here, the discovery of early historic phases at sites on the margins of the existing settlement-pattern came as a surprise, even though other sites at this elevation elsewhere in Perthshire have been dated to this period (Barratt & Downes 1996; Carver et al 2012; Cowley 1997: 162).

Revealed within this chapter are the traces of religious practice and farming life during the second half of the 1st millennium AD. Much of the period is missing from the archaeological record here, as elsewhere in the highland massif. The RCAHMS survey of the area in 2000 revealed no positively-identifiable sites from this period (Boyle 2000). It is noteworthy, particularly in relation to the burial evidence, that such sites are few in this area. In fact, as will be discussed further below, the nearest likely long-cist cemeteries are some 20 or 30km to the south- and north-east. This is mirrored by the known distribution of settlement-sites for the period. Although a number of Pitcarmick-type buildings have been surveyed in Strath Braan (Cowley 1997), some 30km due east of Kiltyrie, none has yet been positively dated. The nearest sites to provide contemporary dating evidence are at Moulin (Rideout 1995), some 40km to the north-east, or Kinloch Rannoch (MacGregor 2010), *c* 20km to the north. In short, Loch Tay lies on the known extremities of Pictish settlement-distribution and land-use (see 4.3 for further discussion).

Illus 4.1 Cist during excavation at Balnahanaid

4.1 BALNAHANAID: AN EARLY CHRISTIAN GRAVEYARD?

In Chapter 2 the reasons for undertaking work at Balnahanaid and the results of that phase of investigation were discussed with particular reference to the early prehistoric significance of the site. Here, the results are addressed within the context of early historic Loch Tay and the discovery and partial excavation of an 'annat' site in the Central Highlands. The discovery of the remains of at least two cist burials and one inhumation within the field to the south of Balnahanaid township was unexpected. Although the place-name evidence had suggested that the area might be the location of an annat site, this had never been confirmed. Some commentators had referred to the recovery of stone coffins in the Balnahanaid area, and noted that no trace of a church was apparent (for example Gillies 1938: 401), implying that the stone coffins were historic rather than prehistoric in origin. Both Mackenzie (1901: 10) and Watson (1926: 251)



Illus 4.2 Location of Balnahanaid trenches

expressed this view, with the latter suggesting that the site was the location of an annat. The picture had been muddied to a degree by the recovery of prehistoric stone axes in stone coffins from the same area (see Chapter 2).

As was outlined earlier, the Project's interest in the area had more to do with locating buildings depicted by Farquharson in 1769 than any prehistoric or early historic connections (Illus 4.2). This originated as an opportunity to carry out magnetometer prospection of two areas where structures had been mapped in 1769. The surveys and resultant plots (undertaken and produced by Andy Boucher of Bradford University) indicated that remains might be present, particularly in the eastern field. This led to trial-trenching and the discovery of the artefacts and features discussed here and in Chapter 2. Although an extensive programme of trial-trenching was pursued between the low-lying east and west fields of Balnahanaid, it was the easternmost field next to the loch-shore that provided the most interesting results (Trench P17A–C).

4.1.1 Excavation Strategy

Following the geophysical prospection of the east field, a series of trenches was laid out over possible anomalies. These included a group of three trenches, known as P17A–C, which began as 1m-square trial-pits, and in the case of P17A & B were enlarged to 2m-square trenches.

4.1.2 Deposits and Stratigraphy

Mike Donnelly

4.1.2.1 Summary of Phasing for P17

Phase 1 – early 4th millennium BC?
Phase 2 – mid 7th to late 8th century AD

4.1.2.2 P17 – Phase 2

Evidence for the early historic use of the site was limited to the northernmost trench (P17A) (Illus 4.3). Here two cist-burials (P17053 & P17054) were identified, one on top of the other, together with at least one inhumation burial (P17011). The cut of the lower cist (P17053) was steep-sided and flat-bottomed and had been disturbed by another cut on its north-western edge (P17052). This cut had also truncated Deposit P17026, which encased the grave-slabs of the lower cist (Illus 4.4). Cist P17053 had two fills (P17024 & P17025). A fragment of the proximal end of a long bone was visible in the lower of these (P17024) (see 4.1.3.2 below). The recovery of a consistent suite of tree taxa, including oak, from the different deposits associated with the lower cist, may imply that it was created and used during a period when these trees thrived in the local environment (see 4.1.4 below). Radiocarbon dating of a fragment of hazel charcoal from Grave-Fill P17024 provided a date-range of cal AD 640–780 (2σ, OxA-8973).

A second cist (P17054) lay immediately above Cist P17053. Although it was substantially damaged by plough-attrition, an upright slab, capstone and fill (P17055) were encountered (Illus 4.1). Inside the cist, fragments of a femur and pelvis, probably belonging to an adult, had survived (see 4.1.3.2 below). Little else of note remained in the deposit, which had later been sealed by a layer of plough-soil alluvium (P17050).

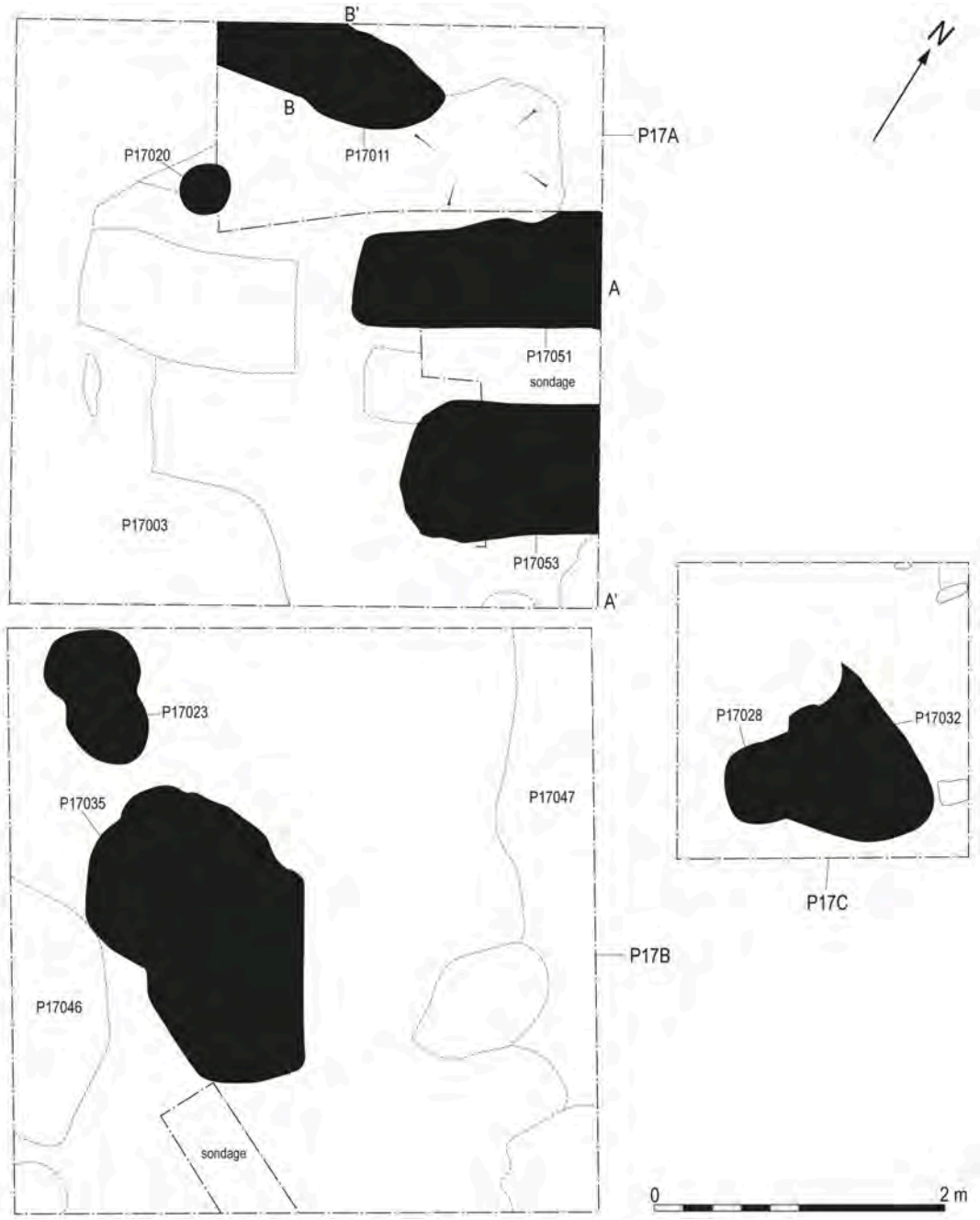
Immediately to the north-west of the cist burials was another grave-cut (P17011) (Illus 4.3). Here, however, no trace of grave-slabs or bone-fragments was encountered, although the feature clearly had the morphology of a grave (Illus 4.4). Sieving of its fills recovered fragments of highly-fired ceramic material, which proved to be rich in silver (see 4.1.3.1 below) (Illus 4.5). The discovery of metallurgical ceramics at the site is noteworthy (see 4.1.5 for further discussion). A number of other possible grave-cuts were revealed (for example P17051), suggesting further burial activity (Illus 4.3). Other features, including pits (for example P17020), also contained metallurgical ceramic and these may be contemporary (see 4.1.5 below).

4.1.3 Finds

4.1.3.1 Metallurgical Waste

Effie Photos-Jones

About 50 fragments of industrial waste were recovered from four trenches during the pilot seasons. More than half of these came from the P17 trenches, which contained the early historic graves. Three were subsequently analysed using a Scanning Electron Microscope attached to an X-ray analyser (SEM-EDAX) (Table 4.1). Analysis of SF



Illus 4.3 Excavation plan of Trench P17

P17008 (from Context P17001 in Trench P17B) revealed that it was slag belonging to the group of Highland bloomery types: the presence of sulphur implies the slag may have formed during smithing. The other samples analysed from Balnahanaid were metallurgical ceramics. Sample P17065 (from Context P17014, the fill of Grave P17051) contained a small metallic inclusion consisting of a silver-copper-nickel alloy (sulphide form). The XRF spectrum revealed *c* 70% Ag, the rest being copper, nickel and sulphur. This points to the working of precious metals at the site (Illus 4.6). Sample P17062 (from Context P17037, the fill of Grave P17011) was also a metallurgical ceramic, although without obvious metallic inclusions.

4.1.3.2 Human Remains

Julie Roberts

Five large pieces of bone, consisting of four fragments of long bone and one fragment of ilium (pelvis), were recovered from the upper cist (P17054). The fragments of long bone could be joined to form the

Table 4.1: Analyses of metallurgical waste recovered from P17 excavations (composition in weight %)

Sample	Na_2O	K_2O	Al_2O_3	SiO_2	MgO	CaO	TiO_2	MnO	FeO	P_2O_5	SO_3	BaO	V_2O_5	Cr_2O_3
P17008.1	0.25	0.06	0.47	27.25	1.51	1.07	0.05	1.94	67.31	0	0.05	0.03	0	0
P17008.2	0.26	0.03	0.69	0.43	0.16	0.11	0.41	0.45	97.33	0	0	0.14	0	0
P17008.3	0.43	0.32	21.49	25.59	0.51	0.45	0.17	0.09	45.55	3.16	2.19	0.03	0	0

proximal shaft of a femur, probably the right. The thickness of the femur indicated that it had probably belonged to an adult. The fragment of pelvis was part of the sciatic notch of the right ilium. This skeletal element is commonly used, in conjunction with other methods, to determine sex (Buikstra & Ubelaker 1994); however, in this instance there was far too little of the bone surviving to suggest even a possible sex. No pathological conditions were identified on any of the fragments. The human remains from the lower cist (P17053) consisted of one fragment of bone, 31.5mm in diameter. It was spherical and retained some of the joint-surface, although severely eroded. The limited amount surviving had the appearance of the proximal end (head) of either a humerus or femur, but it was not possible to determine which.

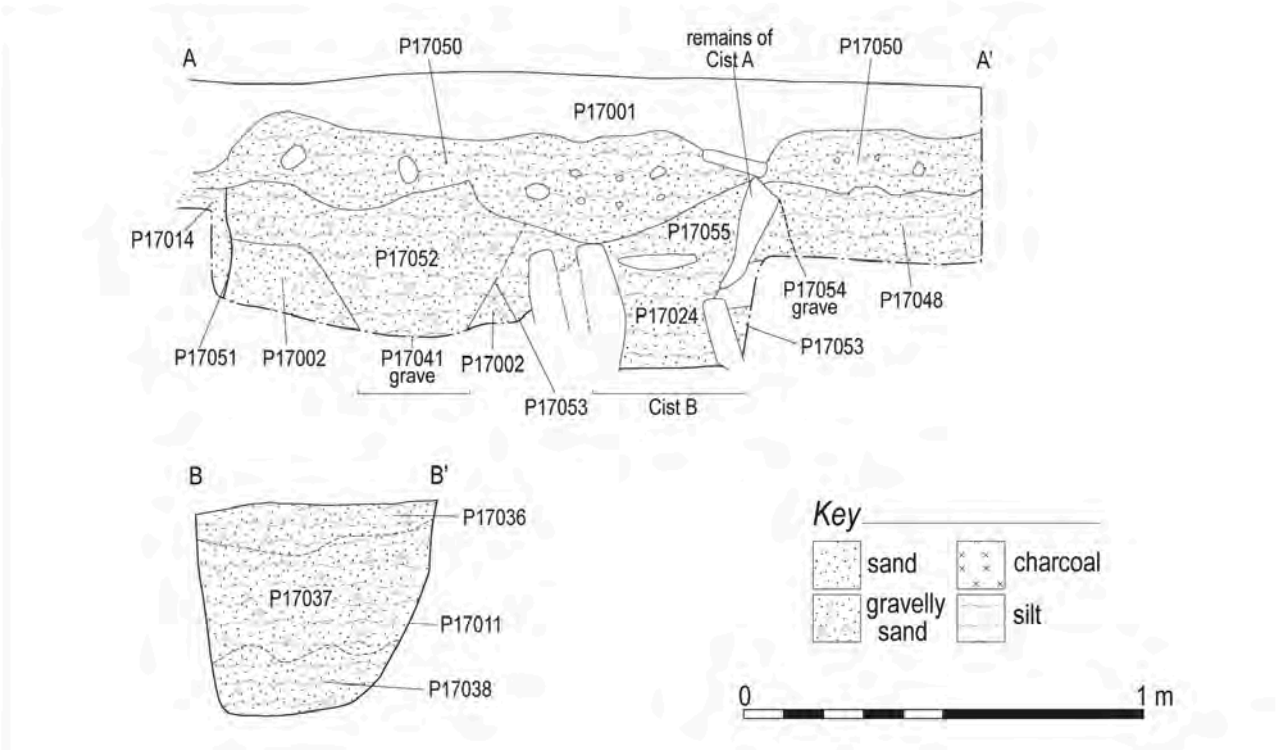
4.1.4 Environmental Evidence

Jennifer Miller & Susan Ramsay

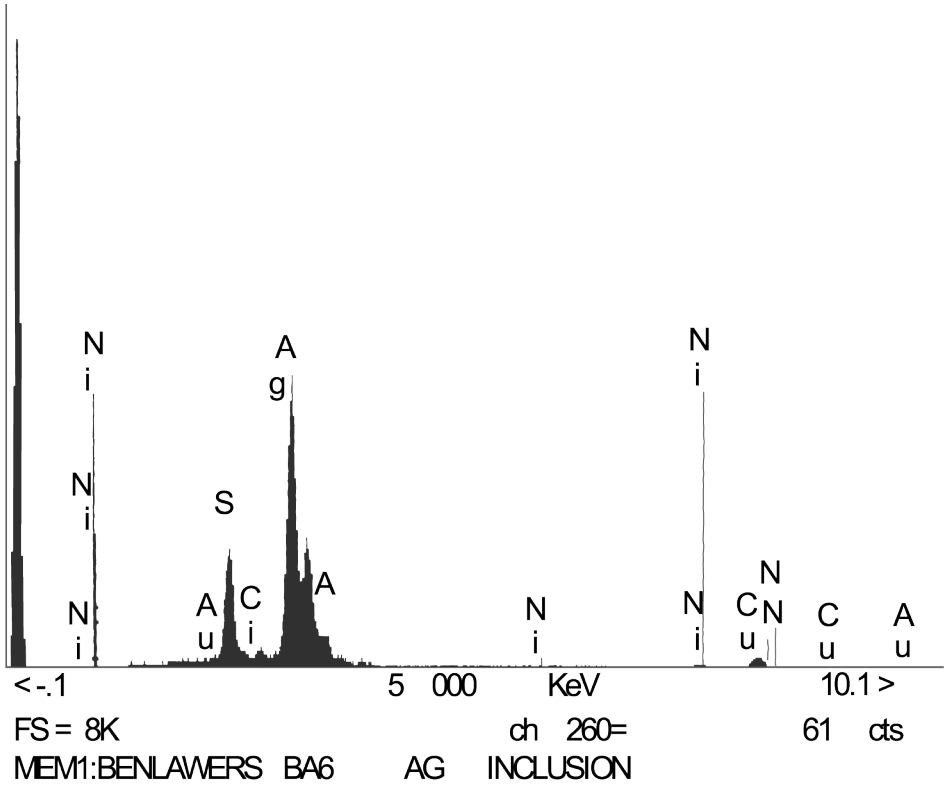
Samples from the upper and lower cist-burials (P17053 & P17054) in Trench P17A, together with adjacent deposits, were analysed (Table 4.2). The charcoal in the three samples from the lower cist (P17053) was very similar, with only slight variation in species composition, suggesting a common origin. Taxa found included birch, hazel, heather-family, blackthorn-type, oak and willow. Significantly, all three contained oak, and this taxon was not found very often elsewhere. This may relate to the age of the cist compared to other contexts. This may also be true of the elm found in earlier deposits (see Chapter 2 for further discussion). The species composition in the cist samples is representative of a low-altitude site with the rare occurrence of heather-heathland taxa.

4.1.5 Balnahanaid: Interpreting the Evidence

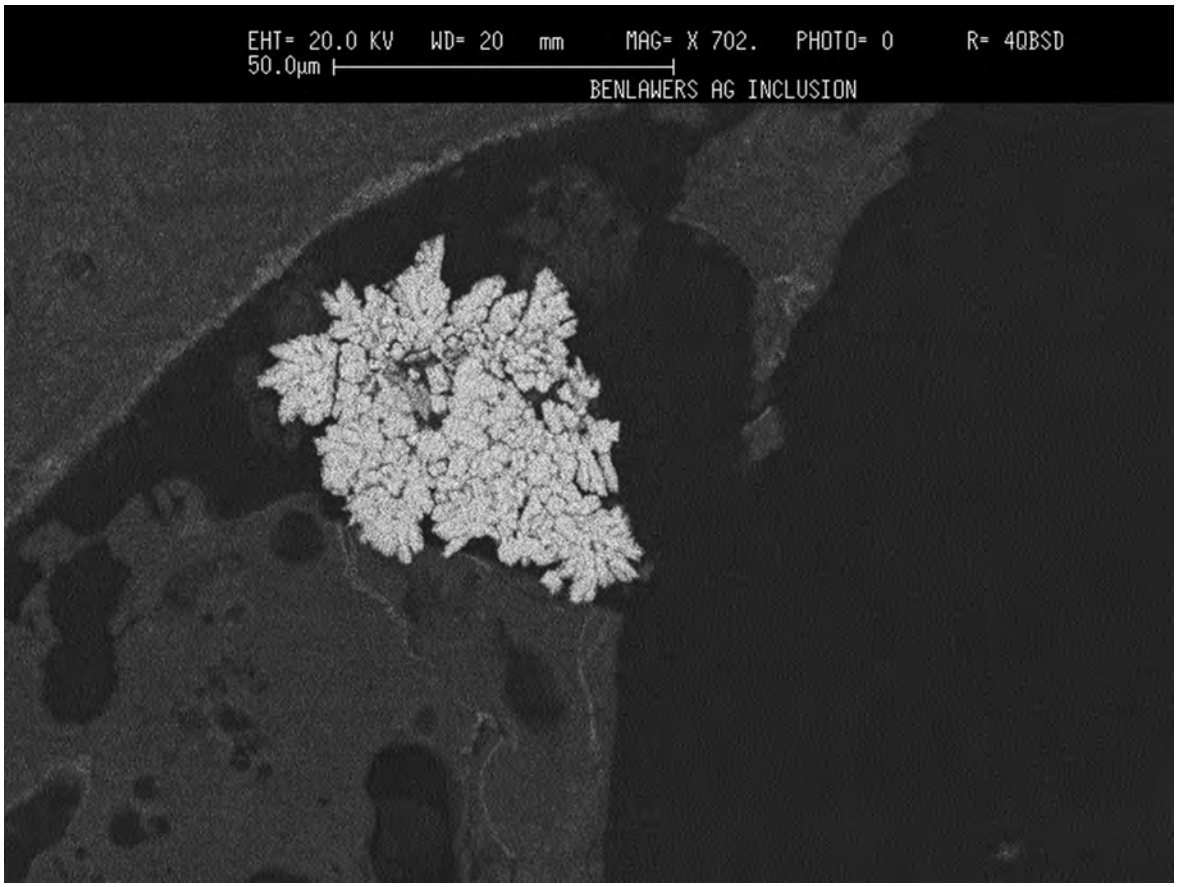
Dating the Balnahanaid burials depended on radiocarbon dating of charcoal associated with them, rather than direct dating of the human remains. Roberts's assessment of the bones suggested that not enough collagen was present to attempt direct dating. A single sample of hazel was selected and this provided a date-range of cal AD 640–780 (2σ, OxA-8973). This range sits well with the site having been an annat location, although dating by association and the single assay are not ideal.



Illus 4.4 Section through cists P17053 & P17054 and grave P17011



Illus 4.5 XRF plot of highly-fired ceramic material



Illus 4.6 SEM-EDAX image of silver sample from P17065

Evidence for precious-metal working at the site, in the form of metallurgical ceramics within grave contexts, assists in the interpretation of this spot as having held some importance during the early historic period. Photo-Jones's discovery of silver-working debris is unusual, and it would seem to imply that silver was being cast, as the highly metallurgical ceramics could be the remains of crucibles. Although there is little supporting evidence for the early historic occupation of Loch Tayside, royal sites of this period are known elsewhere in Perthshire (see Alcock 1981; Alcock & Alcock 1992). The site of Dundurn in Strathearn provides the closest contemporary evidence. Here the excavators recovered a silver-plated bronze dangle and fragments of crucible and moulds (Alcock et al 1989: 215, illus 14).

4.1.5.1 Is Balnahanaid an Annat Site?

The evidence recovered from the short phase of trial-trenching provides support for the presence of an annat site at Balnahanaid. Although the investigations were limited, precluding any detailed discussion of the size or shape of the graveyard, general comment can be made on its location and orientation. Positioned on good-quality arable land on the valley-floor, some 80m to the south of the current buildings that constitute Balnahanaid, the graves were clustered within Trench P17A. Grouping or clustering of graves is a common occurrence in other long-cist cemeteries, such as Parkburn, Lasswade (see Henshall 1956: fig 3). However, here an alternative reason may apply. A thick layer of alluvium above the burials at Balnahanaid was noted in Trench P17A, but none was apparent in Trench P17B, immediately to the south-east, in which a Beaker was found. It may be that Trench P17B was not fully excavated and that cists were sealed beneath this layer, which would mean the context for the Beaker's recovery was dubious (see Chapter 2 for further discussion).

The orientation of the burials varied, with the two cist-burials on a north-east/south-west alignment, while dug-grave Burial P17011 lay on a broadly east-west orientation. Other potential grave-cuts

Table 4.2: Palaeo-botanical results from Trench P17 at Balnahanaid

	17004	17007	17008	17019	17024	17025	17026	17027	17034
Charcoal									
Betula	0.55g	<0.2g	0.1g	0.15g	0.7g	0.2g	<0.1g	0.1g	0.1g
Calluna vulgaris		<0.1g							
Corylus	0.2g	<0.3g	<0.1g	<0.1g	<0.2g		<0.1g	<0.2g	
Ericaceae						<0.1g			
Prunus spinosa type				<0.1g		<0.1g	0.1g		
Quercus					0.25g	<0.1g	0.25g	<0.1g	<0.1g
Salix					<0.1g				<0.1g
Ulmus	0.15g	<0.1g	0.2g						0.1g
Indet charcoal					<0.1g				<0.1g
Cinder				1.0g					
Slag						1			
Carbonised cereals									
Avena sp				2					
Hordeum sp	2								
cf *Hordeum* sp	2								
Indet cereal	1	1							
Carbonised seeds									
Bromus sp	1								
Galium aparine						1			
Plantago lanceolata	1								
Monocot remains			1						

(for example, P17041 & P17042) lay on similar alignments. Considerable variation in grave orientation is common in early Christian cemeteries such as Hallow Hill, Fife (Proudfoot 1996: 408). Even in smaller-scale cemeteries, such as Innellan, Argyll (Atkinson 2000a), variation in layout, and the combination of cists with dug-graves, is the norm.

4.1.5.2 Long Cists on Loch Tayside: A Geographical Anomaly?

Known long-cist cemeteries in Scotland are heavily distributed towards the east coast, mainly in Angus, Strathearn, East Fife and Lothian, and this seems to correspond with the best-quality agricultural land (*pace* Proudfoot 1996: 444). Outlying concentrations in Caithness, Orkney, the Inner Hebrides, the Clyde estuary and around Whithorn are also known, but large areas of mainland, and notably upland, Scotland are devoid of evidence for this form of burial. Balnahanaid lies considerably further west than any other known long-cist cemeteries. Its closest possible parallels are Carse of Lennoch, to the east of Comrie (NMRS NN82 SW33), and Balnaguard by Ballinluig (NMRS NN05 SW104); both have been postulated through cropmark evidence alone.

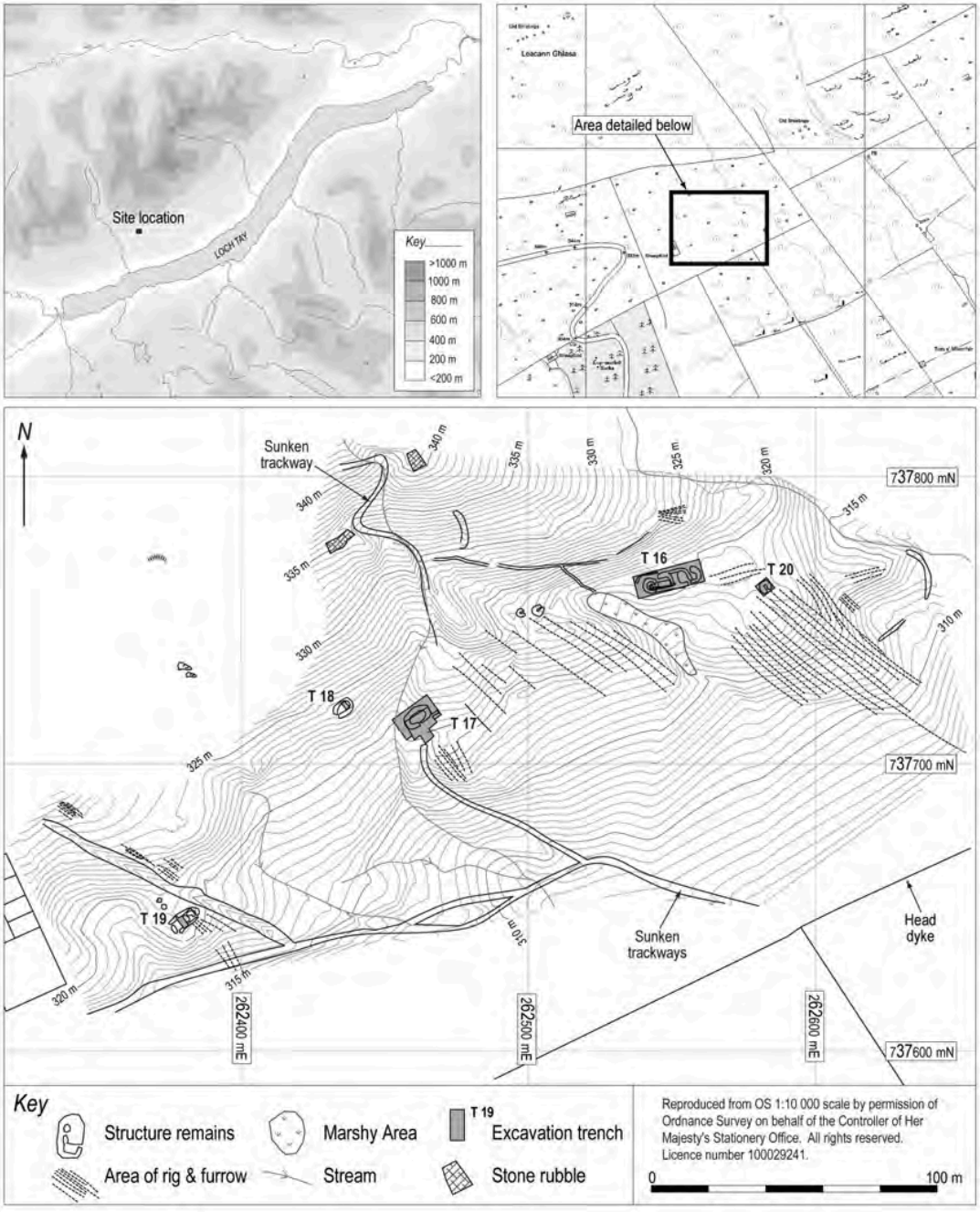
This seems to suggest that Balnahanaid is in fact an anomaly in terms of its location; however, there may be another way to interpret this. MacDonald (1973), in his provisional summary of the location, purpose and date of annat sites, concluded that they were the sites of churches of any kind, abandoned and subsequently replaced from the 8th and

specifically the 9th to 10th centuries AD. It is also worth noting that the dating of long-cist cemeteries suggests a similar timetable for abandonment. Sites like the Catstane (Cowie 1977), Lundin Links (Greig et al 2000), Hallow Hill and Thornybank (Rees 2002) were all abandoned by the 9th century. The interpretation of this event-horizon has been linked to Scottish and Viking raiding (Proudfoot 1996: 444). If annat sites are indeed the locations of long-cist cemeteries, their distribution may be far wider than previously thought.

4.2 BUILDINGS T16 & T17 AT KILTYRIE: THE EARLY OCCUPATION

John A Atkinson

Building T16 was first identified by the RCAHMS during their survey of north Loch Tayside in 2000 (Boyle 2000). Described as 'at least five shieling-huts and a building standing among fragments of field-bank and two areas of rig-cultivation in unenclosed rough pasture above Kiltyrie' (NMRS NN63 NW100), the group represented an unusual



Illus 4.7 Kiltyrie head-dyke sites and cultivation traces

and previously-unmapped form of settlement for the area (pers comm Eve Boyle). Further inspection by the project team in late 2003 confirmed the RCAHMS observations. The team also examined two further bow-sided and round-ended buildings (T17 & T18), some 80m to the west of T16. All three buildings, together with the group of shieling-huts – which included T20 (see Chapter 9) – were built on the 320m OD terrace immediately to the north of the Kiltyrie head-dyke (Illus 4.7).

Their existence, together with a further building (T19) to the east of the sheepfold on the same terrace, prompted a programme of trial excavation as part of the April 2004 field season (see Atkinson et al 2004b) (Illus 4.8). The discovery of hearths in T16 & T17 led to exploratory dating of both features in late 2004 and subsequent excavation programmes in September that year (Atkinson et al 2005a) and in June the following year (Atkinson et al 2005c). The results of the excavations confirmed that T16 & T17 were in fact multi-phased, although the main period of their use seemed to be during the later medieval period (Illus 4.9). This section of the chapter deals specifically with the evidence for the early medieval occupation of both T16 & T17; it excludes their main phases of use and any evidence of earlier or later occupation at either site. A summary of the phasing of each structure is provided below so that the timeline for each building is apparent, but detailed discussion of their phasing is not presented until Chapter 5.

4.2.1 Excavation Strategy

In both cases, a similar excavation strategy was employed. Trenches were laid out to encompass the whole of both buildings and the turf was stripped to reveal the denuded structures. After cleaning and recording, several slot-trenches were excavated through the banks and floors in order to assess stratigraphy. This was followed by the subsequent removal of layers and the excavation of negative cut features.

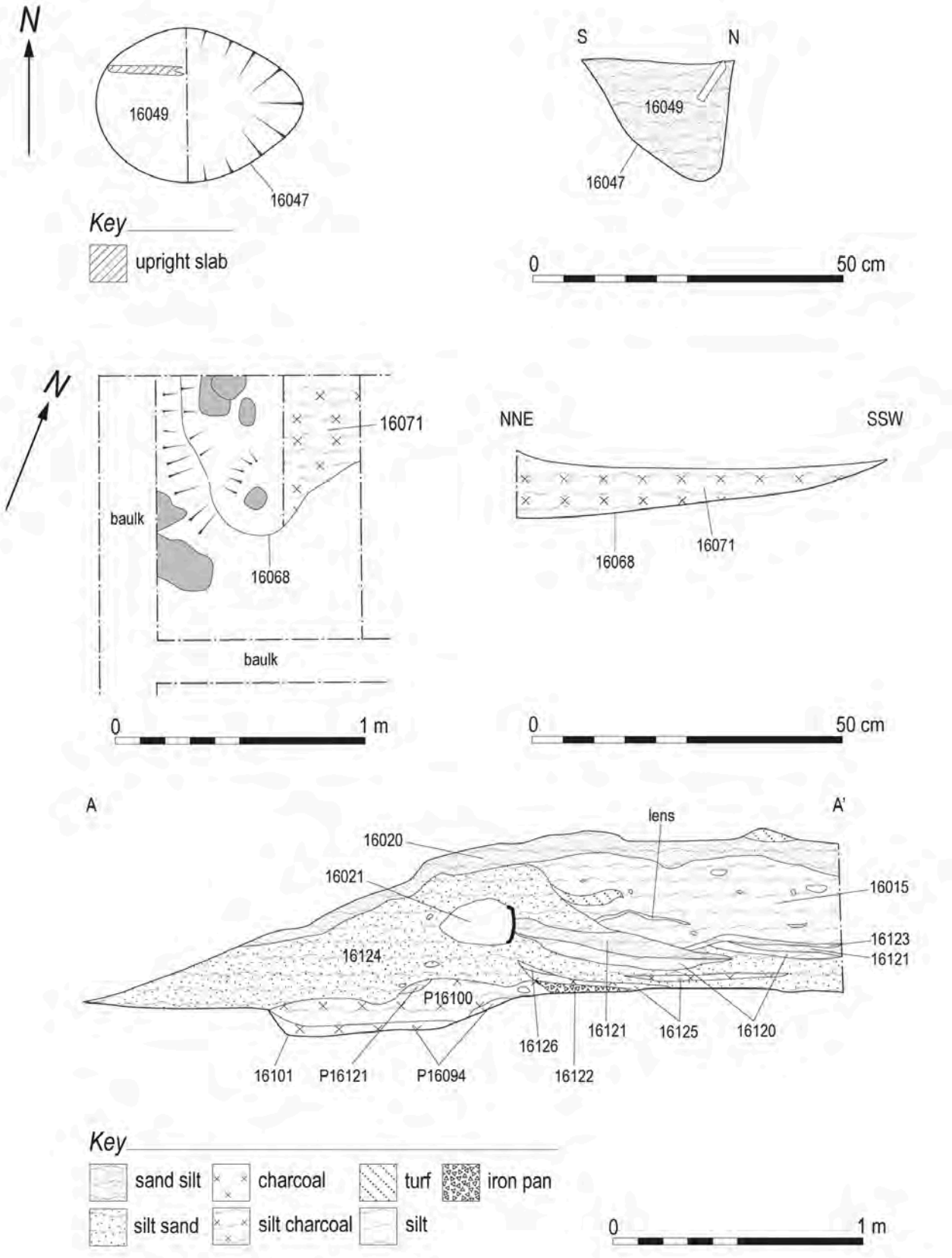
4.2.2 Deposits and Stratigraphy

4.2.2.1 Summary of Phasing for T16

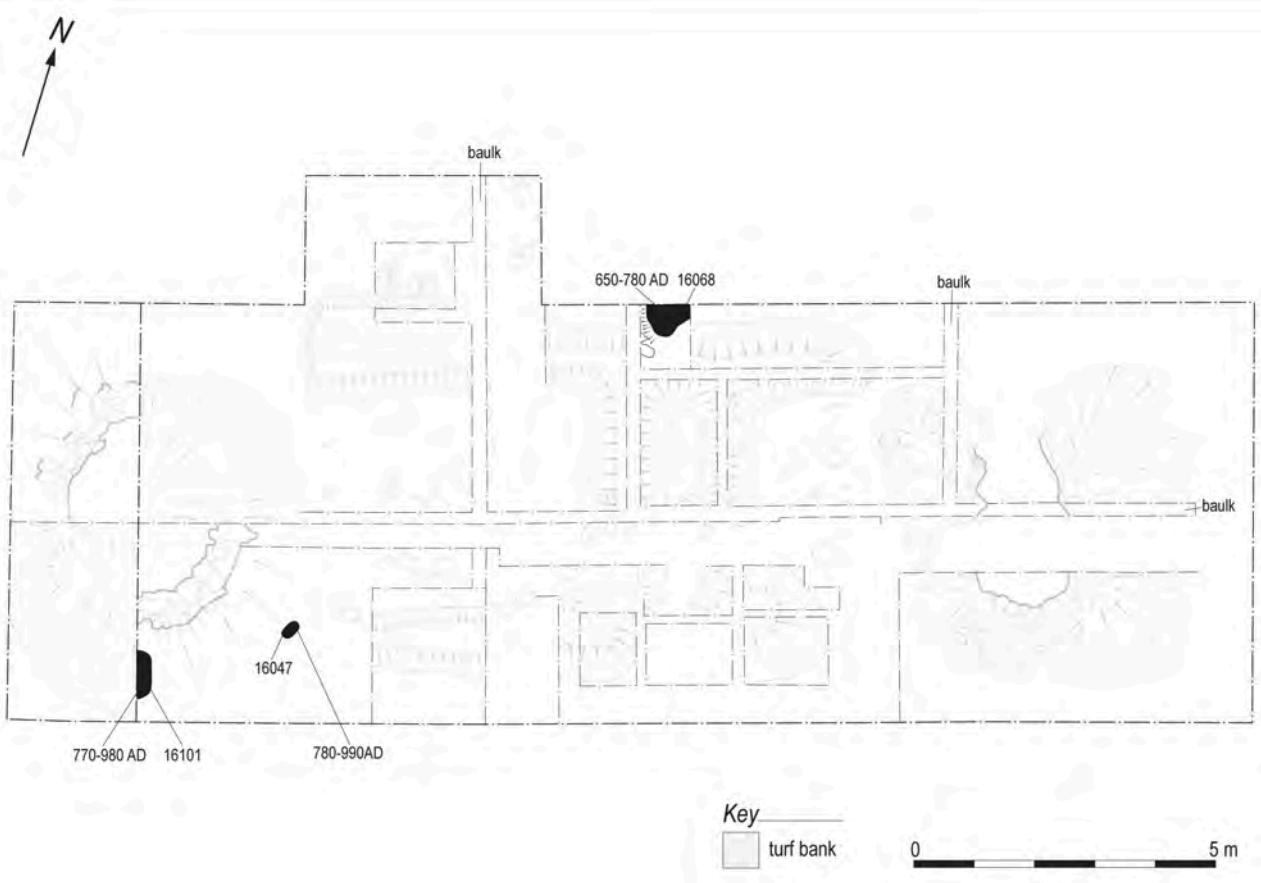
Phase 1 – mid 7th to late 10th century AD
Phase 2 – mid 12th to late 13th century
Phase 3 – late 14th to mid 15th century

(Left) Illus 4.8 Trial-trenching at Kiltyrie, April 2004

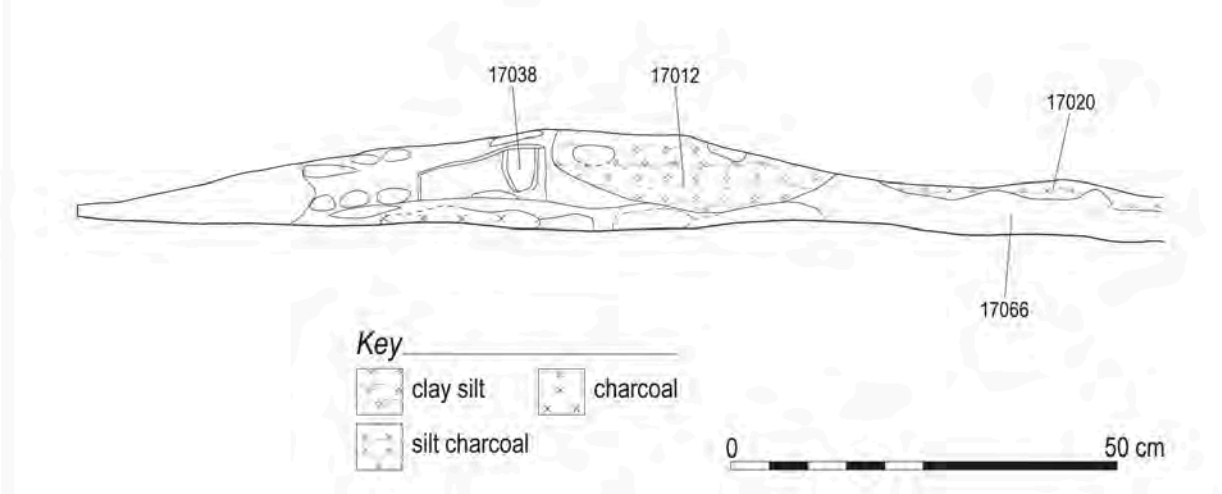
(Right) Illus 4.9 T16 being excavated, June 2005



Illus 4.10 Phase 1 pit sections under T16C & T16A



Illus 4.11 T16, Phase 1 plan of features



Illus 4.12 Section through the bank of T17

Table 4.3: Palaeo-botanical results from Phase 1 of T16

Context	16047	16071	16095	16096	16100	16125
Alnus		12	43	20	16	63
Betula				1		2
Corylus	15	3	5	21	80	8
Quercus		92				
Salix	10		2	8	4	52
Indet		17				

4.2.2.2 T16 – Phase 1

Evidence for an early phase of occupation was evident in the form of carbonised remains, recovered from negative cut features beneath later turf-built structures (Illus 4.10). Three securely-stratified features were revealed and excavated, including two pits (16101 & 16068) and a post-hole (16047). Pit 16068 lay partially beneath the northern bank (16028) of the Phase 2 building (Illus 4.11). It had a silt fill (16071) rich in carbonised remains, including a large quantity of oak charcoal, some alder and hazel (see 4.2.3 below and Table 4.3). Radiocarbon dating of a sample of the hazel charcoal provided a date-range of cal AD 650–780 (2σ, SUERC-9731); the discussion in Chapter 10 puts this date in context.

The second pit (16101) lay to the south of Pit 16068 and was sealed beneath Structure A (a later turf shieling-hut). It may also have been sealed by the south-eastern bank (16002) of the Phase 2 building, although later alteration had removed any trace of this. This pit was also filled with silt, rich in carbonised material (16100), including large amounts of hazel and alder and some willow charcoal (see 4.2.3 and Table 4.3). A radiocarbon date was achieved from a sample of hazel and provided the date-range of cal AD 770–980 (2σ, SUERC-9736).

Immediately to the north-east of Pit 16101, two post-holes were noted beneath the remains of the south-east bank (16002), which defined the limit of the Phase 2 building. One of these post-holes (16047) contained a quantity of hazel and willow charcoal within its sand-rich fill (see 4.2.3). Radiocarbon dating of a piece of hazel charcoal provided a date-range of cal AD 780–990 (2σ, SUERC-9736). A single and comparable assay was also recovered from the dating of willow charcoal from a charcoal-rich layer (16125). This deposit was sealed beneath Structure A – the north-western of the Phase 3 buildings – and provided a range of cal AD 800–990 (2σ, SUERC-9739). It is possible that the layer represents a burnt wattle panel (see below for further discussion). It was certainly similar in composition to the fill of Pit 16100, which lay close by (see 4.2.3 below).

4.2.2.3 Summary of Phasing for T17

Phase 1 – mid 3rd to mid 1st century BC?
Phase 2 – mid 6th to mid 7th century AD
Phase 3 – late 12th to mid 14th century

4.2.2.4 T17 – Phase 2

The main occupation-phase of Building T17 (see Chapter 5 for Phase 3) occurred during the later medieval period, but two earlier phases of activity were identified in the stratigraphy. Phase 1 was represented by a single radiocarbon date and may represent residual activity. Phase 2 was also represented by a single event, in the form of a stake-hole (17038) cut through the core (17021) of the southern bank of the building (17012) (Illus 4.12). The stake-hole included small amounts of alder and heather charcoal. Dating of the alder sample suggests burning sometime within the range cal AD 530–650 (2σ, SUERC-9722; see the discussion below and in Chapter 10).

4.2.3 Environmental Evidence

Jennifer Miller & Susan Ramsay

Samples from four features can be directly associated with the early medieval use of the T16 group (see Table 4.3). Two of these contexts (16100 & 16125)

contained very similar carbonised assemblages, including alder, birch, hazel and willow, although birch was only present in the latter. It is unclear whether the charcoal had a structural origin. Hazel and willow were commonly used for wattlework panels, although alder and birch are less commonly found in structural contexts. The charcoal may instead derive from hearth-waste. Samples from Post-Hole 16047 were also examined, and these contained charcoal of hazel and willow, which might suggest a wattlework structure had been present. Under the northern bank (16028) of the Phase 2 building was a pit (16068) rich in oak charcoal. It contained lesser quantities of alder and hazel charcoal and a significant amount of indeterminate charcoal. The oak charcoal may have been structural in origin.

4.2.4 Interpretation of the Evidence

Certainly the strongest evidence for early historic occupation of the rough grazing above Kiltyrie comes from Phase 1 at T16. Here the presence of two pits, a single post-hole and a layer of charcoal beneath Structure A all point to human activity during the mid 7th to late 10th century AD. Three of the features dated are closely clustered – in location (Illus 4.11), date-range (Table 4.4) and taxonomic content (Table 4.3). This may imply a degree of separation in time between them and Pit 16068, although statistically they could have been in use at the same time.

In comparison, the single T17 assay that falls into the early historic period seems less convincing. Stratigraphically, Stake-Hole 17038 within Bank 17021 indicates that the upstanding remains are early 6th to mid 7th century in date. This, however, is not borne out by dates from the hearth and occupation-levels (see Chapter 5). Although small amounts of alder and heather charcoal were present within the stake-hole, there was no evidence of burning, and the dated material may be best interpreted as residual. That said, the presence of better evidence from the adjacent T16 and the survival of burnt material in the vicinity of T17 does indicate activity above Kiltyrie during the later 1st millennium AD.

Comparative analysis of the form of the buildings excavated at Kiltyrie with other sites in the geographical region is almost impossible, given the ephemeral nature of the evidence recovered. Sites such as those excavated at Pitcarmick North (Barratt & Downes 1993; 1994; 1996), House 8 at Carn Dubh (Rideout 1995) and Bunrannoch (MacGregor 2010) offer more substantial forms of evidence. Comparisons are also restricted by the limited known varieties of Pictish architecture (Ralston 1997: 21). Given the date of T16 and its geographical position, it seems likely that it represents a form of open settlement, possibly a rectilinear range. However, other forms are also known in the archaeological record for this period (Laing 2006: 33).

The nature and context of the charcoal from T16, however, do imply that the buildings on the terrace above Kiltyrie may have been at least partly timber-framed and defined by wattle walls (see 4.2.3 above). Whether they were constructed like the 'creel-houses' of Bunrannoch or the Pitcarmick-type dwellings (RCAHMS 1990) is unclear. Whatever shape they were in plan, it seems likely that the builders would have used materials from the vicinity. In that case, T16 may have originally been made from a mixture of turf, stone and timber wattle. The use of these materials finds parallels across Scotland (for example Cook 2004: 77).

Structural remains at Kiltyrie (rather than material culture) certainly provided the key evidence for occupation of the landscape's fringes during the 8th to 10th centuries. This lack of finds is not in itself unusual for archaeological sites between the Iron Age and the 19th century in Highland Scotland. Indeed it would have been unusual, given the site's

Table 4.4: Radiocarbon dates from phase 1 of T16

Context	Material	BP date	Calibrated 1σ	Calibrated 2σ	Lab code
16125	*Salix*	1130 ± 35	ad 885–975	AD 800–990	SUERC-9737
16100	*Corylus*	1150 ± 35	ad 860–970	AD 770–980	SUERC-9736
16047	*Corylus*	1140 ± 35	ad 870–980	AD 780–990	SUERC-9730
16071	*Corylus*	1295 ± 35	ad 665–715	AD 650–780	SUERC-9731

location and marginal position, if it had been rich in artefacts. This lack of material culture should not in itself be taken to indicate an impoverished lifestyle, as the most common domestic vessels during this period would have been made from wood (Laing 2006: 76). Poor survival of non-durable materials such as wood or leather within the acidic soils of Loch Tayside is expected. Other more durable artefacts are also missing, but this may be due to the nature of the remains encountered. The excavations at Easter Kinnear and Hawkhill in north-east Fife provide adequate evidence for the types of artefacts present in the houses of Pictish peasantry during this period (Driscoll 1997).

4.3 SUMMARY AND CONCLUSIONS

Knowledge of early medieval Loch Tay, as for much of contemporary Scotland, had always been tantalisingly scanty, with little evidence to illuminate this period in the archaeological record of the area. Few remains of potential early medieval settlement were known. This position, however, was transformed by the field-excavation seasons and the underwater-sampling season. The identification of an early Christian graveyard at Balnahanaid (P17), complete with cist and non-cist graves, casts light on religious practices of the period. It was complemented by the recovery of evidence for two settlement-sites above the current head-dyke at Kiltyrie (T16 & T17), reflecting a time when climatic conditions enabled cropping at higher elevations. This evidence was further supported by the sampling and dating of Eilean Breaban Crannog, which indicated a phase of occupation between the early 5th and the mid 7th centuries AD. Two other crannogs on the loch, at Dall North and Craggan, also appear to have been occupied during this period.

Although the results discussed here only present trace-evidence for the early historic occupation of the area, they do add to our understanding of the distribution of contemporary sites in the Central Highlands. Much has been written about southern Pictland, but the Loch Tay sites are considerably further west than the key centres of Pictish activity around Dunkeld, Scone and Forteviot in the provinces of Atholl, Gowrie and Fortriu (RCAHMS 1994: 88–9). Few monuments for the period stretch as far north and west as Loch Tay, although the key fortress of Dundurn in Strathearn lies close by to the south. It has been noted that Dundurn stands at a point where a number of routes converge from the west to the east (Alcock et al 1989: 195); this, however, could also be said of Loch Tay.

The evidence for early Christian activity at nearby Fortingall and Dull may support the view that Balnahanaid and Kiltyrie lay within the Pictish province of Athfothla (Robertson 1997: 134). Roberstson's dating of fragments of Class IV and Class III symbol-stones (7th to 8th centuries) from Fortingall sits well with the dating evidence from the Loch Tay sites and this may imply a degree of contemporaneity. The church at Balnahanaid – a mere 15km away – might have been an outpost of the important ecclesiastical centre of Fortingall, although this is, as yet, unproven.

5. MEDIEVAL LOCH TAY: LIVING ON THE MARGINS

Illus 5.1 T16 being trial-trenched, April 2004

Few traces of the high medieval period (*c* 1100–1600) were apparent in the Loch Tay landscapes before the start of the Ben Lawers Project. Although a few structures were thought to represent 16th-century occupation, for example Finlarig Castle or Balloch Castle, very little in the way of earlier material was known. One exception was Priory Island, near Kenmore, which charter evidence suggests may have been occupied from at least 1122 (Dixon 1982: 21). It is notable that the only upstanding remains were associated with centres of influence at this time (Finlarig and Balloch). This association is a recurring feature of Scottish archaeology during this period, and particularly the case in the rural Highlands.

This void in our understanding of the distribution and form of medieval structures along Loch Tay began to be filled from relatively early in the project. Dating of turf and stone shieling-huts above Edramucky (see Chapter 9) suggested that these buildings might date from the 15th century (Atkinson 2000b: 157). However, throughout the rest of the project and during the RCAHMS's survey (Boyle 2000), no clear candidates for medieval occupation of the arable zone were encountered. In short, the homes of the tenantry and cottars who made up the vast majority of the population of this period were apparently absent from the archaeological record.

In order to redress this absence, the project in conjunction with Eve Boyle of the RCAHMS began to look for sites that did not fall neatly into a recognisable category. These sites were subsequently targeted on the basis that they could represent locations of pre-18th-century settlement. The structures discussed in this chapter formed one of those groupings, located immediately to the north of the head-dyke above Kiltyrie land-division (Illus 5.1). As will become apparent, Buildings T16B, T16C & T17 represent a very rare discovery for the Highlands in general and this part of the country in particular. It is contended here that the remains represent an attempt to cultivate and make habitable the very margins of possible permanent settlement during 'the golden age of the 12th and 13th centuries' (Lamb 1995: 205).

5.1 EXCAVATION OF BUILDINGS T16B & T16C ABOVE KILTYRIE

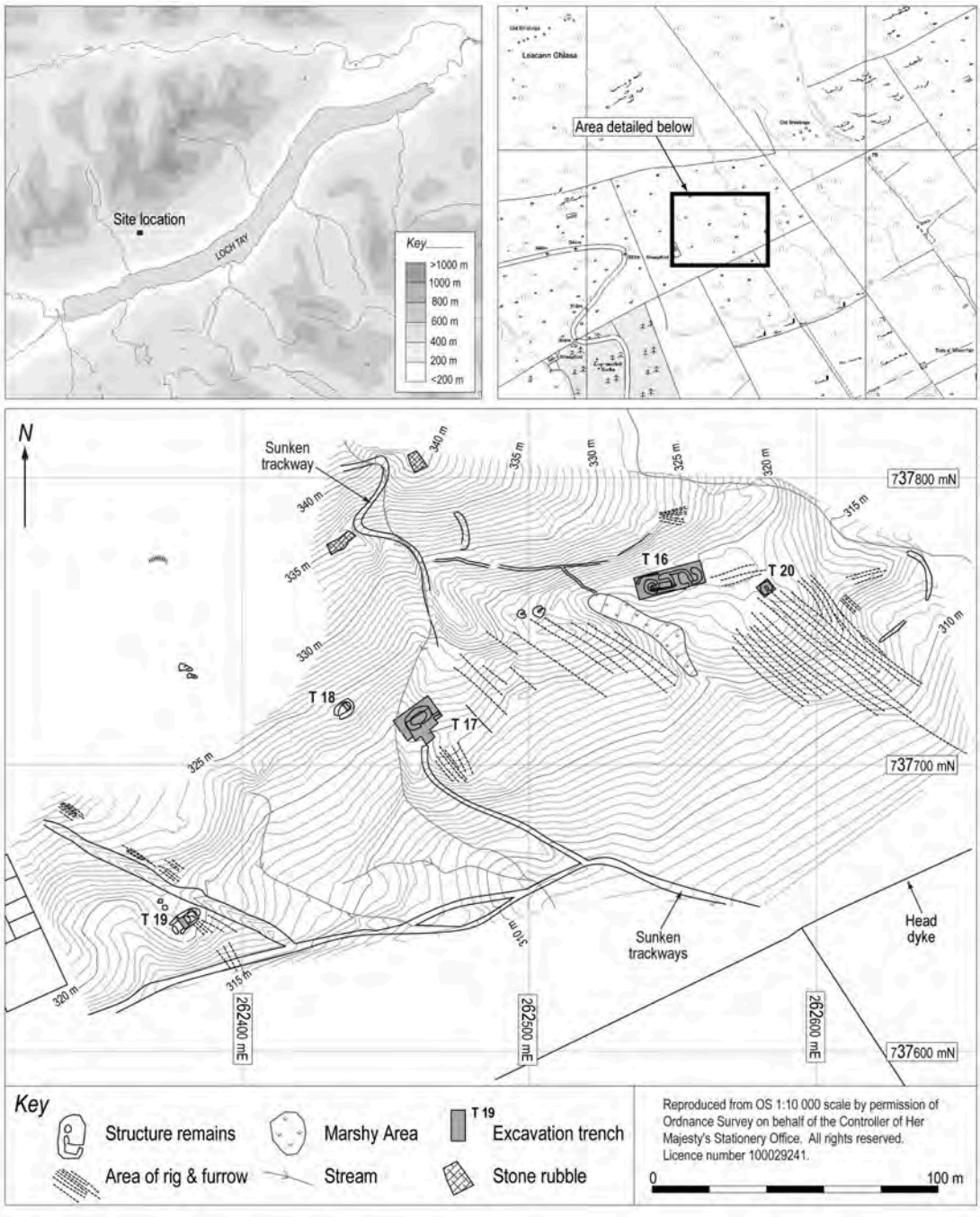
In Chapter 4 the background to the recognition, recording and excavation of Building T16 was discussed in some detail. The range of structures which formed T16 lay in an area of rig-and-furrow cultivation on a narrow terrace *c* 320 m above OD, above the Kiltyrie head-dyke (Illus 5.2). Although trial-trenching of the range indicated reasonable survival (Illus 5.1) and the dating of the hearth-sample suggested later-medieval occupation (see 5.1.3.1 below), the sheer complexity of the range was offputting. In consequence, excavation was delayed until Building T17 had been excavated and understood (see Chapter 4 and below).

This section deals specifically with Phase 2 of the occupation of Building T16 (see Chapter 4 for

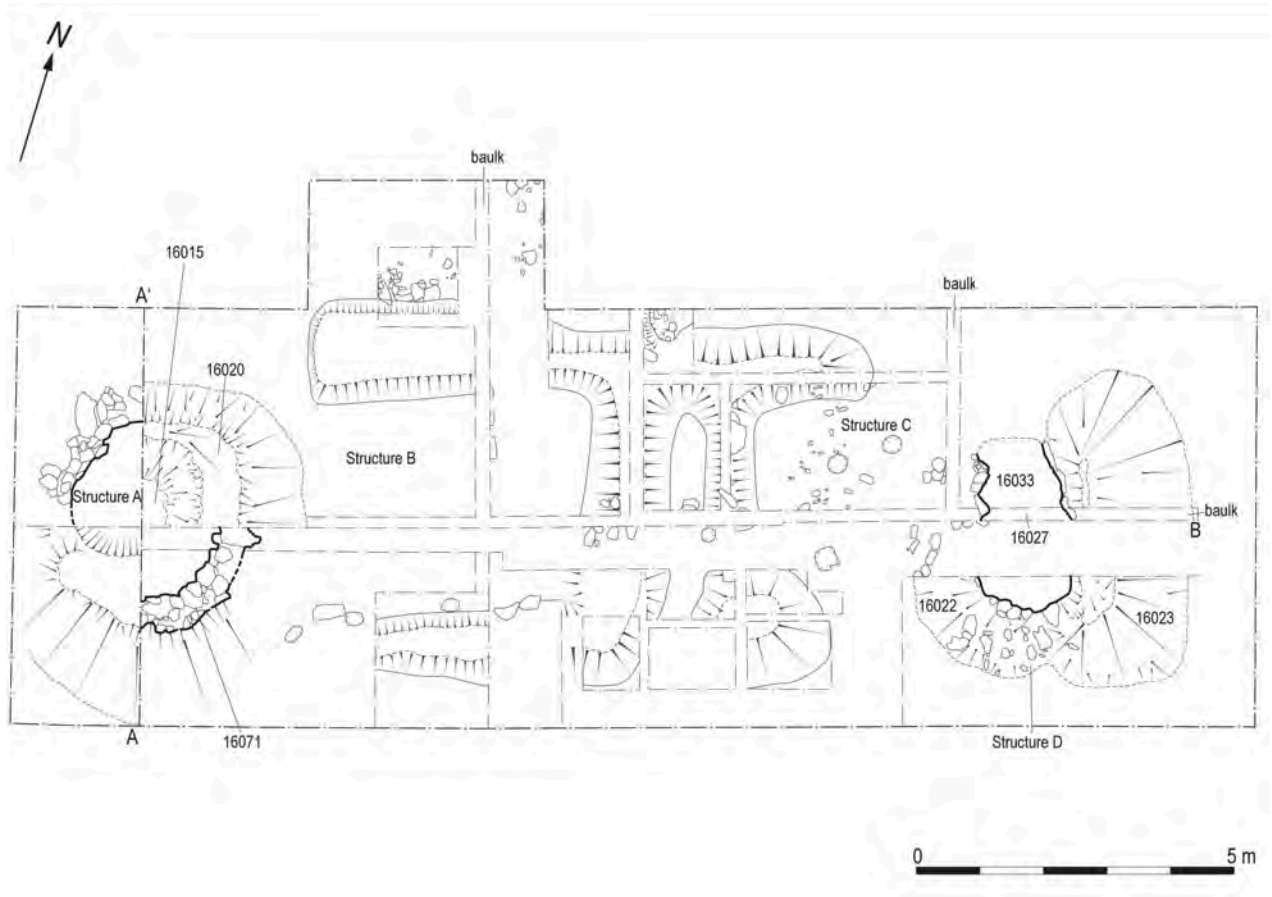
Phase 1), which has been dated to the mid 12th to late 13th centuries and relates specifically to the use of Structures T16B & T16C at the site. Phase 3 of occupation, which related to Structures T16A & T16D, occurred slightly later and is discussed in Chapter 9. It is worth noting that although the range was known as Building T16, at least four individual buildings were in fact present (Illus 5.3).

5.1.1 The Morphology of the Kiltyrie Head-Dyke Cluster

Kiltyrie presented an unusual combination of building-types and associated features, dispersed among areas of rig-and-furrow cultivation and traces of earthen banks (Illus 5.2). Prior to excavation it was apparent that the five circular structures observed in a broadly-linear alignment from T20 in the east ran



Illus 5.2 Survey of Kiltyrie group



Illus 5.3 Plan of T16 range, showing Structures A–D

through T16 and continued up a small ravine to its west. Two of these – later known as Structures T16A & T16D – were clearly superimposed over the ends of what appeared to be a linear range (T16B & T16C). Lying further to the west of this group were two further linear structures in close proximity to each other (T17 & T18); both were sub-rectangular with rounded ends.

It is notable that the areas of rig-cultivation generally lay to the front and side of Buildings T16 & T17 on this part of the terrace. Furthermore, there was no clear evidence that any of the rigs ran over the buildings or vice versa. However, the excavators noted tentative evidence that the cultivation-traces post-dated Building T17 (Atkinson et al 2005a: 26). This latter association seems to be supported by palynological analysis of the nearby gulley sediments, which indicates that buckwheat was being grown here throughout the 17th century (Tipping et al 2009: 154). A similar relationship between rig and the circular structures may be apparent, although a closer association between the cultivation-traces and Building T20 was evident (see Chapter 9 for further discussion). Small clusters of rig were also evident around Building T19 further to the west, although the character and spacing of this rig appeared to differ from the generally broader rig encountered to its east. The concentration of cultivation-traces to the east seemed to lie mainly between two unnamed burns, the eastern of which was flanked by traces of a peat track (Illus 5.2).

5.1.2 Excavation Strategy

Open-area excavation, combined with running sections through and along the group of structures, formed the cornerstone of the strategy for this group of buildings. It became apparent quite early that the soil profiles within the southern side of Structures T16B & T16C in particular had become modified and blended by water-penetration and animal activity. This had the effect of producing homogeneous turf banks with no evidence of layers or cores apparent. Fortunately, this was not reflected elsewhere and, wherever possible, the cores of the banks were revealed either in plan or

through section. Stripping out of internal floors and excavation of negative features followed, the aim being to reveal as much as possible of the original form of the buildings.

5.1.3 Deposits and Stratigraphy

Although three main phases of activity are postulated for this group of structures (see Chapters 4 & 9 for further discussion), the main period of use is divided into two sub-phases relating to occupation from the mid 12th to mid 15th centuries. This is supported by a sequence of radiocarbon assays and material-cultural evidence. This section deals specifically with the elements of the site that date to this phase, although a summary of all phases is presented below.

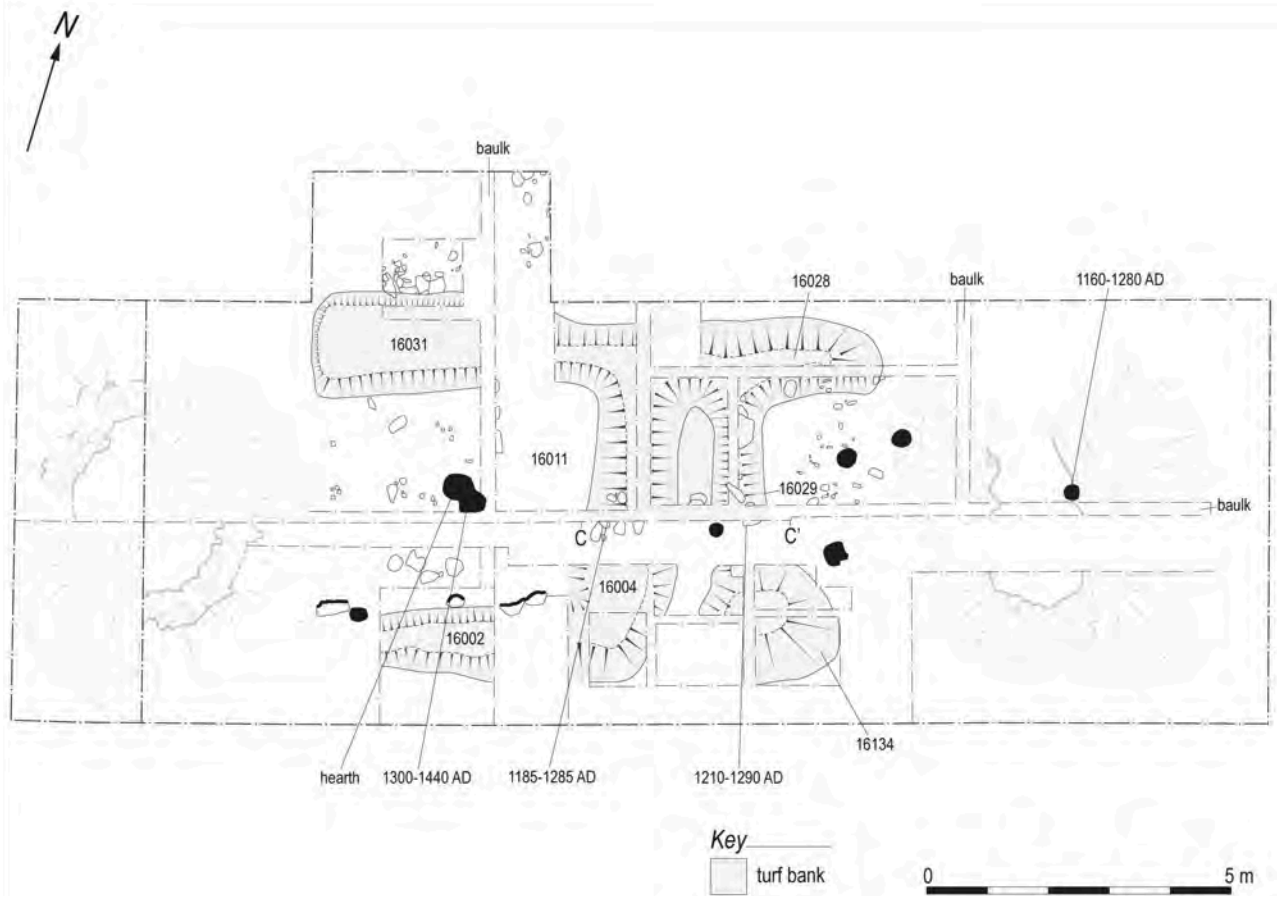
5.1.3.1 Summary of Phasing

Phase 1 – late 8th to late 10th century AD
Phase 2a – mid 12th to late 13th century
Phase 2b – late 13th to mid 15th century
Phase 3 – after mid 15th century

5.1.3.2 T16 – Sequence

Phase 2 was restricted to the use of two buildings within the T16 range: Structures B & C had sub-rectangular turf and occasionally stone walls (Illus 5.4). As has been inferred above, the western end of T16B and the eastern end of T16C had been compromised by the later construction of Buildings T16A & T16D, some time after the abandonment of Phase 2 (see 5.1.6.1 below for further discussion of when this occurred).

Although the general form of both buildings was similar, internal features were better preserved in T16B. Here a broken line of relatively-flat slabs (16155) ran along the interior base of the southern turf wall (16002), together with a centrally-located hearth (16010) in the eastern end of the building. The hearth sat in a shallow dip in the relatively-flat floor (16011) and was filled with a diverse range of heathland resources, including a range of wood charcoal, heather and the odd fragment of hazelnut shell and cereal (see 5.1.5.1 below). Radiocarbon dating of a sample of birch from the hearth provided



Illus 5.4 Phase 2 plan of T16B & T16C

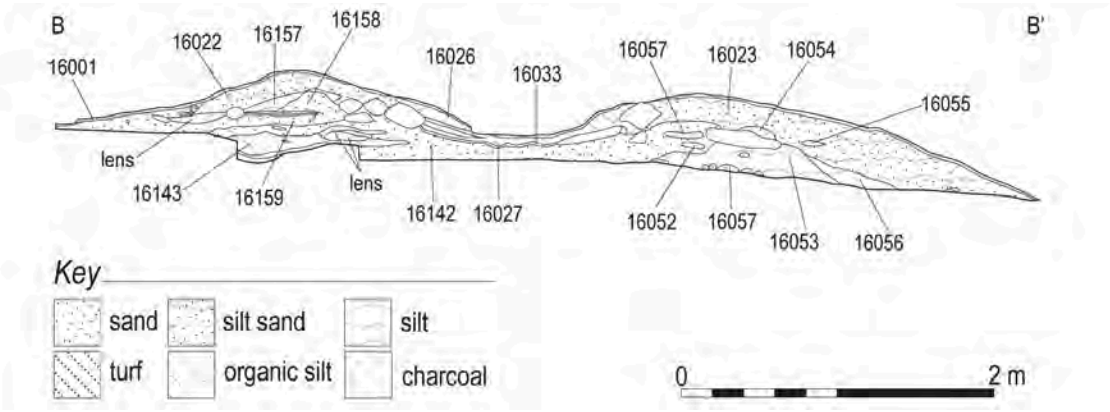
a date for its final firing of cal AD 1300–1440 (2σ, SUERC-4912). The hearth-fill also contained two quartz flakes (SFs 16002 & 16018), one of which may have been naturally fractured (see 5.1.4.2 below).

In contrast, the floor (16116) of T16C lay slightly lower than T16B and was partially sunken towards its centre. The floor matrix was discoloured, most notably towards the west wall (16029); the sand-silt occupation horizon was bright red-orange in places, which could be due to low-level domestic heating (see 5.1.5.2 below). Cut through Floor 16116 were three shallow pits (16075, 16098, 16099) in no distinct pattern. Small quantities of charcoal in the pits reflected a range of species, together with a fragment of hazelnut shell; this implies the presence of domestic-hearth waste, rather than burning of timber members in situ (see 5.1.5.1 below).

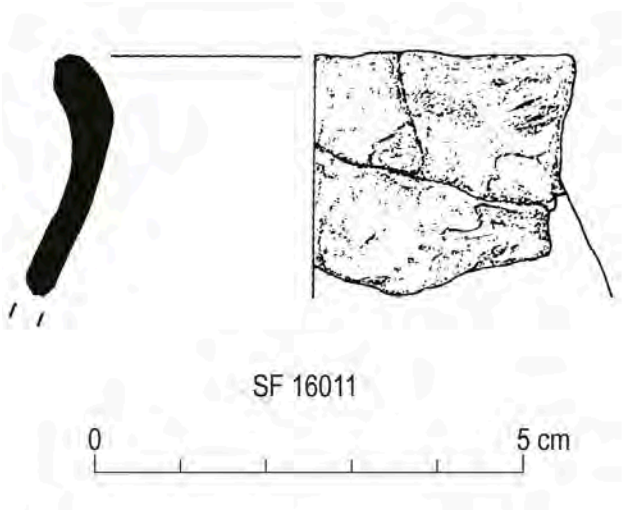
Excavation through the banks which defined both buildings provided a clearer understanding of the structural sequence. This was particularly evident in relation to Banks 16029 & 16004 (Illus 5.5). Here, it became clear that the cores (16035 & 16037) of two separate banks lay side-by-side on slightly different alignments, the area between them having become filled with silt (16042) after abandonment. Sixteen sherds (SF 16011) of possibly 12th-century pottery, which may have had a yellow lead glaze, came from this layer (see 5.1.4.1 below) (Illus 5.6). Immediately below the silting layer a possible old ground-surface was evident (16036); this had a single unworked stone disc (SF 16003) on its surface. A second disc (SF 16005) was recovered from the adjacent bank (16029), and Clarke (see 5.1.4.3) has suggested they may have been employed in some form of dairying activity (Illus 5.7).

Beneath Bank 16029 and cut into the natural was a single post-hole (16070), filled with hearth-waste, but similar to the burnt layer above (16044) (see 5.1.5.1 below). This post-hole is undated, but may relate to Phase 1 occupation (see Chapter 4). The burnt Layer 16044 beneath Structure C (and above 16070) was accompanied by a distinctive reddening of the soil, similar to that observed on the floor of Building C (Illus 5.5). It contained a mixture of birch and hazel charcoal with fragments of alder and hazelnut shell (see 5.1.5.1), and radiocarbon dating places this event at cal AD 1185–1285 (2σ, SUERC-9729). Further up the sequence within Bank 16029 was a second layer of hazel and birch charcoal (16043), which produced a similar date for its burning: 1210–1290 cal AD (2σ, SUERC-9728). This burning event was restricted to Structure C, particularly its western wall (16029). No concomitant burning layers were observed within Wall 16004, although a layer of reddened soil was found beneath Wall 16004 (Illus 5.7 and interpretation).

Removal of the upper silting layer (16042) above the banks, along the southern wall, revealed a gap between Structures B and C. This, however, was not replicated where the north wall (16031) joined with Wall 16004. Here, the northern wall continued beyond Structure B's gable and connected with the northern wall of Structure C (16028). This wall (16028) in turn partially sealed Pit 16068, which was rich in oak charcoal; the implications for this



Illus 5.5 Section through Phase 2 banks of T16B & T16C



Illus 5.6 12th-century sherds from 16042

are discussed further with regard to Phase 1 (see Chapter 4).

5.1.4 Finds

5.1.4.1 Ceramics

George Haggarty

A single cache of ceramic sherds was recovered from the excavation of Building T16. This consisted of 16 sherds in a sandy fabric containing abundant mica, fine quartz and red sandstone inclusions (up to *c* 4mm). Traces of burning were noted on both surfaces, and one sherd has an everted rim. The group may date to the 12th century in terms of manufacture. Small specks of what may be a yellowish lead glaze are also apparent.

5.1.4.2 Lithics

Nyree Finlay

A small quartz assemblage of 47 pieces, of which 33 are pebbles and rolled chunks, was recovered from the T16 excavations. There are three flakes (SFs 16002, 16009 & 16018), two primary and one tertiary, and a further three splinter-flakes, one rolled. Evidence for reduction is largely limited to fine-grained Type 1 material and a possible smoky-quartz core (SF 16007).

5.1.4.3 Coarse Stone

Ann Clarke

Two stone discs (SFs 16003 & 16005) (Illus 5.8) were found in T16, neither of which appears to have been deliberately shaped. They are both oval in plan and are slightly larger, or at least thicker, than the stone discs found in association with Building T8 (see Chapter 9) and which were interpreted as possible weights for cheese-making. The presence of the stone discs, and the absence of any other type of coarse stone tool, compares with the assemblage from T8, indicating the possible use of this structure for dairying.

5.1.5 Environmental Evidence

5.1.5.1 Botanical Remains

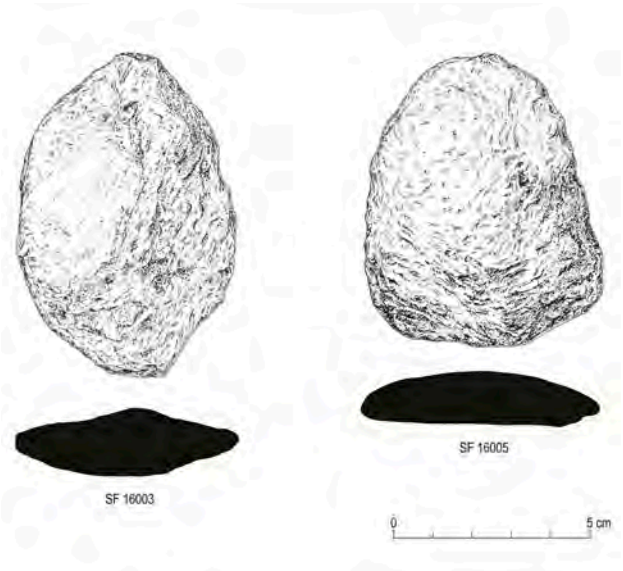
Jennifer Miller & Susan Ramsay

Three of the contexts analysed came from hearth deposits (16010, 16090/91 & 16150), and these showed that a diverse range of wood-types had been used for fuel. Alder, birch, hazel and willow were all present in significant quantities, while Context 16090/91 also contained reasonable quantities of heather-type charcoal. All of these types would have been readily available for collection in the local environment. The hearth-deposits also contained scarce remains of hazelnut shell and a single indeterminate cereal grain. These food-remains would suggest that Structure T16B had some kind of domestic function.

Three post-hole/stake-hole fills (16047, 16087 & 16130) were also examined. None of these contexts contained charcoal assemblages that would suggest the post or stake had been burned in situ, as all contained a mixture of types. However, Context 16047 contained charcoal of hazel and willow, which might point to a wattlework structure, while stake-hole Fill 16130 produced evidence for oak and alder. This was the only evidence for oak in Structure T16B and it may relate to an earlier phase or structure. Burnt Layer 16045 and Fill 16132 of Pit 16131 each contained charcoal of birch and hazel.

Burnt Layer 16044 and Post-Hole 16070 (Fill 16074) contained very similar charcoal assemblages, with alder, birch and hazel present, although the post-hole contained significant quantities of burnt bark, as well as hazelnut shell and seeds of grass, rose

(Above) Illus 5.7 Reddening of soil under bank 16004



(Left) Illus 5.8 Stone discs SFs 16003 & 16005

family and bramble. This suggests that the post-hole may have filled with hearth-waste, in addition to charcoal that had the same origin as that recovered from the burnt layer. Other burnt layers (16029, 16043) associated with the turf banks also produced charcoal of birch and hazel although, in addition, heather-type charcoal was present in 16029. One burnt horizon (16046) sealed under the northern bank (16028) produced a very different charcoal assemblage from the other layers. It was exclusively oak, which could suggest that it represents the remains of a structural element. Also located under the northern bank was a pit (16068), rich in oak charcoal but also containing lesser quantities of alder and hazel charcoal, as well as a significant amount of indeterminate charcoal (16071). The oak charcoal may have the same structural origin as that identified from Layer 16046 and could point to a structure having burnt down on the site prior to the construction of the bank.

The majority of the other contexts examined from Building C were pit/post-hole fills (16076, 16098, 16117 & 16128). These contained mixtures of charcoal, with alder, birch, hazel, oak and willow all represented, as well as a few fragments of hazelnut shell and a single cereal grain. There is no evidence that these fills contain the remains of timbers burnt in situ. It is more likely that they contain the remains of domestic hearth-waste.

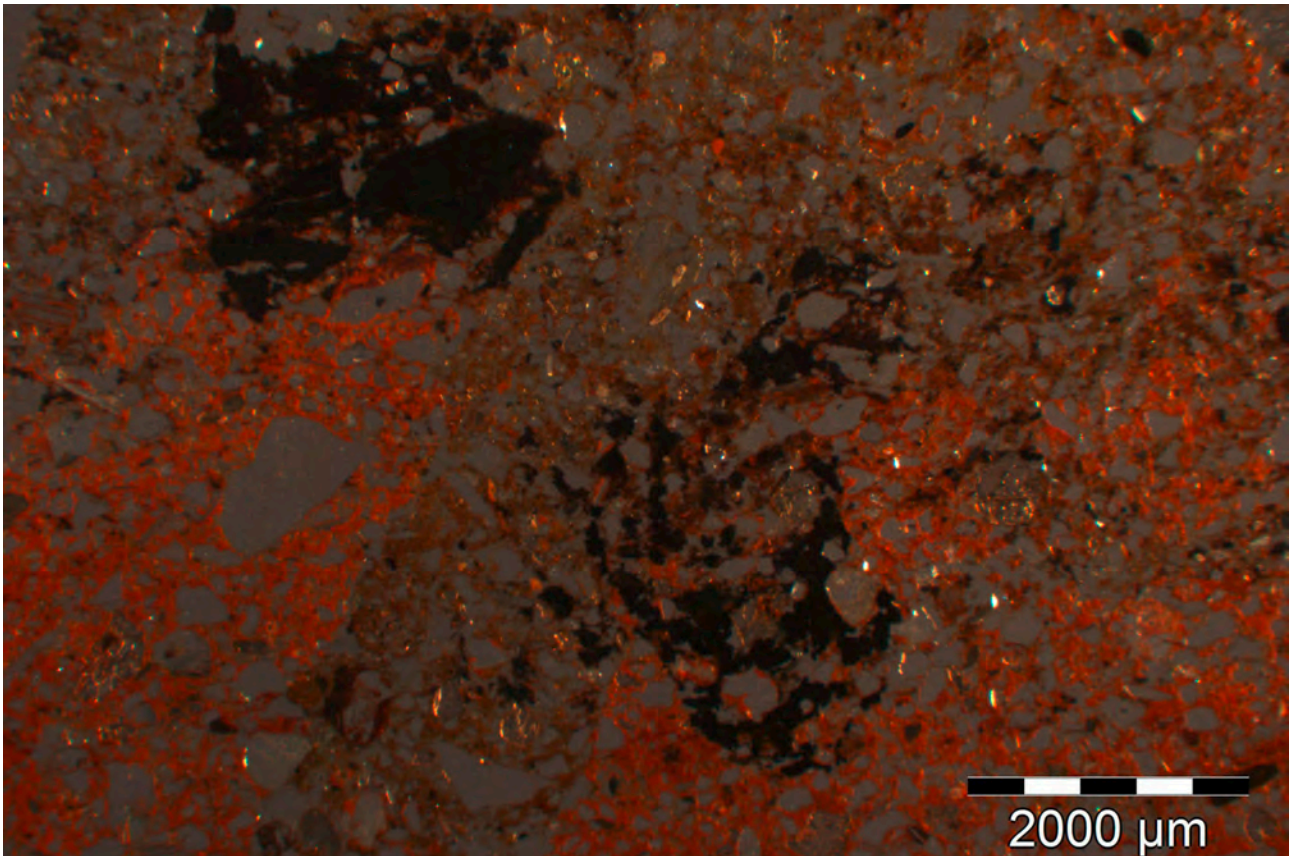
5.1.5.2 Soils

Jo McKenzie & Ian Simpson

Two thin-section slides provided a sample sequence through the western bank (16029) of Structure C, consisting of eight deposition-events. Deposit A extended through the majority of the upper slide and shows a quartz-dominated fine-sand deposit with a light-brown organomineral groundmass. There is very little evidence for anthropogenic activity and minimal carbonised organic material. Degraded plant materials and some biological activity are evident. A diffuse boundary with Deposit B below indicates gradual accumulation.

A far greater anthropogenic influence is seen in Deposit B. Similar in grain-size and mineralogy to Deposit A, it shows a higher organic content and frequent fuel residues. These include wood charcoal, carbonised peat and frequent carbonised organic materials. There is slight horizontal lamination to the fuel residues, especially the areas of burnt peat concentrated in the middle of the deposit, but overall this deposit appears to have been dumped. Several small areas containing brown organic material show concentrations of small mineral grains in crossed polars, which could indicate turf fragments.

There is a diffuse boundary with Deposit C, which is similar in micromorphological character to Deposit A. A degree of anthropogenic influence is evident from several well-preserved charcoal fragments, but it is interpreted as a dump of fine sand material with a light-brown organomineral groundmass. Deposit C partially sealed Deposit D, an extensive fuel-residue-rich deposit. This appears to represent a more intensive deposit than B, with a denser organo-mineral groundmass showing a far higher incidence of small carbonised and unburnt organic fragments, and very frequent large charcoal pieces throughout. Again, the random distribution of these fragments indicates a dumped rather than deliberately-laid deposit, with no sign of it having undergone heating. Rather, this groundmass appears mixed and turbated. It is noticeable that diatoms, although not particularly frequent, are concentrated within the lighter groundmass areas. They could indicate that this mixed deposit may have its origins in both wet and dry contexts.



Illus 5.9 Turf fragments seen at interface with heated groundmass in deposit Lower/D, Trench 16C

A clear boundary separates Deposit D and Deposit E, a fine sand with an organic fraction showing little anthropogenic influence, with only occasional small charcoal and plant-material fragments. Two possible fragments of burnt turf are evident towards the base of the deposit, at the interface with Deposit F (Illus 5.9), and the generally mixed and turbated appearance to the groundmass is similar to that seen in Deposit D. This indicates the deposit was dumped, and derived from a variety of source-areas. Deposit E is also notable for iron-accumulation features, particularly around plant fragments, and a degree of biological reworking.

Deposit F is similar in mineralogy and anthropogenic inclusions to Deposit E: a similarly thick fine sand showing occasional charcoal and possible burnt-turf features. The boundary between the two deposits is, however, well defined, largely as a result of a series of thin, discontinuous iron-pan accumulations. These are associated with organic residues, and they indicate movement through the deposits. However, the key feature distinguishing Deposit F from E above and G below is the degree of groundmass-heating observed through it, which appears a dull red in oblique incident light. This is relatively unusual: with little evidence for fuel residues or associated anthropogenic activity in the deposit, the cause of this heating remains unclear. The dull-red colouration of the groundmass in oblique incident light indicates relatively low-temperature heating commensurate with domestic activities (Simpson *et al* 2003: 1408). Iron-accumulation features indicate water-movement. There is a fairly clear boundary with Deposit G below: a fine sand deposit, present in only the base of the slide. This is similar in micromorphological character to Deposit E, with little anthropogenic material present.

5.1.6 Interpretation of the Evidence

5.1.6.1 Disentangling the Occupation of T16

Phasing of individual structures within the T16 range proved to be fully as challenging a task as had been foreseen during the initial visit to the site in 2003. The sheer complexity of the sub-rectangular banks and sub-circular structures which seemed to define the site was borne out by excavation (Illus 5.10). Although two distinct phases of use were evident in terms of the absolute dating of the site,

Illus 5.10 T16 range under excavation

further, more ephemeral, phases of occupation were certainly suggested by the remains and their associations with each other. This phasing is based on a combination of factors, including stratigraphic relationships, direct dating-evidence and inference from settlement-form and -typology.

It can be said with some clarity that at least one earlier phase of occupation had occurred prior to the existence of Buildings T16A to T16D (see Chapter 4 for details). Abandonment and destruction of this early building occurred in the late 10th century, and a hiatus of 150 years or so may have followed. Certainly by soon after the middle of the 12th century the site was again occupied, this time with the construction of Building T16C, a rectilinear turf-built structure with a slightly-sunken south-western end. This appears to have been in use until around AD 1290, when it was abandoned. Its abandonment was originally interpreted as having occurred due to fire-damage, evidenced by the orange heat-affected layer across much of building's floor, under its south-western wall and extending further south-west, together with substantial charcoal flecking within the bank itself.

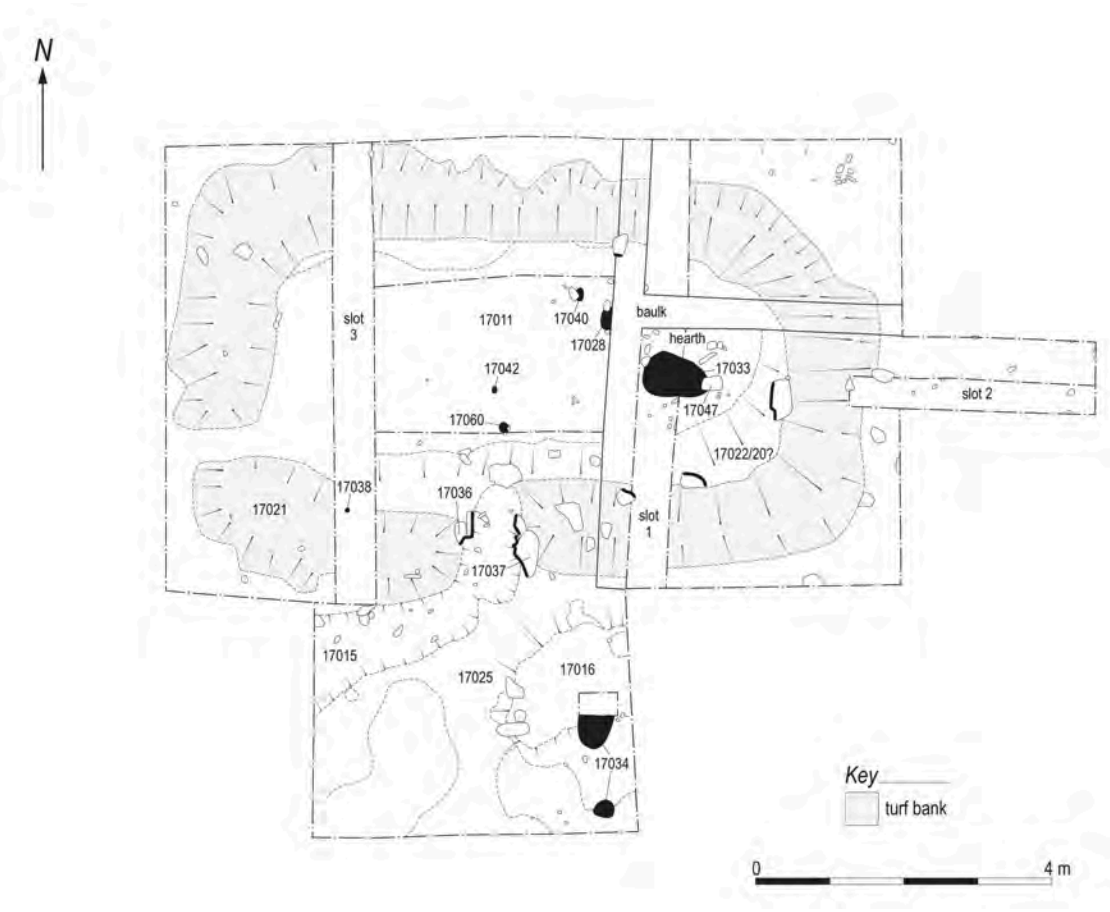
However, Simpson et al (2003: 1408; also above) have proved that this type of colour alteration is due to low-temperature domestic activities.

Certainly abandonment of T16C was followed fairly rapidly by the construction of T16B, which appeared to be connected to the remains of the north wall of T16C by a stretch of bank. The reason for this connection is unclear. What is clear is that the heat-altered layer associated with T16C continued under the east wall of T16B, which indicates that the latter wall was built some time after AD 1290. Opportunities for radiocarbon dating of deposits within T16B were limited, but the final firing of the hearth was dated to cal AD 1300–1440 at two-sigma confidence and cal AD 1380–1430 at one sigma (65% probability). T16B was also sub-rectangular in shape and had turf walls, although there was evidence for an inner stone face along the base of the south wall. A hearth lay in the middle of the floor, towards the eastern end.

Some time after the mid 15th century, T16B was also abandoned and two sub-circular structures were built (T16A & T16D) (see Chapter 9). These were the final events in the history of the T16 range and marked a departure in terms of architecture and usage. Structure T16A and possibly also T16D represent the use of the site as a shieling from this point onwards.

5.2 EXCAVATION OF BUILDING T17 AT KILTYRIE

Building T17 was certainly the most clearly recognisable of the rectilinear structures above Kiltyrie. Immediately manifest as a turf structure, perched on the edge of a small hillock and oriented north-east/south-west, it extended towards a small tributary burn that lay downhill from it. Some 9.5m long by 6m broad, the building had a slightly-sunken south-west end and a south-east-facing entrance located to the north-east of centre. Its entrance was also slightly sunken and faced onto a flat terrace, from which a peat-track descended towards the head-dyke (Illus 5.2). This section presents the evidence from the excavation



Illus 5.11 Plan of T17

of Building T17 and also pursues the interpretation of this form of building, particularly the possibility that it may represent a kind of structure akin to Pitcarmick-types or sub-varieties thereof.

5.2.1 Excavation Strategy

In line with the excavation strategy pursued on other turf structures during the Ben Lawers Project, the trench was laid out to encompass the entire building, plus a portion of its exterior (south-east-facing). Once the turf had been stripped and the deposits cleaned back, a series of slot-trenches were used to define the cores of the turf walls. A combined strategy of sectioning turf banks and features and stripping-out of banks and floor-areas in spits was then pursued.

5.2.2 Deposits and Stratigraphy

Olivia Lelong & Gavin MacGregor

Comparable in dating terms to Building T16 above, T17 also presented evidence for three broad phases of occupation, with the main period of use falling within the 12th to 14th centuries. Phases 1 & 2 are discussed in relation to other contemporary evidence (see Chapters 3 & 4), with Phase 3 – which is the most closely dated in radiocarbon terms –discussed in full here. It seems likely that two sub-phases of activity occurred during Phase 3 (see below for a summary of phasing).

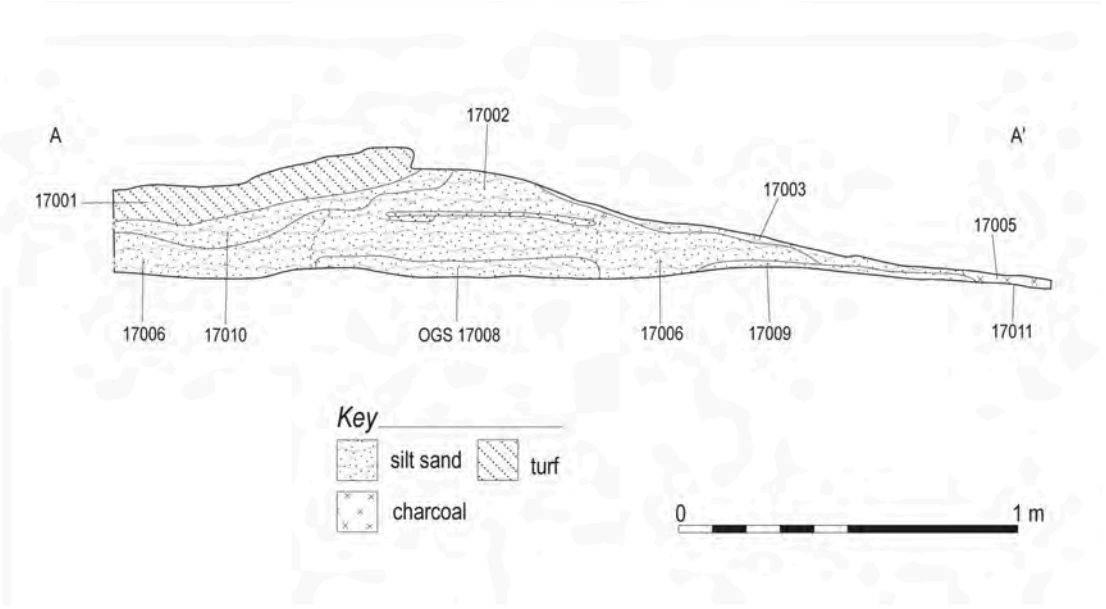
5.2.2.1 T17 – Summary of Phasing

Phase 1 – mid 3rd to mid 1st century BC?
Phase 2 – mid 6th to mid 7th century AD
Phase 3a – late 12th to late 13th century
Phase 3b – early to mid 14th century

5.2.2.2 T17 – Phase 3 Sequence

Although earlier phases of T17 were hinted at by the radiocarbon assays (see above and Chapters 4 & 10), the majority of securely-stratified dates came from features associated with Phase 3 activity (Illus 5.11). Dating of the sequence for T17 is confused by the presence of earlier dating material in the floor and sub-floor levels of the building. This blending of material is particularly noticeable in relation to the earliest feature encountered at the site – putative Post-Hole 17060. This lay beneath Occupation Horizon 17020, which appeared to be the floor-level of the structure (see Chapter 9 for full discussion). Sampling of the occupation-layer showed that it contained alder, birch and hazel charcoal, as well as heather and indeterminate species (see Table 5.2). Subsequent dating of this layer is discussed below. A worked chunk of quartz (SF 17027) and a piece of black flint (SF 17021) were also recovered from it (see 5.2.3.1 below).

Deposits which can be clearly associated with Phase 3 were either cut through Layer 17020 or



Illus 5.12 Section through T17 bank

(Left) Illus 5.13 Hammerstone from T17

(Below) Illus 5.14 T17 during excavation

were laid down after it. These included Hearth 17033, which contained alder, birch and hazel charcoal, charred oat and barley grains and hazelnut shells (see 5.2.4 below). A series of radiocarbon dates was achieved for samples of birch, alder and six-row barley which suggest a final firing in the 13th century (see Table 5.1 and below). The extent of the hearth had originally been defined by a setting of stones (17047), which had clearly been disturbed at some point. A number of interesting pieces came from deposits associated with the hearth, including a quartz convex scraper (SF 17007b) and a bipolar spall in opaque chalcedony (SF 17005b) (see 5.2.3.1 below). Post-Hole 17028 also lay close to the hearth and also contained traces of hearth-waste.

Although no evidence of burning was encountered within the turf banks (17012/17013) which defined the building, slump (17022) from the bank-core (17021) lay over the occupation horizon in the interior (Illus 5.12). A single plain hammerstone

(SF 17029) (Illus 5.13) was recovered from the core of the bank (see 5.2.3.2 below). In the north-east corner of T17 a similar sequence was encountered, with the slump (17057) from Bank-Core 17056 sealing Occupation Horizon 17069 and an adjacent cut (17068). The construction of the banks appeared similar along their length. A distinct concentration of stones (17036) had been placed along the interior face at the base of the banks' core and was later sealed by slump. A single stake-hole was noted cutting through Bank 17021 and is dealt with in Chapter 4.

Immediately to the south-east of the structure a filled sunken hollow (17015) was evident, leading away from the structure to the south (Illus 5.11). It was filled with silt containing birch and a little heather and willow charcoal. Radiocarbon dating of birch charcoal from this layer suggests it may have filled during the use of the hearth inside the building (see Table 5.1). The hollow skirted around a discernible platform (17016) to its east, which contained a number of layers and noticeable concentrations of charcoal. Excavation of the platform revealed that it capped an old ground-surface (17025) and an associated concentration of charcoal (17034), of willow, alder and heather. Radiocarbon dating of the willow sample indicates a date of burning between 1300 and 1370 cal AD (2σ, SUERC-9721). Some time after the abandonment of the structure, a layer of a hill-wash accumulated across the interior (17003/17011) and exterior (17010) of Building T17.

5.2.3 Finds

5.2.3.1 Lithics

Nyree Finlay

The quartz finds from Building T17 are characterised by pebbles and chunks, as well as three flakes with thin and medium edge-angles. Small debitage flakes of smoky quartz appear worked, as well as some unmodified larger chunks. The splinter-flake of vein quartz has a series of steep removals on alternate faces at either side to form a convex scraper (SF 17007b). The small flint assemblage of rather cherty material with scree pebble cortex comprises three small black chunks (one <10mm), a slightly-rolled brown secondary flake and two small burnt debitage flakes. There is also a small bipolar flake-fragment of chalcedony (SF 17005b).

5.2.3.2 Coarse Stone

Ann Clarke

A plain hammerstone (SF 17029) was the only stone tool to be found in Building T17 (Illus 5.13). The rough pecking on the faces and ends of this cobble is similar to that noted on examples from Trench 15 (see Chapter 3).

5.2.4 Environmental Evidence

Jennifer Miller & Susan Ramsay

Analysis of the hearth-related contexts (17005, 17023, 17031 & 17032) revealed an assemblage rich in alder and especially birch charcoal with occasional hazel, heather and willow, together with cereal

Table 5.1: Radiocarbon dates achieved for T17 contexts (NB: the final date, marked as occurring in phase X, is unreliable and discussed further in Chapter 10, section 10.2.1)

Context	Material	BP date	Calibrated 1σ	Calibrated 2σ	Lab code	Phase
17020	*Corylus*	2150 ± 35	210–150 bc	260–50 BC	SUERC-9718	1
17038	*Alnus*	1480 ± 35	550–620 ad	530–650 AD	SUERC-9722	2
17005	*Betula*	760 ± 36	1240–1290 ad	1190–1300 AD	SUERC-4913	3
17015	*Salix*	795 ± 35	1215–1265 ad	1170–1280 AD	SUERC-9717	3
17031	*Hordeum vulgare* sl	700 ± 35	1260–1300 ad	1250–1320 AD	SUERC-9719	3
17031	*Alnus*	745 ± 35	1250–1285 ad	1215–1295 AD	SUERC-9720	3
17034	*Salix*	560 ± 35	1315–1350 ad	1300–1370 AD	SUERC-9721	3
17059	*Betula*	2380 ± 35	510–390 bc	550–380 BC	SUERC-9726	X

grains and nutshell fragments, indicating domestic hearth-waste (see Table 5.2). This was also reflected in occupation floor deposits, with differences only in the volume of charcoal or the presence of food-remains, rather than in the variety of taxa present. This same assemblage was also recorded from the silt Layer 17022 deriving from the slumping of the bank-core. Fill 17027 of Post-Hole 17028 beside the hearth contained traces of hearth-waste, and may indeed have had a role relating to cooking, as suggested by the excavators (Atkinson et al 2005a: 26).

5.2.5 Interpretation of the Evidence

Unlike T16, this building had not been compromised by the construction of other buildings over the remains of its main phase of use during the later medieval period. That said, there is possible evidence to suggest that Building T17 had been constructed over earlier remains (see Chapter 4). However, in interpretative terms the remains encountered by the RCAHMS during their survey (Boyle 2000) do represent a fairly-intact example of this type of building (Illus 5.14).

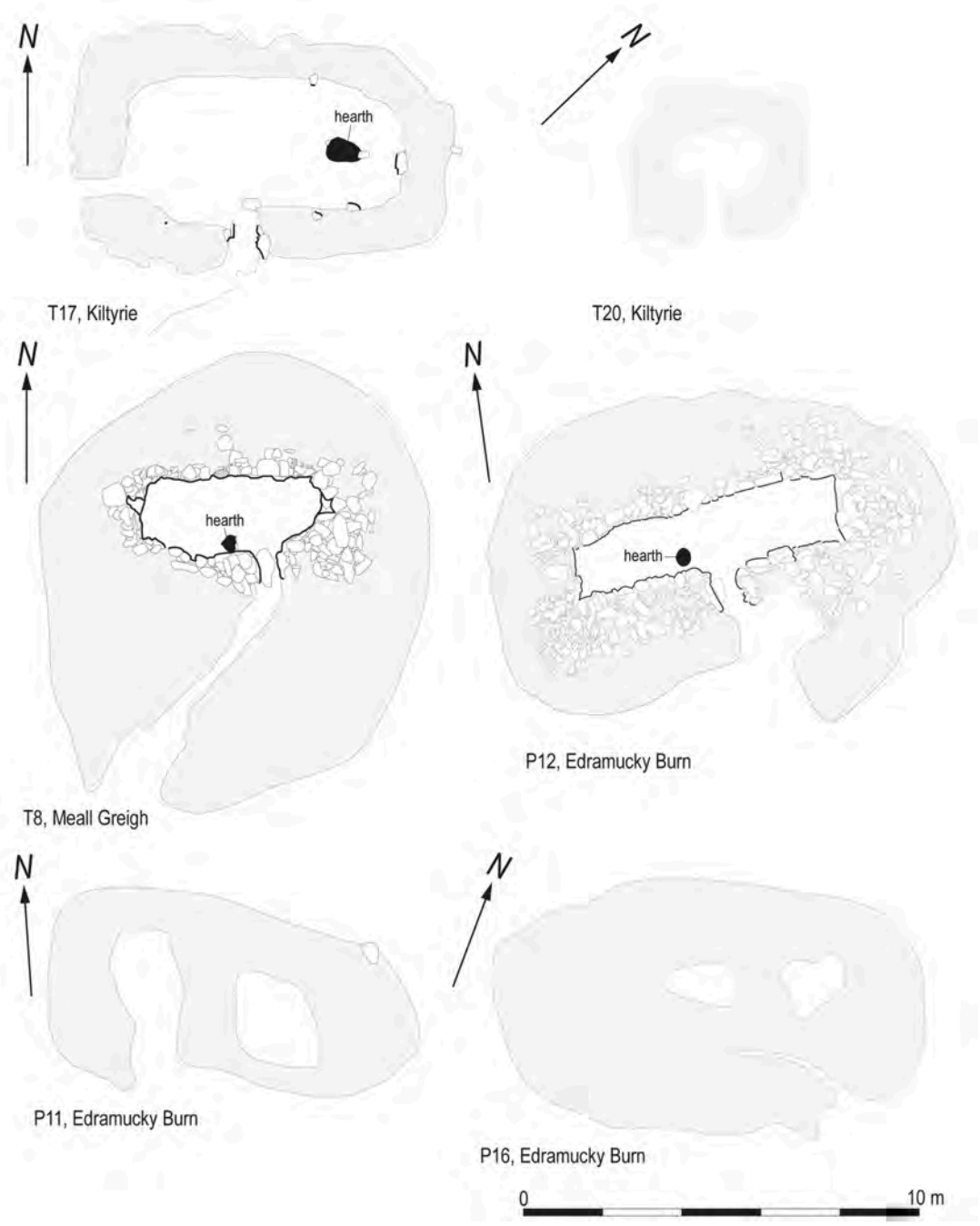
Constructed mainly of turf, with traces of what may be a stone inner face along the base of the banks, Building T17 was *c* 9.5m long by 6m wide. It had an entrance to the north-east of central in the south-east-facing wall and a hearth in the north-eastern end of the interior. Evidence for a robbed-out stone setting around the hearth was noted. An adjacent post-hole may have been used to support cooking over the fire. An exact date for the construction of the building was not achieved, but it was certainly occupied by around the middle of the 12th century AD and stayed in use until the end of the 13th or possibly the beginning of the 14th century. Evidence from the platform to the building's exterior suggests this occupation may have continued in some form or other as late as AD 1370.

5.3 SUMMARY AND CONCLUSIONS

Although the later remains in the landscapes of Loch Tay have been the focus for research-projects in the relatively recent past (for example Bil 1996; Dodgshon 1998), much of this work centred on the

Table 5.2: Palaeo-botanical results from T17 at Kiltyrie

Context no.	17005	17015	17017	17020	17022	17023	17027	17031	17032	17034	17038	17045	17046	17059
Charcoal														
Alnus	2		12	3	3	5	1	14		3	7		10	8
Betula	18	12	28	4	4	26		45	5			2	7	4
Corylus			10	3		3		1					3	1
Ericales		2	>200	3		4				5	4			
Salix		1			3					12		1		
Indet charcoal				7	3	1	2		1					
Carbonised cereals & seeds														
Avena sp			1			1		6					1	
Hordeum vulgare sl	3				2			10						
Indet cereal	4													
Corylus avellana (nutshell)	10					14	2	32					1	



Illus 5.15 Comparative plans of shieling structures and T17

documented history of the area. Few researchers had targeted investigations along Loch Tay on physical remains, with the exception of survey or assessment-level projects examining certain classes of monument (for example Miller 1967; Morrison 1985). In fact, no excavations had occurred on Loch Tayside until the summer of 1996, and the geographically nearest excavations of later settlement remains had taken place in the late 1950s at Easter Lix, several miles west of Killin (Fairhurst 1969). This lack of interest in the late medieval landscape had been fostered by the apparent dearth of monuments from that time. Loch Tay, akin to other areas of highland and indeed lowland Scotland, contains few sites which date from between the end of the Iron Age and the start of the 18th century, with the exception of elite houses and ecclesiastical establishments. In short, the houses of most of the population are missing from the archaeological record for this period.

Before the Ben Lawers Project, the late 16th-century castles of Balloch (Taymouth) and Finlarig, as well as the stronghold of Priory Island, were the

only confirmed medieval sites along Loch Tayside; no further contemporary sites were identified during surveys of the project area. In light of this, the discovery and dating of two buildings at Kiltyrie (see below) to the 12th to late 13th centuries, and the dating of five shieling-huts (see below) to the 14th to late 16th centuries, have all added substantially to our understanding of Loch Tay's medieval landscape.

Since the beginning of interest in medieval and post-medieval settlement studies in Scotland, much endeavour has focused on attempts to find and excavate the medieval settlement-pattern (eg Fairhurst 1968; 1969; Pollock 1985). This has until recently proved a fruitless task, and Dalglish may well be correct in blaming the failure of many earlier campaigns on the adoption of vague methodologies which targeted later sites in the hope that earlier material would survive beneath (2003: 28). Yeoman's (1991) use of the phrase 'the invisible centuries' has summarised the problem; the lack of a rural settlement component, specifically the houses of the tenantry and sub-tenants, in contemporary lowland and highland landscapes, is of note. This has forced investigators to seek the invisible or to look at areas where development has been slow over the last millennium, such as island communities. In the latter case, a fair degree of success has recently been achieved in both the Inner and Outer Hebrides (eg James 1999; Sharples & Parker-Pearson 1999; Caldwell et al 2000; Sharples 2005). This success has been accompanied by the RCAHMS's work in Perthshire in particular, which has led to the discovery and subsequent dating of Pitcarmick-type houses (RCAHMS 1990) to the late 1st millennium AD (Barratt & Downes 1996; Carver et al 2012) (see Chapter 4).

Although the Loch Tay examples are clearly not Pitcarmick-type houses in terms of their definitive characteristics (see RCAHMS 1990: 12 for full definition), they may represent a similar form of architectural expression. All three Kiltyrie buildings excavated (T16B, T16C & T17) were broadly similar in dimensions and internal layout. Each was *c* 5.5m to 6m wide; both T16C & T17 had slightly sunken west ends; both T16B & T17 had centrally-located hearths in their east ends; and finally both T16B & T17 presented evidence of stone revetting along the inner faces of their southern walls. Unfortunately, only T17 survived enough to permit length to be assessed; at 9.5m it is at the lower end of the range for Pitcarmick-type structures (Atkinson 2010). It seems likely that those who occupied T17 & T16C and possibly even T16B were in residence contemporaneously.

Evidence from the cultivation-traces to T17's south and east indicates presence between the 325m and 310m contours, while the building sat just over 320m above OD. This location is comparable with early medieval Pitcarmick-type buildings at Balnabroich in North-East Perth (RCAHMS 1990: 34, illus 108A) or along the Ballinloan Burn in Strath Braan (Cowley 1997: 168, illus 9). The Loch Tay examples appear to lie at the limits for occupation: the only structures beyond this height are shieling-huts or peat-stances. This compares favourably with the distribution of Pitcarmick-type and sub-Pitcarmick buildings in nearby Strath Braan. Buildings in both areas occupy the less-favoured south-east-facing slopes (Cowley 1997: 169) and are restricted to elevations up to 320m OD.

5.3.1 Permanent or Transitory Lifestyles?

There is only limited evidence to support interpretation of the Kiltyrie structures as low shielings as opposed to permanent dwelling-sites. Although Clarke (5.1.4.3) has suggested the stone discs from T16 may have been used in dairying, their stratigraphic position and association with later shieling-huts may call this interpretation into question; both discs were recovered from post-abandonment layers above T16B and T16C and could easily have been deposited by the occupants of shieling-hut T16A. Although Miller (1967) contended that low shieling groups were apparent on the flanks of Ben Lawers and Ben Ghlas, he may well have been referring to peat-stances, as the vast majority of shieling-huts lie between 450m and 650m above OD (Boyle 2003).

The most compelling evidence, however, comes from the structures themselves, and in comparison with the other shieling-huts excavated as part of the project. If Building T17 is taken as an example, then the scale of the internal floor-space itself is not comparable with any of the shieling structures excavated (Illus 5.15). At *c* 24.5m^2 in area, it dwarfs other shieling structures (for example, T8 is only 9m^2). Comparison with the average sizes for

all classes of shieling surveyed by the RCAHMS provides similar results. Furthermore, the locations of the hearths in Buildings T17 & T16B, central to the floor in the western end, is not comparable with the distinctive rectangular shieling-huts of the Central Highlands, which invariably have their hearths located immediately to the left of the doorway on entering the building, and flanked by a large stone slab (see P10 or T8 in Chapter 9). On balance it seems unlikely that the Kiltyrie sites are an unparalleled form of shieling-hut, and far more probable that they represent a remnant of the medieval settlement-pattern on Loch Tayside.

5.3.2 Kiltyrie in Context: A Marginal Existence

As has been noted in the past, a number of structures in North-East Perth, and also in Strath Braan, share some of the characteristics of Pitcarmick-type buildings, but not enough to include them as type-sites (see RCAHMS 1990: 12; Cowley 1997: 163). The RCAHMS have suggested that Pitcarmick-type structures are likely to date from the 1st millennium AD; the only excavations to date provided evidence of occupation in the 7th to 11th centuries AD for two buildings at Pitcarmick North (Barratt & Downes 1996). However, it has always been postulated that several attempts at settlement of the marginal fringes may have occurred during the early historic past. Exactly when these attempts took place is unclear, but they may have been associated with optimum climatic conditions for agriculture and may have lasted until the late 13th century (Yeoman 1991: 114).

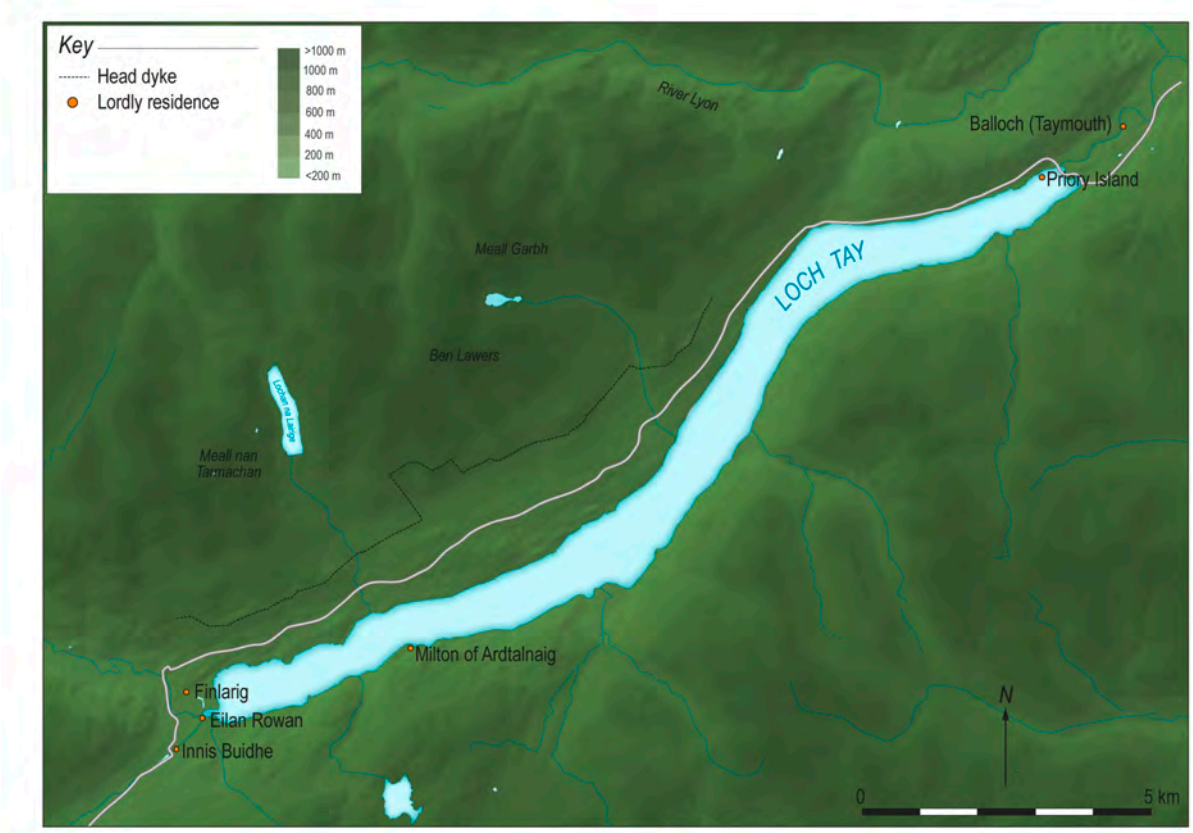
There is certainly strong evidence for exploitation of the upland margins for agricultural purposes during the high medieval period elsewhere in Britain (Ward 1997; Winchester 2000) and continental Europe (see Lamb 1995). This is reflected by cultivation in the Lammermuirs and Northern Cheviots in the Southern Uplands of Scotland, reaching as high as 425m above OD (Parry 1978: 214; Tipping 1998: 7). There is even some suggestion from historical commentators that houses were constructed above 500m OD in the Bowmont valley in order to service high-altitude cultivation (see Tipping 1998: 8). This cultivation, together with other examples on Dartmoor (up to 400m) and in Northumberland (up to 320m) in England, supports the view that tillage was extended to greater heights than for some long time during the period 1100–1300 in particular (see Lamb 1995: 178–9). It seems more than likely that this process may have occurred in the Central Highlands during the same period and may have been accompanied by the construction of permanent or at least semi-permanent dwellings.

6. LATE MEDIEVAL LOCH TAY: HOUSING THE ELITE

Historically, Loch Tayside is associated with the Campbells of Glenorchy, but the lands around the loch were linked with other families prior to the Campbell association (from the 15th century onwards). Before the 15th century, much of the land of Breadalbane was vested in the Crown and administered by a baillie and chamberlain. During the 14th and 15th centuries, kindred such as the Macnabs, the Menzies, the Drummonds, the Napiers, the Haldanes, the MacGregors and the Robertsons of Carwhin and Strowan all held lands in Discher and Toyer (north and south Loch Tay). These early associations of elite groups with particular stretches of land may have occasioned the construction of a number of manor-houses along the loch (Illus 6.1).

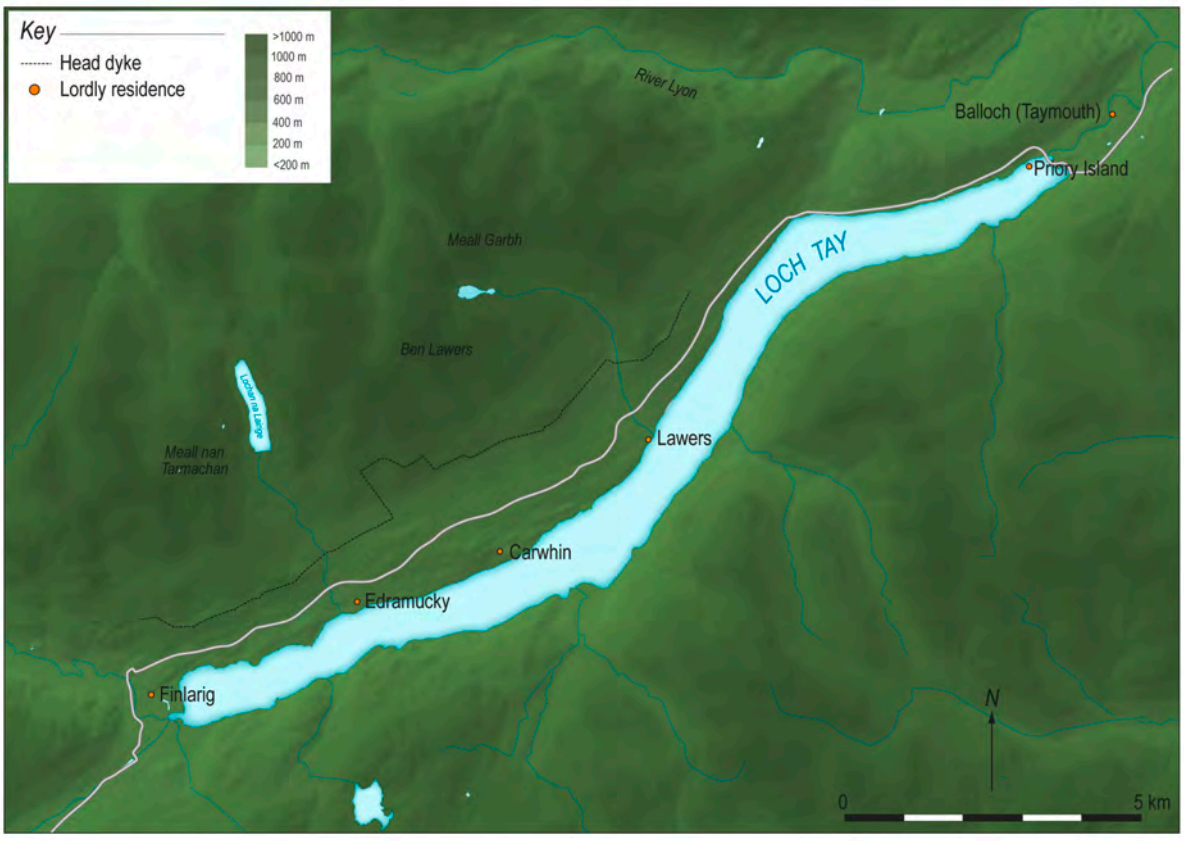
Building manor-houses was no small matter in the 14th century and, as Harrison suggests below, this would only have been done if a high degree of security was available to individual landowners. On the other hand, it was necessary if a landlord wanted to control his land and be assured of collecting his rents. There is certainly some indication of early elite centres and associated manor-houses on Loch Tayside. For example, the Earl of Strathearn is associated with Priory Island, near Kenmore, in 1306, and the Macnabs may have used Innis Buidhe (the island in the River Dochart at Killin) as a defensive retreat after the Wars of Independence (Atkinson 2003). Balloch may also have been a manor seat for the MacGregors, and Finlarig for the Drummond family, from early on. Tradition also mentions other possibilities, such as a long-lost castle at Milton of Ardtalnaig, on the south shores of the loch (Gillies 1938: 83), or the Macnabs' castle of Eilan Rowan at the mouth of the River Lochay (Christie 1892: 58–9). Few traces of these early fortified sites have survived, apart from the ruins of the fortified home of the Campbells of Glenorchy on Priory Island (Illus 6.2), which was rebuilt after a fire in 1509 (Dixon 1982: 21).

The surviving remains of lordly residences are deeply associated with the growth in influence of the Glenorchy Campbells during the 15th and early 16th centuries along the loch-sides. Their ascendancy is marked by a proliferation of houses. Their acquisition of the lands of Lawers (1473), Finlarig (1513),



Illus 6.1 Distribution-map of 13th–14th-century lordly residences on Loch Tay

Illus 6.2 Priory Island, fortified home of the Glenorchy Campbells



Illus 6.3 Distribution-map of 15th–16th-century lordly residences on Loch Tay

Balloch (1552), Carwhin (1552) and Edramucky (1596) (Illus 6.3) was inexorably accompanied by the construction of a house of some standing in each area. Lawers appears to have been the first of the houses built by the Glenorchy Campbells or one of their cadet lines. It was certainly referred to in 1513 and must have stood for much of the 16th century (see 6.1.1 below). Other houses followed, including Balloch in *c* 1559 and Finlarig in *c* 1583 (Illus 6.4). By 1606 a house of importance was standing at Edramucky as well. The history of other elite houses is less clear.

This chapter deals with three elite centres where survey and excavation of manor-houses was undertaken during the Ben Lawers Project. The houses of Lawers, Carwhin and Edramucky all lay within the bounds of the project area, and although excavation was not possible within the walls of Edramucky and Lawers, both were surveyed (see Atkinson & Hooper 1999; Atkinson et al 2003b). Carwhin was also surveyed and partly excavated in 2002 (Atkinson et al 2002; 2003a). This chapter, however, also deals with the development of the cultural landscape and its history of occupation, based upon documents held in the National Archives of Scotland, particularly the Breadalbane estate papers. Much of the story of the later landscape has been recorded and interpreted in some detail in the recent past (see Boyle 2003), and this understanding forms an important part of this volume.

6.1 DOCUMENTARY EVIDENCE

John G Harrison

The archival sources for the area fall into three main groups. First, there are crown charters and other documents relating to land-ownership and lordship from the 13th to the 17th centuries, which are particularly important for understanding the establishment of Campbell lordship across the study area. From the later 16th century, these overlap with detailed management records, particularly court books, leases, rentals and accounts, but with correspondence and technical reports becoming increasingly useful from *c* 1720 to the mid 19th century. From the 1840s onwards, however, official records (first the census, then Valuation Rolls

Illus 6.4 Detail of Finlarig Castle

and later other series) become available. Estate-generated records are scarce and less informative after management was handed over to Edinburgh-based accountants *c* 1870.

The Breadalbane Muniments (GD112) are one of the largest collections of estate records held in the National Records of Scotland, reflecting not just the vast extent of the Breadalbane estates at their peak, but astonishingly detailed record-keeping. The early 17th-century laird, Sir Duncan Campbell of Glenorchy, could trace overdue rent of a few pounds of oatmeal over several years and recover it, and an archival search conducted in 1612 correctly identified the history of the 'black marts' payable to the crown over the previous 130 years (NRS GD112/37/6/8). Viewed in that light, the documents not only record lordship but were an important element of that lordship.

Record-keeping was not always so assiduous; there have been losses to fire and other accidents, and some rents assigned to creditors, but others not recorded. There are few records of building work because, until the mid 19th century, the inhabitants paid for their own houses and farm buildings. From the early 18th century much administration was devolved to local officials whose records (if any were made) do not survive. Nor are records fully comparable over extended periods. However, there are highlights. Of particular importance are the field-books and estate-plans produced by John Farquharson in 1769 and 1772 (NRS RHP973 & 569; McArthur 1936). Together these allow the precise identification of settlements, fields and woodland on the eve of Improvement, as well as a more general portrayal of the administrative districts, areas of infield, outfield and shieling (transhumance) (Boyle 2003). Such is his reliability that 'not shown on Farquharson' often suggests that a feature post-dates 1772. Around the same time, and responding to the pressures of growing population, interest in innovation, and increasing rental income, the estate commissioned a local census (NRS GD112/16/13/1/2) and many other reports.

Another highlight is the collection of *c* 3500 petitions (mainly in GD112/11), of which *c* 540 came from the study area, between 1780 and 1839. About 224 of these were submitted in 1797, the year when massive re-organisation of land-tenure was proposed across Breadalbane. Like similar collections, they highlight major concerns and give a voice to the tenants and inhabitants, who are not usually represented in estate records (McKillop 1999: 242–3). Many tenants, familiar with the rhetoric of Improvement, emphasised their progress in building new steadings, clearing ground, liming and draining. Access to land was mentioned in around half the personal petitions, and was particularly prominent in the peak year of 1797. Many petitioners clearly understood the conflicting interests of a landlord who demanded traditional loyalties when recruiting to his regiment when war broke out in 1793, but was equally vehement in promoting progressive individualism in land-tenure and farming methods. When farms were re-allocated and the new General Lease proposed in 1797, protests forced rent abatements, and the introduction of the lease was delayed until 1800. Meanwhile, however, the tensions had generated disputes, with bitter accusations and denunciations, probably rendering any return to the older, community-based systems untenable (see for example Chapter 7: Croftvellich).

Relevant archival material is also found in other collections, particularly the MacGregor Collection (NRS GD50). Among the other historic maps are those by Pont, Gordon, Roy and Stobie as well as the Ordnance Survey. The Inland Revenue Survey (NRS IRS78/216, 217 & 218 and associated maps) gives descriptions and detailed plans of some of the sites in the early 20th century, while the Valuation Rolls (NRS VR113) and the census returns are vital sources of information on abandonment from the 1840s onward.

6.1.1 Aspects of Ownership from the 14th to the 20th Centuries

The Campbell family began to establish themselves in Breadalbane during the 15th century, but the contemporary documents provide evidence about earlier landownership. Crannich had been granted by the Menzies family to Atholl some time before Atholl's forfeiture in 1437, and then held by Menzies until it passed to the Campbells. It is described as a thanage in the early records, and there are also records of the *toschachdor*-ship of the lands; these terms were probably of considerable age when first recorded and they were still important enough to be conveyed to the Campbells by the Menzies in the 16th century

(NRS GD50/46, 1511; GD112/2/124/11, 1596; Christie 1892: 43; Menzies 1894: 49–50; Murray 1996: 188). Crannich is the cornerstone of the argument that the lands (*terrae*) described in the early titles were multi-township territories, formed in the 12th and 13th centuries (Gibson 1990) – an argument bolstered by the presence of the 'annat' name in Balnahanaid, one of the settlements within Crannich (Clancy 1995). Those units still formed the major divisions of the landscape in the 18th century, as indicated by Farquharson and the other documentary sources.

Finlarig was granted by a now-lost charter of Robert I (1306–29) to Alexander Menzies, though it was in the hands of the Drummonds by the early 15th century and it was John, Lord Drummond, who disponed it to Sir Duncan Campbell in 1503 (Christie 1892: 54; *RMS* II: item 2717). In 1430, Morenish and Edramucky were confirmed to the Menzies family (*RMS* II: 170); they were closely associated with the Stewarts and would benefit from the eventual fall of the Atholl interest in the area (Brown 1994: 179).

The earldom of Fife also held substantial lands in the area, including all or much of the vast lands of Discher and Toyer, covering most of the northern and southern shores of the loch, with additional lands elsewhere. In 1389 Isabella, countess of Fife, resigned her earldom (including Discher and Toyer) in favour of Robert Stewart, brother of Robert III, whose growing local interests were part of a wider strategy to gain control of areas from Strathearn to Menteith and the Lennox (Gilbert 1979: 36; Boardman 1996: 169–70). But these lands would be forfeit to the crown, along with the other Albany Stewart lands, in 1425. They probably formed part of Queen Joan's dower lands and were certainly in her hands by the mid 1430s; a part was granted to the Carthusians of Perth either by Joan or by James I himself (Brown 1994: 179). The Earl of Atholl and Thomas Chambers, proprietor of Lawers, were both involved in the murder of James I in 1437 (Brown 1994: 184). The consequent forfeiture of their lands further increased royal holdings around the loch, lands that were therefore available to reward royal servants, political loyalty and services. The Campbells would be the ultimate beneficiaries.

The Campbells of Lochawe had established themselves in Glenorchy by 1372 (Boardman 2006: 74). Colin Campbell of Glenorchy had a crown charter of Lawers, within Discher and Toyer, in 1473 (NRS GD112/76/1). Lawers was subsequently feued to a cadet branch of the Glenorchy family who, by 1513, got their own crown charter of Lawers (NRS GD112/76/14). In February 1476 Duncan Campbell of Glenorchy was named as deputy baillie to Colin, Lord Campbell, in Discher and Toyer, Glenfalloch, Glendochart and Glenorchy, evidently in preparation for military action further west (Boardman 2006: 207–8). This toehold of military, administrative and judicial authority was quickly translated into property rights, so that by the time of Sir Colin's death in 1513, the Campbells of Glenorchy and the cadet branch at Lawers had either crown charters or tacks of extensive lands at both ends and on both sides of the loch (NRS GD50; GD112/2/71; *RMS* II: 2091; Innes 1855: xxxii–xxxiii; Gillies 1938: 116; Boardman 2006: 208, 214–15) and a lease of Crannich from Menzies from 1511 (NRS GD50/46). In 1513, shortly before Sir Colin's death at Flodden, many of these lands were erected into the barony of Finlarig (*RMS* II: 3847), which took on a key role in an estate stretching (via Glenorchy) to the west coast.

The Campbells' remarkable success in establishing themselves, threatening as it was to others, was achieved by a classic combination of royal patronage, dextrous marriage alliances, placing kin in key positions and lands, control of internal tensions, and the judicious use of the symbols of traditional Highland lordship. Their famous feud with the Macgregors was won by the masterstroke of making it an issue of 'national security' (Dodgshon 2002: 39). They continued to deploy these strategies over the following century, assimilating pockets of property interspersed with their existing lands, such as the Macnab lands around Killin in 1552 (NRS GD112/2/34). In 1554 they got a lease of parts of Morenish from Menzies of Weem, and in 1596 negotiations were in hand for its purchase in a complex deal which would also bring Crannich into their net (NRS GD112/2/124). Edramucky was won in a similar deal (Innes 1855: 224–6). They also gained fuller control of parts of the 'King's Lands', such as part of Kiltyrie, granted by James IV to one of his medical advisors and still held by his son in 1542 (*ER* XVII: 484; Gillies 1938: 358). By about 1600 the Haldanes of Gleneagles had some residuary

interests in Carwhin, but otherwise the Campbells and their kin controlled all of north Loch Tayside. Carwhin and Lawers (and important associated upland grazings) passed from Campbell of Lawers to the Glenorchy/Breadalbane Campbells between the 1670s and 1690s (NRS GD112/2/139/7; GD112/76/78).

For almost 250 years thereafter, the study area and much else remained in Campbell control. Significant property sales began in the later 19th century, followed by the sale of the family mansion of Taymouth and more widespread dispersals through the early decades of the 20th century. By the 1940s most of the study area was mortgaged to an investment company, which dispersed it *c* 1950–51. One of the main purchasers was the National Trust for Scotland, which has subsequently bought more land in the area (Harrison 2003: 36–9).

6.1.2 Administration and Settlement *c* 1590–*c* 1769

Campbell lordship was symbolised by major castles at Finlarig and Balloch and by the lesser residences of satellite lairds at Lawers, Edramucky and Carwhin. When the lairds of Glenorchy visited their lands and castles in the west, to hold court or to hunt, they were accompanied by a sizeable retinue of leading tenants and followers – a lesser version of a royal progress. The occasional brutality of their administration, exemplified by the 1611 contract to murder Duncan Abrach MacGregor and deliver his head to Sir Duncan Campbell (NRS GD112/65/2/3 1), was a dramatic but also exceptional display of force. By that time serious local challenge to Campbell authority was as rare as it was likely to be useless; day-to-day life in the Campbell domains (as in much of the Highlands) was essentially peaceful (Macinnes 1998: 163–4; Harrison 2005a: 98–114).

In the later 1630s, however, as wider tensions began to build towards war, some tenants refused to join 'the watch' – the rota of local men set to guard against cattle theft and to retrieve stolen stock (for example see NRS GD112/17/6 f321v). The most devastating local event of the war was the 'Burning' by Montrose and his followers in 1645; few lives were lost directly, but the damage caused debt problems for tenants and lairds. Between 1643 and 1648 the Campbells' total debt rose from £3000 to £40,000 sterling (Macinnes 1998: 167). For some decades events and prices were dated as either before or after the Burning; waste land was still being brought back into cultivation 20 years later (NRS GD112/10/7 f298–9r; GD112/10/7 f452–8; Gillies 1938: 145–6).

The John Campbell who masterminded the recovery was the son of the 10th laird of Glenorchy. Having married the (aptly-named) Lady Mary Rich, he overrode his father's protests and took over management of much of the estate from 1655, assigning rents to creditors, granting wadsets and forcing economies. A second marriage brought him extensive lands in Caithness and (indirectly) the earldom of Breadalbane (NRS GD112/9/17; GD112/39/110/6; GD112/39/110/15; GD112/39/113/23; *DNB*, John Campbell, Earl of Breadalbane).

He administered the estate, however, through paid chamberlains who presented the accounts once a year or even less often, rather than via the former close contact of laird with tenant. Even if he had not usurped his father (who lived until 1686) and had not often been absent, John Campbell could probably no longer have counted on the automatic loyalty of his tenantry in the increasingly disturbed decades from 1660 to 1715. Men sent to fight in Mull in 1678–9 complained that he did not even 'ask how your men are used but hes sent them heir to be slaves & nevere to looke after them more' (NRS GD112/39/125/8). In 1689 many ignored his urgent (and very realistic) warnings that they should not support the Jacobite cause (for example NRS GD112/39/146/4). During the 1690s civil war, famine and political pressures brought the return of debt problems. By 1715, it is questionable how far either the now-Jacobite earl or his firmly Hanoverian son could have forced local men to fight on either side against their will.

Morrison (2000) and Bangor-Jones (2000: 212) have commented on the difficulties of teasing out settlement-patterns from documents such as court records, tacks and rentals. For the study area, however, from the time detailed records appear in the later 16th century onwards, almost all the settlements named on Farquharson's surveys are recorded. It would be a reasonable inference that they existed by *c* 1590–1630, even for Edramucky,

Lawers and Carwhin, the districts for which there are no suitable early records. There are, on the other hand, manifest dangers in assuming that the names correspond precisely to Farquharson's sites, given the remarkable fluidity of settlements and the impermanence of buildings in Scots townships (Fairhurst 1969; Banks and Atkinson 2000). Furthermore, neither absolute population figures nor household numbers can be calculated. The various lists do not necessarily tally one with another. When, for example, 18 men from Crannich were cited to the court in 1617, it is not clear if these were all the heads of household, all the tenants, or included several people from some households and none from others (NRS GD112/17/4 f18r).

Craignaha and Margdow illustrate the problems of interpreting the local records. The rental of 1672 names three tenants in Margdow and two (both called McIllhuish) in Craignaha. By 1683, however, William McIllhuish appears to have switched from one to the other and Callum Kennich (a new name) appears as a tenant at both sites. In 1686 a joint tack of the two townships was granted to Jon and William McIlhuish and Callum Kennich, a nominal three tenants and one tenancy in place of a nominal five tenants and two tenancies. Meanwhile, one of those named as a tenant at Margdow in 1672 and 1678 is listed at nearby Tomour in 1683. Given the options of sub-tenancies, of tenancies with a merely verbal agreement, and of shared households, these records do not necessarily show that people were displaced or that others moved house or that the overall population changed markedly between 1672 and 1686. Although the minimum number of tenant households is often clear, total household numbers are not.

Most tacks between the 1620s and 1640s were initially from three to five years; some later changed to tenancies for life. But across the 17th century there was a high turnover of tenants; few names continued at the same site for two generations and most for only a few years. Around nine of some 21 tacks set in the 1670s in areas west of Lawers involved a change of tenant. Of 38 tenancies in Lawers in 1705, only eight had been held by people of the same surname in 1682 (NRS GD112/10/10 ff125–6). Similar fluidity and instability are found elsewhere (Dodgshon 1998: 46). There were also unquantifiable movements into and out of the Loch Tayside area, as well as within it.

Documents relevant to settlement are sparse for the first half of the 18th century. Although in the 1790s it was thought that the population on both sides of the loch had been high 'from time immemorial' (Sinclair 1977: 463), it was during the 1760s that high population began to be a matter of concern and complaint. The 1770 petition of the tenants of Carwhin and Crannich is characteristic; they complained that they were 59 families exclusive of cottagers and, at the most moderate computation, six people besides servants in every family (NRS GD112/11/1/1/31). Over the entire area from Tirarthur to Lawers, tenant numbers rose only from *c* 124 in the 1680s to *c* 141 in the 1770s (Harrison 2003: table 2.5). The group which appears most likely to have increased was crofters, who were certainly no longer confined to the mills, smiddies and alehouses, as they had been in the 17th century. It was mainly crofters of whom the tenants complained (NRS GD112/16/7/2/38; GD112/16/7/5/27). However, absolute numbers are elusive; the balance was never even across the area, with few crofters and cottars in Lawers compared with the western districts until the creation of hamlets after 1797 (see 6.1.3 below) (NRS GD112/11/4/1/17; GD112/14/13/10/9; GD112/14/13/10/10).

From the 1720s, the estate began a limited programme of investment in infrastructure, enclosing woodland and building basic bridges over the burns. In the 1760s, the bridges were upgraded to stone arches and Pennant commented on the excellent road (NRS GD112/15/212; GD112/15/392; CH205/1: 49; Pennant 2000: 65). This route linked the area to the wider world and provided the first secure land route for the inhabitants of north Loch Tayside to both Taymouth and Finlarig, hitherto more usually accessible by boat (NRS GD112/9/21, rental 1661 & 1663; GD112/9/26 crops 1683 & 1684: 313). However, ferries continued to operate across the loch until they were superseded by the steamer in 1882.

From about 1750, organisational change dominated the estate's agenda. Hill-pastures were divided, run-rig was abolished and tenants were freed from traditional thirlage to the laird's mills; at the same time, flax-growing, linen-manufacture and other industries were encouraged (see Chapter 8). This was a pattern widely seen elsewhere in the Highlands, as lairds sought to increase the rents they could levy from increasing populations.

6.1.3 Administration and Settlement *c* 1769–*c* 1870

Concerns about population were the background to Farquharson's survey and to an astonishingly detailed census of the area in *c* 1769. This recorded 45 named settlements in the study area with a total of 1243 people, of whom 45.6% were under 20 years old (NRS GD112/16/13/1/2).

The administration had sometimes resisted emigration, and attempts to establish local industries were intended to retain people; even so, migration (perhaps not always intended to be permanent) had been a local constant for centuries, with lowland harvest work and military service often mentioned. However, in 1785 several tenants 'agreed' to remove, clearly under pressure (NRS GD112/10/1/2/39). Administrative reform culminated in the replacement of chamberlains by a professional factor from 1793; the earl himself recognised the cultural significance of this when he said that it was not necessary that the factor should speak Gaelic, as most of the people now spoke English. The factor was expected to deal with 'severity' with the tenants' 'artfulness' (NRS GD112/74/144/12–13) and, of course, to increase estate income as work proceeded on the prodigiously expensive building at Taymouth.

Gillies reports 48 evictions in 1795, some for failure to support recruitment (1938: 200). However, by the time the factor was appointed, the earl had promised land in return for recruits to his fencible regiment, raised in response to the war with France. The General Lease (NRS GD112/10/2/2/2338) involved a radical re-allocation of lots, new division of the low ground, creation of new farms on the outfields and the imposition of new crop-rotations. The estate did now offer some compensation as buildings, drains and enclosures were completed by the tenants to a satisfactory standard, but it recouped its costs from higher rents.

In 1798 over 100 families from Breadalbane were reported passing through Dumbarton, intending to emigrate, some perhaps knowing they would not get new leases, others to evade recruitment (NRS GD112/39/376/1; GD112/74/852). The final introduction of the General Lease in 1800 brought further pressures on the 'doubtful' to leave (NRS GD112/16/10/8/27). The claim, made in 1803, that only 16 or 18 families left the district after the reforms of 1797 was a very selective version of the truth (NRS GD112/12/1/2/36/7). However, the population of Kenmore parish continued to rise until *c* 1836. The main impact of administrative reforms until then was to move people around within the estate, to the villages of Killin and Kenmore and to the new outfield settlements formed from 1797 (see Chapter 8); 38% of the population of the study area were moved to new or expanded hamlets and crofting townships by 1841. Several of these hamlets and townships were formed on the recommendation of the factor in 1831 (NRS GD112/16/5/5/16) and were populated by people removed from other parts of the estate (Richards 2000: 116, 187).

Such internal movements were widespread in the Highlands during this period, as were the mercantilist notions that encouraged landlords

Table 6.1: Population trends in Kenmore parish, 1755–1841

Year	Kenmore population	Target area population
1755	3067	
c 1769		1243
1794–5	3463	
1801	3346	
1811	3624	
1821	3347	
1831	3126	
1836	3158	
1841	2543	988

to retain populations (Richards 2000: 40–1). The settlement of the outfields also has parallels in the colonisation of new lands across Europe (Richards 2000: 54). However, in the study area, the inhabitants of the hamlets and crofting settlements were often elderly, disabled or widowed; they started poor and became poorer (Harrison 2003: 43). The outfield settlements initially succeeded in attracting the 'men of skill and money' anticipated (NRS GD112/16/4/2/22), but the attraction did not outlast the high farm prices which prevailed during the war with France (see Chapter 8).

Two anomalies in the local records require comment. Firstly, tacks covered a wide range of merkland assessments, but these were unevenly distributed across the study area, ranging from less than half a merk to three merks in the western districts (such as Morenish) and with greater consistency at around one merkland in Lawers (where that remained the norm in the 18th century). Secondly, whatever their merkland assessment, the tenants were not usually called tacksmen after the early 17th century (Innes 1855: 354), and they do not appear to have had any leadership role within each land-division. This may reflect the comparative peace of the early part, and the social and political tensions of the later part of the 17th century; the classic 'tacksman as military leader' was first redundant and later dangerous.

Pressure to make population reduction an official policy was increasing from 1831 – for example, by persuading the aged earl that those removed were 'bad characters' (NRS GD112/12/1/6/27). The final, inexorable decline began with farm and croft amalgamations from 1836 and the loss of 615 people from Kenmore parish by 1841, mainly due to emigration (Table 6.1). From this point on, the continued farm amalgamations and the final removal of all traditional supports were probably, as elsewhere, enough to ensure an inevitable and miserable decline without direct pressure from the estate (Richards 2000). The overall population loss was 67%, but the rate fluctuated from 3.8% (1871–81) to 26.3% (1881–91) and from 73% at Crannich to 58.5% at Lawers, with its distinctive population structure. The hamlets and crofting townships fell from 374 people to 97, and from 4.6 per household to 3.7, steeper than the overall fall from 4.94 to 4.1 per household. Carie and the Morenish crofts were nuclei of particularly small households, many headed by widows; they were in sharp contrast to the large households of the newly instituted specialised farms with their domestic and farm staff.

Even as the population fell, however, there was some immigration. Some of the new sheep farmers came from lowland Scotland, a few people from further afield, and there were even two born in the West Indies. Most, however, came from adjacent parishes or from the 'crofting counties' to the north and west, a pattern reflected more widely in Perthshire and Angus and probably continuing much older patterns (Osborne 1958: 37; Poos 1986; Gray 1990: 5). There are many cases of young adults who left the area and then returned to rejoin their family and perhaps take over a former family tenancy (Harrison 2005a: 47, 77–8). In some returns, up to 5% of the population were children living with adults other than their parents; some may have been 'boarded out' (Abrams 1998: 46–7) or have been supported by remittances from parents working elsewhere.

6.1.3.1 Farming and Production

Dodgshon (1998) underscores the importance of chiefly display in the production of pre-modern Highland farming. Rents paid in kind (grains, livestock, butter and cheese, for example) were used to reward loyalty and service and to support a chiefly lifestyle centred on display, conspicuous consumption and hospitality. However, real local details are sparse before the late 16th century, beyond the grains implicit in mills and the stock-rearing implicit in the black marts paid as royal rent. Boardman (2006: 301–5) has argued that these cattle payments, initiated in the 15th century, expressed lordship, and that the payment to the crown was intended to encourage the integration of the Highlands into more southerly market economies. As elsewhere, possession of a kailyard was a prerequisite of settlement from the 16th century, indicating their essential role in the social system as well as for food production. They were later used for potatoes (Innes 1855: 353; Winchester 2000: 79–81; Harrison 2003: 196–8).

Court records (from the 1590s) and tacks and rentals (from the 1620s) show that oats and bere

barley were the local grains. Butter and cheese were key products, payable as rent and levied as fines; ploughing was by horses rather than oxen; goats were 'forbidden' but widely kept, and sheep and cattle were the key livestock. Capitalisation was clearly a problem. The lairds' own farms might provide start-up stock or capital for incoming tenants or those struggling against the effects of shortage and war, while tenants rented and hired stock between themselves (Harrison 2003: 132–9). Dodgshon (1998) has emphasised the conflict between arable and livestock in such systems; more stock produced more manure but also required more winter feed, so reducing the ground available for arable production.

The Breadalbane system, like others, tried to balance summer and winter stockholding (Winchester 2000; Ross 2006), although the fines for over-souming in Breadalbane look rather like a licensing system. Byre manure was for the infield and generally an individual matter. But a parallel system, 'tathing', involved stock pastured elsewhere by day and enclosed or tethered overnight on potential arable or other ground (RCAHMS 2001: 23). In Breadalbane, participation in tathing was a duty and a privilege (no contribution, no benefit); disagreements refer to 'tathe faulds' and 'tathe grass', and the requirements of tathing were a major influence on the landscape (Harrison 2003: 139–40, 202–7).

Hints of systematic change begin in the 1670s and 1680s, a period of increased Highland participation in supplying cattle for naval and English consumption (Macinnes 1998: 168). There were attempts to regulate drovers (NRS GD112/17/8 f47r, 27 Feb 1683; GD112/17/9, f59r, 24 July 1700; GD112/17/1/10/11), and records survive of droves of cattle sent for sale to the Borders and Edinburgh (NRS GD112/9/26 discharge 1686 & 1687; GD112/36/6/1; GD112/43/14/10). An important limiting factor was addressed by sending stock to over-winter on lower pastures (NRS GD112/17/8 ff1r–5r, item 73), and by the 1720s came the corollary of local farms renting summer grazing to others (NRS GD112/9/43: 30–33; GD112/9/5/8/26). Distant wintering would not reduce the dung available for arable (Dodgshon 1998: 206) if additional stock were kept and only the excess removed to the low ground.

New interest in the droving trade might have been the context for the advance of head-dykes recorded by Farquharson, and for some of the enclosed parks such as those at Lawers (Harrison 2003: 217–20). However, more stock would require more capital (the next limiting factor) and would therefore be curtailed by the disturbed conditions of 1689–1715. The famine of the 1690s had a serious impact in Breadalbane, at least in 1698 and 1699, when seed was used for food, meal was short or unobtainable, and people were forced to eat the livestock and the produce intended for sale (Cullen et al 2006: 264–5). The Jacobite risings of 1689 and 1715 brought garrisons to Finlarig and Taymouth and increased cattle-raiding and press-gangs, among other impacts – all of which disrupted trade and security.

However, in the wake of the 1745 rising the earls, now fully committed to the Hanoverian cause, embraced government efforts to use commerce to 'civilise' the Highlands and harness their martial traditions for empire and the army (Colley 2003: 120). Among the transforming processes of the later 18th century were the expansion of the villages of Killin, Kenmore and Aberfeldy; road improvements; the encouragement of the linen industry (see Chapter 8), and the division of the lower hill-slopes by stone dykes. A series of tacks issued in 1771–3 (NRS GD112/10/1/4; McArthur 1936: xxxiv–xxxv) required enclosure, liming, stone-clearance and drainage; one-fifth of the arable land was to be either fallow or under turnips, peas, clover or other green crops. The clear aim of such a rotation was to increase productivity by breaking down the infield–outfield division and increasing winter fodder such as turnips.

However, an active programme of tree-planting, which inevitably took ground from the tenants, is among many indications that the estate, not the tenants, was the overall planned beneficiary. Hopes that the tenants selected to get tacks would be exemplary may have been illusory, but slowly the rhetoric of Improvement appears in the petitions (see 6.1 above), and potatoes and flax were being widely grown by 1783 (NRS GD112/16/13/1/10). Run-rig was abolished *c* 1785 and thirlage a little later. Joint stocks were by this time usually pastured together on the hills with a common herd, suggesting the decline of dairying at the shielings (see Chapter 9).

Approved tenants were signing the General Lease in the early days of 1800. Apart from allocating new lots, and conditions for new buildings, it required all tenants to include sown-grass, turnips and legumes within a regular rotation. Shortly afterwards, rams and bulls were to be inspected with a view to improving the stock, though it was noted in 1806 that neither Cheviots nor Blackfaces were yet kept locally (Richards 2000: 113). Falling prices after the end of the wars against France halted this phase of investment and must have spelled disaster for those tenants who had sunk their capital into marginal ventures such as the outfield farms. If anything, the pressure on the survivors to conform to the new rotations increased – and those who failed to comply, often through poverty or infirmity, now faced increasing pressure to quit.

By the 1830s it was recognised that (at least with the current low prices) the difficult climate and remoteness from markets meant that the old systems were untenable. In a note of 1831 (the year he was granted a new title) the Marquess of Breadalbane proposed abolition of the system of crofters and cottars, amalgamation of arable farms, and putting 'the poorer class, the less industrious and supernumerary tenants' into hamlets (NRS GD112/14/2/1 Enclosure). Morenish and the specialised sheep-farms were created from *c* 1840; these required major work on taller march-dykes, as well as new houses and farm-buildings, now fully financed by the estate (NRS GD112/16/14/2/34; GD112/16/4/4 items 16–20; GD112/10/2/4/46). From 1836 work was undertaken to enclose the road, to prevent driven stock from straying onto the adjacent fields (NRS GD112/11/9/6/12; GD112/12/2/3/6; GD112/12/2/4/23, 28 items 17–18).

Sport-shooting was an important diversification for Highland estates by the early 19th century. Woodland clumps on the low ground were associated with gamekeepers and pheasant-shooting from the 1820s (NRS GD112/16/12/2; GD112/14/5/4: 32). Grouse-shooting was being commercially leased by the 1820s (NRS GD112/14/2/1/15, accounts 1825–6: 2), and Morenish Lodge was built and leased along with the grouse-shooting on Ben Lawers from 1843–4 (NRS GD112/14/5/1).

6.1.4 The Documented Houses of Edramucky, Carwhin and Lawers

While the three houses considered in this chapter had all been recorded as ruins by previous authors, documentary evidence has supported their archaeological interpretation. In addition to cartographic representations and title deeds, there is a scatter of incidental references to certain aspects of these houses. Title deeds conveyed not merely property but the status which accompanied control of land, the raison d'être of the houses. In the case of Edramucky, in particular, the titles provide quite close dating for both construction and abandonment, and incidental records of attributes such as the orchard are also important indicators of high status. At Carwhin the incidental evidence has proved most useful, such as an early 18th-century reference to woods close to 'the old house of Carwhin'. At Lawers the earliest documents refer to the house's status as a manor, a site where legal documents could be served. Cartographic evidence correlates well with the rentals to confirm the survival of the house and its associated designed landscape in the later 18th century. However, its use thereafter to the late 19th century must be inferred from rentals and census returns, from the loss of its roof between the first and second editions of the Ordnance Survey and from Christie's comment (1892: 41) that the former elite house, which had been two-storied and thatched, was a roofless ruin before 1892.

6.2 BUILDINGS OF SOME STATUS: THE RELICT REMAINS OF THE ELITE CLASS

John A Atkinson, Janet Hooper & Lorna Innes

As part of the scope of the Ben Lawers Project, it was important to understand not only the settlement-pattern and homes of the tenantry and cottars, but also the homes of the Loch Tay elites. With this in mind, survey work was carried out on the three principal elite sites in the project area: Edramucky, Carwhin and Lawers (Illus 6.3). The surveys were undertaken over three seasons between 1996 and 2003 (Atkinson & Hooper 1999; Atkinson et al 2002; 2003b) and led to two phases of excavation during the summers of 1996 and 2002 (Atkinson et

al 1997; 2003a). What follows is a brief description of each of the sites and its topography, and the physical evidence for each house and its likely form.

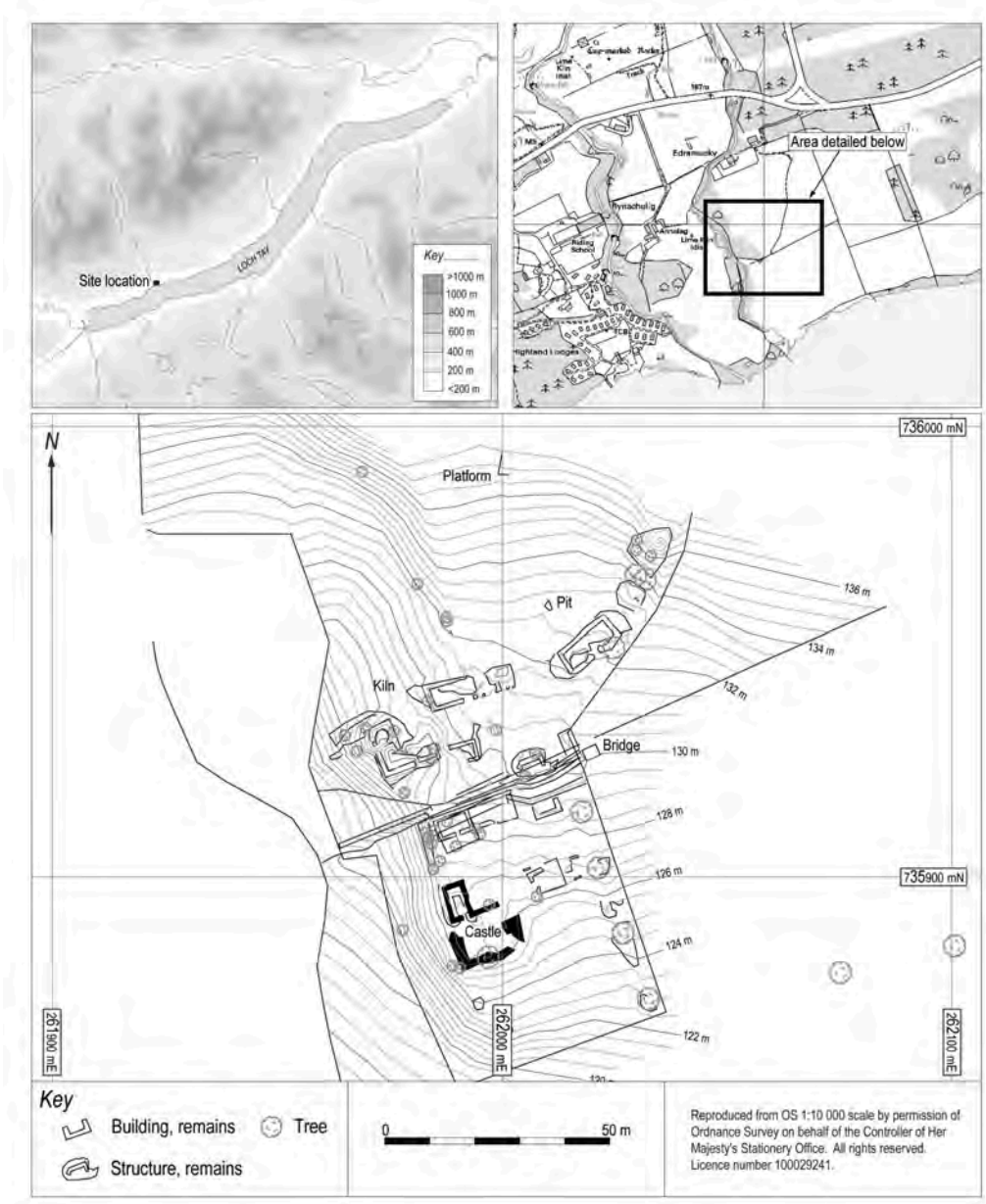
6.3 EDRAMUCKY 'CASTLE': THE DOCUMENTARY EVIDENCE

John G Harrison

Edramucky was part of the Menzies barony of Weem. Adjacent lands, but probably not Edramucky, had been leased to Glenorchy from the mid 16th century. In 1580, John Makewin in Edramucky and James (his brother) in Kenknock were the kindly tenants of Menzies of Weem, a position that gave them considerable security (Sanderson 1982: 56ff). But, while their agreement with Campbell of Glenorchy gives no details of land-use, it is unlikely that kindly tenants would commit themselves to the expense and grandeur of a very substantial house (Innes 1855: 224–6 item 73).

By a contract dated 1596, Alexander Menzies agreed to infeft Sir Duncan Campbell in the lands of Morenish, Edramucky and others (NRS GD112/2/124/11). On 15 April 1602, by a charter endorsed as the 'original feu contract' of the lands of Edramucky, Duncan Campbell of Glenorchy, described as the liferenter, set the five-merkland of Edramucky and the two-merkland of Kenknock to John Campbell of Portbane, apparently one of the Campbell of Lawers family, themselves cadets of the Glenorchy Campbells. The document mentions the houses, yards and orchards but not specifically a mansion house, and it is difficult to be sure if the 'orchards' (usually associated with elite houses) were really present or merely formed part of a conventional list (NRS GD112/2/67/1). In 1606, however, John Campbell 'of Edramucky', with the consent of his spouse Isobel Menzies, granted an interest in Edramucky to James his son and Jonet Farquharson his intended spouse. This document specifically mentions the 'manor house and place' built there in terms which make it certain that there was, indeed, a substantial house by this time; 'place' in this context is itself an indication of prestige, a house named from its lands. John Campbell's assumption of the title 'of Edramucky' further reinforces the impression that he was a substantial man and, over the next century or so, the family expanded their holdings with leases and wadsets to the adjacent lands of Rhynachulig and Blarliaragan; they also retained a connection with the lands of Kenknock in Glen Lochay (NRS GD112/2/140).

Illus 6.5 Edramucky as illustrated by Taylor & Skinner in 1776



(Above) Illus 6.6 Edramucky location-plan

(Left) Illus 6.7 Edramucky as illustrated by Farquharson in 1769

In 1718 John, Earl of Breadalbane, recognised Duncan Campbell of Edramucky as heir of his grandfather, who had died vested in the five-and-a-half-merkland of Edramucky 'with the manor place thereof' (NRS GD112/2/67/4/1). Edramucky is more usually described as a five-merkland. In 1728 that was divided as the two-merkland of the Mains, with the tower, fortalice, manor place, office houses, gardens, yards, orchards and other pertinents, and the three-merkland of Craggancrosk, with the brew-seat (NRS GD112/2/67/5/9). In 1723 Duncan Campbell of Edramucky vanished in the wake of the shooting of Sir James Campbell of Lawers; he failed to answer a summons to appear for trial, and in consequence his estate was escheat and was purchased from the crown by the Campbells of Breadalbane (NRS GD112/2/67/4/15; Gillies 1938: 399–400).

Prior to his flight, he may have embarked on a programme of enclosure and 'improvement' in the manner seen at Lawers and Finlarig, as in 1726 two men claimed payment for winning and leading stones for a park-dyke for Duncan Campbell of Edramucky (NRS GD112/11/1/1/22). The financial arrangements following the escheat allowed 'Lady' Edramucky to continue enjoying some of the fruits of the estate. A judicial rental of the estate, dated 1725, refers to the Mains of Edramucky, then in Lady Edramucky's hands, but it now extended only to one-merkland (NRS GD112/2/67/4/7; GD112/2/67/4/11). After 1730 references to the castle or manor-house fade from the records; the Mains, however, continued to be referred to until the late 18th century (NRS GD112/11/3/4/42). The house of 'Etteravochki' is depicted as a ruin on Taylor and Skinner's 1776 road-map (Illus 6.5).

6.4 EDRAMUCKY 'CASTLE': THE PHYSICAL EVIDENCE

John A Atkinson, Janet Hooper & Lorna Innes

Edramucky rests on a terrace that interrupts an otherwise fairly steep slope that descends from the main loch-side road to the loch-edge. This terrace drops off steeply towards the Edramucky

Illus 6.8 Kiln at Edramucky

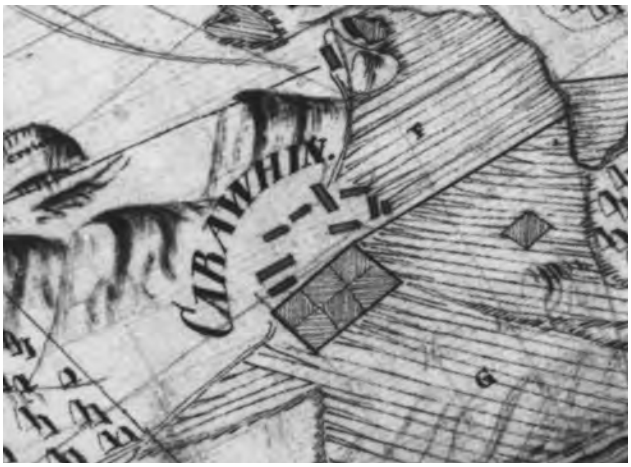
Burn to its west and more gradually towards the south. The remains of the house of Edramucky and other possibly-associated buildings lie on the southern edge of the terrace (Illus 6.6). A line of sycamore trees, running broadly north-east/south-west, marks a later access track to the site visible on the Ordnance Survey map of 1867. Originally a tree-lined avenue seems to have linked the house with the loch-edge (Illus 6.7). The northern half, or rear, of the terrace contains the remains of further buildings and a large corn-drying kiln (see Atkinson et al 2003b for further discussion). It is likely that these buildings and the kiln are traces of the Mains of Edramucky, which are referred to throughout the 18th-century documents (see 6.3 above). One of the most striking features of this settlement is the scale of the kiln (Illus 6.8). Prior to 1773, the tenants of Craggancroisg, which was also the location of a brew-seat, used this kiln (Harrison 2005b, 161).

Although ephemeral, the remains of the manor-house of Edramucky are clearly visible on a spur at the edge of the terrace. Traces of thick walls are evident on three sides of the building, oriented south-west/north-east, with its north-western limit demarcated by a building of different construction. Although the wall-thickness differs between the two, they share a degree of ground-plan integrity. These surface traces may be those of a small tower-house, although the role of the northern building is unclear. Certainly it is evident that the maximum extent of the house was approximately 11m, and it may have been around 9m wide.

6.5 THE LAIRD'S HOUSE AT BLARMORE OR CARWHIN: THE DOCUMENTARY EVIDENCE

John G Harrison

Neither of the maps by Farquharson or Stobie indicates an elite house at Carwhin, though Farquharson does show a rectangular area, presumably intended for the garden. Christie notes the ruins – though it had been abandoned too long ago for him to have stories of occupants (Christie 1892: 47). The settlement is named as 'Carawhin' on Farquharson (Illus 6.9), who assigns Blarmore to the site later called Balnreich. The documents suggest that Blarmore was usually used as the name of an extensive area within Carwhin, including the



Illus 6.9 Blarmore as depicted by Farquharson in 1769

manor-house and several crofts. In the late 19th or early 20th century, Carwhin came to be applied again to the dominant farm in this area, a farm now assimilated into a larger unit.

The superiors of Carwhin in the 15th century seem to have been the Haldanes of Gleneagles. At various dates from 1483 to 1559 various Robertsons are mentioned as 'of Carwhin' and even as barons of Carwhin. In 1526 James Haldane of Gleneagles granted a charter of the superiority of the lands of Carwhin [Keriquhyne] with the island called Ilanbraban to James Campbell of Lawers, of which the property pertained to William Robertson 'of Kerquhyne'. The charter refers to the lands with houses, mansions, buildings, waste plains and so on; such lists often include purely conventional items and are certainly not proof, in themselves, of the existence of specific assets (NRS GD112/1/829). In 1552 Malcolm Robertson, baron of Keirquhoun, bound himself to Colin Campbell of Glenorchy, who promised in turn to support him in his quarrels, particularly that with James Campbell of Lawers (NRS GD112/1/83). Since Campbell of Lawers was the superior and a neighbour, there were certainly occasions for dispute, although the specifics are not clear. While no formal document constituting or confirming the existence of a barony has been found, a barony would certainly call for a 'mansion' of some sort, serving as the principal messuage or point where legal notices could be served.

The earliest unequivocal mention of a manor-house is contained in two charters concerning the

debt burden of Campbell of Lawers (*RMS* XI: 319). The second of these, dated 1664, refers to the manor-house of Carwhin as distinct from that of Lawers. Over the next 20 years or so, much of the area was wadset and appears in the Breadalbane papers only intermittently as the estate checked on the value of its mortgaged assets. In 1676 John Campbell of Glenorchy wadset these recently-purchased lands of Blarmore, with 'the manor house called Carquhine, with crofts pertaining thereto called Achnaclochglasse, Alehouse croft, Croftnefemach, Tomachetter and Croft Beallochroy' and other lands, all parts of 'Carquhine', to Colin Campbell, Sheriff Clerk of Caithness (NRS GD112/2/29). He was the third son of Colin Campbell of Mochaster, had been born in 1652, married in 1677 and became a Writer to the Signet in 1686 (*List of Writers to HM Signet* 1936: 99); he was also Breadalbane's main legal advisor. About 1682 he assumed the title 'of Carwhin' (NRS GD112/39/138/14). It seems likely that this title refers to a different Carwhin, which throws some doubt on the significance of an inventory of the furniture 'which was left in the house of Carquhin' in November 1686 (NRS GD112/2/12/304). There were a number of prestigious items, including cloth-covered chairs and stools, several beds (one with blue bed-curtains), a number of pewter dishes, chamber-pots and, most telling, a pair of virginals, a sword and a bow. The list names the Green Room (which contained a bed), the Hall (probably a dining hall), the Kitchen and the Larder. Both the range of rooms and the furnishings make it clear that this was a house of some standing.

On firmer ground, in 1687 Campbell of Carwhin contracted with Alexander Campbell of Ardeonaig and Robert, Alexander's brother, to lease to them the two-merkland of Blarmore with the crofts and some lands in Crannich for five years, excepting from the lease the manor-house of Carwhin, which Colin would maintain himself (NRS GD112/2/121/306). Then, in 1707, the wadset to Colin Campbell having been redeemed, there is a payment for 'tirring [pulling down] the house of Carchun' (NRS GD112/15/123/31). This Colin Campbell of Carwhin died in 1715 (NRS GD112/64/17).

If there was a barony of Carwhin in the late 15th and early 16th centuries, there must have been a mansion of some sort. Its relevance to the takeover by Campbell of Lawers and the disposition to the Glenorchy line is doubtful. It might have been a dower-house or other subsidiary residence of the Lawers family. If there had been a house here prior to the 1640s, we would expect it to have suffered in the 'Burning' by Montrose in 1645. The financial difficulties of the Campbells of Lawers mean that they were not likely to have built or extended much during the years immediately preceding the first firm record of the house in 1664; the mansion at Lawers would certainly have been a higher priority. It is possible that it was built for someone holding a wadset, although clearly to make such an investment they would have required considerable security. The ambiguity about the source of the title is particularly frustrating – and is surprising, since the Carwhin line eventually inherited the earldom.

The radiocarbon date (see 6.6.6) for this site tends to support the possibility that it was built for the Robertsons – although, between 1483 and 1700, it must have undergone considerable alteration and even complete reconstruction. It cannot have been the 'messuage' of the Lawers or of the Glenorchy lines, as they had their main residences elsewhere. It is likely that Campbell of Carwhin occupied the house intermittently during its final phase of occupation, in the 1670s and perhaps to 1700 or so. Demolition or redundancy are implicit in passing references in a 1721 letter to a wood 'just bewest the old house of Carwhin' and another on 'a hill below the old House' (NRS GD112/16/10/1 item 2).

6.6 THE HOUSE OF CARWHIN: THE PHYSICAL EVIDENCE

John A Atkinson, Janet Hooper & Lorna Innes

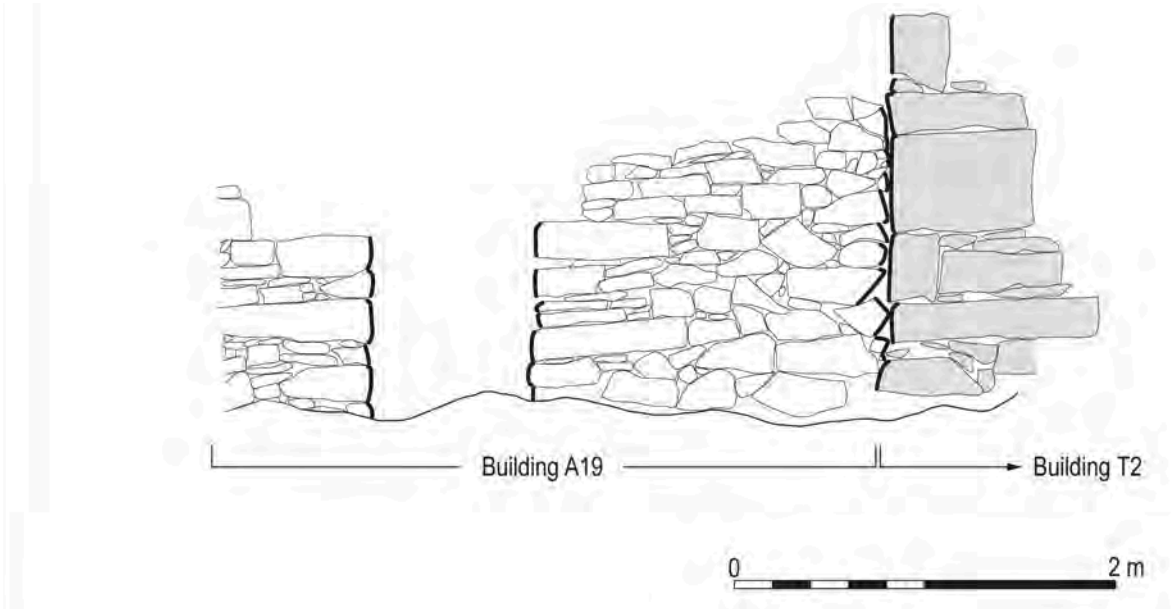
On the south-western edge of the terrace that houses the township of Blarmore lie the ephemeral remains of the house of Carwhin, appended to the north-east gable of a substantial building known as A19 (Illus 6.10). The latter was constructed of drystone masonry and oriented south-west/north-east, with its entrances facing south-east. The form of the construction is very similar to other longhouses observed along the north shores of Loch Tay, with the exception of its north-east gable. Here, a separate building (T2) was identified as having stood prior to the construction of Building A19.

Illus 6.10 Surveying at Blarmore (Carwhin) in March 2002

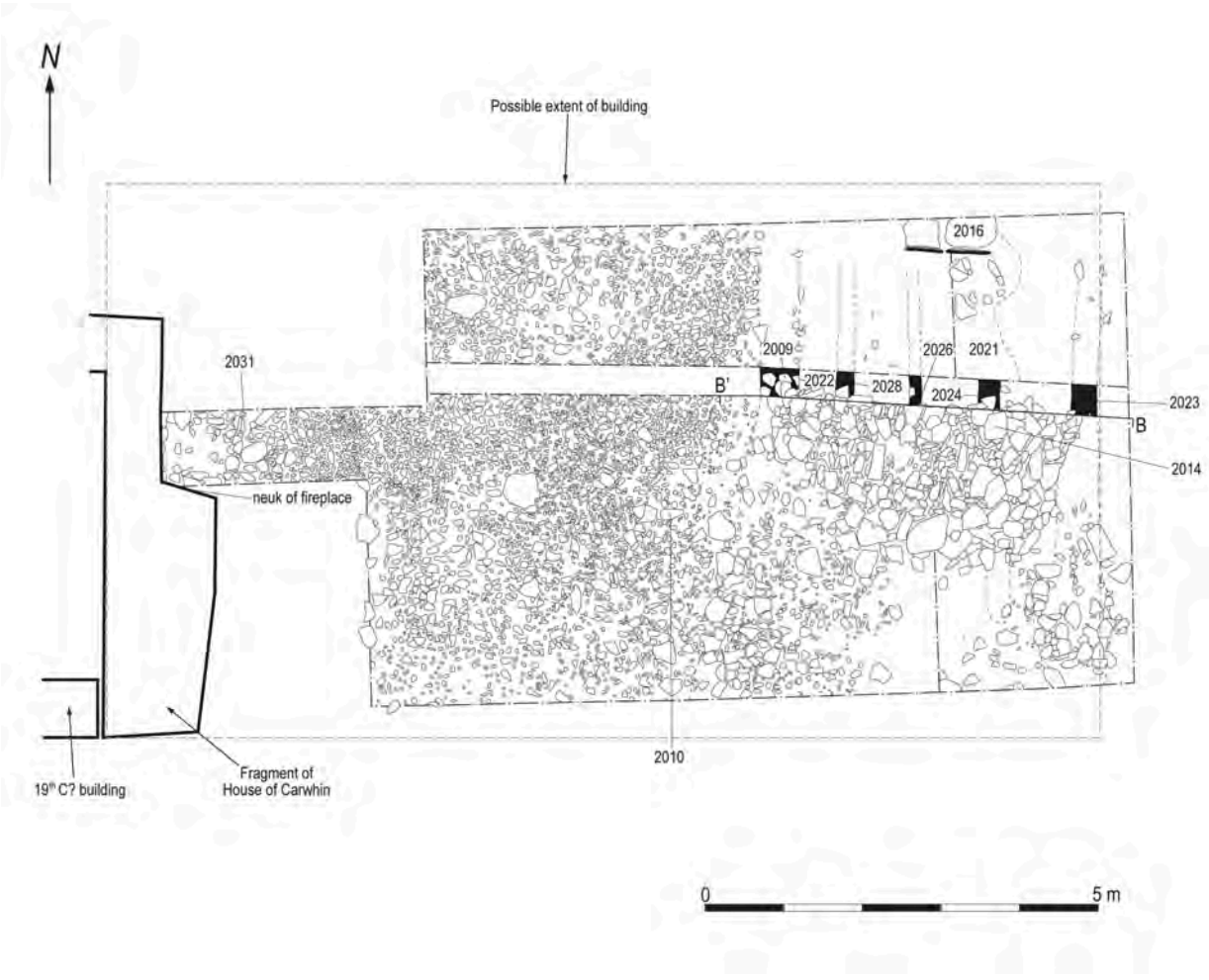
Building T2 survived above ground as the gable for A19; this gable had been modified to suit the new building. Traces of the original stonework are visible on the south-east edge of A19's gable, in the form of quoins abutting the building (Illus 6.11). The gable appears as a single integrated build, suggesting that A19 was attached to the upstanding remains of T2, some time after the older building's demolition (see 6.5 above). Alternatively, A19 may have been built prior to the demolition and subsequently altered to partially accommodate the semi-ruinous structure. Inspection of the outer face of A19's gable identified one other feature of note that seems to be related to T2's history. This is an ingoing with a splayed side, approximately 3m NNE of the gable's east corner (Illus 6.12). Initially interpreted as the remains of either a staircase or fireplace, it seems probable that the feature represents part of the T2 fireplace and in effect marks the limit of survival for this building above ground.

Stony areas and a mound to the north-east of the gable represent traces of the rest of the building and are discussed in detail by Lelong (6.6.3). It has previously been suggested that T2 is the remains of a laird's house (Boyle 2000), an idea discussed below (6.6.6). Traces of a further 14 buildings were also recorded during the survey, together with yards and access tracks (see Atkinson et al 2002).

The identification and recording of the fragmentary remains of an elite house in the Blarmore cluster in early 2002 (Atkinson et al 2002) led to excavation of the site during the September field season (Atkinson et al 2003a). Known during the project as Building T2 at Blarmore, the site's historic name was undoubtedly Carwhin. Harrison's review of the documentary evidence suggests that the lands of Carwhin were held by the Robertsons from at least 1483 and later by Campbell of Lawers, but the mansion house of Carwhin is not unequivocally mentioned until 1664 (see 6.5 above). It is sporadically mentioned in other documents during the later 17th century and appears to have been demolished by 1707, during Colin Campbell's time. It seems likely that the house of Carwhin existed prior to 1664, as



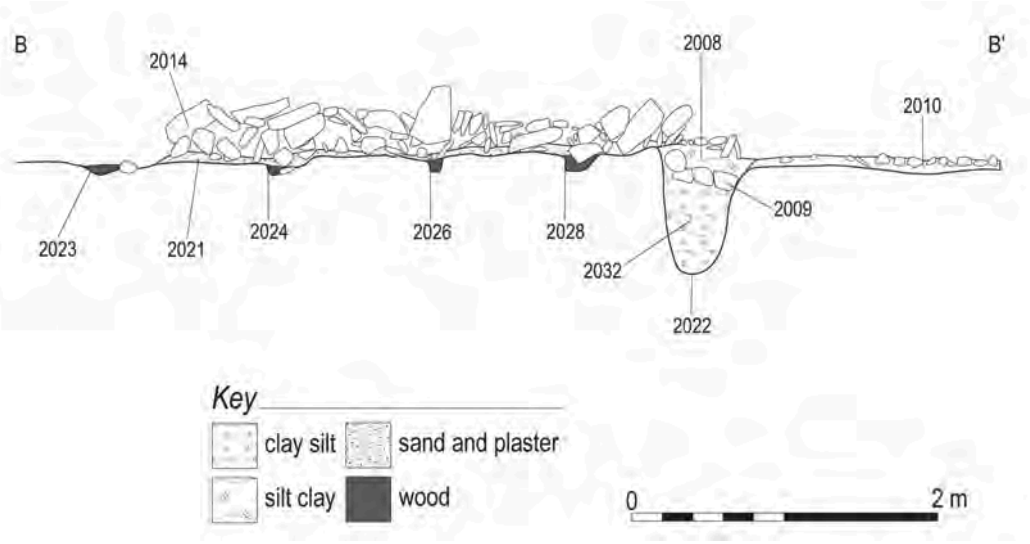
Illus 6.11 T2 elevation and relationship with A19



Illus 6.12 T2 trench-plan

Illus 6.13 Pont's map of Loch Tay

Illus 6.14 Blaeu's map of 1654



(Above) Illus 6.15 Section through floor of T2

(Left) Illus 6.16 Fire neuk in T2's western gable

the place-name appears on early maps, suggesting it was considered more than a simple township at this time. This is certainly the case in Pont's late 16th-century manuscript and is repeated in Blaeu's Atlas of 1654 (Illus 6.13–14). Whether it was the site of a mansion during the time of the Robertsons is, however, unclear from the documents alone.

6.6.1 The Geography of the Settlement of Carwhin

Carwhin, or Blarmore as it was later known, occupies an extensive terrace *c* 160m AOD above Loch Tay. The settlement comprises the remains of at least 15 buildings and two yards; a track leads into it from the north and the settlement is bounded by stone and earth walls on three sides. Many of the buildings have the appearance of late 18th- or 19th-century construction, and at least five of them probably appear on Farquharson's plan of 1769, the rest being depicted in later maps. Building T2 is the only exception, as it was demolished before any of the detailed maps were produced.

It is worth noting that the location of Building T2, on the edge of the terrace overlooking the loch, is comparable to other elite houses along the northern shores. Sites such as Carwhin, Edramucky and Lawers were all constructed in prominent positions facing the loch – the main communication artery prior to the construction of the road during the mid 18th century (Gillies 1938: 189). The early date for the house's demolition means that few traces of associated buildings or features survive, but they would certainly be expected for an elite centre, particularly one which may have acted as a barony during the late 15th and early 16th centuries (see 6.5 above).

6.6.2 Excavation Strategy

The section of upstanding gable and fireplace abutting Building A19, together with piles of stonework to the

north-east, appeared to indicate the former location of Building T2. Excavation resources were therefore concentrated on this area, the aim being to reveal the remains of the house of Carwhin. The excavation trench measured 9.5m south-west/north-east (at its maximum) by 6m wide. It was positioned away from the gable of A19 for safety reasons and to include an adjacent turf-covered mound. An additional slot-trench, measuring 3.4m south-west/north-east by 1m wide, extended westward from the main trench into the angle of the fireplace within A19's gable (see Illus 6.12).

6.6.3 Deposits and Stratigraphy

Olivia Lelong

6.6.3.1 T2 – Phasing

The limited nature of the surviving remains of Building T2 does not permit any detailed discussion of its phasing; however, in broad terms the historical and archaeological evidence does allow for a chronology to be postulated:
Construction of building – some time after 1440
Demolition of building – 1707

6.6.3.2 T2 – Sequence

The construction of Building T2 began with the placing of the wall-footings (for example 2016) onto the surface of the relatively-flat natural terrace. There was no evidence for foundation-trenches for the exterior walls. However, a series of parallel linear features was found, extending SSE from Wall 2016, across the interior of the building. Four of these cuts (2023, 2024, 2026 & 2028) were evenly spaced and of similar scale. Remnants of unburnt Scots-pine members were recovered from three of the features (see 6.6.5.1 below), indicating that floor-joists were used to support a timber-plank floor. Radiocarbon dating of a fragment of blackthorn charcoal from Joist-Slot 2028 produced a date of cal AD 1440–1640 (2σ, GU-12542).

Another linear feature (2022) was evident, cut through the natural subsoil inside the building, immediately to the west of Joist-Cut 2028. This feature was broader and considerably deeper than the joist-cuts; it also extended from Wall 2016, but deviated from true halfway along its length (Illus 6.15). It seems likely that this feature supported a wall of some sort, possibly made of timber, resting on a layer of stonework (2009) within Cut 2022. Its fill (2008) contained a wide variety of charcoal species, including alder, ash, pine, oak and willow (Table 6.2). To the west of this feature, little evidence of Building T2 survived except for extremely ephemeral traces of other floor-joist cuts (Atkinson et al 2003a: 19).

During the construction of the external walls, a fire-neuk was created in the south-west gable (Illus 6.16). This feature, founded on the natural subsoil, was composed of a diffuse, but edged, spread of stones (2031), which probably acted as a base for hearth-slabs during occupation. After the building went out of use, the hearth-slabs were probably removed for re-use elsewhere. Once the external walls had been completed, they were lined with plaster; this must have occurred after the building was completely watertight. Traces of plaster were still present on the inside face of Wall 2016, and analysis has shown that it was applied in two coats, that both were identical, and that the materials originated from the Loch Tay area (see 6.6.4.4 below).

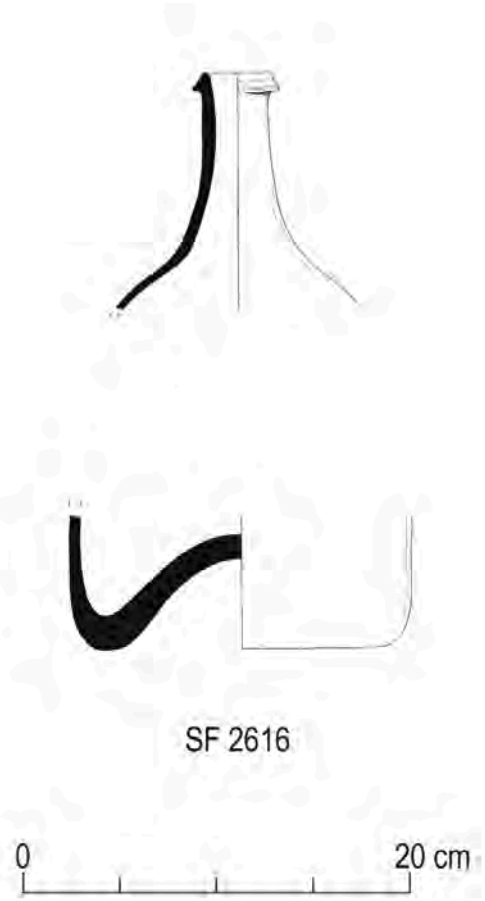
Abandonment and demolition of the building some time after 1700 (see 6.5 above) removed much of the remains, but the east gable appears to have been toppled and partially left in situ as a mound of stone (2014). This mound may have been subsequently tidied up and given a rough boulder facing to create a stack-stance. A number of slate fragments (for example SFs 2625 & 2652) were found in the destruction layer (2021) under the mound. The slate, from Easdale in Argyll, is likely to have been used as the roofing material. At some point more rubble was deposited on the putative stack-stance, along with finds of 18th- to 19th-century date, including part of a wine bottle manufactured *c* 1730 (see 6.6.4.2 below and Illus 6.17). This may have occurred at the same time as an area of hard standing (2010) was laid between the mound and the remnant west gable, the use of which disturbed traces of the timber floor.

6.6.4 Finds

6.6.4.1 Ceramics

George Haggarty

Four datable vessels (FJ, CT, IJ & EG) were recognisable within the 96 sherds of ceramic material recovered from the excavations at Carwhin. Three of



Illus 6.17 Wine bottle recovered from Layer 2004

the vessels (two bowls and a dairy-bowl) were 19th-century in date, and the fourth vessel (EG), a plate decorated with bands of red painting, may even be 20th-century.

6.6.4.2 Glass

Robin K Murdoch

A total assemblage of 93 sherds of glass was recovered from Carwhin. There are relatively few sherds from three-piece moulded bottles of the mid 19th century, but there is clear evidence of earlier 18th-century material. Remains of at least three wine bottles (Vessels A, B & C) date to the first half of the 18th century, and there is one small sherd which may be even earlier (Vessel D). This item (SF 2617), from Layer 2005, is from a widely flaring vessel, possibly sweetmeat or tazza, extremely thin-blown (minimum 0.7mm). Blarmore also yielded two small sherds of intensely tinged window-glass, likely to date from the 18th century (SFs 2601D & 2612B). A number of fragments of tableware were also recovered, including three conjoining sherds from a colourless drinking vessel with a bucket bowl (SF 2612A) and two sherds from a small tumbler with cut fluted decoration, one of which had the number 32 engraved on it (SFs 2601E & 2658H), possibly part of the date 1832.

6.6.4.3 Metalwork

Adrian Cox

A small assemblage of iron artefacts was recovered from Building T2 at Blarmore. These included a U-shaped handle or towing-loop (SF 2662), which originally had a spiked terminal for hammering into wood, and a large bolt (SF 2611), possibly used as a cart-fitting. Of particular interest was the recovery of what initially appeared to be a flintlock gun (SF 2604), but closer inspection revealed this to be a probable piece of horse-harness that had been twisted into the shape of a pistol.

6.6.4.4 Lime Analysis

Craig Frew

The sample appears to consist of a fully-carbonated lime plaster, with natural weathered sand. Examination of binder-rich areas of the mortar and inclusions in the mix indicates that the lime was used in the form of 'lime putty'. The mix composition was in the region of 1:0.8 (lime:sand) by weight (or 1:0.6 by volume) for a putty mix, assuming standard densities for the relevant components.

The plaster was applied in two coats; examination (by X-ray diffraction) of the aggregates and mineralogical analysis of the binder material within each coat shows that the composition of both was the same. The binder was a non-hydraulic lime, but the firmness of the plaster would suggest a feebly hydraulic material. This property may have been due in part to the high clay content of the sand used in the mortar. The source of the clay fraction was schist and other weathered metamorphic rock types. This would suggest that a proportion of the 'fines' was likely to have acted as a low-grade pozzolana and thereby have given the plaster a strength greater than would normally be expected from a high-calcium lime. The high proportion of clay material in the sample would suggest that the sand had been used as dug – probably from a borrow-pit local to the building. The rock-types and minerals identified

Table 6.2: Palaeo-botanical results from T2 at Blarmore

Context no.	2002	2015	2019	2021	2025	2027	2028	2029
Charcoal								
Alnus	2	1		1			5	
Betula			1	1		2		2
Corylus					1			
Ericales	2	3	3				8	
Fraxinus				8	3		2	1
Pinus sylvestris type	1						3	
Prunus spinosa type			1				3	2
Prunoideae		1 (<0.05g)			1	4		
Rosaceae							1 (0.2g)	
Quercus			8 (0.1g)		3 (0.1g)	3 (<0.05g)	3 (0.2g)	3 (0.1g)
Salix							3 (0.3g)	
Indet charcoal								2 (0.15g)
Uncarbonised wood								
Pinus sylvestris type				2 (0.35g)	>250 (5.4g)	20 (0.7g)		
Carbonised cereals								
Avena sp		1			1			

in the sand are typical of those encountered in the Loch Tay area.

6.6.5 Environmental Evidence

6.6.5.1 Macrofossils

Jennifer Miller & Susan Ramsay

Carbonised material from the sandy matrix of cobbles representing a metalled yard (2002) included traces of alder, Scots pine and heather-type, probably derived from domestic occupation scatter, and from locally-available sources. A series of samples from structural sill-slots and destruction layers (Table 6.2) contained a wide variety of woody types gathered from local woodland and heather heathland. Specifically, oak, ash and Scots pine were well represented, most probably indicating a strong structural component to the assemblage. The most prevalent taxon was Scots pine, in the form of unburnt wood fragments, pertaining to flooring elements. The cereal grains identified were oats, a cereal-type entirely in keeping with the period of occupation of this site.

6.6.6 Interpretation of the Evidence

There seems little doubt that the remains at Carwhin show that a house of some status existed here, but its relatively short history is unclear. The chronicles of Fortingall suggest that Carwhin was in the hands of the Robertson family from at least 1483 until 1559 and that it may have been a barony at this time (see 6.5 above). If the Robertsons of Carwhin were indeed barons, it seems probable that they had a mansion house. What is certain is that a mansion house existed in 1640 and was pulled down some time after 1700 on the orders of Colin Campbell of Carwhin, the then owner.

Dating evidence from the excavations relies principally on a single radiocarbon assay from a fragment of blackthorn charcoal from one of the joist-slots for the floor of the house. This points to occupation between 1440 and 1640. It is still possible that the charcoal sample is residual and pre-dates the construction of the house, but the date achieved sits well with the construction of the building during the Robertsons' ownership. The surviving architectural evidence strongly indicates a building of some status. A large fireplace occupied its west gable and its interior walls were plastered. Its floor appears to have been of timber, with planks laid on horizontal supporting beams. There was also evidence of a substantial internal partition, possibly of timber and bedded

in a layer of stonework in a foundation-cut. The house appears to have been roofed with slates, as evidenced by their recovery from beneath the collapsed east gable.

The layout of the dwelling is less clear. While a late 15th- or 16th-century laird might be expected to have lived in a tower-house, the evidence did not conclusively indicate that this was a tower-house, and the existence of the fireplace on the ground floor would suggest otherwise. Tower-houses were built to have a cellar for storage on the ground floor, which was often only accessible by ladder and trap-door from the first-floor hall (Cruden 1963: 104–5). Building T2 may have been an early form of laird's house, such as the two-storey, unvaulted laird's houses at Pitcastle in Perthshire and Pitcairn in Fife, both dating to the early to mid 1600s (Zeune 1992: 153–5). This would certainly explain the presence of the fireplace on the ground floor.

6.7 THE HOUSE OF LAWERS: THE DOCUMENTARY EVIDENCE

John G Harrison

Claims of an early association of Lawers with the Macmillans are based on tradition, unsupported by any documentary evidence (MacMillan 1952: 23). The crown granted the escheated lands of Thomas Chalmers of Lawers, who was accused of involvement in the murder of James I (1437), to Campbell of Glenorchy in 1473. Lawers then comprised Lawaris More, Lawaris Manach and Clene Lawaris in Discher of Lochtay, sheriffdom of Perth (NRS GD112/76/1). Subsequently, it was feued to a cadet branch of the Glenorchy family. They had their own crown charter by 1513, when the manor-house of Lawers More was declared to be the principal messuage (NRS GD112/76/1).

There must have been a house of some standing here for much of the 16th century. Comments on the near-ruin of the 'house of Lawers' in the early 17th century, however, clearly refer to the family and

Illus 6.18 Lawers as shown by Stobie in 1783

its fortunes; they have no relevance to the presence or absence of a physical house (Innes 1855: 49). From 1620 the senior branch of the Lawers family, having married into the Loudon family, became Earls of Loudon, and the Lawers title and estate devolved on a younger branch. Sir James Campbell is said to have died at Lawers in 1645 – presumably in the elite house (Paul 1905: 505). Shortly afterwards the house is said to have been destroyed by Montrose, like so much else on Lochtayside, although it was later rebuilt (MacInnes 2002: 30).

On 2 March 1658 sasine on the estate, in security for debts to Cowane's Hospital, Stirling, was given at the manor-house of Lawers (NRS RS2/14) – although the house was here a legal entity rather than a confirmed, habitable building. More convincingly, in 1659 a deed was signed at Lawers, presumably in the laird's house (NRS GD112/2/43/1). However, it is not clear that it was still the main residence of the family, since they had had another property at Fordie or Fordew, near Crieff, in feu ferm since at least 1510 and sometimes styled themselves 'of Fordew' even before disposing of Lawers (*ER* XVII: 732). The situation is complicated by the fact that they apparently then renamed Fordie as Lawers and continued to use the Lawers title (Gillies 1938: 243).

The financial difficulties of the Campbells of Lawers forced them to dispone Lawers, their interest in Carwhin and parts of Crannich and the Rialdt, amongst other properties, to the Glenorchy family *c* 1672. The disposition ended the need for an elite residence here, and it is doubtful if the house would have been extended after 1679. However, it is shown as a gentleman's house by Stobie (1783) (Illus 6.18), and the logical but unconfirmed assumption is that it was occupied by the wadsetters of the parks and mill, initially Robert Campbell. By 1754 the 2½-merkland of the Parks was let, along with the mill, for £535 (NRS GD112/9/49). In 1769 Farquharson says the tenant was Colonel Campbell's widow, Kathrine Campbell; the title clearly suggests higher standing than most local tenants. Her lease was renewed in 1771, although by this time it was detached from the mill itself, and in 1778 she assigned her lease to Duncan Campbell, 'tenant in Gorthy, my son-in-law'; she signed her agreement to this assignation (NRS GD112/10/1/4/38).

Thereafter, the house was presumably inhabited by the tenants of the farm. MacInnes is surely mistaken in identifying inhabitants into the 20th century, since Christie says the house, which had been two-storied and thatched, was a roofless ruin at some point before 1892 (Christie 1892: 41). The building appears roofed on the first edition Ordnance Survey map of 1867 and was roofless by the second edition, as were all the other buildings in its vicinity.

6.8 THE HOUSE OF LAWERS: THE PHYSICAL EVIDENCE

John A Atkinson, Janet Hooper & Lorna Innes

On the very edge of the lowest terrace overlooking the loch stand the house of Lawers, the church and other domestic buildings and enclosures (Illus 6.19). Both the church and the house have architectural merit in keeping with their historical status; however, the buildings around them are typical of the remains of later post-medieval domestic buildings (see Atkinson & Hooper 1999; MacInnes and Alexander 1998 for further discussion).

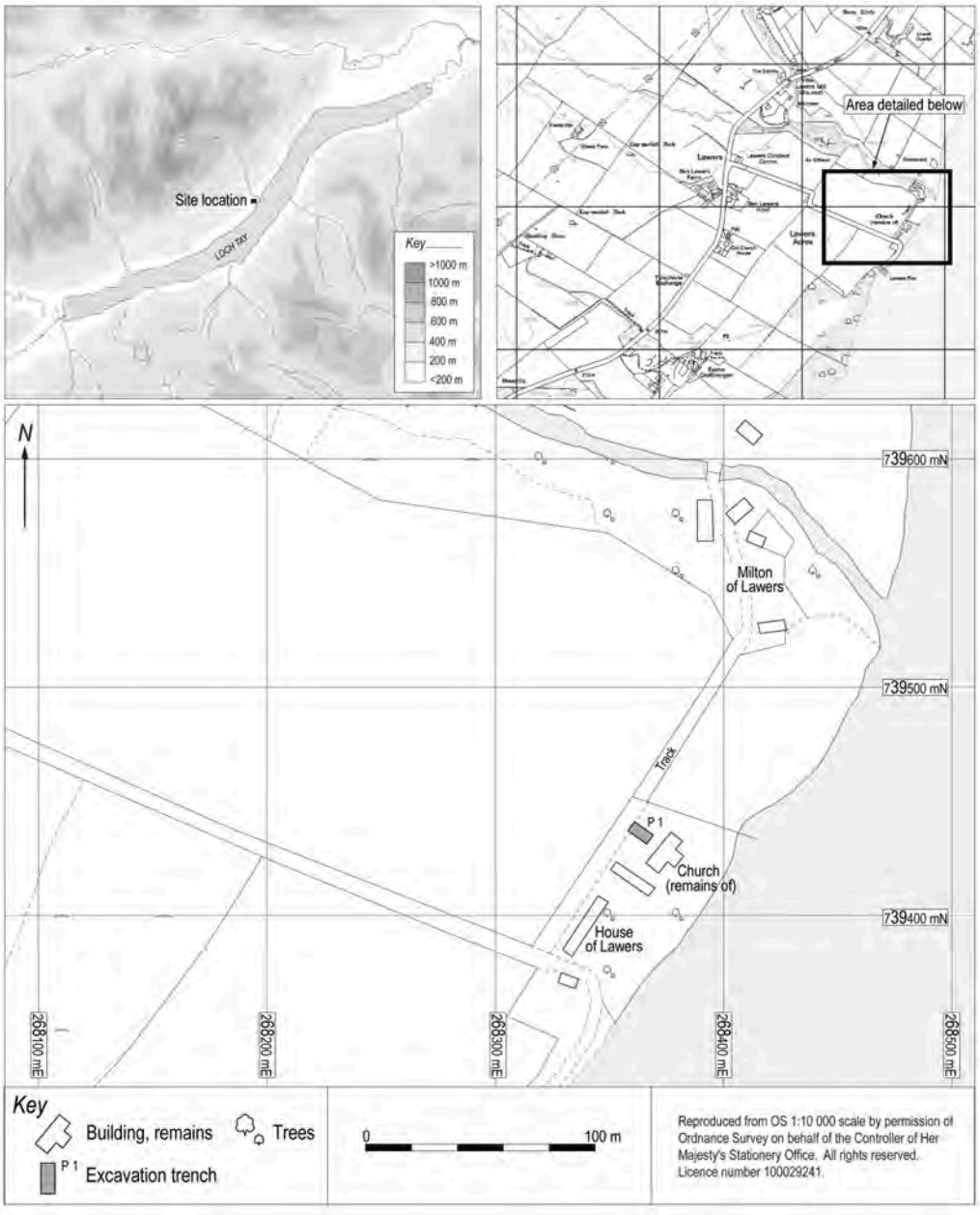
This section deals specifically with the house of Lawers, which is represented by a range of three buildings sufficiently different in form to imply three distinct phases of development. The north-eastern portion is the most impressive, standing to the chimney-head. Its south-eastern elevation survives to gable height and is dominated by three equally-spaced apertures on each floor (the central one on the ground floor being a doorway). In contrast, the north-western wall is very fragmentary, but the remains of a window-sill and jamb were present in one standing section. The building is constructed of evenly-sized, slab-like, angular blocks of schist, pinned together by smaller snecking-stones. The quoins are similar, albeit made of larger and partly-dressed blocks.

Internal features include two fireplaces, one on each storey, present in the gable-ends of the building and positioned slightly off-centre. They are of simple form, with lintels formed from massive slabs of schist (Illus 6.20). The windows are framed by sills and lintels of regularly-shaped single slabs. Their ingoings are splayed internally. Just above the lintels of the ground-floor windows and in the north-east gable is a line of joist-holes marking the position of the first floor. These surviving structural details

suggest that the central entrance led into a hall, with access to the kitchen and parlour on the ground floor and stairs leading up to two rooms of private accommodation above – as would be expected in a late 17th-century laird's house such as Old Auchentroig, Stirlingshire (Dunbar 1966: 81–3).

Lying immediately to the south-west, the central building in the range has far thicker walls. Its interior is largely rubble-filled, suggesting that it once stood to more than 2m. Its south-east elevation contains a single, centrally-placed window, represented by a jamb, while the south-west gable holds a large central fireplace and adjacent small aumbry. A possible narrow passage leads to the north-east compartment, which may have formed part of the living area of the house of Lawers.

On the north-west wall, a butt-joint is apparent between the two compartments. It is possible that the north-eastern part of this wall was added later. If so, this compartment may represent a small tower-house, the original house of Lawers (MacInnes & Alexander 1998: 20–1). This may be supported by the surviving window jamb in this compartment, as stones of the same distinctive blue-grey colour, similarly dressed, are found in the church and in the mill; these may have come from the earlier



Illus 6.19 Location-plan of Lawers

Illus 6.20 Fireplace in house of Lawers

manor-house on the site, which was destroyed in the burning of 1645 (see 6.7 above).

The poorly-constructed south-west compartment is by far the longest of the entire range of buildings at Lawers. Constructed principally of unshaped, water-worn boulders and occasional smaller snecking-stones, the building butts onto the central compartment of the range. The surviving evidence recalls the typical layout of many 19th-century longhouses.

The old village of Lawers, with its abandoned houses, church and two-storied house, has for many years been seen as an iconic representation of the process of abandonment on Loch Tayside (Illus 6.21). Earlier writers have related tales of the settlement's history and folk traditions, in particular stories of the Lady of Lawers and her predictions for the house of Breadalbane (eg Christie 1892; Gillies 1938: 247–52). As such, Lawers was an obvious candidate for the project to consider during its earliest seasons (see Atkinson et al 1997; Atkinson & Hooper 1999).

Historically, the site currently referred to as the old village of Lawers was composed of East and West Lawers, lying to either side of the Lawers Burn. Appearing on very early maps and in documents from at least 1473, the twin clusters of Lawers form a key component in the history and evolution of the northern shores of the loch until their eventual abandonment at the end of the 19th century.

6.8.1 Lawers More: Structure of an Elite Centre

The transfer of the escheated lands of Lawers to Campbell of Glenorchy in 1473 seems to have begun the process of turning the lands into an elite centre. This was certainly the case by 1513, when the manor-house at Lawers More was declared as the principal messuage of one of the cadet branches of the Glenorchy line (see 6.7 above). There is little evidence of the early 16th-century manor-house or ancillary buildings left at the site, as its destruction seems to have occurred during Montrose's ravaging of Loch Tayside in 1645 (Gillies 1938: 242). Arguably the remnants of the original manor-house are still appended to the later laird's house at the site (see above and below).

Rebuilding of the manor-house at Lawers would certainly have followed any phase of destruction at the site, since Lawers was retained as an administrative centre until its disposition to the Glenorchy Campbells in 1672. The form and symmetry of the new house of Lawers conform to that expected for a late 17th-century laird's house, and sits well with architectural traits of the period. Shortly prior to the change in ownership in 1669 the church of Lawers was constructed to the north-east of the house. The exact layout of other buildings at this stage is unclear, but both manor-house and church were oriented to face the loch, which must still have been the principal means of access to both.

After 1672 Lawers More seems to have been retained as a residence of high standing, but it no longer acted as a power-centre in the area. As Harrison has indicated above (6.7), the residents were from the higher echelons of society for the next 100 years. Lawers is clearly depicted as the site of a manor-house on Cameron's map of 1770, although it is notable that Taylor and Skinner's plan of 1776 focuses on 'Larrs Kirk' rather than the house. The history of the site for the next 100 years or so is

Illus 6.21 Church and house at Lawers

associated with Lawers Farm and its tenants until its final abandonment.

6.8.2 Excavation Strategy

In March 1996 a large amorphous mound of stone was recorded along the exterior of the north-west wall of the church of Lawers; this provided the impetus for the project to pursue excavation, as the mound was thought to represent the remains of a building not depicted in 1769 (Illus 6.7). Trench P1 was laid out over Bank P1002, extended to the north-west and measured 10m × 5m (Illus 6.22). The first pilot season of the project in July 1996 sought to clarify the form and date of the building. Three other trenches were also opened at Lawers with limited results (Atkinson et al 1997); excavation inside the two-storey house or church was excluded on safety grounds.

6.8.3 Deposits and Stratigraphy

Gavin MacGregor

6.8.3.1 P1 – Sequence

The first identifiable event above the natural subsoil in Trench 1 was the build-up of a layer of sand-silt (P1007/1013) (Illus 6.23). A James III farthing was recovered from the upper part of this deposit, suggesting the layer was deposited during the 1480s (see 6.8.4.4 below). If so, this would seem to have occurred prior to the construction of the church in 1669. Evidence of alterations to the fabric of the building (Atkinson & Hooper 1999: 12–14) is borne out by Harrison's review of the documents (2005b: 147–9) and supports a 1669 foundation date. Fragments of metallurgical ceramic (SF P1031) were also found in Layer P1007 and were similar to the material recovered from Balnahanaid (see 6.8.4.3 below and Chapter 4). A small assemblage of struck quartz was recovered throughout this deposit (see 6.8.4.5 below).

Layer P1007 was capped by a further layer of sand-silt (P1005) which lay directly beneath the turf across much of the trench (P1001/P1018). A single sherd of Medieval Red Ware (SF P1016) was recovered from it (see 6.8.4.1 below). At the north-eastern end of the trench, a boundary wall (P1006) had been built to demarcate the limits of the churchyard. This wall backed onto a cobbled trackway (P1003), which comprised at least two phases of stonework. The lower of these layers (P1008) respected the boundary wall and is likely to have been laid some time before 1769;

Wall P1006 appears on Farquharson's plan of 1769 (Illus 6.24). The final recognisable event in the trench relates to Mound P1002, which was deposited over the modern turf layer and is therefore late in date (see 6.8.5 below).

6.8.4 Finds

6.8.4.1 Ceramics

Robert S Will

Eleven ceramic sherds were recovered from Trench 1. Six (SFs P1021–2 & P1024–7) were from undecorated white earthenware vessels recovered from the cobbled Track P1008. The rest came from overburden deposits, with the exception of a single badly-abraded body-sherd of Medieval Red Ware (SF P1016) from Layer P1005.

6.8.4.2 Glass

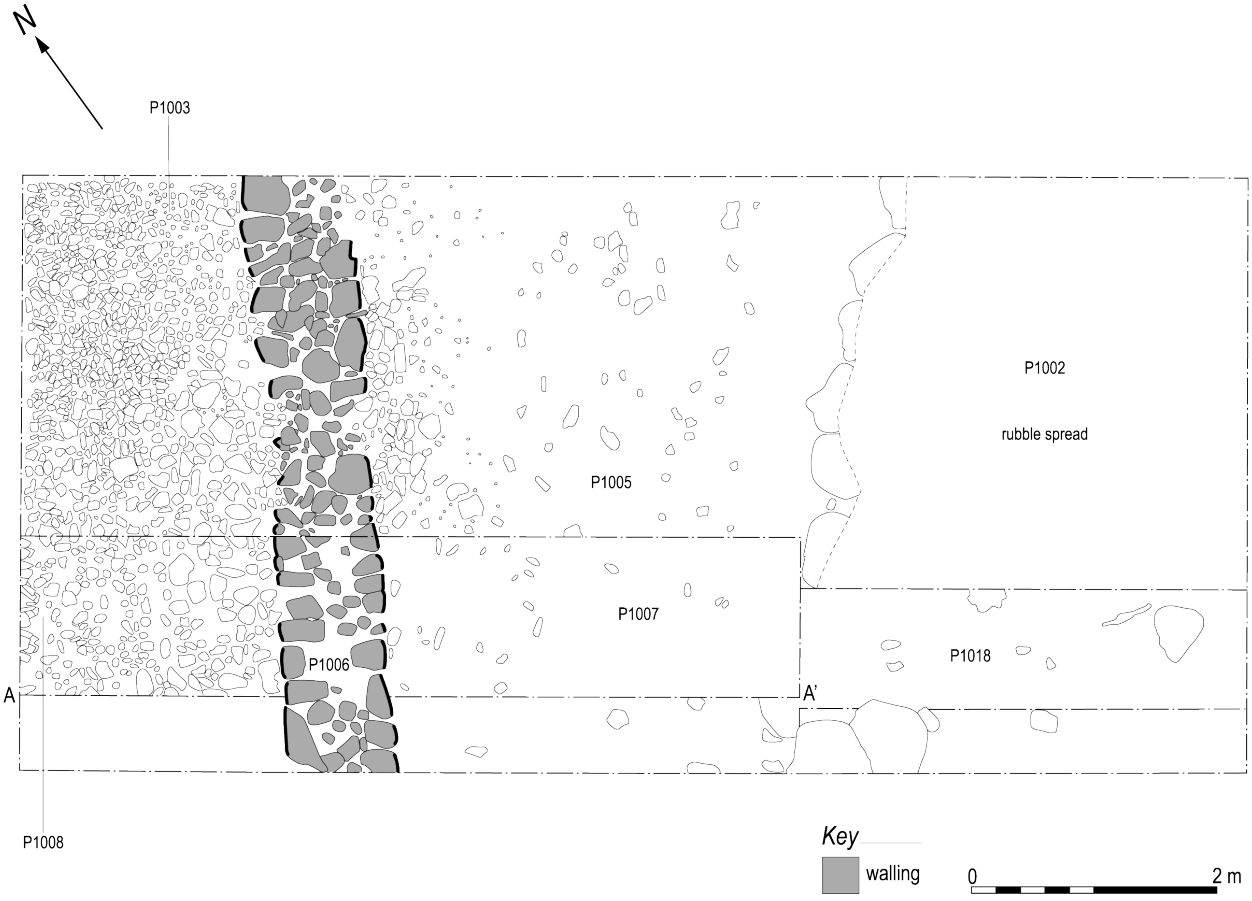
Robin K Murdoch

A single fragment of pale-green bottle-glass (SF P1019) was recovered from Layer P1008. It is late 19th- or early 20th-century in date and likely to be intrusive.

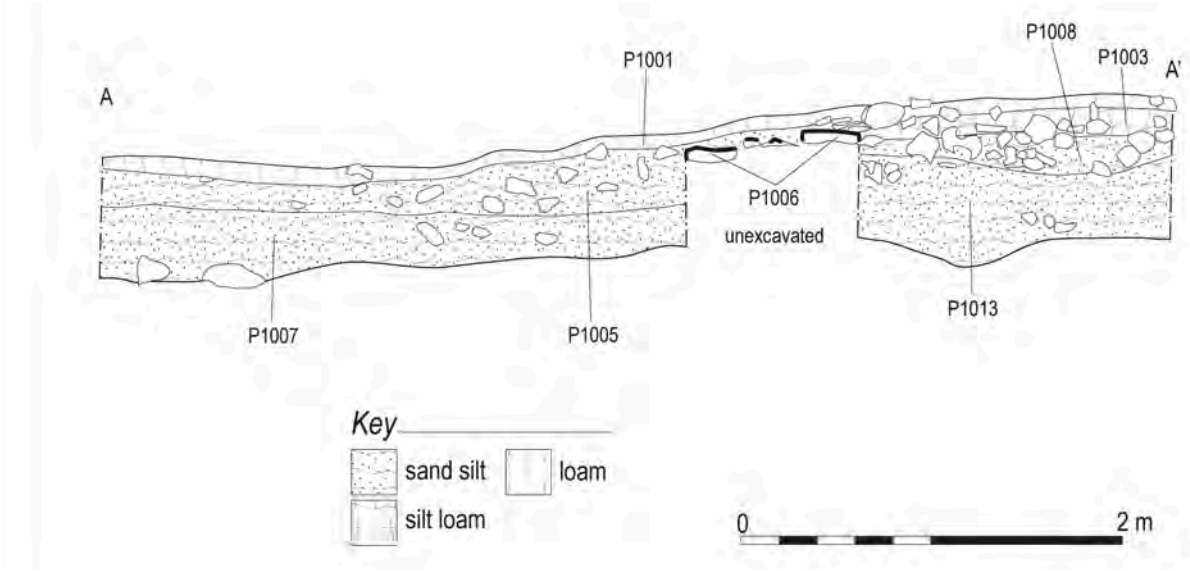
6.8.4.3 Industrial Waste

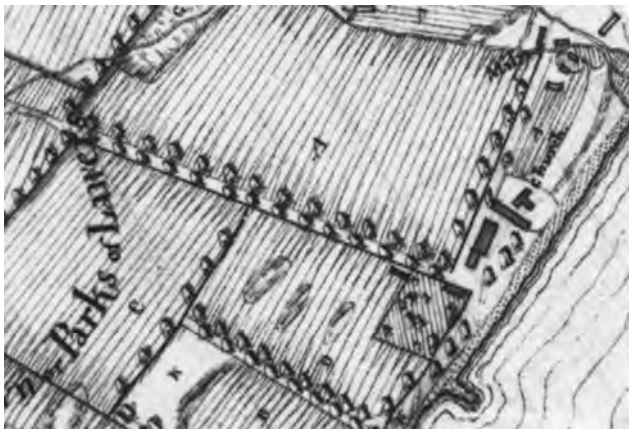
Effie Photos-Jones

Twelve fragments of industrial waste were recovered during the excavation of Trench P1 and one of these was analysed. Sample SF P1031 from Context P1007 is most likely a fragment of metallurgical ceramic. The bright, round inclusions within the SEM images (Illus 6.25) are iron sulphides and occasionally iron with phosphorus. This sample bears a resemblance to the Balnahanaid metallurgical ceramics (see Chapter 4).



Illus 6.22 P1 excavation-plan





(Above) Illus 6.23 Section through P1 make-up layers

(Left) Illus 6.24 Wall P1006 to the west of church shown on Farquharson's plan of 1769

6.8.4.4 Coin

J D Bateson

A single coin (SF P1008) was recovered from Layer P1007. Much of its surface is corroded and virtually no detail is now visible. However, it may be one of the copper farthing issues of James III, possibly the type with a large trefoil and three lys and mullet on the obverse and a cross and crowns and mullet on the reverse with the inscription MONE[TA] PAVP[ERUM]. There is still some uncertainty on the date of issue of such farthings, but a date in the 1480s is not unlikely.

6.8.4.5 Lithics

Michael Donnelly

This assemblage consisted entirely of relatively-large pieces of quartz, many of which seemed to have been worked. These include a probable bipolar core of rock quartz (SF P1149) and a possible large flake tool (SF P1150). The remaining six examples consist of a mixture of regular and irregular flakes and a single blade-like flake.

6.8.5 Interpretation

The evidence recovered from Trench P1 was limited, although a number of issues were clarified in relation to the church and its immediate vicinity to the north-west. The mound P1002, originally thought to represent a structure, was revealed to be an amorphous linear pile of stones. Study of old photographs of the church provided evidence that this mound had appeared since the mid 1960s (pers comm A Morrison) and probably represents collapsed rubble from the church's interior, which had been moved outside at some stage. Much of the trench was devoid of features, but the Wall P1006 almost certainly is that shown on Farquharson's plan of 1769 as demarcating the northern extent of the church compound. The cobbled trackway along its exterior may also be contemporary, but could be considerably older. The white earthenware sherds

and fragment of glass are likely to represent 19th-century deposition. Little other dating evidence was recovered, although the discovery of a coin from the 1480s from a basal layer in the sequence may suggest that the tongue of land on which the church sits was modified after this date.

There is certainly strong evidence in the Breadalbane papers to suggest that the church of Lawers was built in 1669 and subsequently altered on a number of occasions. This evidence is supported by the standing remains of the fabric of the church, which suggest a post-Reformation construction-date (Atkinson & Hooper 1999). A strong case can also be made for the house of Lawers, based on the physical and documentary accounts of this building. It seems probable that the central section of the range of buildings to the south-west of the church is indeed the remains of the first house of Lawers, destroyed during Montrose's campaign in the Highlands in 1645. This would suggest that the substantial remains closest to the church were built some time after that date.

It is worth noting that the new house of Lawers did not follow the same design as the old and was not built as a tower-house. Instead, the building adopted the new style of the late 17th century and was built as a horizontal range, with large rooms and big windows which increased light, space and comfort. Cruden's assessment (1963: 152) that between 1630 and 1677 the tower-house played itself out certainly seems accurate in this case.

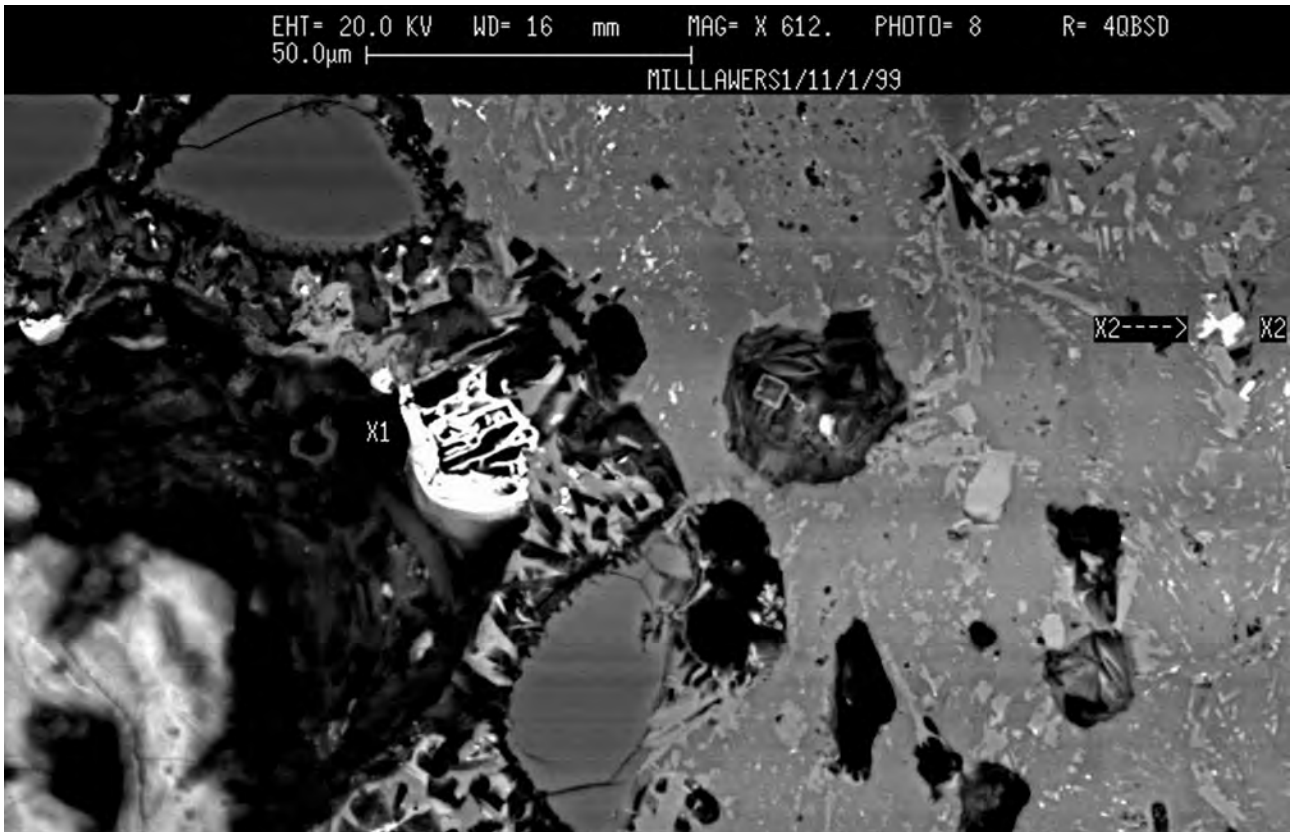
6.9 SUMMARY AND CONCLUSIONS

Of the three lordly sites investigated as part of the Ben Lawers Project, the results from Carwhin were by far the most tantalising. This is principally due to our ability to expend excavation resources on the building itself. Unfortunately, this was not the case at Lawers or Edramucky, where understanding of the buildings was limited to field observations and linking these to John Harrison's excellent work on the Breadalbane Muniments. That said, the results as a whole cast a brighter light on the form and date of the manor-houses along the northern shores of Loch Tay and permit a clearer understanding of the role of the local lairds before and during the rise of the Campbell hegemony.

The results from the fieldwork at Edramucky and Lawers suggest that at both locations a tower-house was the probable original form of the dwelling, whereas at Carwhin the form is less clear. In all three cases the fragmentary remains surviving are a handicap to interpreting the original form of these structures, but the evidence from elsewhere permits a limited interpretation to be achieved. Lawers was certainly built before 1513 and perhaps as early as the last quarter of the 15th century. An earlier date would make sense, considering that 'from 1480 or thereabouts until after the Scottish Reformation of 1560 few tower houses of consequence were built' in Scotland (Cruden 1963: 144). The surviving portion of the Lawers tower appears to have had an internal area of around 16m^2, which is small in comparison to many lowland examples of the 15th century (for example Elphinstone has an internal floor area of 25m^2). Examples of comparable towers with small internal areas are, however, known for the period at Little Cumbrae and Law (South Lanarkshire) and Fairlie and Skelmorlie (North Ayrshire). It is therefore quite conceivable that the surviving portion of Lawers tower is indeed all that once stood here. Following its partial destruction in 1645 the new house was built as a range with a symmetrical facade, appended to the old tower. This adherence to symmetry is characteristic of the later 17th century, although it properly belongs to the 18th century in lesser Scottish houses (Beaton 1997: 65).

Edramucky house reflects a slightly different set of circumstances. Its construction between 1596 and 1606 is well documented, but the ephemeral nature of the surviving remains hinders clarification of its form. Construction of a manor-house at the end of the 16th century may have necessitated the building of a tower-house, although this is by no means certain. The period from 1570 to 1620 witnessed the last great tower-house-building movement, influenced by the Renaissance period and the architecture of the Low Countries (Cruden 1963: 151). As such, the tower of Edramucky may well have been built as an L-shape with additional architectural features of the period, although this cannot be proven without excavation.

The date of construction and occupation of the house of Carwhin is the subject of debate, even though this building was partially excavated. A case can be made for its occupation between the mid



Illus 6.25 SEM-EDAX image of sample P1031

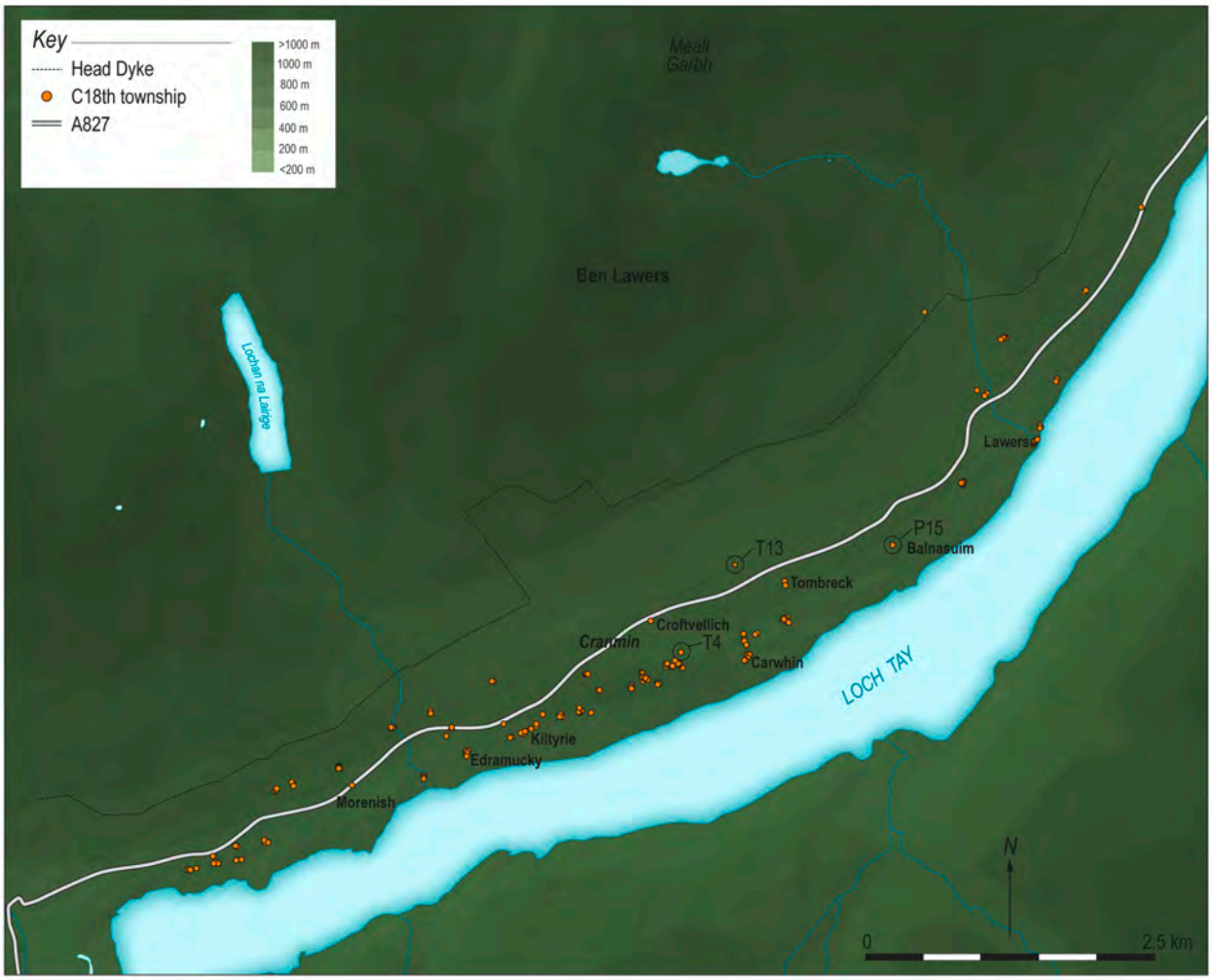
15th and the beginning of the 18th century, based on historical references and a single radiocarbon date. This evidence, however, needs to be tempered by the realisation that the material dated may have been residual and the first reference to the house does not occur until 1664. This last point is further supported by Harrison's difficulties with the early documentary evidence (see 6.1.2). On more solid ground, the presence of a fireplace in the ground-floor gable would seem to negate the presence of a tower-house (see above). The presence of a fireplace within the gable is more common in houses of the later 17th century, when elongated symmetrical dwellings were beginning to take precedence over tower-houses. The remains of plaster on the walls may also support a later date for the house, as plaster walls and ceilings gained popularity in the early 17th century (Beaton 1997: 56).

7. POST-MEDIEVAL LOCH TAY: OCCUPYING THE INFIELDS

This chapter focuses principally on the archaeological results from the excavations of Buildings P15 (Balnasuim), T4 (Croftvellich) and T30 (Easter Tombreck) (Illus 7.1). These results are placed in context by a review of the historical evidence for each township and, to a degree, its role within each land-division (see 7.1 below). Balnasuim and Easter Tombreck lay within Crannich, while Croftvellich was part of Carwhin. The three sites discussed below all appeared on Farquharson's plan of north Loch Tayside in 1769 and represent elements of the 18th-century settlement-pattern along the north shore of the loch. Boyle's assessment of the RCAHMS survey of north Loch Tayside in advance of the Ben Lawers Project indicated that 65 of the 108 settlement-clusters (Illus 7.2) were mapped by Farquharson and at least 46 still retain similar ground-plans (2003: 19). This was certainly the case for Balnasuim, Croftvellich and Easter Tombreck, though in each case the settlements had altered considerably by the time they were mapped by the Ordnance Survey in 1867.

It is worth noting that in each settlement the individual buildings (P15, T4 & T30) were chosen for excavation as surviving elements of the pre-19th-century settlement in the infields, where much of the above-ground fabric had been robbed-out, although surface traces were still visible. In the case of P15 this consisted of a revetted platform; T4 had turf-and-stone banks; and a single stone foundation-layer represented T30. Identifying other buildings and sites mapped in 1769 was less straightforward, particularly where no surface traces were noted. Trial-trench campaigns following geophysical surveys of 1769 settlement locations, at Balnahanaid in 1998 and at Shenlarich in April 2005, provided little evidence of the sites or buildings targeted (Atkinson et al 1999: 47–75; 2005b: 17; Watters 2005). Although occasional negative cut features were found in the eastern trenches at Balnahanaid (P19–P23), the key discoveries were prehistoric and early medieval in date and came from the western field (see Chapters 2 & 4). Shenlarich was completely

Illus 7.1 Excavation of P15 in 1998



Illus 7.2 Distribution of 18th-century townships

devoid of features, even though it appeared to be a good candidate. Geophysical results combined with physical association and mapping evidence all seemed to indicate that the location was correct, but ground-truthing did not support this view.

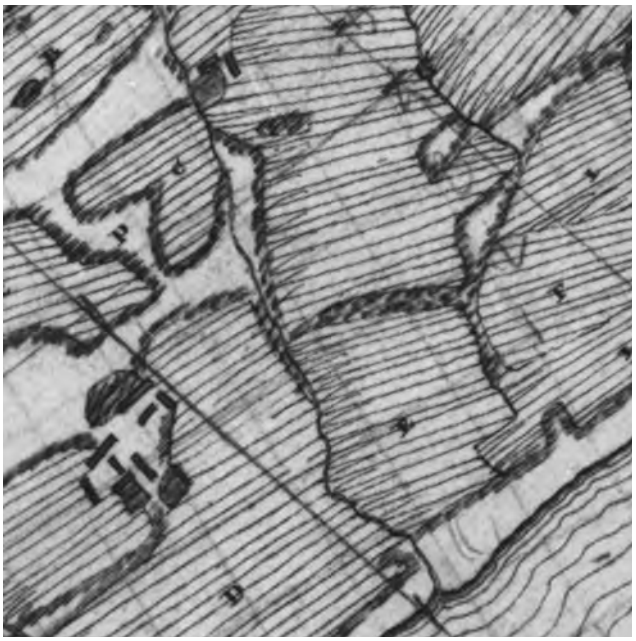
Inevitably, the form of buildings P15, T4 and T30 differed considerably from the more regular layouts encountered during the excavation of the 19th-century buildings (see Chapter 8). Some similarities were evident, however, particularly in Building P15. It is also notable that the buildings discussed in this chapter exhibited no consistency in form between them; even their construction techniques seemed to differ. The reasons for this are pursued further at the end of the chapter, as are the issues of dating sites which were occupied prior to the great influx of mass-produced goods at the end of the 18th century (Atkinson 2010).

7.1 CHRONICLING THE INFIELD SETTLEMENTS

John G Harrison

7.1.1 Balnasuim

Balnasuim in Crannich, like most settlements in the area, was already in existence when the documentary record starts in the early 17th century. It was a 2½-merkland and contained an alehouse until the 1640s. Tenant numbers fluctuated, but six or more were frequently noted up to the re-division of 1797. Tenant lists often indicate three clusters, roughly a 12s land, a 13s land and an 8s 4d land. Farquharson's plan suggests that Balnasuim comprised four or five settlement-clusters (Illus 7.3), though the documents do not differentiate these sites prior to the late 1790s, when some of the petitions vaguely describe the locations of lots. The clusters noted by Farquharson are not distinguished by name, and



Illus 7.3 Farquharson's plan of Balnasuim infields in 1769

therefore precise correlations between documents and particular locations are problematic. The two easterly sites were amalgamated into Croftintygan by the time of the post-1910 IRS Survey.

The first known record is from 1618, when the tenants of Balnasuim were charged with failure to deliver the laird's thack (thatch) to Finlarig (NRS GD112/17/4 f180v). A rental of 1621 divides the tenants into two clusters, which paid 7½ bolls meal and 8½ bolls bere per cluster – a high ratio, indicative of relative fertility. The cash element in the rent was modest. The tacks suggest that there were additional payments of wethers (castrated male sheep) and a contribution to a black mart (a cow or bullock payable intermittently from the whole of Crannich). All the tenants were given a discount on the rent for 'the evilness of the year' (crop 1621), as were others across the area; nonetheless, there were still outstanding sums owed in late 1623, when a new account was begun.

By 1636 (NRS GD112/9/5/5/6) only three tenants are named: Donald McEwan McIllechrist and Patrick Rioch McNeiten (both noted in 1621) and Callum McEwan McKermit; the meal rent was slightly increased to almost 18 bolls and the bere reduced to 6½ bolls, but the cash element was by far the biggest component of the rent, at £233. However, the rent was not divided according to the ratio of the tenants' merkland holdings – 8s 4d: 13s: 12s. The discrepancies are probably due to grassums and entry-money, special discounts and commutation of some grain payments to cash. Two years later the same tenants are recorded but the rent ratios are changed again and there is further evidence of complex discounts (NRS GD112/80/1/5). McKermit was given a new tack for five years in 1638 and McNeiten in 1641, their holdings assessed as a 12s and a 13s land respectively (NRS GD112/10/7 f209v); McNeiten's was reduced to 12s 8d in 1650, when McKermit's unit was an 8s 4d land. The rents were reduced in these tacks to reflect the lack of finance following 'the burning' by Montrose's troops (NRS GD112/10/7 f299r & f295v). In 1655 four tenancies are identified (NRS GD112/9/17); two units were assessed at 8s 4d, one at 4s 2d and one at 12s 8d (for Patrick Rioch McNeiten and Katherine his daughter).

In 1666 there were three clusters of tenants (totalling seven names) holding roughly equal shares (NRS GD112/9/17), with minor changes in 1671 and 1674 (NRS GD112/9/24). Patrick Rioch McNiter was still there in 1666. By 1678 Balnasuim was amongst lands wadset to Colin Campbell of Carwhin (NRS GD112/9/24). Only parts are recorded in the rentals to the end of the century (NRS GD112/9/26 p276; GD112/9/33 p45; GD112/9/33).

The rental for 1702 shows four tenancies, held by John McCallum, John Gailich's widow, Patrick McNucator and Hugh and Finlay McDiarmid (NRS GD112/9/36), and in 1704 tacks were granted to Patrick McInugator (12s land), Hugh McKermid (8s land), Jon McCallum (6s land) and Donald Bane (6s land) (NRS GD112/10/7 f411). Their total holding (32s) was slightly less than the nominal 2½ merks (33s 4d). The rent was 16 bolls bere, 10 bolls meal and £24 Scots for the converted meal. They also had to pay £4 12 6d for their proportion of the grass of Rialdt and yearly, between midsummer and Lammas, to pay four quarters of butter, each of 12lb, 16 chickens, part of a black mart, 7 pecks 2 lippies of horse corn, and 80 bottles of straw and hay. They had to deliver 50 loads of peats to Finlarig, pay public burdens, perform services and so on, and they were required to leave biggings (buildings) sufficient as they found them and the lands sufficiently manured.

There are few records in the following decades. By

1767–8 enclosure was under way at Balnasuim, as elsewhere across the area (NRS GD112/9/50). The census of *c* 1769 indicates a total adult population of 44 (NRS GD112/16/13/1 item 2: 4–7), and the possessors at this time were Patrick McLaren, Patrick McPhail, Patrick Campbell, Hugh McEwan, Donald Crerar and Donald Cameron (McArthur 1936: 36). It is not until the early 1790s that the evidence from petitions begins to illuminate the story of Balnasuim further. Duncan Stewart was a birlayman (arbiter of parish disputes) in 1789 (NRS GD112/1/779), and in 1793 he said that he had been a tenant for 32 years. His holding was in the north-western part of Balnasuim and he thought his biggings in particularly good order. In 1800 Duncan Stewart was reported to have further improved his holding by clearing stones (NRS GD 112/12/1/2/2). He had a large family, some of whom lived with him. His son John had a cot-house, which he held from his father. He asked for the lot adjacent to his father's on the west, in the easternmost part of Cragganester, below the public road (NRS GD112/11/5/2/33). It follows that Stewart's lot must have been in the western part of Balnasuim, perhaps around Balnasuim Farm.

In December 1793 Patrick McEwan held a croft which the tenant was obliged to sow, harrow and dung; he also worked as a cowan or dry-stone builder (NRS GD112/11/3/3/64). During the 30 years of his tenure he claimed to have improved his steadings by building (NRS GD112/11/4/2/68); his holding was in the upper west portion of Balnasuim, so perhaps he held it from Duncan Stewart. John McLaren also petitioned (1791), but this was a simple plea for charity. He was a native of Breadalbane, had worked as a cooper and sawyer, was aged and poor and his wife was also an invalid. He asked for an annual grant of meal, but his fate is unclear (NRS GD112/11/2/3/91).

Patrick Campbell or McPhail was a tenant of one-twelfth of Balnasuim in August 1796, adjacent to Croftintygan. He was elderly and had a large family, his difficulties exacerbated by the absence of one son in the fencibles (local troops) and the fact that his daughter and her children lived with him. A son also lived with him and ran the farm. A son-in-law, Malcolm McNaughton, held half the farm also, but feared that he would be dispossessed, as his father-in-law intended to take over the whole farm. McNaughton asked for a lot of land in Tomochrocher, Morenish (NRS GD112/11/5/3/124). Duncan Campbell was also a tenant in Balnasuim and petitioned once in November 1797. He asked for the lot designed to replicate his present steading (NRS GD112/11/5/3/40).

By the time of the 1812 rental, six tenants were noted – one paying £8 10s, three paying £13, one paying £15 and one £16. There were three McLarens, a Campbell and a Stewart, all of them possibly related to the tenants of the 1790s (NRS GD112/14/2/1). Rents were still rising to cover the capital costs of improvements by 1814–15 (NRS GD112/14/2/1/4). By the time of the 1841 census there were ten households and 45 inhabitants, and in 1851 ten households were still present, one headed by a shepherd, two by labourers and there was a single cottar and a single woman receiving parish relief. In 1855–6 there were just three tenants, Peter McPhail, Donald McNaughton and Archibald McLaren, paying £48, £50 and £52 respectively (NRS VR113/1). That was still the situation in 1862, when the rent for all three was regarded as half for the arable and half for the grazing (NRS GD112/14/5/14).

There were still six households noted in 1871 and five in the 1881 census and valuation rolls (NRS VR113/16: 184; VR113/26: 232). By 1891 a decisive change had occurred; only three households and two tenants were present (NRS VR113/37: 285ff). The overall rent had fallen from £140 to £104, and Janet and Angus McLaren now controlled two thirds of the assets. That situation is clarified in 1901, with Angus McLaren as the sole tenant of two units still recognised as distinct (NRS VR113/46: 299). Janet McLaren was his widowed mother, he was a single man aged 40 and the household was completed by his two sisters and James Henderson, the ploughman.

7.1.2 Croftvellich

Croftvellich, along with other parts of Carwhin, was integrated into the Breadalbane estate following its acquisition from Campbell of Lawers in *c* 1672. At this point the 2-merkland of Croftvellich was leased jointly to Donald McAndrew, Jon McCaul, Duncan McNab and Lauren McAvoir

(NRS GD112/9/24). In 1678 John McCaal, Patrick McNab and 'the widow' occupied half of Croftvellich (NRS GD112/999/24). Four years later, the tenants were Donald McIlligarvie, Donald Miller, Lauren McLauren and [illegible], who all had half a merkland and paid £53 6s 8d Scots rent plus £10 6s 8d of public dues, with one firlot and one peck of corn jointly per annum with five reek hens (NRS GD112/9/24) – traditionally levied at the rate of one per smoking lum or household.

In 1683 the tenants were Donald Glass McWillie, Donald Miller and Lauren McLawren (NRS GD112/9/5/6/2), and in 1687 a tack of Croftvellich for five years was granted to Duncan McGibbon and Donald Miller equally (NRS GD112/10/9: 161). They were both given a sum of 'strenth silver' – a modest sum of liquid capital due for repayment at the end of the lease. This group of records, spanning less than 20 years, shows something of the rapid turnover in formal tenancies across the area and reflects the instability and insecurity of the tenantry at this time.

The information for the next 60 years or so is sparse, but a rental of 1754 (NRS GD112/9/49) puts Croftvellich in context with the rest of Carwhin (see Table 7.1). Souming data provides another comparative glance across the period (see Table 7.2). Around 1765–7 the estate paid for building dykes in Carwhin, Crannich and specifically Croftvellich (NRS GD112/15/392/47–53); these may have been wood-dykes, though some march-dykes were also built. In 1769 the tenants of Croftvellich were Jon McIllihuas, Alexander McAll and Duncan Stewart (McArthur 1936: 29). Ten years later Malcolm McDiarmid, tenant in Croftvellich (lately in Cragganester), petitioned for the value of his crop, exchanged with John McIlhuaish in Croftvellich (NRS GD112/11/1/2/59). In 1781 the tenants are given as Malcolm McDiarmid, Donald McDiarmid and Alexander McCaill, each paying the same rent; they would all feature in the records of the next 20 years (NRS GD112/9/54). There must also have been at least one crofter, as Duncan Campbell, a young man in 1793, said that when he was a child his parents had had 'a considerable pendicle' with three cows, a horse and two soums of sheep in Croftvellich, though the family had left when his father died (NRS GD112/11/3/3/50). Malcolm McDiarmid also refers to a croft (probably occupied by John McIllhauish) in 1779, when McDiarmid himself was a tenant (NRS GD112/11/1/2/59).

Problems associated with perceived over-population had been voiced increasingly since the late 1760s (Harrison 2003; 2005a). The first wave of evictions came in 1785, and among those who were persuaded to renounce their tenancies were Donald and Malcolm McDiarmid and Alexander McCaill in Croftvellich, who all agreed to remove by the following Whitsunday. These threats of removal were part of a widespread attempt to

Table 7.1: Twelve merkland Carwhin bounded on the west by Kiltyrie (Rental of the Earl of Breadalbane's Estate in Perthshire for crop and year 1754 founded on the Great Rental 1738 and containing the alterations since that time – meal and bere are given to the nearest half boll)

Merks	Land	Meal	Bere	Money (Scots)
1	Craignaha	3	3	£40 19s
1	Margphuil	2	3	£23 7s 4d
1	Margdow	3	3	£24 14s
1	Tomour	3	3	£23 7s 4d
2	Croftvellich	4	4	£30 4s
2	Blarmore of Carwhin			£137 1s 4d
	Miln of Carwhin			£112
	Brew seat of Blarmore			£28
4	Carry			£258 16s
	Total of Carwhin	15	16	£678 9s

Table 7.2: Table of soums of cows (C), horses (H) and sheep (S) by farm and officiary in the 18th century (data is combined from a number of sources – GD112/19/43, GD112/16/13/1/2, GD112/10/1/4, GD112/16/13/1 item 10, GD112/11/4/1/23, GD112/11/4/1/34)

	1727		1769–73			1783			1795
	C	H	C	H	S	C	H	S	S
Cary			48	24	120				160
Ballemore & Croftvellich			43	24	90				
Blaremore									80
Croftvellich									80
Tomour, Margphuil, Margdow & Margnaha			38	28	120				160
Sub Carwhin			129	76	330	145	84	715	480

re-organise many aspects of the estate; this involved the division of run-rig, the abolition of thirlage, the division of hill-pastures, and the re-calculation of souming. Calculations were made of the current and projected holdings for the lots in Carwhin in 1785 (see Table 7.3). A series of petitions covering 1793–7 casts light on the settlement-pattern and the stresses generated by military recruitment and the allocation of new lots across the area. There were two families of McDiarmids, both consisting of a father and two sons, who were long-standing tenants, as was Alexander McCaill. Duncan McCallum was a cottager with a young family. Their stories will be best understood as family narratives. The petitions also mention Donald McIntyre, a crofter. Donald McDiarmid was 80 years old and had been a tenant at Croftvellich for 54 years, according to his petition of 1793. In 1791 he had transferred his tenancy to his eldest son Malcolm, who had assisted him for some 20 years; the two had lived together to save money. Donald's youngest son Patrick had been successful in lawful endeavours and industry, so that he had acquired means sufficient to stock a more extensive possession than his father. Another son, Archibald, seems to have served with Achallader's son in America, while his third son Malcolm wanted land to support himself and his parents – implicitly to continue in Croftvellich. Between 8 April and 25 May 1793, Malcolm and Archibald supplied two recruits between them (NRS GD112/11/2/5/94).

A joint petition from Malcolm and Archibald on 11 December 1797 states that they are tenants in Croftvellich and 'neighbours'. Both asked to be continued in their steadings and to be allocated the two lowermost lots in Croftvellich in preference to Alexander McCaill, the other tenant on the farm. Archibald also petitioned on 20 December 1797 for an exchange with Patrick McPhail in Balnasuim (see 7.1.1 above). Patrick McPhail alias Campbell, tenant in Balnasuim, also wanted the lower lots at Croftvellich (NRS GD112/11/6/2/26). Alexander McDonald or McCaill, tenant in Croftvellich, petitioned in 1797 for the lot where his steading stood (NRS GD112/11/5/2/45). In another petition (NRS GD112/11/6/1/56) he explained that he had held a third part of the small farm of Croftvellich for 42 years. Now that Croftvellich had been divided into lots (three below the road and a small lot of outfield ground), it required proper cultivation and the building of a steading at considerable expense. He was now far advanced in years and weakened by his former labours, and he asked to remain on his present lot and biggings. It was partly to counter this application that Archibald McDiarmid petitioned on 20 December 1797, pointing out that McCaill's mother had become bankrupt and that, though McCaill had three sons fit for military service, he had refused to supply one.

There are three petitions from Duncan McCallum, dated October 1796, November and 21 December 1797 (NRS GD112/11/4/3/40, GD112/11/5/1/41 & 67). In 1796 he said that he had a wife and four children to support and had lived for 16 years with only a small house and garden. He had supplied a recruit jointly with John McLaren in Tomochrocher and Widow McNab in Rhynachulig in 1795. In

Table 7.3: Comparison between current and project souming rates for Carwhin in 1785 (GD112/16/7/3 Item 39 Note of the Souming of the 12 merk land of Carwhin)

Present holding of Carwhin	Cows	Horses	Sheep
Cary	48	24	288
Blarmore & Croftvellich	51	27	240
Tomour, Marghphuil, Margdow & Margnaha	48	17	355
Total	147	68	883

Surveyor's souming	Cows	Horses	Sheep
Cary	48	24	120
Blairmore & Croftvellich	43	24	90
Tomour, Marghphuil, Margdow & Margnaha	38	28	120
Totals	129	76	330

Summary	Soums
Total present souming	459.3
Surveyor's soums	347
Difference	112.3 excess

November 1797 he asked for a lot in Blarmore of Carwhin, while in December he asked for a similar lot in Tomochrocher. There is no indication of what was eventually done.

A report of 6 October 1800 refers to the progress made by Alexander McCaill in Croftvellich in clearing arable, suggesting that he had survived the re-organisation (NRS GD 112/12/1/2/2). By 1802, a report mentions Alexander McCaill and Widow McCaill in Croftvellich, along with others called McCaill, McDiarmid and McIntyre in the general area, but not precisely located to the site (NRS GD112/12/1/2/47). The next time evidence is available is the rental of 1812, which indicates that Donald McGibbon, Widow McGibbon and John MacCuill were all present in Croftvellich (NRS GD112/14/2/1 item 1). The Widow McGibbon and Archibald McGibbon had been allies of Archibald McCaill in 1797 and had been the subject of bitter comments by the McDiarmids, who had lost to them.

A report of 1821 lumps together the occupants of Croftvellich and Blarmore – but the name 'McCail alias McDonald' is a strong indication of the family continuity from the 1790s. Malcolm McDiarmid with his 'high lot' seems to have been moved to the outfields (see Chapter 8), a move which Alexander McCaill had sought to avoid in 1797 (NRS GD112/16/13/4/16). The later history of Croftvellich relies heavily on the census returns and valuation rolls. The 1841 return suggests that there were still three occupied houses at Croftvellich with two farmers and one crofter. John McDonald is presumably the John McDonald or McCail recorded in 1821 and two McDiarmids are still noted, both in households headed by other names (see Table 7.4). In 1845 John McDonald in Croftvellich was allowed £1 12s 6d for damage to his land by carting bark from the wood of Carwhin (NRS GD112/14/5/2).

By 1851 it is the two farmer families which survive (Table 7.5), and the Valuation Roll for 1855–6 shows three 'pendicles' at Croftvellich, the tenants being John McDiarmid (rent £4 5s), Alex McDonald (rent £12 8s) and John McLean (rent £12 6s). By 1861 Croftvellich is no longer listed, but the McDonald and McLean households are entered under Blarmore. The rental for 1862–3 (NRS

Table 7.4: Household data from census return of 1841

Household	Name	Age	Occupation
1	John McDonald	65	Farmer
	Alex McDonald	41	
	Cath McDonald	35	
	Mary McDonald	5	
	John McDonald	3	
	Cath Malcolm	27	
	John McDiarmid	75	
2	John McLean	55	Farmer
	Margaret McLean	45	
	Margaret McLean	15	Farm servant
3	Cath McLean	60	
	John McLean	30	Wright
	Cath McLean	20	
	Cath McDiarmid	5	

Table 7.5: Household data from census return of 1851

Household	Name	Role	Marital status	Age	Occupation
1	John McLean	H	M	69	Farmer, 9 acres
	Margaret McLean	Wife	M	59	
	Margaret McLean	D	S	24	
2	Alex McDonald	H	M	51	Farmer, 9 acres
	Cath McDonald	Wife	M	48	
	Mary McDonald	Daughter	S	15	
	Archibald McDonald	Son		8	Scholar
	Cath McDonald	Daughter		6	Scholar

GD112/14/5/14) indicates McDiarmid, McDonald and McLean, and by 1864–5 the valuation roll shows that one of the pendicles has been taken by Duncan Campbell senior, tenant of Blarmore (rent £4 5s). This was clearly the croft, but the process of assimilation into a larger unit was under way; the other two were still tenanted by McDonald (£13 10s) and McLean (£12 8s) (NRS VR113/10).

The 1870–1 valuation roll identifies two pendicles at Croftvellich, one controlled by Donald Campbell at Blarmore, the other occupied by John McLean's widow (NRS GD113/16: 171). Ten years later Alex McDonald is present and Peter McGibbon is noted as tenant of the other unit. In 1891 Croftvellich looks as though it is approaching its final phase, though Margaret McGibbon's unit still appears in the valuation roll. In 1899–1900, Mrs McGibbon is listed as the tenant of a rented house, while Miss Catherine McDonald occupied a house rent-free. Following legislation in 1910, the Inland Revenue surveyed all landed properties in Scotland. At Croftvellich, a property corresponding to structures C7, C8 and C9 (Atkinson et al 2002: 14) was then occupied by Margaret McGibbon (the younger) for £1 per annum (Table 7.6). She was still there in 1921–2, but abandonment seems to have occurred

Table 7.6: Extract from the 1910 IR survey of Croftvellich (IRS 78/216 property 154; IRS 124/307)

Site number	154
Site name	Croftvellich, Carie by Killin
Description	House and ground
Extent (acres)	1
Rent in V R	£1
Occupier	Mrs Margaret McGibbon
Tenant	Ditto
Proprietor	Marquis of Breadalbane
Duration of tenancy (years)	–

by 1924 (NRS VR113/67: 351–7; VR113/70: 353ff). Local sources suggest Margaret McGibbon then lived in Killin until the 1950s.

7.1.3 Easter Tombreck

Tombreck in Crannich was first noted in the record in August 1615, when Finlay Dow McInstalker was convicted of hitting Margaret NcLauren, his wife, to the effusion of her blood (NRS GD112/17/4 f32v). Easter and Wester Tombreck were distinguished in 1620 in a dispute relating to the occupation of a house in 1615. The first full rental for Crannich covers the victual crop for 1621 and the Midsummer and Martinmas mails and 'cuddeich' (a night's entertainment due by a tenant to his superior) for 1622, and again mentions Easter and Wester Tombreck (NRS GD112/9/22).

In 1616 Finlay McInnes in Crannich pursued John McLauren for payment of two bolls of meal, two stone of cheese and four gallons of ale for down-letting of the house and biggings of Tombreck, last occupied by him (NRS GD112/17/4 f81r). Such entries are common, and the payments in kind indicate the principal produce of the land; they were commuted to cash in the later 17th century. Frequent claims for dilapidations point both to frequent changes of tenancy and to the fairly flimsy nature of the buildings. In 1628 a house at Tombreck seems to have been divided in two by a 'purpill wall' (partition) made of 'burds' (boards) and valued at £8 Scots (NRS GD112/17/6 ff33v, 34r).

The first tack found for Easter Tombreck dates from 1634, when the 20s land of Easter Tombreck was set for life to Finlay McEanroy VcInstalker, paying a rent of £4 4s with a boll of meal, some poultry, presents, and duties of hunting and hosting; but he was to pay £60 entry money, and a periodic grassum of £20 for which he had to provide security (NRS GD112/10/7 f170r). In 1638 Easter Tombreck was occupied by Duncan Campbell, fiar of Lagvinshanach, and was set to Charles Campbell alias McKerlich (the laird's servant) (NRS GD112/10/7 f212r).

By 1679 Easter Tombreck was possessed by Duncan McNaughton's widow, Jon McInnis Duine and William McVurich, and set to them for seven years. Wester Tombreck was also divided between three tenants (NRS GD112/10/9). The rental of 1682–3 shows Duine and McVurrich as tenants in Easter Tombreck, paying a rent of £54 6s 8d plus two wedders, two quarts butter and four reek hens in addition to land-tax and watch-money (NRS GD112/9/30: 107). A final tack, dated 1704, sets Easter Tombreck for five years to Finlay Roy Crerar, Jon Crerar and William McVurich; they were to pay 15s as their share of the grazings of the Rialdt, across the watershed in Glen Lyon. The Crerars were new tenants at this site and the listings confirm that families rarely held the same farm over several generations (Harrison 2005a). The documents suggest that there were usually around three tenants in Easter Tombreck, but they give little hint of the numbers of crofters, cottars and extended family members who might also have been present. We cannot even assume that there was only one house per named tenant. In a census of *c* 1769 the population of Crannich was broken

Table 7.7: Population in Easter and Wester Tombreck in 1769 (GD112/16/13/1 item 2 pp4–7)

	Males		Females		Total
	20+	20-	20+	20-	
Tombreck E & W	11	10	15	11	47

down into males and females of over 20 and under 20; unfortunately the data for Easter and Wester Tombreck were combined (Table 7.7).

In 1785, in one of the first waves of evictions from the estate, Donald Crerar, tenant in Easter Tombreck, was ordered to remove himself and his household the following Whit (NRS GD112/10/1/2 item 39). The souming of 1790 suggests that Easter Tombreck was only a little less well-stocked than Wester Tombreck – 48 soums to 52 soums (NRS GD112/16/13/9 item 11). In the same year Duncan Campbell and Alexander McCaill, both in Tombreck, were paid £17 10s 3½d sterling for building stone walls round the oak-wood of Easter Tombreck, cut in summer 1789; both signed the receipt, fairly legibly (NRS GD112/15/471/40). By 1795 the number of sheep in Easter Tombreck was estimated at 60 (NRS GD112/11/4/1/34), and in 1796–7 the rent had been increased by £6 13s compared with the previous rental to allow for improvements – largely wrought by the tenants themselves (NRS GD112/16/7/4 items 11–13).

In 1797 Duncan Campbell, crofter in Wester Tombreck, explained that before Tombreck was divided it had been possessed by nine tenants and two crofters, one of the crofts belonging to the school and the other to himself; both croft-houses were in the same lot (NRS GD112/11/6/1/70). The schoolhouse and its kailyard had been established in the early 1760s and land for its croft taken equally from Carie and Tombreck. So it must have been in or close to Wester (Upper) Tombreck and, since access for the children was an issue, it would certainly have been on or close to the road (NRS GD112/11/6/1/68). However, this may be misleading, for there were also crofts in Easter Tombreck.

In the early 1790s there were probably three tenancies in Easter Tombreck – the Campbells, Donald McCallum and the McCaills. John Campbell, who had returned from Kilbagie with a family, must have had a house distinct from his mother and brother and they probably divided the land in some way. He then exchanged with Duncan Clark, who was dissatisfied both with his small allocation of land and the buildings. Duncan Clark and his mother still had this unit in 1797. At some time after 1782 the widow Campbell had built herself a cot-house and she had a cow's grazing on the farm (much to Clark's annoyance). Immediately prior to division, the other tenancies were held by Donald McCallum and the McCaills. The new division provided for only two tenancies or lots in Easter Tombreck, an upper one (which corresponded to McCallum's biggings) and a lower, generally considered the better one and for which the Campbells, the McCaills and the McEwans were all in rivalry. It is likely that the Campbells got the lower lot, but later listings do not differentiate in enough detail; the situation is complicated by the creation of outfield settlements in Tombreck as elsewhere.

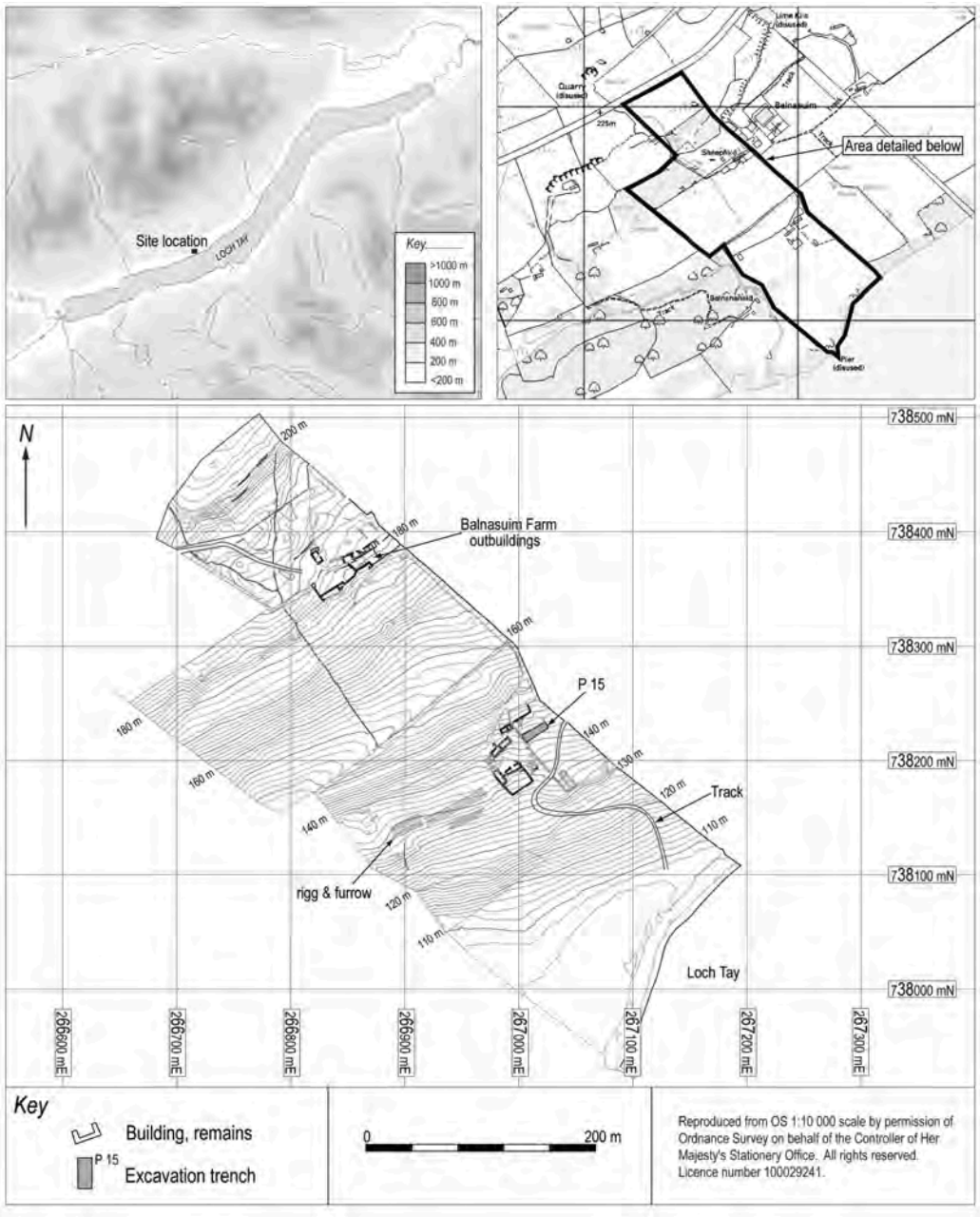
The division of 1797 had created four lots above the road and five below, according to Patrick Brown (NRS GD112/11/5/1/80). Two of these corresponded to the old unit of Easter Tombreck. While a few people can be confidently assigned to the outfield locations (see Chapter 8) and others somewhat less confidently to Wester Tombreck, even the persistence of the Campbells in Easter Tombreck is based more on inference than direct information. Twelve tenants are listed for Tombreck in 1812 and nine in a report of 1821.

In 1821 there were 12 tenants in Tombreck, but by 1841 there were only three households, so clearly there had been a steep decline. Two of the households at Tombreck in 1841 headed by farmers and their units probably correspond to Easter and Wester Tombreck. The other was headed by John Robertson, a wood-keeper. In 1851 there was just one farm at Tombreck but Robertson was still there, now described as a gamekeeper. Duncan McLaren was a farmer in Tombreck in 1861, and Robertson, now described as a ground-officer, was also still present, occupying a house with three rooms with

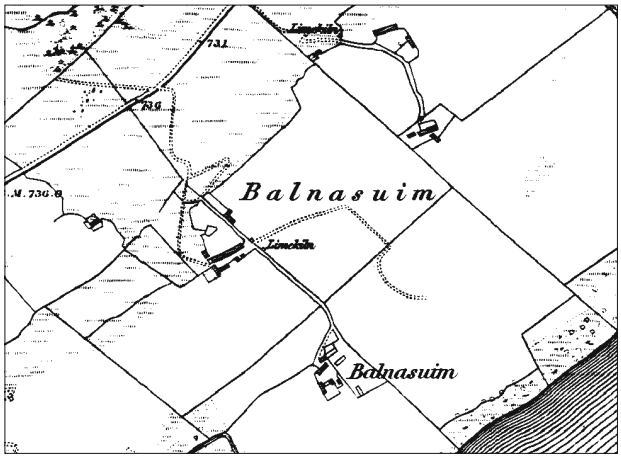
windows. In 1871 there was just the farm. The most likely explanation is that Robertson occupied Easter Tombreck until some time between 1861 and 1871, when the site was abandoned.

7.2 EXCAVATION OF BUILDING P15 AT BALNASUIM

The first longhouse to be fully excavated by the project was at Balnasuim, or what was referred to as Balnasuim township (Atkinson et al 1999), in order to differentiate it from the other clusters within the land-division. The site was located to the SSE of the current farm of Balnasuim (at NGR NN 6702 3822) on a natural terrace at *c* 140m OD above Loch Tay (Illus 7.4). The cluster of buildings that forms the township group is first depicted in detail on Farquharson's map of 1769 (Illus 7.3) and seems to be diagrammatically represented by both Stobie in 1783 and Thomson in 1820. By the time of the Ordnance Survey in 1867, the settlement is specifically named Balnasuim and its eastern buildings (including P15) are all roofless (Illus 7.5).



Illus 7.4 P15 at Balnasuim, location-plan



Illus 7.5 OS survey of Balnasuim in 1867

7.2.1 The Morphology of Balnasuim Township

Balnasuim was composed of upstanding drystone buildings and the footings of buildings. Building P15 was represented prior to excavation by a stone-fronted platform on a south-west/north-east alignment (014). Immediately to the north-west of this, a second platform (020) was noted on the same alignment. Both buildings were shown in 1769. To the south-west are a number of upstanding buildings, including 007 and 011 – both of which have similar alignments to P15 and exhibit splayed window recesses and cruck-slots within their walls. A possible kiln-barn (010) and another possible barn (005), with opposing entrances, are located to the SSE of 007 and aligned perpendicular to it. Another drystone structure (013), with two small rooms with separate entrances in the south-east wall, lies directly behind Building 011. The evidence from the upstanding buildings, notably 007 and 011, strongly suggests that the drystone buildings had glazed windows and that their roofs were supported on timber couples (crucks). It seems likely that the roof-covering would have been thatch or possibly turf.

7.2.2 Excavation Strategy

Platform 014 (Building P15) was selected as the excavation target, as it appeared on the early map evidence and seemed to represent a good candidate for a late 18th-century longhouse. The excavation trench was laid out to encompass the building and the immediate area to the south-west, north-west and north-east. The trench measured 24m long by up to 7.5m wide; this was necessary as the longitudinal dimensions were obscure prior to de-turfing. The excavation followed an open-area strategy combined with seven slots through areas which required a deeper understanding of stratigraphic build-up. Internal baulks were established along the centre of the building and laterally.

7.2.3 Deposits and Stratigraphy

7.2.3.1 P15 – Phasing

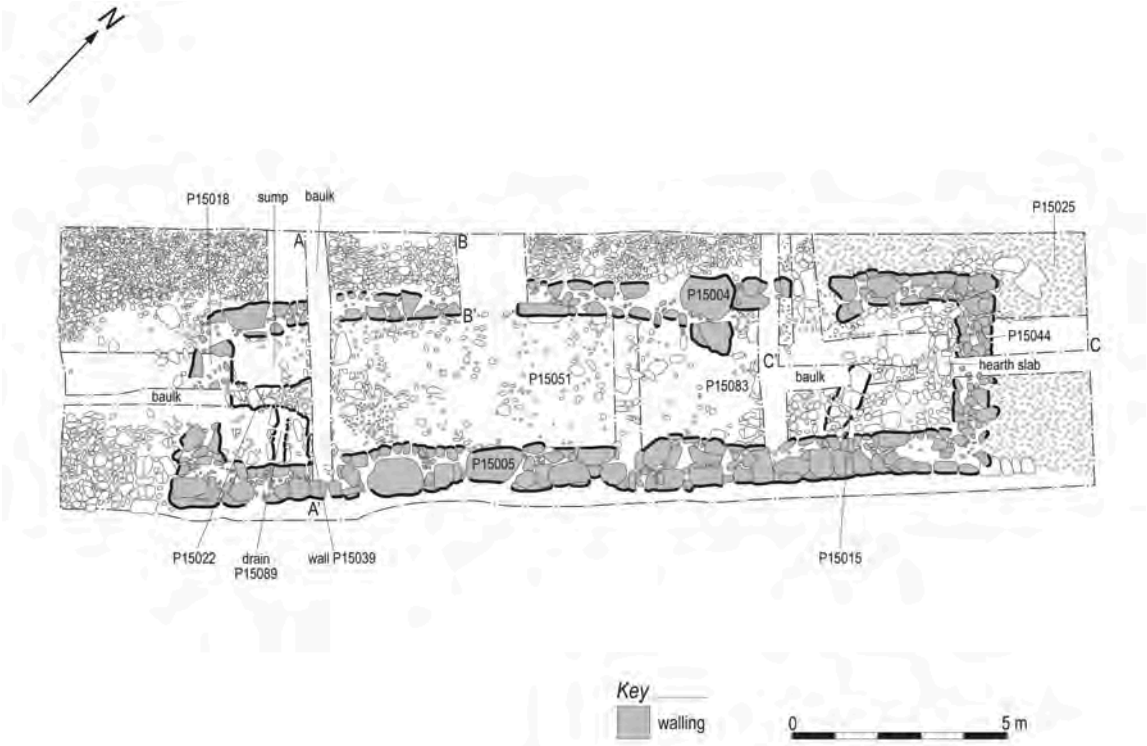
Stratigraphically, P15 exhibited two phases of occupation prior to its abandonment. Although no tangible documentary evidence was found for the development of the site, partial dating of the sequence by artefacts was possible. The timeline presented below suggests a possible chronology:
Phase 1: construction of building, after *c* 1715
Phase 2: abandonment and demolition, before 1864

7.2.3.2 P15 – Sequence

Building P15 was constructed on a south-east-facing platform, which was partly artificial and partly natural. Basal deposits from the interior, particularly along the north-west wall (P15004), lay on natural clay, while areas to the north-east and south-west revealed re-deposited natural layers at their base (P15031 & P15043). This would seem to imply that the slope was cut into in order to create a platform, with quarried material used to extend the terrace laterally.

The primary building was 10.6m long × 3.2m broad internally and defined by four walls (Illus 7.6). The recovery of a base sherd from a large wine bottle (SF P15457) sealed within the core of Wall P15004 (Illus 7.7), close to the foundation-levels, suggests a date of construction for this phase of building of *c* 1715 (see 7.2.4.2 below). At this stage P15 had one centrally-located entrance in the north-west wall (P15004) and was of drystone construction, with a sunken south-western end, which probably acted as a sump. No evidence was recovered of internal partitions, central drains or hearths relating to this phase, although it is likely that this evidence was lost during Phase 2.

The second phase of use saw the structure extended to the north-east by 5m (internally) (Illus



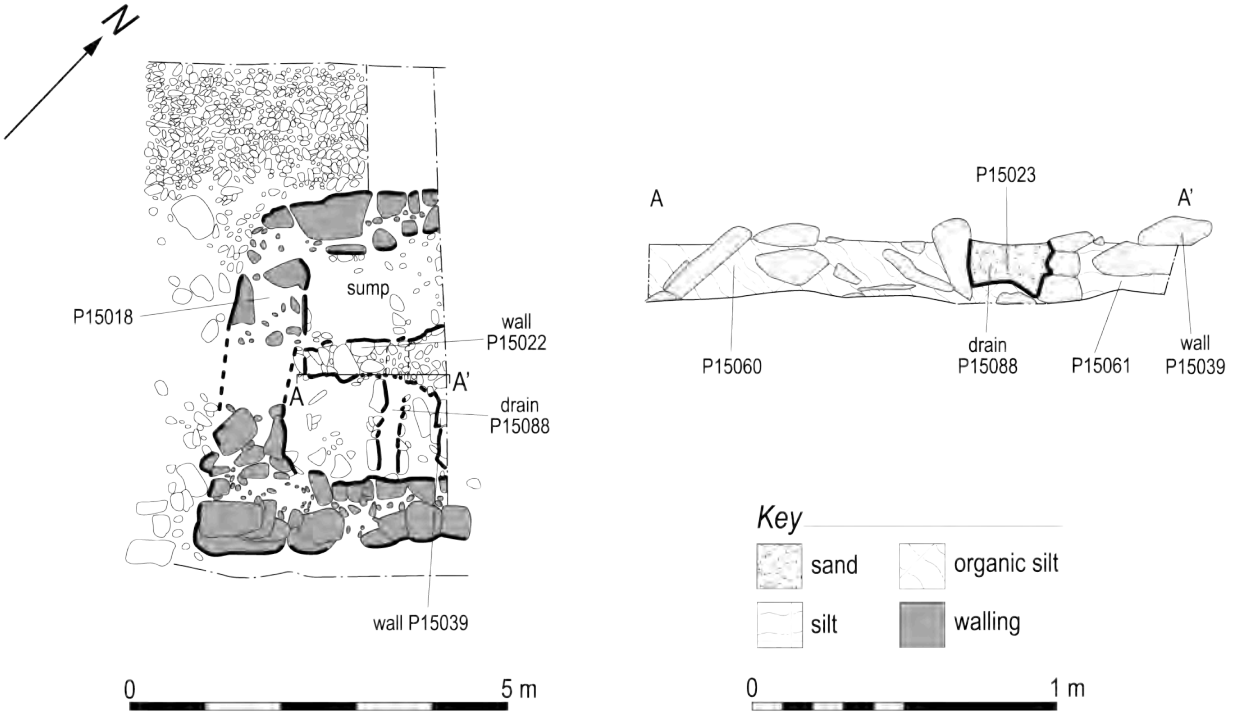
(Above) Illus 7.6 Excavation-plan of P15

(Left) Illus 7.7 SF P15457 in Wall P15004

7.6). This was probably also when most of Gable P15083 was dismantled and a more makeshift partition introduced to separate the byre from the dwelling end of the building. A new entrance was introduced, 12.85m from Gable P15018, which led directly into the dwelling area, evident from the spalled and cracked hearth-stones (P15082) against Gable P15044 (Illus 7.8). Little clear dating evidence was recovered for this phase. A sherd of a lead-glazed redware crock (SF P15526) was found within re-deposited natural Layer P15043 to the east of the Phase 2 gable; however, this is likely to be intrusive, given that the rest of the vessel came from topsoil deposits.

A number of features in the south-west end of the building may relate to Phase 2. These include the construction of walls (P15022 and P15039) and a stone-lined drain (P15089), which seem to represent a small byre area or milking stall, possibly for immature cattle or goats. Notably, the drain clearly ran away from the outside wall and into the building through Culvert P15088 in Wall P15022 (Illus 7.9). This

Illus 7.8 Hearth against Gable P15044

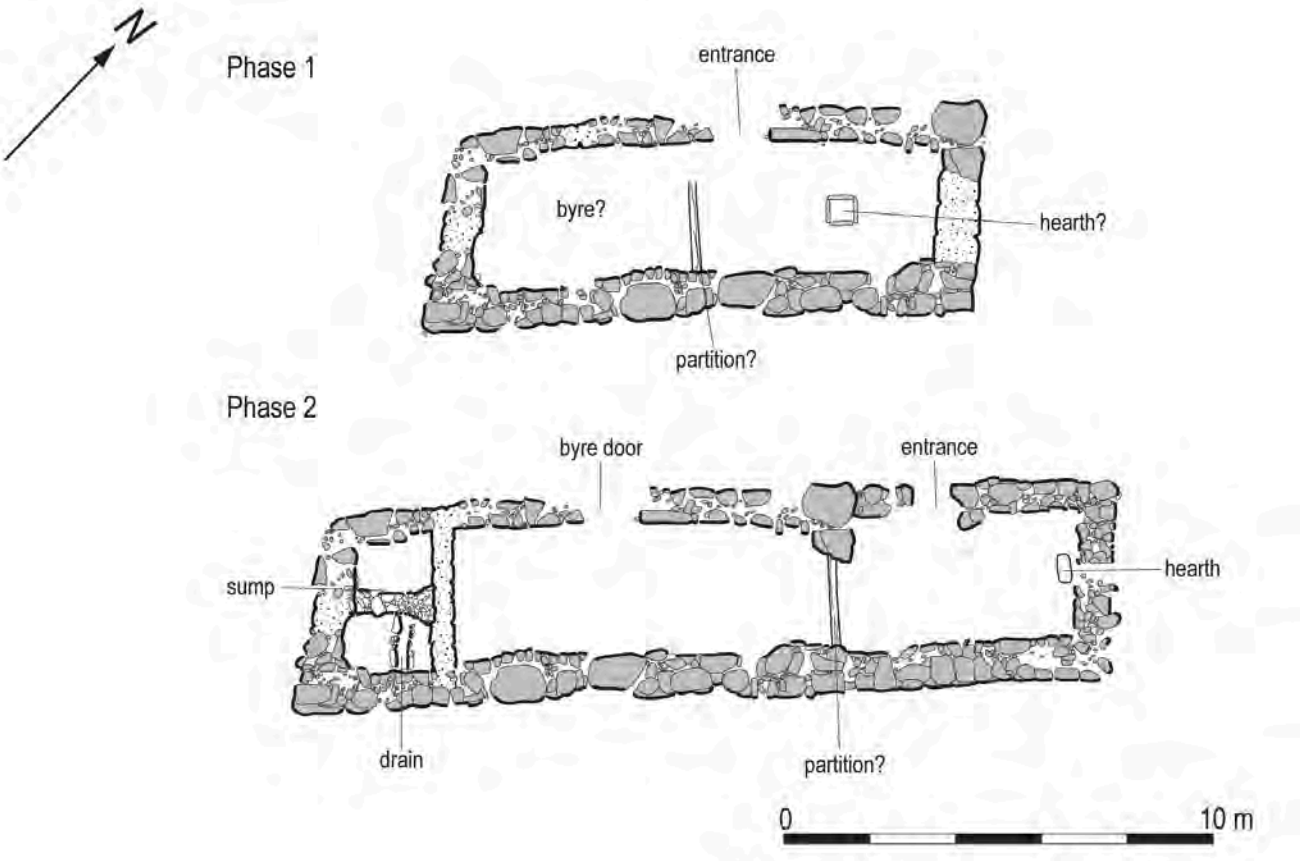


Illus 7.9 P15 detail of byre and sump

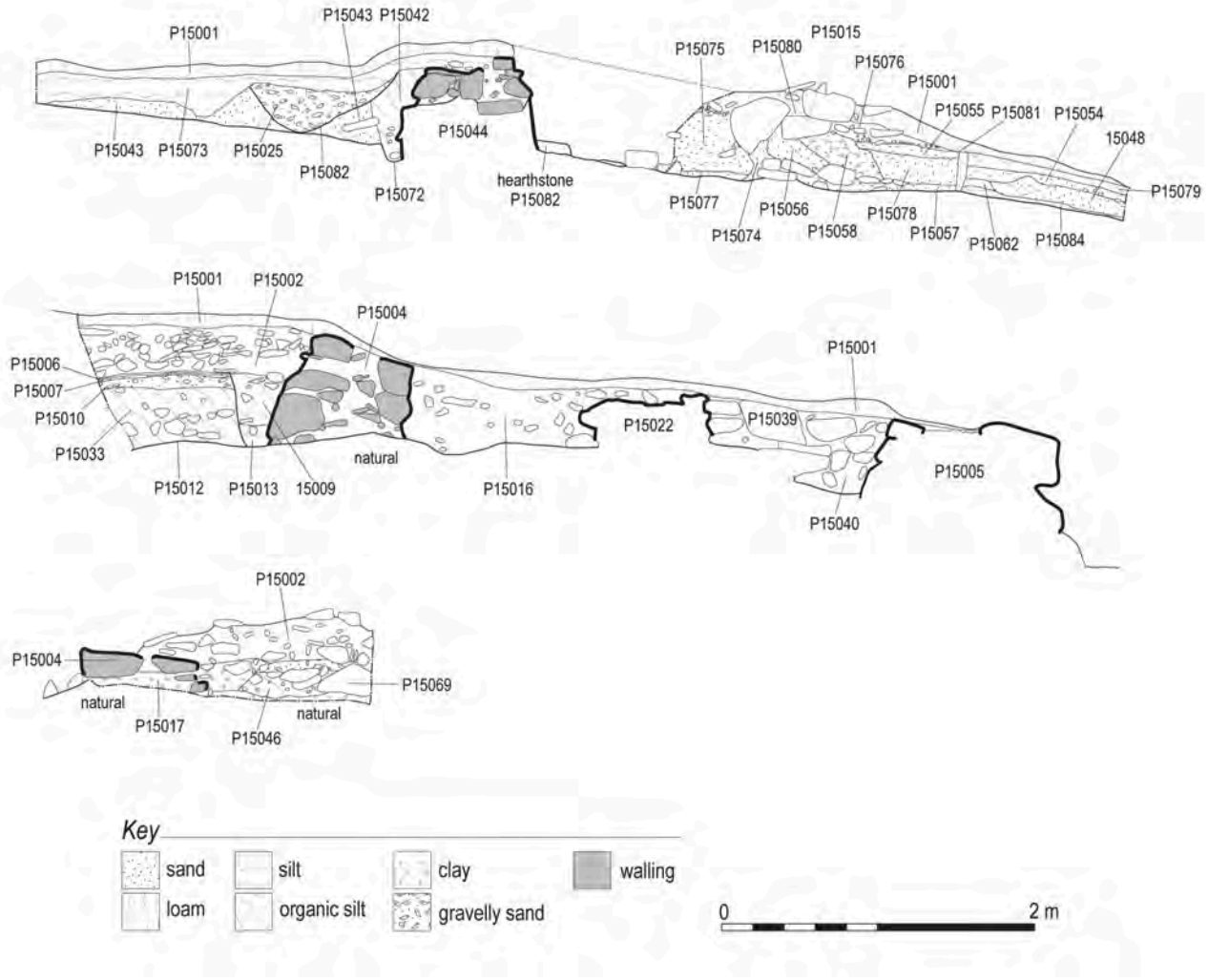
would seem to support the use of the sunken area in the north-west corner as a sump or soakaway.

It was also notable that the floor (P15051) of much of the building had been severely disturbed, leaving no trace of partitions, hearths or a central drain, although occasional patches of cobbling (eg P15036) were noted. The exact reason for this is unclear, but it could be associated with the housing of animals and/or the robbing of stonework on abandonment. Evidence from the north-east end of the building suggests that silting (P15057) of Floor P15085 occurred prior to collapse (P15016) and stone-robbing. Excavation of Layer P15016 revealed fragments of seven ceramic vessels (G, GB, GC, EI, BT, BQ & BM) deposited some time after 1810 and into the 1840s (see 7.2.4.1 below). This evidence is supported by the glass assemblage (see 7.2.4.2 below), which contained a wide range of bottle- and window-glass of the early-to-mid 19th century (see below for further discussion). The robbing of the walls certainly left no evidence for how the building was roofed. However, given there were no slates noted, and bundles of wire were recovered which may have been used to tie thatch (see 7.2.4.3 below), it is probable that the roof was thatched and set on couples.

Evidence of post-abandonment activity in and around the site was also noted. The metalled track (P15002) along the exterior of Wall P15004 appeared to post-date the Phase 1 entrance and wall in places (Illus 7.10). This seems unlikely, as Track P15002 respected the wall elsewhere and the recovery of eight sherds of vessel CAB, a blue transfer-printed bowl or cup (7.2.4.1), suggests the track was in place by the 1820s. Within the north-east end of the building a dyke (P15015) was constructed after the walls of P15 had been removed (Illus 7.11). Although the trackway and dyke respected each other, this event is likely to be late in date. The final event for P15 was the development of a topsoil-and-turf layer and



Illus 7.10 P15 phasing-plan



Illus 7.11 P15 sections through north-west wall and Phase 2 build

the deposition of the majority of finds as discard. Amongst this material was a substantial assemblage of metal artefacts (see 7.2.4.3 below) which, although not closely dated, do offer some interesting insights on the local production of iron artefacts (see 7.2.4.4 below).

7.2.4 Finds

7.2.4.1 Ceramics

George Haggarty & Robert S Will

Of the 814 sherds recovered from the excavation of Building P15, 334 could be confidently associated with a minimum of 28 vessels. The majority of the vessels represented were bowls, which accounted for *c* 61% of the assemblage. Teapots were also common, with at least three present (G, GB & GC), although the sherds grouped together as vessel G may represent two vessels. Other vessels included a large, possibly Frechen, jug (HA), a late Victorian stoneware jar (probably for marmalade) (HB), two redware crocks (I), two plates (JD & KD) and a dairy or washing bowl (IB).

In terms of dating, all the bowls except for two (FL & FN) are closely dated to between 1810 and the 1820s. In contrast, the teapots were certainly produced after 1840 and the stoneware jar (HB) is likely to have been produced between 1870 and 1901. Few of the other vessels were datable. However, the moulded, shell-edged plate (KD) has strong similarities to examples from Portobello

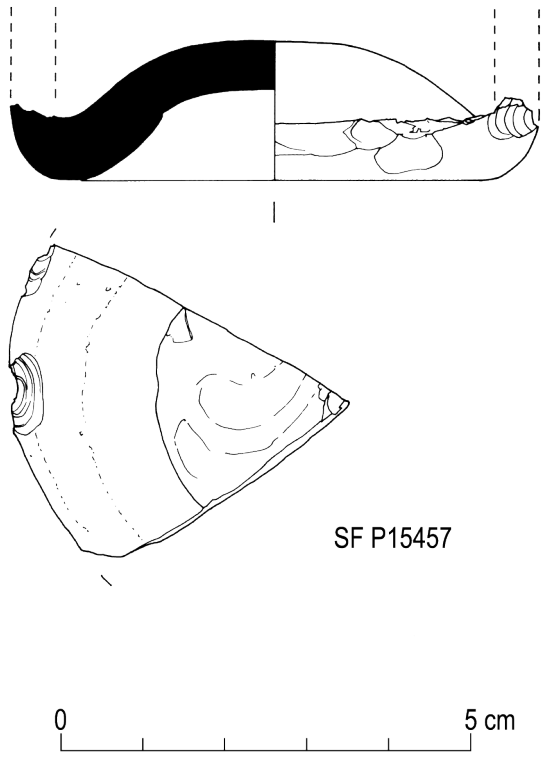
and may also be 1820s in date. A single sherd of Scottish Post Medieval Reduced Ware (SPMRW) was recovered during the backfill of the site. This sherd exhibits knife-marks on its glazed exterior, suggesting that excess clay may have been trimmed off prior to firing.

7.2.4.2 Glass

Robin K Murdoch

In total 682 sherds of glass were recovered from the excavation of P15, the majority from post-abandonment deposits. Context P15001 yielded 219 bottle and vessel sherds and 189 window-glass sherds. Three-piece moulded bottles of the period *c* 1830–80 were much in evidence. Medicine-bottles in pale aqua and pale copper-blue were present, and these probably date to the later 19th or possibly early 20th century. Thirteen vessels (A–M) could be confidently ascribed from the assemblage. Of the window-glass recovered, *c* 85% appeared to be sheet-glass of the period after *c* 1850.

The manufacturing date of the wine-bottle base (Vessel M, SF P15457) sealed in the footings of the Wall P15004 is probably before *c* 1715, but the absence of the bottle's side-wall makes it difficult to be more specific (Illus 7.12). The base-ring had quite significant wear indicating use, possibly for years, before breakage. The two wine-bottle sherds from P15006 and P15014 lack any manufacturing detail but are 18th-century rather than 19th-century in colour, and possibly were manufactured before 1750. The rubble Layer P15016 yielded mainly 19th-century material, though some of the window-glass could be late 18th-century; probable sheet-glass post-dating *c* 1850 is also present. Nineteenth-century material was also recovered from the Rubble Levelling P15035.



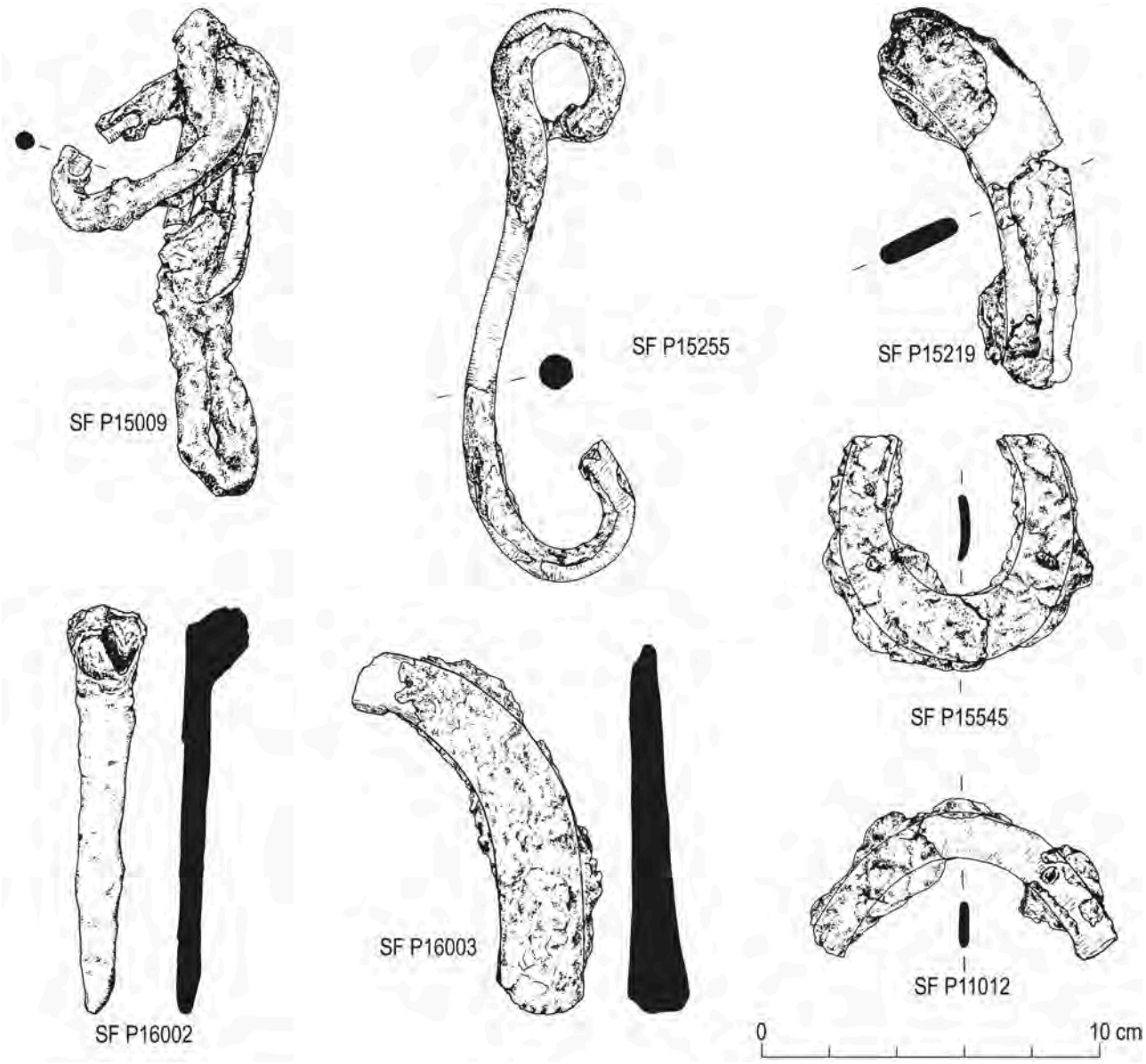
Illus 7.12 Glass find from P15

7.2.4.3 Metalwork

Adrian Cox

A minimum of four horseshoes are represented in this assemblage, with considerable variation in size. SF P15545 is a small, complete horseshoe; as broad as it is long (Illus 7.13), it would have been made for a pony, as would SF 15363. SF P15521 is from a much larger, heavier horse, incorporating heavy calkins, and it originally had eight or nine nail-holes. The fourth shoe (SF P15370) was made for a horse of intermediate size. They are all probably of 18th- or early 19th-century date. The heavier shoe (SF P15521) does not appear to have been made for a draught animal, as such shoes generally had more nail-holes, increasing the bond between shoe and hoof.

The remains of a blade from a horse-drawn drill-hoe or cultivator (SF P15540) were also recovered from P15001. Horse-drawn drill-hoes generally incorporated five or six blades and were used for cultivation between seed-drills (for example turnip-drills). Fragments of a chain (SF P15009), comprising four links of different shape, were also recovered from P15001. Iron chains were used to suspend a variety of objects in a domestic setting, especially to suspend cooking-pots, kettles, water-cisterns, baking-irons and griddles above the hearth. Fenton (1987) describes a long chain suspending a cooking-vessel above a central hearth in a blackhouse at Arnol, Lewis. Surviving examples and contemporary illustrations of pot-chains often incorporate a variety of forms of link, sometimes



Illus 7.13 Iron finds from P15

with circular loops alternating with figure-of-eight shaped or oval links, as in SF P15009 (Illus 7.13).

SF P15368 may represent a heel-fitting from a boot; remnants of the nails that secured it survive in situ. Hooks SF P15255 and SF P15509 (from Layer P15016) may have had a number of domestic or structural uses (Illus 7.13). Other items included a section of pipe or cylinder (SF P15536), plates (SFs P15249 & P15342), rods (SFs P15273 & P15531 from P15043) and bundles of wire (SFs P15546 & P15225), possibly used for fencing or for securing roof thatch. Several strap fragments were also found, including SF P15510 from Layer P15016 and a number from the topsoil (SFs P15544, P15195 & P15191a). The rest of the assemblage is made up of irregular fragments and nails, the majority of which came from topsoil layers (eg SFs P15351, P15348, P15524).

7.2.4.4 The Technical Characterisation of Metal Artefacts

Effie Photos-Jones

A range of iron artefacts from Building P15 were analysed to assess whether they were made locally from local ores or whether they had been imported

as finished products. The section of chain (SF P15009) (Illus 7.13) is made of soft ferritic iron, which is malleable and workable and is most likely the product of a local smithy. Horseshoe SF P15219 (Illus 7.13) is also of ferritic iron, with long slag inclusions elongated along the line of working, as is horseshoe fragment SF P15370, which is extensively weathered with small amounts of carbide at the grain-boundaries. Both are most likely the product of local smithies. An unidentified object (SF P15510) is a sample of ferrite with very fine pearlite at the grain boundaries. The slag inclusions appear slightly elongated along the line of working. This sample came from Context P15016 and may also be the product of a local smithy.

In contrast, analysis of the plate fragment (SF P15249) indicates that the sample is rich in phosphorus and the plate is made of cast iron. It was produced perhaps in the blast-furnaces of the Central Belt during the mid 19th century or possibly later, and had certainly been imported rather than made locally. The pipe section (SF P15536) is also cast, with lamellar pearlite and ferrite as well as graphite visible on analysis. This is perhaps of the same date as SF P15249.

7.2.5 Interpretation

Balnasuim was evidently worked and occupied by around six tenants from at least 1618 (see 7.1.1 above). However, as Harrison notes, the relationship between the documentary record and the physical remains is quite intangible for the site as whole. It is not until 140 years after the first record for Balnasuim that we first glimpse Building P15 and its associated cluster (Illus 7.3). Farquharson's depiction of the land-division of Balnasuim in 1769 seems to show five separate clusters of buildings, which were tenanted by six men and their families. Unfortunately no link can be made between P15 and an individual tenant or occupier at this time. However, the 1769 plan certainly seems to indicate the building which, as the archaeological evidence has suggested, was probably in existence *c* 1715 (see above).

The next point at which the occupants of the Balnasuim clusters come into focus is immediately prior to re-division of the lots in 1797. A series of petitions from 1791–7 throws light on a number of tenants and provides tentative evidence of their associations with particular clusters. For example, Duncan Stewart's holding seems to have been around the current Balnasuim Farm, and Patrick MacPhail (Campbell) was probably living close to the march with Croftintygan (see 7.1.1 above). Unfortunately, the records do not provide direct evidence of an association between a tenant and the P15 cluster. It is worth noting, though, that five tenants were in possession by 1812: three McLarens, a Campbell and a Stewart. If the Campbell and Stewart were associated with other clusters, then at least one McLaren could be tentatively linked with this grouping.

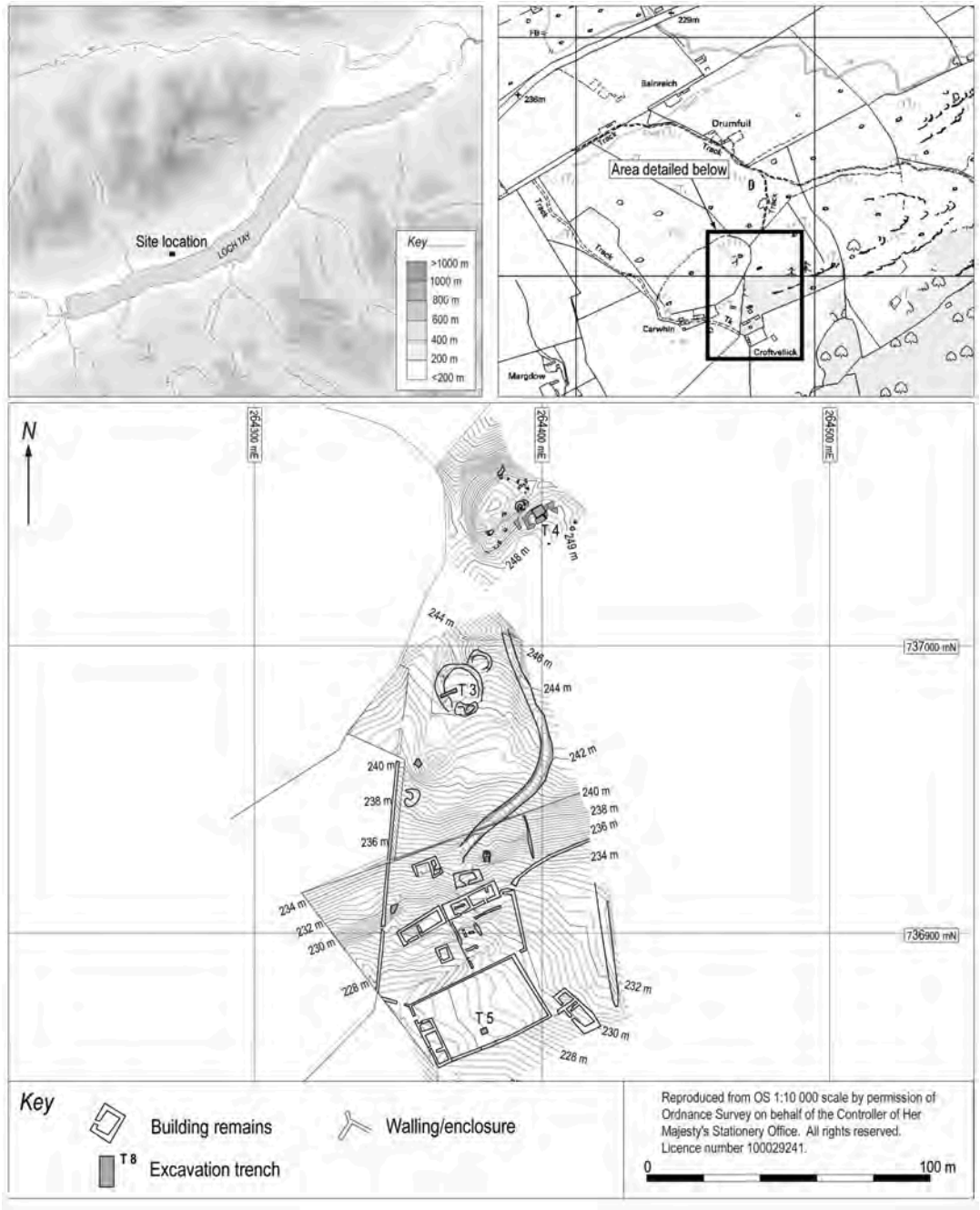
Even though the founding of Building P15 is dated, there was little evidence recovered to date closely its two phases of use. It is tempting to suggest that Phase 2 is related to the period of re-division *c* 1797, but there is little to support this view. In fact, the lack of artefactual material from Floor P15085 may indicate that the building was renovated prior to the introduction of disposable material culture into the area during the final decades of the 18th century (Atkinson 2010). The focus of the Phase 2 building seems to have changed with the addition of the north-east cell. Whether the new cell was originally intended as a spence or was created deliberately in order to increase byre space is unclear; the scoured-out interior deposits left few traces of the original layout and function in this part of the building. It is notable that the south-west end of the building seems to have survived without any damage. This may be due to the presence of Wall P15039, which separated the small byre and sump from the rest of the building. It is possible that this evidence may support the view that animals caused the damage noted within Floor P15051, as opposed to a stone-robbing event on abandonment.

Abandonment of the building certainly followed, probably some time after 1810 (see 7.2.4.1 and 7.2.4.2 above), and Layer P15016 was deposited. The lack of material culture below Layer P15016 is puzzling, and not easily resolved with an early to mid 19th-century date of exodus. It is much more likely that the building ceased to be occupied prior to the introduction of mass-produced goods

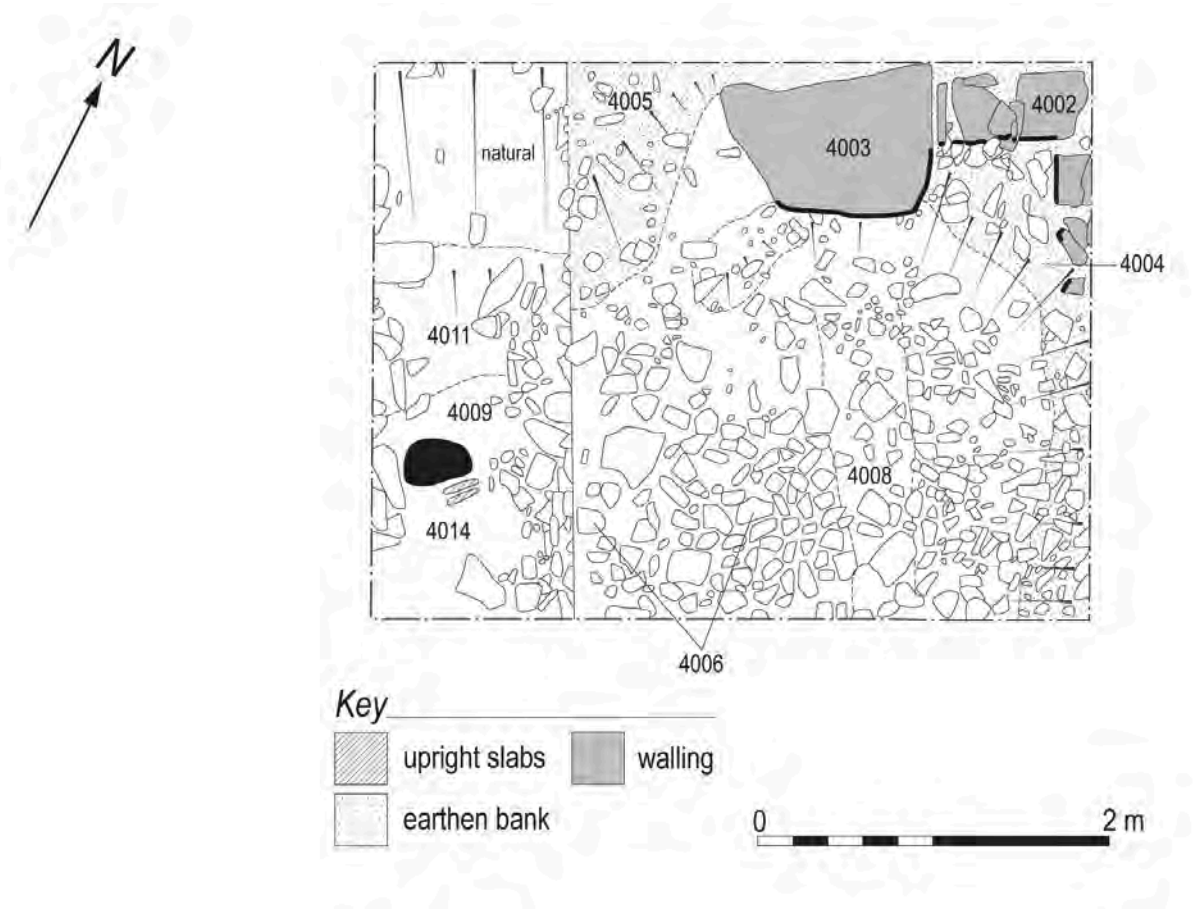
into the area, towards the end of the 18th century; however, there is no proof of this. P15 was recorded as a roofless building in 1864 when the Ordnance Survey visited the site (Illus 7.5), even though much of the cluster was still roofed. Little additional information is available from the 19th-century documents, although a long-term association between the McLarens, McNaughtons and McPhails is evident for much of the period. By 1900 Angus McLaren was the sole tenant of Balnasuim Farm (see 7.1.1 above).

7.3 EXCAVATION OF BUILDING T4 AT CROFTVELLICH

Structure 36 (Building T4) was discovered during the survey season of the project in 2002 (Atkinson et al 2002), to the north-east of the main group of buildings associated with the Croftvellich cluster (at NGR NN 64398 37045). A single building had been recorded here by Farquharson in 1769 and had disappeared by the time the Ordnance Survey visited the site in 1864. The survey of building T4 and its



Illus 7.14 T4 location-plan



(Above) Illus 7.15 T4 trench-plan

(Left) Illus 7.16 T4 under excavation

immediate environs (Illus 7.14) indicated that the structure appeared to be composed of three parts: a sub-rectangular core with a possible entrance to the south-east and smaller extensions on each gable end.

7.3.1 Excavation Strategy

A small evaluation trench was placed at the eastern end of the central cell noted during the March survey (Atkinson et al 2002). The trench measured 4m south-west/north-east by 3m and had an additional sondage 0.35m wide, running for 2.1m from its south-east side. The aim was to assess deposits and recover datable material, should any be present (Atkinson et al 2003a).

7.3.2 Deposits and Stratigraphy

Gavin MacGregor

Removal of overburden layers revealed a number of features which constituted the remains of the building, including lengths of wall, banks and cobbling (Illus 7.15). A single sherd of possible drinking-vessel glass was recovered from the topsoil (see 7.3.3.2 below). Building T4 was defined by two lengths of bank (4004 & 4005) and two sections of drystone wall (4002 & 4003). Partial excavation of Bank 4004 revealed facing-stones sealed beneath the earthen bank (Illus 7.16). The combined stone-and-turf banks bounded an area of cobbling (4006). The banks had slumped through time and partially sealed the cobbled layer. Cobbled Layer 4006 was up to three layers deep and extended over most of the interior of T4. A tiny fragment of redware bowl (SF 4735) was recovered from this layer (see 7.3.3.1 below). A linear feature (4008) was also noted extending through the cobbles. Excavation of the south-east end of the cobbled layer revealed charcoal-rich deposits, including several patches of burning (eg 4011 & 4009). A hearth deposit (4010), defined by upright slabs (4014), proved to be rich in diverse heathland taxa (see 7.3.4 below).

7.3.3 Finds

7.3.3.1 Ceramics

Robert S Will

Two sherds (SFs 4731–2) of a brown-and-white glazed earthenware vessel were recovered, together with a single fragment of redware bowl (SF 4735). Unfortunately, the sherds are too small to date accurately.

7.3.3.2 Glass

Robin K Murdoch

A tiny sherd of colourless glass (SF 4730), probably from a drinking-vessel, was recovered, but is too small to date.

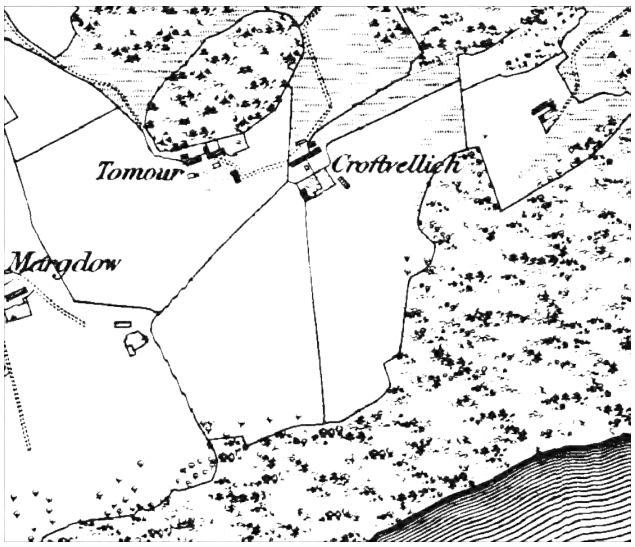
7.3.4 Environmental Evidence

Jennifer Miller & Susan Ramsay

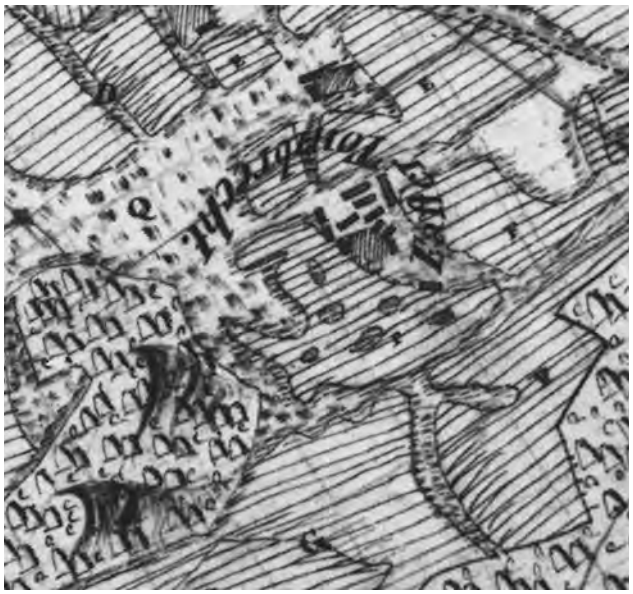
The samples examined from Building T4 all related to three areas of burning at the west end of the trench (4009–11). Although these were excavated as discrete deposits, their carbonised assemblages were essentially similar, differing only in terms of volume and chance inclusion of taxa. The charcoal types identified are diverse, including alder, birch, hazel, heather-type, rose-family and oak. Roundwood was clearly present in some instances, but Scots pine was not recorded.

7.3.5 Interpretation

Croftvellich in Carwhin was assimilated into the Breadalbane estate in 1672, at which point it was a 2-merkland. The evidence from the later 17th-century documents suggests a rapid turnover of tenancies, indicating that at least some instability and insecurity were the norm at Croftvellich and elsewhere in the area (see 7.1.2 above). The existence of Building T4 is not documented until 1769. At this stage the tenants were Jon McIllihaus, Alexander McAll and Duncan Stewart. McAll, in a petition of 1797, suggests that he had been a tenant in Croftvellich since *c* 1755 (see above). Other tenants also appear to have been relatively long-standing; Malcolm McDiarmid, for example, is noted between 1781 and 1797. The documents provide occasional glimpses of other classes of inhabitant at Croftvellich during the later 18th century. At least one crofter is mentioned in 1779 (possibly John McIllhauish) and again in 1797 (Duncan McCallum). Unfortunately none of these people can be directly associated with Building T4.



Illus 7.17 Croftvellich depicted by OS in 1867



Illus 7.18 Easter Tombreck shown by Farquharson in 1769

The partial excavation of T4 revealed details on the construction and probable function of the building. It seems probable that the building was used as a dwelling at some stage; the presence of the hearth and earthen floor at the north-east end of the central cell supports this. However, the floor-deposits were sealed by cobbles, which may imply a secondary use, possibly to house animals. Certainly the walls made from turf and stone (4002–5) differ from the wall-building technique observed at other Loch Tay sites (eg P15 above, and Chapter 8). Whether this difference is related to period is unclear. The recovery of a small assemblage of material culture from T4 adds little to the understanding of the building's chronology and use. With the exception of SF 4735, a tiny fragment of (probably intrusive) redware bowl from Cobbled Layer 4006, the other artefacts (a fragment of drinking-vessel and two small sherds of decorated pottery) came from the topsoil. Both the Stobie (1783) and Thomson (1820) maps depict Croftvellich in a symbolic manner, providing little detail of layout. The documentary evidence suggests that re-division of Croftvellich after 1797 created three lots and an area of outfield (see above). It is tempting to view this as the point when T4 was abandoned, prior to the arrival of mass-produced goods in the area.

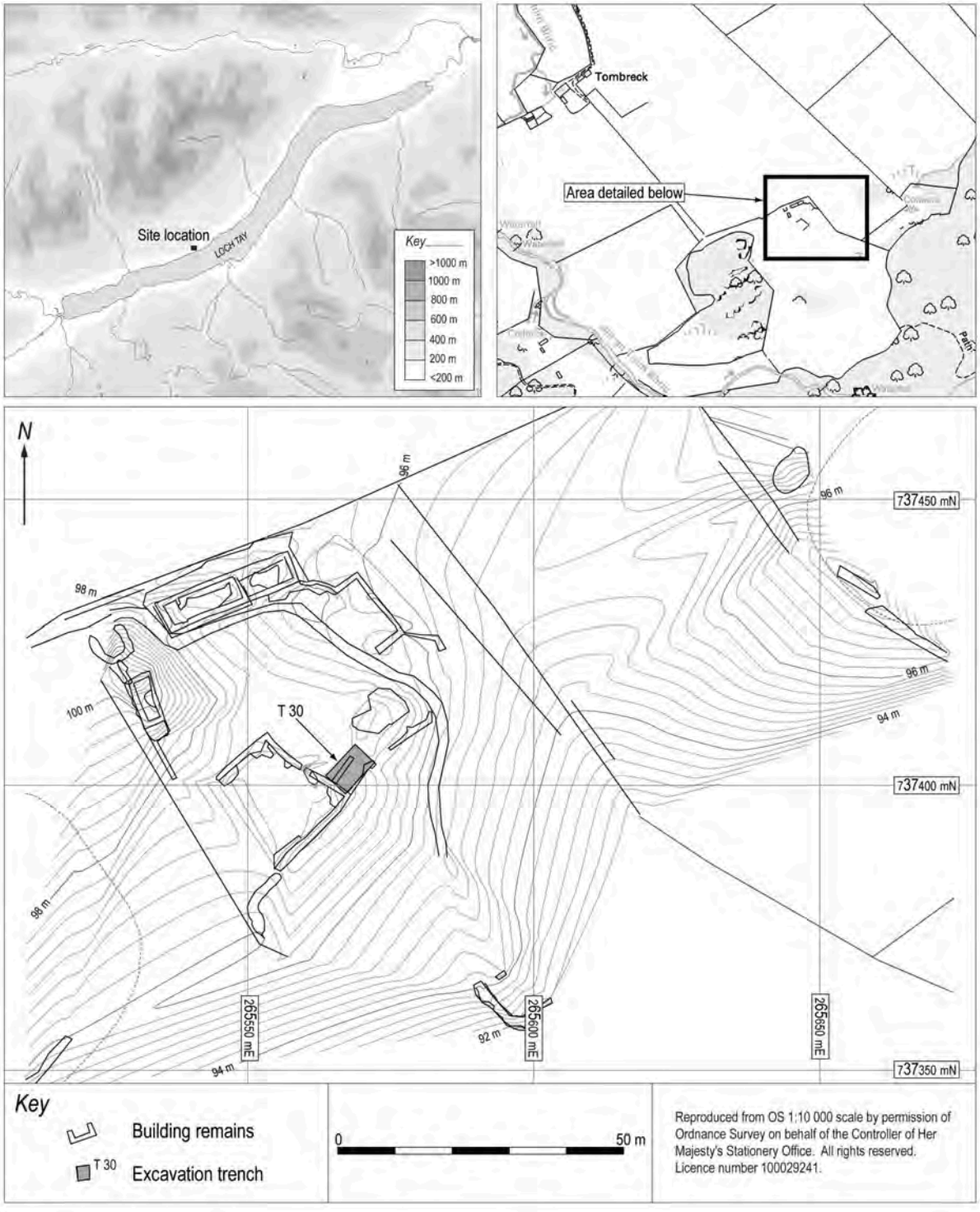
The discrete nature of Building T4, set apart as it is from the main cluster of Croftvellich, has not been conducive to discovering the history of this particular building, even though the later history of the cluster can be charted (see 7.1.2 above). By the time the Ordnance Survey recorded Croftvellich in 1864 (Illus 7.17) Building T4 was long gone, but the field-system they recorded may have related to the re-division of 1797. If so, Building T4 could have been on 'the small lot of outfield ground, which could not be properly cultivated and managed without building a steading of houses' to which Alexander McCaill referred in 1797 (see above).

7.4 EXCAVATION OF BUILDING T30 AT EASTER TOMBRECK

Easter Tombreck was certainly specified as a distinct settlement from at least 1620 (see 7.1.3 above), even though it is not depicted cartographically until 1769 (Illus 7.18). Farquharson's map and nomenclature place Easter Tombreck as the nearest to the loch of the three clusters (at NGR NN 65541 37405), with Wester Tombreck located at the current Tombreck Farm site and a third, unnamed cluster to the west of Easter Tombreck. Easter Tombreck lies on a level terrace at 180m OD, some 200m from the loch-edge. Immediately to its south-west is another cluster of remains, depicted by Farquharson, which had disappeared by 1862 (OS survey date). Easter Tombreck was shown by the Ordnance Survey as having one building still roofed in 1862; a footpath is shown running towards the former site of the second cluster and onwards, via a footbridge, to Blarmore.

7.4.1 Anatomy of Easter Tombreck

Building T30 lies on the southern edge of Easter Tombreck settlement at the foot of a large, natural mound (Illus 7.19). Flanked by the remains of a drystone-walled yard to the south-west, the building was represented before excavation by two parallel lines of boulders extending from the yard wall. Another set of twin footings lies on a parallel alignment *c* 7m to the north, suggesting another building. Two further buildings lie on similar alignments to the north; one of these, clearly a later dwelling, stands to the wall-head in places. Two more buildings lie perpendicular to these structures, making a total of six buildings



Illus 7.19 T30 location-plan

arranged around a central area. Excavation revealed that T30 was oriented south-west/north-east, extended for a minimum of 5.5m and was 2.5m broad internally. The long walls of T30 stood no higher than two courses, while the south-west gable had been preserved in the later yard wall to seven courses high. The walls were constructed of coarsely-faced rock with a rubble core, without mortar. No entrance was noted in the long walls.

7.4.2 Excavation Strategy

T30 was excavated following test-pit and evaluation work at Easter Tombreck in April 2005 (Atkinson et

al 2005b), which revealed the traces of a structure in this part of the settlement. The purpose of the June 2005 excavation was to elucidate further the nature, date and character of this structure and the other structural elements to the east (Atkinson et al 2005c). This season's trench encompassed the whole structure and also took in part of the building's eastern exterior.

7.4.3 Deposits and Stratigraphy

Chris Dalglish & Kirsteen McLellan

7.4.3.1 T30 – Phasing

A single phase of occupation was identified for Building T30, but traces of prehistoric activity were discovered within the topsoil deposits surrounding the building (see below for discussion). No absolute dating evidence was recovered for its construction and occupation; but the following timeline is postulated on the historical and archaeological evidence:
Construction before 1769
Abandonment before *c* 1797

7.4.3.2 T30 – Sequence

Building T30 was constructed on a natural platform and defined by three walls (Illus 7.20). The opposing walls (30005 & 30006) were of similar construction, as was Gable 30007, which had been modified during the construction of the yard to its south-west (Illus 7.21). No evidence of an entrance was noted in either long wall, and T30 may have been open-ended to the north-east – although this gable may have been robbed after abandonment. At the eastern end of Wall 30005 a further section of wall was noted (30014). This wall was distinct from T30; it was constructed of large boulders and ran parallel to the bedrock, enclosing a small, downward-sloping area.

Internally, the building had a beaten earthen floor (30015), containing sections of cobbling which increased in frequency towards the north-east end. Two features were cut through the floor: a stone-lined pit (30048) filled with loose stones, and another pit (30029) against the south-east gable: both pits were slightly off-centre (Illus 7.21–22). Pit 30029 had two fills, both of them rich in carbonised remains. The upper fill (30033) in particular contained a wide range of charcoal species; oats, six-row barley, seeds of heathland weeds and burnt turf, redolent of a domestic-hearth assemblage (see 7.4.6.1 below), although no evidence of burning was noted. Few other features were apparent, although there was evidence of a possible cruck-pad in the southern corner of the building. No material culture was found in Floor 30015.

After abandonment, a thick layer of organic silt (30002) built up over the floor of the building. Three datable sherds representing three ceramic vessels (EN, FAG & NA) were recovered from this layer (see 7.4.4.1 below), along with two sherds of glass (SFs 30215 & 30218, see 7.4.4.2 below): It is likely that all were intrusive. Layer 30002 was sealed by Wall-Collapse 30021, which in turn was covered by topsoil and turf. The post-abandonment layers contained *c* 97.6% of the entire assemblage recovered from T30, including ceramics, glass, iron, lithics and some daub-like material.

Outside the building to the east was a series of deposits. These included a patchy deposit of cobbling (30020) along the south-east wall and an adjacent spread of flat stones (30013). To the north of these, around a bedrock outcrop, were further patches of cobbling (30011), areas of scorched earth with burnt stone and charcoal (30032) and re-deposited natural (30038) (Illus 7.21). The bedrock lay at two distinct levels, which gave a terraced effect; it may have been worked, as it had a jagged appearance. Each terrace had a different character, the upper associated with Cobbling 30011 and the lower with the Slab Layer 30013.

7.4.4 Finds

7.4.4.1 Ceramics

George Haggarty

The assemblage from T30 totals 421 sherds of mainly industrial ceramics, along with a small number of Scottish Post Medieval Reduced Ware (SPMRW) sherds. At least 18 datable vessels make up this assemblage, and they include a variety of forms from jugs, bowls and plates to a fine-quality example of a tea-bowl (CAW) dating to *c* 1790. The SPMRW sherds are likely to represent fragments from a single jug, although they have been catalogued as two different vessels (NA & NB), which is likely to date from the 17th or early 18th century. In common

Illus 7.20 T30 being excavated in 2005

with other Ben Lawers assemblages, bowls dominate, accounting for *c* 50% of the known vessels from the site. Plates make up *c* 22% of the known vessels. The tea-bowl is noteworthy; its presence suggests that tea-drinking may have been a part of life at Easter Tombreck from the 1790s.

Occupation from at least the 1770s at Easter Tombreck cluster is inferred from the ceramic assemblage. Vessel AE, a decorated bowl with a polychrome design, together with tea-bowl CAW and a rose lathe-turned redware vessel (IU) were all manufactured in the last quarter of the 18th century. The main group of vessels, however, seems to post-date 1825 or 1830 and deposition seems to have petered out by *c* 1840. The only exception to this is bowl BAH, which dates from the later 19th century.

7.4.4.2 Glass

Robin K Murdoch

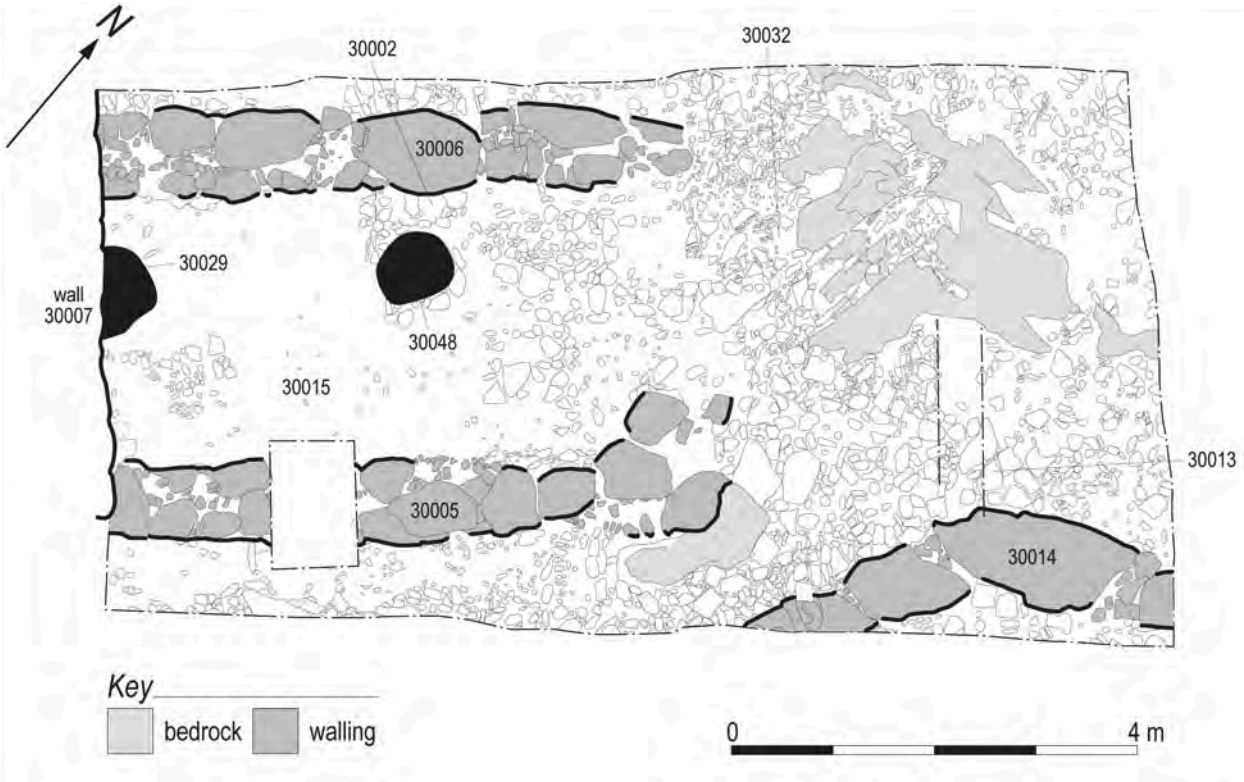
In total 148 sherds of glass were recovered from the T30 excavations. A minimum of 14 vessels are represented, including at least six wine bottles, a medicine bottle and one sherd from a press-moulded item, possibly the octagonal base of a candle-holder. At least three of the bottles (A, B & M) date from the late 18th or early 19th century. The medicine bottle (H) and wine bottle (E) are also likely to be early 19th-century examples. The rest of the bottle assemblage covers much of the 19th century, with at least two vessels (G & K) dating to the last quarter of the century. Only four sherds of 19th-century window-glass were recovered from post-abandonment layers, and this could suggest the building's windows were never glazed.

7.4.4.3 Metalwork

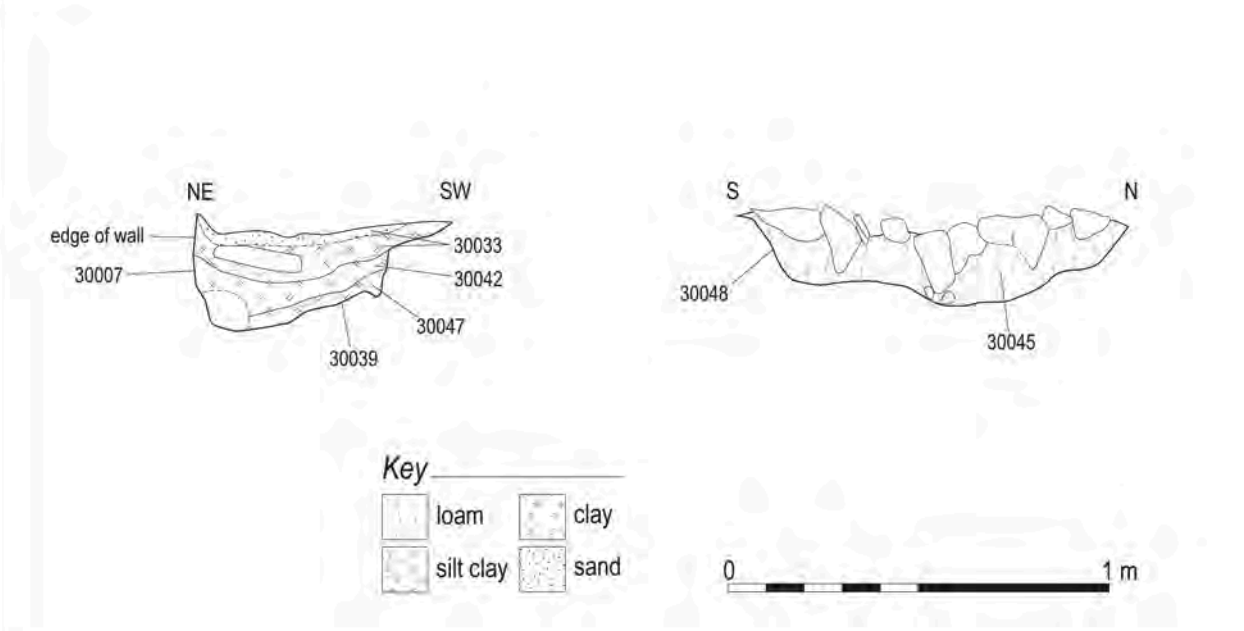
Adrian Cox

A single lead-alloy artefact was recovered (SF 30252) from Easter Tombreck, a small, circular cross-sectioned rod with a worn or trimmed terminal, which may have been used to mark objects.

The iron objects formed a more diverse and interesting group. These include structural fittings, such as a right-angled bracket for driving into a



Illus 7.21 T30 trench-plan



Illus 7.22 T30 sections

masonry wall (SF 30380), a ring-bolt (SF 30213) that would have been driven into stonework or wood, and a clench-bolt (SF 30314) used to secure a double thickness of timber. Archaeological examples of clench-bolts are sometimes associated with boatbuilding (see McGrail 1987: 102-3), but they were commonly used in door-construction, as in a ledge-and-batten door from North Yorkshire (Addyman & Goodall 1979: 90). Other door-type fittings include SF 30082, the remains of a strap-hinge. A wide variety of strap-hinge forms were in use in the 17th to 19th centuries and this example has possibly broken across nail-holes.

A knife found in a topsoil deposit at Easter Tombreck (SF 30021) exhibits wear or damage to the blade-edge, which may have directly precipitated its discard. Other tools include a tapering tooth (SF 30047) possibly from a rake, harrow or horse-drawn hoe. A probable heel-stiffener fragment (SF 30285) was also recovered and attests to the ground conditions underfoot. About 280 nails and nail-fragments were identified in the assemblage. A number of miscellaneous iron finds were also recovered, such as fairly thick, flat plate fragments (SFs 30174, 30175 & 30193), possibly part of a large, rectangular casing of some kind. Further plate fragments (SFs SF 30229, SF 30383 & SF 30376) came from a range of contexts. Unusual among these, SF 30395 appears to have decorative characteristics.

7.4.4.4 Stone

Ann Clarke

Two stone tools were recovered from T30. The first, a simple whetstone (SF 30437) of fine-grained micaceous schist, has a rectangular cross-section with one long face worn smooth with longitudinal striations made from sharpening a metal blade. The second piece, a possible anvil (SF 30224), appears to have been made by splitting an elongated schist boulder. The resultant face has a gentle concave cross-section and may have been used as an anvil for only light works, since there are no definite wear traces. It was found in the topsoil.

7.4.5 Scientific Analysis

Lyn Wilson & Effie Photos-Jones

Fourteen samples of daub-like material, possibly representing industrial waste, and associated soil samples, were presented for analysis from T30. The daub-like material is red to grey in colour. Three samples were chosen (SFs 30428, 30425 & 30381) in order to characterise the material. The samples (and associated soil layers) were tested for magnetic susceptibility and analysed with the scanning electron analyser attached to an energy dispersive unit (SEM-EDAX) and using a X-ray diffractometer (XRD). Only two contexts (30033 & 30042/30047) showed significantly higher magnetic-susceptibility (K) values than the rest. However, the other samples tested (excluding background samples) had slightly enhanced values, indicating they may have been heated. Likewise, the daub-like samples had been heated/fired unevenly, with the red areas displaying a higher K-value than the grey. Sample SF 30381 was selected for further analysis.

The material, a silt/sediment that had been shaped, had more-or-less its present texture/fabric before heating took place. The sample had the appearance of a fragment of a metallurgical furnace with the trademark gradient in colouration; however, this is an unlikely interpretation. It is not possible to say of what structure or installation this material originally formed part. It had been uniformly heated and therefore could not have been associated with the hot zone of a furnace, which seems to preclude its use in this context. It could, however, have been used in another form of installation, such as a corn-drying kiln or possibly in the vicinity of a domestic hearth, where indirect heating would have occurred.

7.4.6 Environmental Evidence

7.4.6.1 Archaeobotany

Jennifer Miller & Susan Ramsay

Analysis of Layer 30002, the organic silt that built up over the floor of the building after its abandonment, indicated that it contained birch, hazel, heather and oak charcoal, along with a large quantity of carbonised organic material that had the appearance of burnt soil/peat/dung. This could suggest that the layer was the remains of a turf roof, and the turfs were probably cut from heathland rather than grassland areas. The oak charcoal may be the remains of supporting roof-timbers. The floor layer (30015) below this context contained a similar range of charcoal types, including the burnt soil/peat/dung material, although it also contained alder and Scots pine.

The sub-rectangular Pit 30039 was also sampled. The upper fill (30033) included birch, hazel, heather-type, ash, Scots pine and oak charcoal, as well as indeterminate burnt organic material, similar to that recovered from Layer 30002. Carbonised grains of oats and six-row barley were also present, as was a range of carbonised seeds of ruderal weeds and heathland species. Seeds and fruit fragments of

dog-rose were also recovered from it. The lower fills (30042/30047) contained a less-diverse assemblage, although charcoal, cereal grain and weed seeds were still present.

7.4.7 Interpretation

There is little to support the existence of Building T30 prior to Farquharson's depiction of Easter Tombreck. As with Buildings T4 and P15, the relationship between physical evidence and the documentary record is unfortunately ephemeral. It is certainly true that Easter Tombreck was a defined place by 1620 and the township generally supported three tenants for much of the 17th century (see 7.1.3 above). Its 18th-century documented history is less clear, although there were 47 individuals recorded at Tombreck in 1769 (see Table 7.7). By the 1790s the position becomes a little clearer, and during the first few years of the decade there were still three tenancies: the Campbells, the McCaills and Donald McCallum. Whether any of these people had an association with T30 is rather a moot point.

Certainly the form of T30 does not suggest it was a principal dwelling. In particular, the lack of an entrance in either long wall, the absence of a gable and the lack of evidence for glazing all suggest an alternative function may be more likely. The last two factors could easily be due to stone-robbing and period of use; window-glass production in Scotland was centred at Dumbarton and did not start until 1777 (see Chapter 10, section 10.1.2; Logan 1972). More important, however, is T30's unusual layout. The absence of a centrally-located entrance in a long wall and a centrally-located hearth within the building is atypical for byre-dwellings of the later 18th century. Excavation evidence from numerous dwellings in the Highlands, for example houses D and G at East Lix (Fairhurst 1969), Structure D at Lianach (Stewart & Stewart 1988) and the longhouse in Complex A at Rosal (Fairhurst 1968), shows they all had broadly central entrances and hearths. These features are also apparent in Loch Tay examples (T6 at Kiltyrie and T13 at Tombreck), and the lack of them in T30 suggests the building is unlikely to have been a principal dwelling. It seems likely that T30 was used for occupation of some sort, given the presence of hearth-waste within Pit 13029, but its exact function remains elusive.

Following the depiction of T30 in 1769, the building fades into the historical background once more. However, the excavation and artefact analysis cast further light. It is of note that Floor 30015 was devoid of artefacts, and the few ceramic and glass sherds discovered in the collapsed remains of the turf roof (30002) are likely to have been intrusive. This would imply that the building was abandoned shortly after 1769, as traces of at least three vessels (AE, CAW & IU) manufactured between the 1770s and 1790s (see 7.4.4.1 above) were recovered from post-abandonment layers. Although not conclusive, the overall picture from Loch Tayside suggests that ceramic vessels were introduced late, with few vessels appearing before 1800 (Atkinson 2010). In consequence, it seems likely that abandonment of T30 must have occurred some time in the 1790s at the latest.

By 1797 the re-division of Tombreck had split Easter Tombreck into two tenancies. It is tempting to view these as split between the two clusters of buildings depicted by Farquharson. Tenant numbers certainly fell between 1812 and 1821 and appear to have collapsed by 1841, with only two farmers still present – probably at Easter and Wester Tombreck (see 7.1.3). It is interesting to note that the deposition of broken crockery over T30 also effectively ceased *c* 1840 (see 7.4.4.1), suggesting that the cluster was depopulated or that waste-disposal strategies changed. Easter Tombreck certainly was not abandoned at this stage, however. Harrison's interpretation of the census and valuation rolls for 1851, 1861 and 1871 indicates that John Robertson (wood-keeper and later gamekeeper and ground-officer) and his family occupied the settlement until its abandonment prior to 1871.

7.5 SUMMARY AND CONCLUSIONS

Prior to the excavations detailed within this chapter no archaeological exploration of pre-19th-century post-medieval rural settlements had been pursued in this part of Perthshire. The results here clarify that the landscape and clusters of settlement-remains as depicted by Farquharson in 1769 represent different building traditions. Two of the sites excavated (P15 and T30) clearly belonged to a tradition of stone or possibly stone-footing-and-turf-wall construction,

while T4 fits in with a tradition of turf-dominated building. It also became apparent during the project that some sites depicted in 1769 had left little in the way of physical traces, and that this may imply that later agricultural practices had led to the 'ploughing-out' of many turf buildings in the area; a practice that has been expected to lie at the core of Scotland's missing medieval settlement-pattern.

Tangible evidence in the form of 18th-century material culture from these sites is also absent from the archaeological record, implying that mass-produced ceramics and glass did not reach Loch Tay until the end of the 18th century. There is also some evidence to suggest that the sites selected for settlement, and excavated as part of this project, were a product of changing settlement activity towards the end of the 17th century and not a system that had long been established.

All three sites discussed here can be confidently ascribed to the second half of the 18th century on the basis of the cartographic evidence. In each case the form of construction and internal layout of the buildings differs considerably, although none of them contained mass-produced industrial ceramics or other items of material culture within their floor deposits. This latter point at once conjoins the group while at the same time making their individual histories impossible to decipher. The historical development of all three is intangible, to say the least, and none can be tied to the documentary record at any point during their existence. Ironically, the maps – from 1769 (Farquharson) and 1867 (Ordnance Survey) – consulted prior to selection of these sites provide the only firm evidence for the occupation and abandonment of all three buildings.

There are certainly few comparisons that can be drawn from the published excavations of 18th-century townships in the Highlands. Lianach in Balquidder, for example (Stewart & Stewart 1988; Stewart 1990), is dated by finds as having been occupied throughout the 18th century (1988: 310), although little stratigraphic detail is presented. In some ways the building at Lianach seems to be more similar in terms of layout to buildings like T6 at Kiltyrie or P7 at Craggantoll (see Chapter 8) than it does to any of the sites discussed in this chapter; this comparison also applies to the material culture (including creamware and pearlware vessel fragments) recovered from all three structures. It could be argued, however, that Lianach is comparable to Building P15 at Balnasuim in terms of construction technique: both were founded on a stone-revetted platform.

Few other comparisons are available within the literature. Sites such as Rosal (Fairhurst 1968), Easter Lix (Fairhurst 1969) and Achaidh Mor, Lairg, (McCullagh 1998) seem on the whole to be representative of early 19th-century settlement-forms. Even attempting comparisons to the blackhouses of the Outer Isles proves fairly unfruitful. All four of the buildings excavated at Airigh Mhuillin, South Uist, had occupation-dates in the years 1790–1820 (Symonds 2000: 206–7), while the extensive excavations at Balnabodach on Barra suggest occupation mainly occurred between 1820 and 1860 (Branigan & Foster 2002: 141). In short, few sites that cast light on the archaeology of 18th-century rural life are available as yet to compare with the sites discussed in this chapter.

As has been noted above, the form of all three buildings was different, although both P15 at Balnasuim and T30 at Easter Tombreck had the remains of drystone walls still in situ. It is also conceivable that the fragments of faced stonework noted within the remnant turf banks around two sides of T4 at Croftvellich performed a similar architectural function. Certainly the layout of internal features was unusual in all three, although arguably stone-robbing followed by the introduction of animals into P15's central area could have erased any trace of hearths or a central drain. However, the sump and small byre at the south-west end of the building find no parallels within the group. Even though the excavation of T4 was limited, the presence of a central hearth to the right on entering the building sits well with evidence from elsewhere in the Highlands (see Atkinson 2010 for discussion). The lack of an entrance in T30 is undoubtedly the biggest problem in its interpretation as a domestic structure, although the types of taxa recovered from its hearth-pit would seem to support human occupation.

One could view the variation in form across all three buildings as indicating the builder's position in society. The supposition is simple: men of substance could afford to build better homes for their families, made from better-quality materials. In that case P15 may represent the home of a tenant or sub-tenant, someone who could afford

to add a spence, possibly during the later years of its occupation. In contrast, the occupants of T4 or T30 may have only been able to build a cot-house, made from whatever materials were available; poorer houses may have been less generic due to these constraints.

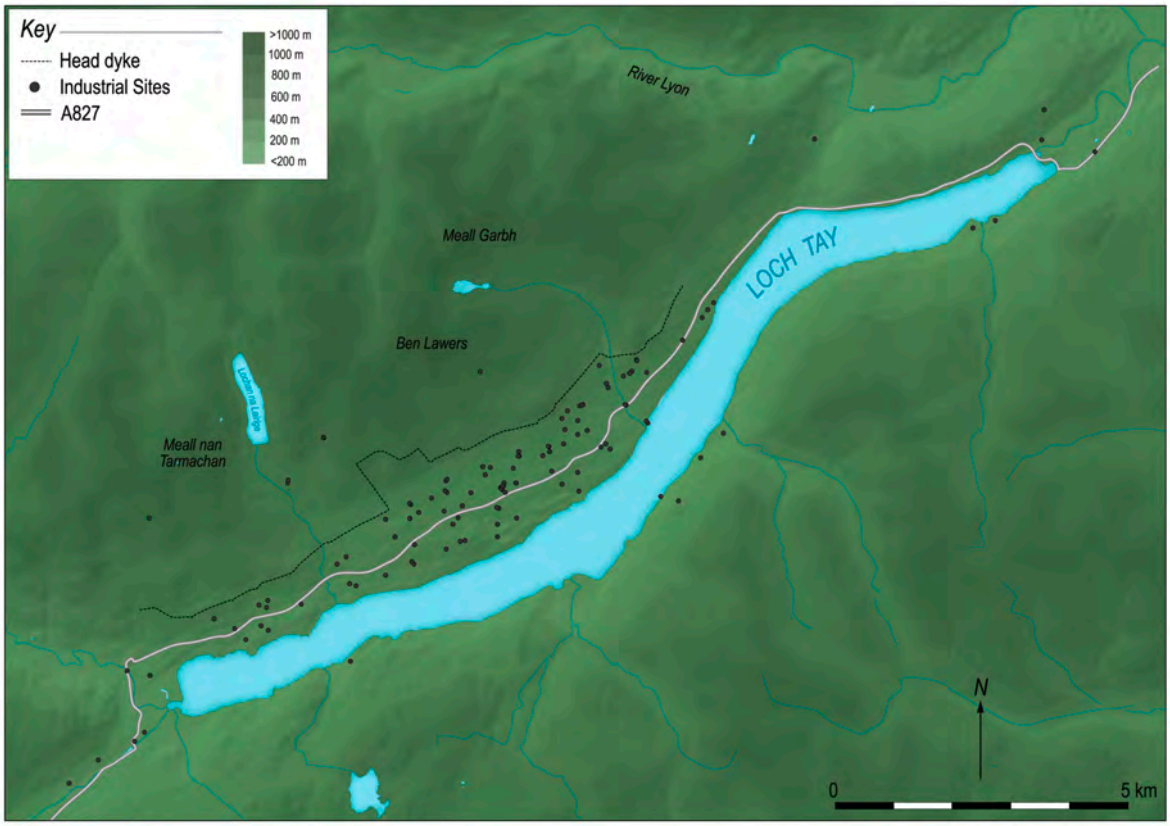
One link between all three is the lack of datable artefactual materials within their floors. This makes the date of abandonment obscure for each, although the stratigraphy suggests it may have been shortly before the arrival of mass-produced ceramics and glass to the area. Even so, differentiating between 17th- and 18th-century buildings on the grounds of traditional artefact typology is problematic for rural settlement sites in the Highlands (see Chapter 10 for full discussion).

8. POST-MEDIEVAL LOCH TAY: SETTLING THE OUTFIELDS, AND INDUSTRY AROUND LOCH TAY

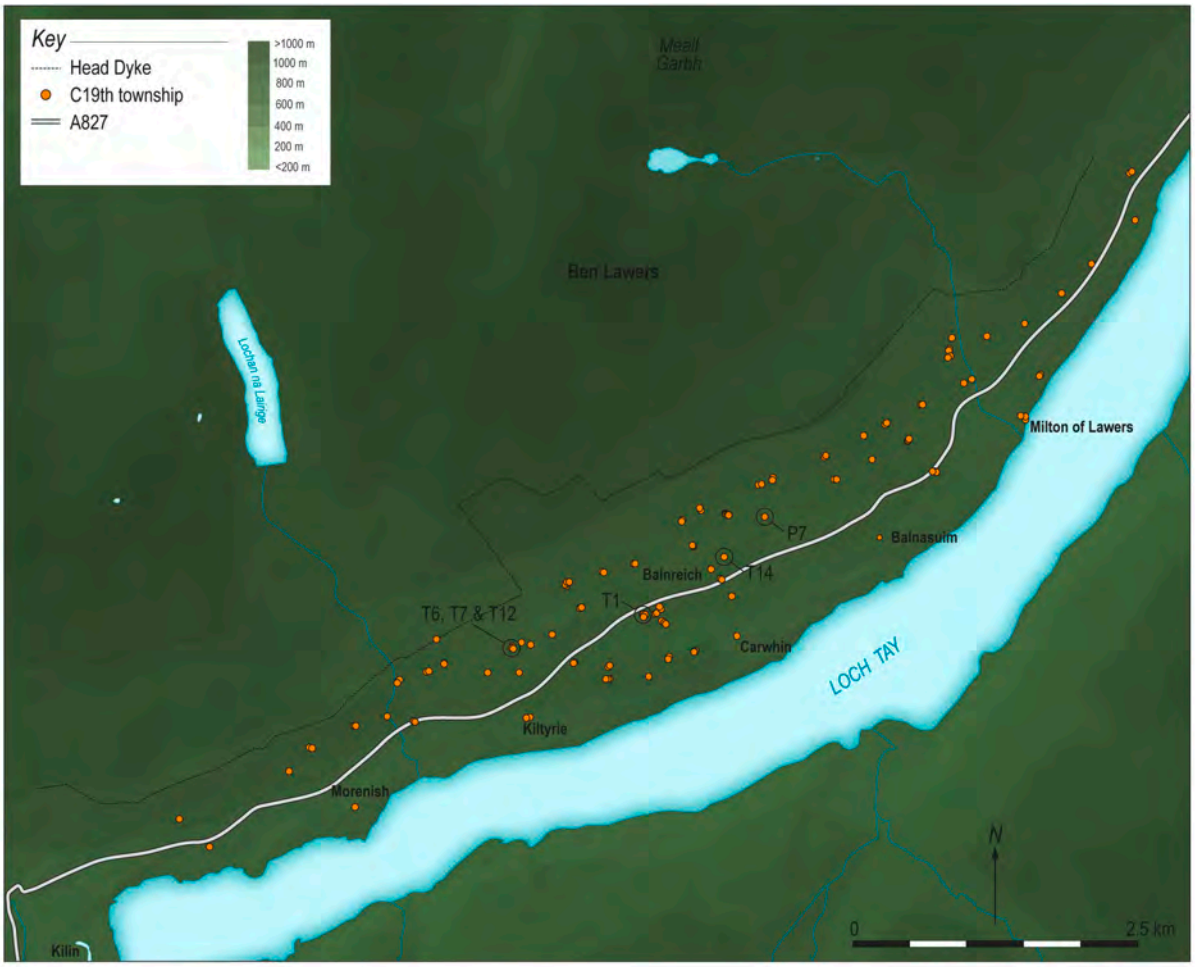
The Improvement period started on Loch Tayside as a time of possibilities, perhaps even of optimism, a time when individuals could better themselves by taking on the challenges of the new farming system as it was outlined in the Terms of a General Lease for Loch Tayside of 1797 (NRS GD112/10/2/2/2338). The division of the infield and outfield into single-tenancy farms was designed to retain the population of the area on the land and retain the rental revenue for the estate. By the 1820s, the new system was clearly failing and by mid-century it had all but collapsed. Within the span of a single generation, the population fall was 'steep, inexorable and unsurprisingly similar to the decline seen elsewhere in rural Scotland, particularly the Highlands' (Harrison 2005a: 2).

Although the landscapes of Loch Tay have always been quintessentially rural, a number of industrial installations existed on the north and south shores of the loch during the 18th and early 19th centuries (Illus 8.1). Many of these were related to the processing of agricultural produce such as cereals (for example corn-mills). Others were associated with the support of the agricultural community, such as blacksmiths or tailors, and some were specifically introduced to help increase arable yields (for example lime quarries and kilns). The Breadalbane estate also attempted to generate some profit through extraction and processing. An example of this is the copper-mine at Tomnadashan and the associated sulphuric-acid works at Wester Tullich, which were established by the Marquess of Breadalbane and operated with heavy losses between 1838 and 1862 (Gillies 1938: 212).

It was never the intention to pursue an industrial site as part of the Ben Lawers Project, but during the summer of 1996 a site was excavated which could not be interpreted as domestic. Located above the road at Craggantoll, in a low-lying area (NN 6629 3846), Trench P6 was initially thought to represent a form of low shieling (Atkinson et al 1997: 31). This chapter describes the results of that excavation as well as the histories and archaeologies of four settlements during this period, combining the material past with the



Illus 8.1 Distribution-map of known industrial sites around Loch Tay



Illus 8.2 Distribution of 19th-century farms

documentary record, and attempting to put people back into the landscapes of Loch Tayside. The sites of Craggantoll, Kiltyrie, Tombreck and Balnreich (Illus 8.2) were all products of the new system and had remarkably similar lifespans and destinies, yet they provide different views of the human experience of their occupation. Each of the sites lay within the former outfields and, in each case, the families who occupied them were the first to attempt to create a living solely from the lands between the road and the head-dyke.

8.1 DOCUMENTING THE OUTFIELD EXPERIENCE

John G Harrison

With the exception of Balnreich, no documentary or cartographic hints of outfield settlement are known from the late 16th century to 1797. However, the first edition Ordnance Survey 6-inch map (1867) shows numerous sites within the former outfields, many unnamed and already roofless. All the evidence suggests that settlement of this area followed a report by John Robertson in August 1797 that discussed a wider re-organisation of tenure and settlement. Robertson wrote:

> As I had an opportunity of making myself thoroly [sic] acquaint with those outfields above the road I humbly think that some desent [sic] farms ought be droped here and there where the ground will answer that purpose and that of the extent of 40 or 50 acres each the tenants to be Men of skill and money the remaining part of the field converted into small possessions (NRS GD112/16/4/2/22).

The difficulties inherent in this policy were well recognised. Tenants had to build new houses and steadings at their own expense, with no certainty

of recompense. The land required stone-clearance, liming, enclosure and drainage, so it would be several years before there was even hope of a return. The only security was that hazily conferred by the General Lease, not fully operational until late 1799 or even early 1800 (Harrison 2003).

The documentary evidence for all four sites considered here (P7 at Craggantoll, T6 at Kiltyrie, T13/T14 at Tombreck and T1 at Balnreich) varies in quantity and detail, but it suggests a broadly similar story at each site. By late 1797 or early 1798 people were applying for these lots, often specifying that they were willing to build new steadings. A report written in late 1800 details the names of tenants who had built new steadings or otherwise been particularly industrious; some were explicitly outfield sites and others can be inferred to have been. Some of these people can be identified on tenant lists from *c* 1812 and in a report of 1821. By that time, however, all tenants were experiencing problems as grain prices fell; the outfield settlements would suffer particularly. The Carwhin and Crannich outfield settlements were amalgamated into a single Outfields Farm, probably around the 1830s. The grazings of this farm are specifically mentioned; it was reported to be a grazing farm in 1862–3 and was abandoned during the 1870s.

8.1.1 Craggantoll Outfields

The first indication of interest in settling in the Craggantoll outfields came from Duncan Clark in Craggantoll on 20 December 1797 (NRS GD112/11/6/1/5). The following March John Walker and John McEwan, tenants in Craggantoll, also petitioned (NRS GD112/11/6/3/42) for a lot that had previously been given to Duncan McPherson, in the outfields of Craggantoll, but was now vacant. An enclosure notes that they had applied for the lot above the road but, failing this, there was another lot in the outfields of Craggantoll 'joining to the Leachain' that might accommodate them. Both men signed this note. The 'Leachain' is indicated by Farquharson in 1769 as 'Lechkin Craggantoll', an area of grass beyond the outfield. This is therefore likely to refer to the upper abandoned settlement at Craggantoll (NN 655 388). In that case, the site abandoned or rejected by Duncan McPherson and preferred by Walker and McEwan was Structure P7, excavated in 1996 (Atkinson et al 1997). In fact, Walker and McEwan did not get either lot.

Two weeks after Walker and McEwan petitioned, on 6 April 1798, Duncan Cameron in Croftintygan of Lawers asked for the lot above the farm of Craggantoll 'between the road and the middle dyke' (Site P7). He assured Breadalbane that if it were granted he was willing to build steadings and to improve it (NRS GD112/11/6/3/43/1). Cameron's petition was endorsed and he was to return 'on Monday when assistance will be given'. At an unspecified date in 1797, Cameron had also submitted a petition to move to the divided outfields in Lawers. This petition is endorsed 'Settled in Craggantoll' (NRS GD112/11/5/3/66/3).

By 1800 the position is clearer, as a report survives that confirms 'Duncan Cameron built a new steading in the outfields of Craggantoll and inclosed the road side' (NRS GD112/12/1/2/2). Site P7 was clearly Duncan Cameron's lot by this time and certainly up to 1812, as his name appears in a list of tenants of Craggantoll from that year (NRS GD112/14/2/1/1) (see Table 8.1). The early petitions indicate that the Combachs, McEwans and Walkers were settled in the lower parts of Craggantoll in the late 1790s, while Cameron held the lot above the road (P7). This would suggest that

Table 8.1: List of tenants in Craggantoll in 1812

Angus Combach & sister	£10 10s
John McEwan & father	£14 10s
Widow Walker & Don Walker	£25
Dun Cameron	£16
Dougal McArthur	£7
	£73 4s 8d

Dougal McArthur was the tenant of the upper lot (Lechkin Craggantoll) in 1812.

The later history of site P7 is entwined with Carwhin, particularly Tomvorar. John Malloch was given a lease in the Carwhin outfields, where he built a new steading by 1800. By 1823 he was requesting abatement of rent, which was followed in 1830 by a further request. In 1835 it was recommended that his farm and 'McLaren's' in the outfields should be amalgamated. The census of 1851 shows four households at Tomvorar, including John Malloch's and James McDougal's. In 1855–6 McDougal, 'residing at Outfields', was the tenant of Outfields Farm, probably corresponding to the amalgamated holding. The amalgamation took place after 1835 and before 1851, and by 1863 this unit included Craggantoll (NRS GD112/14/5/14). McDougal remained as tenant of Outfields as late as 1871.

8.1.2 Kiltyrie Outfields

Sub-division of the pre-Improvement farms was particularly problematic in Kiltyrie. In 1795 Hugh McDiarmid, Donald McMillan and Alexander Campbell were tenants of Easter Kiltyrie. Some 30 years before, a fourth tenant had died and been replaced by a crofter. They were alarmed that the crofter – Malcolm McPherson – now wanted a full share, as there were already 30 people on the merkland, and they objected keenly to the proposal (NRS GD112/11/4/1/3). McPherson claimed to have built a house on his lot and he wanted the ground that went with his house, having paid for the materials (NRS GD112/11/5/3/108). McPherson's plea was rejected and his site was assigned to someone else, so he asked for one of the three lots above the road, none of which had any steadings. There is no indication of whether he was successful in acquiring a lot, but a report of 1800 (NRS GD112/12/1/2/7) states that 'Duncan McPherson in Kiltyrie built an excellent steading in 1798 appraised by the Birlayman of the district at £36.5.4. At the same time improved his arable land by quarrying the most part of the stones out of it.' It also notes: 'Alexander McPherson in Kiltyrie, a steading built as above appraised at £25.11.8, Duncan McLaren Kiltyrie a house' and 'Donald Clark Kiltyrie, a house'.

A report produced in 1821 on the 'state of the cropping and sown grass on Lochtayside' included Kiltyrie (NRS GD112/16/13/4 item 16) and helps to locate the outfield sites (see Table 8.2). There were four lots 'above the road'; the names of four

Table 8.2: Tenants in Kiltyrie: state of cropping and sown grass on Lochtayside in 1821 (AR = Above Road, BR = Below Road)

Description	Arable	Arable under sown grass	Remarks
Kiltyrie			
Dun McDiarmid	7.789	2.200	regular BR
Arch Clark	7.869	1.500	too little BR
David Campbell	11.463	2.000	too little BR
Alex Campbell	12.184	2.300	too little BR
John McDiarmid	10.332	1.800	regular good tenant BR
Dun McNaughton	7.660	1.800	regular good tenant BR
Alex McKercher	7.779	1.500	too little ditto
Dun McGibbon	8.876	–	ditto ditto
Arch Cameron	9.088	2.200	regular BR
Don Clark	5.274	1.330	ditto AR
Dun McLaren	13.872	2.200	high lot AR
Dun Clark	17.091	2.500	ditto ditto
Dun McPherson	18.840	3.000	ditto ditto

occupants are provided. Three of these men, Duncan McPherson, Duncan McLaren and Donald Clark, appeared as builders of new steadings or houses by 1801. Duncan Clark replaced Alexander McPherson within one of the high lots above the road by 1821. While it is not conclusive proof, it would appear that Duncan McPherson also held the largest of the high lots, possibly the T6 steading. It is notable that the high lots had the three highest acreages of arable in Kiltyrie. Neither the censuses nor the valuation rolls adds anything further to the history of the sites.

8.1.3 Tombreck Outfields

The division of Tombreck in 1797 created four lots above the road and five below, according to Patrick (Peter) Brown's petition (NRS GD112/11/5/1/80). The lots above the road should correspond to the outfield. The only direct evidence for the outfield settlements is the Report of 1800 (NRS GD 112/12/1/2/2), which commends the progress of the tenants as follows:

> Peter Malloch in Tombreck by clearing his arable of stones and laid stones in the line ready for building and by draining meadows but not finished yet. Peter Dewar in Tombreck has been involved in clearing and dyking but not finished. Duncan McDiarmid in Tombreck built a new steading in the outfields of Tombreck also built upwards of 50 roods of stone dyke. Peter McEwan & John McEwan built new steadings in the outfields of Tombreck and cleared their arable of stones and built upwards of 40 roods of stone dyke in the march. Peter Brown in Tombreck by clearing uncultivated land of stones.

Twelve tenants are listed for Tombreck in 1812 (Table 8.3), and nine are listed in a report of 1821 (Table 8.4). In 1821 Duncan Campbell senior had a poor lot above the road, Duncan McDiarmid was a good tenant above the road, and John and Peter (Patrick) McEwan had high lots. In this case, it seems likely that Buildings T13 and T14 were built by Duncan Campbell (senior) or Duncan McDiarmid. There is no reason to doubt that their lots suffered the same fate as the other outfield lots, running down quickly after 1821 and probably being amalgamated into a united Outfields Farm (above) at least by the 1850s and probably during the 1830s.

8.1.4 Balnreich

Several petitions by people who settled or who wished to settle in Balnreich in the 1790s suggest that the settlement grew around that time, and that tenants were crofters or cottars. Balnreich corresponds to a site labelled as Blarmore on Farquharson's survey

Table 8.3: Tenants in Tombreck: Perthshire Accounts and rental for 1812

Tombreck	Pat Dewar	£10
	Pat Malloch	£12
	Widow Stewart	£6 15s
	James Stewart	£6 15s
	Dun Campbell & son	£8
	Malcolm Crerar	£7
	Hugh McDougal	£4 10s
	Widow McLaren	£4 10s
	Dun Campbell jun	£9
	Pat McEwan	£4
	John McEwan	£4
	Dun McDiarmid	£6 10s
		£83 6s 10d

Table 8.4: Tenants in Tombreck: state of cropping and sown grass on Lochtayside, 1821 (AR = Above Road, BR = Below Road)

Description	Arable	Arable under sown grass	Remarks
Tombreck			
John McGrigor	11.224	2.800	regular BR
Duncan Campbell jun	10.247	1.400	nearly regular BR
Malcolm Crerar	10.074	2.500	regular BR
Duncan Campbell sen	9.693	1.800	poor lot AR
Dun Diarmid	11.702	2.300	good tenant AR
John McEwan	6.636	1.300	high lot
Peter McEwan	5.705	1.000	high lot
Peters Dewar & McEwan	9.605	2.300	regular BR
Peter Malloch	9.812	2.400	regular BR

(1769), although the surviving structures are difficult to relate to this plan. A Rental of 1720 for Carwhin lists its parts as Craignaha, Margdow, Margphuil, Tomour, Croftvellich and 'Ballemore with the Crofts' (NRS GD112/9/5/8/13). The rentals for 1738, 1754, 1769 and 1781 are similar (NRS GD112/9/49). The earliest record of the name Balnreich is from 1797, when Archibald McIntyre, crofter and smith in the part of Blarmore called Ballinreich, petitioned to keep the whole farm. In the same month Donald Malloch, cottar in the part of Blarmore called Ballinreich, also submitted a petition (NRS GD112/11/5/1/43). A report of 1777 gave Archibald McIntyre, smith, as an inhabitant of Blarmore (NRS B66/15/13/15), and he himself suggested he had been smith there since *c* 1772 (NRS GD112/11/3/3/16). It is likely that the name Balnreich began to be applied to this cluster at some time between 1781 and 1797.

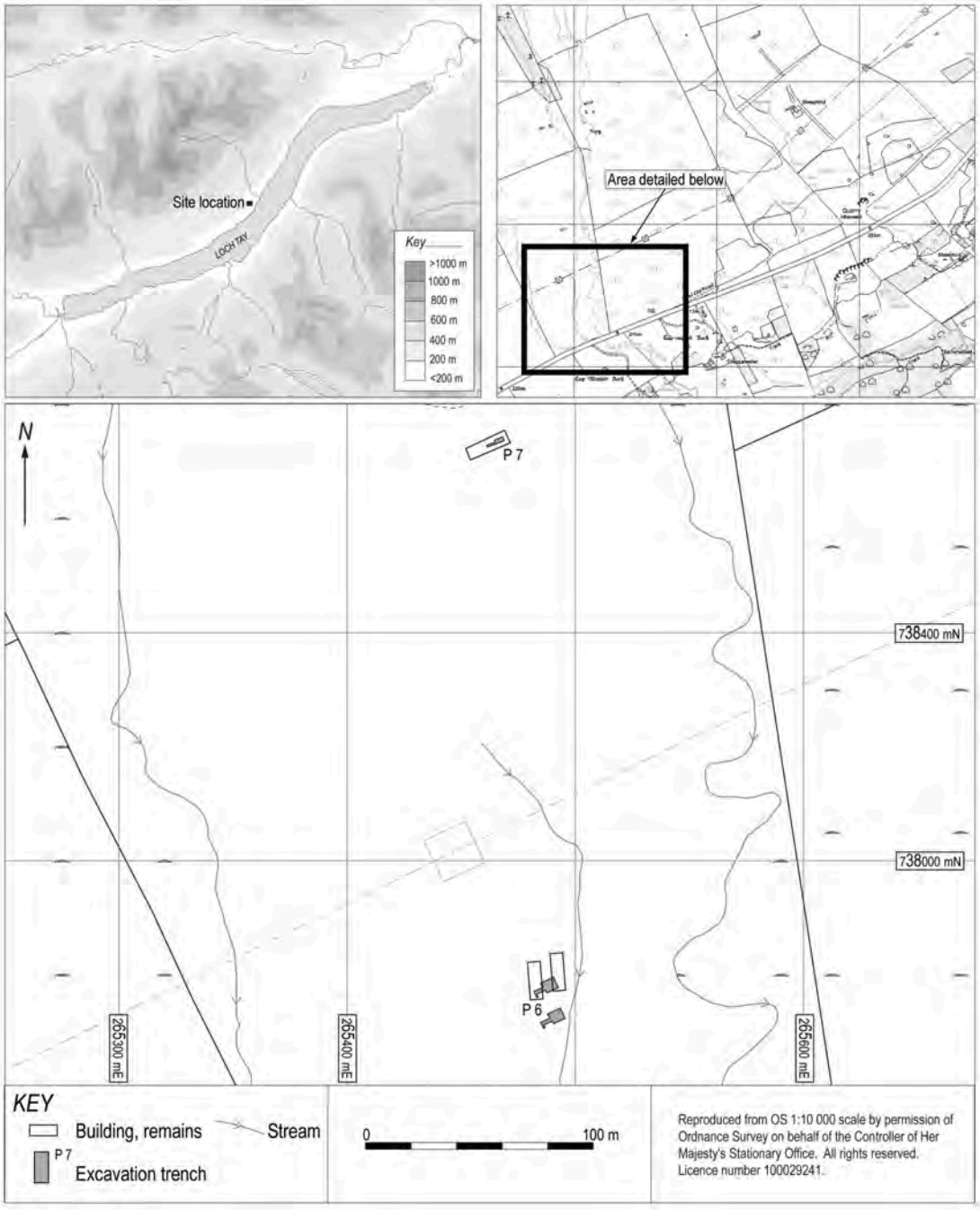
A series of petitions in late 1797 throws further light on Balnreich. Archibald McIntyre, the smith, retold the tale of his settlement as smith, which took place 'about 25 years ago', when he took over the house and croft occupied by the former smiths. In 1795 he had applied for an additional cow's holding, then occupied by Donald McIntyre, a crofter in Balnreich, also described as a herd (NRS GD112/11/3/4/26). This was approved and Donald McIntyre was moved elsewhere (below). That gave Archibald use of the land but left the house vacant, so he leased it to Donald Malloch, a weaver who still occupied it. When 'the farm of Blarmore' was 'laid out in lots very different from the former', a place was laid out for the smith's house and smiddy; however, a place was then measured and marked out on the west side near the 'middle' (presumably of the lot), intended for a croft for some person (in other words, a new croft on the same lot). The lot was already barely sufficient to maintain his family, McIntyre explained, and he asked for the whole of it, as it was central for his work as smith of Crannich, Carwhin, Edramucky, Kiltyrie, Rhynachulig and Blarliaragan. If this was granted he would need the house now occupied by Malloch to be a byre and stable and so he asked for Malloch to be provided for elsewhere (NRS GD112/11/5/1/43).

Donald McIntyre, the crofter/herd, also petitioned at this time (NRS GD112/11/6/2/1) and once again later that year. He had been a crofter in Blarmore (that is, at Balnreich), where he had built a dwelling-house where there had been no houses before; he had also built a barn, which he renewed and enlarged, and a 'little house' built later, providing all the necessary timbers. He had then had to move to make way for Archibald McIntyre, the smith (NRS GD112/11/5/2/41). Donald Malloch, the smith's subtenant, also petitioned, describing himself as a cottar in Ballinreich, and a weaver by trade. The new division had created a new croft, contiguous to his present cottage on the former outfields of Blarmore; its convenience to the present house made it ideal and it was thought sufficient for

a cow. He asked for this croft so he could support his family (NRS GD112/11/6/1/73).

Archibald McIntyre was still 'smith in Balnreich' in June 1798, when he petitioned to be paid for his work by weight (NRS GD112/74/690/10). However, in 1800 it was reported that David McCaill in Blairmore 'inadvertently got the Smith's lot without reserving a lot for the Smith' – followed by the note 'another place for him' (NRS GD112/16/4/4/8). In 1803, all the tenants of Carwhin and Crannich contributed £12 towards the Smith's House (NRS GD112/12/1/2/47). This might correspond to the move to the new site between Carie and Balnreich, where the new smithy was constructed.

The name Balnreich is not used consistently in the census returns. In 1841 there were three households listed at Balnreich. Hugh Cameron, blacksmith, and his family were listed at Carie, presumably corresponding to one or other of the later smithy sites. He is listed in Balnreich in 1871 but, on the assumption that this corresponds to



Illus 8.3 Craggantoll location-plan

the smithy on the main road, he is ignored in all these entries. In the same way, it is very probable that the house on the south side of the low road, shown roofed on the 1st and 2nd edition OS maps (1895), is also sometimes listed under Balnreich. Balnreich is not recorded as a distinct site in the Valuation Rolls (1855–1900), though some of the people recorded at Balnreich in the census can be tentatively identified under the Carie entries in the Valuation Rolls. This means that the OS maps remain the best guide to the date of abandonment.

8.2 DUNCAN CAMERON'S FARM IN CRAGGANTOLL

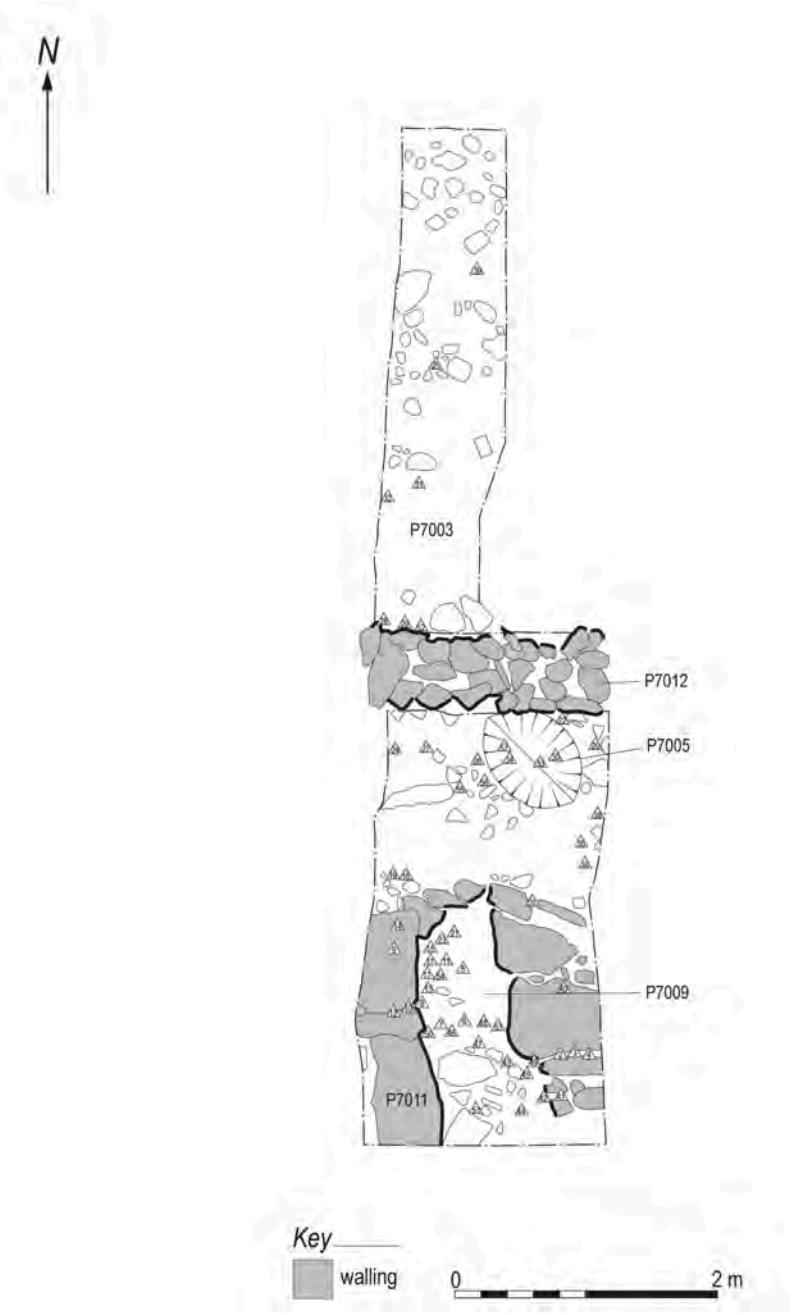
The association of Duncan Cameron with Building P7 is perhaps the strongest of the relationships between the paper record and the physical remains discussed in this chapter. Of course, the record indicates that he built the entire steading, not just the site partially excavated in 1996 (Illus 8.3). However, it seems likely that P7 was the main dwelling and therefore Duncan's house (Illus 8.4).

8.2.1 Anatomy of Craggantoll Steading

Building P7 was the largest in the group of structures established on the lower outfield lot at Craggantoll (NGR NN 6546 3848). Located immediately to the south of a large moraine mound, the principal dwelling was oriented WSW/ENE. It was flanked by two perpendicular ranges that projected from either gable to the south and, in the case of the eastern range, also to the north. The square yard this created to the south of the dwelling was used partly for the farm midden and also for accessing all the buildings that faced onto it. The buildings were constructed from local stone, coarsely faced along their outer sides and held in place without the use of mortar. It is likely they were roofed in thatch, held on cruck-timbers seated in the walls.

The farm's principal dwelling (P7) was 16.2m long by 4.4m broad internally and had two doors facing SSE onto the yard. One of these was centrally positioned along the wall. The other, defined by facing-stones on its west side, was located 7.85m from the ENE gable. Much of the eastern end of the SSE wall had been removed. Both entrances led

Illus 8.4 P7 under excavation, 1996



Illus 8.5 P7 trench-plan

directly into the byre, which was separated from the dwelling-end by a crudely-formed drystone wall. A gap was apparent in this partition, near the central entrance, implying that entry to the dwelling-end was via this route.

8.2.2 Excavation Strategy

Building P7 was selected as a representative example of the type of dwelling built after 1800 within the outfields along the loch-side (see 8.1.1 above; Atkinson 2010). A small trench, *c* 3.9m long and a maximum of 1.9m wide, was positioned along the central axis of the structure, straddling the partition (Illus 8.5). The aim was to confirm the location of the byre and, if possible, recover suitable dating material (Atkinson et al 1997: 7).

8.2.3 Deposits and Stratigraphy

Removal of overburden and topsoil deposits revealed a large, stone-built central drain (P7011) and a

small pit (P7005) in the ENE end of the building, with the remains of the drystone partition (P7012) and an earthen floor in the WSW. The central drain (P7011) was represented by four large schist slabs, paired to either side of dark-brown organic silt (P7009) with frequent pebble inclusions. This material was notably similar to the topsoil in the trench. Excavation revealed this to be a stone-lined channel running on an ENE/WSW alignment. The majority of the artefacts recovered from Building P7 came from in and around the central drain. Fragments of three datable bowls (BAI, CAX & EO) were recovered from this area; these suggest deposition occurred after 1825 and may have continued into the 1850s (see 8.2.4.1 below).

A small pit (7005) was discovered against the eastern side of the partition-wall. The feature was fairly shallow and had a stone lining along its north-eastern edge. The pit contained a primary sand-silt fill (P7008), which had been superseded by a pebble-rich silt fill (P7006). A single sherd of Rockingham-type teapot (SF P7030) was recovered from it, suggesting deposition after 1840 (see 8.2.4.1 below). The partition-wall (P7012) which divided the interior of Building P7 had been constructed directly onto the earthen floor in the western end of the trench (P7003). No other features were found in this area, and few artefacts were recovered from the interface between the topsoil and Floor P7003.

8.2.4 Finds

8.2.4.1 Ceramic

George Haggarty & Robert S Will

The recovery of 67 sherds of industrial ceramic provided some evidence for the date of Building P7. The assemblage includes fragments of three closely-dated bowls (CAX, BAI & EO), together with a sherd from a Rockingham-type teapot. Pearlware bowl BAI is likely to have been manufactured after 1825, as is slip-decorated bowl EO. Much of the pottery assemblage, including bowl CAX and the teapot, was probably manufactured after *c* 1840.

8.2.4.2 Glass

Robin K Murdoch

A total assemblage of 62 sherds of glass was recovered from the site, representing a minimum of nine separate vessels. Vessels C and H were manufactured during the 20th century and are likely to be examples of 'picnic' glass, which is commonly found on sites after their abandonment and represents discard by casual visitors. Six of the remaining vessels are bottles and probably date to around the mid 19th century. There was evidence of three-piece moulding on a small number of sherds. Evidence for fine tablewares was recovered in the form of a faceted drinking-vessel (G). Fragments of tinted window-glass were found, suggesting the building may have been glazed until the 1850s.

8.2.4.3 Metalwork

Although 59 fragments of metalwork were recovered, no diagnostic material was represented and most fragments represent portions of nails.

8.2.5 Interpretation

On the basis of the historical evidence, it is possible to be certain about the founding of the steading at Craggantoll. Duncan Cameron's request for the lot in April 1798 was clearly granted, and he is said to have built a new steading by 1800 (see 8.6.1 above). Cameron's name was still associated with the Craggantoll site in 1812, but after this its history of occupation becomes less clear. The few datable ceramics associated with the site suggest it was still being occupied after 1825 and possibly as late as the 1840s, although stratigraphically the dated sherds were by no means secure.

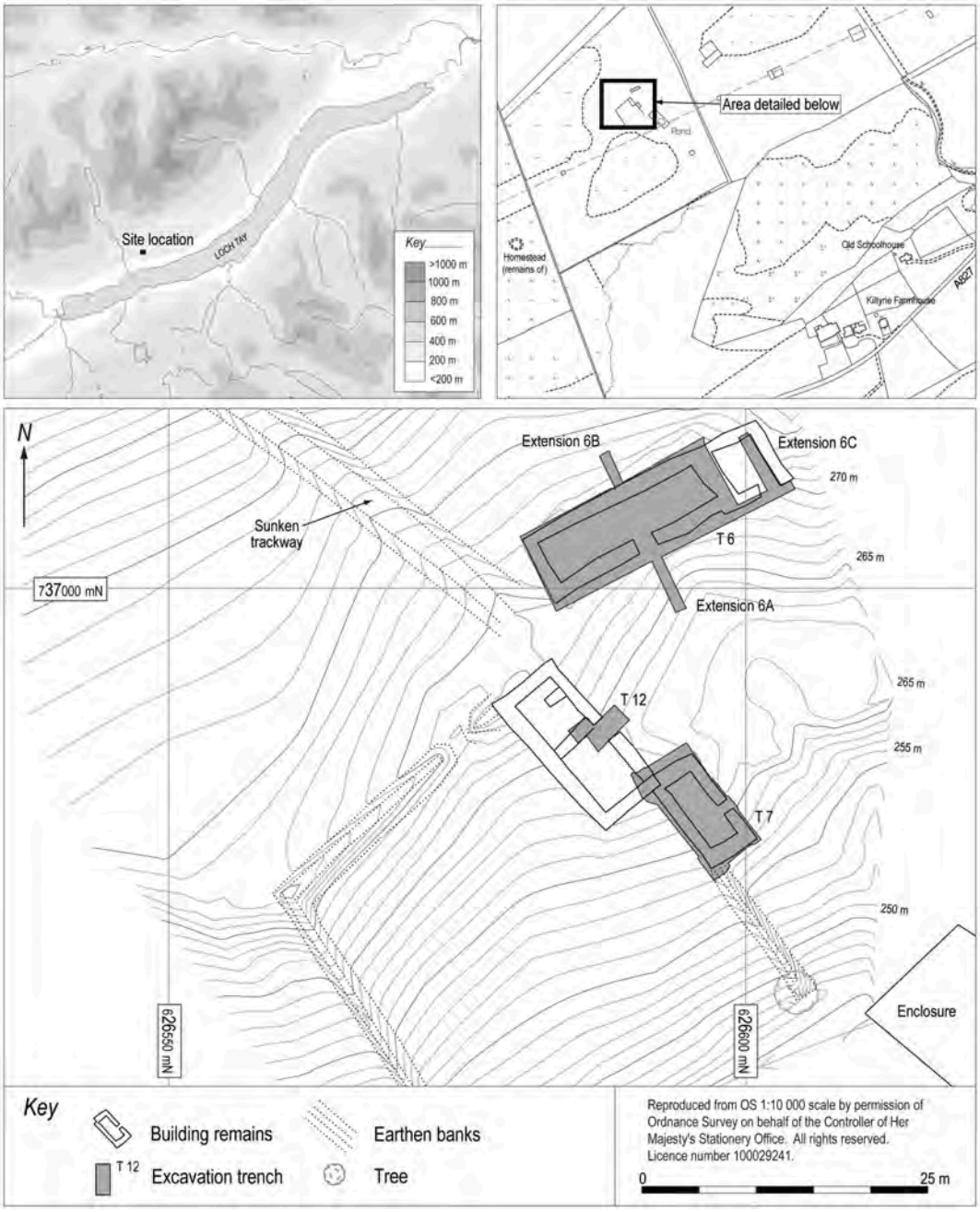
There is a broad correlation between the ceramic vessels and the dated glass, with the exception of the 'picnic' glass noted by Murdoch (8.2.4.1). In short, final acts of deposition in Building P7 seem likely to have taken place during the 1850s. This postulated date of abandonment is not out of keeping with the later history of Carwhin as a whole. It is clear that the amalgamation of holdings to create the Outfields Farm was being actively considered by 1835 and had occurred by the time of the 1851 census (see 8.1.1 above). Although no definitive proof exists that places Craggantoll within Outfields Farm at this stage, it certainly formed part of the amalgamated farm by 1862–3 and the Ordnance Survey depicted Building P7 as roofless in 1864.

8.3 KILTYRIE: A NEW FARM WITHIN THE OUTFIELDS

Kiltyrie Farm formed part of a group of four steadings established within the Kiltyrie outfields after the introduction of the General Lease of Loch Tayside in 1797 (see Chapter 7, section 7.1). It seems likely that the site excavated and reported upon as 'Kiltyrie' during the project is in fact the largest of the four steadings. There is no evidence that any of them had a separate name during their occupation; however, it does appear likely that this site was built and occupied by Duncan MacPherson and his family (see 8.1.2 above).

8.3.1 Composition of Duncan McPherson's Farm

Duncan McPherson's farm was composed of three main buildings (T6, T7 and T12) and an adjacent

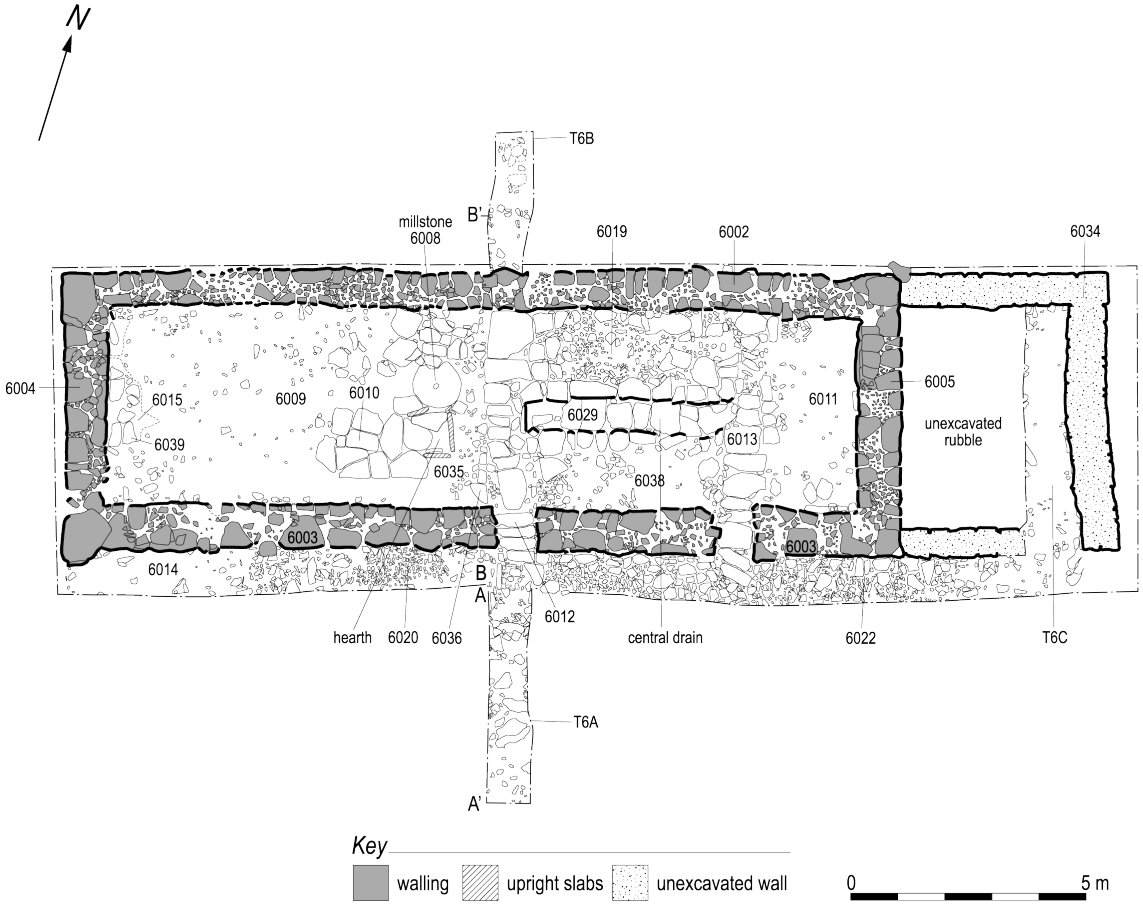


Illus 8.6 Kiltyrie location-plan

yard. The only other feature was part of a peat-track leading from the farm to the north-west (Illus 8.6). The buildings sat on a natural terrace on the slopes below Leacann Ghlasa (at *c* 265m above OD), away from any watercourses and a considerable distance from the main road. Building T6, the largest of the three, was oriented south-west/north-east and had two entrances facing south-east. In contrast, Buildings T7 and T12 were aligned north-west/south-east and had entrances facing north-east, and in T12's case also to the south-west. The buildings were constructed of local stone, which had been roughly hewn to face the walls, with the cores filled with rubble; no mortar bonding was evident. In all probability, each of the buildings had a thatched roof, supported by cruck-timbers set within the walls, but no evidence for this was recovered. Building T6 was 15.8m long by 4.1m broad and had been extended to the east by 3.7m during occupation (T6C). T12 was smaller, at 11.9m × 4.1m, while T7 was 6.8m × 2.8m.

8.3.2 Excavation Strategy

The main target was Building T6, the principal dwelling; however, the aim was to excavate as much of the steading as possible (Atkinson et al 2004a: 9). This included the entirety of T6 and three extension trenches, opened to assess the nature of the depression to the south-east of the building (T6A), a possible drainage channel along the north-west exterior (T6B) and the use of the eastern extension (T6C) (Illus 8.7). Building T7 was the secondary target. Located to the south of T6, this building lay partially beneath Building T12, which lay to its north. Once again the entire footprint of the building was excavated (Illus 8.8). The final trench was opened over a section of the north-east wall and interior of T12. A small extension was later added to its north-west corner (Illus 8.9).



Illus 8.7 T6 trench-plan

8.3.3 Deposits and Stratigraphy

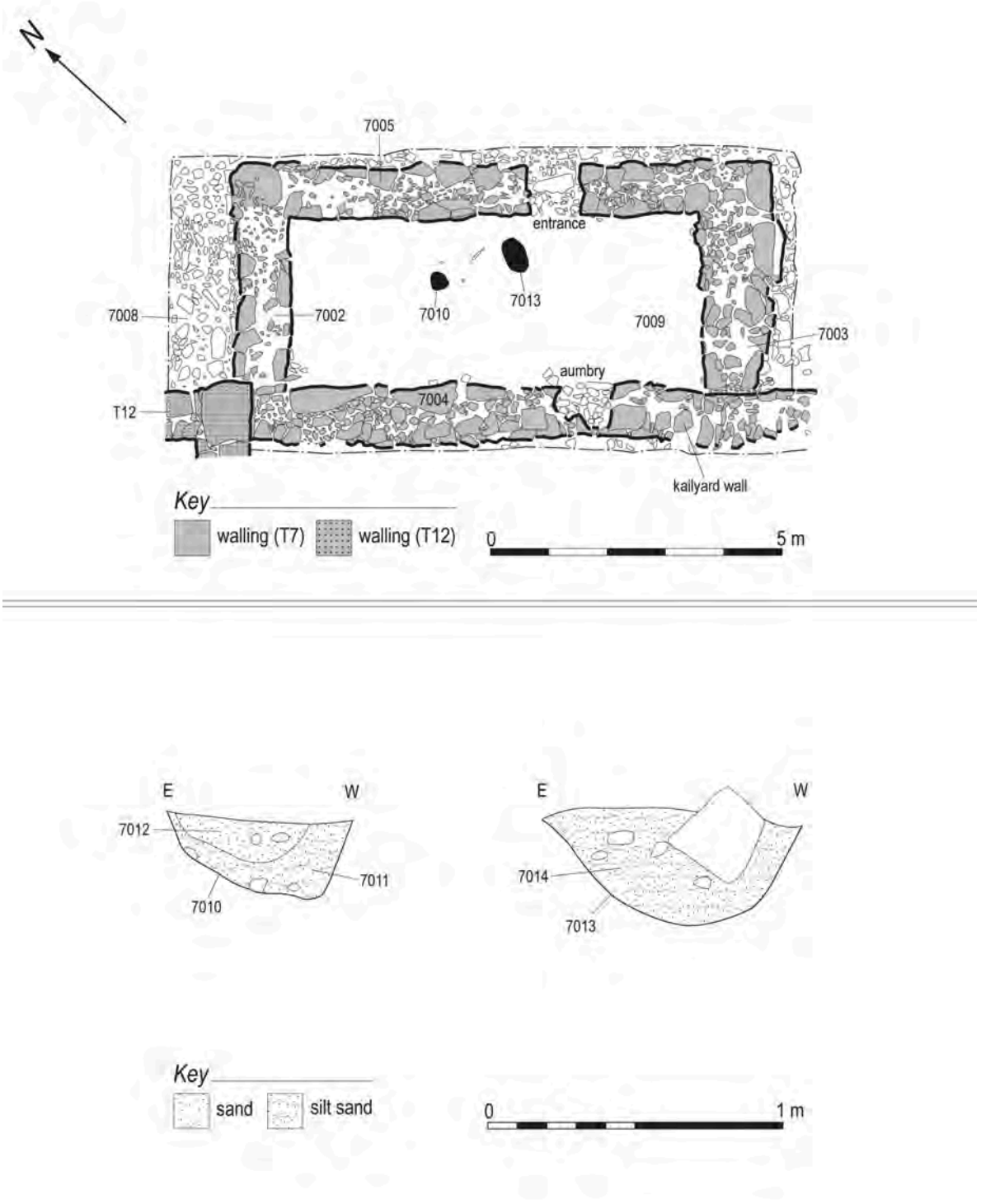
John A Atkinson & Kirsteen McLellan

8.3.3.1 T6 – Phasing

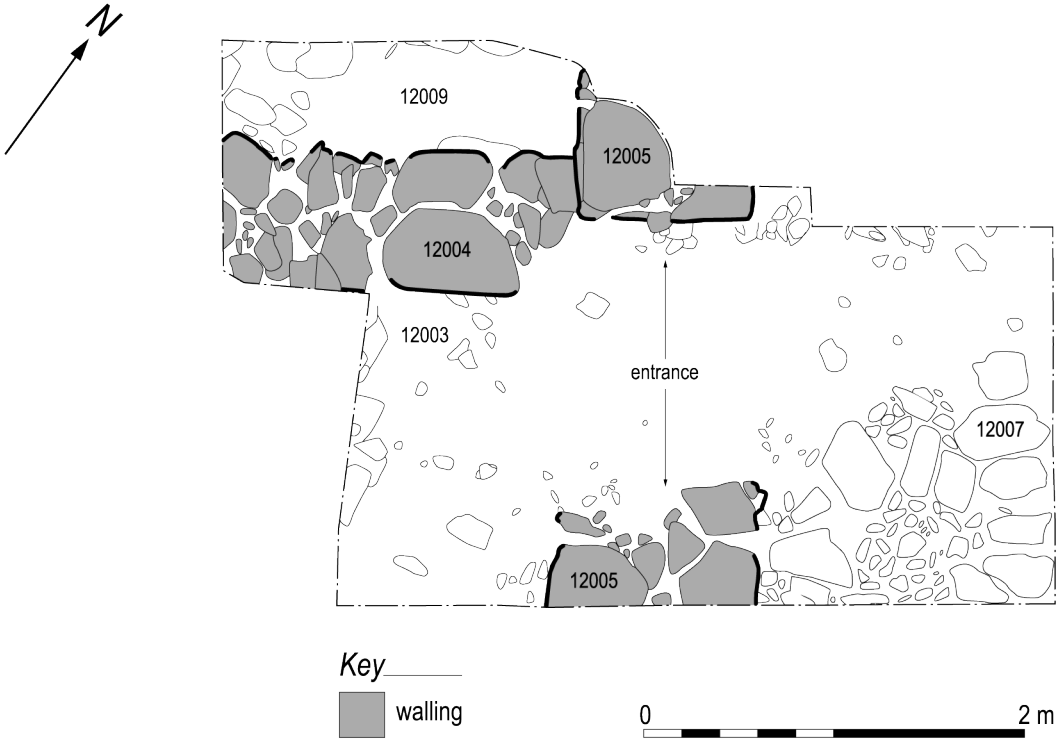
Few structural changes were observed in Building T6, but those that were noted, taken together with the unusual distribution of dated ceramic sherds, provide tentative evidence for two phases of occupation. The following timeline is based on the archaeological and historical evidence:

Phase 1 – Construction of farm and occupation, 1798 to *c* 1822–30

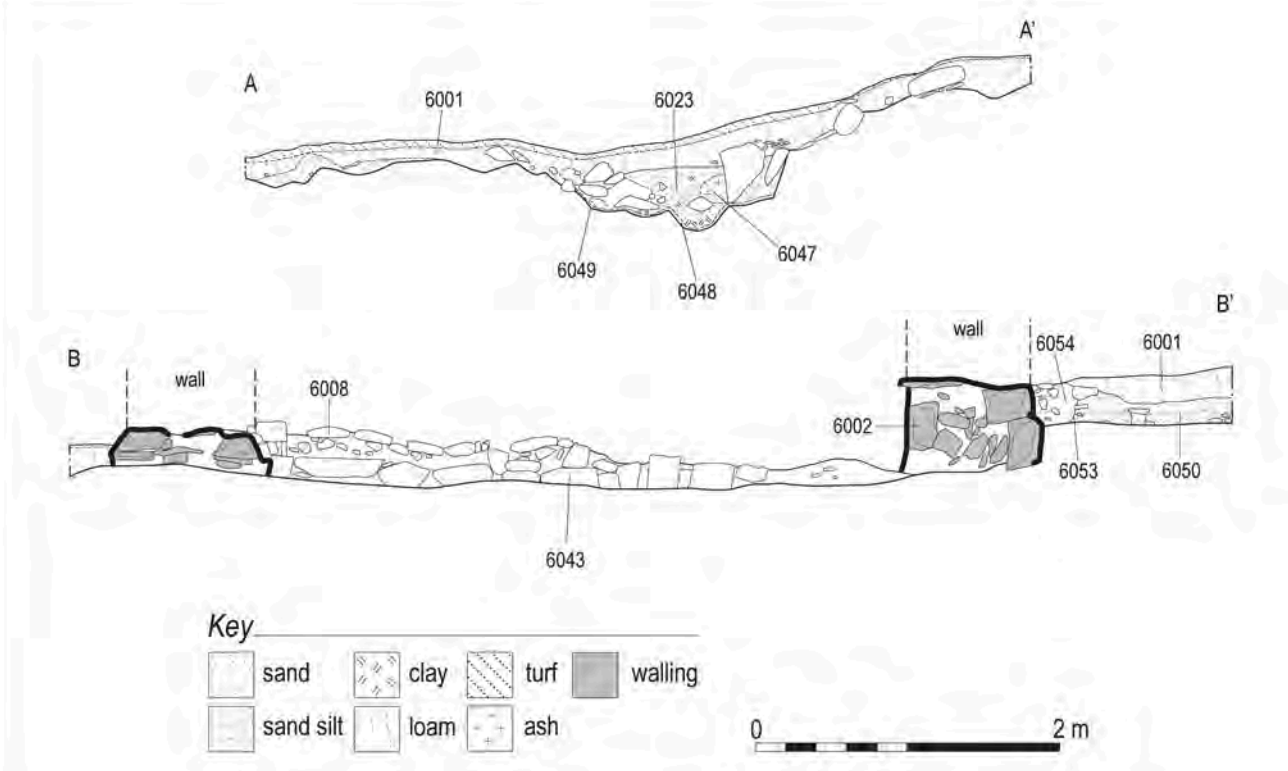
Phase 2 – Re-occupation and occasional use, *c* 1840 to *c* 1850–60



Illus 8.8 T7 trench-plan and sections



Illus 8.9 T12 trench-plan



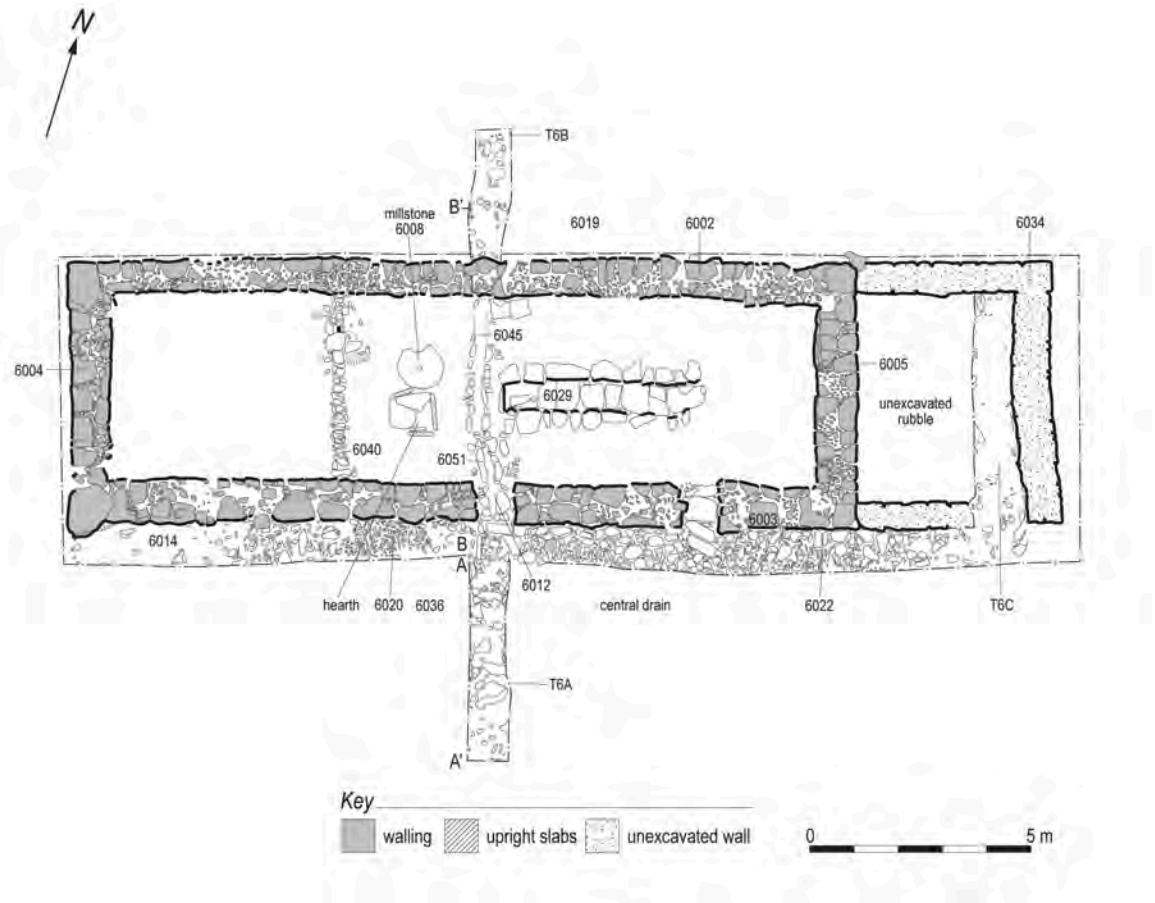
Illus 8.10 T6 sections

8.3.3.2 T6 – Sequence

The construction of T6 began with the levelling of a platform towards the back of the terrace. Construction of the drystone long walls and gables followed to provide the outline of the building (Illus 8.10 & 8.11). Two entrances were established in Wall 6003, one central to the wall and the other to the west of the eastern gable (6004). A ditch (6053) may have been dug along the upslope exterior of Wall 6002 at this time (Illus 8.11). Once the wall had been raised, an earthen floor (6009) was laid in the western half of the building. Recovery of ceramics from the floor, including fragments from three creamware bowls (A, AA & AD) and the rim from a transfer-printed saucer, places this event after 1800. Areas of slabbing (6008) and a hearth (6035) were introduced at this time. A large, fragmented millstone, similar to the one observed in Building T1 at Balnreich, formed part of this paved surface (see 8.3.5.6 below). The recovery of *c* 50 sherds of late 18th-century crown window-glass (see 8.3.5.2 below) attests to the building being wind- and watertight by this stage.

It is likely that the western hearth (6039) and Partition-Footings 6036 & 6040 were put in place around this time. Partition-Footing 6036 enabled a timber wall to be mounted in the centre of the building, which separated the dwelling-area from the byre. The footing terminated towards Wall 6002, where an entrance led into the central room. Partition-Footing 6040 also had an entrance towards Wall 6002, as evidenced by Post-Hole 6044, set in its northern end. Fragments from two sponge-decorated bowls (FK & FM) from the fill of Post-Hole 6044 suggest that the partition was established some time after 1825, or was possibly renewed then.

Within the byre, construction began with the digging of a series of narrow channels below the platform's surface. These included Channel 6054, which ran from outside the building through the



Illus 8.11 T6 detail of drainage system and partition

central entrance to the rear wall (6002). This feature was lined with upright slabs (6043). It turned 90° on reaching Wall 6002 to run in a north-east direction. Later, this feature silted up (6042); a number of artefacts were found in its fill, including 18 sherds of vessel CAI, a badly frost-damaged plate manufactured some time during the 1830s (see 8.3.5.1 below). Channel 6054 was capped by flat slabs (6012), which continued outside the building; they provided the surface for a path into the building and enabled the drainage-channel to discharge into a ditch (6049 cut along the base of the platform) to the south-east of the building (Illus 8.11).

A second channel (6051) was also revealed. This also originated outside the building, entered via the eastern doorway, reached Wall 6002 and turned towards Drain 6054. The cobbled area (6019) between the channels was not fully excavated, but it is likely that the channels joined at some point (Illus 8.7 & 8.11). This drain also had stone sides and later silted (6045) and was sealed by a layer of paving-slabs (6013). Fragments of an 1820s pearlware bowl (Vessel C) and an 1840s cup produced by Portobello Pottery (Vessel BF) were recovered from the silting layer (see 8.3.5.1 below).

Another, broader channel (6046), cut to house the central drain (6032) that ran between both entrance paths (6012/6013), was probably constructed at this time. Channel 6046 partially filled with silt (6041/6052) before the base and side slabs (6032) were put into place. The recovery of fragments of an undecorated creamware porringer (Vessel AB) from beneath the drain, together with fragments of Vessel BC from its fill (6018), suggests this may have occurred after 1810 (see 8.3.5.1 below). The events that followed included levelling the floor inside the byre by the introduction of earthen materials 6011 and 6038/6021 and the creation of a Cobbled Area 6019. Ceramics recovered from these layers and from the fill of the central drain suggest deposition from at least 1820 until the 1850s. In contrast, it is noteworthy that the deposition of pottery in the dwelling-end of the building was concentrated before 1830; only one out of 12 vessels recovered dates after 1830, while ten vessels date from 1800 to 1825. The implication of the ceramic evidence is discussed further below.

Stratigraphically, three events occurred late in the sequence. The building was extended to the east by the addition of Room T6C. Limited excavation here established that the room had a compacted earthen floor (6055), although no datable material was recovered from it. The final event in the building's west end was the dismantling of the partition between the western and central rooms (Illus 8.11). The footings that held the partition were left in place and covered over by earth, except at the southern end, where the hearth-slabs were expanded to the west (6010) to seal them. This event is not clearly dated; but the discovery of sherds from a badly frost-damaged bowl (JC) sealing the footings – conjoining sherds were also found in Ditch 6053 – suggest this event may have occurred before 1850. In the byre, the final event was the paving (6029) of Drain 6032. This is also likely to have occurred after 1850, as fragments of a platter (Vessel CN) were sealed by this event.

8.3.4 Buildings T7 & T12

8.3.4.1 T7 – Phasing

The phasing of T7 followed a similar pattern to that observed in T6. The building was probably constructed in 1798 or shortly after by Duncan McPherson and had one phase of use.

8.3.4.2 T7 – Sequence

T7 was built on the southern, downslope edge of the terrace which T6 occupied. It was constructed over the lip of the terrace, and there was little attempt to level the building's floor prior to erecting its drystone walls (7002–7005). The building was appended onto the yard's existing orthostatic wall (7004). An entrance was placed slightly off-centre along the north-east wall (7005), and an aumbry within opposing Wall 7004 mirrored its position. A poorly developed earthen floor (7007/7009) was found inside the building, through which two pits were cut (7010/7013) (Illus 8.8). Neither pit contained artefacts, but fragments of Scots pine charcoal and notably wood were recovered. This has led Miller & Ramsay (8.3.6) to conclude that both features may have held structural timbers. Very little material culture was found in the building,

although fragments of four ceramic vessels were recovered from Gable 7003 and Floor 7007. Two of these vessels (BE & BF) were also present in T6. Deposition of the sherds seems to have begun after 1820 and may have continued into the 1850s; 42 sherds of a badly frost-damaged bowl (JA) were recovered from Floor 7007.

8.3.4.3 T12 – Sequence

Limited excavation of T12 revealed parts of two drystone walls (12004/12005), constructed of dressed stones, double-skinned with a rubble core (Illus 8.9). Wall 12005 may have originally been constructed as the continuation of the yard wall. The robbing of facing-stones was notable around the south-east entrance to the building. To the west of and abutting Wall 12005, a further drystone wall (12004) was exposed running perpendicular to the outer wall; this may have formed an internal partition in the building. To the east of Wall 12005 was an area of paving (12007). No dating evidence was recovered, although Building T12 post-dated T7 in construction terms.

8.3.5 Finds

8.3.5.1 Ceramic

George Haggarty

A minimum of 45 identifiable vessel-types can be inferred from the ceramics from Building T6, which account for 59% of the overall ceramic assemblage from the site (420 sherds). The rest of the sherds are either too small to identify or examples of undecorated wares. One sherd from a lathe-turned teapot-cover (Vessel P) could be as early as 1780. However, in general the date-range observed begins *c* 1800–10 and continues to the 1850s. No closely-dated later vessels were recovered. Bowls were by far the most common vessel-type recovered (51%), followed by teawares (28.9%) and plates (13%). The rest of the assemblage (*c* 7%) was made up of domestic items such as dairy bowls, crocks and platters. One item (Vessel H), a brown salt-glazed bottle which would have contained 'blacking' used to clean metal stoves, is unusual within this assemblage and is likely to have been deposited long after abandonment.

8.3.5.2 Glass

Robin K Murdoch

The glass assemblage recovered from Building T6 has unusual characteristics. Of the 398 sherds, over two-thirds (67%) came from window-glass (see discussion in Chapter 10). Relatively few vessels – the minimum number of vessels is estimated as *c* 12 – were recovered from this site, other than six bottles, two medicine-phials, two drinking-vessels, possible fragments of lamp-glass and what may be part of a glass pestle. The dating of the assemblage concurs with the ceramic report above. It places occupation towards the end of the 18th century and lasting until the mid-19th century, at which point deposition of glass products quickly tailed off.

8.3.5.3 Metalwork

Adrian Cox

A small copper-alloy assemblage was recovered from T6, including four buttons (SFs 6069, 6248, 6252 & 6147) from the earthen floor (6009) of the building. Most have plain, circular faces and incorporate an eye formed by a wire loop, set within a boss in the centre of the button back. SF 6248 illustrates the concentric turning-marks of these machine-turned buttons, which were often tin-plated. They date from the 19th century. SF 6147 had eyes attached by soldering and had been stamped, possibly with a maker's name or a type name. The surviving part of the legend reads '... ILT(O)' (possibly HILTON).

In addition to the buttons, a single spoon-bowl was recovered from unstratified layers at the site and probably dates from the mid to late 19th century, when rapid advances in mechanised manufacturing were beginning to sweep away the already-diminishing variety of spoon-types, replacing them with more standard designs. This spoon would have served as a teaspoon and has an integral handle (instead of being made in two parts) and possible traces of plate surviving on its surface. A small thimble (SF 6070), surviving as conjoining fragments, was also recovered from Floor 6009. Its full length is represented, as is its domed top. The machine-knurled indentations indicate a late 18th- or 19th-century date.

The main part of the assemblage comprises iron objects. They include the remains of a box or other metal container, consisting of six cast-plate fragments

with broken edges, recovered from Cobbled Layer 6022; most exhibit a slight curvature, although one appears flat. There is also variation in thickness, and the plate-fragments may represent more than one object. SF 6011 also appears to represent the fragmentary remains of a box or cover from Context 6023, consisting of five fragments of irregular outline from a rectangular plate; one is angled at its edge. A single, probably originally right-angled bracket (SF 6021), which had been distorted, was recovered from T6. Staples of U-shaped form like SFs 6238 & 6154 may have been put to a variety of uses, such as closing boxes and chests and fastening doors and gates in conjunction with a hasp. SF 6273, found on Earthen Floor 6009, is a modern type of folding hinge, from a cupboard or, more likely, a box. A wide variety of strap-hinge forms were in use in the 17th to 19th centuries. SF 6199 consists of three conjoining fragments.

Sickles, represented here by SFs 6175 & 6051, were the main tools used for cutting corn. Their form has changed little since the medieval period, when harvesting with sickles was depicted in Queen Mary's Psalter (*c* 1320). The blades were angled backwards from the handle to facilitate a smooth cutting motion. The excavated sickles have curved blades and whittle-type tangs for insertion into wooden handles. One of the most complete (SF 6175) was found on Earthen Floor 6009. SF 6051 came from a possible midden deposit, while SF 6204 may represent a sickle or a curved pruning-knife. An almost-complete sickle-blade from a rubble deposit in the longhouse (SF 6009) has a thickened blade-back, a feature probably designed to give it added strength. Blade-fragment SF 6052 may be from a possible midden, and represent a sickle or pruning-knife. Sickle-blade fragments (SFs 6203, 6205 & 6209) all came from Context 6024 and probably represent fragments of a single sickle-blade. Sickles have previously been recovered from excavations of highland Perthshire longhouses. Two examples of 18th-century date were found at Lianach (Caldwell & Wingrove 1998: 313, illus 10, nos 30 & 31), and a sickle-blade was excavated at Allt na Moine Buidhe (Stewart et al 1999: 118, illus 7, no. 5).

Several knives and knife-blade fragments (SFs 6162, 6236, 6014, 6126 & 6054) were found. Most appear to be whittle-tang hafted, where the pointed tang is driven into a solid handle. Among this group, knife SF 6162 includes a bone handle and part of the blade, the tip of which is missing. The handle is plain and of oval cross-section, cracked where the tang has expanded due to corrosion. The broad blade has a deep choil [unsharpened section]. Blade fragments (SFs 6236 & 6014) were both found on floors within T6, as were SFs 6126 & 6054, a blade-fragment from a knife or possibly a sickle.

SF 12012, a peat-cutting spade, flanged to accept a wooden handle, was excavated from a sandy floor (12003) in the barn. This type of spade, called a slane in Ireland, is used to cut out rectangular blocks of peat, which are then stacked up to dry so that they can be burned as fuel. A similar spade, along with small blocks of peat cut from the peat-bank, is illustrated in photographs of peat-cutting in Shetland (Fenton 1978: 195; Minto 1990: 123). Tanged tools, such as SF 6003, may represent a fragment of a drawknife, used for working or splitting wood. A gently curving and tapering tooth or strip tapering tooth (SF 6290) with a rectangular cross-section was also recovered from T6. It is broken across a nail- or rivet-hole at the wider end and also broken at the other end, and may be from a rake, harrow or horse-drawn hoe. SF 6132, a possible tool fragment in the form of a triangular cross-sectioned rod, broken at both ends, may represent the shaft of a triangular cross-sectioned tool.

A complete horseshoe and a further fragment were recovered from unstratified contexts (6006 and 6022). The complete shoe was a large, heavy example, incorporating fullered grooves and toe-clips. This appears to be a shoe for a draught animal. Shoes of this type generally had greater numbers of nail-holes, increasing the bond between shoe and hoof. The toe-clips on these two examples are of different forms. A great variety of specialised shoes was developed during the 18th and 19th centuries.

A single heel-stiffener with both terminals broken was recovered from an unstratified deposit (6006). Traces of at least four nail-holes are evident. Heel-stiffeners enabled footwear to last longer in harsh ground-conditions and improved the grip for wearers. Plate-fragments such as SF 6062 were encountered in T6, as were strip-fragments such as SFs 6158, 12013 and two unstratified, but well-preserved, strip-fragments from layers 6007 & 6026.

8.3.5.4 Miscellaneous Finds

George Dalgleish

A few miscellaneous finds were recovered from Buildings T6 & T7. These include a cobalt-blue, pierced glass bead with considerable traces of wear (SF 6099), which is of indeterminate date. Three clay-pipe-stem fragments (SFs 6136, 6288 & G/f) were also recovered. Of particular note is a stem with the remains of a heel impressed 'A COGHILL / JACKSON St' in a border (SF 6136). This is probably for Alexander or Andrew Coghill, pipemakers in Glasgow 1826–1904 (Gallagher 1987: 102, 203). Finally, a clay-pipe bowl-fragment was discovered in the topsoil over Building T7 (G/f) and probably dates from the later 19th century.

8.3.5.5 Lithics

Nyree Finlay

Prehistoric activity at the site was evident in the flint edge-retouched flake (ERF) and two honey-brown small fraction flakes, one of which probably relates to pressure-flaking. The ERF is a small piece (6004, length 17mm) with invasive retouch along one lateral edge. These pieces are consistent with a date in the Late Neolithic/Early Bronze Age. The reduction of smoky-brown translucent quartz is evident in two chunks and two cores, one a fragment in the same material. The cores are amorphous flake cores. The rest of the quartz includes three flakes in different types of quartz and three splinter-flakes, one bipolar, as well as three pieces of small fraction with at least one a complete flake. Two unmodified pebbles were also collected.

8.3.5.6 Coarse Stone Artefacts

Ann Clarke

The flagstone floor in this longhouse included a substantial fragment of a millstone. This was not excavated, but was planned and photographed. At 1100mm in diameter it is similar in size to the millstone from Balnreich (see 8.5.3.4), though possibly less well made. The wide central hole also has opposed notches, but there is no indication of a rectangular perforation, though the millstone is broken at the side that might have held a perforation. This millstone does not look as worn as the one from Balnreich, suggesting that it had not been incorporated in the flooring for such a long time.

The grooved weight (SF 6020) recovered from Kiltyrie is simply a rough piece of schist with an irregular groove around the middle and a slight groove perpendicular to it at one end. It was found outside Building T12. Though clearly meant for suspension, it is unlikely that it served as a thatch-weight, being rather small at just 450g.

8.3.6 Environmental Evidence

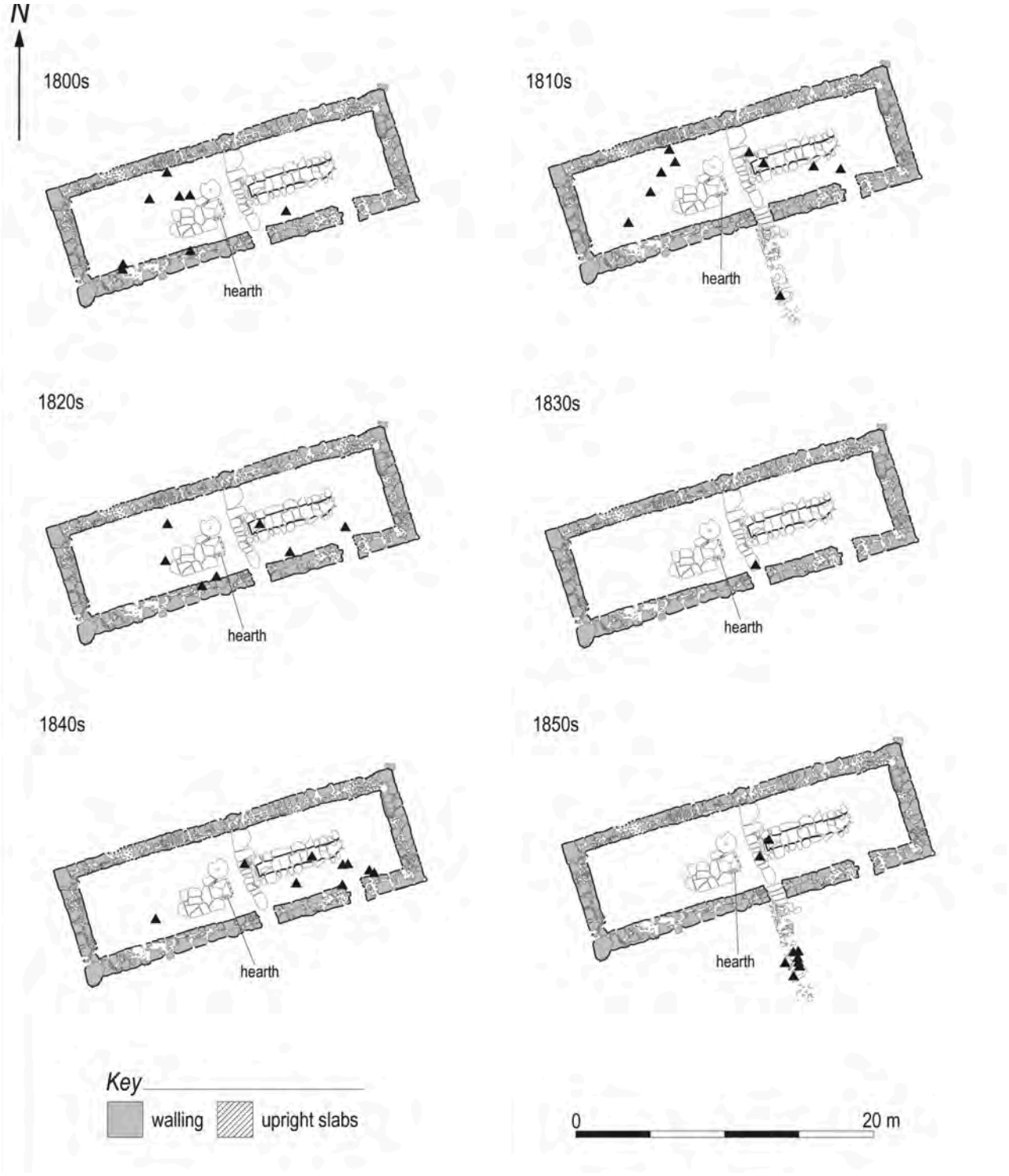
Jennifer Miller & Susan Ramsay

Analysis of the matrix around Hearth-Slabs 6039 revealed no carbonised material, but Drain 6054 contained several charcoal-rich fills. The fill of Drain 6046 also contained charcoal of heather-type, oak and especially Scots pine. The fact that unburnt Scots-pine wood was also recovered from the fill suggests it may relate to construction activity. In that case, the heather-type twigs might be residual from the thatched roof, although this cannot be said with confidence. The upper Drain Fill 6041 also contained charcoal suggestive of structural material, in this case ash, Scots pine and oak. Some of the pine recovered was roundwood, which is used for both domestic fire tapers and as small-item turnery, including structural pegs. The association of the pine with both ash and oak, yet no scrub woodland taxa, may lend weight towards the suggestion of a structural origin.

The fills of the ditch (6048, 6023 and 6047) to the south-east of the building were extensively sampled, but contained scant traces of carbonised material and do not aid in its interpretation. Similarly, a shallow ditch (6053) to the north-west of the building contained no carbonised material

Table 8.5: Number of dated ceramic vessels discarded in building T6 by decade of manufacture

Period	No. of vessels
1800s	5
1810s	8
1820s	8
1830s	1
1840s	6
1850s	5
	33



Illus 8.12 T6 distribution of sherds by period

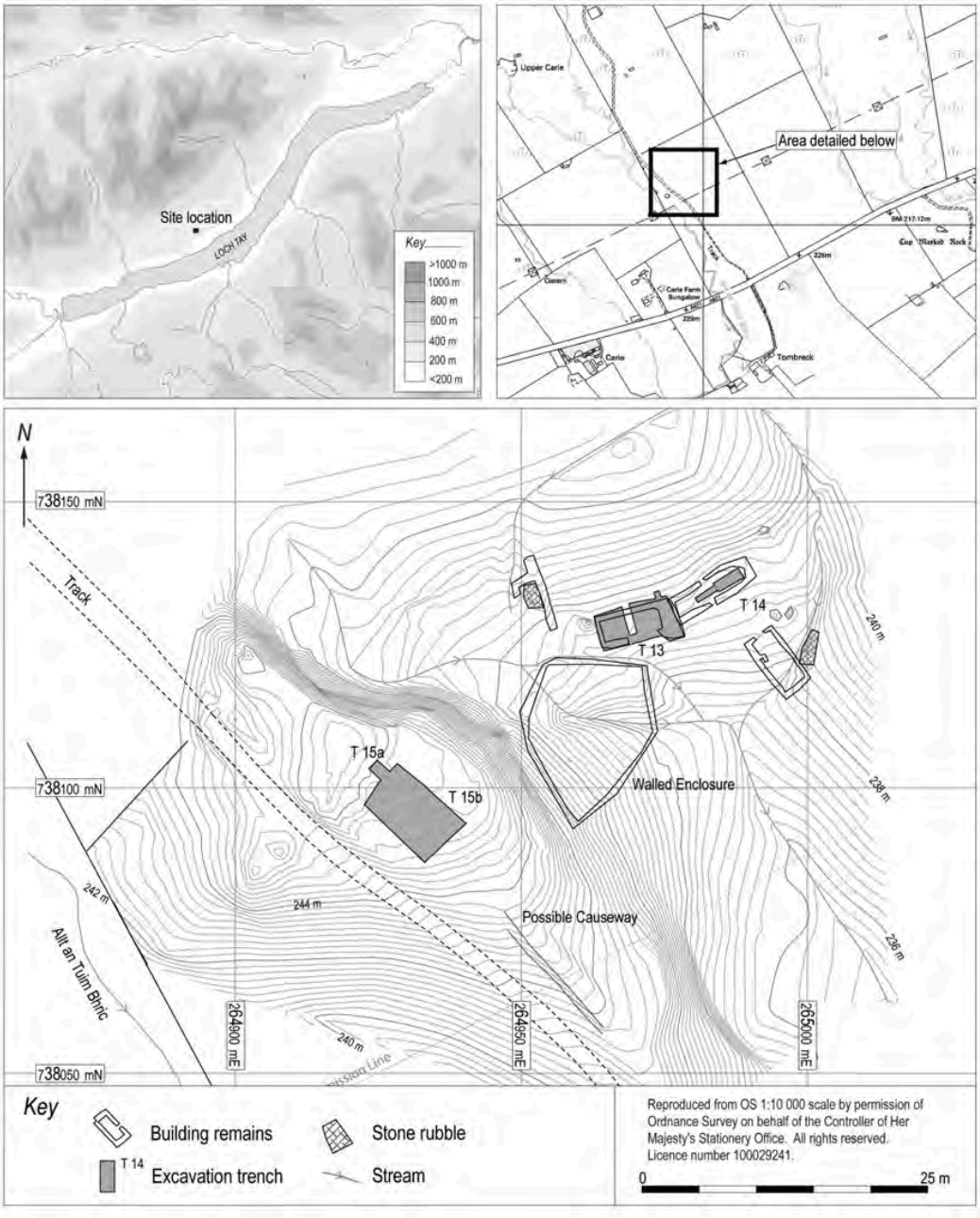
of any description. The only contexts analysed for botanical remains from Building T7 were pits (7010, 7013) cut into Earthen Floor 7009. Both features contained residual traces of Scots pine charcoal, but also significant quantities of unburnt Scots pine, so there is a strong probability that these pits did indeed hold structural timbers, whether for the main fabric of the building or for internal partitions.

8.3.7 Interpretation

The site of Kiltyrie Farm has been tentatively linked with Duncan McPherson who, if the birlayman's

report of 1800 is correct, built an excellent steading in 1798 (8.1.2 above). There is certainly nothing apparent in the archaeology of the site to dispute this date and a great deal to support it. The recovery of a flint edge-retouched flake (ERF) and two small fraction-flakes, probably from the Late Neolithic or Early Bronze Age, suggests the terrace or surrounding area was occupied at an earlier period. The main body of evidence, however, relates to the use of the later buildings, dating of which relies heavily on the ceramic assemblage and to a lesser degree on the glass. The pottery broadly concurs with the birlayman's statement that the occupation of Building T6 began *c* 1800 (8.1.2 above). This is supported by the presence of at least 13 sherds of late 18th-century crown glass (see 8.3.5.2 above) – ten of which came from the floor in the dwelling-end of the building. It seems probable that this glass was bought specifically for the building of the house.

The history of occupation of T6, in particular, seems to have followed a predictable pattern from 1800 until the 1820s, with the steady deposition of ceramic sherds over this period (Table 8.5). During the 1830s the pattern was disrupted, suggesting a



Illus 8.13 Tombreck location-plan

change in use for the building. This is supported by the distribution of dated sherds through time and by location (Illus 8.12). During the 1800s, most vessels were broken and discarded in the dwelling-end of the building, possibly suggesting the byre was not in full use during this period. The pattern changes to include deposition in the byre during the 1810s and 1820s, which might be expected in a permanently-occupied longhouse. By 1830, however, no datable sherds were deposited in the dwelling-end and only one vessel was apparent elsewhere. This could be evidence of the abandonment of permanent settlement, especially when the historical evidence for Kiltyrie is taken into consideration. During the 1820s Kiltyrie was experiencing economic strain and falling population, combined with a degree of farm amalgamation and a retreat from the outfields (Harrison 2005a: 58, 60).

There certainly appears to have been a hiatus in the occupation of T6, a feature which is supported by palynological evidence from close by, which indicates barley was grown until *c* 1830, being replaced by close-cropped pasture by 1834 (Tipping et al 2009). Interestingly, the deposition of datable ceramics began again during the 1840s, although this time the focus was clearly the byre-end of the building. This would seem to imply that the building's prime function was now to house stock. It might be possible to link this phase with one of the new sheep-farms being established at Kiltyrie during the 1830s. By the 1850s deposition of ceramics was tailing off inside the building, although a group of four vessels in the fill of the south-east ditch during this period suggests the site was still at least partly in use. The sequence of pottery discard ended around this time and complete abandonment swiftly followed. By the time the Ordnance Survey surveyed this site in 1864 it was already roofless.

The history of Buildings T7 and T12 is less clear, although a small number of ceramic vessels was recovered from the southern floor and gable of T7. These sherds suggest a date-range of 1820–50, although none was securely stratified enough to serve as a basis for firm dating. What can be said with clarity is that the yard-wall was built first in this part of the site, Building T7 was added some time afterwards and finally Building T12 was constructed partially over the north-west corner of T7; it is unclear whether or not this necessitated the demolition of T7. Building T7's role within the farm is also unclear, although its lack of hearth or occupation-deposits, and its sloping floor, seem to negate its use as a dwelling. In all probability it was built as a produce or equipment store. T12, on the other hand, although not absolutely dated, was built with opposing doors. This could indicate it was constructed as a barn, and the doors were used to allow ventilation to winnow grain.

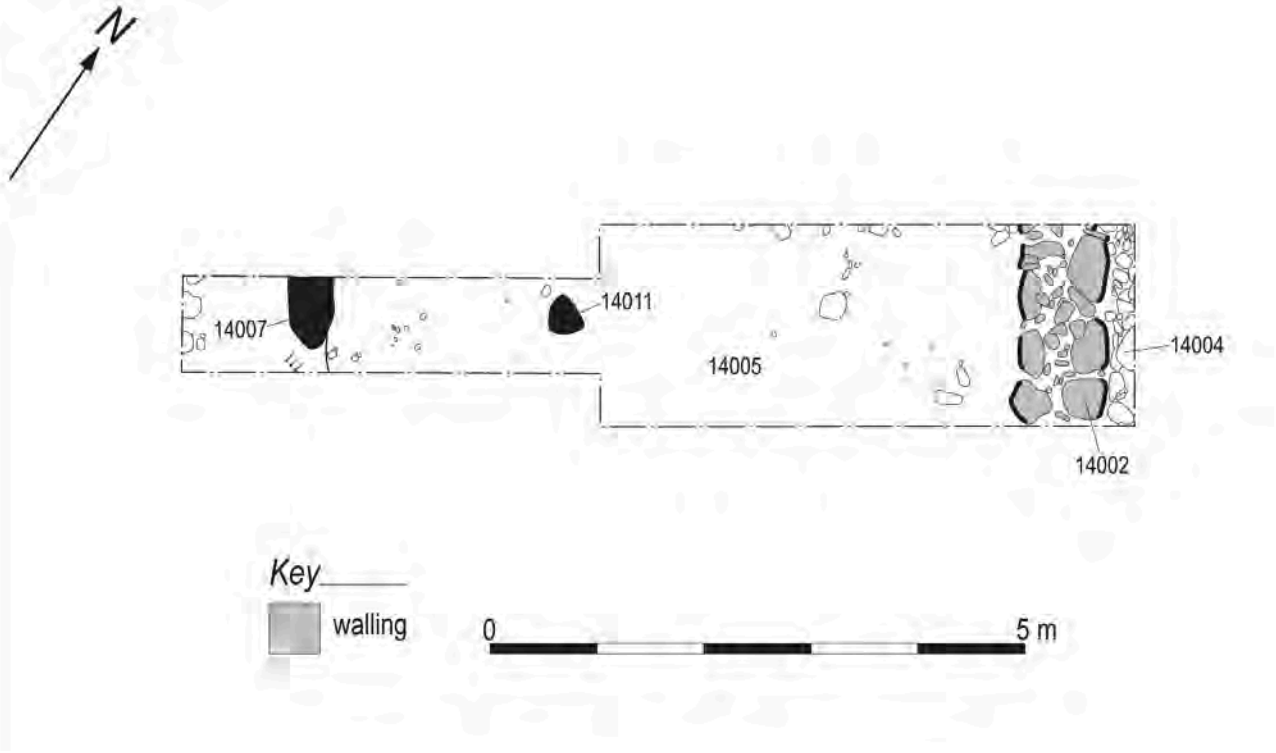
8.4 TOMBRECK OUTFIELDS: SETTLED BEFORE 1798?

The group of four buildings and associated yard which constituted this farmstead were discovered by the RCAHMS in 2000 (pers comm Eve Boyle) in a sunken hollow to the east of the Allt an Tuim Bhric and north of the A827, in the outfields of Tombreck (NN 6497 3813) (Illus 8.13). This group was previously unmapped and, as far as the evidence suggests, had no name – although the location of the group suggests that the farm was probably built as a result of the changes associated with the introduction of the General Lease in 1797 (Harrison 2005b: 106–7). If so, the settlement may have been built by Duncan Campbell (senior) or possibly Duncan McDiarmid prior to 1800 (see 8.1.3 above).

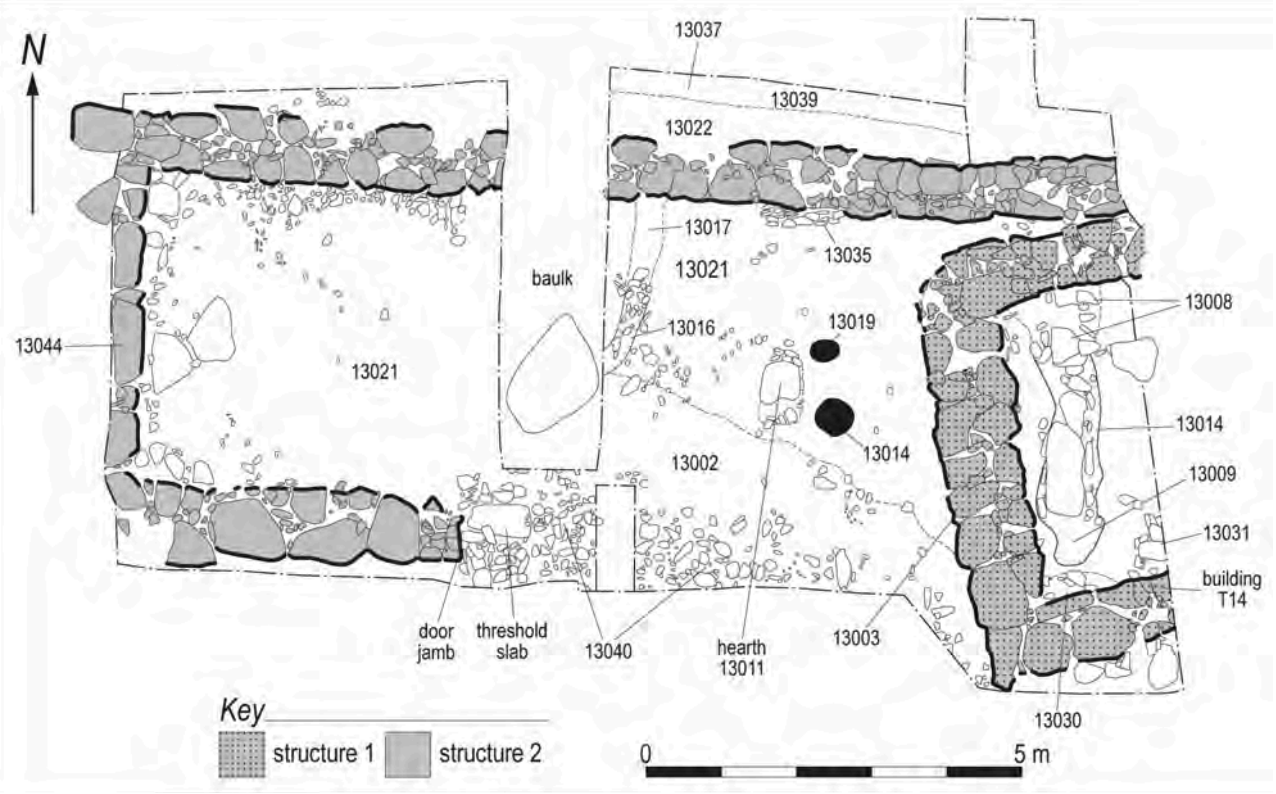
8.4.1 The Structure of Duncan Campbell (Senior)'s Farm

Tombreck was composed of two buildings, which lay adjacent to each other on slightly different alignments. Building T13 was oriented WSW/ENE, while T14 was closer to south-west/north-east. The two other buildings within the group lay at right-angles to this alignment. A series of tributary burns has developed since abandonment of the settlement, cutting through the southernmost structure and the large associated yard. The buildings had been constructed of coarsely-faced local stone. There was no sign of mortar bonding and the walls only survived as footings. It is likely, however, that the buildings had been roofed in thatch supported on cruck-timbers held within the walls.

The principal dwellings (T13 & T14) varied in size. T13 was a minimum of 12m long by 4.2m broad internally, while T14 was 16m × 3.5m. In



Illus 8.14 T14 trench-plan



Illus 8.15 T13 trench-plan

both cases there was evidence for doorways along the southern walls. In the case of T14 this was a surface observation, but the entrance partially survived in T13, some 3.8m from the western gable. This entrance may have led into the byre (see below for fuller discussion), which was was located in the eastern end of the building, separated from the living area by a drainage channel.

8.4.2 Excavation Strategy

Unlike the other outfield settlements, this grouping did not appear on the Ordnance Survey first edition map of 1867. Trial-trenching of Buildings T13 and T14 (Illus 8.14) was pursued in April 2004 (Atkinson et al 2004b). The results indicated that T13 pre-dated T14 and differed in layout from the other longhouses previously excavated by the project. T13 was therefore selected for fuller excavation in September 2004 (Atkinson et al 2005a). The excavation trench (13m × 6m) was laid out to encompass the entire building and the south-west end of T14 (Illus 8.15).

8.4.3 Deposits and Stratigraphy

Chris Dalglish

8.4.3.1 Building T13 – Sequence

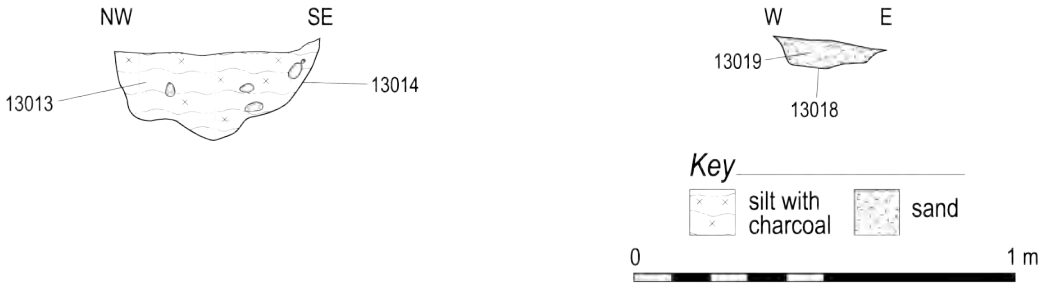
Construction of T13 began with the creation of a level platform partially dug into the gentle northern slope. The drystone walls of the building were then built directly on the natural subsoil platform; the gaps between the facing boulders were filled with a rubble core. The building of the northern wall (13023) was accompanied by the digging of a drain (13037) on the upslope side of the building. An entrance was created at the same time as the southern wall (13025) and positioned to the east of central within the wall. The interior of the structure was divided into at least two distinct compartments (Illus 8.15). To the west of the entrance was an area which originally had a flagged/cobbled floor (13040), which was later robbed. To the east of the entrance was an earthen floor (13002), defining a living-area. This occupation horizon had been deliberately prepared by the introduction of clay, although the micromorphological evidence suggests it may have been lightly used (see 8.4.6.1 below).

A north/south drain (13016) was cut through the floor and probably ran out through the entrance in the southern wall. To the east of this drain lay a central hearthstone (13011). Adjacent to the hearth was a small ember-pit (13014) which contained a large quantity of carbonised material, including a wide variety of woodland species, heather, barley and a substantial quantity of burnt peat/dung (see 8.4.6.2 below) (Illus 8.16). This pit also contained a rim-sherd (SF 13007) from a blue feather-edged plate in pearlware (pers comm Bob Will), which may imply deposition after 1780. Pit 13014 was capped by the fragmented remains of a millstone, with a central hole of 0.12m diameter. Also adjacent to the hearth was a small post-hole (13018), perhaps relating to a piece of hearth furniture.

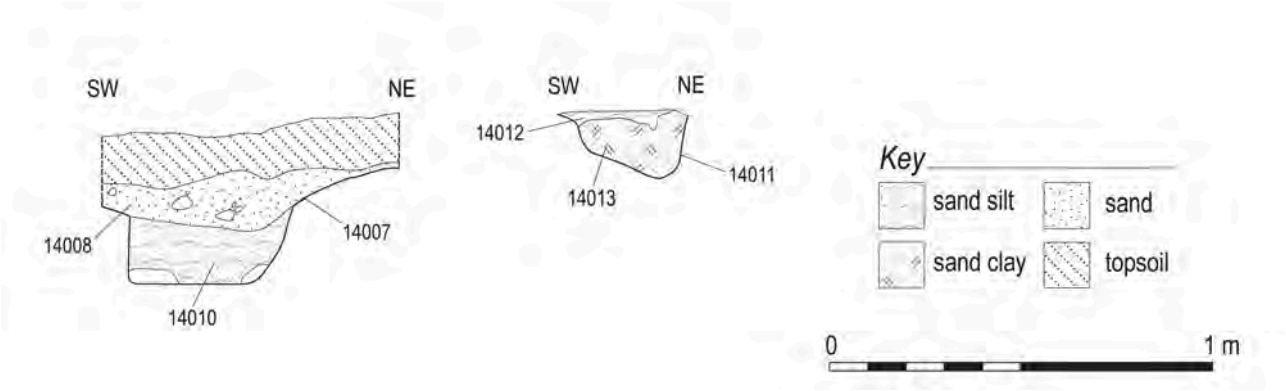
To the east of the earthen-floored living-area, the western gable of T14 (Illus 8.15) had been constructed later. The construction of T14 and in particular the laying of its floor (13007) sealed elements of T13 below it. This included a shallow, stone-lined feature (13012), filled with organic silt; a fragment of white earthenware bowl (SF 13003) was recovered from the fill. The organic nature of the fill suggests this feature was a drain and therefore implies that a third compartment lay to the east of the living quarters. Following abandonment, much of the stone from Building T13 was robbed and perhaps re-used in the construction of Building T14. It is noteworthy that most of the finds – *c* 96.5% of the entire assemblage – were recovered from the post-occupation layers of the site.

8.4.4 Building T14

Stratigraphically, Building T14 was constructed after the abandonment and demolition of Building T13. Removal of the turf and topsoil in the eastern end of the building revealed an earthen floor (14005), which extended westwards from the eastern gable of the building for at least 9m. Two features were cut through it: a small pit and a linear channel (Illus 8.17). The channel (14007) ran north-west/south-east across the building and had a rounded southern terminal. Its function was unclear, but it did contain oak, birch, alder and Scots pine charcoal (see 8.4.6.2) and sherds of Vessel BAD, a decorated bowl with a manufacture date of *c* 1809 (see 8.4.5.1 below). This feature may have acted as a drain. The



Illus 8.16 T13 sections



Illus 8.17 T14 sections

sub-circular pit (14011) was similar to the charcoal-filled pit revealed in Building T13 and contained similar carbonised remains, although no evidence of in situ burning was found and no associated hearth revealed.

At the western end of the building traces of a cobbled floor (13027) were encountered during the excavation of T13 (Illus 8.15). This partial layer – lying against the northern wall of T14 – appeared to be stratigraphically similar to Floor 13007 (see 8.4.3.1 above) and therefore contemporary with other T14 occupation layers. Cobbled Floor 13027 was only partially revealed and its original extent was not clear.

8.4.5 Finds

8.4.5.1 Ceramic

George Haggarty

The 135 sherds of industrial ceramics from this site represent a minimum of 12 identifiable vessels, eight of which can be closely dated. Bowls dominate this assemblage, and it is noteworthy that no plates are present. The presence of a cup decorated with Vermicelli pattern and produced by the Don Pottery in Yorkshire is of interest, as is the presence of a pearlware saucer decorated in classic Pratt colours. Both items suggest that tea may have been an accessible commodity for the tenants of this settlement as early as the first decade of the 19th century. Much of the assemblage suggests a date of manufacture of 1800–20. At least five vessels (CAK, CAL, CAM, EL & EM) would sit comfortably with being made *c* 1800.

A further 62 sherds were recovered from the trench in Building T14, analysis of which suggests that eight identifiable vessels (MNI of five) are represented. The assemblage is dominated by bowls, with possibly as many as four being used as dairy or washing bowls (vessels IA, IO, IL & IP). It should be noted, however, that the sherds from IA, IO & IP could come from the same vessel. One black-glazed crock was also present (IN) and showed evidence of wear on the interior, probably from continual stirring. In terms of date, the assemblage is broadly consistent with T13, but it is worth noting that Vessel IA may have been produced during the later 18th century (after *c* 1780). Only one vessel (BAD) could be accurately dated and suggests deposition occurred until 1809.

8.4.5.2 Glass

Robin K Murdoch

A total of 185 sherds of glass was recovered during both seasons of excavation in Building T13. A further 18 sherds were recovered from adjacent Building T14. The T13 sherds represent a minimum of 15 vessels, with a further two noted from T14. The assemblage from T13 includes fragments from a small medicine bottle (Vessel M) which has close parallels in colour and construction to similar items recovered from Smithwood Bastle House, Upper Clydesdale, which was abandoned *c* 1780. Four wine bottles and fragments of four other bottles from T13 have been allocated a tentative early 19th-century date, but some could be slightly earlier. Also of note is lamp-glass from two different sources (Vessels E & I) and sherds from at least four drinking-vessels (F, J, L & O). While they are too small to evoke much comment, they are generally thin, indicating that they are unlikely to be later in date than the early 19th century.

A considerable quantity of window-glass sherds (*c* 118 sherds or 64% of the entire assemblage) was also recovered from T13 and T14. These have a distinctive pale-green tint, with some of the larger pieces exhibiting features which indicate crown glass. Based on the glass assemblage, it is reasonably safe to assume this site was occupied in the late 18th to mid 19th centuries.

8.4.5.3 Metalwork

Adrian Cox

Two copper-alloy buttons (SFs 13048 & 13117) were recovered from T13. SF 13048 represents conjoining fragments of a circular button of concavo-convex form. The eye consists of a circular loop attached to the rear, probably by soldering. The concave face bears machined decoration of incised circles and hachures. It probably dates from the 19th century. The second button is of similar size, circular with a plain, flat face and an eye formed from a wire loop inserted into a boss on the rear. It may have been tin-plated.

Most of the assemblage from T13 and T14 is iron-based. Two conjoining fragments (SF 14008), representing most of the blade and tang of a sickle with its tip missing, were recovered from Layer 14008. From the adjacent T13 two blade-fragments were recovered (SFs 13103 & 13027). Blade 13103 is a fragment of a straight-backed blade from a knife or shears with its tip missing, while SF 13027 represents four fragments of a knife with a wooden handle. The handle survives best and is of oval cross-section. It has iron staining and is split where the whittle tang was inserted. The blade survives only as heavily corroded fragments. The remaining iron artefacts from T13 and T14 are SF 13088, a possible rectangular loop in four fragments, which may represent a chain link, and SF 13026, wire of oval cross-section.

8.4.6 Environmental Evidence

8.4.6.1 Thin-Section Micromorphology

Ian A Simpson & Joanne T McKenzie

The single sample from the floor layer in T13 shows two discrete but similar micro-horizons, equating to underlying natural soil (13021) and an overlying occupation-surface (13002). The natural soil material is dominated by compacted and poorly-sorted sub-rounded quartz and by weathered, angular metamorphic rock. A few patches of brown and pale-brown fine organo-mineral material are embedded within the coarse mineral grains, with the brown fine material containing phytoliths and fine organic material. Very few iron accumulations are evident. The overlying occupation-surface is similar in its compaction and composition to the underlying natural soil. However, the frequency of coarse mineral material is lower and the fine organo-mineral material with its associated organic materials is higher. Furthermore, organic coatings of quartz grains and rare clay infills are evident, together with an increased frequency of iron accumulation.

The compacted nature of these sediments supports the view that the micro-stratigraphy observed here was part of an occupation-surface. Additionally, micromorphological analysis suggests that an occupation-surface may have been prepared by depositing some clay-based material, which helped to hold the sandy material together. This, together with deliberate compaction of the upper and consequent compaction of the lower micro-horizon, would have created an occupation-surface. Compaction would, however, have made the sediments less well drained. Repeated wetting and drying of the occupation-surface, and these alternating oxidising and reducing

conditions, are evident in the increased frequency of iron accumulations.

There is little evidence of occupational debris associated with this surface. The fine brown, with phytoliths, and pale brown organo-mineral material evident on the occupation-surface and mixed into the underlying natural soil, together with the occurrence of organic silt cappings, suggests possible grass-matting and organic wastes. However, this limited evidence is insufficient to establish the function of the occupation-surface and perhaps indicates that it was lightly used.

8.4.6.2 Botanical Remains

Jennifer Miller & Susan Ramsay

Of the features sampled in Building T13, the ember-pit (13014) beside the hearth contained the most abundant carbonised assemblage. Almost a litre of carbonised material was recovered from Fill 13013, including alder, birch, oak, Scots pine and heather-type, together with abundant burnt peat/dung, and one grain of six-row hulled barley. The use of the pit for 'smooring' (smouldering) fits well with the assemblage recorded, which is similar to other domestic hearths sampled from similar sites in the area, to which peat/dung may have been added in order to prolong smouldering of the embers. Pit 13018, which also lay close to the hearth, contained a similar but considerably smaller carbonised assemblage, albeit without the peat/dung. The fire-waste in its fill (13019) probably derived from casual scatter or as intentional deposition to fill the depression. The fill (13009) of Drain 13012 also contained a similar mixture of scrub woodland and heathland woody resources. By contrast, samples relating to the hearth-slabs (13011) were devoid of carbonised remains, suggesting that the hearth may have been cleaned following its last firing.

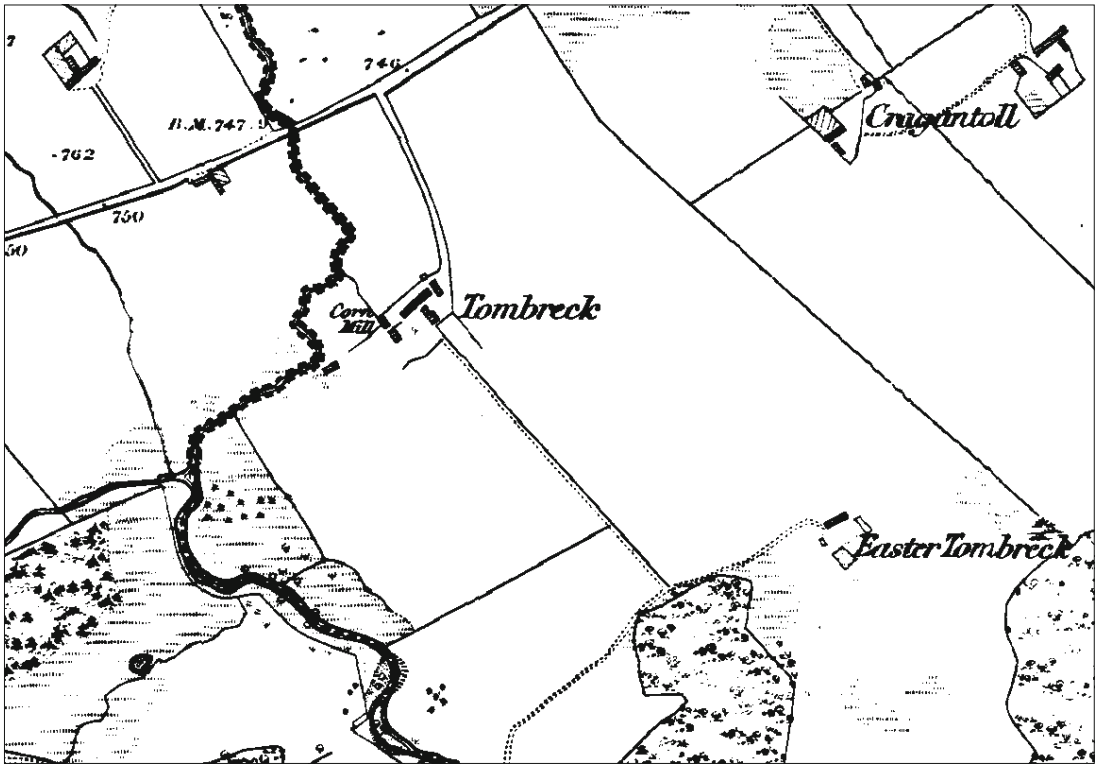
From Building T14, samples were analysed that related to Linear Feature 14007 and Pit 14011. Carbonised material from these features was not abundant, but included primarily oak, with traces of birch, alder and Scots pine. The abundance of oak in an assemblage often points to structural elements. However, in this case it is not possible to determine with confidence whether these fills are from destruction events or domestic fuel.

8.4.7 Interpretation of the Evidence

The report of 1821 on the state of cropping and sown grass on Loch Tayside (GD112/16/13/4 item 16) suggests that the lots above the road in Tombreck rested with Duncan Campbell (senior) and Duncan McDiarmid. It also seems plausible that the 'poor lot', described as being held by Duncan Campbell (senior) in 1821, may well be the lot depicted by the Ordnance Survey as rough ground in 1867 (Illus 8.18). If so, then it seems probable that the site known as Tombreck and pursued during this project was in fact Campbell's, rather than McDiarmid's. The remains of McDiarmid's steading might therefore be those at NN 65265 37949.

Although McDiarmid is credited with building his steading, Campbell is not mentioned at Tombreck until 1812 (NRS GD112/14/2/1/1), and even then it is unclear where his lot was within the land-division. In the report of 1800 (NRS GD112/12/1/2/2) McDiarmid and the McEwans (Peter and John) are all said to have built steadings, and the later evidence suggests the McEwan steadings were the high lots within the division (Table 8.4). This seems to imply that the sites of T13 and T14 were not built on until after 1800. The mention of Peter Brown in the 1800 report (NRS GD112/12/1/2/2) could be tentative evidence that T13 or T14 was built by him. Alternatively, Campbell may have built the steading some time after 1800 and before 1812. Unfortunately, the documents only provide a tantalising glimpse of the possibilities.

Turning to the physical evidence, it is clear that Building T14 was constructed later than Building T13. Datable material (Vessel BAD) from Channel 14007 suggests that Building T14 was certainly occupied by 1809. This indicates that Building T13 was occupied before this date. It is noteworthy that the ceramics and glass recovered during the excavation of T13 came from topsoil or overburden deposits (*c* 96.5%) and are therefore largely unassociated with the building's occupation. The presence of this material may best be interpreted as having been discarded during the occupation of Building T14. Given that ceramic vessels from the south do not seem to have infiltrated Loch Tayside in any numbers until *c* 1800 (Atkinson 2010), T13 may have been occupied and abandoned prior to the introduction of the General Lease in 1797. If



Illus 8.18 OS 1867 map of Tombreck

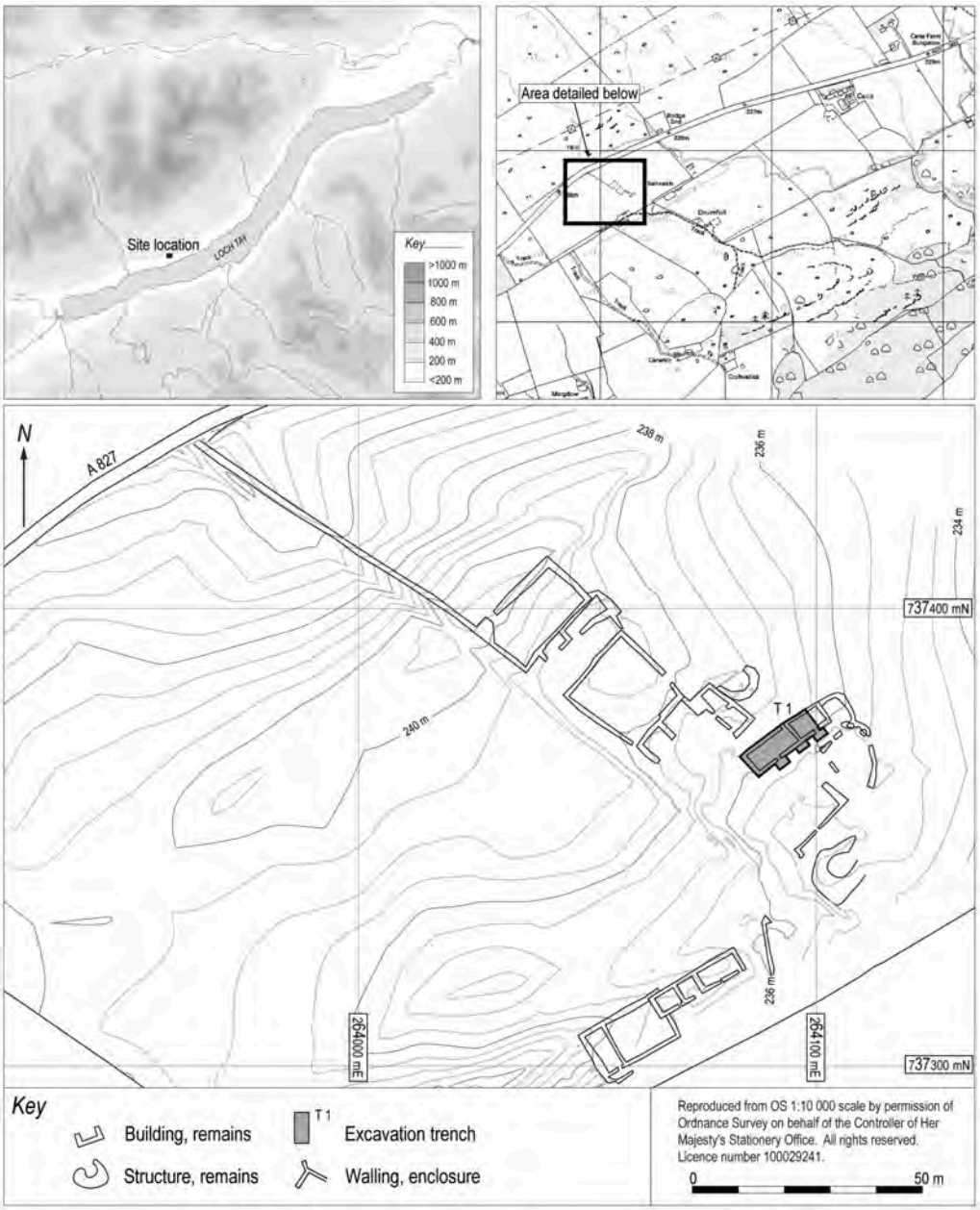
so, the evidence recovered from the excavation and historical studies does little to help closely date this building or elucidate its history.

In contrast, the ceramics and glass recovered from stratified and unstratified deposits in Building T14 allow the cautious assigning of a date for its occupation. Assessment of the entire assemblage (T13 & T14) suggests a date-range of *c* 1800 until the 1820s. It could be that T14 was Duncan Campbell (senior)'s house, built after 1800 and occupied as late as the 1820s.

Building T13 was certainly different from the other Improvement-period sites investigated as part of this project. Unlike Kiltyrie and Craggantoll, the site had its living-area to the east. This difference in internal layout may suggest that building T13 has more in common with the bulk of sites elsewhere in highland Scotland, where turning to the right to enter domestic space was common, rather than on Improvement sites on Loch Tayside, where turning left seems to have been favoured (Atkinson 2010). At *c* 12m long by 4.2m broad, T13 was shorter than both Craggantoll (16.2m) and Kiltyrie (15.8m) and did not contain a stone-lined central drain like those in the byres of these buildings. Building T13 had more in common with phase 1 of Building T1 at Balnreich, which was also shorter (10m) and did not have a clearly-defined byre area.

The use of the space within T13 seems to have been split between a dwelling-area with a centrally-located hearth (13011) with associated pits, and a possible byre. Adjacent to the hearth, Pit 13018 may have been used to hold an item of hearth furniture. Pit 13014 was notably different in that it contained almost 1 litre of carbonised remains, including woodland and heathland species, cereal and what may be burnt peat or dung (8.4.6.2 above). It seems likely this pit was used for 'smooring' or 'reisting', where the embers from the hearth were smothered by peat in order to keep the fire lit until morning, which was common in the Highlands and Ireland (Evans 1957: 71; West 2001: 88). The positioning of a badly-fragmented millstone over Pit 13014 is of particular interest, given the appearance of millstones within the floors of other sites excavated (see Chapter 10, section 10.1.4). The only other feature of note in the east end of Building T13 was the shallow, stone-lined feature (13012), which lay beneath the later T14 floor-layers. Its exact function is unclear, although its fill of organic silt may suggest it was used as a drainage feature.

There is little doubt about the function of the west end of Building T13. The presence of remnant

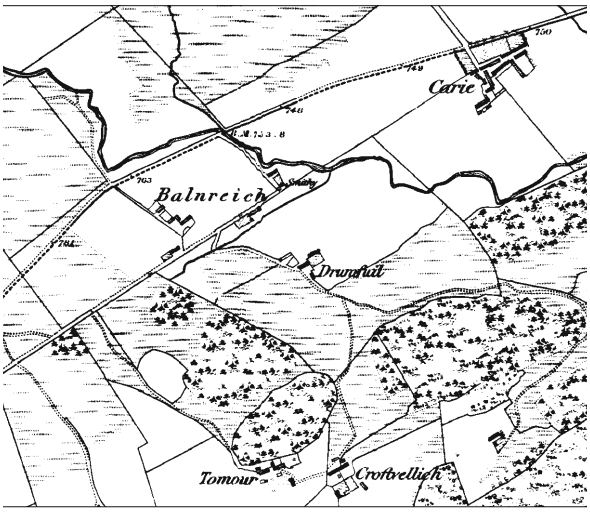


Illus 8.19 Balnreich location-plan

traces of cobbling in the floor and the lack of other features all suggest that the area to the west of Drain 13016 was used to house animals. Building T14 seems to have followed a similar pattern in terms of layout. The presence of remnants of a cobbled floor were noted in its east end, whilst the west end had an earthen floor and was probably the dwelling-area.

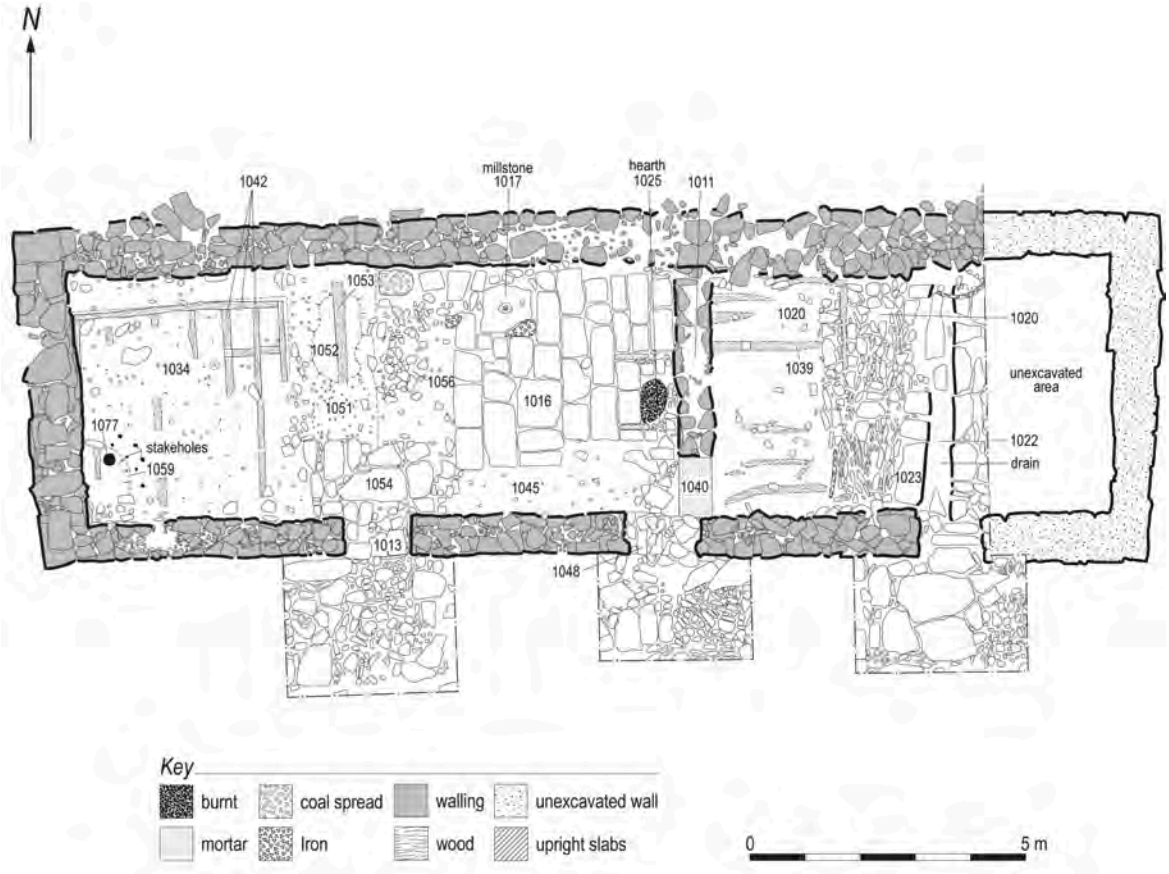
8.5 THE CROFTING SETTLEMENT OF BALNREICH

Building T1 forms part of a group of structures and yards sandwiched in an area of ground between the current A827 and the old road-line along the north side of Loch Tay (NN 6409 3737). Located to the west of Carie, in an area of former outfield, the settlement comprises the remains of five buildings, three yards and numerous smaller fragments of walling and banks (Illus 8.19). All of the buildings lie on a south-west/north-east alignment with the exception of Building B5, which lies perpendicular to them. The location had been known as Blarmore for much of the 18th century and is depicted by Farquharson in 1769 (Illus 8.20). Some time before 1781 (see 8.1.4 above), the site's name changed to Ballinreich. By



(Above left) Illus 8.20 Farquharson's map of Balnreich, 1769

(Above right) Illus 8.21 OS map of Balnreich, 1867



Illus 8.22 T1 trench-plan

the time the Ordnance Survey surveyed the site in 1862, it had changed quite radically in layout (Illus 8.21).

By 1867 the settlement had developed its current distribution of buildings and associated yards. The buildings making up the settlement, with the exception of B5 and T1, all had yards associated with them. In the case of building B4, its associated yard (B3) contains the remains of nine small stack-bases. Building T1 has fragments of walling and banks associated with it, but none of these seem to form a coherent yard. All the buildings in the group are

constructed of coarsely-faced local stone, with no traces of mortar bonding. They all survive as footings, with the exception of B15, which stands to wall-height. It is probable that they were originally built to support a thatch roof supported on cruck-timbers. Building T1 is 18.7m long by 4.5m broad internally and contains three entrances along the south wall. An internal division is apparent across the building, some 12.6m from the western gable (inner face).

8.5.1 Excavation Strategy

The first trench opened during the 2002 season targeted Longhouse B7 in the Balnreich group (Atkinson et al 2003a). The aim was to excavate the majority of the interior of this building, its walls and entrances, excluding the extreme east end where rubble dominates the surface deposits (Illus 8.21). The trench measured 17m E/W × 6m N/S and was set out with two 0.3m-wide north/south baulks for stratigraphic control. As the excavation progressed, these were removed to reveal three rooms inside the building. Three small extensions were also excavated around the entrances along the south wall.

8.5.2 Deposits and Stratigraphy

John A Atkinson & John S Duncan

8.5.2.1 T1 – Phasing

The excavation of Building T1 revealed it had gone through three main phases of occupation and use. The dating of this sequence is not entirely clear, but the following timeline, constructed from the historical and archaeological evidence, is most likely:
Phase 1 – Construction of building – post-1769 and before *c* 1820
Phase 2 – Renovation of building, and extension to east – post-1830 and pre-1850
Phase 3 – Change of use from dwelling to outbuilding – post-1870 and pre-1930

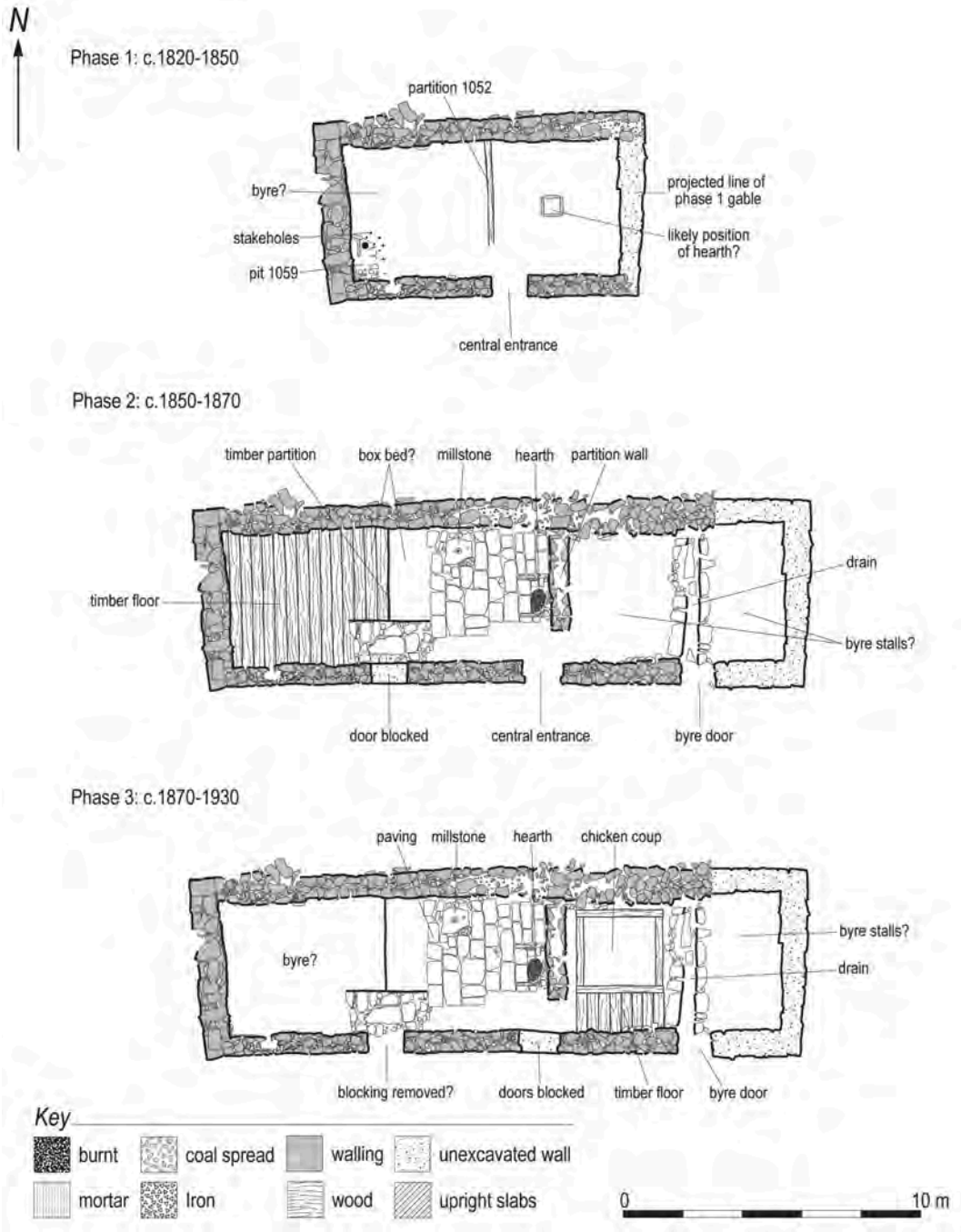
8.5.2.2 T1 – Sequence

Building T1 was originally constructed with an internal length of *c* 10m and a breadth of 4.2m on level ground *c* 50m to the north of the loch-side road. It had a centrally-positioned entrance, facing to the south, with earthen floors in the east (1061) and west (1034) ends of the building. Few features can be confidently ascribed to Phase 1, but a concentration of voided stone rubble (1056) within the floor may suggest the line of a former partition (Illus 8.22). Constraints on time did not permit full investigation of this feature, although the recovery of sherds from three ceramic vessels (CF, CJ & CO) from Layer 1052, which sealed it, indicates it was created before 1850.

A pit (1059) in the south-west corner of the building was surrounded by two arcs of stake-holes (Illus 8.22), and contained a small post-hole (1077). A thick layer of manure-rich silt overlay Pit 1059 and Floor 1034 and is discussed more fully below. The renovation of the structure began with the demolition of the eastern gable and the extension of the building to the east. A break in the north wall, *c* 14.5m from the west gable (external face), revealed where the east gable had originally stood. The building was now 18.5m long and had three entrances in the south wall. Internally, partitions were introduced to divide the space into three rooms (west, central and east).

The west room was defined by a timber partition cut (1053) into a compact gravel layer (1051), which sealed the remains of the Phase 1 activity. This partition ran north/south across the building, terminating at internal entrance Paving 1054 (Illus 8.23). A further east/west-oriented wooden partition (1087) was built along the edge of this paving. At the same time, a timber frame (1042) was laid across much of the space, including Pit 1059. The regular form of this frame suggests it was used as the base for timber floorboards (see 8.5.5). The recovery of a sherd from a finely-decorated mug (Vessel EB) from the fill of Pit 1059 provides a terminus post quem of *c* 1830 for the laying of Timber Floor 1042.

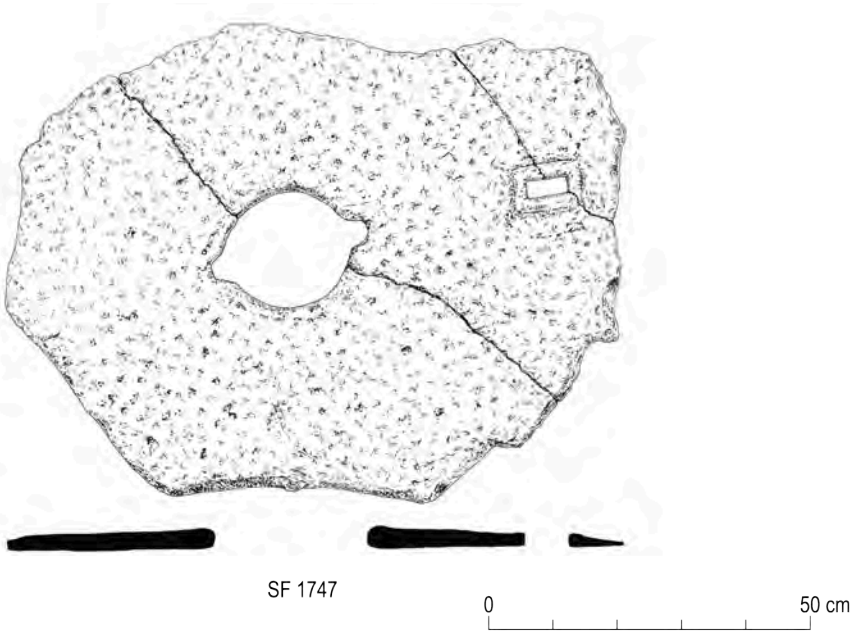
In contrast, the east room was defined by the building of a mortared stone partition (1011) which butted onto the northern wall. This partition was oriented north/south and at its southern end had a doorway (1040) leading into the central room. The east room was deliberately built as a byre, with a central drain (1022) running parallel to the partition-wall and discharging through the eastern entrance. The drain was flanked by areas of cobbling (1020). Between Partition-Wall 1011 and the drain were the remnants of another timber frame



Illus 8.23 T1 phasing-plan

(1039). A ceramic egg was recovered from the slot (1070) along the east edge of this frame (see 8.5.3.1 below).

The two partitions (1011 and 1053) defined the edges of the central room. Here, a layer of sand was laid over the earthen floor (1061) in order to bed a flagstone floor (1016), which then covered much of the space. This contained within it a re-used millstone (1017) (Illus 8.24) and a number of iron fittings (see 8.5.3.3). The millstone, which was probably discarded after it had worn too thin (see 8.5.3.4), had a stake-hole immediately below its central hole. Along the eastern edge of the floor, where it abutted Partition 1011, a hearth (1025) was constructed. It was built of several large, slightly-raised flagstones laid flat and edged by vertical stones to the south and north. The hearth had an upright, fire-cracked back slab in situ and contained two fills of charcoal-rich material. This included both woodland and heathland species (for example, birch,



Illus 8.24 Millstone 1017

Scots pine, heather and peat) as well as traces of cereal (see 8.5.4.1 below). Removal of the back slab revealed three iron shoe-heels deliberately placed in a void behind it (SF 1424).

The western edge of the flagstone floor was regular, and demarcated by a sandy deposit that overlay the Phase 1 deposit of voided rubble (1056). In the north-west corner of this area was a cache of coal fragments and dust (1024). To the south of the flagstone floor the deposits were much more organic (1045) and contained numerous artefacts. At least eight pottery vessels were identified from the ceramic sherds recovered, and these ranged in date from the 1820s to the 1860s. The final events in the building's history seem to reflect a change in use. This began with the blocking (1048) of the central entrance and may also have included the blocking (1013) of the west entrance, although evidence for this was ephemeral. The recovery of 52 badly frost-cracked sherds of a late Victorian plate from within blocking 1048 suggests that this phase must have occurred after 1870.

8.5.3 Finds

8.5.3.1 Ceramic

George Haggarty

In total 529 sherds were recovered from Building T1. Analysis indicates that 38.9% of this assemblage represents 55 distinct vessels, and 37 of these can be closely dated. Deposition began some time after 1820, peaked during the 1850s and fell off rapidly after 1870. In terms of the composition of the assemblage, bowls are the most common vessel (27.3%), with plates coming a close second (23.6%). Teawares are also present in considerable numbers, including cups, saucers, mugs and a Rockingham glazed teapot-cover (Vessel GE). The rest of the assemblage (20%) covers a wide range of domestic uses, from bread-plates to dairy-bowls and chamber-pots to ceramic eggs.

8.5.3.2 Glass

Robin K Murdoch

An unusually large assemblage (874 sherds) of glass was recovered during the excavation of Building T1. Window glass accounts for 19.1% of the overall assemblage, the rest representing about 52 individual vessels. Bottles make up the majority of the assemblage, including at least 14 wine bottles, two whisky, two beer and 11 of indeterminate use. Bottles with specific purposes, such as medicine (5), household cleaner (1), ink (1) and food or condiment (3) bottles, are also present. The second-largest group is fineware, including at least seven wine-glasses and tumblers and one other item of tableware (Illus 8.25). The dating of the assemblage is broadly in line with the ceramic sequence, but later wares are definitely more prominent, stretching into

the early 20th century in many cases. For example, Vessel L is embossed with 'Cannington Shaw & Co, St Helens', a company in production between 1891 and 1913, while a Kruschen Salt bottle (Vessel AK) is unlikely to date earlier than *c* 1920–30.

8.5.3.3 Metalwork

Adrian Cox

Several copper-alloy finds were recovered from T1 at Balnreich. These include SF 1236, a circular brooch incorporating a zoomorphic mount representing a stag. It would have been attached by means of a pin with a swivelling catch. The surviving traces of white-metal plating and green enamel indicate that this would have been a highly decorative dress-accessory. The style and form of fastening indicate an 18th- or 19th-century date. A complete spoon (SF 1216) was also recovered, with a slender shaft and a broad handle; there is a small flange where the handle joins the bowl. The underside of the handle is stamped, and it probably dates from the mid to late 19th century. SF 1124 is a small fragment, possibly from a decorative mount used on wooden furniture or a box, and SF 1007 is a pin in two conjoining pieces. Pins of this form, with small conical heads made in a single piece, first appeared in the 19th century, as manufacture became fully automated (Tylecote 1972). SF 1369 is an oval plate, formerly secured by a rivet at each end. It was possibly used as a name-plate or for an identification number, although no surface markings survive. A circular cap (SF 1282) with a central, elongated slot is modern, possibly from an item of machinery.

Iron artefacts include hooks such as SF 1261, with its incorporated suspension-loop, and two rim-fragments from a cast vessel with a rounded body and a flared rim, from the topsoil. Both vessels exhibit concentric horizontal ridges. The introduction of cast-iron making on a large scale at Falkirk from the 1750s made such utensils widely available. Such pots were suspended over a fire by means of a hook and chain or from an adjustable device incorporating a crossbar, sometimes referred to as a 'swey' or a 'chimney-crane' (Fenton 1976: 198–9).

U-shaped staples like SF 1016, used to close boxes or chests or fasten doors and gates, were also found. Other fastening devices associated with doors, gates and cabinets include a lock and hinge (SF 1191) and a latch (SF 1100), as well as a tapering, rectangular, cross-sectioned strap (SF 1029). Two chisels (SFs 1444 & 1404a) and a punch or reamer (SF 1243) are workshop tools. SF 1444, a square cross-sectioned chisel, is the largest of the three, and SF 1404a is a similar tool, although shorter and with a rectangular cross-section. SF 1243 may have been used for punching holes, or for enlarging pre-punched holes. Other tools include tanged tools (SFs 1034, 1291 & 1419), consisting of cross-sectioned bars with tangs set at right-angles, which may be drawknives or froes for splitting timber. SF 1296 is a circular cross-sectioned, curving tooth, broken at both ends, possibly from a rake, harrow or horse-drawn hoe.

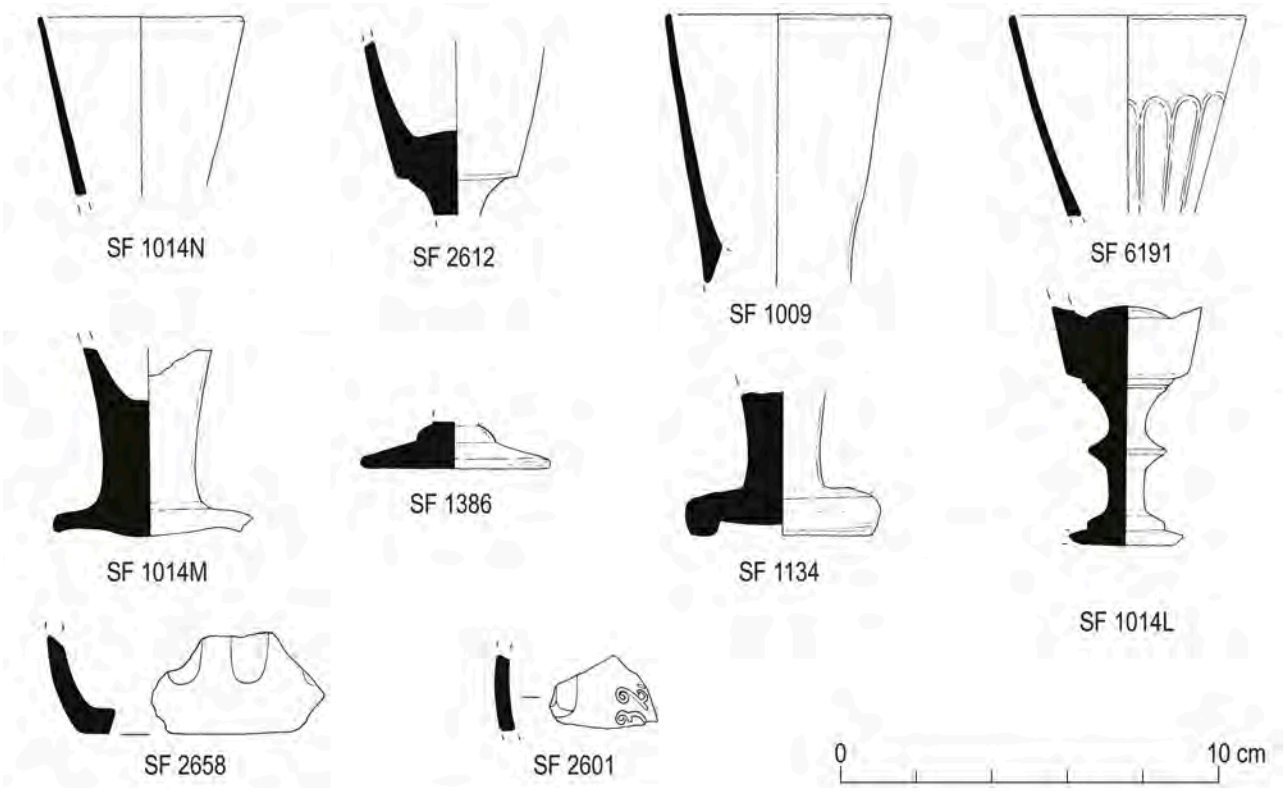
A single, complete horseshoe incorporating a fullered groove and calkins terminating both arms was also recovered (SF 1555). The shoe incorporates a projecting toe-clip. Nail-holes are obscured by corrosion-products, but there are probably eight or more. A group of four heel-stiffeners (SFs 405, 1424b, 1424a & 1424c) was found at Balnreich and is discussed further by Constable (see 8.5.3.5). Other iron artefacts include a nail (SF 1505) and a range of miscellaneous objects such as bars (SFs 1547, 1540, 1488 & 1282), bolts (SF 1022, 1035 & 1548), a circular buckle with a central pin-bar (SF 1751), a fitting (SF 1545), a flanged object (SF 1058) which may be a machine-part, a variety of loops (SFs 1406, 1403, 1402, 1363 & 1431) and a washer (SF 1568).

8.5.3.4 Coarse Stone Artefacts

Ann Clarke

A rotary quern and a millstone were recovered from Structure T1. The fragmentary upper stone of the rotary quern (SF 1748) is just 400mm in diameter and has a wide central hole. The two rind slots worked on the lower face indicate that the quern was adjustable in order to manipulate the coarseness of the ground grain.

The millstone (SF 1747) was incorporated into the flagstones in the floor of the building's central room, placed towards the northern wall. Its present diameter of 960mm cannot have been its original size since it is very worn, particularly around the edges, and must originally have been in excess of 1000mm in diameter. The exposed face of the



Illus 8.25 19th-century glass tableware from various sites

millstone is worn and smooth, most probably from use as a paving-slab and exposure to the elements. It has a wide central hole with opposed notches and there is a rectangular perforation, 240mm from one of the notches, for turning the stone. The face that was placed downwards has been shaped by coarse pecking to form a flat but rough surface, and the rectangular shaft-hole has a raised collar worked around its perimeter. This millstone is very thin, just 450mm thick at the centre and 280mm at the edge, and was probably discarded by the miller because the stone had become too worn for further use.

8.5.3.5 Leather Shoes and Components

Sue Constable

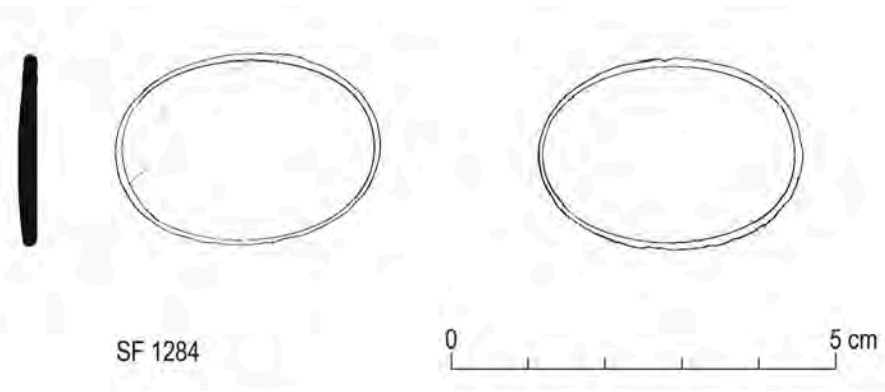
Two leather shoe-fragments were recovered from T1. The first (SF 1005) was a stacked shoe-heel made from layers of leather nailed together. A line of closely-spaced nails can be seen round the edge of the top piece (the layer which touches the ground). It was probably made towards the end of the 19th century. The second (SF 1158) was the leather sole from a child's shoe, with a rounded toe and stacked heel. This piece is possibly from a riveted shoe, in which the upper and sole are joined using copper rivets. This was a cheaper form of shoemaking than sewing and was used from the mid 19th century onwards. It appears to have a clump-sole made of several layers of leather, with no sign of hobnails. It was probably a lace-shoe or ankle-boot, and could have been worn by a boy or a girl. This example probably dates from the end of the 19th century.

Four heel-irons were also recovered. SF 1405 would have been fitted onto the leather heel of a shoe to extend its life. Heel-irons were certainly in use by 1748 and became a fashion accessory in the early 19th century. They continued to be used on men's boots and shoes well into the 20th century. Three of the heel-irons (SFs 1425A, 1425B & 1425C) were recovered as a group; they are of the same type as SF 1405. Their findspot behind the hearthstone suggests that they were put there in expression of the tradition of concealing shoes in houses.

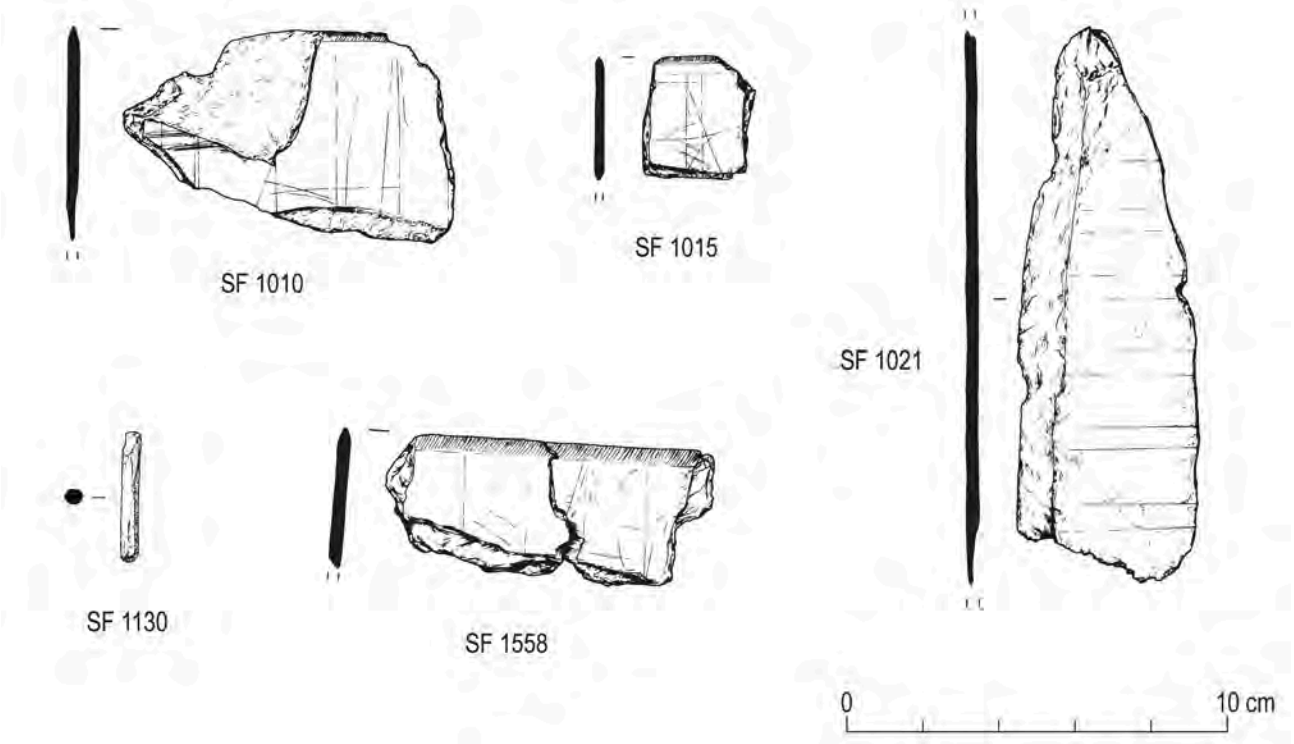
8.5.3.6 Miscellaneous Finds

George Dalgleish

A wide range of artefacts was recovered, casting some light on the attire, habits and predilections



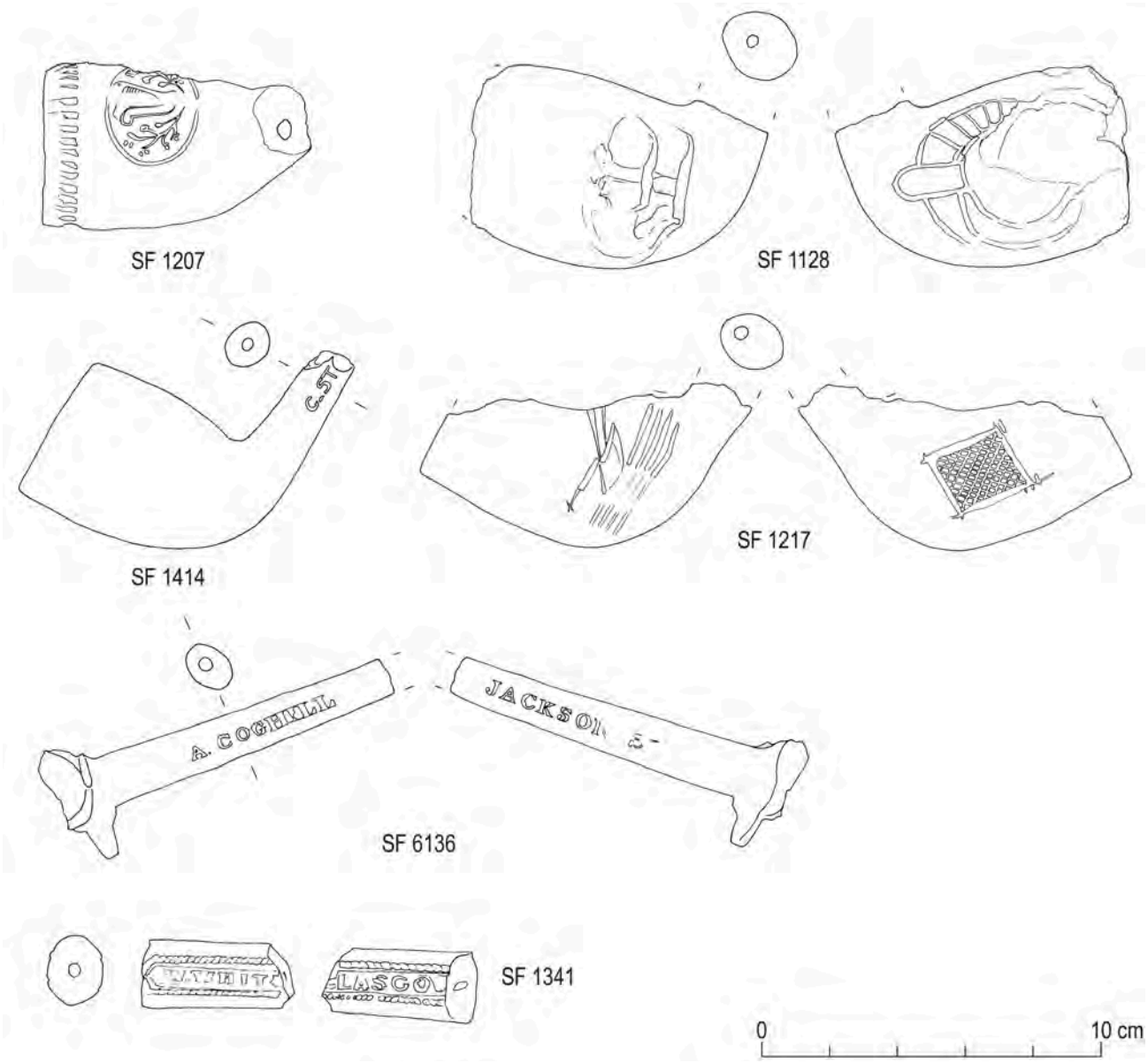
Illus 8.26 Spectacle lenses from T1 at Balnreich



Illus 8.27 Inscribed slates from T1 at Balnreich

of the inhabitants of Balnreich and their children from the mid 19th to the early 20th centuries. The recovery of ten buttons evokes both male and female items of dress. They include five small, four-hole buttons (SFs 1202, 1229, 1297, 1239 & 1351) and a two-hole button (SF 1294) in white pressed synthetic. All probably came from mass-produced men's shirts, consistent with late 19th- to early 20th-century manufacture. The other four buttons (SFs 1012, 1364, 1387 & 1379) were made of glass and are more decorative in style. All date from the late 19th century, although SF 1012 could have been produced in the early 20th century. A single pierced black glass bead, exhibiting considerable wear, was also recovered (SF 1180). The use of glass in attire is also indicated by two oval glass spectacle-lenses (possibly originally from the same pair of spectacles) (SF 1284 & GF) (Illus 8.26). At 34mm × 25mm, they had been optically ground (flat one side and convex to front) and are consistent with 19th- to early 20th-century manufacture (Rosenthal 1996).

One of the key assemblages relates directly to childhood, particularly play and learning activities. Five salt-glazed stoneware marbles (SFs 1503, 1461,



Illus 8.28 Clay pipes recovered from 19th-century sites

1434 & 1452) were recovered, with some evidence of use in the form of surface chipping. Several of the Scottish stoneware factories seem to have produced children's marbles, probably as a sideline to their main production, in the 19th and early 20th centuries. It is probable that these examples came from factories in Glasgow. It is also recorded that such 'marbles' were used with pellet-bows in the 19th century (pers comm David Caldwell).

At least four pieces of fine slate with incised, ruled lines (SFs 1010, 1021, 1558 & 1200) were recovered (Illus 8.27). All except SF 1558 had evidence of edge-chamfers for fitting into a wooden frame, and probably represent fragments of children's school writing-slates of the late 19th to early 20th century. The presence of two iron pyrites in SF 1558 suggests an Easdale origin for the slate. Although the slate fragments are of a similar type, the differing alignments of the incised lines and the varying thickness of the fragments suggest they represent at least three separate school writing-slates. A 35mm-long section of slate-pencil (SF 1130), for use with a child's school slate, was also found. This assemblage presents charming evidence of later 19th- and early 20th-century Scottish school customs, where handwriting was laboriously practised with a 'slate-pencil' on a 'slate' board, which could be rubbed clean for re-use.

Fifteen fragments of clay pipe were recovered from the building, indicating the use of tobacco during this period (Illus 8.28). Of the seven fragments of pipe stem (SFs 1341, 1347, 1519, 1175, 1381, 1013 & 1242), only one is impressed. SF 1341 bears the inscription 'W WHIT… / ..ASGOW' and was produced around 1900 by William White and Son, Pipemakers in Glasgow *c* 1806–1955 (Gallagher 1987: 82, 84). In addition to the stems, seven bowls (SFs 1238, 1123, 1422, 1262, 1414, 1207 & 1217) were found. Three of these bear decoration, including acanthus-leaf and gridiron designs. One with edge-decoration (SF 1238) is similar to that illustrated by Gallagher (1987: 75) as produced by J Doyle's factory in Glasgow during the late 19th century.

The great majority of the miscellaneous finds from T1 are consistent with a date-range from the mid 19th to the early 20th century, and all suggest the growth in availability of cheap, mass-produced artefacts, ranging from synthetic shirt-buttons to clay pipes. The few marked and datable clay-pipe fragments point to a potential Glasgow origin, and this is again entirely consistent with this city's rise to dominate Scottish manufacturing output. The general status of the finds points to their use by the crofting or agricultural labouring community.

8.5.4 Environmental Evidence

8.5.4.1 Macrofossils

Jennifer Miller & Susan Ramsay

The western end of the building was not extensively sampled for environmental remains, although a small fragment of woven fabric, *c* 100mm diameter, was identified from Post-Hole 1077. This had been preserved fortuitously due to the waterlogged, clay-rich nature of the post-hole fill. The building's hearth produced both upper (1027) and lower (1028) fills, which were charcoal-rich and essentially similar, including birch, heather-type, Scots pine and burnt peat or dung, with occasional ash, oak and spruce or larch. Both fills contained only trace-evidence of food-preparation, in the form of indeterminate cereal grains. This is entirely in keeping with casual loss during cooking, with the grains' poor condition caused by recurrent burnings in the hearth.

Below the flagstone floor, botanical material recovered from the earlier earthen floor (1061) was very similar to that in the later hearth fills (1027 & 1028). This continuity of wood-types provides strong evidence that these fuels were gathered from local woodland and heather-heathland resources. In the eastern end of the building, a partition (1070) was constructed of Scots pine-type wood. A single fragment of burnt hazelnut shell was also recovered.

8.5.5 Interpretation

The documentary evidence for the site of Balnreich seems to point to its growth as a crofting site from at least 1720 (see 8.1.4 above). This site, known as Blarmore during the 18th century, is depicted by Farquharson in 1769 (Illus 8.19) and seems to have gone through a major phase of alteration during the 1790s. Interestingly, Harrison argues that this occurred after the site's name had already changed to Balnreich, some time after 1781. The petitions that have survived from the late 1790s indicate the degree of rebuilding and change at Balnreich, but offer little substantive evidence of when Building T1 was constructed and who might have built it. It seems likely that it was built after 1769, as none of the structures depicted by Farquharson seems to correlate with its exact location. In fact, there is little correlation across the group as a whole between his depiction and the surviving remains. This would suggest that wholesale alteration and rebuilding took place, which seems to support Archibald McIntyre's statement in late 1797 that 'the farm of Blarmore' was 'laid out in lots very different from the former' (see 8.1.4 above).

Table 8.6: Number of dated ceramic vessels discarded in building T1 by decade of manufacture

Period	No. of vessels
1820s	5
1830s	6
1840s	5
1850s	12
1860s	6
1870s	2
1880s	1
	37

Table 8.7: Number of dated glass vessels and sherds discarded in building T1 by date

Period	No. of vessels	No. of sherds
Early to mid 19th century	1	14
Mid 19th century	23	508
Late 19th to early 20th century	5	37

The physical evidence from Building T1 indicates that it was originally constructed as a small dwelling with earthen floors at either end, some time before 1820. Although no formal evidence of a byre (such as cobbling or drains) was found in the Phase 1 building, the layer of manure-rich silt (1033) over Floor 1034 suggests that cattle were housed in the west room. However, the sequence of this layer's deposition is unclear. Although the manure-rich silt sealed Floor 1034 (including Pit 1059), it also appeared to seal the Phase 2 timber floor-joists (1042). Consequently, the manure may have been deposited during Phase 1 or Phase 3 and may even have occurred during both periods. What is certain is that during Phase 1 of occupation, the building appears to have been more akin to a crofter's cottage in scale and layout than a principal dwelling on a new farm.

A clear change occurred prior to 1850, when the building went through a phase of renovation which included its extension to the east to create a byre. It is likely that this phase also saw the introduction of the timber floor in the west room and the creation of a spence (a parlour variously used as a sitting-room, bedroom or store-room for provisions and domestic equipment). On the basis of the closely-dated ceramic sequence (see 8.5.3.1 above), Phase 2 occupation seems to have been fairly brief, with minimal amounts of broken pottery deposited after the 1870s (Table 8.6).

Vessel CK (a late Victorian plate) was put into the blocking of the central entrance to the Phase 2 building some time after 1870, and this signalled a final change of use. Deposition of glassware continued into the late 19th century, but was clearly tailing off by the 1880s at latest (Table 8.7). Analysis of the stratigraphic distribution of glassware indicates that the material associated with the final decades of the 19th century and the early 20th century was invariably recovered from upper horizons. This suggests that the structure was abandoned as a dwelling after 1870, but retained its roof into the 20th century. The second edition Ordnance Survey map of 1898 supports this, as it depicts the building as roofed.

Further evidence casts light on the division of space inside the building during this period. The erection of a timber-framed structure along the eastern side of Partition 1011 sealed the entrance to the rest of the building and in effect created two buildings. The recovery of a ceramic egg from the construction-slot of this frame hints that it may have been the base for a chicken-coop. This probably occurred around the time that the central entrance was blocked, or subsequent to the blocking. The deposition of small quantities of material culture continued throughout the building into the early 20th century, but this had ceased by the 1930s at the latest. Building T1 is depicted on the Ordnance Survey map of 1930 as roofless.

8.6 THE CONTEXT OF INDUSTRY IN BREADALBANE

The Breadalbane estate's interest in stimulating industrial exploitation began in the early 18th century. Gillies notes that the tenantry had started to grow flax by 1728 and lint yarn was being sold at Kenmore market by 1734 (1938: 187). Pennant visited the area twice, in 1769 and 1772, and on both occasions he referred to the importance of flax to the local economy (Pennant 1998: 406; 2000: 66). This interest in flax was also accompanied by at least some attempt to stimulate other branches of the cloth trade. Before 1769 a waulking or fulling mill was started at Remony (Gillies 1938: 188; Morrison 1985: 137) and the estate was also pursuing lead-extraction at Tyndrum (Firsoff 1954: 51). Some centralisation of services was also occurring.

Table 8.8: Trades present in Killin and Kenmore parishes during the 1790s (figures taken from Sinclair 1977: 380; 464)

Trade	Killin	Kenmore
Weavers	32	63
Tailors	22	38
Wrights	14	36
Shoemakers	19	26
Flax dressers	9	20
Smiths	6	10
Masons	0	9
Coopers	0	8
Merchants	7	0
Hosiers	0	4
Bakers	2	0
Dyers	0	1

With a few exceptions – for example, meal-mills and blacksmiths – many of the other trades could be found in the larger villages by the end of the 18th century. Killin, for example, had a population of 150 and 'most of the villagers were tradesmen' (Sinclair 1977: 376). There is little concrete information available on the total numbers of artisans in the community, but the ministers of Killin and Kenmore parishes did provide broad figures (Table 8.8). In both cases, the proportion of tradesmen to the total population of the parish was small, at around 5–6%. The variety of trades was also fairly limited, with the cloth trades and agricultural processing industries dominating the picture.

During the early 19th century flax was beginning to be replaced by wool as the key crop to be produced from the area (see 8.6.1 below). By the late 1830s, the minister of Kenmore related that 'the only manufacture, properly speaking, is that of wool', which was then being undertaken 'on a limited scale' (Sinclair 1845: 469). There is a general sense within the *Statistical Accounts* and other sources that industrial activity was declining. Harrison has related this decline in numbers of artisans to the general decline in the area's traditional economy. Although the second Marquess of Breadalbane was interested in industry – most notably the extractive industries and the potential wealth of his own estates – this was never financially successful. Following his death in 1862, little further investment in industry occurred.

8.6.1 The Documentary Evidence

John G Harrison

There is some evidence for flax-growing in the Perthshire highlands during antiquity; for example, numerous flax fragments and seeds were recovered from the late prehistoric Oakbank crannog (Miller 1997; Miller et al 1998). During the historic period, linen is mentioned frequently in the 16th- and early 17th-century records as something in common use. Like all fabrics, linen was expensive and therefore figures in complaints of theft (NRS GD112/17/2 f88v ff). Lengths of linen cloth (presumably locally woven) were occasionally paid in lieu of rent; for example, nine ells were provided to make shirts for 'Mr Jon [Campbell] when he went to college' in 1674 (NRS GD112/9/25). Morer, whose 1689 account of Perth is well known, reported that the town's trade depended chiefly on the export of Highland linen, a trade worth £40,000 sterling (Brown 1978: 286). Linen increased in importance in the region, particularly from 1685; it may have helped protect rural populations against the effects of harvest failure up to 1698, when protective tariffs imposed by England reduced demand (Cullen et al 2006: 263). Gillies notes that 'Flax was first raised

[in Breadalbane] about the year 1728' (Gillies 1938: 187).

In 1749 Sir John Clerk of Penicuik visited the area and wrote:

> My son & brother made a tour along by the side of this Loch [Earn] and from the head of it they went over to the head of Loch Tay which they reported to be no bad way & the people on the side of Loch Tay were very numerous & dealt a great deal in the Linnen Manufactories' (NRS GD18/2117).

Pennant comments on the extensive manufacture of 'thread' and indicates that the earl distributed spinning-wheels to encourage its manufacture; he was probably referring to linen (Pennant 2000: 66).

The first local lint-mill was being built at Killin in 1748 (NRS GD112/15/314), clearly part of the conscious official efforts to expand the linen industry in the Highlands following the 1745 Jacobite rising (Durie 1979: 88–91). Mills were an essential preliminary step to an expansion of the local trade. The mills scutched the lint after it had been retted and were necessarily sited close to areas where the lint was grown and retted. The estate was in correspondence with the Trustees for Encouraging Manufactures by 1753. In 1758 it was noted that there had been a 'surprising … increase of sowing & raising flax and … spinning of linen yarn for some years past', encouraged by the establishment of the lint-mill. The earl had taken steps to improve the local skills-base. He proposed, for example, to employ a skilled weaver to teach local people not only to weave but how to grow better-quality flax and at the same time wanted to encourage skilled hecklers (who teased apart and aligned the flax fibres after scutching and before spinning); he thought premiums might be used to encourage flax culture in the Highlands (NRS GD112/39/308/1).

Hugh Cameron constructed a lint-mill at Lawers in 1761 (NRS GD112/15/370 items 27–8). The following year he was constructing a lint-barn at Lawers (NRS GD112/15/379 item 37). In 1770, the Lawers mill was processing 460 stone of flax and the Killin mill 954 stone; a viable throughput is estimated at between 500 and 1000 stone (Gillies 1938: 187). An estimate and accounts for a new mill erected at Lawers in 1789 again clearly refer to a lint-mill; there are payments for digging foundations, quarrying stone, 4300 slates, 440 slate-nails, sheet-lead for the rigging, two doors, five windows and other fittings (NRS GD112/74/231/14).

The lint-mill was a source of local employment. In 1791 the crofters and cottagers of Lawers, who were employed in the lint-mill in the season and declared themselves to be useful to the country as dyke-builders at other times, asked for special consideration for their difficulties (NRS GD112/11/2/3/23). In 1790 the tenants of Crannich, Carwhin, Morenish and the foot of Glen Lochay petitioned for a lint-mill to be erected in their district, to reduce delays in their flax being processed (NRS GD112/11/2/2/29). One was built at Morenish in 1791 (NRS GD112/11/2/3/69) – an astonishingly prompt and positive response, and a sure testimony to the importance of the industry. There seems to have been a pause in the building work, with Archibald Clark, wheelwright near the mill of Carwhin, urging that he be employed to complete it (NRS GD112/11/2/3/107). By 1794 Clark is described as lint-dresser and possessor of the lint-mill of Morenish, and he wanted accommodation for the horses which brought the lint, which was agreed (NRS GD112/11/3/2/17). By 1797 there were lint-mills at Bridgend of Ardtallony, Lawers, Morenish, Killin and Glenogle. The operators rented the mills from the estate but were obliged to maintain them. They asked for permission to raise their prices for scutching lint from 1s 6d to 2s, as their costs had doubled since the prices were first fixed; they also wanted local tenants to be obliged to have their flax processed locally – though, in practice, the bulk of the unprocessed material gave growers little choice so far as scutching was concerned (NRS GD112/11/6/2/16).

This expansion of the local industry was stimulated by the estate as part of a wider strategy to diversify the local economy and encourage manufactures. The estate, in turn, was responding to wider inducements from the Board of Manufactures. For example, in 1773–4 lint-seeds were being distributed both by the estate and by the Board; similar payments continued until the early 1780s, along with payments to encourage woollen

manufacture, employment of a spinning-mistress and other activities (NRS GD112/9/50). Perhaps most importantly, for a time linseed was demanded as part of the payment of rent in kind, a demand which could only be met by growing flax; the total, spread across the farms of the study area, was *c* 170 pecks of seed (NRS GD112/9/54).

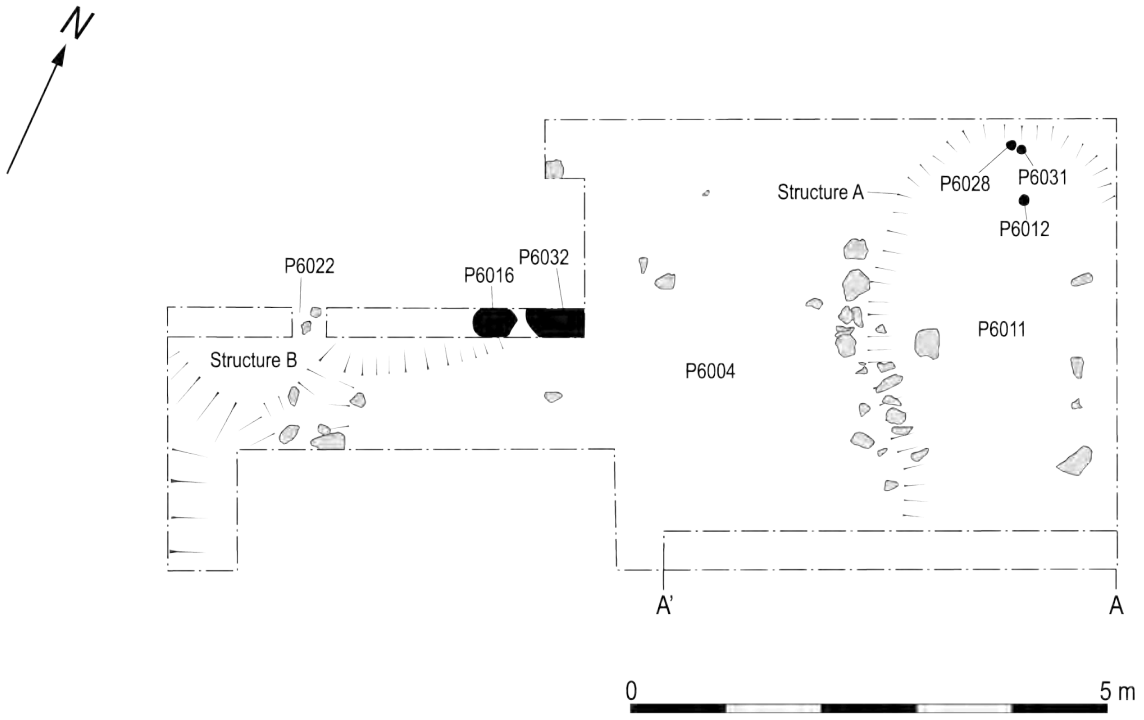
In 1788 John McDougal claimed that he had worked with Hugh Cameron in his lint-mill at Lawers as well as at Killin, where he had full charge of receiving the undressed lint from the owners and returning the dressed lint to them, so that he gave 'universal satisfaction' (NRS GD112/11/1/6/27). At this period, then, the fibres were returned to the customers (who would be the growers); they would then arrange for it to be spun before selling it at local markets to manufacturers who would forward it for weaving and finishing elsewhere. Between scutching and spinning came the heckling process, when the fibres were teased apart and aligned. Heckling as an occupation began to appear during the 1790s, when the hecklers appear to have worked independently of the mills (NRS GD112/16/7/3/28).

Even as early as the mid 18th century, however, dealers were putting out yarn for spinning in the Highlands (Durie 1979: 89), and by the 1780s cotton had begun to overtake linen in popularity. Surprisingly, the production of linen in Scotland continued to expand over the next 25 years or so. In 1803, in a correspondence aimed at winning more government support, it was reported that a 'considerable quantity' of flax was grown locally, as the soil was particularly suited to it (NRS GD112/47/2). In 1826, however, people on the south side of the loch said that they were starving and had nothing but potatoes to eat until the next harvest, and others said that the flax had failed due to the drought (NRS GD112/11/9/2/43). In 1831 the lint-mill of Morenish was still apparently in operation but the miller asked for an abatement of rent, as the costs of maintaining the machinery and paying men to dress the lint swallowed all his profits (NRS GD112/11/9/7/17). In 1836 it was reported (NRS GD112/16/14/4, items 16–20) that at Lawers, little lint was grown beyond what was used domestically, the yield had been further reduced by adverse weather and the quality was poor. This is the last record of actual growing found and, though some linen weaving persisted until the mid 19th century, this was presumably based on yarn supplied from elsewhere.

There is no information about how the retting process was organised. Presumably, growers had their own ponds to avoid disputes about ownership. Retting can be carried out in a range of ways (directly on the ground, in pools, in running water), but it is notoriously polluting and had been the subject of national legislation from the early 17th century (Harrison 2002: 129–33). It is not clear if the growth of the industry led to more or bigger ponds, nor is there any information about choice of sites – the stench has been compared unfavourably with that of a rotting horse, so this was a significant issue and might explain why ponds were located in the outfields. All that can be said is that sizeable ponds were most likely to have been made between the later 1740s and the very early 19th century, although a proliferation of smaller ponds may have been an easier option; thereafter, existing ponds would probably have sufficed and even these would gradually have gone out of use, probably by 1840.

8.7 EXCAVATION OF STRUCTURE P6 AT CRAGGANTOLL

The pair of structures known as P6 were first recognised during field reconnaissance in March 1996 in the Craggantoll land-division, and they were subsequently surveyed by University of Glasgow archaeology students that season (Atkinson & Hooper 1999). Nicknamed by the students 'Boggy Hollow', the structures lay to the south of Building P7 (see 8.2 above) in a low-lying area crossed by several burns and rivulets. Several features were surveyed here, including P6. It consisted of two rectilinear sunken elements (A & B) and a shared amorphous bank between them. The structures were oriented north/south and had openings in their northern and southern ends. To the north, two further structures were apparent, defined by stretches of banking with sunken interiors. The function of these structures is unclear, but they may have served a similar purpose to P6.



Illus 8.29 P6 trench-plan

8.7.1 Excavation Strategy

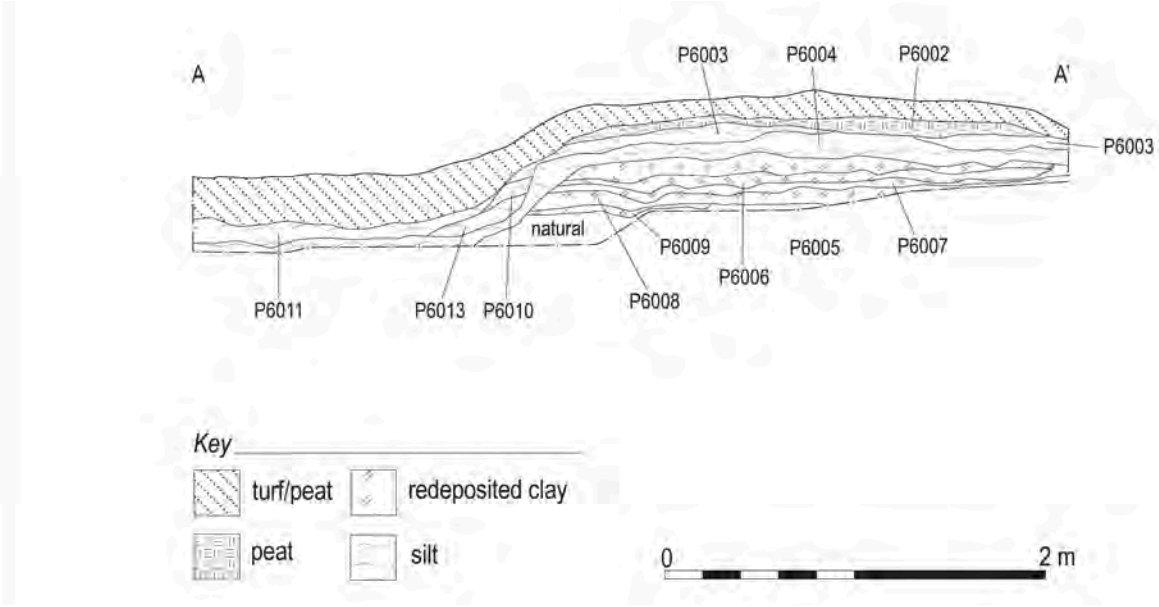
Trench P6 was excavated over two of the low-lying rectilinear structures, taking in the majority of Structure A with an extension stretching across the adjoining central bank and over the entranceway to Structure B (Illus 8.29).

8.7.2 Deposits and Stratigraphy

The construction of P6 began with the digging of two rectilinear pits to a depth of 0.2m below the natural subsoil. The spoil from both pits was then upcast to create the central bank that divided the structures and the other banks that surrounded the hollows (Illus 8.30). The sequence of deposits making up the central bank included five distinct layers of upcast (P6005–9) which formed the sides of the pond. The base of Structure A was devoid of features, save for three shallow depressions (P6012, P6020 & P6028).

At this stage a broad band of organic silt (P6004) was laid down, accompanied by the introduction of flat slabs along the upper edges of the hollow. Analysis of the macrofossils from this layer indicated it was rich in uncarbonised flax capsule-valves, seeds and stems, particularly along the upper surface of the layer (see 8.7.4.1 below). Radiocarbon dating of the fragments of flax from this layer provided a date-range of cal AD 1660–1890 (OxA-8209). A number of small finds were also recovered from the organic silt, notably a worked piece of Scots pine timber (SF P6001) and a small fragment of white earthenware (SF P6007).

The final events in the stratigraphic sequence began with two phases of slumping from the bank into the hollow (P6010 & P6013). These events and the band of organic silt (P6004) were subsequently sealed by layers of post-abandonment silting (P6003 & P6011). Pollen-analysis of Layer P6011 did not reveal any trace of flax (see 8.7.4.2 below), but quantities of flax macrofossils were noted along the base of the layer, at its interface with Layer P6004 below. The final event in the Structure A sequence was the colonisation of the hollow by sphagnum moss and the development of peat (P6002) (Illus 8.30). Excavation of Structure B found evidence for a similar sequence of events, although here the deposits were heavily leached and blended. Examination of the southern entrance to structure B revealed no trace of a sluice mechanism, and it seems likely that a rudimentary form of damming was probably used to pool water when required.



Illus 8.30 Section through central bank of P6

8.7.3 Finds

8.7.3.1 Timber

During the excavation of Structure A, a short length of worked Scot pine (*Pinus sylvestris*) timber was recovered from Basal Layer P6004. SF P6001 is 82mm long by 65mm broad and 17mm thick (Illus 8.31). It is possible that the piece of timber had broken off a larger bat or blade. Scutching bats or blades were used in conjunction with vertical wooden boards to break the outer hull off the flax after retting and subsequent drying had occurred (Baines 2003: 5).

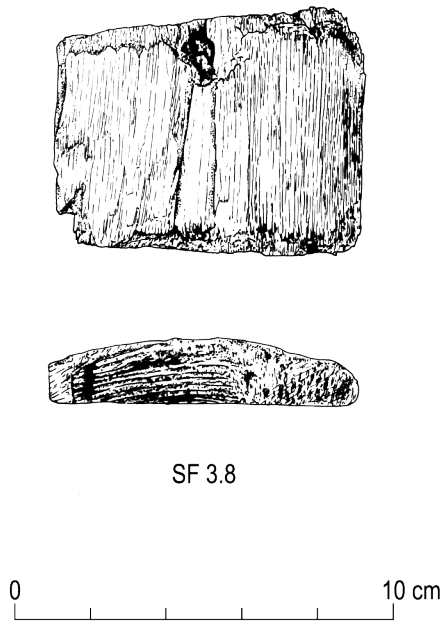
8.7.4 Environmental Evidence

8.7.4.1 Macrofossils

Jennifer Miller

A column-sample (BS P6002), consisting of organic material 205mm deep, was taken in order to clarify the stratigraphic sequence in Structure A. The column was initially divided into four sub-samples with depths of 0–70mm, 70–140mm, 140–180mm and 180–205mm. These samples were laboratory sieved and the retents stored in water for subsequent macrofossil analysis (Table 8.9). To form a more complete picture of the prevailing environmental conditions at the site, the column was also sub-sampled for pollen-analysis (see 8.7.4.2 below).

Macrofossil analysis identified flax remains in the lowermost two sub-samples; these were especially abundant in the lowest (180–205mm), which was equivalent to Layer P6004. The flax was found in association with weed seeds of well-drained arable ground and taxa that indicated the presence of standing water. The sub-sample from 140–180mm depth had the greatest diversity of macrofossil remains, the majority of which are characteristic



Illus 8.31 Worked timber (scutching?) bat (SF P6001)

Table 8.9: Plant macrofossil remains from layer P6004/P6011 in P6

Macrofossil remains	Common name	Part	Depth in column			
			0–70mm	70–140mm	140–180mm	180–205mm
Crops						
Linum usitatissimum	cultivated flax	seed			4	8
		capsule fgmt			29	61
		stem fgmt			6	30
Arable/Ruderal						
Cerastium fontanum/glomeratum	common/sticky mouse-ear	seed			1	
Fallopia convolvulus	black-bindweed	achene				1
Galeopsis subg *Galeopsis*	hemp nettle	nutlet				1
Rumex acetosella	sheep's sorrell	nutlet			1	
Spergula arvensis	corn spurrey	seed			6	4
Damp grass/Woods						
Alchemilla cf *vulgaris*	cf lady's-mantle	nutlet	2	10		
Carex pilulifera	pill sedge	nutlet		3	1	
Luzula cf *sylvatica*	cf great wood-rush	seed			5	
Myosotis arvensis/sylvatica	field/wood forget-me-not	seed			1	2
Pleurozium shreberi	moss	leafy shoot	1			
Prunella vulgaris	self-heal	nutlet			1	
Heathland/Bog						
Carex echinata	star sedge	nutlet in utricle	6	3	3	
Carex flacca	glaucous sedge	nutlet			2	
Danthonia decumbens	heath grass	caryopsis			1	
Juncus squarrosus	heath rush	seed			8	1
Potentilla erecta	tormentil	achene	1			
Sphagnum sect *Sphagnum*	bog moss	leafy shoot	++++	+++	++	

Table 8.9: cont.

Marsh/Waterside					
Carex hostiana	tawny sedge	nutlet		3	
Carex nigra	common sedge	nutlet	15	20	
Carex pulicaris	flea sedge	nutlet		1	
Carex viridula sl	yellow sedge	nutlet		4	
Isolepis setacea	bristle club-rush	nutlet fgmt		1	
Juncus acutiflorus	sharp-flowered rush	seed	5	1	
Juncus acutiflorus/articulatus	sharp-flowered/jointed rush	seed	3		
Juncus bufonius	toad rush	seed	3	1	
Juncus effusus/conglomeratus	soft/compact rush	seed		6	
Montia fontana	blinks	seed			1
Ranunculus flammula	lesser spearwort	achene		14	4
Stellaria cf *uliginosa*	bog stitchwort	seed			3
Veronica scutellata	marsh speedwell	seed	1	36	1
Aquatic					
Caddis sp	caddis fly	aquatic larva tube		2	1
Callitriche stagnalis	common water star-wort	nutlet		44	127
Daphnia pulex	water flea	egg		2	3
Glyceria fluitans	floating sweet-grass	caryopsis	1	10	4
Potamogeton polygonifolius	bog pondweed	seed		38	4

of wet, marshy environments. These taxa suggest that at this depth in the column the substrate was very wet, albeit with less standing water than the basal sub-sample. Flax remains were still recorded here, although in fewer numbers, and they appeared on visual examination to be most abundant at the bottom of this sub-sample. Further up the column (0–70mm) was evidence for the obvious and rapid growth of moss-peat. The resultant acidic environment effectively blocked the growth of other taxa with more eutrophic habitat requirements.

Following the initial assessment, a further sub-sample was taken from 160–180mm depth at the interface of Layers P6011 & P6004, to locate the flax remains more accurately and to provide datable material. The results confirmed that the greatest abundance of flax remains occurred directly on the interface between the silty sand of P6004 and the horizon above (P6011). The great numbers of flax capsule-valves, seeds and stems enabled 0.15g dry weight to be AMS dated.

The topographic location of P6 and the waterlogged nature of the samples indicate a naturally wet environment. The crop plant represented in Layers P6004 & P6011 was cultivated flax (*Linum usitatissimum*), with very high numbers of seeds, capsule-fragments and stems apparent in the organic matrix. Stem-material was identified by fibre-structure, size and morphology (Dimbleby 1967). Flax grows best on well-drained or sandy soil and does not compete well as a casual weed (Bond & Hunter 1987; Clapham et al 1987). Consequently, it is highly unlikely to have grown naturally in the wet area from which the samples were taken. Corn marigold (*Chrysanthemum segetum*) and corn spurrey (*Spergula arvensis*) seeds were also recorded from the interface between Layers P6004 & P6011. Both are arable weeds with a preference for well-drained, sandy soil. It is most likely that they came into the assemblage together with the flax and probably also the other arable-weed seeds, including wild turnip (*Brassica rapa* ssp *campestris*), hemp nettle (*Galeopsis tetrahit* agg), redshank (*Persicaria maculosa*), dock (*Rumex* sp) and chickweed (*Stellaria media*). Chickweed has a low growth habit, and the presence of seeds in this assemblage suggests the crop was harvested low on the stem or uprooted. This method leaves the longest undamaged stem and is common practice for flax intended for fibre production.

The combination of marshland or standing-water taxa together with the flax and associated weeds indicate that this structure was used for retting. The stems are retted by being left to lie in ponds or pits, usually for 7–10 days, until the stem epidermis decays. This bacterial decomposition leaves the water anaerobic and foul. Standing-water conditions are indicated for the lower sub-samples from Layers P6004 & P6011 by the numerous fruits of common water starwort (*Callitriche stagnalis*), floating sweet-grass (*Glyceria fluitans*), bog pondweed (*Potamogeton polygonifolius*), the eggs of water-flea (*Daphnia pulex*) and caddis-fly larvae tubes. The various insect eggs and beetle remains found suggest that the pit was open during summer. The poor state of preservation of the flax and associated weed remains is probably due to the enhanced bacterial activity required for retting.

Marshland taxa identified include blinks (*Montia fontana*), sedge (the nine named *Carex*) and four types of rush (*Juncus* sp), bristle club-rush (*Isolepis setacea*), creeping buttercup (*Ranunculus repens*), lesser spearwort (*R flammula*), bog stitchwort (*Stellaria* cf *uliginosa*), marsh speedwell (*Veronica scutellata*), cf marsh violet (*Viola* cf *palustris*), and grasses including marsh fox-tail (*Alopecurus geniculatus*) and rough meadow-grass (*Poa trivialis*).

Apart from the arable and wetland indicator species, most taxa identified represent the local open-grassland vegetation around the marshy pit area. This includes pill sedge (*Carex pilulifera*), cf great wood-rush (*Luzula* cf *sylvatica*), field/wood forget-me-not (*Myosotis arvensis/sylvatica*) and cf lady's mantle (*Prunella vulgaris* and *Alchemilla* cf *vulgaris*). Sphagnum-shoot fragments found in Layers P6004 & P6011 were identified and quantified, showing an increasing abundance in the upper sub-samples. This would suggest a tendency towards bog-formation following the abandonment of the pit; it probably became overgrown with bog-moss very quickly after falling out of use. Sphagnum holds many times its own volume of water and this in itself assists bog growth, with an increased acidity which further inhibits colonisation by many other species, apart from the true heath/bog taxa such as star sedge (*Carex echinata*). The remains from Contexts P6004 & P6011 cannot tell us how long the site was used for flax-retting, but the variation in species composition between the two contexts

suggests that this may have been for longer than one ephemeral episode.

8.7.4.2 Pollen Analysis

Susan Ramsay

The results of the pollen analysis are shown on the pollen diagram (Table 8.10), which is divided into three assemblage-zones to provide a framework for discussion of pollen taxa over time.

Zone 1 (180–200mm depth)

In terms of trees, the preponderance of alder (*Alnus*) in the pollen sequence is notable, suggesting that it was growing nearby. The only other tree taxon present at significant levels is birch (*Betula*), although other trees represented include pine (*Pinus*), oak (*Quercus*) and elm (*Ulmus*), which made up a very small percentage of the total pollen. This suggests that these taxa were not growing in any significant numbers around the site or even in the wider area. In terms of tall shrubs, there are significant amounts of hazel/bog myrtle (Coryloid) pollen, which is probably from hazel shrubs in the local area. The only other tall shrub present is willow, although at low values (<1% total pollen).

The representation of heathland taxa is very low. Heather (*Calluna vulgaris*) is present, but at low values, and it would appear that heathland was not a significant constituent of the vegetation of the area. Grass (Poaceae) pollen is a major constituent of the pollen assemblage, along with sedge (Cyperaceae). The presence of ribwort plantain (*Plantago lanceolata*) in this zone provides further evidence for areas of grassland around the site, as this is a weed closely linked with pastoral agriculture. Cereal-type pollen is represented, but at relatively low values. However, some of the aquatic grasses, in particular floating sweet-grass (*Glyceria*), have pollen with morphologically similar characteristics to barley (*Hordeum*) (Moore et al 1991). As seeds of floating sweet-grass were identified from the macrofossil assemblage and the plants themselves were probably growing in the retting pit, the cereal-type pollen found may be from this plant rather than from cereal crops.

Flax (*Linum usitatissimum*) occurs solely within this zone, although the quantity of pollen is low (less than 1%). However, evidence from the plant macrofossils indicates that flax-remains were abundant at this level. This shows that the flax was past its flowering stage when it was harvested and that the pollen preserved in the sediment had been adhering to flax capsules and stems when they were put into the retting pit. A range of pollen-types that correlate with the arable/cultivated ground habitat were noted. In particular, spurrey (*Spergula*) type, chamomile (*Anthemis*) type, daisy (*Aster*) type, mustard (*Sinapis*) type, mouse-ear (*Cerastium*) type and goosefoot (Chenopodiaceae) type. These types correspond well with species found in the macrofossil assemblage and are likely to have become incorporated into the sediment as weeds of the flax crop.

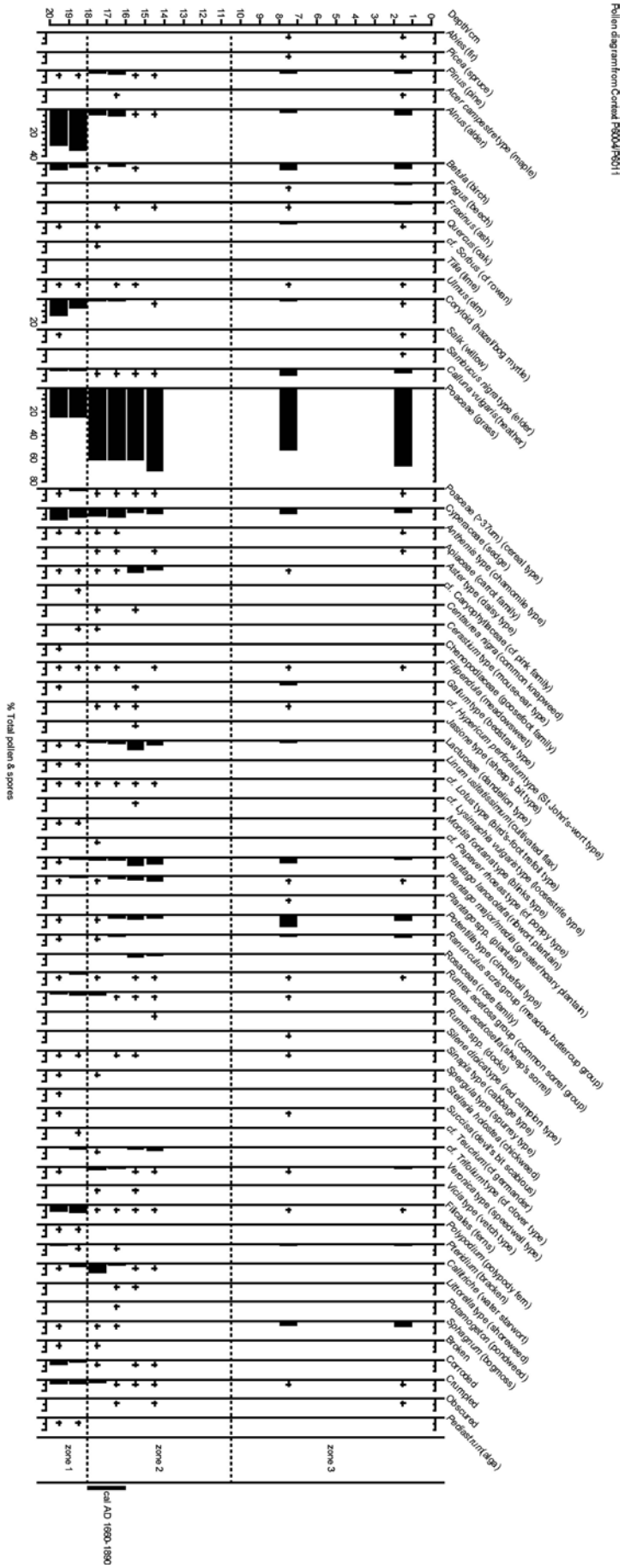
In line with the macrofossil report, marsh/waterside indicators were also noted. These included fully aquatic taxa such as water starwort (*Callitriche*) and the alga *Pediastrum*, together with taxa of marshland such as blinks (*Montia fontana*) type. Ferns were also part of the local vegetation during this period, with both polypody (*Polypodium*) and bracken (*Pteridium*) present, as well as larger amounts of undifferentiated fern spores (Filicales). Bogmoss (*Sphagnum*) spores were also present in low numbers.

Zone 2 (105–180mm)

This zone is characterised by a sudden fall in alder and hazel pollen and an increase in grass pollen. It suggests that the small amount of woodland that had remained in the area had by now been substantially cleared. However, there is evidence that trees were being planted, with the appearance of pollen from maple/sycamore (*Acer campestre*) type. This is most likely to have been sycamore (*Acer pseudoplatanus*), which became a popular ornamental tree in the last few hundred years and may have been planted by the estate. Ash (*Fraxinus*) pollen also appears in this zone. Although this is a native taxon, it is quite possible that ash trees were also planted as part of a landscaping campaign.

During the accumulation of this zone, there was a substantial increase in grass pollen and herbaceous pollen-types, which would tend to support the idea that the landscape around the site was becoming more open and probably more intensively farmed with increased grazing pressure. The pastoral indicator ribwort plantain (*Plantago lanceolata*)

Table 8.10: Pollen analysis diagram



increases significantly in this zone, as does greater plantain (*Plantago major*), which is a ruderal species – that is, it favours disturbed and trampled ground. Other taxa which increase in this zone are daisy (*Aster*) type, dandelion (Lactuceae) type, cinquefoil (*Potentilla*) type, speedwell (*Veronica*) type and clover (*Trifolium*) type. These are all types that would have colonised areas of grassland, in particular that used for grazing. Several other pollen-types make their first appearance in this zone and provide further evidence for an increase in grassland vegetation in the area.

As in Zone 1, there is evidence for aquatic and marshy habitats, presumably in the hollow itself. Water starwort (*Callitriche*), pondweed (*Potamogeton*) and shoreweed (*Littorella uniflora*) are all types that grow in open water or at the edge of standing water. It would seem that the flax-retting pit remained open and water-filled for some time. This corresponds well with the conclusions drawn from the macrofossil report. It suggests that the flax-retting pit was probably created to be used over a period of time, rather than for a single event.

Zone 3 (0–105mm)
This zone corresponds with the natural re-growth of vegetation in the hollow. The treeless nature of the area continued, although there is evidence for more small-scale planting of trees, presumably for ornamental purposes. Fir (*Abies*), spruce (*Picea*) and beech (*Fagus*), trees that are not native to Scotland, appeared for the first time. Grassland remained dominant in the area, although there appears to have been a slight increase in heathland taxa such as heather and sedge. A rise in cinquefoil (*Potentilla*) pollen may provide further evidence for this increase in the heathy nature of the surrounding landscape. The presence of acidic conditions in the vicinity of the site is confirmed by the increased presence of bog-moss (*Sphagnum*) in this zone.

8.7.5 Interpretation

Stratigraphically, Site P6 presented a fairly simple sequence of events: a phase of digging and piling upcast formed two adjacent sub-rectangular pits beside a small watercourse in a low-lying, boggy area. The recovery of substantial quantities of flax seeds, capsules and stem-fragments from the basal layer (P6004) in this sequence suggests the pit's sole function was for flax-retting. As has been noted above, flax does not grow well as a weed in wet environments, and here it was associated with crop-weeds from well-drained arable soils. Given the context of recovery, it seems likely that the harvested flax-stems were brought here to be retted. This form of retting was quite common; it either occurred in rivers that were specially dammed or in holes, known as 'lint-holes', which were dug in boggy areas (Baines 2003: 1).

There was further evidence of retting in the piece of pine bat (SF P6001) recovered from the same layer as the flax, which may have been used to dress the retted material. It is unclear, however, whether the flax was dressed at site P6 or at lint-mills in the area. As Harrison points out (8.6.1), there is little evidence for how the industry was structured in Breadalbane. However, it is entirely probable that small farmers and cottars grew flax in small quantities and that they retted, scutched, cleaned, spun, wove, bleached and finished it at their own holdings. This was certainly the case in Ireland, where flax was produced, processed and sold at market as a domestic industry cash-crop during the 18th and early 19th centuries (Collins 1994: 15). The strong evidence for retting and potentially scutching activity, combined with the low-lying position of the structure, indicates that the site was used as a flax-retting pit or pond. Elsewhere on the north shore of the loch, the RCAHMS have discovered a comparable site (pers comm Eve Boyle) in the Tombreck outfields (NN 6517 3808), similar in location and form, and composed of six sub-rectangular pits/ponds in a low-lying, boggy area.

The excavation results permitted the Craggantoll site to be dated, although this was solely dependent on the radiocarbon assay for a sample of flax capsules and stems recovered from Layer P6004. This provided an uncalibrated date of 145 ± 35 years. Calibration of this date provides 95% confidence that the site was used during the period AD 1660–1890 (OxA-8209) and a 65% probability that it was in use between 1790–1880 AD. It is difficult to reduce this range in any meaningful way, but as Harrison points out (see 8.6.1), the flax industry on Loch Tay was picking up with the construction of the first lint-mill at Killin in 1748. It seems probable that the industry flourished until the early 19th

century, and that sites like Craggantoll finally went out of use by 1840 at the latest. Both the one-sigma calibration and the recovery of a fragment of white earthenware pottery from the same context sit well with its use during the period 1790–1840, although this is by no means certain.

It is noteworthy that the ministers writing the *Statistical Accounts* in 1838 (Kenmore) and 1843 (Killin) make no reference to flax or linen, but discuss the processing and weaving of wool (for example, Sinclair 1845: 476). In contrast, the ministers of the same parishes during the compiling of the *First Statistical Account* in the 1790s discuss flax in some detail. Patrick Stewart, minister at Killin, notes that 'a considerable quantity is raised in the parish and sown about the end of April' (Sinclair 1977: 374), while both incumbents provide numbers for flax-dressers working in the parish: nine in Killin and 20 in Kenmore. The term flax-dresser was used widely to describe the person who broke and swingled flax to remove the woody part, after retting had softened the stalks. Swingling was also known as scutching, and was the process by which the broken fragments of stalk were separated from the flax fibres.

The detailed study of the waterlogged macrofossil and pollen record provides a clearer view of the environment around the site and assists in interpreting the stratigraphy encountered. Zone 1, which equates to Context P6004 and the period of the structure's use, contained flax as well as the greatest diversity of species. The landscape at this stage was mainly grassland, with alder and hazel in proximity, although there were also some indicators for wetland and arable conditions. In light of the dating evidence for this layer and the environmental conditions evident, it could relate to the period 1790–1840 when the surrounding landscape was probably being farmed by Duncan Cameron, who appears to have built Dwelling P7 and the other farm-buildings to the north of P6 (Harrison 2005b: 101; see above).

The abandonment of flax-retting activities in the pit was clearly associated with the accumulation of silt and a change in environmental conditions. These changes are evident in Zone 2, which relates to Layer P6011. The key change was the disappearance of flax, although this may have been a gradual process. Retting may have continued sporadically in the pit, which would account for the smaller quantities of flax stems, capsules and seeds at the bottom of Layer P6011 (see 8.7.4.1 above). Other evident changes include the decline of alder and hazel in the local environment, an increase in grassland taxa and the introduction of tree species associated with designed landscapes, such as beech and sycamore. Ramsay's assessment of the pollen sequence, in particular, suggests a more open landscape and more intensive farming (see 8.7.4.2). It is also noticeable that sphagnum moss was increasing throughout this layer, providing further evidence of the pit's abandonment. Dating the deposition of Layer P6011 is difficult, although it is likely to have begun by 1840 (see above) and certainly would have been in full swing by 1851, when the farm was amalgamated into a larger sheep-farm holding (Harrison 2005b: 102).

8.8 SUMMARY AND CONCLUSIONS

The survey and subsequent excavation of P6 proved that this low-lying site represents the remains of a flax-retting and potentially scutching site. Although the use of P6 could not be closely dated, it is likely to have occurred during the later years of the 18th or early decades of the 19th centuries. Paradoxically, it is possible to be more accurate about the time of year the flax was worked. Sowing of the crop in late April (see 8.7.5) meant that it was harvested in late July; the flax would therefore have been retted around mid-August of each year, with scutching undertaken in September (Baines 2003: 4). Scotland, in common with other northern European countries (Ireland, northern France, Belgium and Holland in particular), grew and processed substantial quantities of flax during the 18th century (see Durie 1979). In many parts of the Highlands, and especially along Loch Tayside, flax-retting and -dressing sites must have been common, though few seem to have survived. P6 at Craggantoll represents a rarity, one of only 31 known retting-pond locations in Scotland and the only one ever to be excavated.

The evidence recovered from the excavation of outfield settlements supports the view that, in the main, they were created after Robertson's report of 1797, quickly settled and built upon and then abandoned in stages from the 1820s (cf Harrison 2005b: 1). Sites such as Duncan McPherson's Farm

in Kiltyrie appear to have followed this pattern precisely. Here, the ceramic deposition suggests Building T6 (and probably the whole steading) was built before 1800, occupied from then until the 1820s, abandoned for a time before 1830 and then re-occupied intermittently between the 1840s and 1850s, before finally being abandoned. It seems likely that the secondary use of the building was related to a larger amalgamated unit – possibly Outfields Farm at Tomvorar. This may also have been the case at Duncan Cameron's steading in Craggantoll; however, the site was only partially excavated, providing limited evidence. Building P7 at Craggantoll would certainly later become part of the greater Outfields unit (see above). This form of phased abandonment seems to have occurred throughout the area, with little evidence that the estate pursued the large-scale clearance of tenants. Some tenants were cleared from Tirarthur and Morenish to make way for sheep (Boyle 2003: 19), but this was the exception rather than the rule.

Although sites like Kiltyrie and Craggantoll followed the pattern discussed by Harrison (see 8.1), the two other outfield sites excavated by the project were less clear-cut. Duncan Campbell (senior)'s steading at Tombreck was built after 1800 and before 1812, but the presence of Building T13 suggests cottars or crofters may have occupied the site before the 1797 changes. This was certainly the case at Balnreich, which operated as a croft from at least 1720 (see 8.1.4 above), although Building T1 may only have been occupied from the 1820s at the earliest. Returning to Tombreck, it seems likely that Building T14 and the other supporting structures (excluding T13) were built as a farm unit. This probably occurred later than the other Improvement sites, which might imply the lot was less desirable. By the early 1820s the farm or 'poor lot', as it is described, was in the hands of Campbell (senior), but the identity of its builder is less clear. Similarly, no clear candidate for the builder of T1 at Balnreich is evident in the documents.

The wide range of artefactual material recovered makes up for the lack of documentary evidence for Building T1. The detritus from later 19th-century mass-production provides a wealth of detail on life in the Central Highlands during the later part of the century. This includes material associated with childhood, such as shoes, marbles, writing-slates and pencils, and items for adults, like buttons, beads, brooches, spectacles and clay pipes. The presence of much of this material is probably due to the secondary use of the building for storage or discarding items after the abandonment of permanent settlement in the 1850s. Of all the sites excavated, this was the only one that remained roofed and in use in the broadest sense into the late Victorian period.

Settlement of the outfields along the northern shores of Loch Tay was inevitably a brief phenomenon. It lasted for little more than a single generation and left in its wake a landscape frozen in time. During the 70 years after 1831, the population tumbled from 3126 to 1325, a fall of 57.6% (Atkinson 2000b: 154). The first to go were inevitably the outfield farms, located on the poorer-quality ground, although a similar fate awaited the majority of the steadings up and down the estate. Excavation of four of these sites has enabled the past to be re-created to a degree and has highlighted some unusual practices. These practices and discoveries will be discussed more fully in Chapter 10.

The changes imposed on north Loch Tayside after the re-ordering of the farming landscape in the late 1790s had far-reaching effects on local communities and settlements. They occurred at a time of great social and cultural upheaval; a period when industrialisation and mechanisation were also playing their role in altering rural processes. This was also a period when greater access to and from the area was possible – a time when emigration or working outside the area became a reality and, for the first time, mass-produced material goods were a fact of life (Atkinson 2010).

Excavation of the settlements and industrial sites associated with the changing 19th-century landscape has provided evidence of the introduction of mass-produced goods into the area and the beginning of throwaway cultural practices. It has also charted the arrival of luxury goods, such as tea, and the products required to consume them. In constructional terms the use of stone dominates the evidence from excavations and provides details on building layouts and how they were used. The short life-span of these buildings and the fact they were abandoned with little attempt at re-occupation have provided perfect conditions for understanding early to mid 19th-century lifestyles in the Central Highlands.

9. POST-MEDIEVAL LOCH TAY: EXPLOITING THE MARGINS

Much of this chapter focuses on the construction and use of shieling-huts and the occupation of shieling-grounds above Loch Tay. Between 1996 and 2005 a series of field-seasons was undertaken on the fringes of the arable and pastoral zones and at the high shieling-grounds on the flanks of Ben Ghlas and Meall Greigh. This chapter presents the results of those seasons, in which ten excavations were undertaken on eight individual structures at three separate locations. The groups of structures discussed here were located within three separate shieling-groups on the Edramucky Burn, the Lawers Burn and above Kiltyrie head-dyke.

Systems of transhumance were common in many pastoral areas of Europe (Whyte & Whyte 1991: 70) and were certainly operating throughout the UK and Ireland in areas where land lay beyond the limits of cultivation. In lowland Scotland, where it was once common, the tradition appears to have disappeared during the later medieval period (Bil 1990: 2; Winchester 2000: 16). However, there is certainly some evidence to suggest that the practice of going to shieling was still current in Ayrshire, Clydesdale and West Lothian as late as the mid 16th century (Whyte & Whyte 1991: 71). In contrast with the Lowlands, the practice of transhumance in the Highlands seems to have its origins in the later Middle Ages and to have lasted well into the modern period. Exactly when the practice first began is unclear, but Bil suggests that the term appears in late 12th-century documents as 'skeling' or more commonly 'scalinga' (1990: 2). Although the use of the term 'shieling' occurs elsewhere in Perthshire by 1172 (Bil 1990: 2), there is no documented evidence for the practice on Loch Tayside until the late 16th century (Innes 1855; Bil 1996: 10; Harrison 2005b: 115).

Transhumance played a central role in the Highland economy during this period, allowing cattle to be fattened for market while removing them from the arable zone for up to six weeks during the peak growing season for crops. In a pre-enclosure agricultural economy, the effect of removing one of the greatest risks to cereal growth must have had positive effects. Although documentary evidence of transhumance practices on north Loch Tayside is clearly available from the 17th century onwards, the results of the excavations have pushed back the beginnings of the system until at least the 15th century and possibly earlier. The work has also gone even further by confirming the view that form is not necessarily a clear indicator of period. Excavation of a number of sites suggests that oval and rectilinear forms were in use together from at least the 16th century, and that form may be associated more with permanence than with developmental traits.

9.1 THE DOCUMENTARY EVIDENCE

John G Harrison

Farquharson's map of 1772 shows the shieling-sites associated with specific settlements and land-divisions. The statutes and complaints of infringements are the main sources from the late 16th to the early 18th century, but there are also references to shielings in court records, rentals and accounts and in sasines and charters as new properties were acquired. The richest sources are petitions submitted by the tenants in the late 18th and early 19th centuries. Though late, these sometimes refer to practices over several previous decades and give detailed descriptions of some locations.

A record from 1661 mentions the 'ancient' shieling-sites and those newly built at Reol or Rialdt on the Glen Lyon side of Ben Lawers (NRS GD112/2/139 item 1). Tenants were frequently fined for breaching statutes requiring huts to be maintained from year to year (NRS GD112/17/2 f18r; GD113/17/2 f30v; GD112/16/10/2, clause 12; Bil 1996: 8). Access to the shielings was by loanings, tracks walled on both sides to prevent the cattle straying onto arable fields, and wide enough for horses to pass without collision, and loanings are assumed in other records (NRS GD112/10/9: 107; GD112/11/5/1/80, Dec 1797). The surviving straight loans, with their well-constructed stone dykes, cannot have been made for a single annual journey to and from the high pastures, but incidental pasturage is the only other documented role. No record has been found of the co-ordination by estate officials which these extensive loanings would have required.

The statutes current in the 1620s required 'kye, horses, nolt and sheep' to be put above the head-dyke from 1 May to 8 June, and then to move further up, to the shielings, until 15 July when they were to return. Exceptions were made for sick cattle and adverse weather, but these dates were still current in the 1680s (NRS GD112/17/8 ff58r, 84r; Innes 1855: 352). However, people were frequently fined for failure to take the stock, for returning too early and for taking more stock than they were entitled to – though these fines may have operated more as a licensing system than a serious control (for example NRS GD112/17/3 f78v; GD112/17/4 f163r). Direct evidence for dairying at shieling-sites is sparse, but it includes the theft of butter and cheese from a site in 1697; the next night the thieves returned and, 'having come in to the bothies wher the watchmen wer', murdered one of them and wounded others (NRS D112/17/9 f18r). In 1746 a woman complained that a neighbour had milked her cow in a shieling (NRS GD112/17/12: 69).

Striking features of local practice are that stock might pasture on several distinct shieling-areas over the course of a summer (see 9.1.2 below) and that sites were frequently re-allocated, even before the major re-organisations of the late 18th century. Reasons for re-allocation included the requirements of deer and of horse-pasture and the demands of tenants from elsewhere or of commercial graziers, any change almost inevitably precipitating a cascade of new arrangements (NRS GD112/10/7 f294v; GD112/10/1/2 item 58; GD112/10/7 f383). Re-allocation and the frequent destruction of the huts (the structural timber was used for fuel) suggest that the huts would have had short lives, and this might in part account for the poor correlation of surviving remains with Farquharson's 1772 map.

Carwhin and the shielings of Rialdt or Reol (lying on the Glen Lyon side) were purchased by the Glenorchy Campbells from Lawers in the 1670s (NRS GD112/2/139/7). These shielings were allocated to Tirarthur, Morenish, Kiltyrie, Carwhin and Crannich townships, which continued to use them for much of the next century or so, while Carwhin also had use of the grass of Essence (Hessan) (NRS GD112/16/13/9/12; GD112/9/30 rentals 1682–3); a few years before, Essence was being used by tenants from Carie (NRS GD112/10/9: 132). During the same period most of the Lawers stock moved between sites on the upper slopes above their own subdivision of Lawers and (again) sites on the Glen Lyon side, although Edramucky had its own shielings (see 9.1.1 below). However, it is not clear when the mapped sites above Carwhin and Crannich were being used, or by whom.

The later 17th century saw several innovations with potential impact on shielings. In 1684 a new statute required that shieling-sites be moved every five years, as this did 'a great deall of good to the tenants and causes more grass to grow' (NRS GD112/17/8 f62r). Elsewhere in highland Perthshire such methods were used to prepare ground for arable farming and even presaged permanent settlement (Bil 1992: 39). Such settlements did not develop in the study area, although one did appear on the Reol former shieling-area, which was settled for pasture in the early 19th century (NRS GD112/16/7/4/37, complaint by Mr McNaughton, 1856). By the 1680s some tenants were renting summer or winter pasture on other (sometimes distant) farms to ease shortages, while acts regulating drovers, and direct evidence of stock sales to the lowlands, indicate that commercial pressures were increasing. In 1700 a statute was passed requiring lambs to go to the shielings, to be herded there as carefully as the old sheep, in order to prevent their damaging the corns and the grass on the low ground (NRS GD112/17/6 f53r). A statute of 1700 required tenants to go to their summer grass by 8 June and to continue there until 15 July – leaving the situation from 1 May to 8 June unclear (NRS GD112/17/6 f72r). Winchester (2000: 88–90) reports a similar, though generally earlier, reduction in the required shieling-time in the Borders.

By 1727 some Breadalbane tenants (though not those in the study area) were leasing their shielings to 'strangers' (NRS GD112/9/43: 33). Perhaps in reaction to the pressures this posed, the lower hill-grazings of some land-divisions were divided by stone dykes *c* 1750, though division was sometimes delayed by some decades (NRS GD112/11/5/3/32) and even many of the middle slopes were divided by the 1780s (NRS GD112/16/13/9/11). Probably by the 1760s, and certainly by the century's end, dairying had been either abandoned or was at most a minor use of the shieling-grounds across Breadalbane. Stock from

several farms was pastured on the hills by a common herd (NRS GD112/2/69/24; GD112/10/1/4 tacks mainly 1771–3; GD112/11/2/3/17) and many grounds were allocated to particular farms (NRS GD112/9/50 rental crop 1769–70: 79), while others were leased to commercial graziers paying much higher rents. These changes proceeded more slowly in the study-area than in some other parts of Breadalbane, but had major effects on herding and souming; there was also increasing pressure to reduce the numbers of horses on the hills (NRS GD112/16/5/6/11: 3). These changes inevitably led to disputes and a further re-organisation of use of the shieling-grounds – probably in 1798. Carwhin lost Hessan to people from Glen Lyon, something they had feared for several years. The west side of Lawers also lost Cory Roechy to Glen Lyon; both were moved to Rialdt, where they joined people from other areas of Discher (NRS GD112/11/6/4/100, 4 July 1798).

By the time the first commercial sheep-farm was established on north Loch Tayside (based at Milton of Lawers from 1797), the use of shieling-huts had been largely abandoned (see below). Even the smaller tenant flocks were kept as 'joint stocks' and watched by common herds, another powerful indication of the end of dairying at the shielings (NRS GD112/12/1/2/36). By the early 1820s the Morenish tenants, who had struggled for decades to retain their tack of the Rialdt, were pleading to be rid of it, a pattern followed across the area (NRS GD112/11/4/1/34; GD112/16/5/6 items 1 & 18).

9.1.1 Edramucky Burn (Ben Lawers Nature Trail) Sites

This area lay within the district of Edramucky, where shielings are recorded from 1606 (NRS GD112/2/67/1/6); some tenants of Edramucky were using shielings in Glen Lochay *c* 1679. The Campbells of Edramucky also held the adjacent lands of Rhenachulig and Blarliaragan at times, but the terms of their tenure should have prevented their tenants from switching sites, while the absence of shielings from the Edramucky rentals of the early 18th century suggests that they were viewed as an integral part of Edramucky. Farquharson suggests that all the tenants from Finlarig to Fearnan used Rialdt, although no specific evidence for this has been found in the case of Edramucky, and it was certainly not true for parts of Easter Lawers (below). A report of 1804 describes the marches of the Rialdt grazings, including those with Edramucky, but they lie too far north to give information about the sites investigated (NRS GD112/16/5/6/11).

9.1.2 Lawers Burn (Meall Greigh) Sites

Farquharson's map of 1772 has the words 'Sheallings of Lawers' in the general area of the Meall Greigh sites on the east side of the Lawers Burn. Other documents suggest that it was, more usually, the tenants only of the eastern parts of Lawers who pastured east of the Burn (NRS GD112/11/9/2/20). However, that is an over-simplification, since detailed arrangements were changed in 1781, 1785 and again in 1798, the actual areas pastured varied with the stage of the season, and some of the hill-pastures (including Meall Greigh) were also used by tenants from the Glen Lyon side, at least for parts of the season. The pattern evident elsewhere (see 9.1) suggests that hill-pasture allocations were never totally rigid.

The 1781 re-organisation followed a dispute between tenants of Lawers and of Roro, particularly about shielings at Cory Roechy and Cory Nabuiack, on the Glen Lyon side, which they also shared, probably as an inheritance from an earlier period of joint ownership (NRS GD112/11/1/3/1). As noted above, such movements over the watershed into Glen Lyon were also seen, for example, at the Rialdt and they probably reflect former shared ownership. From 1781 the Meall Greigh sites were to be used by the Roro tenants early in the season. From about mid-June the Roro people moved to sites in Glen Lyon and were replaced by the young and dry stock of Drumglass, Lurgbuie and Duallin for 'the usual time', until they in turn moved to pastures at Cory Roechy. These pastures were also used by Lawernacroy and Mahuaim and (later in the season still) by the Roro tenants once again, when all the stock were pastured together. That only the young and dry stock went implies that dairying was no longer taking place there.

The 1785 re-allocation was part of a wider rearrangement across the whole area (NRS GD112/13/1/33; Bil 1996). This had the tenants

of part of Drumglass, Lurgbuie, and Duallin as the most likely users of Meall Greigh after a period early in the season when they pastured close to their head-dykes; later they moved from Meall Greigh to Rienacop and Cory Roechy, returning later still. There was still some sharing of the higher pastures. In practice, arrangements were probably even more fluid than these complex and varying rules imply. Every re-organisation precipitated a wave of complaints and slight modifications of use, and there were periodic demands for a return to former 'traditional' practice (NRS GD112/11/2/3; GD112/13/1/33; GD112/11/2/3/17). By the mid 1780s there seems only to have been a single hut in use on the western Lawers hill-pastures. In 1797 James Campbell established north Loch Tayside's first specialist sheep-farm, based at Milton of Lawers, and gained a monopoly of use of the western hill-pastures with unrestricted stock numbers (NRS GD112/11/6/4/100; GD112/10/2/2/22; GD112/10/2/2/26/27). This precipitated further complaints and re-allocations of pasture, as did the intrusion of the commercial sheep-farmer of Inverinian of Roro into Cory Nabuiack (NRS GD112/11/6/4/94; GD112/11/9/7/20). However, by the end of the 18th century the petitions and disputes were about pasture only; dairying had stopped and the pattern of shepherding had been radically changed. The former shieling-huts must generally have fallen out of use, although they might have been used by shepherds in adverse weather (NRS GD112/11/9/7/20).

9.1.3 Kiltyrie Head-Dyke Sites

As part of the lands of Discher and Toyer, Kiltyrie is on record from the 15th century (*ER* VIII). In the early 16th century it was granted to a royal servant and was held by his family until at least 1542 when there were two tenants, one of whom assigned his five-year tack to John Campbell, brother of Campbell of Lawers (Gillies 1938: 358; *ER* XVII: 484). In 1541 and 1542 the tenants are named as Finlay McCarbery and Duncan McGillechell, the latter with a five-year tack which was assigned to John Campbell, brother of Campbell of Lawers, in 1542 (*ER* XVII: 728 rental 1541, 729). By 1585 Kiltyrie was controlled by Campbell of Glenorchy, but there was a mortgage over it; the land had been recently occupied by the deceased Finlay Makillewyne (NRS GD112/2/91/1–2).

Kiltyrie, though a substantial area, was not a land-division in its own right but comprised part of Morenish, with which it shared, for example, the mill at Milton of Morenish. In the 17th century it was a 4-merkland and was usually divided between four tenants. From the 1580s to the later 17th century most of the tenants were called McIllechuine (with variants such as McIllivine and later McQueen (NRS GD112/9/12, rental 1621; GD112/10/7, ff252–4; GD112/10/8: 26; GD118/10/8: 118; GD112/9/24 rental crop 1678). It probably experienced a particularly sharp rise in population; there were 74 inhabitants by 1769 (NRS GD112/16/13/1), with 20 households (13 tenants, three crofters and four cottagers) in the early 1780s (Harrison, 2005a: table 4). No evidence of transhumance arrangements was found in the Breadalbane papers relating to Kiltyrie or the head-dyke sites.

9.2 THE HIGH SHIELING-GROUP ON THE EDRAMUCKY BURN

The high shieling-group at the top of the Ben Lawers Nature Trail was initially selected for archaeological investigation as a sequel to ACFA's work in the area in 1995 (MacInnes 1996) and Bil's historical research into the shielings of north Loch Tayside (1996). ACFA's survey had identified 138 features within the bounds of the Ben Lawers Nature Trail (MacInnes 1996: 5–18), which the National Trust for Scotland was keen to manage effectively for the future. This, combined with the wide variety of remains noted, made it a suitable candidate for the first exploratory season in 1996. The results from the first season led to second and third seasons in this area, which together provided a wealth of evidence for occupation and use of the margins from the earliest times to the relatively recent past. Although the pilot seasons were not undertaken as a single planned sequence of work, the specific strategy of each season on the Edramucky Burn was directly related to its predecessor.

9.2.1 Composition of the Group

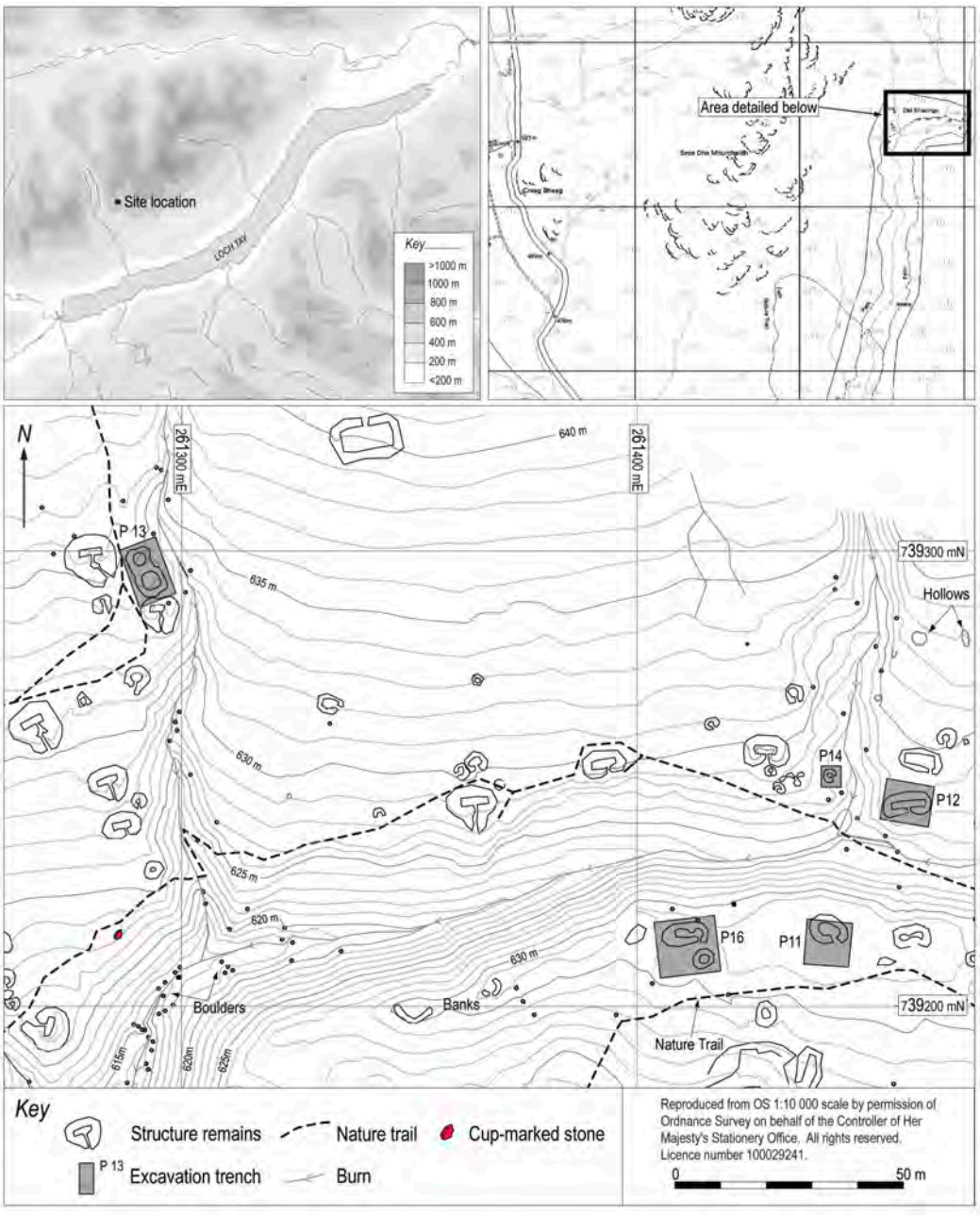
Detailed survey of the high shieling-group within the bounds of the Ben Lawers Nature Trail in May

1997 (Illus 9.1) revealed a densely-packed landscape at between 620m and 635m above OD. In total 45 individual structures were recorded, some of which were dual-celled or possibly represented two adjacent buildings, together with a cup-marked rock. A range of forms was present, including enclosures, sub-rectangular stone-and-turf huts, sub-circular turf huts and small, circular stone buildings.

Two main groupings of huts are evident. The first consists of sub-circular turf structures, generally clustered along the large moraine bank that runs broadly east/west and acts as a buffer to the Edramucky and its tributaries. These structures lie in an exposed position overlooking the loch below. In contrast, the sub-rectangular stone-and-turf structures generally adopt a more sheltered position, below the moraine bank and along the edges of the various burns. An association between these and the small, circular stone structures was generally evident.

9.2.2 Background and Excavation Strategy

Excavation resources were initially targeted on three very different structures in the high shieling-group,



Illus 9.1 Location-map of Edramucky Burn shieling-huts

with the aim of evaluating the sites and determining date and function if possible. In 1996 trenches were placed over a denuded turf-mounded structure (P8 – 7m × 5m), a structure with a figure-of-eight appearance in plan (P9 – 7m × 5m) and a typical rectangular shieling-hut (P10 – 10m × 3m). Results that season (Atkinson et al 1997) were limited but encouraging, and the decision was taken to pursue a further season within the group the following year. In 1997 the same three trenches were expanded: P8 became P11 (10m × 1m); P9 became P13 (12m × 8m); and P10 became P12 (10m × 8m). In addition a new trench (P14 – 5m × 5m) was placed over a small circular stone structure to the west of P12. The aims and subsequent results from 1997 (Atkinson et al 1998) were primarily to develop a fuller understanding of the variation in form within the shieling-grounds and to begin to place huts within a chronological context. Dating of a sample from the hearth in P11 to the late medieval period (see 9.3.1 below) triggered the final season in this location in 1998, when P16 (13m × 11m), which lay adjacent to P11 and appeared to contain remains of at least two turf buildings, was investigated (Atkinson et al 1999).

Two excavation strategies became current: open-area excavation, and excavation in plan and by slot. Open-area excavation was used for all structures, but in the case of turf buildings a different strategy had to be employed. It was impossible to undertake standard open-area excavation for turf buildings where the walls had slumped and blended together. In consequence a hybrid technique was employed, which married open-area excavation with excavation by slot. Once trenches were opened, cleaned and planned, slots were used in order to understand the slumped turf profiles, reveal the core of turf walls and banks and expose underlying deposits.

9.3 EXCAVATION OF BUILDING P11 ON THE EDRAMUCKY BURN

The site investigated in Trench 8 in 1996 and Trench 11 in 1997 was a turf-mounded structure, located on the moraine bank in the high shieling-group above the Edramucky Burn (Illus 9.2). This site, known collectively as P11, was only partly excavated during both seasons and the results therefore provide a glimpse of the archaeological potential of this type of shieling-hut.

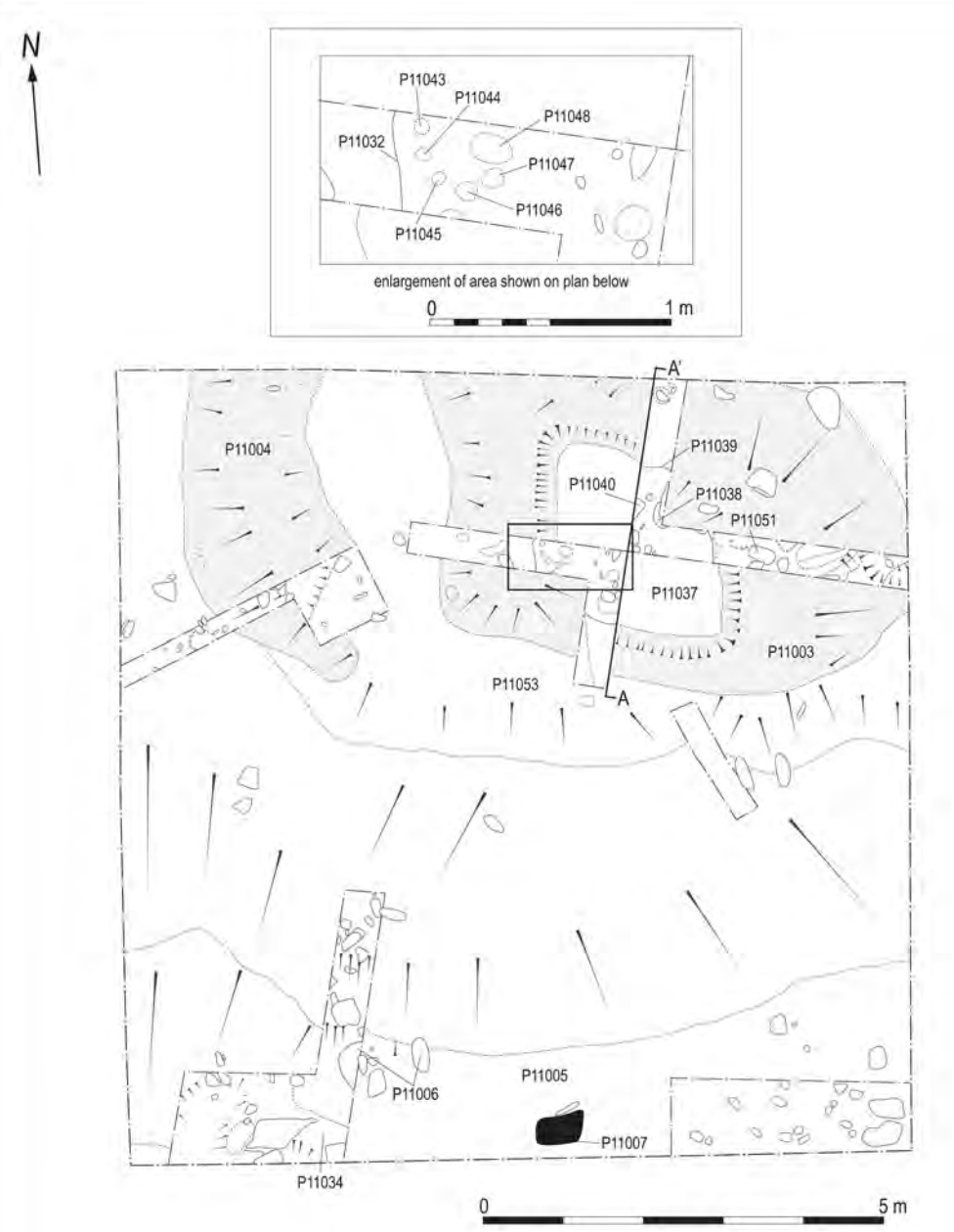
9.3.1 Deposits and Stratigraphy

Gavin MacGregor & Michael Donnelly

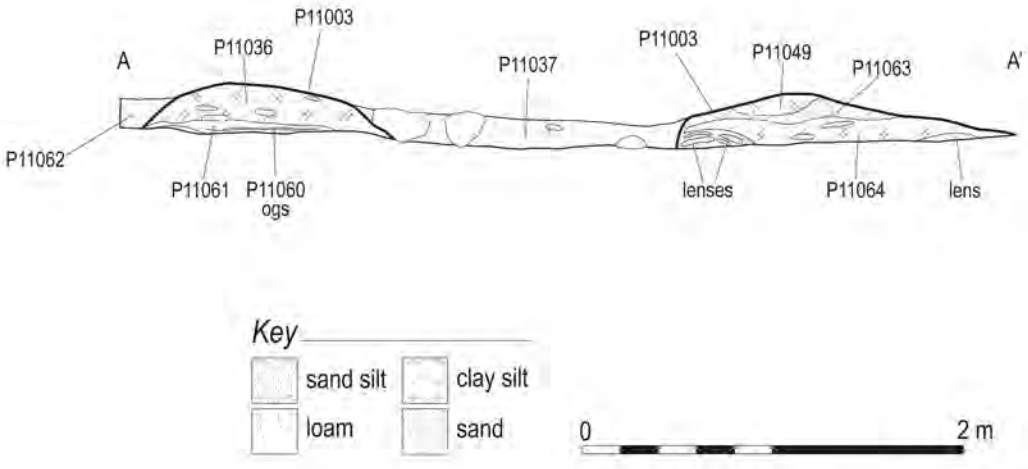
Two possible phases of use are postulated for Building P11, but the first phase is based solely on the recovery of artefacts and may be related to the Phase 1 occupation of the adjacent P16 (see Chapter 2). A summary is provided below:
Phase 1 – Possible early prehistoric use
Phase 2 – mid 15th to mid 17th centuries AD

Excavation revealed that the earliest event at the site was a shallow hollow (P11053/P11039) cut into an old ground-surface (P11061) (Illus 9.3) capping a natural deposit of moraine (P11062). A scoop was then cut into the top of this mound of material (P11062), which subsequently filled with a silt/clay (P11054), probably derived from trampling activity. Around the edge of Cut P11053 – and cut into Layer P11054 – a number of features were noted within the four intersecting slots used to investigate the structure. In the northern slot, a fire-spot (P11038) (Illus 9.4) was observed. A sample of willow charcoal from this feature produced a radiocarbon date of cal AD 1453–1651 (2σ, AA-28400). Fire-Spot P11038 was sealed by a stone slab, possibly deriving from the revetment of the adjacent bank. In the western slot, a group of five stake-holes (P11043–P11047) and one post-hole (P11048) were observed (Illus 9.2). These formed a circular arrangement with a diameter of *c* 0.25m.

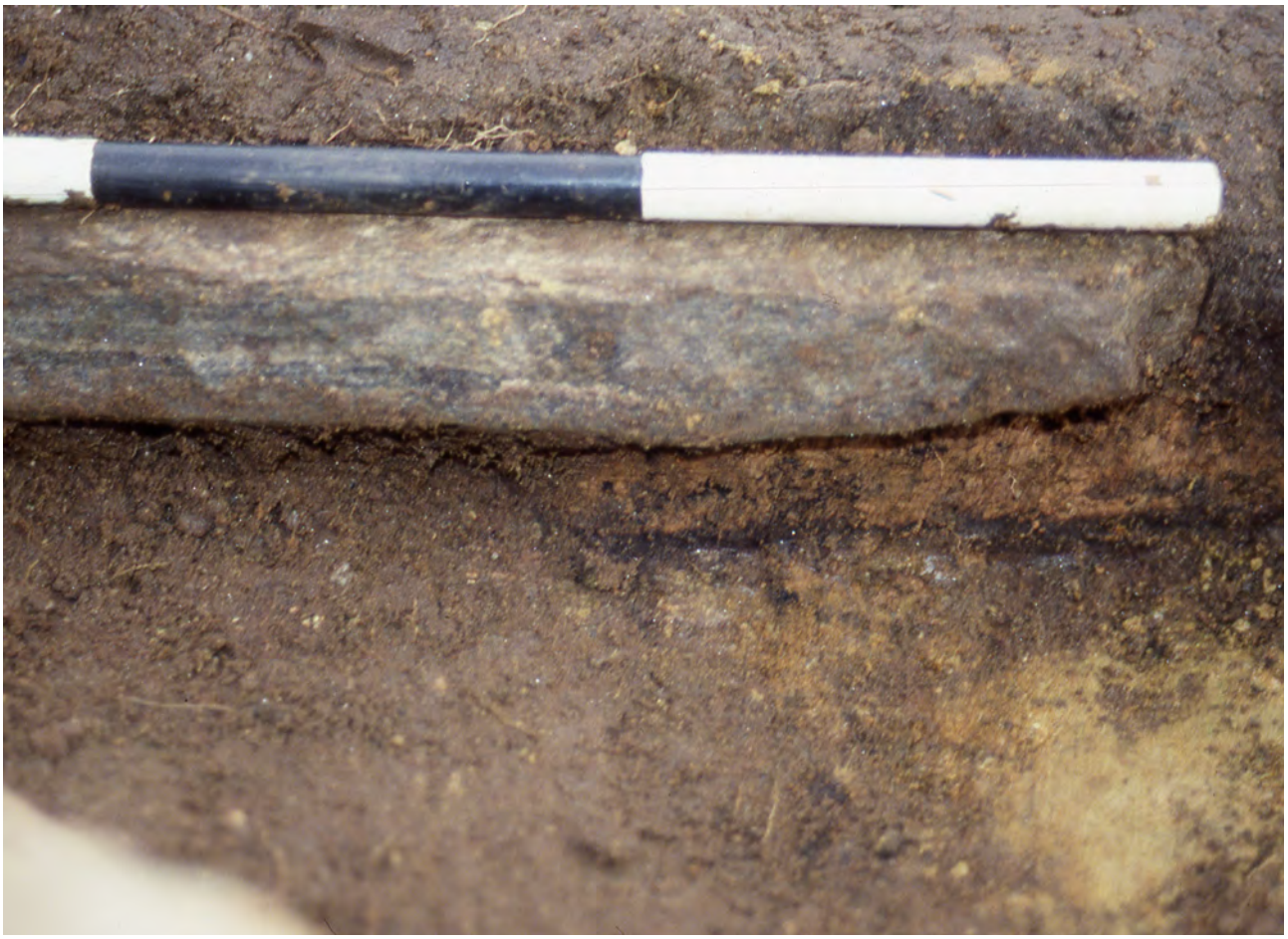
Surrounding the scooped interior (P11053), the superstructure of P11 was composed of turf banks (P11003/P11004) encompassing an area 3.4m × 2.5m. Bank P11003 had a maximum height of 0.26m and its core was *c* 1m wide (Illus 9.3). Several medium-to-large stones, lying up to two courses high, were apparent on the inside of the bank, and these may represent an internal revetment (P11051). Bank P11004 also had a core (P11057) constructed of compressed individual turves which were distinguishable in section (Illus 9.3). Both banks had subsequently slumped (P11058/P11059) and the interior of the



Illus 9.2 P11 trench-plan



Illus 9.3 P11 east-facing section of northern slot



Illus 9.4 Fire-Spot P11038 in Hut P11

structure had silted (P11033/P11037/P11052/P11055).

9.3.2 Finds

With the exception of the assemblage of lithic material, which is discussed in Chapter 2, few artefacts were recovered from P11. The exceptions were a group of finds from the topsoil, including SF 8057, a fragment of a plate or strap, SF 11037, a probable iron nail-shaft, and SF 11008, a fragment of glass.

9.3.2.1 Metalwork

Adrian Cox

Part of a horseshoe (SF 11012), represented by the terminal of one arm and a small calkin, was found in Layer P11032. This find is heavily corroded, but X-radiography revealed that the fragment includes one intact nail-hole and is broken across another. The horseshoe is of intermediate size and probably of 18th- or early 19th-century date.

9.3.3 Environmental Evidence

Jennifer Miller

Full analysis of samples from the 1996 and 1997 seasons is presented in Table 9.1. Of particular note are the results from fire-spot Sample 11038, which contained willow, heather, bilberry/crowberry, birch, cf heather charcoal and cf peat. Four fragments of willow were recovered; all show numerous growth-rings and a twist along the longitudinal section. Other characteristics confirm the taxa, but not the particular appearance of tall shrub-willow charcoal. There are some similarities to dwarf shrub-willows like net-leafed willow (*Salix reticulata*) or dwarf willow (*S herbacea*), both of which grow on rocky mountain ledges (Schweingruber et al 1990; Stace 1997); but these similarities may simply be the response to growth in stressful conditions at high altitude.

Table 9.1: Palaeo-botanical results from trenches P8/P11 on the Edramucky Burn

	80004	11007	11034	11038	11043
Charcoal					
Betula	0.3g	0.3g		X	0.1g
Calluna vulgaris	0.2g	0.1g	<0.1g	X	
Corylus	0.1g				
Ericaceae indet	0.2g	0.15g			
Erica cf *cinerea*	<0.1g				
Salix				X	
Vaccinium/Empetrum				X	
cf *Vaccinium/Empetrum*	<0.1g				
cf peat				X	
Carbonised seeds					
Empetrum nigrum	1	1			

9.4 EXCAVATION OF BUILDING P12 ON THE EDRAMUCKY BURN

During the 1996 and 1997 seasons, excavation was targeted on a rectangular shieling typical of the Loch Tay area (Illus 9.5). The structure (P12023) lay on a south-west/north-east alignment parallel and close to the Edramucky Burn. The 1996 excavation trench was positioned to bisect the building longitudinally (see Atkinson et al 1997: 35–9). In 1997 this trench was extended to investigate the entire structure and a turf mound to its north (Illus 9.6).

9.4.1 Deposits and Stratigraphy

John A Atkinson & Michael Donnelly

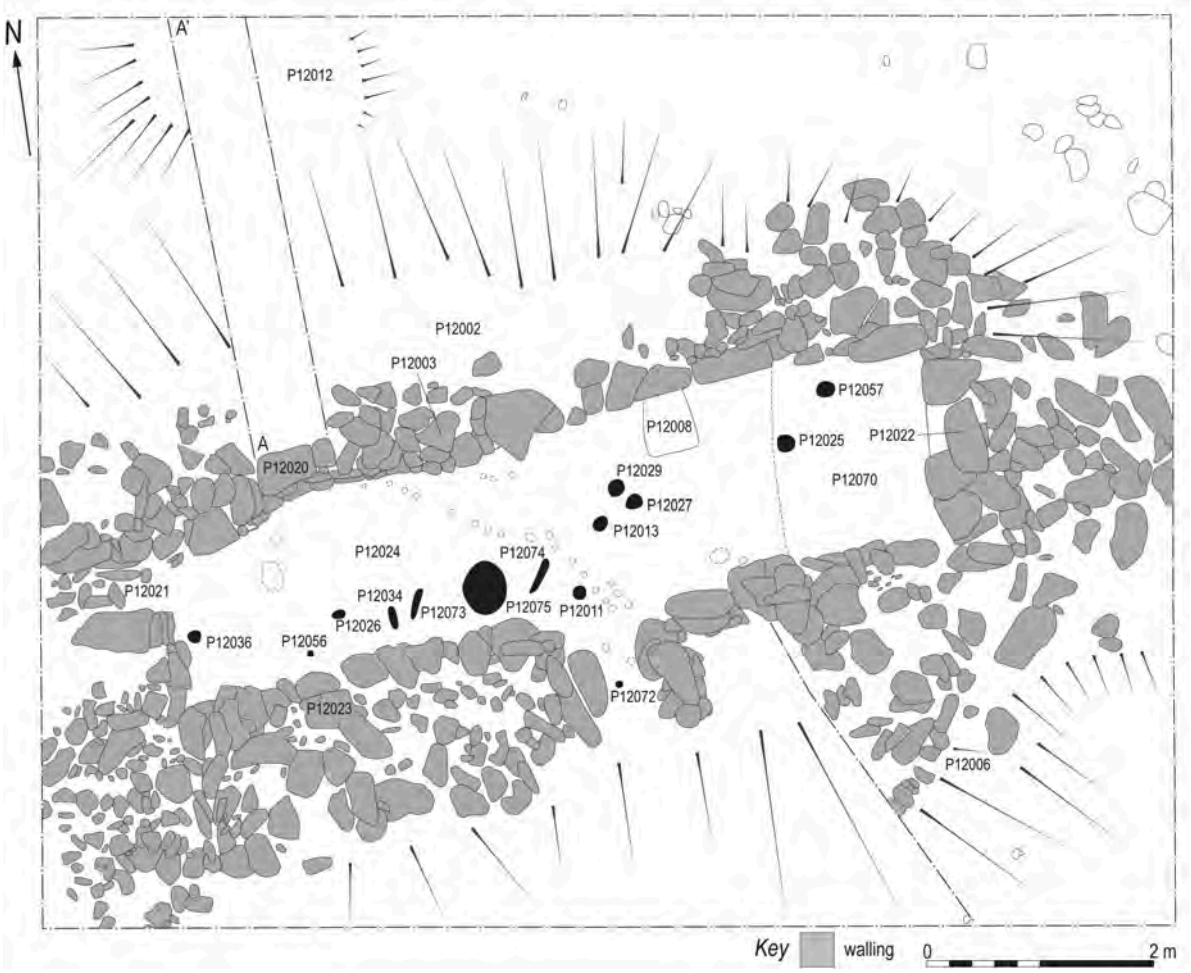
Two phases of occupation were apparent within the building's constructional sequence, with an earlier phase noted for the turf structure to its north. A summary of phasing is presented below:
Phase 1 – undated
Phase 2 – late 15th to mid 17th century AD?
Phase 3 – 18th century?

Activity pre-dating the construction and use of P12 was evident to its north in a small circular turf mound (P12012) (Illus 9.7). Excavation of the northern bank (P12023) of P12 revealed that the mound pre-dated it. Two quartz flakes (SFs 1155–6) and knapping debris (SF 1157) (see 9.4.2.3 below) were recovered from Mound P12012 and its layers (P12009). A second group of features was cut into the natural (P12024) below Structure P12's occupation horizon (P12010). This diagonal line of stake-holes cut across the structure from within the Phase 3 entrance to the building's northern wall (Illus 9.6) and appeared to interfere with access to the building. It is therefore possible that it pre-dates the use of the entrance or potentially even the building.

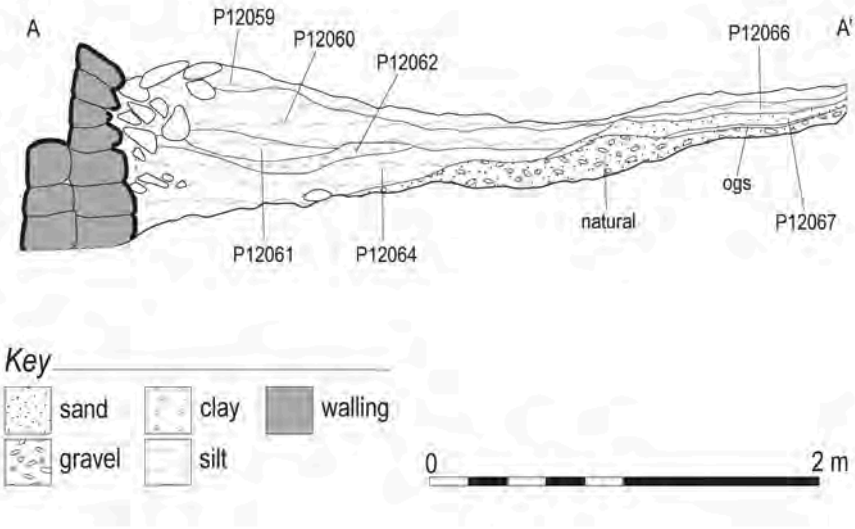
Hut P12 was founded upon a raised mound of moraine. It was evident from the base of the walls (Illus 9.8) that the hut was built directly on top of the glacial till. During Phase 2 of occupation, P12 was *c* 5.5m long by 1.6m broad and constituted by an inner drystone wall and outer turf batter. Its entrance was located slightly to the east of centre. A large, upright slab (P12082) marked its original position. Few other features can be confidently associated with this phase; however, Fire-Pit P12084 may have been in use at the time, and it provided evidence for consumption crops as well as fuel resources (see 9.4.3 below). Radiocarbon dating of a sample of sloeberry-type charcoal from the pit provided a date-range of cal AD 1470–1650 (2σ, OxA-9035) (see interpretation below).

During Phase 3 the structure was expanded to the east by a further 1.3m, thereby creating a new internal length of 6.8m, while retaining its Phase 2 width. The extension walls were founded on a layer

Illus 9.5 P12 under excavation, 1997



Illus 9.6 P12 trench-plan



(Above) Illus 9.7 Sections through P12

(Left) Illus 9.8 Silt layer under east end of Hut P12

of silt (12087) in the eastern end of the structure, implying they were built directly over the topsoil. The different occupation phases were evident in the glacial till under the floor-layers, where a distinct difference in colouring between the west (P12024) and east (P12070) ends was noted. It is likely that the Phase 2 entrance was sealed at this stage and a new central entrance created to its west. Fire-Pit P12084 was re-used during this phase.

A thin band of dark organic silt (12010 [10014/21]), which represented occupation accumulation, was deposited throughout the Phase 3 building. Several features were apparent below this layer, cut into the till (P12024/70), including a series of post-impressions (P12013/27/29/25/57), burnt and unburnt stake-holes (P12071/72/56) and a series of shallow slots (P12034/73/74/75) adjacent to and possibly associated with Fire-Pit P12084. It was unclear whether these features were cut through Layer P12010 or existed prior to its deposition. Excavation in 1996 revealed two

crescentic revetment banks and paving on either side of and in front of the Phase 3 entrance (Illus 9.9). The south-eastern bank was formed after the abandonment of the Phase 2 entrance, which was sealed behind it. Two paved walkways were evident, running around the edge of both banks and leading to the entrance (Illus 9.6 & 9.9). Removal of the entrance slabs revealed three stake-holes beneath them.

After abandonment, the roof and upper wall-course collapsed and filled the interior with rubble (12008 [10002]). During removal of this layer, 19 sherds from the same late 19th-century beer/ale bottle were recovered (see 9.4.2.1 below). A number of fragments of metal-sheeting and iron were also recovered from post-abandonment contexts and from within the upstanding walls of the hut (see 9.4.2.2 below).

9.4.2 Finds

9.4.2.1 Glass

Robin K Murdoch

Nineteen sherds (SFs 10002–3, 12002, 12004–6, 12009, 12012–13) from the same probable beer or ale bottle were recovered from mainly topsoil layers (10002/12001/12008) across the site. The bottle had a slightly-tapering body (80mm in diameter) and 'orange peel' outer surface, with a conical kick and no belling. Much of the vessel is present, including a short neck with upright applied lip. SF 12013 provided evidence of the use of a three-piece mould in manufacture and the bottle probably dates from the mid to late 19th century.

9.4.2.2 Metalwork

Adrian Cox

Two groups of fragments, SFs 12003a and b, probably represent the remains of containers. SF 12003a, consisting of over 50 fragments, appears to represent a small iron box or can. It is possible that more than a single object is represented by this group. SF 12003b, 70–80 fragments of sheet-iron, represents more than one object. An angled strip of rectangular or elongated-oval cross-section, broken at both ends (SF 120016a), could once have been part of a grating or grille. It was found together with a nail-fragment (SF 016b). Two other fragments of sheet (SFs 12008 & 12011) with irregular broken

Illus 9.9 Crescentic banks and walkways either side of entrance to P12

edges were also recovered from overburden layers. A possible nail-shaft fragment (SF 12007) completes the assemblage.

9.4.2.3 Lithics

Michael Donnelly

Eighteen pieces of quartz (15 of rock quartz and three of quartz crystal) were recovered over the course of two excavation seasons. Two flakes were recovered from within the eastern revetment bank (P10003) and a third from the vicinity of the western entrance (P10008). Of the flakes, two genuine examples (SFs 1155 & 1156) originate from an ash and sand layer (P12009) within Mound P12012. One of these (SF 1156) displays three or four parallel uniplane removals and possibly has an acute, used edge. The mound also produced a fragment of knapping-waste (SF 1157).

9.4.3 Environmental Evidence

Jennifer Miller

The results of analysis of samples recovered from Trenches P10 & P12 are presented in Table 9.2 and summarised below. Context P10025 consisted of burnt clay and charcoal and provided evidence of heathland shrubs, including heather and bilberry/crowberry as well as birch, hazel, willow and sloe-type charcoal. Seeds possibly providing evidence of human consumption, such as the single cf wild oat, were identified, but these probably originated as crop contaminates. A single crowberry fruit-stone may have been intended for consumption or accidentally lost with fuel. Context P10029 contained charcoal of birch, heather, sloe-type, cf bilberry/crowberry and cf peat, very similar to P10025. Context P12028 contained charcoal of heather and Scots pine, while P12037 had very small amounts of birch present.

9.5 EXCAVATION OF BUILDING P13 ON THE EDRAMUCKY BURN

Structure P13 was located on the north-western edge of the group (Illus 9.1) on the edge of a small feeder-burn running south into the Edramucky Burn. P13 was positioned at 635m above OD and appeared prior to excavation to have a figure-of-eight form. Oriented north-west/south-east, the structure's north-western end was formed by upright schist orthostats. Excavation occurred over two seasons, with partial excavation of the interior in 1996 (Atkinson et al 1997: 34–5) and fuller excavation of the entire structure in 1997 (Atkinson et al 1998: 21–8).

9.5.1 Deposits and Stratigraphy

Michael Donnelly

Excavation of P13 provided evidence of three possible phases of use, but no clear dating sequence was evident. Consequently the relationship between phases is based on inference rather than fact. In summary the following phasing is suggested:
Phase 1 – construction and use of P13006 prior to 1620 AD
Phase 2 – construction and use of P13013 during the 17th century
Phase 3 – 18th century?

During Phase 1 a small oval structure was built, formed from upright schist orthostats (P13006) set within a gravel-rich bank (P13015). It appears to have been *c* 4m long by 3.5m broad. It may have had an entrance on its north-east or south-west side. Any trace of the latter would have been lost by the construction of the Phase 2 building. A sherd of medieval redware was recovered from topsoil within the possible north-east entrance. Inside the structure a thin layer of gravel floor (P13074) was noted, but few internal features were apparent. A single shallow scoop was observed (P13075), filled with sands, gravels and silts (P13033). No artefactual or ecofactual evidence was recovered from inside the structure. Investigation of the trackway adjacent to the Phase 1 structure provided evidence of the deposition of artefacts, including three sherds of medieval redware ceramic (see 9.5.2.1 below).

Phase 2 saw the construction of a small, rectangular building to the SSE of the Phase 1 structure, oriented WSW/ENE (Illus 9.10). This building was *c* 4m long by 3m broad and was built over the south-west side of the Phase 1 structure. Phase 2 appears to have been constructed with an inner and outer drystone wall (P13013), built to retain a broad turf bank interlaced with large, flat schist slabs (Illus 9.11). The Phase 2

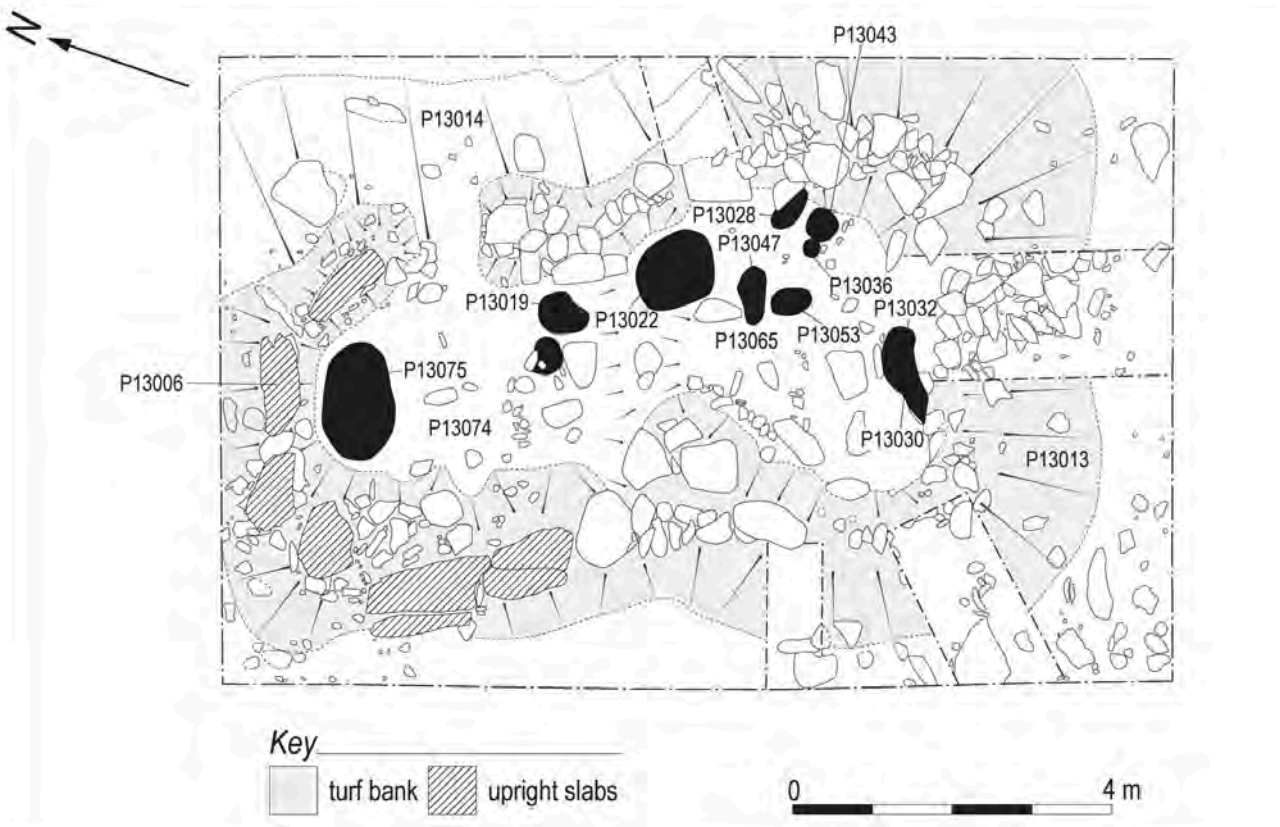
Table 9.2: Palaeo-botanical results from trenches P10/P12 on the Edramucky Burn

	10017	10018	10021	10025	10025	10027	10029	12028	12035	12037
Charcoal										
Betula			0.25g	0.1g	0.15g		0.15g			<0.1g
Calluna vulgaris	<0.1g		<0.1g	0.5g	0.2g		0.1g	0.1g	<0.1g	
C vulgaris					5		6			
C vulgaris					1		3		<0.1g	
Corylus				0.1g	0.15g					
Ericaceae indet	<0.1g	0.1g			0.2g	<0.1g				
Erica cf *cinerea*								<0.1g		
Prunus spinosa type				0.65g	0.3g		<0.1g			
Salix					0.15g				<0.1g	
Vaccinium/ Empetrum						<0.1g				
cf *Vaccinium/ Empetrum*			<0.1g				<0.1g			
cf peat				1.8g	2.3g		0.25g			
Indeterminate			<0.1g							
Carbonised seeds										
Avena cf *fatua*					1					
Empetrum nigrum					1					

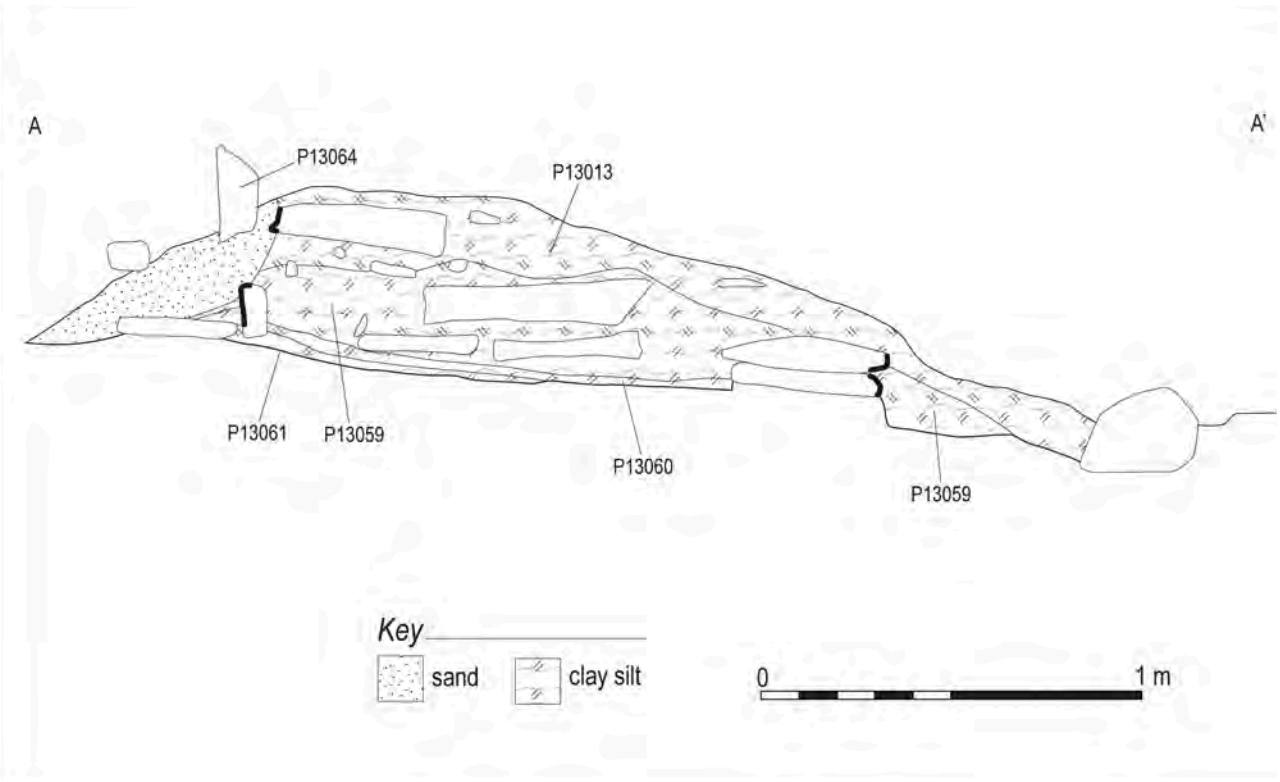
structure may have been roofed, although no direct evidence was recovered. Certainly a number of post-holes and pits were noted cutting into Floor P13065, but no distinct pattern of posts was discernible.

Floor P13065 was very mottled, orange-red, sandy gravel, which survived to a depth of 0.2m in places. Of particular note was the discovery of steep-sided Slot P13030, which lay adjacent to the SSE wall of the Phase 2 structure (P13013) and was partially covered by it, and a denser group of features in the ENE end. Slot P13030 contained stone packing and may have held a shallow post-hole (P13031) at its eastern end, although only heather charcoal was recovered from its fill (see 9.5.3 below). Another possible slot (13028) orientated north-west/south-east was located adjacent to the ENE wall and formed part of a group of closely-set features. These included a shallow oval pit (P13036) and Post-Hole P13043. Feature 13043 was a large, deep post-hole which had three fills, all of which provided evidence for birch and heather charcoal suggesting a similar origin (9.5.3 below). The lower fill (P13042) also contained a quartz flake and waste (see 9.5.2.3 below). Radiocarbon dating of a sample of willow charcoal from Post-Hole P13043 provided a date-range of cal AD 1620–1680 (2σ, OxA-8964). Another possible post-hole (13053) and an irregular pit (13047) lay close by, together with a large shallow feature (P13022). None of these features provided any further ecofactual or artefactual evidence.

A third and final phase of use was represented by the removal of much of the Phase 2 building's NNW wall and the conversion of the entire structure into an enclosure. This may have occurred prior to the abandonment of the shieling tradition in the late 18th century (see 9.1 above).



Illus 9.10 P13 trench-plan



Illus 9.11 Section through P13

9.5.2 Finds

9.5.2.1 Ceramic

Robert S Will

Four body-sherds of medieval redware were recovered from topsoil deposits associated with P13. The sherds have a green glaze over a red fabric and show evidence of wear and post-depositional damage. They are likely to date to the 14th to 15th centuries.

9.5.2.2 Glass

Robin K Murdoch

Two body-sherds (SFs 9023 & 9024) were recovered from topsoil layers during the excavation of P9 in 1996. Both are rich mid-green in hue, with 'orange peel' outer surfaces. One (SF 9024) has a partial kick and may have been hand-finished and is probably mid 19th century in date.

9.5.2.3 Lithics

Michael Donnelly

The assemblage consists of 14 pieces of quartz (11 rock quartz and three rock crystal) and includes three genuine, seven probable and four possible examples of worked stone, along with six flakes, three cores and three pieces of angular shatter and one large chunk that had been modified into a spokeshave-type tool (SF 1180). Most of the material was recovered from topsoil layers. A single flake and two fragments of waste originate from Posthole P13043. Two flakes were found on the adjacent track (P9121) and one bipolar core/fragment of crystal quartz (SF 1172) was found in Pit P9125. The two remaining cores (SFs 1174 & 1179) came from the topsoil. Both are cylindrical single-platform cores, one of which produced flakes, the other blades and blade-like flakes.

9.5.3 Environmental Evidence

Jennifer Miller

Analysis of the samples from the 1996 and 1997 seasons (Table 9.3) reveals small amounts of charcoal in most. A small amount of heather charcoal was recovered from the fill of Slot P13030, while equally small quantities of willow were recovered from Bank P13013. Samples 3 (P13040), 4 and 11 (P13041) and 5 (P13042) came from Posthole P13043 and contained charcoal of birch and heather and, in the case of Sample 4, a little willow. A common origin is likely for these contexts.

9.6 EXCAVATION OF BUILDING P14 ON THE EDRAMUCKY BURN

Structure P14 was located to the west of P12, in a low-lying area on the west bank of a small burn feeding into the Edramucky (Illus 9.1). Prior to excavation it was visible as a small, circular structure, defined by a ring of drystone boulders partially covered by turf, adjacent to a rectangular hut (similar to P12) on the west.

9.6.1 Deposits and Stratigraphy

Chris Dalglish

The earliest event encountered was represented by a band of silting (P14037) under an original land-surface and turf horizon (P14015). A small fragment of iron rod or nail-shaft (SF 14005) was recovered from this silt layer (see 9.6.2.2 below). These layers were sealed by a substantial deposit of hill-wash

Table 9.3: Palaeo-botanical results from trench P13 on the Edramucky Burn

	13010	13013	13040	13041	13041	13042
Charcoal						
Betula			1.3g	0.3g	0.25g	0.25g
Calluna vulgaris	<0.1g		0.15g	<0.1g		<0.1g
Ericaceae indet						<0.1g
Salix		0.15g		<0.1g		
Vaccinium/Empetrum						
cf *peat*			<0.1g			

(P14004) some time prior to the construction of the Hut P14 (Illus 9.12–13). The sequence of events associated with the hut began with the excavation of a pit to accommodate its drystone walls (P14002). This was followed by the construction of the lower courses of walling and an outer turf bank (P14003) over the hill-wash layer (P14004/P14017). Several pieces of worked quartz and a single poorly-preserved grain of barley (see 9.6.3 below) were recovered from the outer bank and hill-wash. The quartz, which included flakes and a possible core (see 9.6.2.1 below), may have arrived by natural means (see 9.8 below).

No evidence of an internal floor or features was encountered inside P14. A ditch-like feature (P14040) ran broadly around the north, south and west sides of the structure, but it is unlikely to be associated with the building. After its abandonment, the structure fell into disrepair and sequential layers of silts built up in the interior (P14033/P14020/P14010), probably as a result of occasional flooding when the adjacent burn was in spate. This was followed by the collapse of the upper courses of stonework (P14012) into its interior (Illus 9.14).

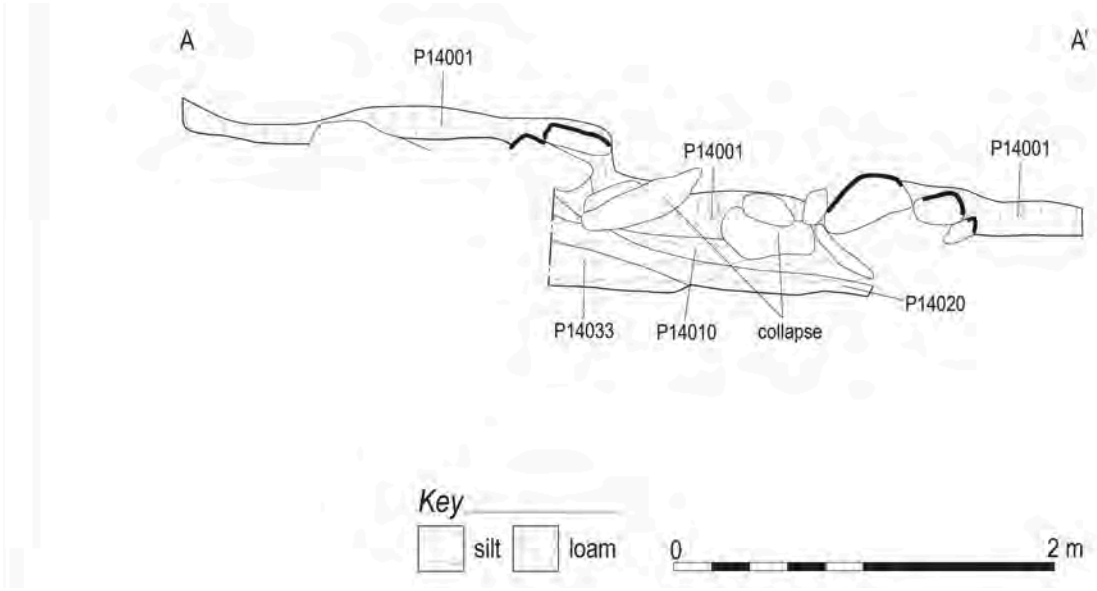
9.6.2 Finds

9.6.2.1 Lithics

Michael Donnelly

A small assemblage of 19 pieces of quartz (all rock quartz except one piece of quartz crystal) was recovered from the small oval structure. The assemblage comprises five flakes, a probable core and 13 pieces of angular shatter. Most of this material has been classified as probable (ten) or possible (seven), with only two genuine examples of worked stone. The most interesting piece is a single platform-core with at least two flake removals from angular facets on the platform's edge (SF 1187).

Illus 9.12 P14 trench-plan



(Above) Illus 9.13 Section through P14

(Left) Illus 9.14 Collapsed upper stonework in P14

9.6.2.2 Metalwork

Adrian Cox

SF 14005 is a rod or nail-shaft fragment (47mm long), with small rock fragments adhering to its corrosion products.

9.6.3 Environmental Evidence

Jennifer Miller

A few samples were analysed from P14. In general they provided little evidence of human agency in the structure. The only exception was Context 14015, which contained a poorly-preserved cf *Hordeum* (barley) caryopsis and some burnt peat or cinder. This sample, however, like all of the others investigated, came from an insecure context with evidence of modern contamination.

9.7 EXCAVATION OF P16 ON THE EDRAMUCKY BURN

The encouraging results from the 1996 and 1997 excavations on the moraine bank above the Edramucky Burn led to the final season of work in 1998 (Atkinson et al 1999). This focused on the group of structures to the west of P11, which survey had recorded as an elongated, double-celled turf structure on the crest of a mound, which lay to the north of, and above, another sub-circular turf structure. A trench measuring

13m × 11.5m was opened centred on these features (Illus 9.15). This section deals specifically with Phase 2 of occupation of P16 and the construction and use of these turf structures (Illus 9.16). Phase 1 is discussed in Chapter 2.

9.7.1 Deposits and Stratigraphy

Gavin MacGregor

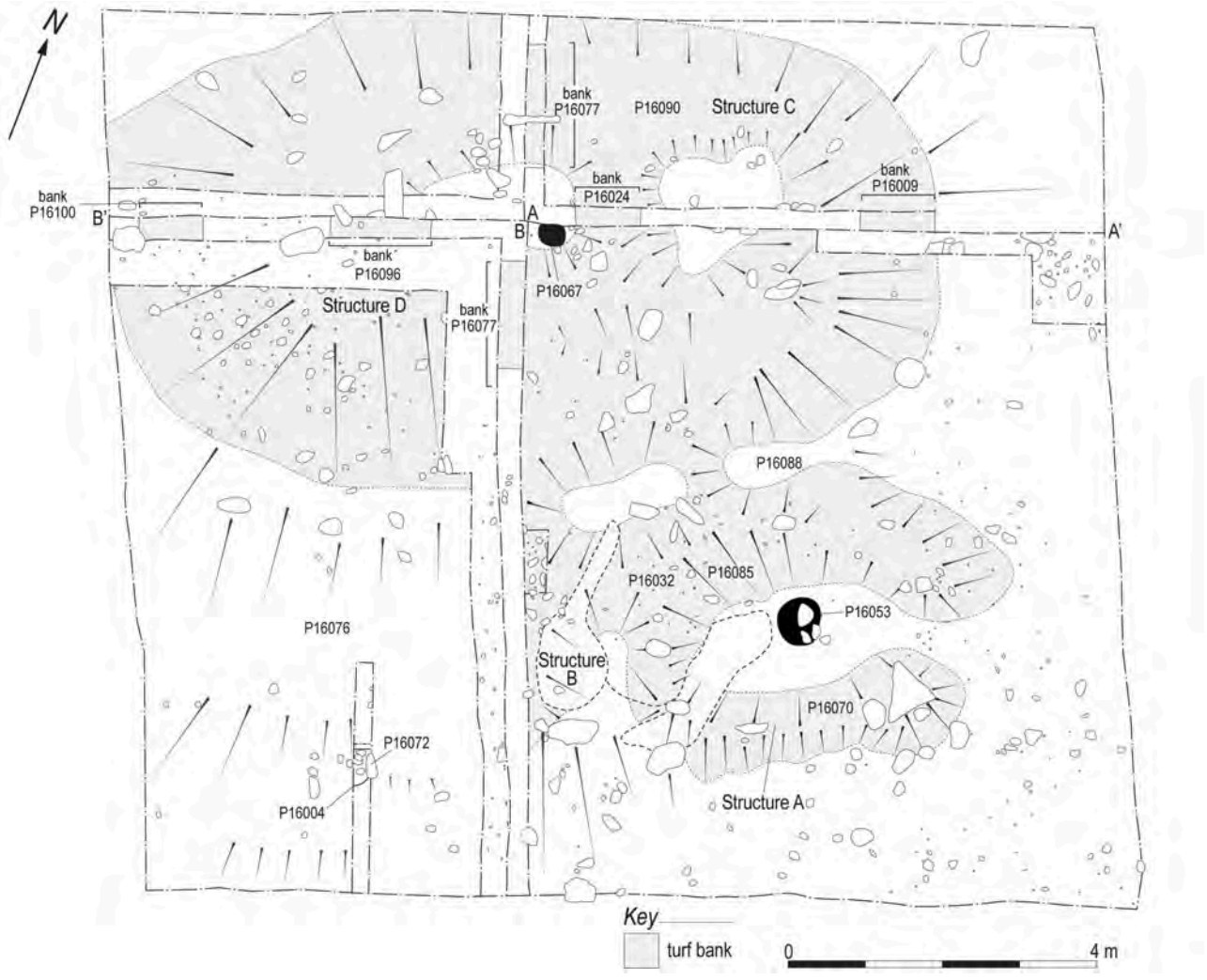
Phase 1 – late 8th to early 7th millennium BC
Phase 2 – late 15th to mid 17th century AD

Following abandonment of Phase 1, the site seems to have remained untouched until the later medieval period, when a phase of re-occupation began. This secondary use of the mound (Phase 2) included the construction and occupation of at least four turf-banked structures (A–D), which exhibited several sub-phases.

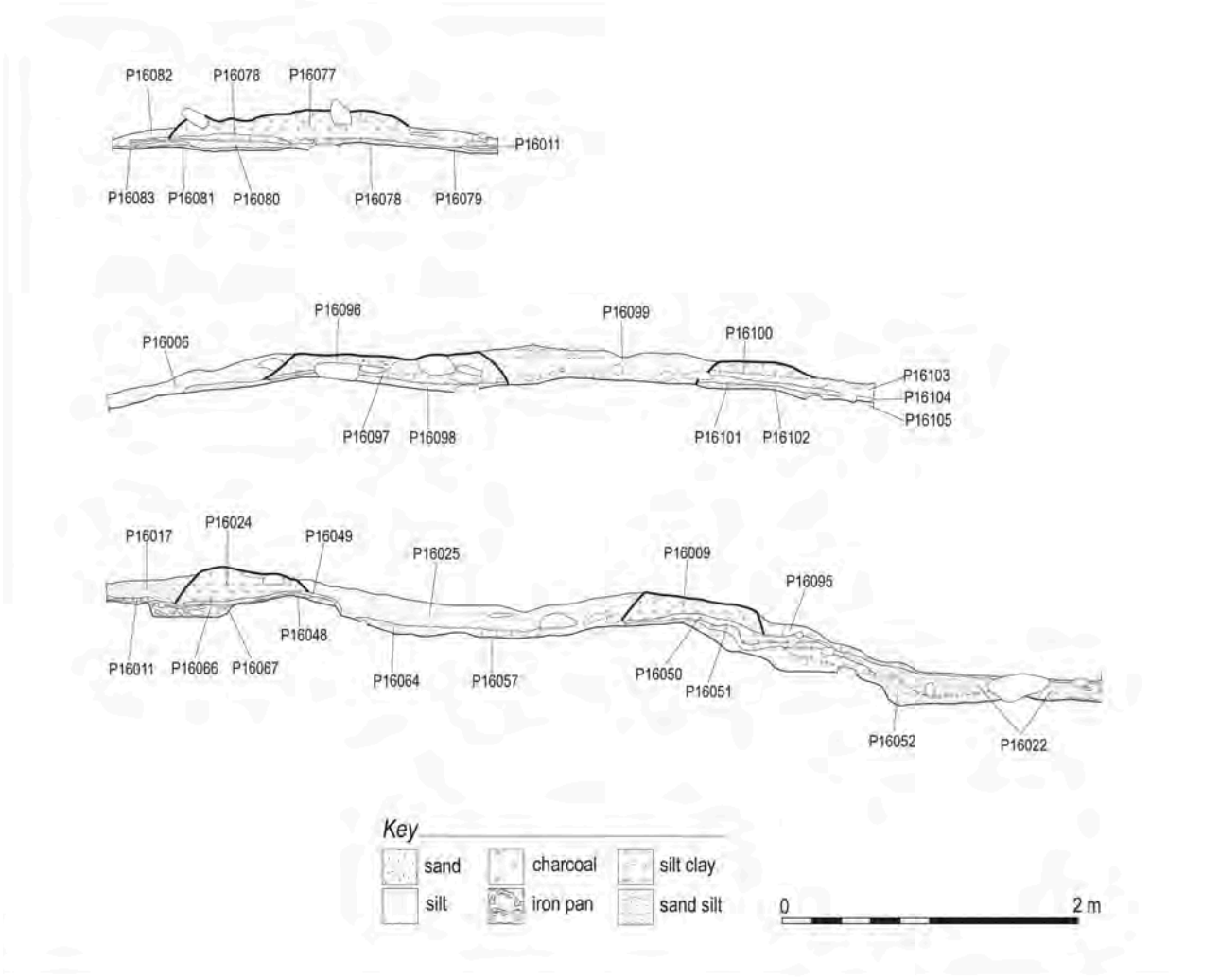
9.7.1.1 The Lower Structures

Structure A (P16070) was originally sub-circular or oval in shape, with its interior measuring *c* 3m east/west by 2m north/south. Its entrance lay on the east and measured 0.7m wide, and its western wall was observed to lie over the interior occupation deposit of Structure B (P16032). Inside Structure A was an irregularly-shaped fire-spot (P16053). This feature contained large quantities of birch and heather charcoal; the former produced a radiocarbon date of cal AD 1480–1650 (2σ, OxA-8970).

Structure B was evident as an elongated hollow measuring *c* 2m north/south by 1.6m east/west



Illus 9.15 P16 trench-plan



Illus 9.16 Sections through P16 structures

and up to 0.25m deep. An intermittent low bank (P16069) defined the extent of the hollow, with clear breaks to the south and west. Within the hollow and running to just beyond the western gap in the bank was an occupation-layer, consisting of clay-silt with moderate quantities of charcoal (P16032). Extensive sampling of this layer led to the recovery of five sherds of handmade pottery (see 9.7.2.1 below) and lithics (see Chapter 2, section 2.4.2.1). It also contained carbonised remains (see 9.7.3 below), including charcoal of various wood species, an oat (*Avena* sp) caryopsis and fruitstones from rowan (*Sorbus aucuparia*), bramble (*Rubus fruticosus*) and crowberry (*Empetrum nigrum*). Two radiocarbon dates were obtained from samples of birch charcoal of cal AD 1480–1660 (2σ, OxA-8965) and cal AD 1480–1650 (2σ, OxA-8969).

9.7.1.2 The Upper Structures

On the crest of the mound were two further structures (C and D). Structure C was constituted by a series of banks (P16009, P16096, P16007 & P16005) which enclosed an oval area some 4.5m east/west by 2.4m north/south, with no obvious entrance. Bank P16009 defined the eastern limit of a hollow cut into the mound (P16057). The hollow measured 2.2m north/south by 2.5m east/west and had a maximum depth of *c* 0.4m. Hollow P16057 was filled with an occupation-deposit (P16064) that contained birch, heather and bilberry/crowberry charcoal (see 9.7.3 below). This layer was sealed by slump and silt layers (P16047/P16025). Located *c* 1.2m to the west of Hollow P16057 was a fire-spot (P16011), consisting of a layer of scorched material below a concentration of charcoal. A radiocarbon

date was obtained from birch charcoal of cal AD 1450–1640 (2σ, OxA-8968).

Structure D was represented by Banks P16024, P16077, P16100 & P16007. It appeared to be oval in form, measuring 4.5m east/west by *c* 2.4m north/south. As with Structure C there was no obvious entrance. Fire-Spot P16048 inside it extended over an area of 0.5m and was *c* 40mm thick. A radiocarbon date obtained from birch charcoal from this feature returned a date-range of cal AD 1490–1640 (2σ, OxA-8971). The occupation-level within structure D lay partly over the denuded banks and collapse of Structure C, and the fire-spot (P16048) in Structure D was stratigraphically higher than the one in Structure C (P16011). Removal of Bank P16007 revealed a concentration of charcoal (P16065) measuring 0.35m by 0.25m. This deposit appeared to lie directly on Leached Horizon P16090 sealed below Old Ground Surface P16027 and pre-dated the construction of Structure C. A radiocarbon date obtained from heather charcoal from P16065 returned a date-range of cal AD 1480–1660 (2σ, OxA-8966). No stratigraphic relationship between the upper and lower structures was discernible.

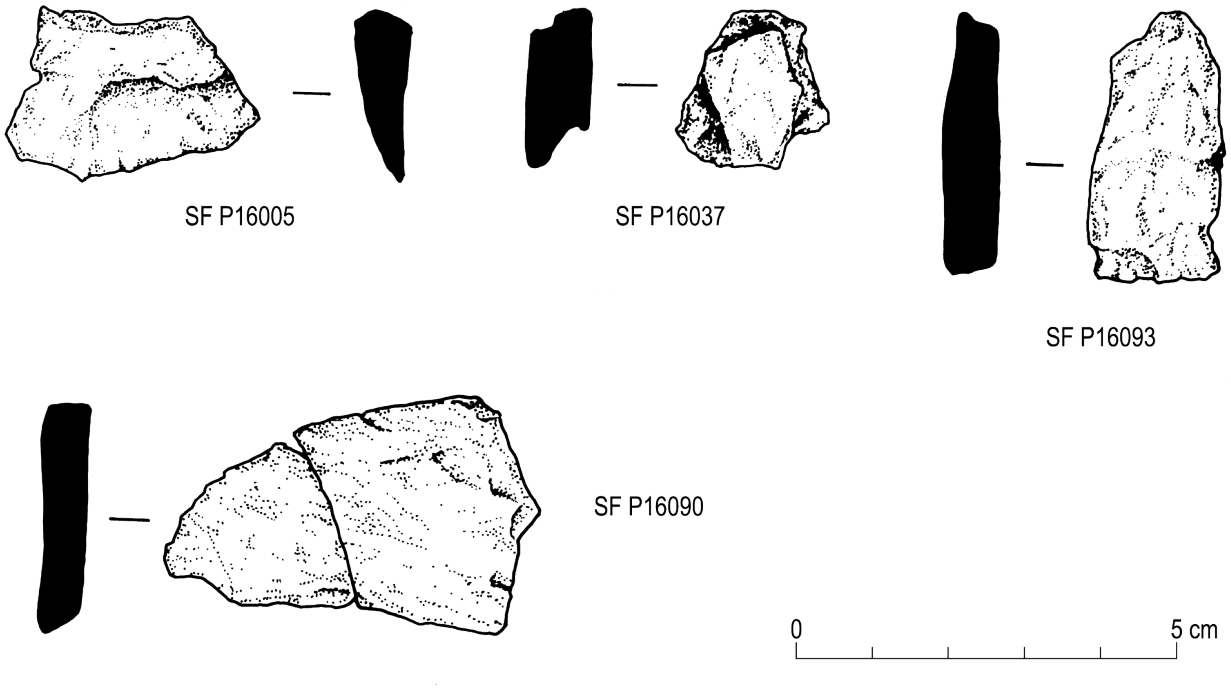
9.7.2 Finds

The artefacts recovered from P16 are discussed here with the exception of the lithic assemblage, which is discussed in the context of Phase 1 activity at the site in Chapter 2.

9.7.2.1 Ceramics

Robert S Will

The ceramic assemblage includes five sherds of an unusual sandy fabric, rich in mica inclusions with no evidence of lead glazing (SFs 16037 & 16093). These were recovered from Occupation Horizon P16032 (Illus 9.17) and are similar to the 18 sherds recovered during the excavation of T16 at Kiltyrie in 2005, which Haggarty has suggested may be 12th-century in date (see Chapter 5). Although these sherds are probably later in date, local manufacture is likely rather than importation from elsewhere in Britain.



Illus 9.17 Pottery sherds from P16

9.7.2.2 Metalwork

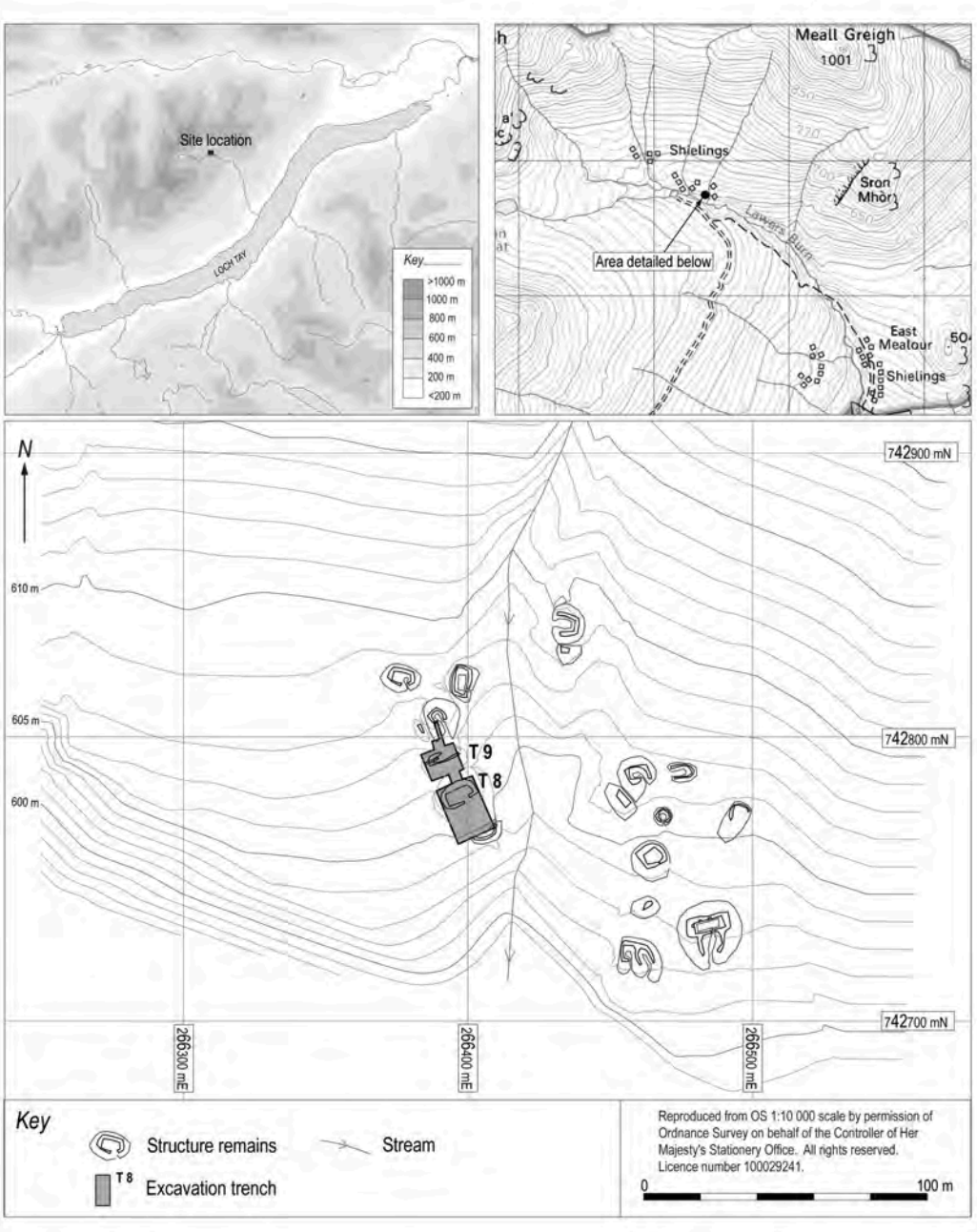
Adrian Cox

SF 16003, from Layer P16001, is half of a horseshoe (length 107mm; width 29mm; thickness *c* 10mm). X-radiography revealed four rectangular nail-holes, with the arm of the shoe thickening towards its terminal. A moderately heavy calkin is also probably apparent. Heavier horseshoes such as SF 16003 do not appear to have been made for draught animals; such shoes generally had greater numbers of nail-holes. SF 16002 from Layer P16001 is possibly an implement-tooth of rectangular cross-section tapering to a point (length 117mm; max width 24mm; thickness 5mm). A corroded protrusion at the broader end indicates the site of its attachment to an iron frame. This tooth may have come from a rake or fork.

9.7.3 Environmental Evidence

Jennifer Miller

A range of samples was analysed from P16 contexts and the results are summarised below (see also Table



Illus 9.18 Location-map of Lawers Burn shieling-huts

9.4). Two samples recovered from Fire-Spot P16011 in Structure C contained birch, heather-stem, hazel, willow and bilberry/crowberry-stem charcoal. These taxa, which are frequently found together in fire-spots, represent the range of domestic fuel used. Carbonised seeds of grass-heathland species, including brown/oval sedge, crowberry fruit-stone and small grasses, could be the remains of burnt grass-heath turf. The sample taken from another possible fire-spot (P16015) also contained birch, heather-stem and bilberry/crowberry-stem charcoal.

Occupation-Layer P16032 was sampled extensively on a grid to produce 62 sub-samples, each further divided into up to three spits of *c* 15mm depth, so that a total of 74 spits from 31 sub-samples was examined (all Sample 5). The charcoal range mostly concurred with the other shieling-zone assemblages, comprising birch, heather-stem, hazel, willow and bilberry/crowberry-stem charcoal, but small amounts of oak charcoal were also recovered. It seems likely that the oak had been transported from a lower altitude to the site.

Four carbonised seeds were also identified from the sub-samples in Layer P16032. A single oat (*Avena* sp) caryopsis was quite large, but not sufficiently well preserved to be confidently identified beyond generic level. Others include one fruit-stone each of rowan, bramble and crowberry. These probably represent food remains. A burnt grass (Poaceae) rhizome (underground stem) is likely to be from burnt turf, which has not been preserved in any other form.

Further samples were recovered from Fire-Spots P16048 (Structure D) and P16053 (Structure A). All three samples contained similar remains to Fire-Spots P16011 and P16015. The samples recovered from P16053 especially revealed large quantities of birch charcoal and ericaceous taxa, including most frequently heather-stem charcoal. The presence of carbonised seeds of grass-heathland indicators in all except Context P16015 indicates that the fuel used was a combination of wood and turf from drier grass-heath. Deep peat would support the Ericaceae taxa, but not the drier grass-heath species such as Poaceae, yellow rattle and brown/oval sedge. The presence of these small seeds, and also numerous carbonised flowers and capsules of heather, suggests the fire burned at a relatively low temperature.

Samples 6 and 7 were taken from contexts thought to represent posts (P16054 and P16055) below Fire-Spot P16053. The samples contained very small quantities of the same birch charcoal, heather and ericaceous taxa as P16053, but also some willow. Sample 9 (P16060) was taken from the fill of Cut P16059. It contained very small quantities of birch, heather and willow. Sample 11 (16064) was from the lower fill of Pit 16057 and contained birch and various ericaceous charcoal fragments, along with one crowberry fruit-stone.

9.8 INTERPRETING THE EDRAMUCKY BURN SHIELING-HUTS

Excavation of a range of structural types along the upper reaches of the Edramucky Burn provided a wealth of evidence on the buildings' form, chronology and function. Some of the evidence revealed was predictable, while other evidence was completely unexpected. This is particularly true of the early phases of P11 and P16, which clearly imply that early hunter-gatherers roamed these hills around the beginning of the 7th millennium BC (see Chapter 2).

Although the prehistoric evidence is exceptional, the dating of the secondary phases of P11, P12 & P16 to around the 16th century AD, together with the dating of P13 to the 17th century, is also notable. It would suggest that this shieling-group was mainly in use before the late 18th-century demise of the system (see 9.1 above). The similarity in date and form between P11 and P16 certainly implies a continuity of constructional technique that is evident elsewhere in the pastoral zone (see T20 at Kiltyrie, for example), and may exist in more abundance elsewhere. However, turf-banked structures set around sunken occupation-hollows are likely to leave only ephemeral traces in the extensive heathlands on the flanks of surrounding hills. Excavation revealed the presence of hearths and occupation horizons which suggest the buildings may have been roofed and occupied as seasonal dwellings. The sherds of handmade pottery (see 9.7.2.1 above) in the occupation horizon in Structure P16A are particularly significant, as they provide a rare glimpse of the material culture employed at these sites.

Table 9.4: Palaeo-botanical results from trench P16 on the Edramucky Burn

	16011	16011	16015	16032	16048	16053	16053	16054	16055	16060	16064	16065	16066
Charcoal													
Betula	1.3g	0.4g	0.4g	6.05g	1.3g	0.8g	0.9g	<0.1g	<0.1g	<0.1g	0.1g	0.25g	0.1g
Calluna vulgaris	0.3g	<0.1g	0.5g	0.3g	0.3g	0.3g	0.3g	<0.1g	<0.1g	<0.1g	<0.1g	0.6g	<0.1g
Corylus	<0.1g			0.85g	0.2g		<0.1g						0.2g
Vaccinium/Empetrum	0.2g		0.1g								<0.1g	<0.1g	
Ericaceae	0.35g	<0.1g		1.75g	0.2g	0.2g	0.1g	<0.1g	<0.1g		0.1g	0.5g	
Pomoideae													0.1g
Quercus				0.1g									
Salix	<0.1g	<0.1g		0.45g		<0.1g		<0.1g	<0.1g	<0.1g			0.8g
Vaccinium type				0.2g									
Indet charcoal			0.1g										
Burnt peat					1.0g								
Carbonised seeds													
Avena sp caryopsis				1									
Carex disticha/ovalis	1					1							
Empetrum nigrum	1			1	1	3	2				1		
Poaceae rhizome				1									
Rhinanthus minor				1		1							
Rumex acetosella							1						
Small Poaceae	2				4	4	3						3
Sorbus aucuparia fst				1									
Herbaceous stems					11								

In contrast to the turf structures, the stone structures (P12, P13 & P14) offer a very different but potentially concurrent constructional sequence. Building P12, with its internal drystone walls with aumbries, external turf batter, off-centre entrance and adjacent hearths, is similar to many other shieling-huts amongst the shieling-grounds of north Loch Tayside (see T8 for a further example). These are what Miller (1967) described as Discher types, which seem to have had currency on Loch Tayside from the 15th to early 19th centuries. Like the turf huts, they also have occupation horizons and small post-impressions cut into the glacial till beneath the floor. As no cruck-slots or deep post-holes were discovered in P12, it seems likely that the roofing was relatively insubstantial and did not require structural members to support it. Also of note inside P12 was a fire-pit, directly adjacent to the Phase 3 entrance. If this hearth was used during Phase 2 it may have held a more central position in the structure, although no evidence of this was found. Shallow slots ran along three sides of the hearth; these may represent traces of decayed timber supports for a cooking vessel, which would have been suspended over the fire. Alternatively, one of them may have accommodated an upright slab (see T8). It seems probable that P12 was used as a domestic shelter.

The evidence for the occupation of P13, on the other hand, is less clear. Certainly it seems likely that Phase 1 was constructed before the early 16th century and possibly used as an enclosure of some kind. The shieling-grounds include a number of such enclosures, which were always an integral part of shieling-groups where grazing was communal and open (Bil 1996: 8). This was probably followed by the partial removal of one side of the structure in order that a sub-rectangular structure could be built on a different alignment. Even if the Phase 2 structure was roofed – and this is unclear – it does not necessarily mean that it was occupied by people; it might have been used to shelter animals. The lack of a hearth or fire-spot, and the general lack of artefacts and occupation-deposits, may support non-human occupation of the structure. The north-west-facing orientation of its probable entrance may also suggest a non-human function, as the prevailing wind comes from that direction. Certainly by Phase 3 the entire building was in all probability used as an enclosure. Such enclosures were important components of the shieling-grounds, used to protect stock overnight from wild animals such as wolves in the 16th and 17th centuries (Bil 1996: 8).

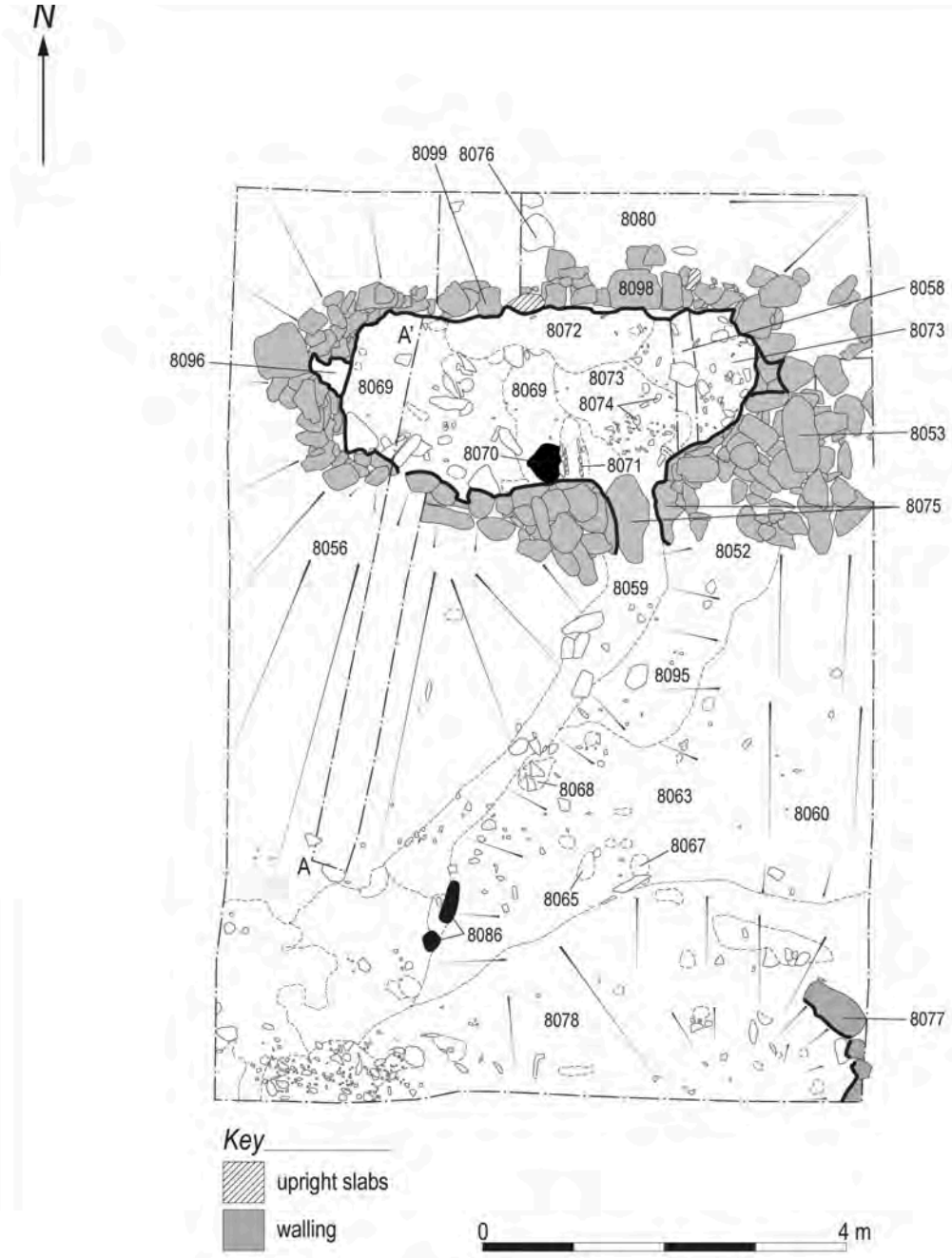
P14, in contrast, was clearly very different in form from any of the other structures excavated within the group. Positioned in a low-lying area adjacent to a feeder-burn, the structure had clearly been inundated at various times by flood-water and sediments. Given its size and lack of internal features, it seems likely that it was built as a store of some kind, possibly for cheese or butter made at the shieling-ground.

9.9 THE HIGH SHIELING-GROUP ON THE LAWERS BURN

In April 2003 topographical and geophysical surveys were carried out on the extensive shieling-group to the east of the Lawers Burn dam on the flanks of Meall Greigh (Illus 9.19). The results of this work (Atkinson et al 2003b) provided the basis for a final season of excavation in the high shieling-grounds in September 2003 (Atkinson et al 2004a). Excavation resources were targeted to investigate Structure 37, a typical form of shieling-structure (Illus 9.20), which appeared to be similar in form to Structure P12 excavated on the Edramucky Burn in 1997 (Atkinson et al 1998 and 9.4 above). Structure 37 (T8) was selected because it lay close to the ephemeral traces of other structures to the north (see T9) and south. It was also the location of the discovery of a pitchstone blade by RCAHMS surveyors in 2000 (see Chapter 2 and Boyle 2000) and therefore provided the opportunity to assess a site with potentially multiple phases of use. This section of the chapter deals specifically with the excavation results from T8 and Phase 2 of T9. Phase 1 of T9 is discussed in relation to the early prehistoric use of this landscape in Chapter 2.

9.9.1 Composition of the Group

The Meall Greigh group lies in an elevated position above the Lawers Burn (between 600m and 635m above OD) and comprises *c* 65 individual structures. Thirty of these were interpreted as dwellings, and a further 25 as possible stores, which may have been used to keep dairy produce (see interpretation in 9.12, and 9.6 above). Many, like T8, have horn-like

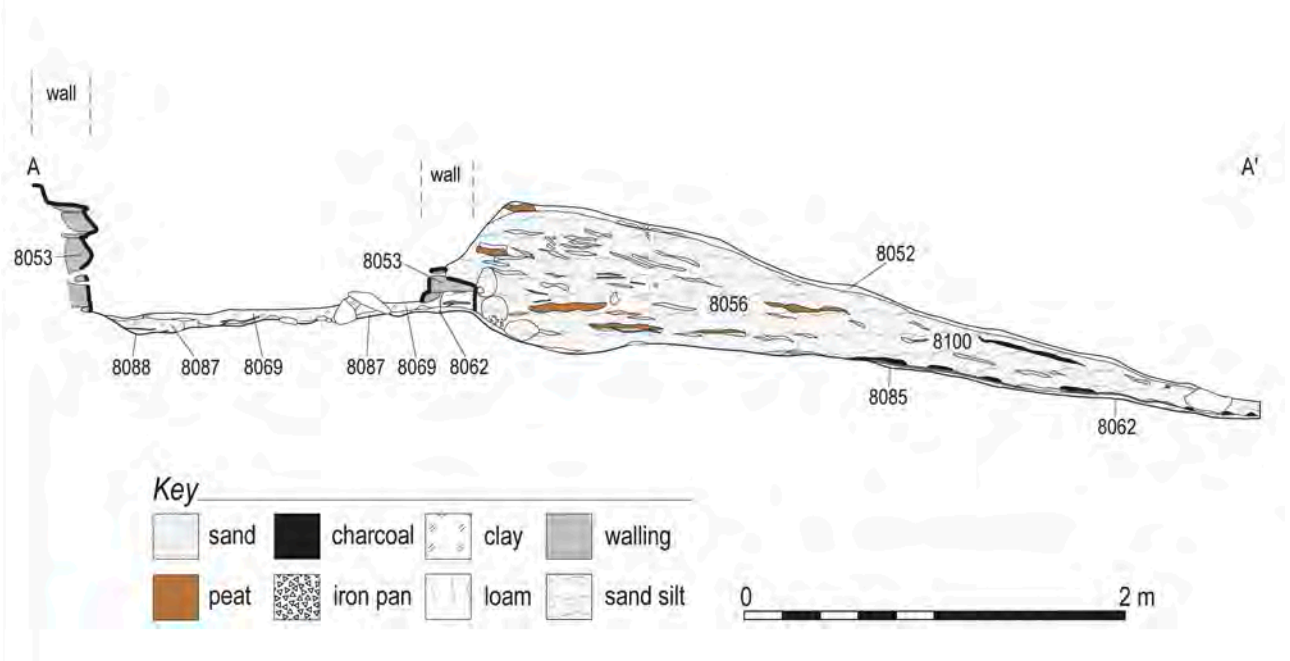


Illus 9.19 T8 trench-plan

extensions to the walls on either side of the entrance, interpreted as extensions of the turf batters that made up the outer walls. The rest seem to be pens, enclosures or amorphous mounds, possibly used as middens (Atkinson et al 2003b: 14). The structures tend to lie close to the series of tributary burns that cascade down the sides of Meall Greigh and into the Lawers Burn. Some clustering of huts is perceptible towards the 'stron' or nose of land that sits closest to the Lawers Burn (Illus 9.18). This was a favourite location, positioned out of reach of floodwater at the 'inver' of a burn, its junction with a larger stream (Gaffney 1959: 29).

9.9.2 Excavation Strategy

Excavation of T8 involved opening a trench 10m north/south by 7m east/west. This was designed to cover the interior of the structure, the area outside the entrance, the passage through the southern turf batters and the banked enclosure to the south. In addition, a 2m-wide slot-trench oriented north/south was excavated through



Illus 9.20 Section through T8

the northern wall and turf batter and into Trench 9 (see below). Excavation was open-area and used slots where necessary to answer specific questions.

9.10 EXCAVATION OF BUILDING T8 AT MEALL GREIGH

Olivia Lelong

Although a degree of sub-phasing was noted, this structure appears to have had a fairly uninterrupted period of use from the 15th to 18th centuries. Construction of T8 probably began without much prior preparation of the ground. The presence of old ground-surfaces (8062 and 8083 respectively) under the southern and northern walls (8053) and turf batters (8056/8080) seems to confirm this view. Analysis of the charcoal content from Layer 8083 revealed small quantities of birch and heather (see 9.10.2.1 below and Table 9.5). Radiocarbon dating of a sample of birch provided a date-range of cal AD 1400–1500 (2σ, SUERC-9701) and provides a terminus post quem for the construction of T8.

The exact sequence of construction is unclear, but it was probably necessary that the turf batters (8056/8080) and internal drystone walls (8053) were built concurrently to provide support to each other. This is borne out by the fact that Wall 8053 was of single-skinned construction. It seems likely that once the walls and batters had been erected, work would have begun on the interior, and this probably included removal of the remnant turf and topsoil down to the subsoil horizon. The presence of two hollows (8088/8090) in the interior subsoil and their subsequent filling (8087/8091 respectively) may represent traces of this preparation process and the subsequent introduction of a clay-based floor (see 9.10.3 below).

Both infill layers were clearly trampled and compacted and, in the case of Layer 8091, included carbonised twigs and charcoal. Miller and Ramsay's assessment of the charcoal (9.10.2.1 and Table 9.5) indicates that the taxa recovered are very similar to those recovered from later floor-layers (for example 8072). Radiocarbon dating of a piece of birch charcoal provided a date-range of cal AD 1460–1640 (2σ, SUERC-9702). Although the origins and function of the hollows are unclear, micromorphological analysis of putative early Floor-Layer 8087 suggests that it represents trample laid down intermittently over an extended period (9.10.3 below).

The occupation of T8 becomes a little clearer with the deposition of a series of floor-layers (see below) over the interior and the use of Fire-Pit 8070, which lay immediately inside the entrance and was sub-circular in plan. It contained dark-orange sandy silt

Table 9.5: Palaeo-botanical results from trench T8 on the Lawers Burn

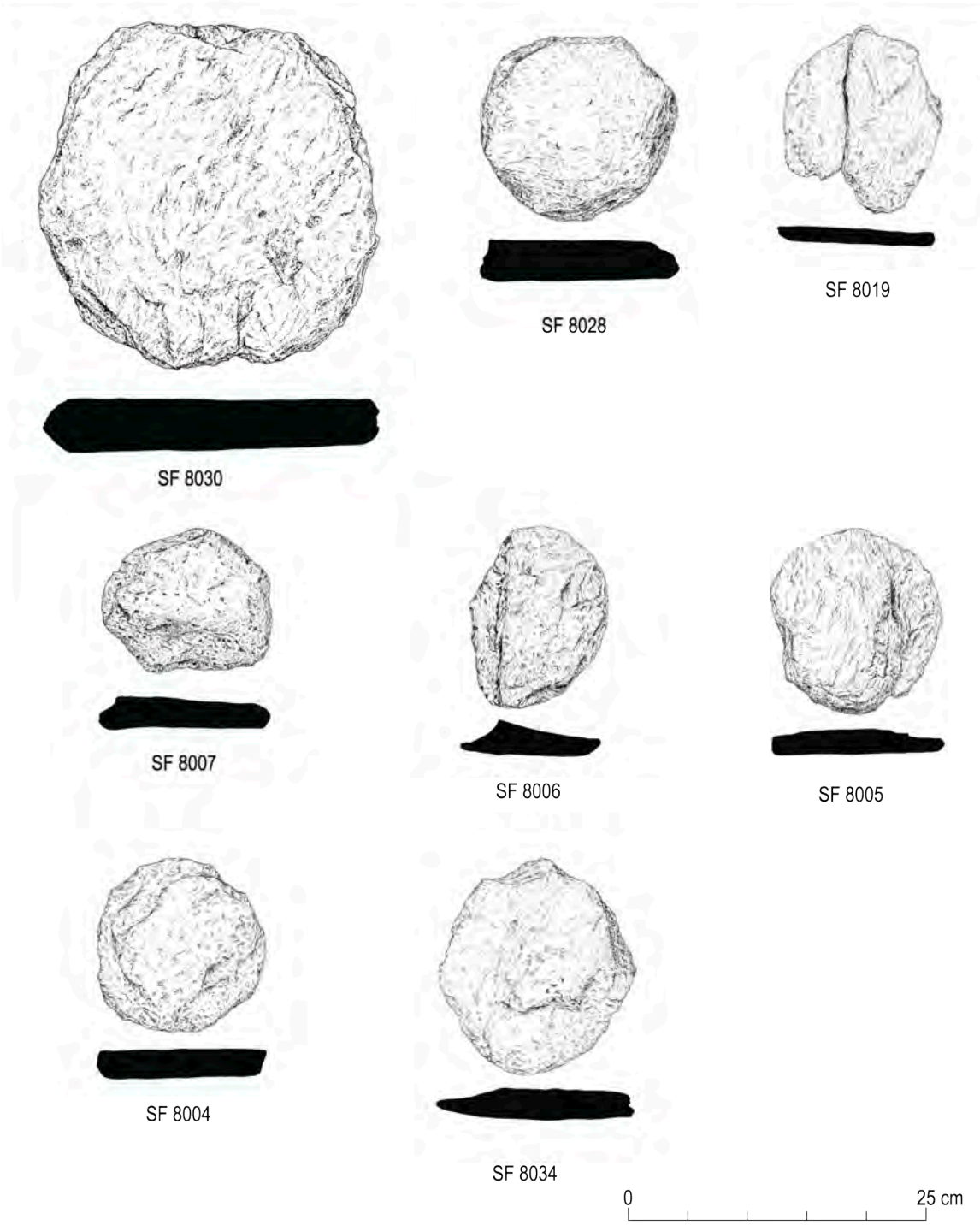
	8056	8058	8059	8060	8065	8067	8068	8069	8070	8072	8073	8083	8086	8087	8089	8091	8092
Charcoal																	
Alnus		15		6		5	1		8		5		10		20		
Betula	6	27	1	1		2		6	3	3	1	4	81	1	8	4	
Corylus	2			2	2	1	5	2	11		5				22		9
Ericales	>200	>300	>50	>200	>500	>75	>250	>20	>500	>50	>200	>50	>600	18	>250	>200	>200
Fraxinus	12	8		4	38		12		17		9			1			3
Maloideae									1								
Pinus sylvestris type						1											
Quercus			9				2		1								
Salix		2											29			1	
Ulmus			1														
Cinder				+					+								
Peat		+++															
Carbonised cereals																	
Hordeum vulgare var *vulgare*													2				
Hordeum vulgare sl													2				
cf *Hordeum vulgare* sl													2				
Carbonised seeds																	
cf Fucoid seaweed			1														
Pisum sativum									1								
Vaccinium myrtillus leaf													1				

and a variety of locally-occurring woodland and heathland taxa. Of particular interest is a rare example of a carbonised garden pea (see 9.10.2.1 below). Radiocarbon dating of birch charcoal from Fire-Pit 8070 provided a date-range of cal AD 1720–1890 (2σ, SUERC-4917). The fire-pit was flanked (to the west) by Stone-Setting 8071, formed of five thin slabs that lay in two north/south alignments, parallel to each other (Illus 9.19). The slabs, set in a long oval cut (8084), pitched upwards to form a V-shape and may have acted as a fireguard (see 9.12 below). Immediately east of this setting was a small, sub-circular pit (8093), filled with grey-brown sandy silt containing abundant flecks and small pieces of charcoal (8092). Its purpose is uncertain, but it may have been used as a smooring-pit (see 9.12 below and T13 in Chapter 8).

A trampled Floor-Layer 8073, contemporary with Fire-Pit 8070, extended over the eastern end of the structure and across the entrance. It was composed of sandy clay-silt, with frequent charcoal inclusions. Analysis indicates that the range of charcoal in Floor-Layer 8073, including scrub-woodland and heather species, probably originated from Fire-Spot 8070 (see 9.10.2.1 below and Table 9.5). Radiocarbon dating of a sample of birch from this context provided a date-range of cal AD 1410–1520 (2σ, SUERC-9700). Floor-Layer 8073 was of the same phase as other interior contexts, including other floor-layers (8069 & 8072) and Cobbled Layer 8074 within the entrance. The excavation of Floor-Layer 8069 led to the recovery of SF 8007, which Clarke suggests may be part of a group of four stones used as cheese-weights (see 9.10.1.4) (Illus 9.21).

Over time the external turf batters (8056/8080) became compressed, slumped and washed down-slope (8100), sealing the contemporary ground-surface (8085) (see Illus 9.19). This process changed the shape of the shieling-structure, which was further modified by anthropogenic activity each summer. The presence of a platform overlying Slump-Layer 8100 to the east of the entrance-gully provided clear evidence of repeated dumping of hearth and midden waste (for example 8064, 8065, 8067, 8068) and subsequent blending with silt-rich layers of wash (8063/8066) to create the platform. Outdoor fires may have been lit intermittently on this platform during its accumulation, such as Fire-Spot 8086, which lay on the western edge of the platform and was partially sealed by the upper platform matrix (8063). Analysis of the contents of Fire-Spot 8086 provided evidence of cereal preparation at T8 (see 9.10.2.1 below). Radiocarbon dating of willow charcoal from this context provided a date-range of cal AD 1440–1640 (2σ, SUERC-4918). Two sherds of well-fired Scottish Post-Medieval Reduced Ware pottery (SFs 8024 & 8031) were recovered from the upper platform (8063) and the turf batter (8056). Haggarty places them as transitional sherds of the period 1750–75 (see 9.10.1.1); however, it is unclear whether the sherds relate to the use of T8 or are post-abandonment depositions (see 9.12 for further discussion).

Inside T8, two large slabs (8075), lying side-by-side and aligned north/south, were deposited over the trampled Floor-Layer 8073 and Cobbling 8074, late in the sequence. They may have originally been used to line the entrance, but collapsed and were displaced after the hut's abandonment. Similar evidence of a collapsed slab lining was observed in the entrance of P12 in 1997 (see 9.4.1 above). These slabs, together with a layer of reddish clay-silt (8058), sealed the earthen floor-layers (8069, 8072, 8073) and Hearth 8070. Three further possible cheese-weights (SFs 8005, 8006 & 8019) and three possible baking-stones (SFs 8034, 8029 & 8030) were found among them (see 9.10.1.4 below). Two of the latter were scanned by fluxgate gradiometer in the field and provided high readings, which support the theory that they were heated (Atkinson et al 2004a: 19). It seems likely that Layer 8058 was deposited after the structure had been abandoned and that it may represent collapsed roofing material. Final abandonment of the structure was followed closely by the collapse of upper portions of walling and the filling of the interior with tumble (8054), topsoil (8051) and ultimately turf. Various artefacts were recovered from the upper horizons of the turf batter (8056) and topsoil. These included three fragments of 19th-century glass (SFs 8012, 8018 & 8020), a pair of scissors and a flint flake (see 9.10.1.2, 9.10.1.3 and 9.10.1.5 below). All of these are likely to be intrusive (post-dating abandonment) or, in the case of the flint, residual finds.



Illus 9.21 Cheese-weights from T8

9.10.1 Finds

9.10.1.1 Ceramics

George Haggarty

Generally sherds of Scottish Post-Medieval Reduced Ware are thick and from large jugs, and this is at odds with the three thinly-potted and better-thrown sherds from T8 (SF 8024 & 8031). Although they have been almost completely denuded of lead glaze, perhaps due to the acid soil-conditions, these sherds are likely to be from the same vessel (Vessel N) and may be from a late transitional period, dating from *c* 1750–75. The sherds were recovered from Layers 8056 and 8063 respectively.

9.10.1.2 Glass

Robin K Murdoch

Three fragments of glass were retrieved from Layer 8056 and constitute the entire assemblage from this trench. SF 8012 is a small, dull, mid-green sherd, with 'orange peel' effect on the outer surface, while SF 8018 is a very small sherd of thin, blown glass with a very pale green tinge, possibly from a lamp. SF 8020 is a curved sherd in light dull green, which also has 'orange peel' effect on its concave surface, although its function is unknown. All three sherds are probably 19th-century in date.

9.10.1.3 Metalwork

Adrian Cox

The scissors recovered from T8 (SF 8003) have a slender form (length 100mm; max width 23mm; thickness 6mm) and were probably used in domestic settings for cutting cloth or for other general household uses. They are heavily corroded in the closed position, with the upper parts of the arms and one of the bows surviving, along with fragments of the blades. They had an estimated original length of 160–180mm.

9.10.1.4 Coarse Stone

Ann Clarke

Seven rough stone discs were found, mainly from the topsoil and tumble in Trench 8. They are sub-circular slabs of coarse schistose grit, some of which have been roughly chipped to shape whilst others are unshaped. These stone discs are rather thicker and heavier than those generally interpreted as serving as pot-lids, and they may have had a more active role. Given their relative uniformity in size (150–180mm diameter), thickness (24–33mm) and weight (900g to 1400g), it is possible that they served as weights during cheese-making. Fenton describes the process of wrapping curds and placing them in a perforated cheese-vat. A wooden lid was placed on top and the pressing done by laying stones on top, the weight being increased gradually (Fenton 1976: 438). Though it has not been possible to determine the diameter of a cheese-vat, it is likely that it would have been larger than 180mm; the stone discs would have to have been wide enough to provide a flat weight on top of the wooden lid, but smaller than the cheese-vat so that they could be carefully placed and removed. The largest and thickest disc (SF 8034, diameter 180mm, thickness 33mm) is burnt on one face, suggesting that it had been used as a baking-stone rather than as a weight. An additional two slabs (SFs 8029 & 8030) of micaceous schist, both un-sooted, were from the same context as most of the discs (8058). These slabs both gave out high readings when scanned with a fluxgate gradiometer, indicating that they had been heated (Atkinson et al 2004a: 19) and these may also have been used as baking-stones.

9.10.1.5 Lithics

Nyree Finlay

The majority of struck quartz from this trench derives from sieved samples and the small fraction (<10mm) comprises seven natural pieces, 14 chunks and 15 flakes. Among the larger small finds there is a smoky-quartz chunk with edge-damage, a splinter-flake with denticulate removals and a large, thin-edged, modified flake of coarse-grained material (length 69mm) with a series of smaller flakes removed from one of the lateral ridges. Two unmodified chunks of finer-grained quartz are also present. The only flint piece, a bipolar flake core, has been quite intensively worked and has been reoriented 90° (length 22mm, from Context 8013).

9.10.2 Environmental Evidence

9.10.2.1 Botanical Remains

Jennifer Miller & Susan Ramsay

Removal of the stone tumble within T8 revealed a charcoal-rich layer (8058), dominated by heather-type twigs and burnt peat, although charcoal of ash, alder, birch and willow was also recorded in fairly significant quantities. This post-abandonment deposit may have been a dump of hearth-fuel or peat stored within the building which accidentally caught fire; alternatively, it could represent the conflagration of a turf-built structure. The latter is perhaps less likely, as minerogenic turves are generally favoured for construction. No contemporary hearth was identified within the building during this phase, and the volume of charcoal present is unlikely to represent material that has simply blown in (contra Atkinson et al 2004b).

Below Layer 8058, Fire-Spot 8070 contained a variety of scrub-woodland and heather-heathland taxa, all probably growing fairly locally. A carbonised garden pea was recorded from the hearth. This is a rare find in the archaeological record. Although there was prolific burning of heather-type stems and wood charcoal, significantly there was no evidence of burnt peat. To the east of this fire-spot, trampled floor-horizons (8073, 8072, 8069) contained quantities of scrub-woodland and heather-heathland charcoal suggestive of hearth-waste, in all probability scattered from Fire-Spot 8070. Possible rake-out deposits (8091 & 8092) also contained this same carbonised assemblage. Floor 8087 was earlier than 8069, but the carbonised assemblages were similar, indicating the continued use of local resources during successive phases of occupation.

Samples from the turf walling and exterior of the structure were also examined for botanical remains. Carbonised material from layers thought to relate to post-abandonment silting (8060) and the turf batter (8056) under the structure's wall (8053) was not significantly different in composition to Floor-Layer 8059 or patches of burning (8065, 8067, 8068) outside the structure on the associated platform. It has been suggested that the platform might have been built up with midden deposits including fire-waste, and the charcoal assemblage concurs with this hypothesis. At the western edge of the platform, the upper platform matrix overlay a distinct fire-spot (8086). It contained the only evidence of cereal preparation from this site, in the form of a few six-row barley grains.

9.10.2.2 Thin-Section Micromorphology

Ian A Simpson & Joanne T McKenzie

A single thin-section sample was analysed from T8 (Table 9.6). It represents two contexts identified during excavation as occupation-surfaces inside the building. In thin section, the lower context (8087) is characterised by a compacted grain-structure with fine brown organomineral material occupying the spaces between predominantly quartz grains, giving a porphyric-related distribution. Few charcoal fragments together with fine, black, amorphous, organic material are also evident in thin section. These are concentrated on the upper edge of this context, where it has contact with the overlying context (8069); larger charcoal fragments are evident lower in the context. Charcoal fragments include those that are derived from wood and those that are from mineral-based turf.

The upper context (8069) is characterised in thin section by a compacted grain-structure with fine, light-brown mineral material in a porphyric-related distribution. Charcoal and fine, black, amorphous, organic materials are similar to the lower context (8087). The organisation of this context is, however, more complex; the lower part, where it lies directly above Context 8087, is reddish-brown with an associated incipient iron pan. Immediately above this lies an infilling band of silt, less than 300µm thick, which in turn is overlain by material in which the fine mineral material becomes light brown (Illus 9.22).

We interpret this thin section as representing two discrete but contrasting occupation-surfaces. The lower context has a trampled surface, as evident in the fragmenting of charcoal material. The trampling activity took place over an extended period, given the distribution of charcoal and fine, black, amorphous material throughout the context, but is likely to have been intermittent, as the context lacks evidence of iron and fine-material movement usually evident in more intensively used surfaces (Gé et al 1993; Simpson et al 1999). Such features, specifically iron panning and iron accumulation together with silt infills, are evident in the upper context captured by this thin section. We thus suggest that this context was deliberately laid as a clay-based occupation-surface and that intensity of activity was greater, although perhaps for a shorter period, compared to the lower context. Such contrast in occupation-surface characteristics suggests that the use of this site may have varied with time; the earlier occupation context may indicate a seasonally-occupied shieling, while the later context may indicate more permanent use.

9.11 EXCAVATION OF BUILDING T9 AT MEALL GREIGH

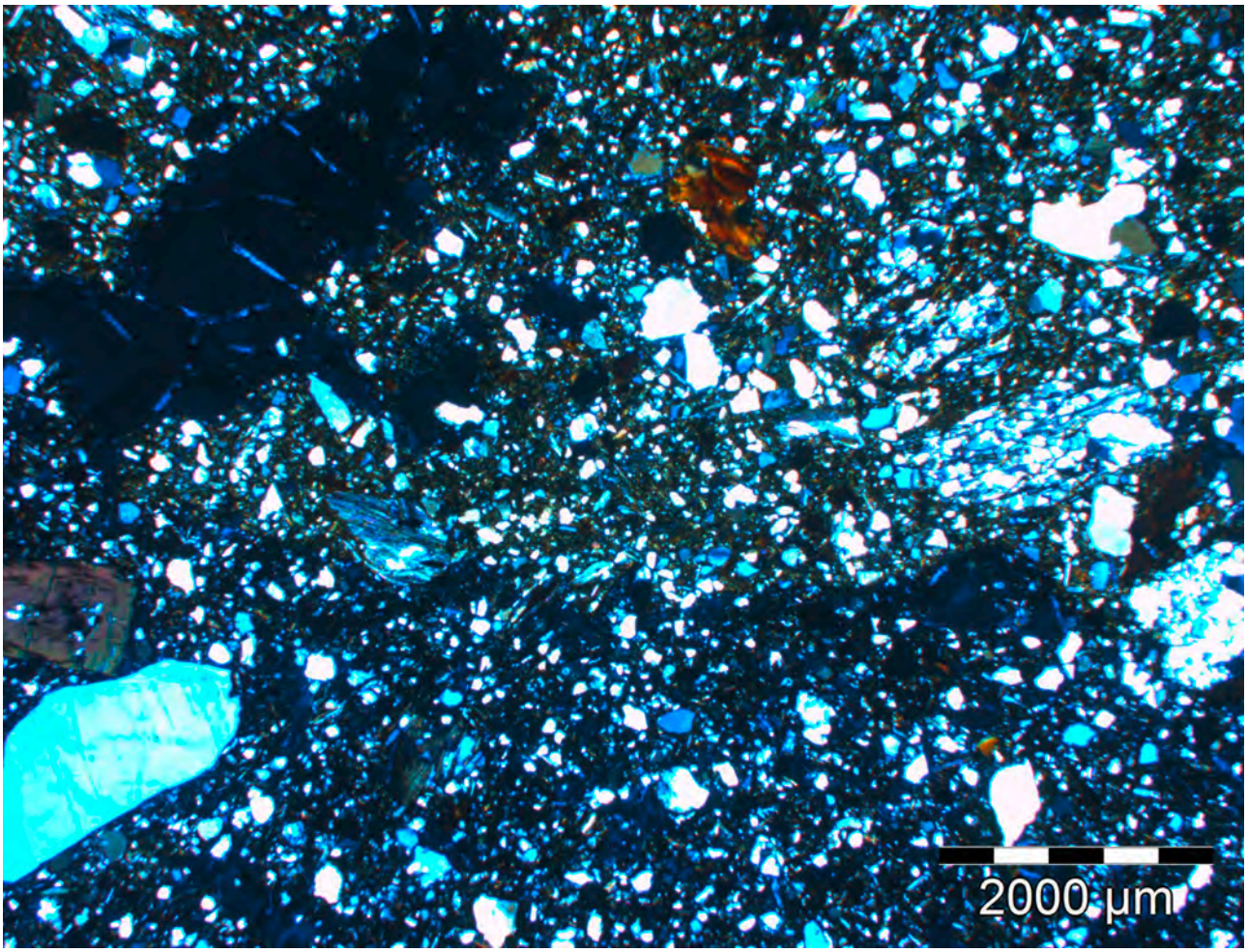
Gavin MacGregor

The reasons for the excavation of T9 and the strategy followed are presented in relation to the Phase 1 use of the site and to the adjacent Trench T8 (see Chapter 2 and 9.9 above). This section deals specifically with Phase 2 of occupation at T9.

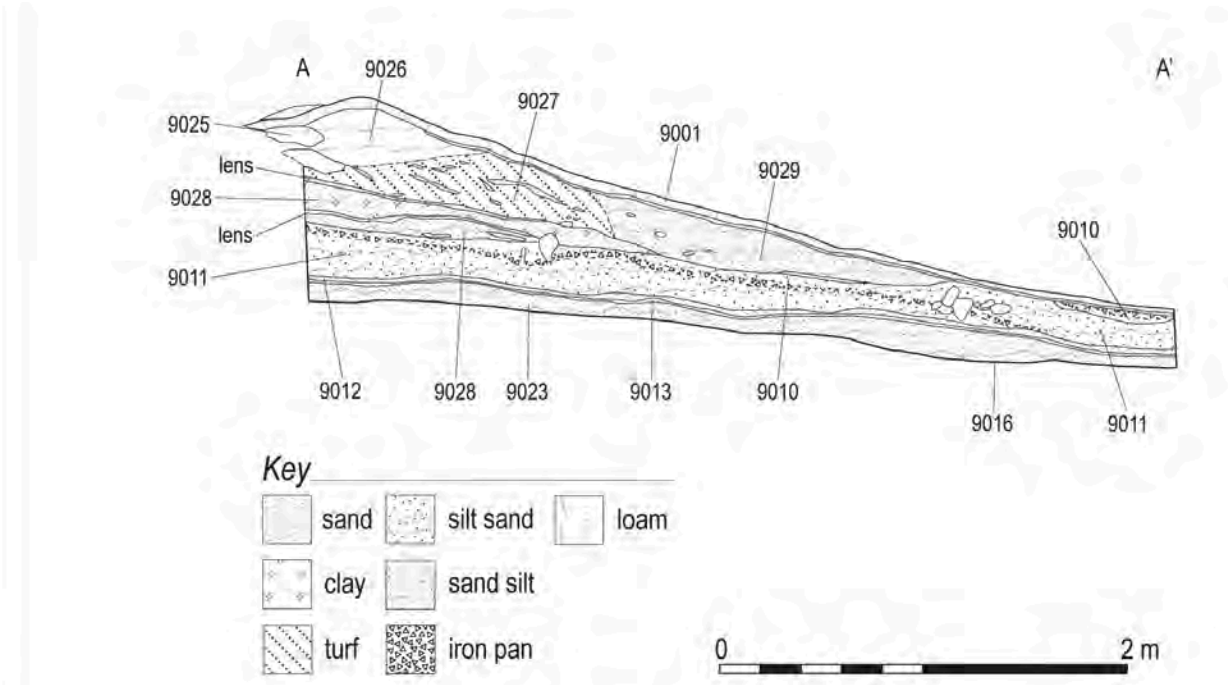
Table 9.6: Thin-section analysis results from T8

Site	Context number	Thin section sample	Coarse mineral material (< 10µm)																	Fine mineral material	Coarse organic material				Fine organic material					Pedofeatures							Microstructure	Coarse material arrangement	Groundmass b-fabric	Related distribution
			Quartz	Feldspar	Biotite	Mica	Garnet	Hornblende	Olivine	Compound	Sandstone	Siltstone	Metamorphics	Phytoliths	Diatoms	Bone	Rubified mineral			Fungal spores	Lignified tissue	Parenchymatic tissue	Charcoal	Cell residue	Amorphous (black)	Amorphous (brown)	Amorphous (yellow-orange)	Amorphous (inclusions)	Organic coatings	Clay infills	Silt coatings	Amorphous crypto-crystalline	Depletion	Excremental (mamillate)	Excremental (spheroidal)				
Meall Eagh Track 8	8069																	Light to reddish brown mineral, heterogeneous																	Compact grain	Random Poorly sorted	Mosaic speckled	Porphyric
		***	*	*	*							*						Brown organo-mineral heterogeneous		**			*	**						**	**	*	*		Compact grain	Random Poorly sorted	Stipple-speckled	Porphyric
	8067	***	*	*	*																																		

Frequency class refers to the appropriate area of section (Bullock et al., 1985): t Trace * Very few ** Few *** Frequent/Common **** Dominant/Very dominant
Frequency class for textural pedofeatures (Bullock et al., 1985): t Trace* Rare ** Occasional *** Many



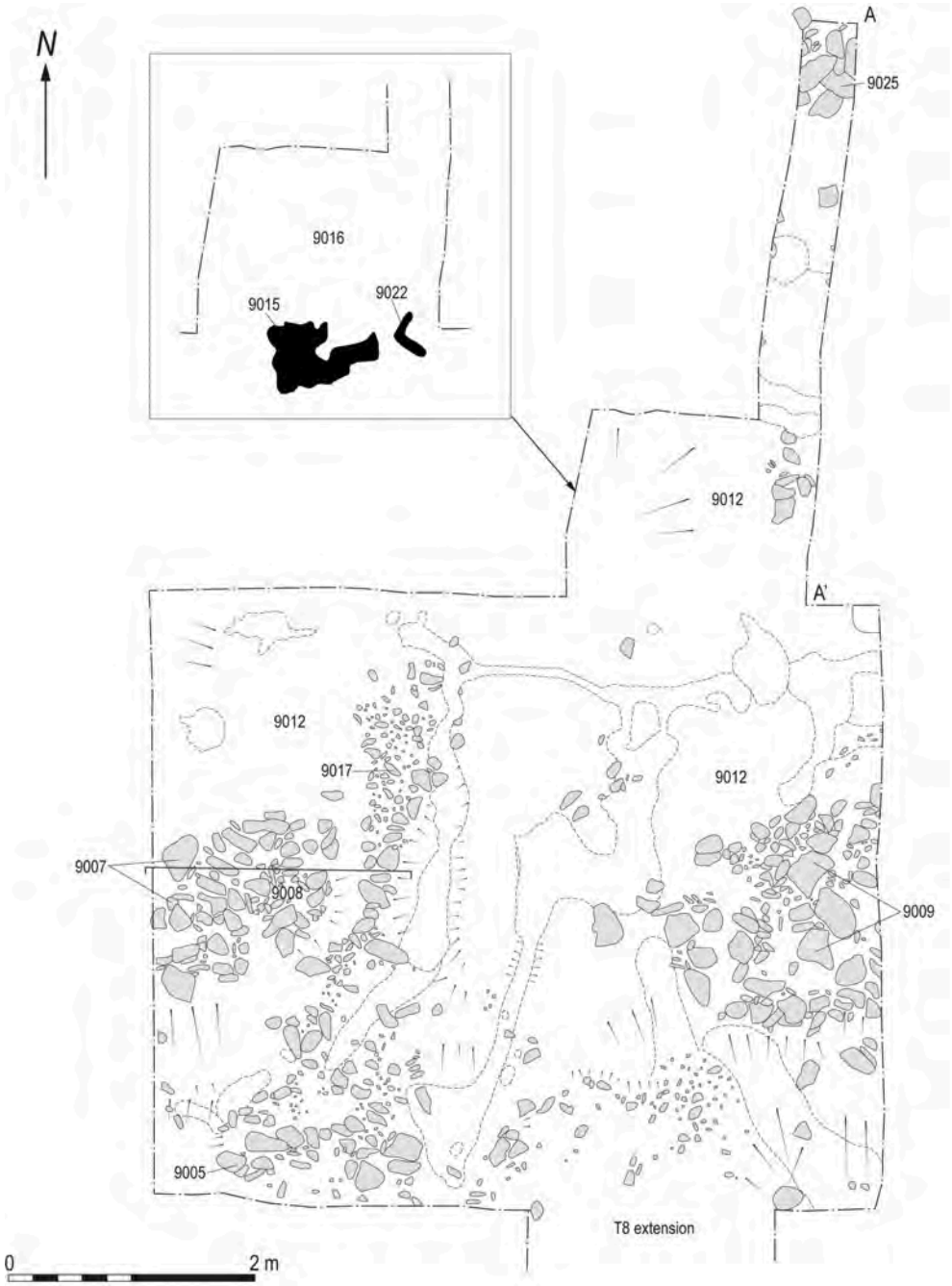
Illus 9.22 Silt banding occupation surface in T8 micromorphological slide



Illus 9.23 T9 section

Phase 1 – 3rd millennium BC
Phase 2 – 14th to 18th century AD?

Chapter 2 presents evidence for the inundation of the Phase 1 activity at T9 by hill-wash (9023) and the subsequent formation of an old ground-surface (9012/9013). This sequence of events was followed by a further phase of silt inundation (9011), which extended across the majority of the trench (Illus 9.24). No datable evidence for this phase of hill-wash was available, but a third phase (9028) was evident at the northern end of the trench, which contained carbonised alder, birch and heather remains (Table 9.7). Radiocarbon dating of a sample of alder provided a date-range of cal AD 1380–1440 (2σ, SUERC-9738). In the northern end of the trench (Illus 9.23), a sequence of constructional events followed on from Hill-Wash 9028. These began with the deposition of a thick layer of cut peat and/or turf (9027) and the construction of a drystone internal wall-face (9025) with an outer turf or earthen bank (9026), similar in form to that



Illus 9.24 T9 trench-plan

Table 9.7: Palaeo-botanical results from trench T9 on the Lawers Burn

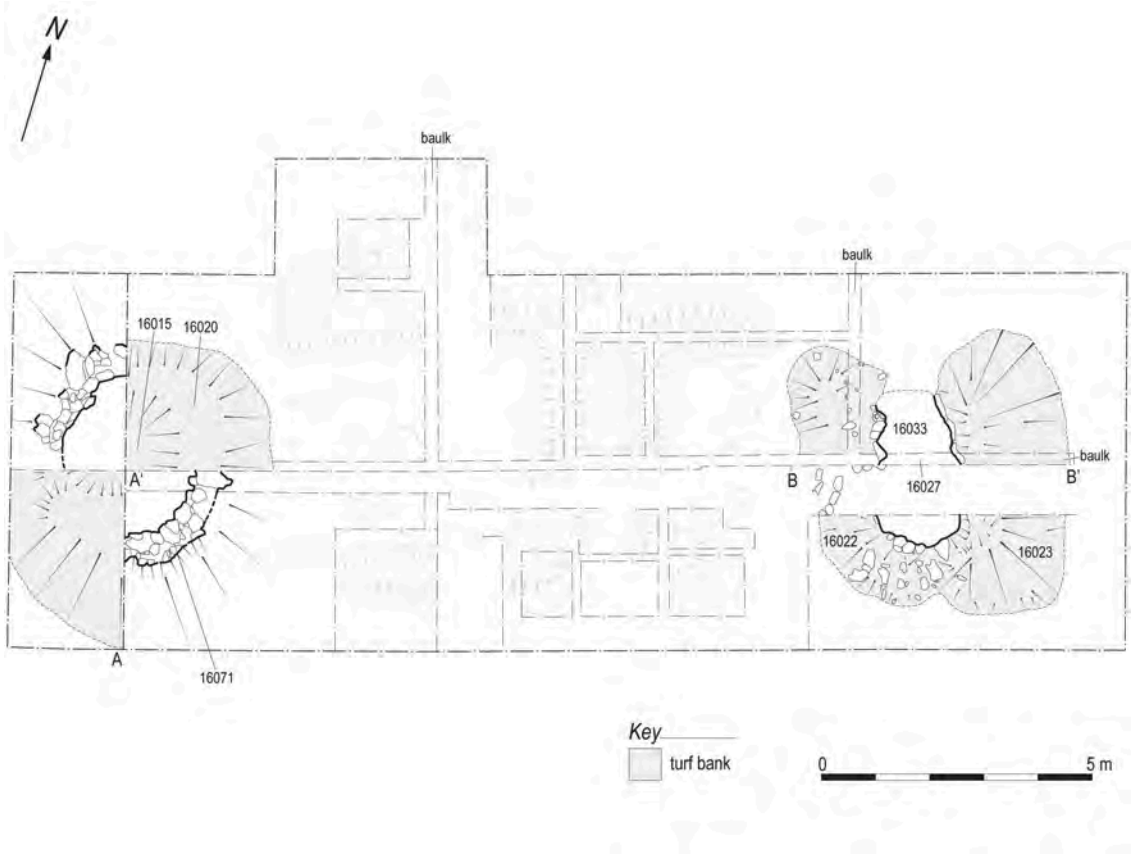
	9015	9022	9024	9028
Charcoal				
Alnus		1	5	7
Betula	37	2	15	13
Corylus	1			
Ericales				>200
Maloideae	2			

evident in Trench P14 on the Edramucky Burn (see 9.6.1 above).

In the south of the trench the sequence differed. Here deposits were founded directly on Wash-Layer 9011, with a layer of mottled orange-grey sand-silt lying over much of the trench (9010), together with stone-settings (9005, 9007 & 9009). Settings 9007 & 9009 and their associated matrices (9008 & 9019) had a coherent and regular form, were up to three courses deep and had the appearance of being deliberately set. They may have functioned as peat-stack bases or may have been the robbed-out remains of earlier structures, but no datable or artefactual material was recovered to assist in their interpretation.

9.12 INTERPRETING THE EVIDENCE FROM THE LAWERS BURN

The excavation of T8 and T9 at Meall Greigh provided additional abundant evidence for the



Illus 9.25 Phase 3 plan of T16

practice of going to shieling, and the results confirm the chronology established for the Edramucky shieling-sites in the late 1990s (see 9.8 above). Although some tentative evidence was apparent to suggest that occupation of this area may have occurred prior to the end of the 14th century (see T9 above), a 15th-century date for the construction and use of T8 is certainly more secure. In terms of phasing, two distinct sub-phases of use were evident in T8. The earliest was represented by the remnants of early earthen floors and hollows, two of which may have been filled with material raked out from a fire. These were subsequently sealed by well-preserved earthen floors, although this event appears indistinguishable in dating terms (see Chapter 10). A fire-spot (8070) and a setting for an upright slab, which would have acted as a fireguard, were contemporary with the later floor, although they may well have been in use during the earlier phase as well.

Dating of material from the fire-pit to the 18th or 19th centuries, or the period 1720–1810 if the one-sigma date is relied upon, sits well with Harrison's view of abandonment (see 9.1 above). This latter date may also assist in explaining the deposition of two sherds of Scottish Post-Medieval Reduced Ware in the structure's midden some time after 1750–75. Certainly by 1867 the entire shieling-ground was noted as being 'old' (OS 1867), implying it had gone out of use some time before.

Internally, the nature and distribution of the floor-layers may clarify the organisation and use of T8. The western end and centre, which would have been warmest, may have been used for sleeping, while the entrance and east end were trampled and patchy and contained rough cobbling, suggesting that they may have been used for storage and access. Immediately to the left as one entered the hut was a group of features, including the fire-pit, the fire-guard and an adjacent pit, which indicate how light and heat were introduced into the hut. Fire-pits and associated upright slabs are common features associated with this class of monument (see 9.4.1 above). The presence of an adjacent pit may provide evidence of 'smooring' (curating of the fire overnight to keep it lit), which was commonly practised in the Highlands (see Chapter 8 for further discussion).

The recovery of shaped stone discs and heat-affected slabs has led Clarke to suggest that cheese-presses and baking-stones may have been used at T8. This is an attractive argument, but the majority of the discs and stones were recovered from a post-abandonment layer, possibly the remains of a collapsed turf roof. If this interpretation is correct, the stones may have later been used as edge-weights along the roof-line. As with Building P12 on the Edramucky Burn, little trace of the roofing arrangement was apparent from the excavation of T8 or from observations made at the other huts within the group. It seems likely that the walls may have supported a lean-to roof, perhaps of timber beams with a covering of turf. This arrangement would probably require the roof to be weighted along its edges, and it is likely to have been renewed every spring.

9.13 THE LOW SHIELING-GROUP ABOVE KILTYRIE

In 2000 the RCAHMS survey of north Loch Tayside discovered a group of structures on a terrace between the 320m and 325m contours above Kiltyrie head-dyke (see Illus 5.2). The sites included circular shieling-huts, rectilinear structures, a 19th-century sheep enclosure, rig-and-furrow cultivation traces and a series of peat-tracks. Eve Boyle of the RCAHMS suggested that the grouping was unusual and might benefit from closer examination by the project.

In consequence, a programme of detailed survey, combined with trial-trenching of the visible structural forms, was undertaken in April 2004 (Atkinson et al 2004b), and this provided the basis for three further seasons of excavation within this group (see Chapters 4 and 5). Results from one of the 2004 sites (T16) implied that multiple phases of occupation may have occurred at this location. A programme of excavation was therefore designed to elucidate the form, function and chronology of three of the sub-circular structures (T16A, T16D & T20) at the eastern end of the group. The excavations were undertaken in April and June 2005 and reported on shortly afterwards (Atkinson et al 2005a; 2005b).

9.13.1 Excavation Strategy

Excavation of structures T16A–D in 2005 was undertaken in a single trench, placed to encompass

the full extent of the evaluation trench and extend beyond it to the north, south, east and west (Illus 9.26). Trench 16 measured 22m SSW/ENE by 7m NNE/WSW, with a small outshot extension from the north-west long wall measuring 2m north/south by 4m transversely. The decision was taken to excavate the entire area in plan without the use of baulks, which it was felt might confuse the excavators rather than assist their understanding.

Excavation of T20, which lay to the south-east of T16 within the area of rig-and-furrow cultivation, was undertaken to clarify the chronology, form and function of the structure and its relationship to the cultivation-traces. The trench measured 5m north-west/south-east by 5m north-east/south-west. Open-area excavation was pursued and baulks established to ensure bilateral stratigraphic control.

9.14 EXCAVATION OF STRUCTURES T16A & T16D ABOVE KILTYRIE

This section deals specifically with the excavation of structures T16A and T16D, which post-dated the Phase 1 (see Chapter 4) and Phase 2 (see Chapter 5) occupation of the site (Illus 9.26).

9.14.1 Deposits and Stratigraphy

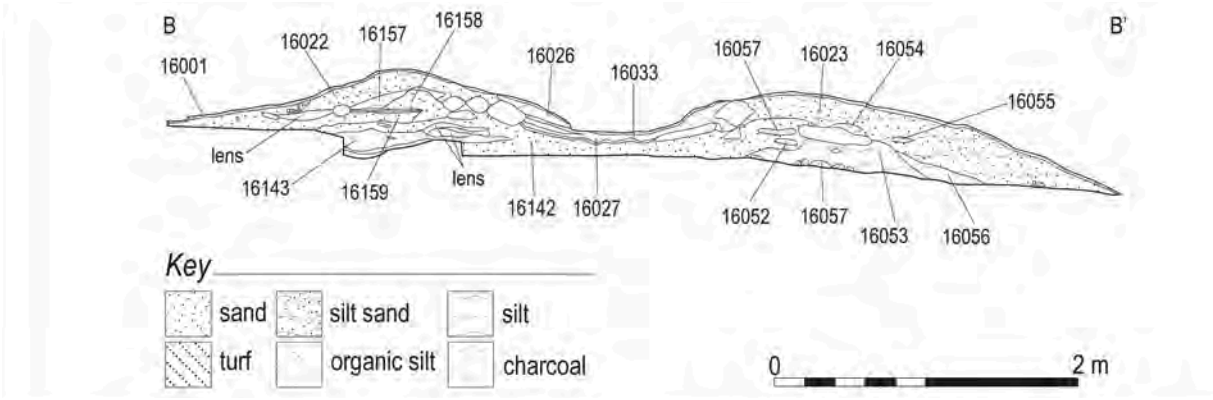
Phase 1 – late 8th to late 10th century AD
Phase 2 – mid 12th to late 13th century
Phase 3 – 15th century?

Pre-structure activity was noted in the form of a Phase 1 pit (16101) and possibly in the deposition of a layer (16080) which augmented a natural bank and may represent part of Structure B from Phase 2. Certainly the laying-down of Layer 16082/16126 was directly related to the construction of the drystone and turf walls (16021/16079) of Structure A (Illus 5.3). This construction probably occurred after Layer 16082 was deposited. The core of this wall was most clearly observed in the northern section through Structure A; in contrast, the southern section had been substantially modified and the relationship between the core of the bank and slump to its south was indistinct.

Traces of a number of possible occupation-deposits (16121, 16122, 16123 & 16081) were noted in the interior, including one horizon (16122) which exhibited substantial iron pan. No evidence of a hearth or post-holes to support a roof was noted cutting into this layer. Although no physical trace of a roof was apparent, one may still have been placed over the structure during occupation (see interpretation below). Tentative evidence of an entrance was encountered to the south-west of the structure, where a gap was present in Wall 16021/16079.

Structure A appears to have been abandoned, which probably included the removal of its roof, followed by silt filling its interior (16015/16124) and the development of a topsoil (16020) and turf cap. The exact mechanism for this process is unclear, but it may have been relatively rapid, as evidence of a turf-line was apparent over the turf-and-stone Wall 16079/16021. Simpson & McKenzie interpret Infill 16124 as a dump of material, which seems to support this view (see 9.14.3.2).

The T16D sequence began with a series of events that may be related to the construction



Illus 9.26 Section through Building T16D

and use of T16C during Phase 2 of occupation (also see Chapter 5). These events included the under-cutting of the natural subsoil, deposition of a trampled layer (16143) and two lines of possibly-structural stones (16022) (Illus 9.27). These deposits were sealed under a layer of compressed orange-brown sand with iron-pan discolouration (16142), which was evident under the western bank and interior of the structure. Notably, this layer (16142) was also observed over the core of the eastern bank of Structure D (16053), which may indicate that this bank might also be related to an earlier phase of occupation (see interpretation below and Illus 9.26). Removal of a section of the eastern bank and its internal stonework revealed a feature (16092) – probably the remains of a small pit – filled (16093) with a cache of midden or hearth-waste (see 9.14.3.1 below). Radiocarbon dating of a sample of hazelnut-shell from 16093 provided a date-range of cal AD 1160–1280 (2σ, SUERC-9732) and could support Phase 2 use underlying Phase 3.

Illus 9.27 Lines of stones under north-western bank of T16D

Construction of the western bank core (16157/16158) seems to have followed, but it is unclear to which phase of use this relates. Certainly the construction of the upper layer of both banks (16022 & 16023) and their internal stone linings appears to represent the final use of this structure and is probably contemporary with Floor 16033, which consisted of a layer of compact, iron-rich sand-silt and was devoid of features. A single primary quartz flake (SF 16009) was recovered from its surface (see 9.14.2.1 below). The final event in Structure D was the deposition of organic infilling layers (16026 and 16027) in its interior. Layer 16027 also extended beyond the northern end of the structure. Layer 16026 lay directly over 16027, which filled the entire interior to a depth of 0.25m. Analysis of both layers (see 9.14.3.2 below) confirms that they probably represent dumps of unburnt and occasionally partially-burnt peat (see below for interpretation of this event).

9.14.2 Finds

9.14.2.1 Lithics

Nyree Finlay

Of the 47 pieces recovered from T16, 14 were other than pebbles or rolled chunks. A primary flake, SF 16009, was recovered from Building 16D (see Chapter 5 for further discussion of the assemblage).

9.14.2.2 Coarse Stone

Ann Clarke

Two stone discs (SFs 16003 & 16005) were recovered from the T16 excavations and have been discussed elsewhere (Chapter 5), as they potentially relate to the Phase 2 occupation of the site.

9.14.3 Environmental Evidence

9.14.3.1 Botanical Remains

Jennifer Miller & Susan Ramsay

One sample (16026) recovered from 16A contained a distinct botanical assemblage, with only carbonised stems of heather-type present. It is unclear where the contents originated, but they may be the remains of heather roofing-thatch.

Two contexts were analysed from Structure D. An organic layer (16026/27) that covered the floor produced scant remains of heather charcoal but large quantities of burnt organic material which might be burnt turf or peat. The fill (16093) of small Pit 16092 produced alder, birch and hazel charcoal, but was most notable for containing numerous fragments of hazelnut shell, as well as a single oat grain and some animal bone. It would appear that this pit contained domestic hearth-waste or burnt midden material.

9.14.3.2 Thin-Section Micromorphology

Ian A Simpson & Joanne T McKenzie

Structure 16A: The two thin-section slides obtained from Context-Group 16112 show a complex sequence, with four separate deposition-events identified within upper slide 1/2 and 10 within lower slide 2/2 (Tables 9.8–9).

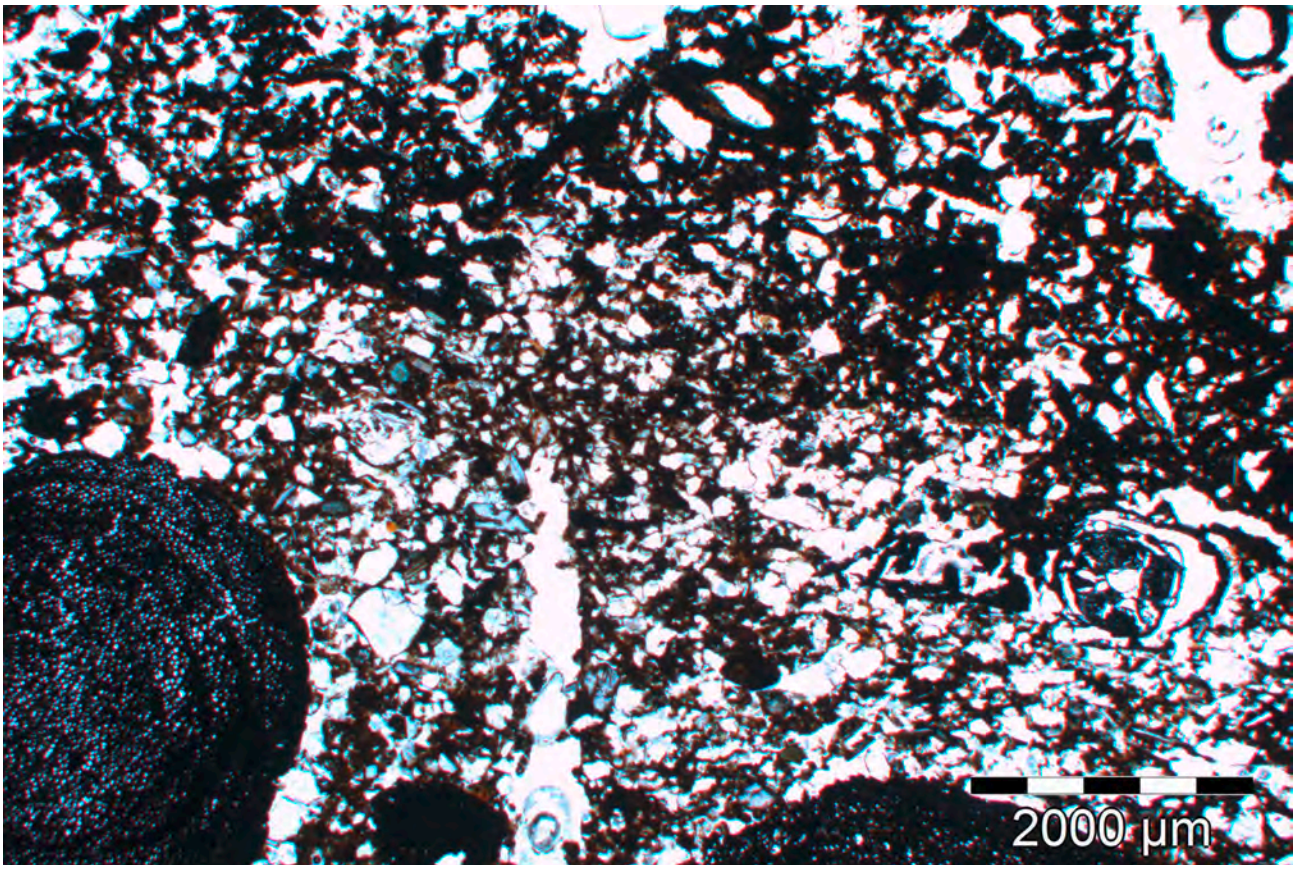
The uppermost two deposits are interpreted as dumped material and consist of a coarse, quartz-rich mineral fraction with a light (1/2a) to mid-brown (1/2b) organic groundmass. Little anthropogenic influence was noted, although some wood charcoal and fibrous unburnt peat were observed. Layer 1/2c is a distinctive deposit that forms a discrete and uniform 1.5cm band. This is chiefly amorphous organic material, which has undergone biological reworking into an excremental microfabric. The presence of organic fibrous material indicates a thin layer of unburnt peat. Occasional phytoliths also point to a possible grass input. The peaty fragments show horizontal lamination, indicating that this layer may have been trampled, but could represent a deliberate deposit. A further deposit (1/2d) of sand with an organo-mineral groundmass probably represents dumped material and is similar to Layer 1/2b. This layer may derive from a variety of sources.

Lower slide 2/2 shows a more complex depositional sequence of anthropogenic activity. Upper Deposits 2/2a and 2/2b are indistinct and appear to be phases of dumping. A clear horizontal boundary exists between 2/2b and 2/2c, which is a thin, orange-brown, organic-rich iron concentration. This layer may have been trampled, although anthropogenic indicators are lacking. It is possible that Layer 2/2c was quickly covered, thus also representing a phase of deliberate build-up. Under Layer 2/2c, intensive anthropogenic activity becomes apparent with the presence of a horizontal boundary with Layer 2/2d. Layer 2/2d is a thin lens of organic-rich material containing well-preserved wood charcoal, some lignified tissue and possible degraded unburnt peat associated with occasional fragmented diatoms. This is a deliberate deposit of domestic waste from both burnt and unburnt contexts.

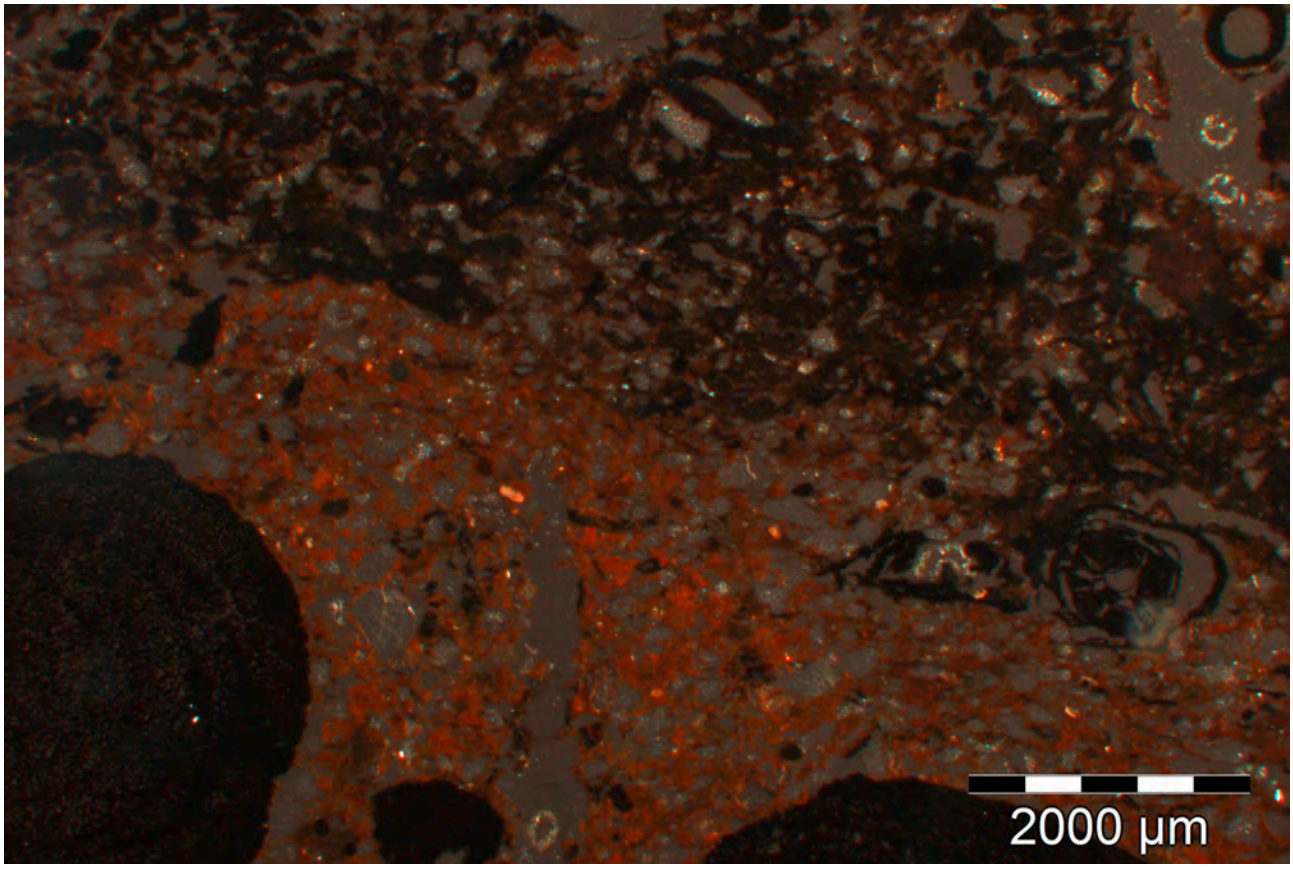
A degree of stratigraphic complexity arises at this point, with Layer 2/2d sealing two deposits: a thin, sandy lens (2/2e) and a thicker burnt-peat deposit (2/2f). Layer 2/2e is less anthropogenic and appears to relate to some disturbance of 2/2f. In contrast, Layer 2/2f is composed almost entirely of fragments of burnt peat (Illus 9.28). The deposit appears to be a dump of concentrated fuel residue, which seals a small dump of fine quartz-dominated sand with high organic content (2/2g). The character of 2/2g suggests it also represents a dump of fuel-residue (Illus 9.28) dominated by well-preserved charcoal fragments, chiefly roots of different species. These are present within the organo-mineral groundmass, which in oblique incident light indicates significant heating – a feature absent from Layer 2/2f above. The bright red/orange colouration (Illus 9.29) is consistent with that seen in archaeological and experimental fuel-ash residues combusted at *c* 400°C (Simpson et al 2003: 1408), indicating domestic rather than industrial activity.

Sealed by Layer 2/2g is a similarly charcoal-rich fuel-residue deposit (2/2i). This layer is the most varied of the three fuel-residue deposits in this sequence. Large, carbonised root fragments are visible concentrated towards the top of the deposit. Layer 2/2i shows a relatively high burnt-peat content. Patches of fuel-residue are juxtaposed with lighter organo-mineral areas with a higher coarse-mineral content and indicate a lower combustion temperature. The final deposit is Layer 2/2j, a mixed deposit with minimal anthropogenic input, possibly representing a dumped deposit of unburnt peat or turf.

Structure 16D: Two thin-section slides were obtained from Structure 16D. These provided a sequence through Context-Group 16027. Once again a complex sequence of deposits was identified, three from slide 2/2 Upper, and six from slide 2/2 Lower. The three deposits identified in the upper slide are similar and may represent related events. Much of the material can be identified as unburnt



Illus 9.28 Fragments of burnt peat in T16A micromorphological slide



Illus 9.29 Bright orange colouration of T16 groundmass in slide

Table 9.8: Thin-section analysis results from T16A (upper slide)

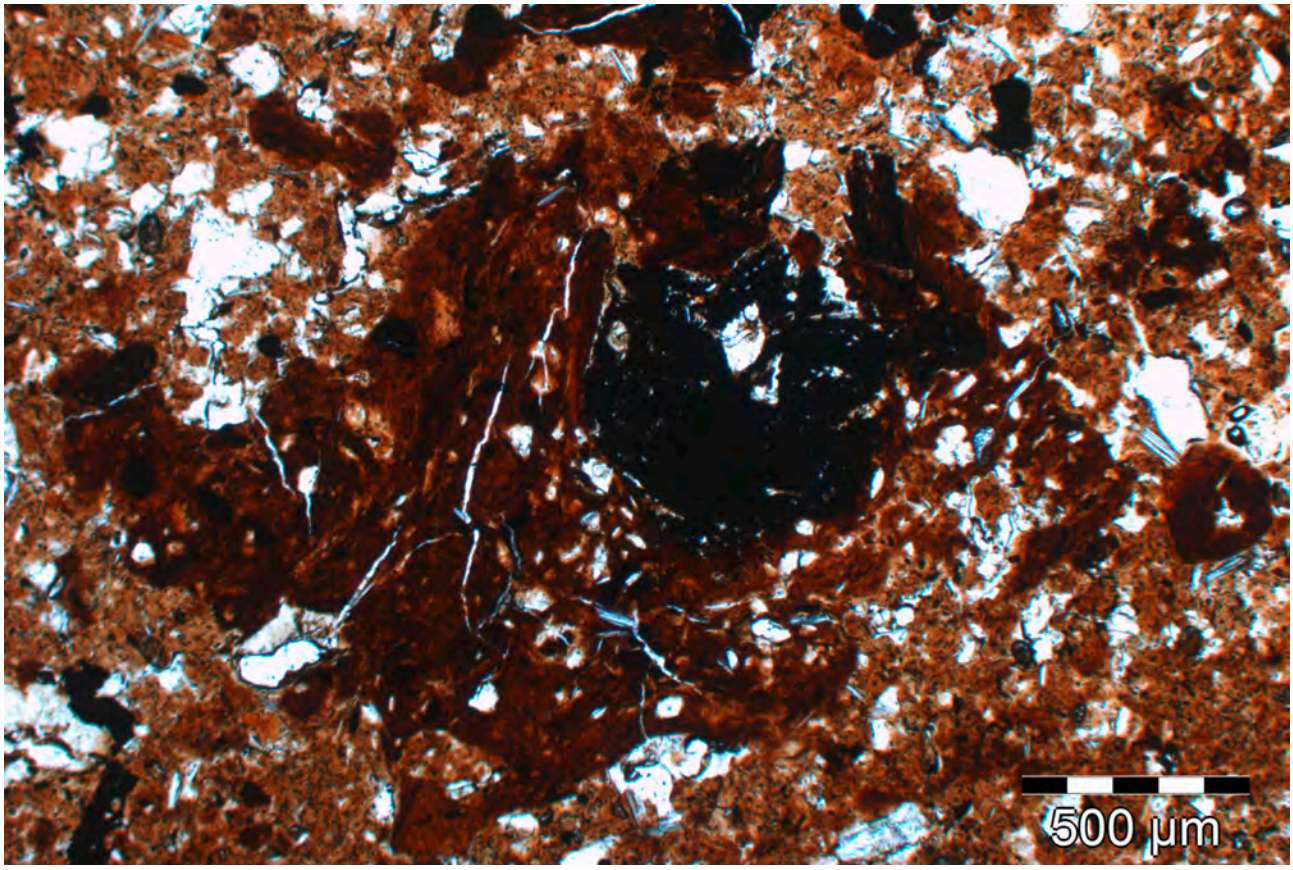
			Coarse mineral material (< 10μm)																Coarse organic material			Fine organic material					Pedofeatures								
Site	Context number	Thin section sample	Quartz	Feldspar	Biotite	Mica	Garnet	Hornblende	Olivine	Compound quartz	Sandstone	Siltstone	Metamorphics	Phytoliths	Diatoms	Bone	Rubified mineral	Fine mineral material	Fungal spores	Lignified tissue	Parenchymatic tissue	Charcoal	Cell residue	Amorphous (black)	Amorphous (brown)	Amorphous (yellow-orange)	Amorphous (inclusions)	Organic coatings	Clayinfills	Silt infills	Amorphous crypto-crystalline	Depletion	Excremental (mamillate)	Excremental (spheroidal)	Microstructure	Coarse material arrangement	Groundmass b-fabric	Related distribution
Kiltrie: Trench 16a	t6112group	1/2a	***		*	*	**			t			*				t	Light/mid brown organo-mineral, heterogeneous	t		t	t		t	*				t		*				Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric
		1/2b	***		*	**	*	t		t			*				t	Mid brown organo-mineral heterogeneous				t	t	t	*				*		*				Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric
		1/2c	**		t	*	t			*			t	*				Dominantlyorganic orange-brown, heterogeneous	*					t	**	*										Close crumb	Random Poorly sorted	Mosaic speckled Occasional granostriation	Porphyric
		1/2d	***		*	*	*	*	*	*			*	*				Light to mid brown organo-mineral, heterogeneous	t			*		t	*	t			*		*			*		Intergrain microaggregate	Random Poorly sorted	Stipple-speckled	Porphyric
	t6112group	2/2a	***	t	t	*	*	t		*			*				t	Light to mid brown organo-mineral, heterogeneous	t		t			t					*	**	**			*		Intergrain microaggregate	Random Poorly sorted	Mosaic to cross-striated	Porphyric
		2/2b	***		t	*	**	t		*			*	t	t			Mid brown to grey organo-mineral, heterogeneous	t			t		t				*	t		*					Intergrain microaggregate	Random Poorly sorted	Stipple-speckled	Porphyric
		2/2c	***		t	*	*			*			*					Mid orange/brown organo-mineral, heterogeneous	*					t				t	t		*					Intergrain microaggregate	Random Poorly sorted	Stipple-speckled	Porphyric

Frequency class refers to the appropriate area of section (Bullock et al., 1985): t Trace * Very few ** Few *** Frequent/Common **** Dominant/Very dominant
Frequency class for textural pedofeatures (Bullock et al., 1985): t Trace * Rare ** Occasional *** Many

Table 9.9: Thin-section analysis results from T16A (lower slide)

			Coarse mineral material (< 10 μm)																Coarse organic material			Fine organic material					Pedofeatures								
Site	Context number	Thin section sample	Quartz	Feldspar	Biotite	Mica	Garnet	Hornblende	Olivine	Compound	Sandstone	Siltstone	Metamorphics	Phytoliths	Diatoms	Bone	Rubified mineral	Fine mineral material	Fungal spores	Lignified tissue	Parenchymatic tissue	Charcoal	Cell residue	Amorphous (black)	Amorphous (brown)	Amorphous (yellow-orange)	Amorphous (inclusions)	Organic coatings	Clay infills	Silt coatings	Amorphous crypto-crystalline	Depletion	Excremental (mamillate)	Excremental (spheroidal)	Microstructure	Coarse material arrangement	Groundmass b-fabric	Related distribution
Kilbyre: Trench 16a	16112 group	2/2d	***		t	*	*			t					t			Mid/dark brown organo-mineral, heterogeneous	*	t		*		*		t			*	t	*				Intergrain microaggregate	Random Poorly sorted	Stipple-speckled	Porphyric
		2/2e	****		t	t	t	t					*					Mid brown organo-mineral heterogeneous	t	t				*		*			t			*				Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric to enaulic
		2/2f	***		t	*	t	t			t		*					Occasional light orange organo-mineral heterogeneous	*	**		t	*	***	***											Intergrain microaggregate	Random Moderately sorted	Isotropic to occasional mosaic speckled	Enaulic
		2/2g	***	t	t	**	*	t		*			t				*	Mid/dark brown organo-mineral, heterogeneous Heated	t	t		**		***	t						*				Intergrain microaggregate	Random Poorly sorted	Stipple-speckled	Porphyric
		2/2h	****			*	*			*			*				*	Mid and dark brown organo-mineral, heterogeneous				t		t					t						Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric
		2/2i	***		t	*	*			*			*	t			*	Dark brown organo-mineral heterogeneous Some heating	t	*		**		***	*				t	t		*				Intergrain microaggregate	Random Poorly sorted	Stipple-speckled; some mosaic speckled	Porphyric
		2/2j	***		t	*	**	t		*			*	*			t	Light to reddish brown organo-mineral, heterogeneous	t		t			t	*	*		t	t	*		**				Intergrain microaggregate	Random Poorly sorted	Mosaic speckled	Porphyric

Frequency class refers to the appropriate area of section (Bullock et al., 1985): t Trace * Very few ** Few *** Frequent/Common **** Dominant/Very dominant
Frequency class for textural pedofeatures (Bullock et al., 1985): t Trace * Rare ** Occasional *** Many



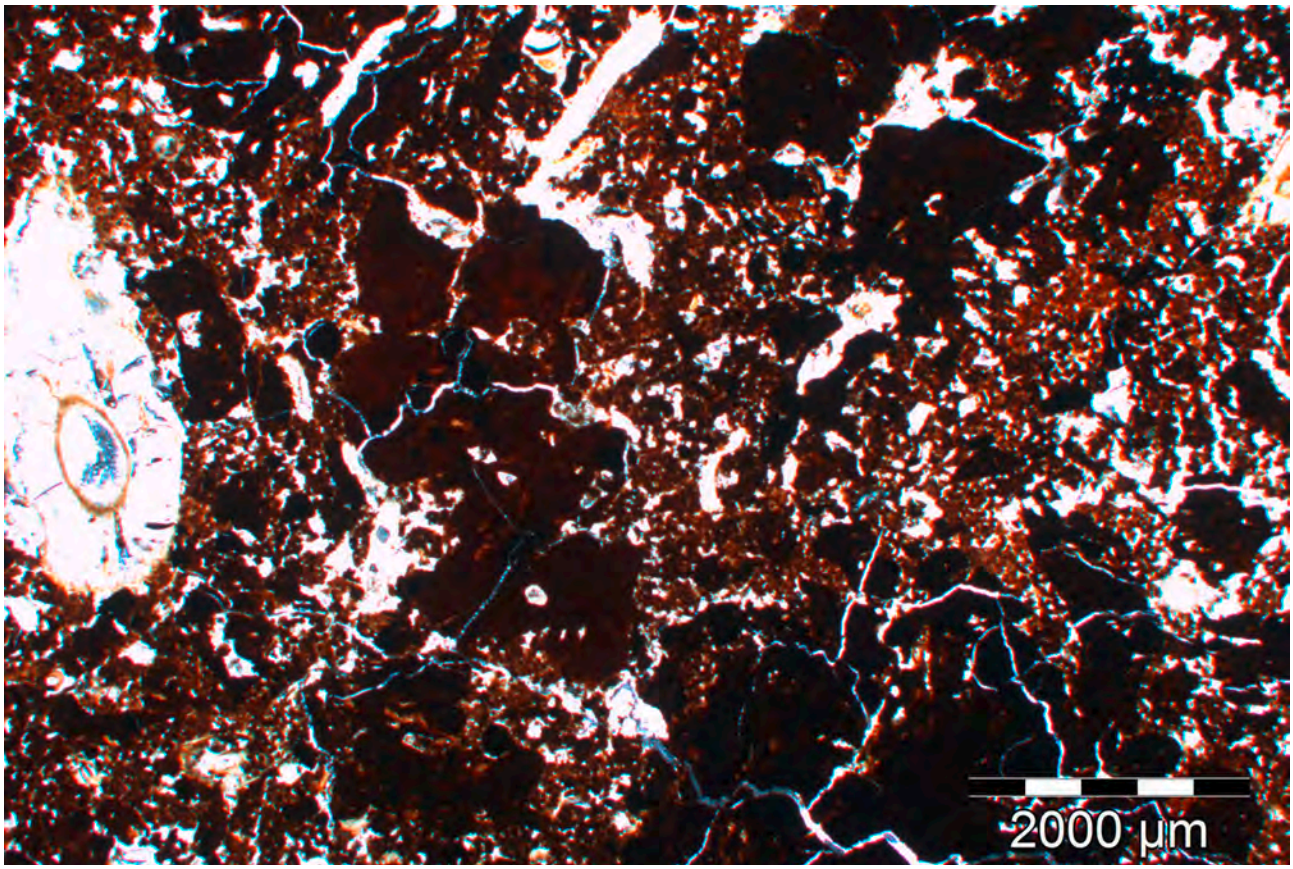
Illus 9.30 Peat-based material in T16D micromorphological slide

and occasionally partially-burnt peat. The organic mass is largely degraded material, which has been biologically reworked. Fungal spores are frequent, as are large pieces of fibrous peat-based material (Illus 9.30). Many of these pieces are cracked, indicating episodes of wetting and drying. Occasional wood-charcoal fragments are present, together with pieces of carbonised peat and frequent parenchymatic tissue. The material shows little horizontal lamination and is interpreted as a dump of mainly unburnt peat (2/2a).

A diffuse, undulating boundary separates this deposit from 2/2b, which is largely composed of organic material of peaty origin, intermixed with a mineral-dominated groundmass. Biological activity is high, fungal spores are frequent, and much of the organic fraction appears reworked. Several large pieces of extant fibrous unburnt peat survive, together with very occasional charcoal. The centre of the deposit contains a spread of dark-reddish biologically reworked organic material, which may be a degraded piece of unburnt turf.

Deposit 2/2c has a similarly diffuse and undulating boundary with 2/2b, and can be interpreted as another peat-dominated dump of mixed material. Here the lighter organo-mineral groundmass is more prevalent than the peaty, organic areas, and thus the entire slide is interpreted as a dump of peat-based organic material which becomes progressively less peaty down the profile.

As with other T16 sample sequences, the lower slide presents the more complex stratigraphy. Deposit 2/2d, in the topmost third of the slide, is similar to the less intensely peaty areas of deposits 2/2a and 2/2b, and likewise represents a dump of mainly unburnt peat. There is an undulating boundary between this and Deposit 2/2e, which consists of a mixed, organo-mineral groundmass with a fine, sandy mineral fraction. Diatoms are present in the lighter groundmass areas, suggesting a wetter source-area for this deposit. Anthropogenic indicators are minimal, with only occasional charcoal, and a lack of horizontal lamination indicating a dumped deposit. This deposit and Deposit 2/2g are



Illus 9.31 Unburnt peat in T16D micromorphological slide

similar and they represent a single dump of material, separated by the thin lens of unburnt peat (Deposit 2/2f). Deposit 2/2f forms a discontinuous lens with diffuse upper and lower boundaries and contains several large pieces of unburnt peat. Several of these have areas of carbonised material within them (Illus 9.31).

Deposit 2/2g ends abruptly, with a strong, clear lower boundary defined by a thin layer of iron accumulation (2/2h). Frequent small unburnt-peat fragments exist along its length. Below this is a mixed organo-mineral fraction, similar to Deposits 2/2e and 2/2g above, with a similarly minimal anthropogenic content (2/2i).

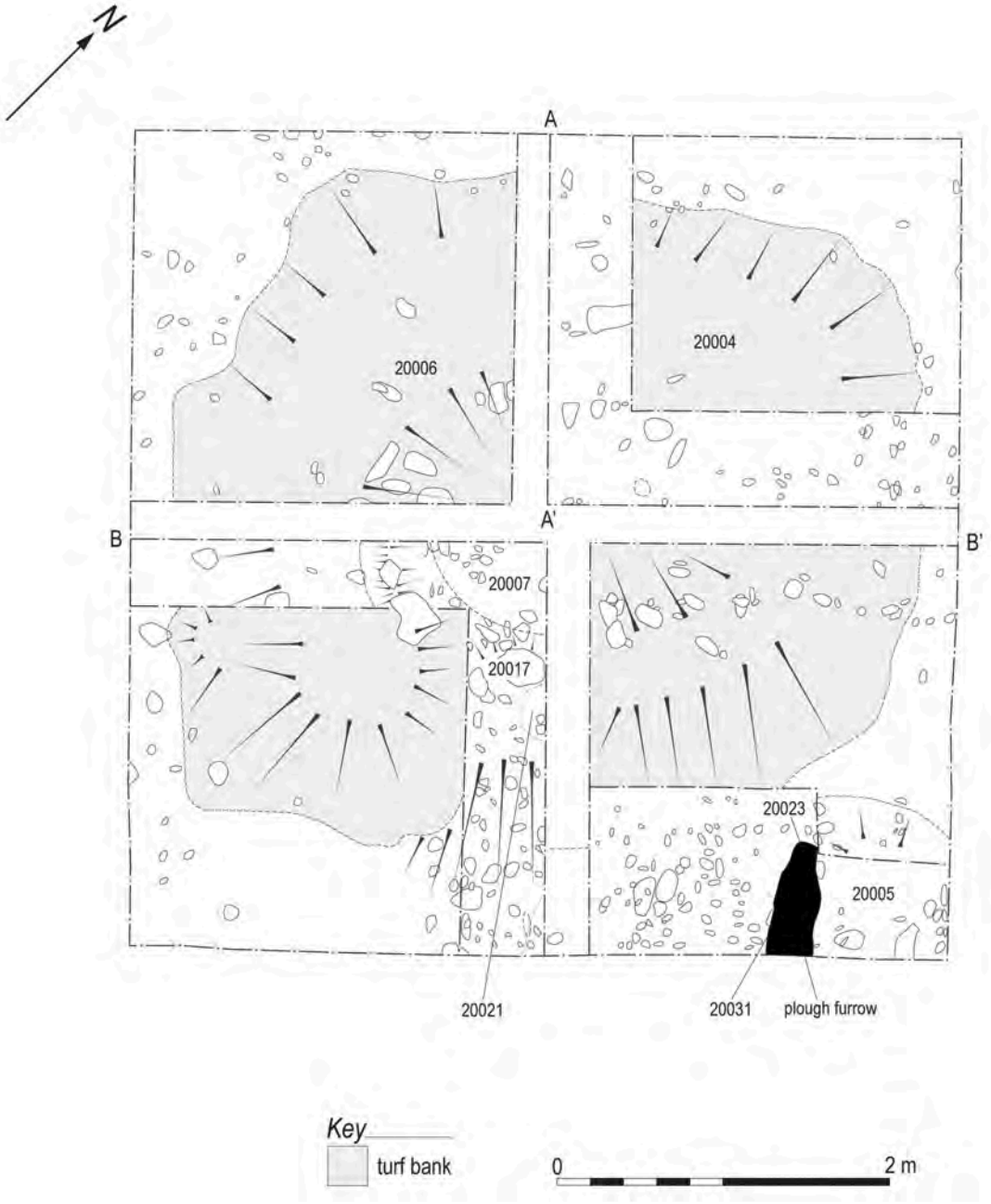
9.15 EXCAVATION OF STRUCTURE T20 ABOVE KILTYRIE

Structure T20 (Illus 9.32) appeared to form one of a group of sub-circular shieling-huts which began in the east with T20 and ran due west through T16 and on into a small gully to its west (see Illus 5.2).

9.15.1 Deposits and Stratigraphy

The earliest event in the sequence of Structure T20 was a layer of evidently trampled sand-silt with charcoal conclusions (20042), which lay beneath the primary turf bank (20039). This bank was present around the western side of the structure, but was apparently absent elsewhere (see 9.16 for further discussion) (Illus 9.33). A further phase of banking was subsequently introduced (20010), superseding and reducing the internal area of the structure. Excavation of Bank 20010 revealed that it was constituted by layers of turf and stone slabs (Illus 9.34) within the core of the bank. Bank 20010 was noted as partially overlying occupation-deposits along T20's southern side (see below) and was pierced by a gap, possibly an entrance, to the south-west.

Occupation of T20 led to the deposition of Layer 20007 across the interior. A thin layer of very compact, black-brown silt (20028) containing a single fragment of birch charcoal lay on top of Floor 20007. Radiocarbon dating of this fragment



Illus 9.32 Plan of T20

provided a date-range of cal AD 1395–1470 (2σ, SUERC-9727). No internal features were discovered in Floor 20007. Evidence of slumping of the upper-bank deposits (20004) was noted along the north-west side of the structure prior to the interior's infilling with silt (20006). Subsequently, the rest of the structure slumped and it was eventually capped by topsoil and turf (20001).

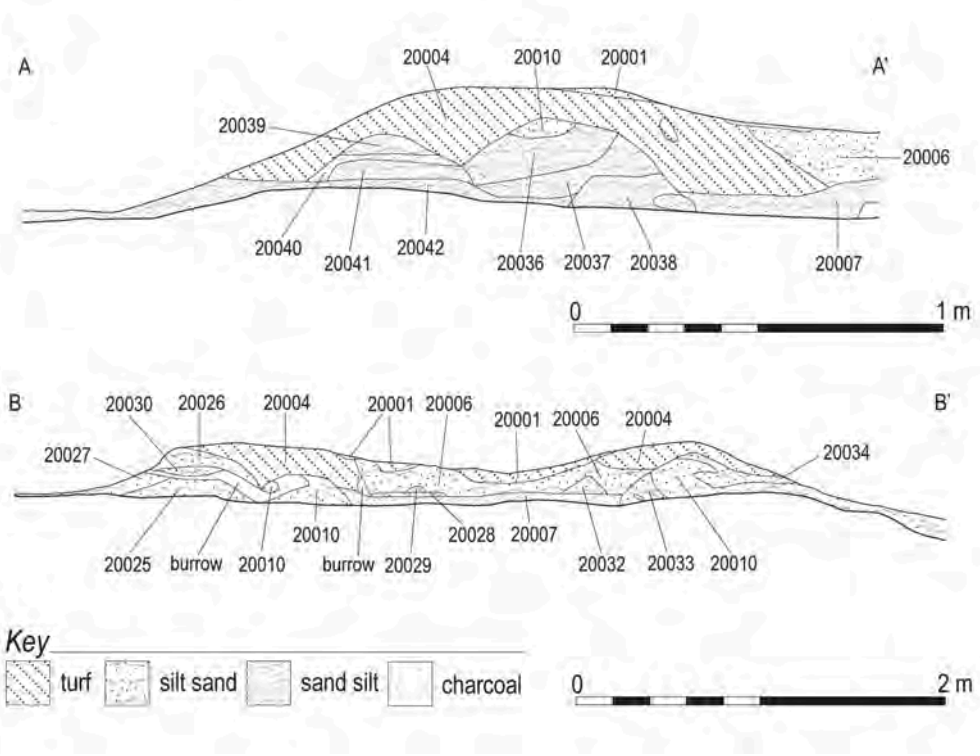
Excavation of the cultivation traces to the south and west of T20 (20005/20023) revealed that the rig-and-furrow respected the turf structure. A fragment of a rectangular loop from beneath the rig was the only artefact of note from the excavation.

9.15.2 Finds

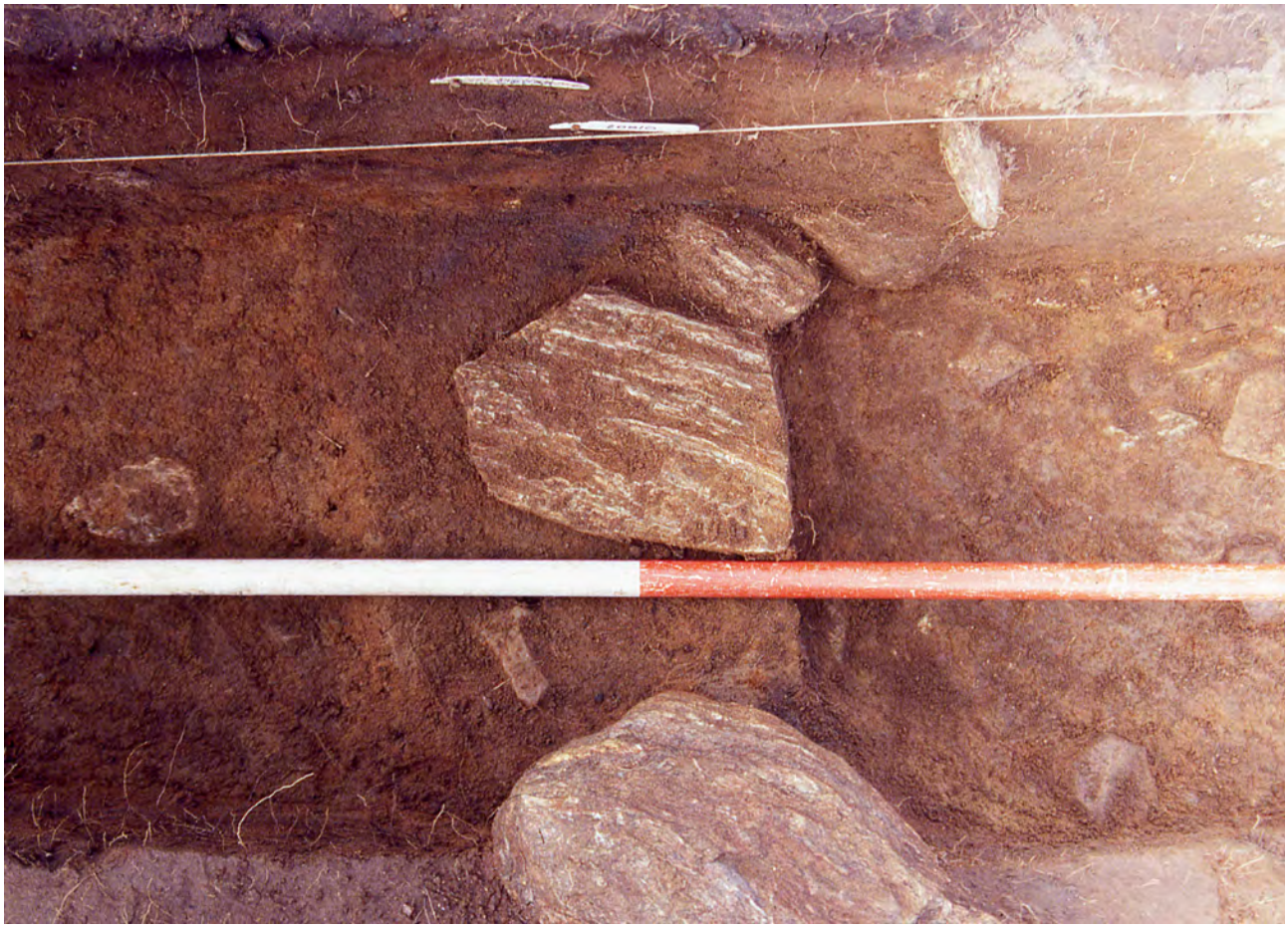
9.15.2.1 Metalwork

Adrian Cox

A fragment from a rectangular loop (SF 20008) was recovered from feature 20005. It is heavily corroded



Illus 9.33 Section through T20



Illus 9.34 Stone slabs in situ within turf wall core of T20

and measures 50mm long by 40mm wide and *c* 18mm thick.

9.15.2.2 Lithics

Nyree Finlay

The small quartz assemblage of 48 pieces consists mostly of unmodified chunks and splintered flakes. The only flake is a primary regular flake which has been freshly struck, and another chunk has recent edge damage. Of note is a bipolar flake core in fine-grained material, length 21mm (SF 20012).

9.15.3 Environmental Evidence

9.15.3.1 Botanical Remains

Jennifer Miller & Susan Ramsay

Three contexts were analysed from this site. Context 20008 contained significant quantities of charcoal, including alder, birch and hazel. This assemblage is entirely in keeping with collection of firewood from the locally-available, mixed-deciduous woodland. A burnt layer (20035) under the turf structure walling (20004) contained two pieces of hazel charcoal, together with significant numbers of carbonised heather-type stems. This suggests that the turves had been cut from a heathland environment rather than from grassland. A floor-layer (20028) produced only one identifiable piece of charcoal and there was no evidence of any food-plant remains at the site.

9.15.3.2 Thin-Section Micromorphology

Ian A Simpson & Joanne T McKenzie

Two thin-section samples were obtained from Trench 20, and these provide a sequence through Layers 20006 & 20007.

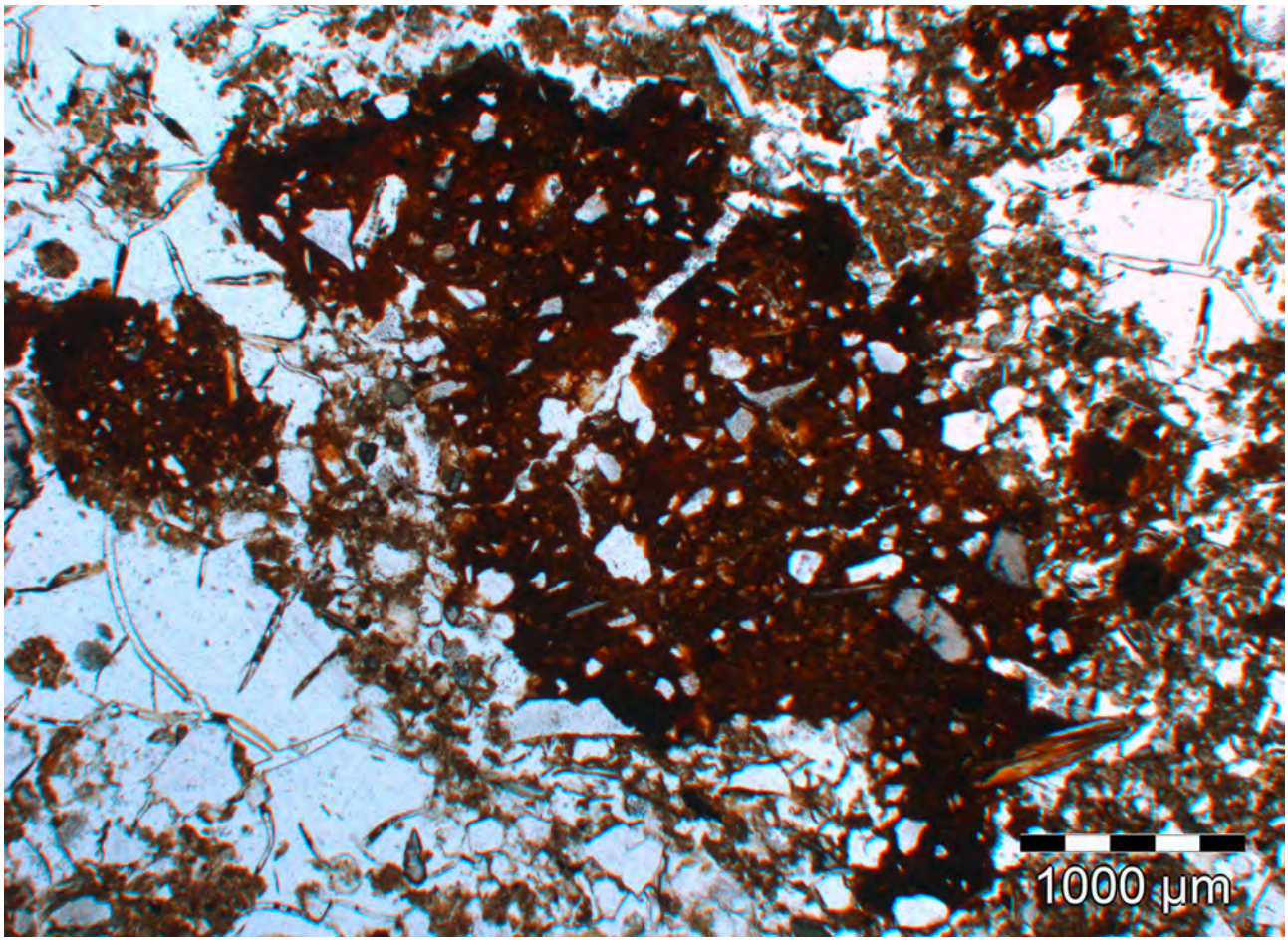
Layer 20006 is visible in slide T20-Upper and consists of a quartz-dominated fine sand deposit within a light-brown organo-mineral groundmass. Anthropogenic indicators are minimal, with some possible charcoal fragments and occasional carbonised amorphous organic material. More prevalent are plant-residue materials such as parenchymatic tissue and small lignified tissue fragments. Some of these show iron-accumulation features indicative of water-movement through the deposit. Charcoal appears slightly more prevalent near the diffuse boundary with Context 20007.

Layer 20007 provides a slightly more complex sequence in thin section. In slide T20-Lower, Layer 20007 separates very clearly into two different deposits. These are differentiated by the frequent occurrence of small, unburnt-peat fragments, many of which are iron-impregnated, in the upper of the two deposits (Illus 9.35). These are fairly uniform in size and are distributed through the centre of the deposit, possibly forming a slight horizontal band. The lower deposit lacks these unburnt-turf fragments. Additional anthropogenic indicators, such as charcoal and other carbonised materials, are generally absent. It is possible that the concentration of turf fragments observed in this area relates to the construction of the mound, although there is no additional evidence for the provenance of this material (for example, diatom or phytolith evidence).

9.16 INTERPRETING THE KILTYRIE HEAD-DYKE SITES

Prior to excavation, the remains of oval structures above Kiltyrie were viewed as probably representing a similar form of architectural expression and, by extension, date, function and history of use. This has not been borne out by the archaeological or analytical results, which have provided a range of evidence for their use and currency. Two of the structures (T16A and T20) were probably used as shieling-huts and represent what is traditionally assumed to be the older form of hut (Bil 1996: 4). In contrast, the evidence from T16D supports a different interpretation: this building may in fact have been a peat or turf store, similar to those surveyed by the RCAHMS elsewhere in the area (see Boyle 2003).

T16A and T20 were probably built using a similar technique, where three splayed poles were tied together and the walls were constructed of turf and stone until a suitable height had been achieved; at this point the remaining gaps in the conical frame were filled by thatch (Bil 1990: 246) to provide a roof. In the case of T20, the walls were mainly turf with occasional courses of flat slabs, whereas in T16A a more robust build was evident. Its heavier reliance on stone – up to seven courses in places – to line the internal wall, combined with a thick earthen batter, evokes the more-substantial rectilinear constructions



Illus 9.35 Iron-impregnated peat in layer 20007

of the high shieling-zone (see P12 and T8 above). Both buildings had southerly-facing entrances – south-west for T16A and south-east for T20 – and few internal features. Although a lightly-used hearth was apparent in the latter, no trace of one was evident in the former. Analysis of the floor deposits (16122 & 20007) in both structures provided little evidence of substantial anthroprogenic activity (see 9.15.3.2 above). This was particularly notable in T20 and may imply it had a shorter lifespan than T16A or was less frequently used.

T16D differed in its manner of construction and use from T16A & T20 and seems to represent a different class of structure. Stratigraphic and dating evidence (see below) suggests that it was superimposed over the north-eastern end of an earlier sub-rectangular building (see Chapter 5) and may have used its north-eastern wall in the new build. Certainly, in its final form, T16D was a horseshoe defined by banks with internal stone slabs lining their edges; some of these stones were upright and set within Floor 16033. It had an open end facing to the north-west and no evidence of internal features, although heavy iron panning was present. Throughout the interior, a series of dumps of unburnt and partially-burnt peat were evident, which sealed the banks of T16D and spilled out to the north-east of the structure. The peat had gone through phases of wetting and drying (see 9.15.4) which, combined with a lack of post-abandonment tumble or silting, would seem to imply that T16D had never been roofed and probably stood little higher than its current height. It is highly likely that T16D was used as a form of cleit or peat-drying stance.

Absolute dating of the Kiltyrie sites has proved to be more problematic than interpreting their function. No absolute dating evidence for Structure A was obtained; but we can say with some certainty that it was constructed after the 10th century AD and in all probability after Structure B had been abandoned, some time

after 1300 (see Chapter 5 for further discussion). Dating of Structure D was also dependent on its relative relationship to earlier events, as no charcoal-rich layers were present within the floor or upper banks to provide suitable radiocarbon assays for it. Stratigraphically, however, the structure is likely to post-date Structure C, which was tentatively identified beneath it. In consequence, the construction of Structure D must have occurred after the end of the 13th century AD. In contrast to the T16 structures, the recovery of charcoal from T20 has permitted this site to be absolutely dated. Dating of a fragment of birch charcoal from the hearth inside T20 suggests it was last fired during the first half of the 15th century AD.

9.17 SUMMARY AND CONCLUSIONS

The excavation, dating and interpretation of eight structures among the high pastures above Loch Tay has permitted the development of a better understanding of transhumance practices in highland Perthshire. Notably, the variety of structural forms present and their dating implications have provided a body of evidence that can be used to support or refute earlier chronologies and typologies.

Certainly, in dating terms, the evidence from the Lawers Burn shieling-group (T8 & T9) has pushed back the use of shieling-huts to at least the 15th century and potentially as early as the late 14th century. This evidence is supported by the limited dating of the Kiltyrie group, which suggested that a final hearth-firing in T20 occurred during the early to mid 15th century. This early evidence stands in contrast to the documentary sources, which in general relate to early 17th-century activity (see 9.1 above), although Bil has suggested that the tradition probably dates back to the 16th century at least (1996: 10). Given that the sequence of dates achieved for all but one (P13) of the Edramucky Burn sites (P11, P12 & P16) cluster between cal AD 1450 and 1660, a 16th-century date seems probably for the occupation of this group. In fact P13 proved to be the only structure to categorically date to the 1600s.

The implications of the dating discussion stretch beyond the realms of pure chronology and begin to cast some light on the meaning of form and the choice of location. Bil has discussed in some detail the occurrence of multiple (sometimes two and occasionally three) shielings being associated with individual farms (1990: 146–51) elsewhere in the Central Highlands. The occurrence of 'little' or 'home' shielings in Glen Lyon or low, middle and high shielings in Rannoch seems to imply a system where multiple shiels might be visited each year depending on season (spring, summer and autumn). If this system pertained at all on Loch Tayside during the 15th century, the Kiltyrie group may represent an example of a low shieling-ground, which could only have been created after permanent occupation was abandoned some time after 1280 (see Chapter 5) and probably continued in use until 1470 at the latest. Miller's assessment of the shieling-grounds along the loch-side (1967) suggested that numerous other low shieling-groups were present, but most of these have been recently reassessed as peat-stances by the RCAHMS (Boyle 2003).

Dating evidence has also illuminated differences in the form of shieling-huts. Earlier commentators (for example Gaffney 1959; Miller 1967; MacSween & Gailey 1961) were clearly of the opinion that form was dependent on period, and that circular and oval huts pre-dated rectilinear buildings. This assumption held sway for some time, although Bil, while discussing rectangular huts, suggested that they may not necessarily be the successors of the circular or oval huts but could be their contemporaries (1990: 248). This statement was also supported to a degree by other assessments (Atkinson 2000b; Boyle 2003). The results from the excavations have gone even further in confirming the view that form is not necessarily a clear indicator of period. The dating to the 16th century of architecturally-divergent sub-rectangular and sub-circular forms within the same shieling-ground on the Edramucky Burn supports this view. Although the contemporary occurrence of different forms could represent the convergence of two conflicting traditions at a certain point in time, it may also have to do with degrees of permanence, functionality, tradition or even personal preference.

Some structures, notably those with the simplest forms (for example, P14, T16D & T9) may have been built for purely functional uses such as the storing of cheese or butter, the drying of grass

or the storing of peat. This may also have been the case for P13, with its odd arrangement of structure and enclosed yard, where animals may have been tethered or protected. In contrast, the oval structures such as P16, T16A & T20, with their hearths and occupation horizons, were clearly built as shelters for humans. However, the evidence from sub-rectangular huts like T8 & P12, which also exhibit hearths and occupation floors, appears to suggest that they were built to protect human occupants.

If neither period nor function is the defining difference, then another meaning may lie behind their architectural forms. It could be argued that the oval huts were for less-permanent use. The scale, materials and construction-technique required (see Bil 1990: 248) would certainly have made them easier to put up. In contrast, the use of substantial quantities of stonework, turf and, by extension, thatch and roofing-supports in the larger rectangular huts would have created a more robust dwelling with a greater permanence. Bil has also presented evidence that the choice of forms evident on Highland shieling-sites was directly related to social status, which influenced the standard of accommodation (1990: 234–5). In this view, the Banffshire word 'scalan' (bothy) is used to define the most primitive shieling-structure; it is tempting to see P16 & T20 as falling into this descriptive bracket.

Whatever the reasons behind the contrasts in architectural form, the evidence from the numerous seasons at the shieling-grounds certainly indicates a degree of contemporaneous occupation. It has also pushed back the beginnings of the system of transhumance on Loch Tayside into the 15th century and possibly earlier.

10. BEN LAWERS IN CONTEXT

While the preceding chapters have examined the separate sites and corresponding assemblages of artefacts within the context of the chronological periods they belong to, there are a number of research strands concerning the assemblages of artefacts and development of settlement in the Central Highlands which can be drawn from the Ben Lawers Project. The following chapter presents an over-arching, discursive view of the landscapes of Loch Tay. Here, artefact specialists present contextualised summaries of the main assemblages discovered during the project. The chapter also offers an interpretation of the radiocarbon-dating sequences for many of the sites and summarises our understanding of the excavated buildings and their construction-materials in the context of comparable discoveries elsewhere in Scotland.

10.1 CULTURAL MATERIAL VIEWS

In total over 6500 artefacts were recovered during the field-seasons of the Ben Lawers Project. They range from the exceptional, such as the Beaker from Balnahanaid, to the mundane, and include a wide range and variety of materials. In the main they fall into two main groups of material: shaped or modified natural materials (lithics, coarse stone) and manufactured or metamorphosed materials (ceramics, glass, iron), where heat has been used to alter their state. A substantial swathe of material was absent from the Ben Lawers assemblages, but probably constituted a high proportion of any pre-1800 household. Organic finds were unsurprisingly missing from the archaeological record of terrestrial Loch Tay, but are known from the excavation of Oakbank Crannog (Dixon 1984; Miller et al 1998).

Some of the finds proved difficult to interpret, while others are used today in a similar manner to how they were used 200 or 300 years ago. The presence of material culture on most sites occurred as a result of the discarding of broken or unwanted items during, or after, occupation phases. As such, they provide an incomplete view of the type and potential variety of goods possessed by any household in the past. That said, in some cases (notably T1 at Balnreich) the assemblages were extensive and provide a view of farming life in some detail (see Chapter 8). In general, however, the material-cultural evidence from the excavations provides a less distinct view of the past and in some cases, in particular the shieling-huts (Chapter 9), has not assisted in our understanding of occupation sequences.

This section of the report has been developed in order to provide a view of the main assemblages recovered during the project and to place them in a national framework. In some cases, particular aspects of the assemblage are discussed, while in others the overall impact of the assemblage is most important.

10.1.1 Medieval and Post-Medieval Ceramics: A Very Scottish Assemblage

George Haggarty

The Ben Lawers ceramics are important in that they almost certainly form the first large assemblage of industrially-produced ceramics from a group of closely-associated inland Scottish Highland occupation-sites to have been studied in detail.

In general, the assemblage contains little medieval pottery. However, there are sherds from handmade vessels, possibly 12th-century in date from T16 at Kiltyrie and 15th-century in date from P16 on the Edramucky Burn. Unstratified medieval components of the assemblage include two sherds of White Gritty Ware from Balnahanaid, three badly-abraded body-sherds of Medieval Redware from Milton of Lawers, and a similar group of sherds from P13 on the Edramucky Burn, all from topsoil or ploughsoil. It is also extremely significant that the assemblage contains no sherds of Scottish Post Medieval Oxidised Ware and only 13 possible sherds of Scottish Post Medieval Reduced Ware. Both these pottery-types were being manufactured from the late 15th century into the third quarter of the 18th century and have a ubiquitous Scottish distribution.

Also totally absent from the assemblage are sherds of Tin Glazed Earthenware, Press-Moulded Slipwares and White Salt-Glazed Stoneware. All these, although they were produced earlier elsewhere, were manufactured in Scotland *c* 1750–80. Sherds of creamware are also relatively rare, although a few were associated with the early phases of T6 at

Kiltyrie. The same phases contained sherds from a small, thin-walled, undecorated bowl which may date to the late 18th or early 19th century, together with sherds from a thicker-walled and possibly slightly later porringer, almost certainly of Scottish manufacture. Interestingly, none of the blue hand-painted underglaze pearlwares, common *c* 1770–90, nor identifiable late 18th-century transfer-printed wares, were present. As one might expect, there are no examples of high-status 18th- or 19th-century porcelain, and only eight sherds from one *c* 1830–40 bone-china cup, found at Balnreich (T1).

Notoriously difficult to date are the late coarse redwares, a number of which were recovered. The evidence suggests that some of these forms were adapted *c* 1780 but thereafter remain unchanged until their final demise in the mid 20th century. The two main forms in the assemblage are large dairy/washing bowls and crocks. Interestingly, the very distinctive mid-18th-century types are totally absent. Overall, the general lack of coarse redware bowls from the assemblage would suggest that the settlements had little reliance on the dairy.

Overall the ceramic evidence suggests that, with few exceptions, the area was aceramic prior to *c* 1790–1800. By 1820, however, the use of pottery was widespread. Dipped pearlware bowls in all their decorative variations were especially abundant, although not exclusively so. In the French manner, bowls at this period seem to have been used for both eating and drinking, and in rural areas there would have been little use for cups and saucers. At the end of the 18th century dipped wares were among the cheapest decorated ceramic material on the market and probably continued to be so until they were superseded by large quantities of cut-sponge-decorated wares, especially bowls, in the 1830s.

The pattern of rubbish-disposal indicated by the excavated pottery is interesting. Most of the earlier vessels are represented by only one or two sherds and have a wide distribution. Most of these earlier sherds have small or moderate amounts of frost-damage, while the later material is markedly different, in that the vessels are often represented by larger sherd-groups and display significant amounts of frost-damage. Examples of the latter include the 35 sherds from a shell-edged plate, or the 51 late transfer-printed sherds recovered from T1 at Balnreich.

Although plain white pottery was by far the cheapest ceramic material at the time, there is little evidence that it was used much, especially among the earlier ceramic levels. Most, if not all, of the ceramic material could easily have been produced by the potteries of the Forth or Clyde littorals, with the Forth potteries dominating the earlier phases. By *c* 1830–40 we start to see more plates in different sizes being used, along with more cups and mugs, but still no pottery of any status. By the mid 19th century the large potteries of the Glasgow area were in competition with the potteries of Kirkcaldy and Bo'ness, and the assemblage appears to reflect this. Very few examples can be attributed to an English pottery with any certainty. A single black-basalt sherd is a distinct possibility, but even this just might be a Scottish product.

There is good evidence that pottery, especially seconds, was extensively traded outside the main towns by peddlers or tinkers, and nothing in the Ben Lawers assemblage suggests otherwise. Shop-bought or -ordered ceramics were normally purchased in matched sets and this can usually be detected in patterns of rubbish-disposal.

10.1.2 Post-Medieval Glass: Wine Drinking and Natural Light

Robin K Murdoch

The Ben Lawers glass assemblage is generally in very good condition, with little evidence of denaturing. There are three main groups of glass artefacts: wine or ale bottles, window-glass and tablewares.

Sherds of the ubiquitous wine bottles, present in considerable numbers, include diagnostic lips and bases. These containers were also made in very similar shapes and sizes for beer and ale (Turnbull 2001: 275). Their usefulness as general-purpose liquid containers no doubt ensured their re-use for a variety of other contents. Most of the base-sherds recovered exhibit moderate-to-heavy wear, confirming their long-term and repeated use.

These containers were first made in England *c* 1630 and quickly evolved in shape over the next 200 years. Many examples carry dated shoulder-seals, and this has allowed the development of a reasonably-accurate date-by-shape typology (see Hume 1970). The squat cylinders of the period up to *c* 1750 gradually evolved into taller and narrower shapes by the later 18th century. The Ben Lawers

assemblage includes few early examples, although two sites in particular (P15 & T2) did contain sherds from early 18th-century vessels (see Chapters 6 and 7).

Many of the bases in the assemblage are narrow, *c* 80–90mm in diameter, and have other characteristics which place the bottles near the end of the shape evolution discussed above. Surviving lip-sherds indicate similar dating, and are generally broad with slightly down-sloped lips. This particular form did not appear until *c* 1760 and was used virtually universally until the advent of complete three-piece body-moulding in the decade or so following Rickett's patent of 1821. By this stage, very dark greens and browns became the almost ubiquitous colours for bottles, especially around the middle of the 19th century. Many of the Ben Lawers sherds appear to derive from this period. Notably, the assemblage contains very few aqua-coloured or embossed sherds. The later 19th century saw rapid expansion in the use of embossed lettering to advertise manufacturer or sometimes contents, and by the very late 19th century *c* 80% of common bottles were embossed. Their absence in the assemblage suggests that most of the excavated structures had ceased to be occupied by *c* 1860–70. Some trenches (for example T1 at Easter Carwhin) did produce later material, but this is likely to reflect the dumping of waste or the leaving behind of picnic glass.

One of the earliest glass discoveries was a mid-18th-century, or possibly earlier, fragment of a sweetmeat-glass or tazza from Blarmore (Carwhin) (see Klein & Lloyd 1989: 128 for an example). Clear, thin-blown drinking vessels made using a similar technique were recovered from excavations at Spynie Palace, near Elgin (Murdoch 2002: 139, pls 26.9–10) and Carrick Castle, Argyll (Murdoch 1998: 977; illus 24–45). Finer tablewares had been made in clear glass since at least the late 17th century, and these examples probably date from that period. Several later examples of fine tablewares were recovered from the other sites investigated, including fragments of wine glasses and tumblers from Blarmore (T2), Balnreich (T1), Kiltyrie (T6) and Tombreck (T13). Part of the base of an octagonal glass candlestick, recovered from T13 at Tombreck, was probably press-moulded, a technique introduced into Britain *c* 1836 (Thompson 1989: 4).

Many of the fine-tableware sherds have traits that can be used to date their manufacture. The bucket-bowled vessel from Blarmore, with its cut fluting and engraved numerals, is a good example. Bottles and glasses were often engraved in the late 18th and early 19th centuries for commemorative purposes, and the numerals may form part of the date [18]32. Wheel-cut decoration was especially popular in the second half of the 18th and first half of the 19th centuries (Newman 1977: 85).

A short-stemmed wine glass from Balnreich represents a style particularly popular in the late 18th and early 19th centuries (Ash 1962: 136). It is possibly a rummer, with a bucket bowl and central angular knop in the stem, which has an intermediate collar between stem and bowl. The same context contained a base from a drinking glass with a rudimentary stem, a short ale, dram or perhaps even firing glass. This type of stem first appeared around the middle of the 18th century and remained popular into the early 19th century (Bickerton 1971: pls 552, 583–4). Part of a foot with a relatively small diameter is probably of late 18th- to early 19th-century date.

At Kiltyrie, a probable funnel-bowled drinking vessel with moulded fluted decoration was most probably made in the early 19th century, while at Tombreck several sherds of probable drinking glasses are unlikely to be later than the early 19th century. The recovery of so many fine-tableware items from so many sites was unexpected. Although their presence at the house of Carwhin at Blarmore might have been predicted, their association with later occupation in the post-1790s steadings was not anticipated.

The assemblage also contains a considerable number of flat or window-glass sherds, mostly very thin (<2mm) with a distinct tint. They are typically very small, but a few display rapid thickness change and curving striations, indicating they were spun or crown glass. Before the mid 19th century, window-glass was made in three forms, known as crown, broad and plate; only thicker glass was used to make plate. A few of the flat sherds in the Ben Lawers assemblage are colourless. This would suggest that they are more recent than the tinted pieces, but it could also indicate that they originated from a piece of furniture with glazed panels. The quality of glass

for such purposes would have been better than that for window glazing.

It is possible that the clear sherds are slightly later and are made from improved sheet-glass. This method of making window-glass was introduced into Britain in 1832 and was an efficient and cheap way of polishing broad-glass to remove surface blemishes and improve optical quality (Newman 1977: 50). It was far less labour-intensive to make than crown glass and rapidly took over as the main production technique. In the late 18th and early 19th centuries the Dumbarton works held a virtual monopoly on window-glass production in Scotland. Started in 1777, Dumbarton was producing 92.5% of Scottish and around 35.4% of English window glass by *c* 1820. However, Dumbarton produced crown glass and so they started to experience difficulties *c* 1836 and production ended by 1850 (Logan 1972: 177).

While a few sherds in the Ben Lawers glass assemblage could date to the mid 18th century, none retains enough manufacturing criteria to be positively identified. The lack of identifiable glass from before the late 18th century accords with the general picture on similar rural agricultural sites, where glass was seldom in use before the middle of the century. It was simply too expensive for such communities before then.

10.1.3 Metalwork in a Scottish Context

Adrian Cox

The Ben Lawers metalwork assemblage has the potential to inform our knowledge and understanding of the material culture of highland rural settlements, particularly during the later post-medieval period. The artefacts represent evidence of a wide range of activities inside buildings, in their immediate vicinity and in the fields beyond. They provide valuable insights into the everyday lives of the inhabitants of the settlements.

Of special significance are the groups of artefacts which are large enough to illuminate the nature of particular strands of activity. For example, domestic life centred around a busy and well-equipped hearth; this is illustrated by a group of cast-iron cooking-pots with associated suspension-chains, with knives and spoons further adding to the picture. Scythes and sickles, along with a peat-cutting spade, a pitchfork and a hoe provide evidence of the communities' horticultural and land-management activity and further illuminate the character of the domestic economy. The quantity and quality of workshop evidence in the form of tools and the probable survival of local workshop products are also of interest. Although historical evidence describes such activities, it is unusual to find this quality and quantity of excavated physical evidence on Scottish rural sites of this period.

Many of the artefacts from the 18th and early 19th centuries date to near the end of the period when items such as tools, horse equipment and kitchenware were mostly manufactured locally and by hand. Just as the highland domestic and farming economy was increasingly influenced by more money-based systems, so the increasing mechanisation of manufacturing was beginning to change the way in which everyday artefacts were made and acquired. Fenton (1987: 108–10) describes, for example, the rapid impact of changes in agricultural practice on the forms of sickles and scythes.

Excavations of 18th- and early 19th-century Scottish rural settlement-sites often produce little in the way of artefactual evidence, with some notable exceptions – for example Fairhurst (1969) and Stewart & Stewart (1988). The quality and variety of the Ben Lawers assemblage, however, demonstrate the potential of such evidence to add to our understanding of domestic life, industrial and horticultural processes and the wider interaction with the landscape.

10.1.4 Rotary Querns and Millstones: An Interpretation

Ann Clarke

Rotary querns, whether operated by hand or in horizontal mills, had a long period of use, particularly in the Highlands and Islands. Variations in the period and extent of their use are due to the interaction of several factors. A statute of 1284 forbade the use of hand-mills (rotary querns) except where extreme conditions prevailed (Fenton 1987: 137); this was in order to allow estates to make the people pay to have their grain ground at the larger estate mills. This system of 'thirlage' was removed by 1780 (pers comm John Harrison), but up until then

an estate-owner was entitled to destroy a mill that was operating in opposition to his own (Gauldie 1981: 38). This presumably could have happened at any time over the intervening five centuries.

Despite this, throughout the period of thirlage, rotary querns were in use in domestic settings. Until the end of the 18th century, barley was the staple crop of the population because it grew well on unimproved soils (Gauldie 1981: 4), was easier to grind, being a harder grain, and did not need to be dried like oats and wheat (Fenton 1987: 133). Hand-querns, as oppose to millstones, were preferred for purposes such as grinding barley-meal, even if the owners were sending oats to the watermill (Fenton 1987: 139). The use of rotary querns would have died out as oats and wheat increased in importance due to the agricultural improvements of the 19th century. These cereals were more readily ground at the larger mills, where variation in the composition of the millstones could accommodate the peculiarities of the grains; oat grains were rather flatter than a rotary quern could handle, while wheat was very hard and caused millstones to wear down more quickly (Gauldie 1981: 8, 16).

The origins of the millstones incorporated into the floors of the structures at Balnreich (T1) and Kiltyrie (T6) are uncertain. The Balnreich stone was worn thin and must have been in use for some years before being discarded. The thickness of the Kiltyrie millstone is not known, as it was not fully excavated. Neither of the buildings was close to a mill (pers comm John Harrison), so some effort was required to bring them from the mill to the house. This effort must have been considered worthwhile, not least because both millstones were large and already flat, and they formed the largest of the paving slabs in each house.

Millstones may have become available after the amalgamation of mills in the region. Harrison notes that this occurred in the 1770s for the two mills at Crannich and Carwhin, but that this new mill had disappeared by 1831 (pers comm John Harrison). However, there is also evidence from Breadalbane Estate records in 1763 that second-hand millstones were used (pers comm John Harrison). Gauldie notes that old stones could last for scores of years and were in some cases brought in second-hand when a replacement was needed (Gauldie 1981: 85). The routes by which millstones came to be placed in house floors were clearly complex and, given their long lives in both milling and structural contexts, it is unlikely that the Balnreich examples can provide useful dates for the buildings of which they were part.

10.1.4.1 The Placement of Rotary Querns and Millstones

The incorporation of millstones in central positions in both of the houses could be seen as a continuation of a tradition that began in the Iron Age. There are numerous recently-excavated examples of rotary querns having been set in the floors of Iron Age structures, including the brochs of Fairy Knowe, Stirlingshire (Main 1998: 387), Dun Ardtreck, Skye (MacKie 2000: illus 10) and Hurly Hawkin, Angus (Taylor 1982: 218); the wheelhouse at Baleshare, Lewis (Armit 1991: 191), a souterrain at Newmill, Perth & Kinross (Watkins 1980) and in the large roundhouses at Aldclune, Perth & Kinross (Hingley et al 1997).

At Aldclune, a large number of quern-stones were re-used in several different structural deposits. Hingley et al (1997: 452) have suggested that some of these querns may have been brought from an older settlement to the new one and placed as foundation-deposits to mark the change. They also noted the tendency for the querns to be redeposited in features that cluster around an entrance. Of course, not all the querns were re-used structurally; Hingley et al note groups of querns found to the rear of the roundhouses at Aldclune, which may have been used to process grain in that area (1997: 452).

Hingley et al have observed the symbolic significance of the rotary quern, with its links to the arable cycle and fertility (1997: 451). However, two querns from recently-excavated sites in Shetland may indicate more complex relationships between the house and the quern. A decorated rotary quern from Bayanne has parallels with two from the post-broch occupation at Scalloway (Clarke 1998; 2001). At Scalloway a decorated quern was found in the rubble of the second casement wall of the post-broch occupation, where the original internal area of the broch was reduced in size. The second decorated quern was found in the rubble of the figure-of-eight house. It is of interest, then, that the decorated rotary quern from Bayanne was found in

the rubble of Structure 1 (a roundhouse form) and directly under, and possibly a foundation deposit for, the figure-of-eight house of Structure 2. The concentric circles worked onto these rotary querns echo the decorated pot-bases which were found in similarly-dated deposits at Bayanne. The querns may support the theory of a closing deposit for Structure 1 or a foundation deposit for Structure 2. The decoration on the querns could also be seen as pictorial representations of the house or its status; Niall Sharples views the thick walls, ditches and banks around brochs as boundaries rather than defences (1998: 208). The decoration on the querns and the pot-bases forms a similar bank-and-ditch profile around a central point.

Symbolic significance has also been attached to early historic querns and millstones, and they were taken up by early Christian societies as potent symbols beyond their functional use. Ewan Campbell notes examples of their re-use in burial cists and as grave-markers, and there are references in the contemporary literature to their miraculous powers (1987: 112). Excavations at medieval sites have revealed the re-use of quern fragments in the construction of forges, flues and furnaces at Castle Sween, Argyll (Ewart & Triscott 1996) and as a hearth-base in Perth (Cox 1996). Querns and millstones have therefore been deposited in a range of secondary contexts through the centuries. Various meanings could have been attached to these deposits, based on their position in a structure; whether the quern was whole or broken; where the stone was derived from; where the quern was originally used, or even perhaps who had used it. The querns may also have had subliminal associations with daily bread, fertility and the boundaries or even shapes of living spaces, and these factors also may have directed their conscious deposition.

At a functional level, it is tempting to view the querns as simply having been used as suitable building material, and this no doubt was the fate of many. However, their regular occurrence in paving would indicate that they were positioned to be seen and perhaps to provoke memory or acknowledge the importance of grain in the lives of the inhabitants. The larger millstones found in the more recent houses were consciously brought from a mill and laid centrally. Here the circular form may have been decorative or symbolic, but the millstone may also have evoked memories of a time when households each had their own querns and were individually responsible for the grinding of their grain.

10.2 BUILDING A CHRONOLOGY FOR OCCUPATION

Two major strands of dating evidence were used to establish absolute and relative dating sequences for all the sites investigated during the Ben Lawers Project. In absolute terms, radiocarbon dating of samples recovered during excavation of underwater as well as terrestrial sites has produced a clearer understanding of the dates of a variety of structural forms up and down the northern shores of Loch Tay. The radiocarbon assays were supported by typological analysis of artefactual forms, which permitted a number of sites to be relatively dated. This was especially important for the sites discussed in Chapters 7 and 8, where the close dating of the ceramic sequence in particular has allowed the correlation of changes in occupation practices with specific decades and historically-documented people and events. Without these closely-dated sequences, much detail about events in the 18th and more especially the 19th century could not have been drawn out in this volume.

10.2.1 A Radiocarbon Sequence for Loch Tay

A sequence of 50 radiocarbon assays (Table 10.1), which were undertaken in three broad tranches between 1997 and 2006, were produced by two laboratories (Oxford and SUERC) and entirely funded by Historic Scotland. Sample-selection followed strict criteria set by Ashmore (1999) and focused on single-entity, short-lived tree and plant species. Samples to be dated were generally restricted to those which had a sound taphonomy and context, and where possible multiple dates were sought for different phases of a structure and on some occasions from the same context.

In a few cases the dates achieved sit awkwardly with other dating evidence or stratigraphy. In the case of Beaker Pit P17024, the sample of hazel charcoal is best interpreted as residual. This may also be the case for the sample of *Prunus spinosa* from Fire-Pit P10025 in Structure P12. In this case, however, the material may have originated in the

Table 10.1: Radiocarbon dates from Ben Lawers excavations 1996–2005

Site name	Reference no.	Trench	Context	Material	Uncalibrated BP	Calibrated 1σ	Calibrated 2σ
Craggantoul	OxA-8209	P6	P6004	*Linum usitatissimum*	145 ± 35	1790–1880 ad	1660–1890 AD
Edramucky Burn	OxA-9035	P10	P10025	*Prunus spinosa*	329 ± 35	1490–1600 ad	1470–1650 AD
Edramucky Burn	AA-28400	P11	P11038	*Salix*	330 ± 40	1480–1639 ad	1453–1651 AD
Edramucky Burn	OxA-8964	P13	P13042	*Betula*	250 ± 38	1630–1680 ad	1620–1680 AD
Edramucky Burn	OxA-8965	P16	P16032	*Betula*	309 ± 39	1510–1600 ad	1480–1660 AD
Edramucky Burn	OxA-8969	P16	P16032	*Betula*	323 ± 36	1510–1600 ad	1480–1650 AD
Edramucky Burn	OxA-8966	P16	P16065	*Calluna*	308 ± 36	1520–1600 ad	1480–1660 AD
Edramucky Burn	OxA-8968	P16	P16011	*Betula*	349 ± 38	1560–1640 ad	1450–1640 AD
Edramucky Burn	OxA-8970	P16	P16053	*Betula*	274 ± 39	1520–1580 ad	1480–1650 AD
Edramucky Burn	OxA-8971	P16	P16048	*Betula*	263 ± 36	1630–1670 ad	1490–1640 AD
Edramucky Burn	OxA-8967	P16	P16066	*Salix*	8045 ± 55	7080–6980 bc	7200–6700 BC
Balnahanaid	OxA-8972	P17	P17024	*Corylus*	5055 ± 45	3950–3790 bc	3970–3750 BC
Balnahanaid	OxA-8973	P17	P17007	*Betula*	1344 ± 36	650–720 ad	640–780 AD
Blarmore	SUERC-4920	2	2029	*Prunus spinosa* type	375 ± 40	1450–1530 ad	1440–1640 AD
Croftvellich	SUERC-4922	3	3007	*Corylus avellana*	3220 ± 35	1520–1440 bc	1530–1410 BC
Croftvellich	SUERC-4921	3	3007	*Corylus*	2200 ± 38	360–280 bc	380–170 BC
Croftvellich	SUERC-9699	3	3019	*Corylus*	2170 ± 35	360–290 bc	370–110 BC
Meall Greigh	SUERC-4918	8	8086	*Salix*	365 ± 50	1560–1630 ad	1440–1640 AD
Meall Greigh	SUERC-4917	8	8070	*Betula*	180 ± 40	1730–1810 ad	1720–1890 AD
Meall Greigh	SUERC-9700	8	8073	*Betula*	440 ± 35	1425–1470 ad	1410–1520 AD
Meall Greigh	SUERC-9701	8	8083	*Betula*	450 ± 35	1420–1460 ad	1400–1500 AD
Meall Greigh	SUERC-9702	8	8091	*Betula*	345 ± 35	1550–1640 ad	1460–1640 AD
Meall Greigh	SUERC-4919	9	9015	*Corylus* nutshell	4110 ± 35	2700–2580 bc	2790–2570 BC
Meall Greigh	SUERC-9706	9	9024	*Betula*	4155 ± 35	2820–2670 bc	2880–2620 BC
Meall Greigh	SUERC-9738	9	9028	*Alnus*	550 ± 35	1390–1425 ad	1380–1440 AD

Table 10.1: cont.

Tombreck	SUERC-4911	15	15004	*Betula*	2145 ± 35	210–110 bc	260–50 BC
Tombreck	SUERC-9716	15	15068	*Alnus*	2085 ± 35	170–50 bc	200 BC–0 AD
Tombreck	SUERC-9707	15	15024	*Corylus*	2155 ± 35	210–160 bc	260–90 BC
Tombreck	SUERC-9708	15	15039	*Alnus*	2115 ± 35	200–90 bc	210–40 BC
Tombreck	SUERC-9709	15	15042	*Corylus*	2090 ± 35	170–50 bc	210–20 BC
Tombreck	SUERC-9710	15	15054	*Betula*	2165 ± 35	360–290 bc	370–100 BC
Tombreck	SUERC-9711	15	15056	*Corylus*	2135 ± 35	210–100 bc	230–50 BC
Tombreck	SUERC-9712	15	15063	*Alnus*	2075 ± 35	120–40 bc	200 BC–10 AD
Kiltyrie	SUERC-4912	16	16010	*Betula*	560 ± 39	1380–1430 ad	1300–1440 AD
Kiltyrie	SUERC-9732	16	16093	*Corylus avellana*	820 ± 35	1205–1265 ad	1160–1280 AD
Kiltyrie	SUERC-9728	16	16043	*Corylus*	760 ± 35	1225–1280 ad	1210–1290 AD
Kiltyrie	SUERC-9729	16	16044	*Corylus*	780 ± 35	1220–1270 ad	1185–1285 AD
Kiltyrie	SUERC-9737	16	16125	*Salix*	1130 ± 35	885–975 ad	800–990 AD
Kiltyrie	SUERC-9736	16	16100	*Corylus*	1150 ± 35	860–970 ad	770–980 AD
Kiltyrie	SUERC-9730	16	16047	*Corylus*	1140 ± 35	870–980 ad	780–990 AD
Kiltyrie	SUERC-9731	16	16071	*Corylus*	1295 ± 35	665–715 ad	650–780 AD
Kiltyrie	SUERC-4913	17	17005	*Betula*	760 ± 36	1240–1290 ad	1190–1300 AD
Kiltyrie	SUERC-9718	17	17020	*Corylus*	2150 ± 35	210–150 bc	260–50 BC
Kiltyrie	SUERC-9722	17	17038	*Alnus*	1480 ± 35	550–620 ad	530–650 AD
Kiltyrie	SUERC-9726	17	17059	*Betula*	2380 ± 35	510–390 bc	550–380 BC
Kiltyrie	SUERC-9717	17	17015	*Salix*	795 ± 35	1215–1265 ad	1170–1280 AD
Kiltyrie	SUERC-9719	17	17031	*Hordeum vulgare* sl	700 ± 35	1260–1300 ad	1250–1320 AD
Kiltyrie	SUERC-9720	17	17031	*Alnus*	745 ± 35	1250–1285 ad	1215–1295 AD
Kiltyrie	SUERC-9721	17	17034	*Salix*	560 ± 35	1315–1350 ad	1300–1370 AD
Kiltyrie	SUERC-9727	20	20028	*Betula*	480 ± 35	1415–1445 ad	1395–1470 AD

fire-pit but relate to an earlier phase of occupation (see Chapter 9 for further discussion). This kind of activity was also encountered at T8 at Meall Greigh (see Chapter 9), where the most recent floor-layers were dated to the 15th century, yet the apparently contemporaneous hearth appeared to have been last fired in the later 18th century. The dated material in the hearth could be intrusive, but the presence of late 18th-century ceramics at the site supports the idea that it is not. It seems more likely that the floor-material was a residual deposit, given the presence of probably late 16th- to early 17th-century material beneath the floor.

Another form of residual activity may have occurred in Layer 3007 in T3. Dating of a sample of hazelnut shell suggested that occupation may have occurred in the middle of the 2nd millennium BC, which seemed to contradict a date from the interior of the structure that placed occupation around the 2nd century BC. A sample of hazel from Layer 3007 was subsequently re-dated to around the 3rd century BC, contemporary with the interior deposit. It therefore seems likely that the single fragment of hazelnut shell is residual. Although the possibility exists that it reflects an earlier phase of occupation at the same spot, there was no structural or artefactual evidence to support this.

One site in particular (T17 at Kiltyrie) provided three dates that require further comment. The dated sample of hazel charcoal from Floor 17020 is likely to be residual, whereas the sample of birch from a feature under the floor (17059) seems to have a more complex history. It seems likely that fragments of birch from two different periods were accidentally combined in the sample and subsequently dated. This may explain the wide variety of re-run dates from this sample (pers comm Gordon Cook). Whether material relating to the 1st to 3rd centuries BC lay residually within the floor, and possibly under it, or whether T17 actually reflects Iron Age occupation, is unclear. The small assemblage of worked stone artefacts might hint at earlier use of the location, but no structural evidence supports this. It may be best to view the date as reflecting general activity in the area, rather than particular use of this site.

A further example from T17 also requires some discussion. Dating of a sample of alder from Stake-Hole 17038 to the middle of the 1st millennium AD points to a phase of occupation some 600 years prior to the main use of the site. Stake-Hole 17038 was not a basal feature, but was certainly securely stratified within the core of Structure T17's bank. Consequently, the material either reflects the remains of earlier usage or was old at the time of it was introduced into the bank. Only alder and burnt heather were present in the feature. This, taken together with strong evidence of an earlier and broadly-contemporary use of T16 to the east, may support a mid-6th- to mid-7th-century AD occupation-phase.

Many of the other sites investigated provided solid evidence of use during multiple or individual phases and retained firm stratigraphic and typological associations. The radiocarbon dating of many has enabled particular forms of structure to be accurately placed within a chronological sequence for the first time. This is particularly true of the oval turf bothies (for example P16, P11 or P20), the sub-rectangular turf buildings (for example T16B or T17) and the stone- and turf-built shieling-huts (for example T8), so common on shieling-grounds across Perthshire. Other material has provided the first scientific evidence for the dates of particular classes of site, such as the mid-7th- to 8th-century AD date for material recovered from a cist on an 'annat' site (P17) or the dating of flax from a retting-pit (P6) to the mid 18th to early 19th century in all probability (Bronk Ramsay et al 1999: 426). Other dates have been less tangible, but have hinted at occupation during specific periods – for example the single dates for material recovered from a pit in P13 or from a construction-slot in T2.

The final group of dates all relate to the early prehistoric and Iron Age occupation of the landscape of Lawers and provide a glimpse of the possibilities for further research into this aspect of human history in the area. Of special note is the dating of willow charcoal from a pit beneath later medieval structures to the late 8th to early 7th millennium BC, at 630m above OD on the flank of Ben Ghlas. This dated sample was stratigraphically secure and supported by a large assemblage of quartz and flint artefacts, and it provides the earliest evidence of Mesolithic groups at high altitude in the Scottish Highlands. Other spectacular evidence of Neolithic incursions into the high grounds above the loch came from T9, where two dates were recovered from material

in a hearth and the fill of a slot associated with a flint flake. These features were securely sealed below later hill-wash deposits at 607m above OD on the flank of Meall Greigh and offer tantalising evidence of the exploitation of the pastoral zone during the later 3rd millennium BC. Finally, the extensive dating of up to three timber roundhouses on a knoll in the Tombreck outfields has provided a wealth of evidence for the Iron Age occupation of the loch-side and has begun to allow comparisons between the evidence from the crannog excavations and from the land-sites.

Certainly the greatest achievement of the project's radiocarbon-dating programme was to place the sites within a chronological framework. As ever with such programmes, the quality and quantity of dates achieved and their consequent reliability in constructing a chronological framework were highly dependent on the survival of suitable materials and their identification during excavation. Of the 50 dates achieved, only one seems to have presented a serious problem (see above). Three dates appear to have come from residual material, while up to three more may also be out of place, but could simply reflect earlier activity in specific structures. These dates aside, 43 of the 50 dates (86%) may represent relatively-secure assays.

10.2.2 Plugging the Gaps: Absolute and Relative Chronologies

Archaeology and studies of environmental change have become dependent on radiocarbon dates in particular to provide absolute chronologies in the modern age (Edwards & Ralston 1997: 6). Ubiquitous and essential in almost all prehistoric and early historic site investigations, radiocarbon dating becomes less useful the closer a site was occupied to AD 1950 (the year to which all sites are calibrated). Calibration curves become almost impossible to use effectively after 1700 AD. Prior to this, the existence of a series of wiggles in the curve, caused by fluctuations in the amount of carbon 14 in the atmosphere, most notably during the 14th and 16th centuries, hinder accurate dating on many occasions (Berger 1970: 13; Higham 1982: 91).

In consequence, the precise dating of artefacts was a fundamental necessity in understanding the history of many of the later sites investigated as part of the Ben Lawers Project. This was certainly the case for the sites investigated within the infields and outfields of the project area although, as Haggarty has pointed out above (10.1.1), very few ceramic vessels pre-dating the 1790s were recovered. This is also reflected in the glassware (10.1.2 above), with few examples pre-dating this watershed. Accessible, mass-produced goods certainly seem to have arrived on the loch-side during this period, in parallel with major changes to the farming system, which were enshrined within the terms of the General Lease (Atkinson 2010). Prior to this series of changes, a dearth of material culture is apparent during the 18th century, and this has in effect created a lacuna in archaeological dating terms.

This absence of datable materials is also the case for many of the earlier sites investigated, with a handful of mainly-local sherds of pottery comprising the only available dating evidence. Although in some cases radiocarbon assays have filled this gap and provided solid evidence of chronology (for example T16 or T17), in others the wiggles in the calibration curves have simply indicated a broad period of occupation between the mid 14th and mid 17th centuries (for example P16). This uncertainly is unfortunate, but characteristic of the period, location and types of sites investigated.

10.3 OCCUPYING THE LAND OF LAWERS: STRUCTURES AND TIMELINES

Many of the structural types investigated and revealed by the project are known within the archaeological record elsewhere in Scotland. This section places those structural forms in a regional and national framework and provides, where possible, a better understanding of their presence and dating. The chronological framework for discussion begins some time before the timeline generated by the project, and ends in the 20th century.

By the end of the 2nd century AD, abandonment of the hut-circles, homesteads and crannogs on Loch Tay had occurred, and the project found no archaeological trace of human occupation during the next 250 years. The re-occupation of Eilean Breaban Crannog some time after AD 420 was followed by a sequence of other occupation events, starting with the primary occupation of T17 at

Kiltyrie some time after 530 AD and the Phase 1 use of T16 between AD 660 and 990 (Chapter 4). The use of T16 in particular sits well with the radiocarbon determinations from North Pitcarmick, which suggest occupation between *c* AD 600 and 1000 (Ralston & Armit 1997: 229–30). Although tantalising, these events merely hint at early medieval occupation of Loch Tayside in the form of isolated, ephemeral features sealed under later buildings at Kiltyrie. They do offer the potential for further detailed investigation of the nature of these early sites, here and potentially elsewhere in the Highlands.

Excavation at Balnahanaid (P17) revealed more structured evidence in the form of long cists and dug graves, which were contemporary with the early phase of occupation of T17 at Kiltyrie, and for the first time allowed the sample excavation of an annat site in Scotland. Annat or annaid sites have attracted little detailed study in archaeological terms. MacDonald's review of their occurrence (1973: 139) suggests that they probably represent church-sites of the 9th to 10th centuries, which were subsequently abandoned and replaced on a different site. The cemetery at Balnahanaid certainly provides a tantalising view of the period and hints at the working of silver, possibly in crucibles, a craft that might be associated with a church of some standing. Whatever its import, Balnahanaid was abandoned some time after AD 780, although the reason is unclear. MacDonald suggests that annat sites may have been abandoned due to the eastward movement of the Scots after *c* AD 843 or the large-scale movement of Scandinavian settlers during the 9th century (1973: 139).

As has been discussed in Chapter 4, long-cist cemeteries were probably in use until the 9th or 10th centuries AD, at which point this tradition seems to have been abandoned (Proudfoot 1996: 444). In distribution terms, the Loch Tay example is clearly unusual and it is probably the first such cemetery to be confirmed in Perthshire, although potential parallels have been interpreted from aerial photographic evidence at Comrie, Forteviot (Driscoll 1991: fig 3.56) and near Balinluig, some 30km to the east. A further 11, mainly single, cist discoveries were made, particularly during the 19th century, and these may signify the presence of further long-cist cemeteries on the agricultural lands to the east and west of Perth. This tentative evidence of other Perthshire cemeteries is also supported by the distribution of annat place-names, which occur in at least seven instances in the county and widely elsewhere in Scotland (MacDonald 1973: 135).

By the end of the 10th century AD, there was another hiatus in the discoveries of the project. By the mid 12th century, however, a prolonged phase of occupation evidence becomes apparent within the landscapes of Lawers. It began with the Phase 2 re-occupation of T16 and later T17 (Chapter 5) above Kiltyrie, and their occupation until at least 1300 and possibly, in the case of T16B, as late as the mid 15th century. The re-occupation of marginal fringes for agriculture is characteristic of the expansions in settlement-pattern associated with better weather-conditions during the Medieval Optimum (see Lamb 1995). This phase of expansion is evident in other upland areas of the UK, particularly the Scottish Borders (Parry 1978; Tipping 1998), the north-west of England (Winchester 2000; 2006), Wales (Ward 1997) and more generally across north-west Europe.

The Kiltyrie sites offer a glimpse of settlement-forms during the Medieval Optimum, especially between AD 1150 and 1300. These may find comparisons in survey data from elsewhere in Perthshire (RCAHMS 1990) and bear similarities in layout to contemporary sites excavated in the Western Isles (Sharples 2005). It has been argued elsewhere that T16 and T17 are similar to some Pitcarmick-type buildings, in terms of their form, orientation and elevation, although they lack some of the specific characteristics and are shorter than most of the Pitcarmick-type structures (Atkinson 2010). Closely comparable examples do exist, however, within the north-east Perth group, particularly among the six Pitcarmick-type buildings surveyed at Balnabroich in Strathardle (RCAHMS 1990: 34, 98–9) and along the Ballinloan Burn in Strath Braan (Cowley 1997: 168, illus 9). It is notable that, in both cases, these groups occupy a similar aspect and elevation in the landscape as the Kiltyrie sites.

In terms of layout, we must turn to work in the Western Isles for comparisons, as no contemporary sites have been excavated and published as yet in mainland Scotland. Sites T16 and T17 do bear some resemblance, in terms of internal layout and use of materials, to sites such as House D at Bornais

(Sharples 2005: 54, fig 36). Sharples's conjectural reconstruction of this form of dwelling (2005: 183, fig 107) may be something akin to the architecture at Kiltyrie. The use of drystone slabs for the internal wall-footings and the location of the hearth, also defined by stones, are redolent of the Bornais structure.

Towards the end of the 13th century, the climate began to change and it is likely that the colder and wetter conditions led to a retraction of permanent settlement from higher elevations in Perthshire, as it did elsewhere in Europe (Lamb 1995). The evidence from Ben Lawers suggests that this occurred in the decades immediately prior to 1300, but some use of sites like T16B and T17 may have continued into the 14th or possibly even the 15th centuries (see Chapter 5). What form this use took is less than clear, but it may have been seasonal. This is supported by the dating of material from two hearths, one inside T16B and one outside T17, which indicate that final firings occurred some time between AD 1300 and 1440.

Seasonal exploitation of the upland zone on Loch Tayside was certainly apparent from evidence recovered at shieling-sites investigated during the project. This exploitation began possibly as early as the final decades of the 14th and certainly by the 15th century (Chapter 9). Whether transhumance was practised before this on Loch Tay is not clear from the physical or documentary evidence, although Bil has noted that the term 'shieling' first appears in documents of the late 12th century in the Highlands (1990: 2). The archaeological evidence indicates that sites such as T8 at Meall Greigh may have been used on a seasonal basis from *c* 1400 until the late 18th century. This is supported by entries in the Breadalbane papers from the late 16th century onwards (Bil 1996: 10; Harrison 2005b: 115). For much of this period these documents, together with the excavation results, provide the only evidence for the later medieval and early post-medieval occupation of Loch Tay (see below).

The excavation results also provide an interesting contrast with the published body of work on transhumance sites. Much of the work published to date relates to the Western Isles, from the investigation of sites in Skye (MacSween & Gailey 1961), Barra (Branigan & Foster 2002) and the Uists (Armit 1997). The data produced as part of the Ben Lawers Project therefore offers the first comparative material for the whole of the highland massif. It also provides tangible evidence for the function and chronology of a range of structural forms, from the small, sub-circular or oval turf bothies to the elongated, sub-rectangular huts with their central entrances and stone-lined, turf-battered walls. As Chapter 9 discusses, the evidence from Ben Lawers indicates that both forms were concurrent features of the landscape, and the differences between them may reflect social forces at work in the pastoral zone. The evidence also highlights these structures' lack of permanence, from the makeshift roofing arrangements to the lack of material culture and even, in some cases, the apparent absence of hearths (for example T16A). In dating terms the evidence suggests that the tradition was certainly active in the 16th and 17th centuries and probably came to an end towards the end of the 18th century (see Chapter 9, section 9.1), although occasional use may have extended beyond this.

Although the project did not find evidence for the houses of the common people of Loch Tay after AD 1440 below the head-dyke, this was not entirely unexpected. For the period from AD 1000 up to the end of the 17th century – some 700 years of history – there are few examples of rural settlement-sites in the Highlands and Islands of Scotland (Atkinson 2010). Those that have been found are certainly not characteristic in terms of form, and tend to hint at what occupation may have entailed. This is particularly the case at Carn Dubh, Perthshire (Rideout 1995), Druim nan Dearcag, North Uist (Armit 1997) or the late Norse phases at Freswick Links, Caithness (Batey 1987). A few sites provide more tangible evidence, such as Jarlshof, Shetland (Hamilton 1956), Cille Pheadair, South Uist (Sharples & Parker-Pearson 1999) or Bornais, South Uist (Sharples 2005); but they survive on the fringes of modern settlements and may not entirely represent core settlements in the past.

This lack of evidence for core agricultural settlements before 1700 probably relates entirely to the materials used to construct the buildings and the subsequent history of arable land-use in the Highlands. The combination of turf, earth and timber, used widely in the construction of rural buildings before 1700, is well documented (Bil 1990; Walker & McGregor 1996). Also well

documented are the attempts by landlords to deter rural communities from stripping wholesale areas of pasture to build houses in favour of using drystone building techniques (Fenton & Walker 1981). The evidence from Ben Lawers suggests that this change in building materials may have occurred *c* 1700, with the construction of buildings like P15 (Chapter 7). Prior to this, stone was the reserve of the wealthier classes and the church.

The house of Lawers, built by the Glenorchy Campbells or one of their cadet lines, was certainly the first of the stone domiciles to be constructed on the shores of Loch Tay. However, the use of Priory Island during the 15th century and the subsequent reconstruction of the Campbell house on it after a fire in 1509 may be the first instance of a stone-built dwelling on the loch itself. Lawers is documented from 1513 and it was probably originally built as a tower-house (see Chapter 6). It was followed by the construction of stone towers at either end of the loch, Balloch *c* 1559 and Finlarig *c* 1583. By the turn of the 17th century another Campbell tower was built at Edramucky. The evidence from Loch Tay also points to changes in construction techniques, following the fashions and styles which prevailed elsewhere in Scotland. The destruction of the house of Lawers by fire in 1645 probably led to the construction of the new house as a range appended to the remains of the old tower (Chapter 6). The house of Carwhin may also have been built around this period in a range form, rather than a tower, although the evidence is not so clear on this last point.

By the beginning of the 18th century changes in construction-materials and the detailed and meticulous record-keeping of the estate enabled the project once again to find evidence for the lives of the common people across the arable zone on Loch Tayside. Farquharson's map of 1769 is particularly characteristic of this capturing of detail and has been discussed in some detail elsewhere (Boyle 2003; 2004). The settlement-distribution mapped by Farquharson provides a snapshot of the form and layout of the pre-Improvement landscape prior to the wholesale changes initiated by the General Lease *c* 1800 and the abandonment of the infield/outfield system of agriculture (Chapter 6). Ironically, although we can differentiate the locations of up to 65 18th-century settlement-sites (Boyle 2003: 19) from the sites occupied during the 19th century, it is not so easy to disentangle the archaeology of the physical remains and relate this to an underlying chronology.

As has been suggested above and elsewhere (Atkinson 2010), there is a clear lack of datable material for 18th-century occupation horizons. This, combined with the later occupation of sites (post-1769) and the wholesale remodelling of some settlements (for example, Balnreich; see Chapter 8), has created a complex mixture of 18th- and 19th-century cultural traits. In most cases this later occupation has obscured any trace of 18th-century use. This was certainly the case for many of the sites investigated as part of this project. Even in cases like P15 at Balnasuim (Chapter 7), the later use of the site and subsequent robbing of stone left few traces of the building's use during the 1700s. Comparative and broadly contemporary excavated sites elsewhere in Western Perthshire and the Highlands, for example Structure D at Lianach (Stewart 1990), Houses D and G at East Lix (Fairhurst 1969) and the longhouse in Complex A at Rosal, Sutherland (Fairhurst 1968), certainly exhibit similar ground-plans and help provide contexts for the Ben Lawers examples.

In contrast, the expansion of the settlement-pattern into the former outfield areas after the introduction of the General Lease in 1800 provides an entirely different body of evidence. These outfield sites were generally of a single phase, used for little more than a generation and accompanied by datable material culture. Sites like T6 at Kiltyrie (Chapter 8) provide a unique if fleeting view of early 19th-century life in the Highlands, and some can even be related to particular individuals. The analysis of the ceramic (*c* 2900 sherds) and glass (*c* 1800 sherds) assemblages from these sites has permitted a clearer understanding of how people lived, what vessels they owned and when such objects became an essential part of everyday life. Contrasting these assemblages with material from other published sites, such as Balnabodach on Barra (Barker 2005) and as yet unpublished sites, like Easter Raitts, Badenoch (pers comm Haggerty), has begun to address issues of trade and commerce over large distances and the role of peddlers and travellers in this process.

By the 1820s the occupants of most of the outfield sites were beginning to struggle; the

system on which the estate had placed such high hopes was failing. This process has been discussed in some detail by Harrison (Chapter 6) and Boyle (2003). The evidence from the excavations supports the supposition that failure accelerated during the 1830s and the new system had all but collapsed by the middle of the century. The shrinking of the settlement-pattern and decline in arable production were inevitably matched by an inexorable fall in population (Atkinson 2000; Chapter 6, section 6.1) throughout the rest of the 19th and into the 20th century. The remnant historic landscapes we see today along the north shores of the loch are testament to that demographic change.

10.4 THE LAND OF LAWERS: A FINAL COMMENT

The Ben Lawers Project originated with wide-ranging aims which would help to further our understanding of the last thousand years of human history across an area of upland landscape (Turner 2003). It became apparent from the very first excavation season that the laudable goal of restricting the project to the second millennium AD would be almost impossible to achieve. The very nature of the landscape which formed the study area, with its limited flat agricultural land and steep slopes stretching towards the massive peaks of Tarmachan, Lawers, Ghlas, An Stuc and Meall Greigh, would conspire to defeat any such policy. The combined factors of topography, hydrology and geology encouraged the use of particular points in the landscape through time. Locations that were suitable for early inhabitants to hunt, build houses or bury their dead would also be the best for future generations to use in similar ways. The project, throughout its nine years of existence, revealed evidence for this palimpsest of activity on a regular basis.

This chronological depth of activity has been beneficial to the production of this volume, as it has allowed the processes of change, expansion and retraction of settlement to be understood within a longer timeline of human occupation. Inevitably, for some periods, the amount of evidence recovered was limited and in consequence our comments have been restricted, whereas with other periods the evidence was stronger and we have been able to bring those periods to life. It was always the goal of this volume to populate the archaeological evidence where possible with human stories and we hope the chapters detailing the landscape from the 16th century AD onwards have gone some way to achieving this goal by combining the history and archaeology and placing individuals back into the landscape in which they once lived and worked.

Although this project has been completed, it has merely touched on the story of human occupation of this landscape. Much more work could, and should, be undertaken in the future, here and elsewhere in the Highlands. It is certainly the hope of this author that the results of the Ben Lawers Historic Landscape Project can act as a starting-point for many projects in the future.

11. References

11.1 ABBREVIATIONS

DNB *Dictionary of National Biography*. Oxford: Oxford University Press.

ER *Exchequer Rolls of Scotland 1264–1600*, ed. J Stuart & G Burnett, 23 vols, Edinburgh, 1878–1908.

NRS National Records of Scotland.

RMS *Registrum Magni Sigilli Regum Scotorum* (Register of the Great Seal of Scotland) AD 1306–1424, ed. J M Thomson, 1912.

11.2 MANUSCRIPTS

11.2.1 National Records of Scotland (NRS)

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CH205/1 Parish of Kenmore/Kenmore and Lawers linked with Fortingall and Glenlyon, Kirk Session Minutes 1723–1762.

GD18/2117 Memoirs of the Goat Whey Campaign at Lawers in 1749.

GD50 MacGregor Collection.

GD112 Papers of the Campbell Family, Earls of Breadalbane (Breadalbane Muniments) 1306 – 20th century.

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- GD112/65 Campbell of Lawers, 1544–1723.
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- GD112/76 Additional MSS from Dundas and Wilson, CS, 1473–1923.
- GD112/80/1/5 Rental of Crannich 1637–8.

IRS Inland Revenue Survey.

RHP Register House Plans.

- RHP569 Plan of Deshoir, the north side of Loch Tay, Perthshire, by John Farquharson, surveyor, 1772 (1:17,800).
- RHP973/1 Plan of the North side of Loch Tay, Perthshire, by John Farquharson, surveyor, 1769 (1:5400).
- RHP973/2 Book of reference relating to survey of the north side of Loch Tay, by John Farquharson, surveyor (published by Scottish History Society, 3rd ser. 27, 1936).

RS Register of Sasines.

VR Valuation Rolls.

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