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The development of Candlemaker Row, Edinburgh, from the 11th to the 20th centuries

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1. ABSTRACT

Archaeological excavations and historic-building recording at the site of Greyfriars Kirkhouse, Candlemaker Row, Edinburgh, provided a rare opportunity to investigate the history of an area within Edinburgh's Old Town. Evidence was found for unexpectedly early activity on the site from the 11th or 12th century onwards. The nature of early activity is enigmatic but the area appears to have been largely rural, at the confluence of two major cattle-droving routes into the town. Urban development came in the late 15th century, with the division of the land into burgage-plots and construction of a tenement, at which point the area seems to have been occupied by merchants and burghers. The late 18th and early 19th centuries saw the redevelopment of the site and evidence for the use of the area as a brass foundry.

2. INTRODUCTION

Headland Archaeology (UK) Ltd was commissioned by Greyfriars Kirk to undertake a programme of archaeological works at Greyfriars Kirkhouse, Candlemaker Row, Edinburgh in connection with a planning condition set by the City of Edinburgh Council on the proposed development of the site.

The development covers an area to the north of Greyfriars Kirkyard at the junction of Candlemaker Row and Cowgatehead (Illus 1) and is partially occupied by the standing Kirkhouse, which is currently being refurbished. A historic-building assessment and archaeological test-pitting (Geddes 2005a; 2005b) was carried out prior to the demolition of the greater part of the three warehouse buildings which covered the western half of the site. A second phase of evaluation by means of trial-trenching (McMeekin 2010a) was undertaken following the demolition of the warehouses. Finally an excavation of the footprint of the proposed development was undertaken (Humble 2011). The excavation area was bounded on all sides by standing structures, apart from an entrance to the north-east leading onto Candlemaker Row. The southern limit was marked by the wall of the Greyfriars Kirkyard, the northern limit by the gable end of the Cowgatehead tenement originally built *c* 1800, and the east by the standing Greyfriars Kirkhouse.

Three broad phases of activity were identified. The earliest comprised a number of pits and a wide scarp-cut running north-east/south-west across the site, and dated to the 11th or 12th century. The second phase involved the construction of a tenement in the 16th century, the final phase the redevelopment of this tenement in the late 18th and

early 19th centuries and construction of features connected to industrial activity. Each phase is described and discussed below.

3. MEDIEVAL REMAINS

3.1 Historical background

Morag Cross

The history and development of the Grassmarket have recently been summarised, along with the results of excavations there (McMeekin 2010b: 118–9). Further excavations in the Cowgate have also revealed new evidence about the development of this street (Jones 2011; Dalland forthcoming). The Grassmarket appears to have developed its present form during the 15th century (see below). However, this area was used as a thoroughfare from at least the 13th or 14th centuries (Stevenson et al 1981: 12). Its use as a marketplace possibly also dates back earlier than 1477, the date of its royal charter (Harris 2002: 283). Investigations towards its western end have revealed evidence for pre-burghal activity from the 6th to the 12th centuries (McMeekin 2010b: 111–8).

Candlemaker Row may have an even longer history as a roadway and approach to the town. Before its occupation by the eponymous tradesmen in the 17th century, it seems to have been known as 'the Loaning near the church of the Friars Minor' (*RMS* II: no. 2302), or 'the common way leading from the west side of the Greyfriars church' (*Prot Bk Young*: no. 1315; 'east side' in no. 838), or similar. It led 'from Kirk o'Field toward the Greyfriars', and to the Burgh Muir via the Bristo Port, or town gate (*Prot Bk Young*: nos 838, 1304, 1311, 1359, 2000), forming a major route into Edinburgh from the south.



Illus 1 Location-plan showing extent of excavations (© Headland Archaeology (UK) Ltd)

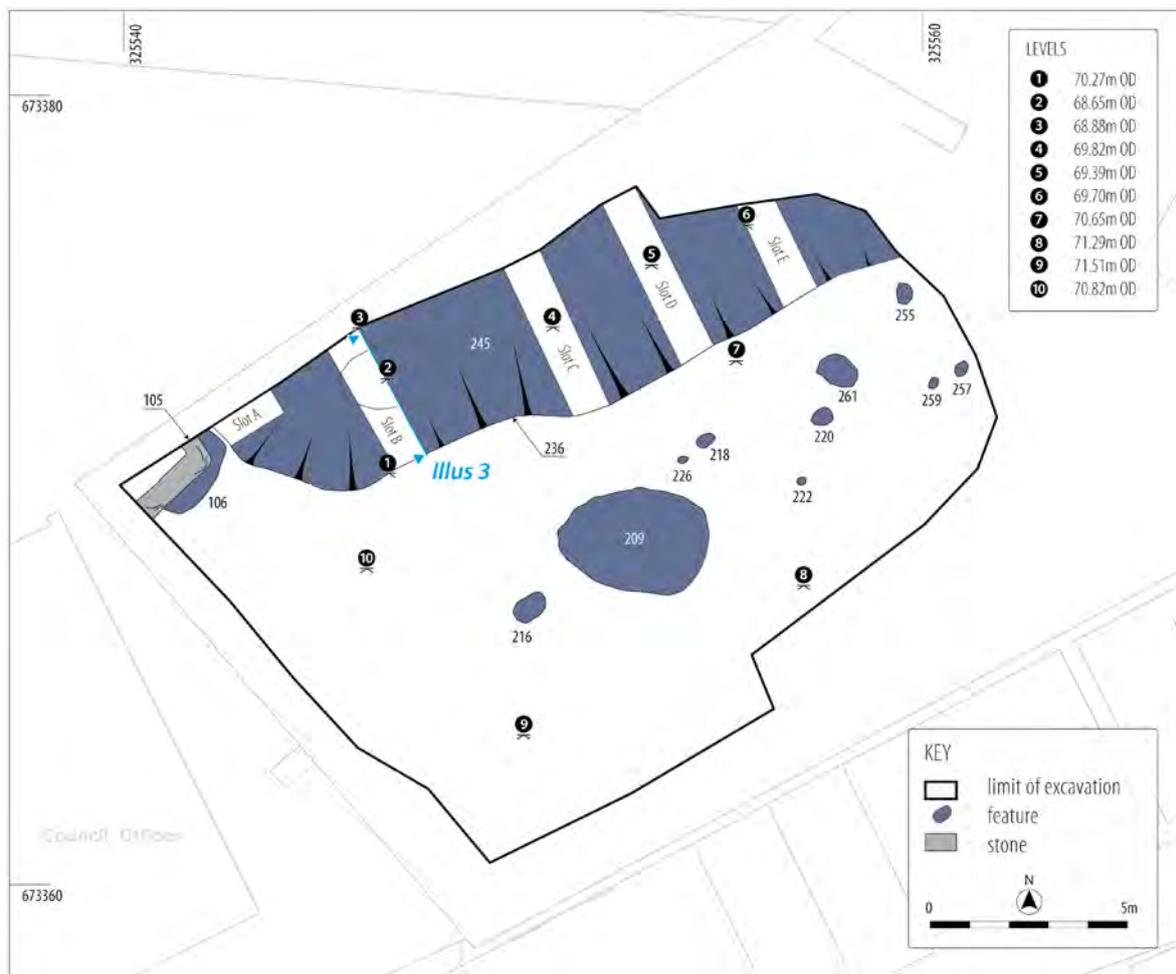
A ‘loan’ was a grass-edged drove-road or track, the verges being used for grazing or corralling stock (Robinson 1996: 380; Harris 2002: 112, 140–1, 371–2). A loan often originally ran through arable land, and led to common pasture (‘Loan’, *SND*; ‘Lone’, *DOST*), and this fits the surrounding landscape suggested by late-15th-century property transactions. Relevant protocols refer to the subdivision of the crofts of Bristo, of the Highriggs (an ‘arable’ place-name), and of the town commons, or ‘Burrowmure’, to the south (Moir Bryce 1919: 4–5, 68–76; Harris 2002: 112, 127–8, 309). They indicate acres of open land, head-rigs, dykes and barns containing ploughshares, harrows and other agricultural gear (*Prot Bk Young*: eg nos 372, 768, 820, 1261–4, 1393). Bristo itself may derive from a ‘cattle-mustering place’ (Harris 2002: 112). Even in 1509, when the burgage-plots in Candlemaker Row were well established, the

residents still owned and used patches of unbuilt land in ‘the west croft of Birsto [sic]’. These plots, which lay at right-angles to each other, suggesting patches of rigs, were bordered by gardens and waste land (*Prot Bk Young*: no. 1890).

As late as 1599 the open character of the area to the south-west can be seen in the feuing charter of the ‘crofts of arable land which once belonged to the sisters of the convent of Sciennes’ (*RMS VI*: no. 959). This arable lies within the town (or Flodden) wall, between the rigs of the gardens of named individuals, the road alongside the wall, and the public highway (Candlemaker Row) to the Greyfriars (Bristo) Port, confirming the low density of development.

3.2 Archaeological evidence

The excavation revealed medieval features in the form of pits, a large linear terracing-cut and a stone-built structure at the western excavation limit. The



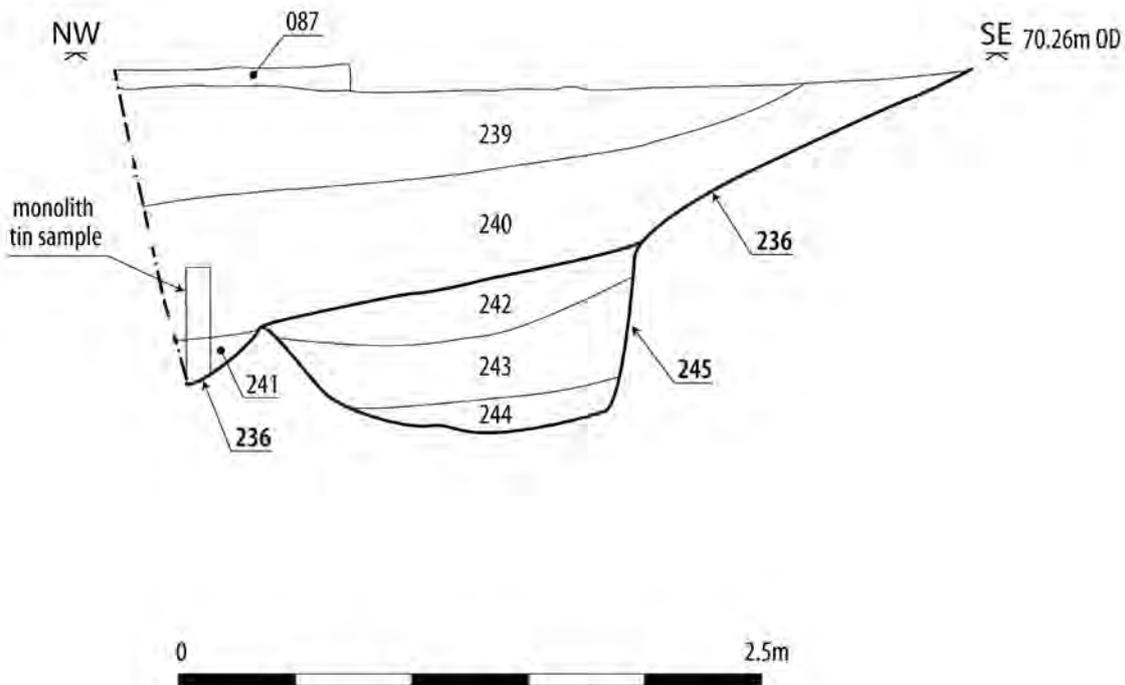
Illus 2 Medieval features (© Headland Archaeology (UK) Ltd)

terracing-cut (Context 236) was a large linear cut through clayey natural subsoil along most of the northern edge of the excavation (Illus 2, 3). It ended in a rounded terminal before it met the western edge of the trench. The northern edge of the feature lay outwith the excavation area but was at least 4.6m wide at its widest point. The profile of the cut was investigated in five slots and was broadly similar in each, sloping down towards a broad flat base 2.3m deep. Towards its south-western terminal the profile was more stepped. At no point was there any trace of an upward return to the profile. It is conceivable that it was a wide and somewhat shallow ditch, but the balance of evidence suggests terracing is more likely (see below).

The large pit C245 was cut into the side of the slope at an early stage, possibly contemporary with its initial construction as there was no time between for the build-up of deposits (Illus 2, 3). It was a substantial feature at 2.3m x 1.7m, with a maximum depth of 0.71m. Its purpose is unclear though it does not appear to have been for the disposal of rubbish as there were few artefacts or animal bone, and those only from the uppermost fill C242. The fills mainly consisted of grey clayey deposits. The lowest deposit

C244 relates to natural silting, while the upper two, C243 and C242, appear to represent a deliberate backfilling event. The base of the pit, though gently rounded, was largely level, with its southern upslope side being deeper and more steeply cut than its northern downslope edge, so it may have been cut to form a level platform for some purpose. Alternatively it may have been a quarry-pit to extract clay.

Where the linear cut terminated at the western corner of the trench, the corner of a stone-built structure C105 was uncovered (Illus 2). The wall was constructed with outer faces of water-rounded sandstone blocks laid in irregular courses, and a rubble core, all bonded with clay. The structure was orientated north-east/south-west, in the same alignment as the linear cut. The eastern end, nearest the cut, had deeper foundations than the western end, with a construction-cut C106 over 0.85m deep to increase stability on the edge of this drop. The wall must therefore post-date the cut, but predate the backfilling of the cut, as wall-collapse material was found in the upper fill of the westernmost slot (Slot A). Too little of this structure was uncovered to speculate on its function, but the stone wall-footing implies a substantial structure.



Illus 3 Section through medieval terracing-cut and pit showing monolith-sample location
 (© Headland Archaeology (UK) Ltd)

The terracing-cut might be expected to have filled up slowly with colluvium deposits washing down from higher ground. However, only in Slots B and D were silting deposits convincingly identified. In Slot D this amounted to a thin layer of clay and stones at the flat base of the cut. In Slot B the deposit was thin-sectioned to establish how it was formed (Illus 3). The results identified laminations within the deposit, suggesting episodic accumulation of water-borne material, consistent with slow silting. The remaining fills were thick and homogeneous and thus appear to represent deliberate backfilling in two phases, or at least using two different deposits. These deposits were variable, though generally clayey. The lower deposits were generally browner and sandier, the upper typically darker, greyer and siltier. In most slots the backfilling began at the edge, working inwards, suggesting deposits were laid down from the top of the slope, though in Slot C it appeared to have happened from the bottom up, suggesting work began at the base of the slope.

Other features lay to the south of the terracing-cut, a large pit C209 and a series of six smaller pits C216, C218, C220, C255, C257, C261 and three very small pits or post-holes C222, C226, C259 (Illus 2). All are assumed to be medieval as they all cut into natural and underlay the later levelling deposits seen across the whole site, but few contained any dating material and they had no direct stratigraphic relationship to the terracing-cut or any other medieval features. The pits do not seem to form any pattern and thus are unlikely to relate to any structures on site. All were single-fill features, backfilled with clayey deposits, some containing various elements of typical medieval domestic and industrial waste, including pottery, iron-working residues, charcoal, animal bone and shell. The function of these features is unclear. The pits may have been dug as quarry-pits to extract clay, presumably for building purposes. None showed any signs of silting and so they may have been backfilled very quickly. Some may have been used as convenient places for rubbish disposal, though only pit C216 contained enough midden material to suggest this may have been its intended purpose.

3.3 Dating

Dating for the terracing-cut can be derived from the earliest silting deposits within it. These included a piece of ash (*Fraxinus excelsior*) charcoal found in deposit C241 (Illus 3) which returned a radiocarbon date of AD 1030–1206 (Table 1).

Dating evidence from finds was entirely reliant on small sherds of local Scottish White Gritty Ware (Jones et al 2003). Two fragments from C241 were clearly residual and therefore not reliable. However, both were unglazed, and sooting on one implied it derived from a cooking-pot, of a type only made between the 12th and 14th centuries. Taken together, the pottery and radiocarbon evidence suggest this cut dates back to at least the 12th century.

Fragments of residual White Gritty Ware were also found in the upper fill of pit C245, and though these can only be very broadly dated they are potentially contemporary with other early features. Three larger sherds were found incorporated into wall C105 and the fill of the wall-cut C106 and are likely to be reasonably contemporary with the wall's construction. Two sherds of sooted cooking-pot among these also indicated a 12th- to 14th-century date, and so this structure is probably broadly contemporary with the terracing-cut.

Pottery from the pit-fills again indicated a broadly contemporary date, though these pit-assemblages were small, that found in pit C209 being by far the largest at 17 sherds. Cooking-pot sherds were present in it, though they were in a minority compared to jug sherds. A date in the 13th or 14th century is probably most likely for this fill. The material backfilling the terracing-cut included 109 sherds, mostly of White Gritty Ware, with a few of locally-made redwares. This material is likely to be residual. There were no joining sherds indicating that broken pottery might have been directly discarded into this space. Instead it is likely to have derived from midden material incorporated into the deposits used for backfilling. The absence of post-medieval red- and greywares, or of late medieval whitewares, indicates this is unlikely to have been later than the mid 15th century. Diagnostic sherds included a small proportion of cooking-pot sherds, a barley-sugar-twist jug-handle and several sherds decorated with iron-coloured applied decoration, and in one case an iron-coloured applied thumbled strip down the centre of a strap-handle.

3.4 Environment and activity

Environmental evidence for this early period derived chiefly from a monolith sample taken from the lowest part of the terracing-cut as revealed in Slot B (Illus 3). It cut through the lowest silting deposit C241 and the backfilling deposit C240 above it, the divide between the two being at a depth of 1.15m, between zones GF1 and GF2. Though absolute dating evidence was sparse for this sequence, the lower levels (Zone GF1) were associated with a mid-11th- to 12th-century radiocarbon date (Table 1), while the upper levels (Zones GF2 and GF3) based on finds evidence are likely to be 14th century or later (see above). Soil thin sections were taken from both upper and lower deposits at depths of 0.88–0.96m and 1.2–1.28m, while 16 pollen samples were taken at 30mm intervals. Evidence also derived from charred plant remains and a number of animal bones. The complete reports are all available in the archive, and are summarised here.

3.4.1 Pollen & plant remains

T M Mighall & Sarah-Jane Haston

The pollen record suggests that the landscape was initially dominated by deciduous woodland/scrub, which in places was probably quite wet (see results Zone GF1, Illus 4). Possible scattered individual trees or small patches of wet woodland/carr containing alder (*Alnus*) and willow (*Salix*) were present, with birch (*Betula*), hazel (*Corylus avellana*) and minor occurrences of oak (*Quercus*), elm (*Ulmus*) and pine (*Pinus*) established on drier ground. Total tree and shrub percentages are consistently above 40% between depths 1.3m and 1.17m (Zone GF1). The amount of woodland diminished after this as the total arboreal pollen percentage gradually decreased up to depth 0.94m (Zone GF2). This fall occurred in two stages and primarily affected three taxa: first a decline in *Betula* from 1.17m, then *Alnus*, followed by a decrease in *Corylus avellana*-type at a depth of 109cm. It is possible that woodland was removed deliberately for either domestic or industrial purposes; however the clearance of woodland for pasture and cultivation is most likely, as the loss of woodland coincides with an increase in both arable and pastoral indicators. Woodland made a partial recovery in the uppermost sample as both *Betula* and

Table 1 Radiocarbon dates

Sample	Material	Context	Description	Depositional Context	Uncal	Calibrated 1-sigma	Calibrated 2-sigma	Delta-13C %
SUERC-43787	Charcoal: Fraxinus excelsior	C241	Earliest silting deposit within terracing cut	Secondary	916±30	AD 1044-1100 AD 1119-60	AD 1030-1186 AD 1200-6	-27.3

Corylus avellana-type increased and non-arboreal pollen taxa associated with arable and pastoral agriculture declined.

Evidence for cultivation occurs throughout the pollen diagram. The deposits were relatively rich in cereal-type pollen, especially from depth 1.09m upwards (Zone GF2), including rye (*Secale cereale*), barley (*Hordeum*-type) and oats/wheat (*Avena-Triticum* type). Many other grains which displayed characteristics of cereal-type pollen (large pore-diameter, large grain-diameter) were either corroded or crushed which made their measurement awkward. Therefore these grains have been classified to cereal-type. While the data confirms the presence of cereal pollen in the deposits, the actual total percentages must be treated with caution. Some of the grains within the *Hordeum* group as defined by Andersen (1979) include wild grasses which would not have been cultivated, and many grains were so badly damaged or crushed that they could not be identified definitively. However, the pollen data is consistent with the macrofossil cereal-grain assemblage (see below) which includes primarily hulled barley (*Hordeum vulgare*) and bread/club wheat (*Triticum-aestivo-compactum*) with lesser amounts of oat (*Avena* sp.). These cereal species are commonly recovered from Scottish medieval sites. While some of these pollen grains might be wild grasses it is likely that a high proportion reflect agricultural activity close to the sampling site because cereal grains are relatively large in size and therefore are poorly dispersed by natural agencies (Heim 1962; Behre 1981).

Heim (1962), based on observations of modern cereal pollen, suggests that cereal pollen percentages only rise above 4–5% when crops are grown in the immediate vicinity of the site. The cereal-type pollen percentages at Greyfriars reached up to 10% total land pollen (TLP) in the uppermost samples in the pollen diagram, particularly between depths 1.06m and 0.88m. Cereal-pollen percentages also compared favourably with a sample taken from a ditch-fill dating to the first half of the 15th century at the nearby site of St Patrick's Church in Cowgate (Mighall 2011). Other agricultural indicators of both arable and pasture were also well represented. For example, *Polygonum aviculare* (prostrate knotweed) was recorded sporadically and in trace amounts. It is naturalised from Europe and found

on croplands where it is a major weed of winter wheat and vegetables (Bromilow 2001). Chickweed (*Stellaria* cf *S. media*) and cornflower (*Centaurea cyanus*) also occur as weeds in arable fields (Macguire 1983; Hall 1989; Stace 1997). There were, however, no finds of chaff, rachis fragments or agricultural-weed seeds among the plant remains.

The large quantities of microscopic charcoal within the deposit are consistent with the recovery of carbonised cereal grains from many different contexts at the site, albeit in low concentrations. Other medieval sites in Edinburgh have produced comparable botanical assemblages and it is thought that the carbonised debris is connected with food processing related to baking, brewing and burning of rubbish, which also might explain the relatively high occurrence of cereal pollen in the samples. Evidence of burning or dry ground was also indicated by the presence of *Gelasinopsora* (HdV-1) which is consistent with regular presence of microscopic charcoal in all of the samples.

Pastoral indicators occurred commonly throughout each zone and include high percentages of grasses (*Poaceae*), members of the daisy (*Asteraceae*) family including lettuces (*Lactuceae*), pink family (*Caryophyllaceae*), ribwort plantain (*Plantago lanceolata*), and members of the buttercup family (*Ranunculaceae*), tormentils (*Potentilla*-type), and knotweeds (*Polygonaceae*). The mugworts (*Artemisia*-type), members of the carrot family (*Apiaceae*), cabbage family (*Brassicaceae*), goosefoot family (*Chenopodiaceae*) and other docks and sorrels (*Rumex acetosa/acetosella*) are common by rivers and on disturbed ground (Brown et al 2007).

Rivularia-type bacteria (HdV-170) were recorded sporadically and in trace amounts until 0.97m when its abundance increased in Zone GF3 to close to 10% (TLP + non-pollen palynomorphs or NPP). According to Geel et al (1996) cyanobacteria such as *Rivularia* bloom in eutrophic, nitrogen-depleted shallow waters and their dominance can often be explained by increased phosphorus concentrations. Thus they have been used as evidence of eutrophication by organic phosphate (Medeanic et al 2008) and they can be important due to their ability to fix nitrogen (Rull et al 2008). Therefore the occurrence of *Rivularia*-type can be considered to be an indication of increased nutrient loading which might be derived from

animal manure deposited by grazing animals, use of fertilisers and/or from weathering of phosphorus-rich bedrock. The former is probably the more likely in this context. A grazing-based economy is also partially supported by the presence of possible dung indicator HdV-55A *Sordaria* and members of the Sordariales (Geel et al 2003). The occurrence of sedges (*Cyperaceae*), tormentils (*Potentilla*-type) and devil's-bit scabious (*Succisa*) along with pollen grains from the carrot family (*Apiaceae*), buttercup family (*Ranunculaceae*) and the occasional meadowsweet (*Filipendula*) suggests that some of the pasture was relatively wet, possibly even a marsh.

3.4.2 Animal-bone evidence

Catherine Smith

Such was the fragmentary nature of the bone assemblage from medieval contexts that most (63%) could only be identified as indeterminate mammal. These fragments were small flakes from the bones of large animals with no diagnostic features remaining. The remaining assemblage numbered only 36 pieces with identifiable bones of the following species noted: cattle, sheep/goat and other indeterminate ungulates both large and small. There were also a number of fish bones. Non-food animals were mainly represented by seven frog or toad bones and some bones from small mammals, possibly rodents. Bone finds were recovered predominantly from the pits above the terracing cut, but also from the large pit within it, C245, the cut's backfill, and in contexts associated with stone structure C105.

The animal remains are an indicator both of human exploitation of food resources in the form of domesticated animals and fish, and of the habitats available to microfauna such as small rodents and amphibians. Butchery marks made by chopping and cutting tools were present on bones of cattle, sheep/goat and other ungulates. Some of the bones showed evidence for gnawing, probably by dogs. The amphibian remains indicate that a damp or even wet environment was available on or near the site.

3.4.3 Thin-section analysis

Stuart Morrison

Anthropogenic features were prevalent throughout, in the form of fuel residues and charcoal flecks.

Accumulation characteristics pointed towards transitional but intermittent phases of deposition. Although there were observations of diffuse banding throughout the monolith, there were clear differences between the two monoliths from the stratigraphy. The main observations are related to the contrasting energies behind the depositions, with more energy present in the uppermost monolith. In addition to this, the lowest monolith appeared to contain more in the way of anthropogenically-influenced fine organic material, while the uppermost monolith contained more in the way of coarse anthropogenically-influenced fragments. This difference probably relates to the availability of material in the neighbouring contexts that made its way into this stratigraphy.

3.4.4 Environmental overview

Tim Holden

The environmental picture provided by the Greyfriars Kirkhouse is patchy. The traditional economic indicators, animal bone and charred cereal grain, were present but not common. Those that were recovered were very typical of the period – cattle, sheep/goat and fish together with barley, wheat and oats, but the low concentrations stand in contrast with other sites from the nearby Cowgate (Jones 2011; Dalland forthcoming).

Various factors could account for this. Dating must play a major part. Deposits at the Cowgate site were typically 15th-century and later, a little later than the latest deposition belonging to this phase and as much as four centuries later than the earliest deposits. It could also reflect a genuine difference in the use of the two areas. The location of Greyfriars Kirkhouse on the south side of the valley beneath Greyfriars Kirk may also be a factor. In this position, unlike both of the recently excavated sites on the Cowgate, it probably did not receive the same input of settlement debris that had rolled, washed or blown down the slope from the more concentrated occupation above.

Perhaps the most evocative relevant remains from the bone assemblage were a number of frog/toad bones. These reinforce other evidence suggesting that the area was wet underfoot. The bottom part of the pollen core, dated to the mid 11th to

12th century, suggests a lightly wooded area with scattered individual trees or small patches of wet woodland containing alder and willow in the valley bottom with birch, hazel and smaller numbers of oak, elm and pine slightly further up the slope. The woodland gave way to yet more open areas with pollen indicators of both arable and pastoral activity. Interestingly, a nearby site on the Grassmarket provided a rare opportunity to examine insect remains from this area and these too suggested the presence of animals in the form of their dung (McMeekin 2010b: 115).

Compared to the Cowgate sites there was less botanical evidence for the 'foul', nitrogen-rich conditions that quickly follow intensive settlement. Undoubtedly the location of the Cowgate sites below the developing High Street would have exacerbated the situation there as water loaded with organic debris of all kinds ran off the slope to the north. It is hard to imagine that the combination of animal and human footfall in the Grassmarket did not create similar conditions, at least during the wetter months, but the only evidence for this was the gradually increasing levels of blue-green algae (*Rivularia*) in the upper parts of the pollen core.

3.4.5 Finds evidence

The finds provide scanty evidence for the nature of the medieval occupation. There was a quantity of pottery from medieval contexts and redeposited in layers above. However, even the pottery in situ in medieval layers was not found where it was discarded, but had been incorporated into midden deposits used as backfill. Thus there were no reconstructable vessel profiles. The assemblage is largely typical of a 13th- or 14th-century urban assemblage in this area. The medieval pottery assemblage numbered 250 sherds (2.4kg) of which 97% (by count and weight) was of locally made Scottish White Gritty Ware (Jones et al 2003). There were three sherds of local redware and five of Scarborough-type wares from Yorkshire (Farmer & Farmer 1982), commonly traded at this period along the North Sea coast.

Jugs were the most common type of vessel represented, but a number of cooking-pots were also present. Ceramic cooking-pots disappeared from the local potters' repertoire in the 15th century

due to the increased availability and practicality of metal cooking vessels. The jugs would have been used for the short-term storage, transportation and serving of liquids such as water, milk and beer. A number of the jug sherds were decorated by various means (Illus 5), some using self-coloured applied decoration in a contrasting colour, some combining this with incised decoration. Most notable was a sherd with a moulded wheat-ear design (Illus 5.6).

Small quantities of iron slag and hammerscale attested to ironworking in the general though not immediate vicinity. Two unusual finds were a buckle and a polished pebble. The buckle (Illus 6) was of distinctive double-looped type dating to the late 13th or early 14th century. Its function is uncertain, but they are generally supposed to have been related to either horse-harness or possibly armour (Egan & Pritchard 1991: 109). As such this is a reasonably high-status find, though was probably accidentally lost along the road. The buckle was found in a levelling layer directly underlying the post-medieval tenement, though it is likely to be residual. The polished stone was found in the terrace-cut backfill. This may have been used as a tool, though it has no obvious wear, other than an all-over polish. It may simply be a manuport, kept for its tactile qualities.

3.5 Discussion

The earliest evidence on site would seem to date back as far as the 12th, possibly even the 11th century. The area was at this time largely rural, characterised by woodland scrub and arable land and the site itself seems to have been an undeveloped area beside a cattle drove road sloping downhill towards the low-lying thoroughfare which later became the Grassmarket.

Into this landscape a large terracing cut or ditch was created for reasons which are not clear. Based on radiocarbon and pottery dating-evidence this cut was in place by at least the 12th century and was probably backfilled around the 14th century. A stone wall-footing found at the cut's terminal may be contemporary with its construction or a little later. Both features together would fit a model of a gatehouse and boundary ditch, marking the southern edge of the town. A similar broad and flat-bottomed town ditch of 13th-century date



Illus 5 Decorated medieval pottery (1, 2, 5, 7, 9 from fill of terracing-cut C236; 4 construction cut for wall C105; 6 residual in layer over wall C105; 3, 8 residual in later deposits) (© Headland Archaeology (UK) Ltd)

was excavated at Mill Street in Perth (Bowler et al 1995), but at Greyfriars Kirkhouse this does not fit the topography of the area. The land naturally slopes gently downwards towards the Grassmarket on the north-east side of the site. Assuming it were a ditch and no deeper than is apparent, then the Grassmarket side of this feature would have been very shallow indeed – certainly no use for defensive purposes and arguably little use as a boundary

marker. The presence of a pit cut into the slope of the cut also makes little sense were this a boundary ditch, and neither does the presence of a possible gatehouse at the western corner of the site. Unless the line of what became Candlemaker Row has altered by over 30m in the intervening period, then any gatehouse would be along its route, outside the excavation area to its north-east. There is no evidence that the line of the road where it runs past



Illus 6 Medieval horse-harness buckle (© Headland Archaeology (UK) Ltd)

the site has changed, and it would seem to have been on its present alignment since at least the late 15th century.

It is conceivable that it was a drainage ditch. There was environmental evidence, both floral and faunal, to suggest a damp environment in the vicinity. The Grassmarket was yet to be drained and paved at this stage. Evidence for a damp environment was recovered from other excavations along the Grassmarket (McMeekin 2010b: 116). However, again this does not quite fit the evidence. It was at the wrong orientation to run alongside Candlemaker Row. It was parallel with the line of the Grassmarket but set a long way back from it, and the presence of the stone structure makes no sense in this scenario.

As a terracing cut it makes more sense. It provided a larger area of flat ground within this sloping land. It was initially assumed that this activity might relate to the laying-out of burgage-plots along the Grassmarket and a desire to create larger flat backland areas. The uneven and discontinuous nature of the cut along the length of the site would be consistent with it cutting

across the back of more than one burgage-plot. However, unless we regard the dated charcoal and pottery from the cut-fill and the pottery embedded in the wall-core all as residual, the features date back at least 300 years earlier than the development of the Grassmarket frontage.

If we hypothesise instead some form of occupation near the site in the 12th century then this could fit all the evidence. Being outwith the town at that time, this would be an essentially rural settlement, possibly a farmstead. The stone wall might represent a corner of a wall-footing for a substantial farmhouse. The cut can be seen as a terrace to create a flat area for various associated activities. The large pit cut into the slope of the terrace seems likely to have been for clay extraction, either for daub for wattle-and-daub construction or clay bonding for stone construction. It was located close to the structure, in a spot where the terracing had exposed the natural clay subsoil and on land too sloping to be of use for other purposes. The pits and post-holes on the upper terrace and their fills also indicated associated low-level activity, chiefly more clay

extraction and some rubbish disposal. Given that the site is near the confluence of two cattle-droving routes, the structure and related features might have had something to do with cattle management, or providing services to the drovers. Certainly there were environmental indicators for the presence of cattle dung, though as it has already been established the site lay beside a cattle-droving route, this is hardly conclusive.

However, this is all speculative. Too little of these features was uncovered to draw any firm conclusions, except to say there was some kind of activity in the vicinity from as early as the 11th or 12th centuries. The evidence needed may be preserved under the buildings to the west of the site.

4. POST-MEDIEVAL TENEMENT

4.1 Background

Julie Franklin & Morag Cross

The development of the Grassmarket area began in earnest in the 15th century. A regular market was established by royal charter in 1477 (Adam 1899, vol I: 34–6). Archaeological evidence suggests the first cobbled surfaces were laid down in the 15th century, possibly a little earlier (McMeekin 2010b: 121). The south-east corner of the Grassmarket saw the construction of the Franciscan Friary in the mid to late 15th century, and the site itself appears to have been first divided into burgage-plots in the late 15th century. The first published protocols for the excavation site belong to the 1490s, but earlier occupants are not listed (as they sometimes are for the High Street), suggesting that the persons for whom the burgage-plots or tofts are named may be among the earliest occupants of the site.

The Franciscan Friars, variously referred to as the Greyfriars, or Friars Minor, were ‘probably established in Edinburgh before ... 1463’, but only ‘moved to a site within the burgh ... before 21 December 1479’ (Cowan & Easson 1976: 131; Harris states 1447 (2002: 290). The conventual buildings themselves are unlocated, but are generally assumed to have been nearer the Grassmarket than the current Greyfriars Kirk, probably occupying the south-east corner of the

Grassmarket (Cowan & Easson 1976: 131). Its burial-ground was used by the general populace from the late 16th century onwards to ease the overcrowding at St Giles, and the current kirk was built within the graveyard in the early 17th century. As the current site is situated between the south-east corner of the Grassmarket and Greyfriars Kirkyard, it has sometimes been assumed that it fell within the grounds of the friary. However, this assumption is not supported by either documentary or archaeological evidence. Historical records refer to the line of the friary-complex boundary wall, and though it has not been exactly located, it provides a fixed point from which property ownership and similar legal records take their boundaries. There is no indication that the friary ever owned the excavation site. Certainly no remains discovered could be tied to the friary in any way. Instead, the layout of structures implies secular or other authority-led town planning.

By the 16th century the Grassmarket was fully developed, and with the whole Cowgatehead area is shown as such on 16th-century maps (eg Braun & Hogenburg 1574 ‘Plan of the Siege of the Castle of Edinburgh May 1573’, reproduced in Barrott 2000: 4–7). It is depicted as lined with structures on both sides, and lying within the newly built Flodden Wall, constructed after 1513, which defined and defended the city. Its wall-footing has been located cutting across the west end of the Grassmarket (McMeekin 2010b: 109, 120). Cattle and other livestock were stabled outside the West Port at its western end while at the east end butter, cheese and wool were traded (Adam 1899, vol I: 34–6). The area was paved by 1543 (Adam 1899, vol II: 112) and this broadly agrees with excavation findings of cobbled surfaces dating from at least the 15th century (McMeekin 2010b: 120–1).

Candlemaker Row, already an established thoroughfare from the south (Harris 2002: 140–1), led from the Greyfriars Port (later called Society or Bristo Port) into the town (Harris 2002: 290). In 1654 the magistrates designated the street for candle-making, removing the industry with its associated risk of fire and odour of tallow from the High Street (Harris 2002: 140–1). The term Candlemaker Row originally referred only to the

row of such establishments at the southern end of the street, but by 1722 this had become the official name for the whole street (Stevenson et al 1981: 12–13). Greyfriars Kirk was built between 1602 and 1620 in the graveyard to the south of the site. The first reasonably accurate view of the city, Gordon's plan of 1647 (Illus 7), shows the built-up nature of this area at the corner of Candlemaker Row and the Grassmarket, but it shows the structures predominantly running parallel to Candlemaker Row except for one row running along the northern edge of the kirkyard wall. Historical and archaeological evidence however, suggests there were in fact more burgage-plots running parallel with the kirkyard wall.

4.2 Historical evidence

Morag Cross

The Greyfriars' curtilage provided the (theoretically) 'fixed' point from which to locate the narrow property strips which ran in parallel with the wall, roughly north-east/south-west. Locating historical records for this area would otherwise be difficult. Not only are the street-names not always consistent, but the confluence of the streets means that the size and orientation of the burgage-plots is complex and does not follow a standard pattern. The burgage-plots listed lie with 'the wall of the cemetery of the church of the Friars Minor on the south' of them (*RMS* II: 1692). Their street frontages faced onto what is variously described (depending on the period) as the 'common street', Cowgatehead, or Candlemaker Row. To the rear, or western ends of the plots, they abutted another sequence of tofts or building strips which ran north/south, facing the Grassmarket, and were effectively at right-angles to the Candlemaker Row properties.

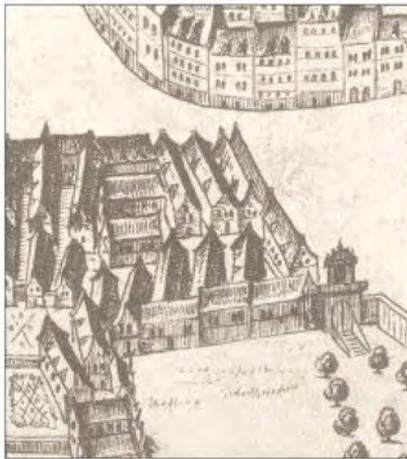
The most convincing plan for the burgage-plots was suggested by property boundaries recorded in late medieval lawyers' protocol books (*Prot Bk Foular* I, III, IV; *Prot Bk Young*). Under this scheme, the excavation site most probably covers parts of two burgage-plots (or tofts) which in Edinburgh were rather confusingly called 'tenements'. While the medieval Scots terms 'tenement' referred to the long, narrow strips of ground, in this paper, the term 'tenement' is used to refer to a multi-occupancy building in the modern sense. The houses and

dwellings built upon the plots were called 'lands', another potentially confusing nomenclature. 'Land' in the burgh of Edinburgh usually referred to buildings, rather than areas of ground as understood today.

Robin Tait (2006; 2010) has examined the typical widths of Edinburgh burgage-plots, and the dates of their formal setting-out in the High Street. Because the Candlemaker Row burgage-plots are bounded by the Greyfriars wall, the line of which may date from the 1460s–70s, the excavated plots are likely to post-date the wall. Otherwise there would probably have been some recorded mention (or court cases) of the property strips' loss of amenity to the Greyfriars. They may have been part of a formal 'tidying-up' of an otherwise waste strip or vacant corner when the convent site was granted. Tait's work would suggest that Edinburgh's single-width tofts near the Castle were laid out to a standard average 'unit' of 6.6m street frontage, with other single-width plots in the High Street varying between 7m and 8m wide (Tait 2006: 304; 2008: 234; 2010: 134–6). The access passage to the backland was frequently on the east side of the property or toft (Tait 2006: 308; 2008: 231; 2010: 132).

Robin Tait has kindly examined unpublished data from the Grassmarket, which shows that the 'unit widths' of the northern side are 7.8m, 'the same as the 7.7m for all the lower part of the High Street below St Giles' (Tait pers comm; 2006: 303–4, table 4). As the area below St Giles had been laid out by the later 14th century (Tait 2006: 307; 2010: 135–6), the northern side of the Grassmarket is probably contemporary with this. Interestingly, Tait's measurements of the southern side of the Grassmarket reveal anomalous unit widths, of 8.9m, 'unlike any Edinburgh or Canongate ones' (pers comm). He suggests that the southern side of the Grassmarket was laid out at a later date, respecting existing Greyfriars property at its east end. The evidence of the protocol books would also suggest that the excavation site and the foot of Candlemaker Row/Cowgatehead respect the boundary wall of the Greyfriars, and quite possibly post-date it.

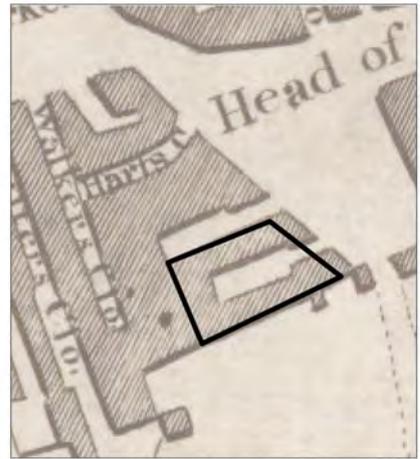
As the excavated building-remains conform to the later property divisions, it could be assumed the present building-lines are ancient. The first edition OS map (Illus 7) appears to show that there are either three single burgage-plots, with wider street



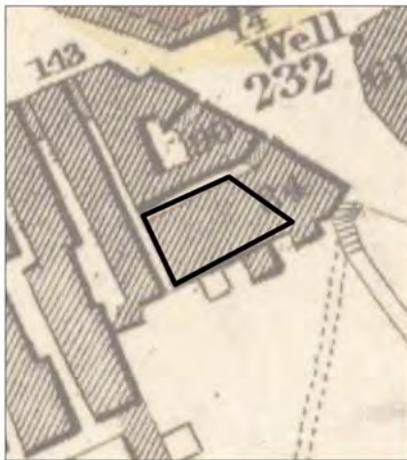
Gordon 1647



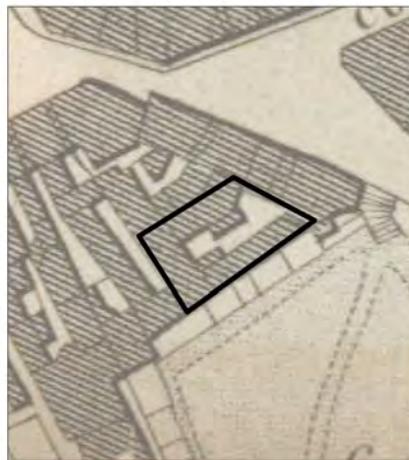
Ainslie approx. 1782



Kincaid approx. 1784



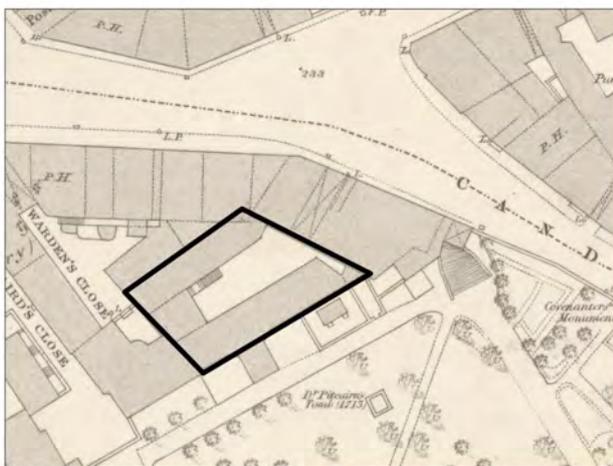
Kirkwood approx. 1817



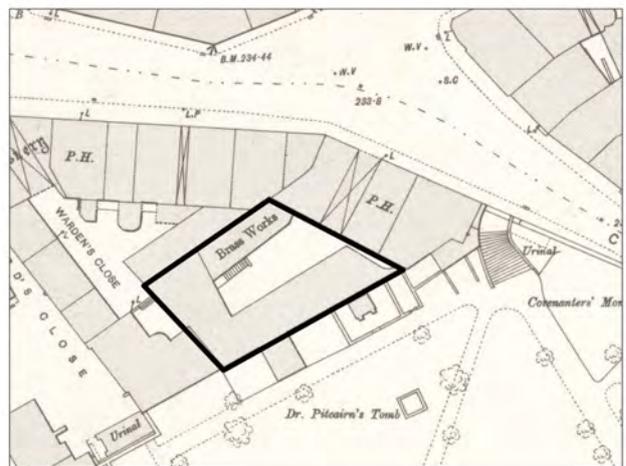
Lancefield Johnston approx. 1851



Ordnance Survey 1st Edition, 1849-53



Ordnance Survey 2nd Edition, 1876-77



Ordnance Survey 3rd Edition, 1893-94

Illus 7 Map progression (Reproduced by permission of the National Library of Scotland)

facades and a deliberate change in orientation about a third of the way along the plot towards the street frontage, or a double and a single set of burgage-plots. However, this may be very misleading. Because of their constrained location, the foreland breadths do not exactly conform to Tait's unit measurements, and it might be unwise to divide them after the pattern elsewhere in the Grassmarket.

However the burgage-strips are divided, there are most probably three longitudinal subdivisions. If the excavation site contained a single and a double-width plot, they would have been very short east/west. Under the pattern governing the setting-out of burgage-plots as discerned by Tait, the excavated toft probably lay within the bounds of the second burgage-plot. However, as these property units are uniquely shaped by the surrounding geography, they possibly do not follow the conventional burgh plot layout, so ownership attribution of specific excavated features is, *de facto*, imprecise.

This is significant because the owners of the series of properties beside the graveyard are recorded from at least 1487 onwards. The close at 149 (or 145) Grassmarket (*POD* 1835–6, ix; Harris 2002: 552), named 'Temple's Close' on the First Edition OS Map, indicates that nearby burgage-plots were 'one of the innumerable gifts of land to the Knights Templar', or their contemporaries and eventual successors, the Knights of St John of Jerusalem (Harris 2002: 552). After the Templars' suppression in 1312, 'it is ... unknown how [their] properties were handed over to the Hospitallers' (Cowan et al 1983: xxvi). However, if the burgage-plots' creation post-dates the foundation of the friary in the late 15th century, then the burgage-plots can only have been bestowed upon the Hospitallers' preceptory at Torphichen. Nevertheless, there were at least three, and possibly four, adjoining and contiguous properties, parallel and aligned east/west, with an eastern foreland and street frontage, all described as 'Temple lands'.

The earliest printed reference accessed states that William Touris (or Towers) of Inverleith and his wife had paid for the celebration of mass at the altar of St Anne in St Cuthbert's Parish Church in 1486 (*RMS* II: no. 1692). It was to be funded from an annual rent of 14 merks from the backland of the late Andrew Balerno, the surrounding properties being the graveyard wall, and the lands of William

Locksmith, the late Thomas Chalmers, and Patrick Denholm, on one side, and the Grassmarket to the north.

The Touris family owned much of the land in the vicinity before the Greyfriars were established (Moir Bryce 1912: 9). They were also founders of the chaplainry of St Anne (*Prot Bk Grote*: nos 152–5), and the property on Balerno's burgage-plot, mentioned in 1486, became known as the 'land of St Anne'. This land was used as the western boundary of the excavation-site burgage-plots, in 1502, 1513 and 1520 (*Prot Bk Foular* I: no. 199; I cont'd: no. 880; III: no. 108). It is these three named tenants or householders, Locksmith, Chalmers and Denholm who are likely to have been resident on the excavation-site.

4.2.1 Southern or Pringle/Locksmith burgage-plot

The first burgage-plot, north of and bounded by the graveyard wall belonged to the Hoppringill, Pringle or Locksmith family (aliases eg *Prot Bk Foular* I: no. 149; I cont'd: nos 241, 880; III: no. 827–8), who were indeed locksmiths, in possession by 1486 (*RMS* II: 1692). The locksmith trade in Edinburgh, and its background, have been the subject of a recent study (Allen 2007). William, Stephen and John Locksmith appear multiple times in the records of the Incorporation of Hammermen between 1494 and 1521 (eg Smith 1906: 1, 4, 11, 12, 46, 74). In 1497 (by which time William Locksmith was deceased), an annual payment of 2 merks, or 26/8d, which the Pringles had previously paid to the Preston family, was transferred to John Napier, burgess, and his wife, Margaret Preston, probably as part of her inheritance (*Prot Bk Young*: no. 868). John Locksmith was admitted burgess between 1494 and 1499, enabling him to trade within the burgh and take on apprentices (Boog Watson 1929: 317).

A legal action was brought against the Hospitallers, their bailie and several of their tenants including Stephen and John Locksmith and Patrick Denholm (see below) in 1500. However, this involved the disgruntled tenant of another 'tempil land', in the Upper Bow, who was absent when a writ was served, rather than any of the properties in Candlemaker Row (*ADC* II: 457–8).

In 1513, Stephen Pringle, locksmith, resigned his land (which was apparently only one part of the

buildings on the Pringle burgage-plot) in order to guarantee another property transaction concerning his late brother-in-law, Peter Foular (*Prot Bk Foular* I contd: no. 880). The new owner was John Wycht, burgher, who was to make an annual payment from his newly-acquired property to Thomas Otterburn and chaplain Sir William Brown. If nothing else, this demonstrates how intertwined family, inheritance and property were within the small-business world of Edinburgh. The lawyer recording the transaction was John Foular, probably related to Peter; Thomas Otterburn was a goldsmith, and cousin of the more famous, wealthy lawyer, Adam Otterburn, future Provost of Edinburgh (*Prot Bk Foular* I contd: no. 476). Sir William Brown (the younger) was himself probably brother-in-law to Thomas Otterburn (spouse of Marion Brown, eg *Prot Bk Foular* I: no. 131; I contd: no. 41; III: no. 478), as well as being the incumbent of a chaplainry founded by Thomas (*Prot Bk Foular* I contd: no. 687). The two men appear together as participants in or witnesses to multiple legal transactions (eg *Prot Bk Foular* I contd: nos 214, 458, 477, 780), frequently with Sir William Brown the elder (*Prot Bk Foular* I contd: nos 30, 214, 476, 780), presumably an uncle or other relative of the younger Brown.

By 1527, Stephen Pringle was dead, as was Helen Pringle, either his daughter or his niece. Her son, Robert Ramsay, resigned or gave up 'his tiled dwelling or "tofall" ... within the [burgage-plot] of the late Stephen Hoppringill' (*Prot Bk Foular* III: No 827). The early burgage-plots must have initially resembled family compounds, with several separate buildings, or lands, upon them, which were either inherited by extended family members, or gradually sold off. In this instance, a stone-walled house had been built using one wall of an existing building, forming a 'tofall' or lean-to, extension to what existed (*DOST*: 'to-fal(l)').

The preceptor of Torphichen, Lord St John (George Dundas) as feudal superior of the 'Temple Lands', of which this was one, gave sasine to Alexander Penicuik (*Prot Bk Foular* III: no. 827; Cowan et al 1983, xlv, xlvii–li). Alexander was almost certainly yet another relative by marriage. Patrick Pringle, son of the late Stephen Pringle, was married to one Janet Penicuik (*Prot Bk Foular* I contd: no. 880; III: nos 325, 363). The Knights Hospitaller compiled a rental book in 1539–40,

listing the occupants of 'their' lands, and Alexander Penicuik was still in possession: 'Sande Penycukis land besid the gray freris, iis' (Cowan et al 1983: 23).

4.2.2 Middle or Denholm burgage-plot

The second toft or plot to the north of the Greyfriars gateway belonged from the first record in 1486 to John Denholm (spelt variously, eg Danum, Denum), and his descendants (*RMS* II, 1692). The next owner or occupant, Patrick Denholm, appears as a witness to a local ceremony of sasine (transfer of title) in the nearby croft of Bristo in 1489, along with neighbours John Pringle, locksmith, and John Davidson, blacksmith (*Prot Bk Young*: no. 236). In 1497 widow Elizabeth Monypenny resigned to the Preceptor of St John (the feudal superior) a payment, or annualrent, of 20/- which she received from 'Patrick Danum's [burgage-strip] of temple land', in order that Denholm's contribution would henceforth be bestowed on Margaret Preston (and spouse), almost certainly her married daughter (*Prot Bk Young*: no. 868). Blacksmith John Davidson and Elizabeth Monypenny were involved in a court action related to these payments in 1499 (see below; *ADC* II: 311).

In 1500 'Patrick Dennan', merchant, paid £3, his entry fee as burgher (conferring trading rights and concomitant burghal obligations), 'to be distributed at his discretion on the repairing of the road ... at the place of the Fratres Minores [Greyfriars]', (Boog Watson 1929: 147). This suggests that he was living in, or at least working from, his property at Candlemaker Row and had a personal (probably business) reason to require the road to be fit for his own use. Denholm is mentioned in passing in 1502 and 1503, although by 1509, he was deceased (*Prot Bk Young*: no. 1890; *Prot Bk Foular* I: no. 149, 199; I contd: no. 880) and his nephew, John Denholm, had inherited. There is minor confusion about John and Patrick Denholm's precise relationship. John is called a nephew ('brother's son and heir of ... Patrick', *Prot Bk Young*: no. 1890), son of 'Matthew' Denholm (*Prot Bk Foular* III: no. 748) and, presumably mistakenly, son of 'Patrick', (*Prot Bk Foular* IV: no. 80). Patrick's widow Marion Scott duly received the liferent of one third of his lands (terce) in the croft of Bristo in 1509 (*Prot Bk Young*: no. 1890–1).

By 1527 part of the burgage-plot belonged to the heirs of the late Andrew Graham, possibly the 'sergeant' of that name (*Prot Bk Foular* III: no. 827). Some tenuous connections can be suggested – one William Graham appears as a witness to a transaction on the adjacent (Chalmers) toft in 1502, along with immediate neighbours Patrick Denholm and Stephen Locksmith/Pringle (*Prot Bk Foular* I: no. 149). The foreland of the Chalmers burgage-plot to the north was owned by Robert and/or Thomas Smith in 1502, and the 1520s, and one Thomas Smith was husband of an Isobel Graham (*Prot Bk Foular* I: nos 149, 199; I contd: no. 686; III: no. 108). Additionally, a stone house on the Pringle or Locksmith property strip, immediately to the south, was owned by John Wight from 1512. There was an Andrew Graham betrothed to an Elizabeth Wight (*Prot Bk Foular* I contd: no. 288), although there may have been several different 'Andrew Grahams'.

The probable sister of John Denholm, Christina, was married to William Rae, burges, cutler and Kirkmaster (later Deacon) of the Hammermen (metalworkers; *Prot Bk Foular* II: nos 78, 94; III: no. 97; Smith 1906: xcii, 50–1, 53, 56). Rae purchased and donated to the Incorporation of Hammermen two burial lairs in St Giles in 1525 (Smith 1906: lix–lxi). The couple had property in the Upper Bow (around Victoria Street; eg *Prot Bk Foular* I: nos 148; 159; III: no. 748, 'Matthew' possibly should read 'Patrick', see discussion of John and Patrick's relationship, above). Some of the Denholm and Rae buildings were contiguous (*Prot Bk Foular* III: no. 748; IV: nos 80, 292), and William 'bailed out' his relative by paying off his debts in 1531, thereby acquiring temporary possession of his house (*Prot Bk Foular* IV: no. 292).

The Rental of the Knights of St John of 1539–40 lists 'Will rays land, iid' immediately after Alexander Pennicuik's 'land besid the gray freris' (Cowan et al 1983: 23). It would seem not improbable that Rae's 'temple land' is either one of those previously noted in the West or Upper Bow area, or Denholm's plot in Candlemaker Row, acquired from his brother-in-law, John Denholm. These various records show that the Denholm family owned both small plots of land, and several town properties around the Grassmarket. As with the Locksmith/Pringle family, business, property and social transactions were reinforced with the bonds of kinship.

4.2.3 Northern or Chalmers burgage-plot

The third toft or unit of ground parallel with the graveyard wall, travelling north along Candlemaker Row, was the Chalmers (or Chawmer) family preserve. It was, in turn bounded to the north by William Nevin, the Unicorn Pursuivant (*Prot Bk Foular* I: nos 149, 199; III: no. 108), a junior heraldic officer of the Lyon King of Arms (Stevenson 1914: I, 46–7, 52; Grant 1946: 25). Nevin acted as a courier during the marriage negotiations between James III, and Edward IV on behalf of their infant children, Prince James and Princess Cecilia (or Cecily) in 1474 (*Treas Accts* I: lvi–lix, 51–2, 66; *Exch Rolls* VIII: lvi–lviii, lvii note 4, should read p.52 not p.152). He is not mentioned in the *Treasurer's Accounts* after this date, so unfortunately his possible purchase of, or residence at, his property cannot be precisely dated, or used as a *terminus ante quem* for the layout of the immediate area. By 1497, one James Weddale or Waddell occupied at least part of the burgage-plot (*Prot Bk Young*: no. 868).

The northern burgage-plot was occupied by burges Thomas Chalmers's descendants, along with Robert Smith and blacksmith John Davidson. Chalmers was dead by 1486 (*RMS* II: no. 1692), and his '[property strip] of temple land' was burdened with a charge, or annualrent, of 40/- or £2 Scots, made to Elizabeth Monypenny, widow of burges John Preston (*Prot Bk Young*: no. 868). In 1497 Monypenny 'gave sasine of these annualrents' to Margaret Preston, probably her daughter, and son-in-law, with the agreement of the preceptor of Torphichen, the feudal superior (*ibid*).

Monypenny's male relative, however, was Henry Preston, sheriff-depute of Edinburgh (were they mother and son, it would probably have been noted; *ADC* II: 319, 465–6). Preston was several times accused of unilaterally taking action without following the correct legal procedure, and comes across rather unfavourably (*ADC* II: cxxiv, 311, 313–4, 359, 465–6). Both Preston and Monypenny claimed that each of them was due the full amount of the annualrent, or charge levied on Davidson's temple land, which he had originally feued from Monypenny's late husband (*ADC* II: 311). This may have been a different payment from the annualrent given to Margaret Preston, previously mentioned.

The hapless Davidson accused Henry Preston of coming to his house without any legal authority or official permission, and ‘maisterfulle tuke weschell and werklumys’, or forcibly seized kitchen implements, and his blacksmithing equipment, to the value of the alleged debt (*ADC II*: 311). Monypenny, Preston’s female rival for the cash, copied his actions by similarly seizing more of Davidson’s possessions. The Prestons were ordered to allow the court to settle their family’s dispute over the money, while Davidson promised to keep ‘als mekle gudis strenzeable in the sade land’, or to keep sufficient large and valuable items in his house as surety to guarantee the debt (*ADC II*: 311).

In 1502, Thomas Chalmers’s sister, Margaret, inherited his properties (*Prot Bk Foular I*: no. 149), although the descriptions of the various boundaries are difficult, if not impossible to interpret with total confidence. There seem to be at least two, if not three separate burgage-plots delineated, and what was obvious to those involved is no longer so easily disentangled. Margaret Chalmers apparently acquired a backland of the late Robert Smith, who seems to have occupied the foreland of Chalmers plot or toft (*Prot Bk Foular I*: nos 149, 199). At the west end of the toft was the ‘east gable of a built land’, or house, of Thomas Chalmers, which formed one end of the yard or backland. The yard ran for eight ells (8 yards 8 inches, or 9.75m), eastward to Smith’s street-front building on Candlemaker Row or Cowgatehead.

A second yard or ‘piece of backland’, again once occupied by Robert Smith, and presumably on the same burgage-plot as the first yard, extended eastwards from the land of John Balerno in Grassmarket, whose properties were aligned at right-angles to those on Candlemaker Row (*Prot Bk Foular I*: nos 149, 199). Again, ‘a certain foreland’ of Smith lies to the east (*Prot Bk Foular I*: nos 149, 199), though it is not clear if it is the same foreland as previously mentioned. It may be that these two backlands were alongside, or parallel to each other within the one burgage-plot, or interlocked in an L-shape, as the Candlemaker Row plots were possibly ‘extra-wide’ north-south, to compensate for their lack of depth east-west. Margaret resigned these lands to her male relative, Andrew Chalmers, in 1503 (*Prot Bk Foular I*: no. 199).

Andrew Chalmers, now designated ‘of Naton’ (one of numerous ‘Newtons’, possibly Newton parish, beside Inveresk), the previous owner, had died when his granddaughter, Christine, was seised, or took possession of the property in 1520 (*Prot Bk Foular III*: no. 108). The curtilage is merely repeated from previous documents. It has not been possible to identify which one of the properties in the Hospitallers’ Rental of 1539–40 is Chalmers own dwelling or area of ground, but by its position on the list, it may be Alexander Anderson’s, which appears after ‘Will rays land’ (possibly the Denholm, or second toft; Cowan et al 1983: 23). There is even a ‘robert monypennis land under the vull’, perhaps connected to the late Elizabeth of that name (*ibid*).

4.2.4 The 17th century

In 1598 the Provost and Town Council granted the ‘Society of Brewers of the Burgh of Edinburgh’, who included the goldsmith George Heriot, founder of the eponymous school, the lands of the croft of arable land formerly belonging to the convent of Sciennes. This included land on the east side of Candlemaker Row, which appears to have been unbuilt-on (*RMS VI*: no. 959). The area was mentioned in further legislation in 1614, when James VI granted to Thomas, Lord Binning, his Scottish secretary, all the former properties of the Torphichen preceptory (*RMS VII*: no. 1100). They had been given up by the former holder, James Sandilands, Lord Torphichen. Their enumeration includes the properties beside the Greyfriars entrance although in the printed version the individual proprietors are not listed beside their own properties, and cannot easily be paired with the separate burgage-plots (*RMS VII*: 400, 402 note). The later development of Candlemaker Row, including the arrival of the tradesmen who gave it its name, has been discussed in detail by Gray (1930: 91–146).

4.3 Archaeological evidence

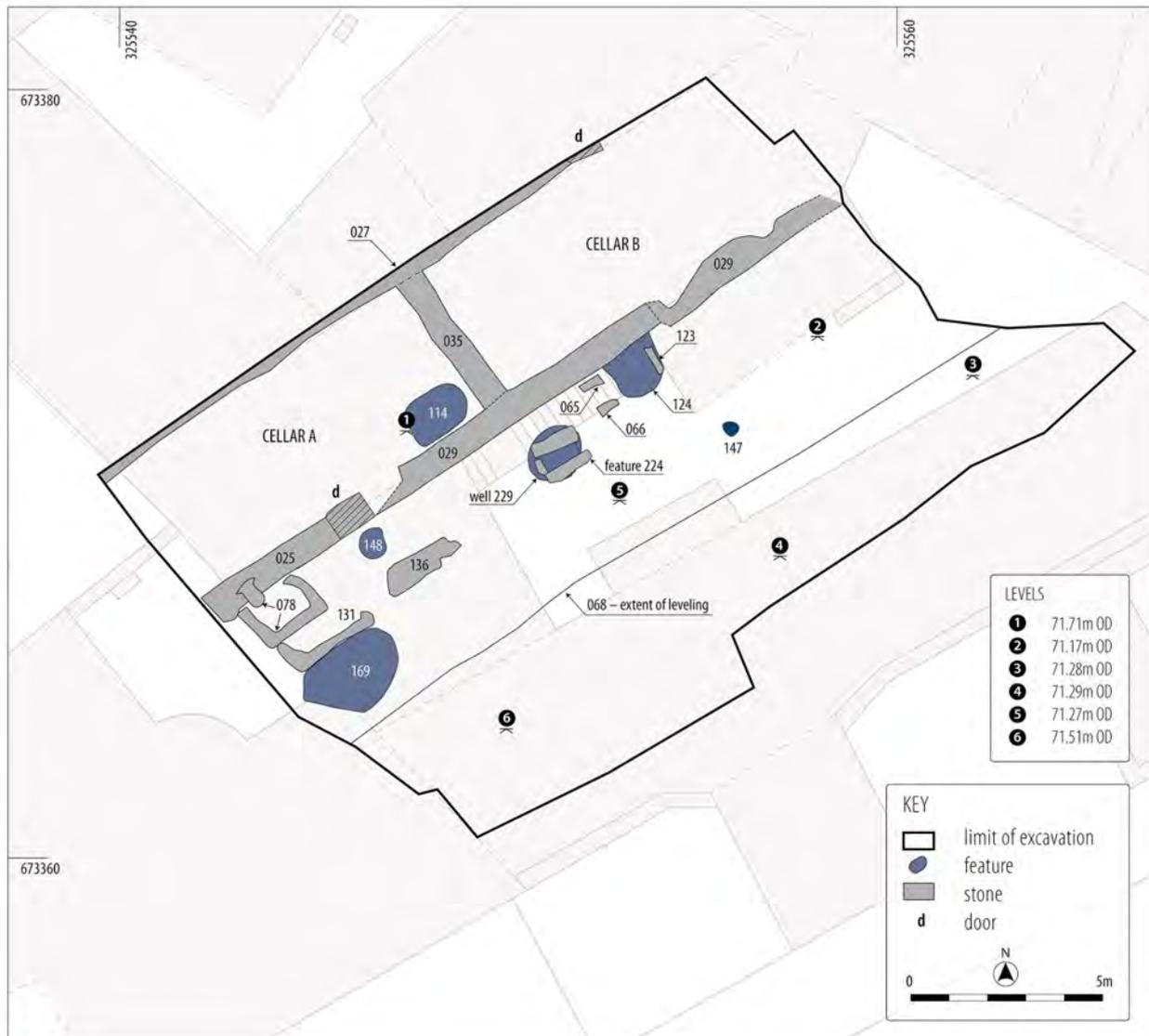
After the backfilling of the terracing cut described above, apparently in the 14th or early 15th century, a thick silty clay levelling layer was laid down over the whole site, excepting its south-eastern edge, up to 0.7m deep. The dating of this layer is difficult. The only finds recovered from it were pottery (52 sherds), almost all of which were medieval, very

similar in type and appearance to those found in other medieval deposits. There are three sherds which were distinctly of 16th-century red- and greywares but these may be intrusive. However, a date in the late medieval or early post-medieval period is implied. The abundance of residual finds in these levelling deposits suggest the possibility that the underlying terracing-cut backfill deposits could also belong to this period. On balance, though, a close inspection of the pottery from each shows enough of a difference (the absence of cooking-pots from the levelling deposits for example) to suggest that some time passed between the two events.

The levelling was likely to have directly preceded the construction of the tenement. The building had a

deeper foundation to the north, where the terracing deposits were deeper, suggesting the builders had a full knowledge of what had been laid down and there were generally no construction-cuts for the walls, suggesting the foundations were laid at the same time as the deposits, which formed the floor-levels within the building. Only at one spot, between the southern wall and the well, was a construction-cut identified. Within this were two sherds of 16th-century jug, providing dating confirmation for the construction.

The tenement walls C025, C027, C029 (Illus 8) were built orientated north-east/south-west parallel to the Grassmarket frontage but at a distinct angle to Candlemaker Row. They were constructed of roughly-squared sandstone blocks laid in irregular



Illus 8 Late-medieval/post-medieval features (© Headland Archaeology (UK) Ltd)

courses and bonded with pale grey clay, of the type extracted from the site subsoil. The building was made up of one long wall along the southern edge, one along the northern, though the external edge of the latter was not visible as it lay outwith the excavation area. The eastern and western walls were also not found. It formed a structure 4m wide internally and at least 19m long. A single internal partition-wall was present (035), keyed into the external walls and dividing the ground floor into two rooms. These were labelled Cellar A, to the west, and Cellar B.

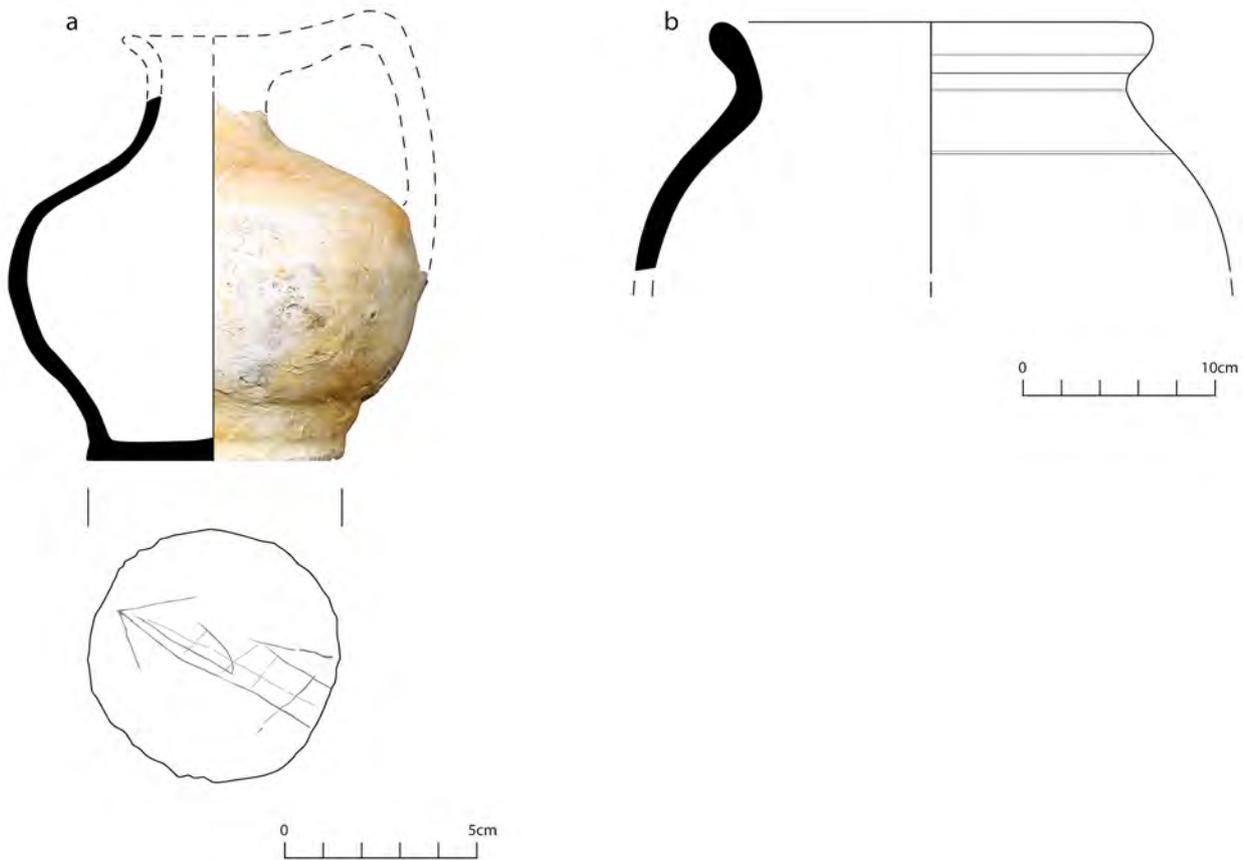
There were two entrances, one into Cellar A from the south, one into Cellar B from the north. At the latter, the position of the stone door-jamb indicated a door opening inwards. There was nothing to indicate that these cellars were occupied. A thin spread of coal over the floor suggested that they were used as coal bunkers, and possibly for other storage. A pit dug into the floor of the eastern corner of Cellar A was probably for rubbish disposal, containing as it did a large quantity of oyster shells and some sandstone rubble. Unfortunately the only datable material in it was an abraded sherd of residual medieval pottery.

Two stone-built features, measuring internally *c* 1m square, built against the southern external wall of each of the cellars, are likely to be cess-pits. The more substantial, or certainly better preserved, of the two lay outside Cellar A, and a hole in the tenement wall with a sloping stone base can be seen to feed into it. These pits could have been mines of interesting finds and environmental information about the lives of people within the tenements, so it is unfortunate that Cellar A's cess-pit appears to have been emptied out before being backfilled with rubble. Cellar B's pit, on the other hand, did appear to hold some *in situ* deposits, though its primary fill was of a greyish deposit of clay, gravel and silt and not the rich organic deposit which might be expected from a cess-pit. Nonetheless it did provide a reasonably secure context for finds; six sherds of pottery including a fragment of a tin-glazed storage-jar with a blue painted design. These were particularly associated with apothecaries but were used for household storage as well. Not enough remained to date it with any accuracy, but a 17th- or early-18th-century date

is most likely. Associated with this was a sherd of post-medieval greyware jug and four sherds from redware jars or cooking-pots, which can all be dated to the 16th century.

The foundation for a lean-to structure was discovered against the exterior of the Cellar A wall and cess-pit, an L-shaped wall. This was clearly a later addition to the building and more poorly constructed, using unsquared sandstone blocks, bonded with clay. There were no clues to its function. A large pit immediately outside this lean-to was probably a quarry-pit for clay extraction, possibly for the construction of the lean-to itself. Its backfill contained several nails including one for a horseshoe. The latter could have provided useful dating evidence but its condition was poor. It could be as early as 13th century but equally could be post-medieval (either 'expanded head & ears' or 'rectangular head' type, Clark 1995: 87–9). The nails may be related to the building works. This pit also provided the only animal bone evidence that could be tied to this period. It contained remains of food animals such as cattle, sheep/goat and pig and fish. A dog tooth was also found as well as dog gnawing marks on the pig bone. There were also more frog/toad bones. The latter suggests the feature may have been open for a while. Cut into a clay subsoil it would naturally collect water, though it is likely that other damp environments would have existed in the vicinity.

Lastly a stone-built well was found 0.6m from the southern wall and approximately in line with the dividing wall between the two cellars, thus probably intended to provide water for both halves of the building. It was substantially built, with an internal diameter of 1.65m, stone-lined, two courses thick, of undressed sandstone blocks bonded with lime mortar. The parameters of the project precluded the full excavation of this feature. The upper fills were of rubble and rubbish relating to the modern redevelopment of the site. These were excavated to a depth of 0.65m below ground-level. The feature was then filled with gravel and preserved *in situ* as it will not be impacted by the current development. The mortar-bonded rather than clay-bonded construction for the well suggests it may have been built at a different time to the tenement, probably later.



Illus 9 Pottery from feature C065/066 (© Headland Archaeology (UK) Ltd)

4.4 A group of early-17th-century finds

A small group of finds was recovered from the rubble backfill of a collapsed stone-built feature C065/066 (Illus 8). This narrow passage was initially interpreted as a flue relating to the brassworks. However, as the feature lies underneath the extramural stair clearly shown on the 19th-century first edition OS map this seems unlikely. The finds within it were most likely to have been deposited in the early 17th century and their remarkably good condition suggested they have been little disturbed since then. Thus on balance it seems this was more likely to have been a drain relating to the use of the tenement.

The finds were all sherds of pottery and glass vessels with a minimum of four represented, most by substantial proportions of the complete form. The most complete was a Loire-type narrow-necked jug, missing only its handle and rim. This was recovered in one piece, entirely unbroken (Illus 9). These were distinctive jugs of unglazed whiteware,

most likely made in central or western France. In common with many sherds, this example had an external oxidised layer of patchy pale yellowish-pink. These vessels are generally given a 16th- or 17th-century date (Hurst et al 1986: 99–100). They are regular finds in Scotland, particularly around the Forth, with securely dated local examples ranging from the second half of the 16th century to the mid 17th century (Haggarty 2006: file 32, 2). Earlier examples tend to be more globular, and 17th-century examples more ovoid (Hurst et al 1986: 100). This example was unusually small and squat, with an estimated complete height of only *c* 110mm and a capacity of *c* 260ml. Complete jugs recovered from Scottish contexts generally range between *c* 130mm (Cruden 1956: fig.32:29) and 175mm high (Haggarty 2006: file 32, 3). Thus, typologically speaking, an early date is implied, which would make it of some age when deposited in the early 17th century. Scratch-marks, such as those found on the base of this pot, are generally assumed to be

marks of merchants or owners. It has been suggested that the jugs were used as containers for either wine (Haggarty 2006: file 32, 2) or olive oil (Hurst et al 1986: 100). They could easily have functioned for both, though the small size of this vessel suggests oil is the more likely in this case.

Other pottery consisted of sherds from at least two locally made Post-Medieval Oxidised Ware jars (Illus 9). Both were similar in form: small, with everted rims, olive-green glaze over the interior and more patchily on the exterior. One, possibly both, showed traces of sooting, implying use for cooking. The fabric was sandy, with a grey core and oxidised pale-red surfaces. This type of fabric and vessel is typical of 16th-century deposits in the area (eg Franklin 1997: 97–8). Though the form did continue into the 17th and 18th centuries, later vessels were typically larger, and the fabric smoother. The vessels were usually furnished with one or two loop handles, a form reminiscent of contemporary Low Countries Redware cooking-pots (Baart 1994: 22).

The glass was the most remarkable survival of all in this deposit. Though it was broken into several sherds, when joined the whole circumference of the rim was reconstructed to a depth of between 27 and 65mm (Illus 10). The form was a beaker, either a cylindrical or a pedestal type, the distinction being in the form of the missing base (cf Willmott 2002: 38, fig.8; 48, fig.31). The decoration was two-fold. Firstly by optic blown bosses, that is a vessel that has been blown into a decorative mould and then removed and blown further, expanding and altering the moulded design (Willmott 2002: 15). This form and type of decoration can be dated to the first half of the 17th century and was common in the Low Countries. The secondary decoration, on the other hand was very unusual indeed and possibly unique in the archaeological record in Britain. It took the form of small motifs of flowers and hearts painted in white enamel onto alternate bosses, forming diagonal lines of each motif type spiralling up the walls. While white enamelled decoration is well



Illus 10 Glass vessel from feature C065/066 (© Headland Archaeology (UK) Ltd)

known, it was typically used on plainer vessels and was not combined with bosses. The flowers are quite a common motif but the hearts are not. The vessel may derive from eastern France rather than the Low Countries (my thanks to Hugh Willmott, University of Sheffield for the above information and opinion). It would have been of some value when purchased.

It is perhaps of note that the deposit contained no clay pipes. Though it was clearly a small context assemblage, clay pipe stems are so ubiquitous in deposits of mid- to late-17th-century date in Scotland that their absence here suggests a deposition date prior to the 1630s. In view of the fact none of the finds can be shown to post-date 1650, but some are probably at least several decades older, a date in the early 17th century seems the best fit for their deposition.

4.5 Discussion

The construction of the tenement clearly marked the first urban development of the site. Certainly this was a good area for expansion of the medieval town. Space was less limited than on the north side of the Grassmarket where the steep slopes and vertical cliffs of Castle Rock created a natural barrier, while at the north-east corner the backlands of the High Street would have imposed on this space. The land on the south side was in contrast relatively unused, not too steep and reasonably dry. The area in question, at the south-east corner of the Grassmarket, also lay at a crossroads of southern and western approaches to the city. Little can be said about the superstructure of this building, but the finely constructed cellars excavated suggest that it was, at least initially, high status. The construction activity was accommodated by the levelling of the site. The building was founded on the levelled area and was similar in nature to the early post-medieval buildings excavated nearby at Jeffrey Street in the High Street backlands (Masser et al 2014) where these buildings also served as foundations for later buildings.

Historical evidence suggests the site was first developed in the late 15th century, but this may have been limited to the street frontage, as archaeological evidence for this backland area (albeit based on a handful of pottery sherds), suggests a 16th-century date for the construction of this building. This would be a few decades after the establishment of

the neighbouring friary and the regular market in the Grassmarket. The building sat between *c* 10m and 16m laterally away from the graveyard wall. If the property sizes conformed to Tait's High Street average 'unit plot width' of 7.6m (Tait 2010: 134) then this building would lie across the boundaries of the second and third plot north of the wall. The position of the structure in fact suggests an 8m unit width might be more likely, or possibly 8.9m as seen along the southern edge of the Grassmarket (see historical evidence, above).

As has been discussed, various permutations of boundary layouts could even place the excavated remains within the first plot if it was 'extra-wide' to compensate for its short east/west length. It is even conceivable it could be in a third plot, if they were all 'single width', and conformed approximately to the sizes of the demolished 19th and 20th century brick warehouses on the backland. However, a second plot or toft seems the most likely assumption.

This appears to have been initially (from 1486) owned by a John Denholm (*RMS II*: 1692). By 1489 it had passed to Patrick Denholm (*Prot Bk Young*: no. 236), a merchant who became a burgher in 1500 who was probably living and/or working out of the tenement. The family seems to have owned small plots of land, and several town properties around the Grassmarket, and to have been connected by business and kinship bonds to their neighbours and other local burghers. Whether any of these people ever stayed in the excavated building itself cannot be known. It may have been rented out to backland sub-tenants. However the historical evidence does indicate a generally well-to-do neighbourhood populated by merchants and burghers.

5. 19TH-CENTURY BRASSWORKS

5.1 Historical background

The area appears to have been redeveloped in the late 18th or early 19th century. Town plans by Kirkwood (1817) and Lancefield Johnston (1851) (Illus 7) suggest some changes over this period. The street frontage and upper floors of the backland structures dated to this period (Geddes 2005b). However, these appear to have built on the original 16th-century cellar foundations. There was no real evidence of what happened on the site in the 18th

and early 19th centuries. Historical records exist, but the lack of precision in addresses means it is very difficult to tie records to exact places before the early 19th century when properties were first given numbers. The properties along the street frontage of the site in these records were numbered 84, 86, 88 and 90, though names were rarely recorded at 88 after the 1830s, suggesting a possible redevelopment at this time. No. 90 was the frontage of the tenement discovered at the north of the site.

A study of the Post Office directories (*POD*) for this area provides a good insight into its character. It is likely that in the late 18th and early 19th centuries the area had a mixture of trade and residential tenants. Some tradesmen, typically tobacconists, general merchants and hatters were noted. Other residents were given by name only. In 1812 a Mrs Gordon is listed with furnished lodgings at 88 Candlemaker Row. Her neighbours all appeared to be tradesmen, though of course a number may have lived above or behind their shops. Sanderson's tobacconist was at no. 86, a painter, William Malcolm at no. 88 and McKay, Skirving and Co, hat manufacturers at no. 90. By 1830 Redpath, Brown & Co, ironmongers and seed merchants, were at no. 84, another tobacconist, David Bruce, had moved in next to the Sandersons, and William Malcolm now had premises in Hanover St and the Cowgate, but still lived at 88 Candlemaker Row. By 1835 the hatters McCaskie and Anderson were in residence at no. 90 and continued there until the 1860s, when they were replaced by Duncan Forbes, millwright and machinist and James Miller, tinplate worker.

The first brassworks, run by John Vance, was noted at no. 90 in 1870. For three years he shared the address with Duncan Forbes and James Miller. In the directory of 1873–4 no one at all was listed at the address, suggesting some sort of redevelopment may have been undertaken at this point, though there is little observable difference in the footprint of the building between the 1st and 2nd edition OS maps of 1849–53 and 1876–7 respectively (Illus 7), though an outbuilding or extension appears to have been demolished at some point during this period. In 1874–5 two temporary tenants moved in, John Black, wholesaler, and McFarland and Co, chemical manufacturers. It is possible that some of the facilities left by John Vance were adaptable for chemical manufacture. However, both were gone

the next year. In 1875–6 ironmongers, Macnab & Co, and merchants, W Paterson & Son, moved in.

The following year they were joined by a new brassfounder, Peter Ramage, whose life and career can be pieced together from census and *POD* references. Born *c* 1821 near Haddington, he began his working life as a brassfounder's apprentice, lodging with the Rodger family in Rose Street. He married Ann in the 1840s and went on to have four children including sons Archibald (b.1846) and David (b.1854). By 1851 he was a journeyman, later graduating to become a master brassfounder. He set up in business for himself in 1856, beginning on Victoria Terrace and moving to the north-east corner of the Grassmarket in 1867. By 1871 he was employing eight men and a boy and living nearby at Gilmers Elm House (it is not clear exactly where this was, but it was listed in the parish of New Greyfriars). His younger brother, also called Archibald, had been lodging with him for some time and now his elderly mother was also staying with them. Archibalds, brother and son, were also recorded as brassfounders, probably employed in the business.

The business moved to 90 Candlemaker Row in 1876 but Peter, though still in his 50s, seems to have died shortly afterwards. It appears that it was the younger son David who took over the business. It is he who was listed as the master brassfounder, employing 14 men and 85 apprentices by 1881. He was living at 11 Buccleuch St by this stage, some 10 minutes' walk to the south-east of the works, with his mother, his uncle Archibald and his two unmarried sisters, while his brother Archibald, still apparently employed in the business, had set up house with a wife and daughter at 2 Greyfriars Place, moving *c* 1887 to 3 Bristo Place. This younger Archibald died *c* 1889, aged 43. David appears to have married about the same time and by 1891 was living with his wife and infant daughter at Buccleuch St. By this time his mother, sisters and uncle appear to have either moved out or died. In 1894 the foundry was taken over by William Dougal, and David Ramage disappears from the Edinburgh PO directories. David would have been around 40 at this stage. It is possible that he met an early death as had his brother before him. Possibly the exposure of the male members of the family to lead, zinc and other toxins in their work

led to ill health and an early death for all of them (Lauer 1955; Hamdi 1969) and may also have led to reproductive problems as possibly experienced by David and Archibald (Cullen et al 1984). However, given a lack of male heirs to continue the family business, he may have sold up, retired and moved out of town. It seems likely that the brass industry was suffering by this stage. After two years under Dougal's care the business wound up. There is no further listing of Dougal and no further brassworks at the site.

Brass foundries were listed along with plumbers in the 19th century directories, suggesting that a large part of their output was made up of pipes and other plumbing fittings. Certainly, the finds evidence suggests they made taps (see industrial features, below). They are known to have made mangles as in the 1890s they are involved in a patent infringement court case.

The address was shared by a succession of other companies throughout this period. It is not clear whether these occupied upper floors of the same building or the street frontage directly to the east of the excavation area. If the brass foundry was purely a wholesale supplier it would not have needed a street frontage. In the 1880s Ramage was recorded as also having an address at 15 Cowgatehead, possibly directly adjacent to 90 Candlemaker Row. Again it is not known if this space was for manufacturing, storage or retailing. However, some of the businesses which shared the address probably did have a retail outlet on the street. In the mid 1870s the street frontage may have been shared by Peter McNab's ironmongers and Paterson's general merchants, or one or other may have occupied upper floors, or had a warehouse above the foundry. After 1878 only one business shared the address and it can be assumed that this occupied the street frontage, though may also have had warehouse space above the foundry. In 1882, McNab's ironmongers was replaced briefly by Thomas Watson, general dealer. The following year it became John Grummett, a paper dealer, paper-stock merchant and waste-paper stores who advertised repeatedly for old account books, ledgers, letters, newspapers, rags and ropes and anything else which could be recycled. It is likely that this would have required warehouse space, though the wisdom of storing waste-paper above or immediately adjacent to a brass foundry is

somewhat questionable. In 1893 this was replaced by the Waverley Picture Frame Works, run by A H Meyer. Meyer appears to have been a German by birth, later moving to Cologne and eventually dying in Dusseldorf in 1904. His name was still associated with the business after this, though it seems to have been taken over in 1902 by Ross & Co.

Throughout this period the function of the shops fronting the southern part of the site (nos 84 and 86 Candlemaker Row) remained largely the same. No. 84 was a china merchants from at least the 1860s to the 1890s, though under a succession of names, the longest serving being William Arnot (1869–89). No. 86 was a wine and spirit merchant, again passing through various hands, but most notably John McNab who in the late 1890s also annexed the old china merchants next door. The premises were licensed for at least the latter part of this, as the address was shown on the 1893 Ordnance Survey map as a public house. The two-storey pub building still stands as Greyfriars Kirkhouse, the frontage dating to the late 19th century (Geddes 2005b: 6), thus probably altered when it expanded in the 1890s. It continued as a public house until it closed in 1957 at which point it was called the Coronation Arms (Geddes 2005b).

5.2 Structural redevelopment

The general form of the structures differed little from that shown on late-18th-century maps (Illus 7). However, as many of the extant buildings recorded before demolition in 2005 dated to the 19th century (Geddes 2005b), clearly there was major redevelopment during this time, though at ground-level few structural changes are visible. The new buildings made use of the wall-footings of the original post-medieval tenement. The basic form was of three buildings forming three sides of a rectangular courtyard, accessed via a pend from Candlemaker Row between nos 86 and 90 on the frontage. Though many of these changes cannot be accurately dated, three are visible on the first edition OS map of 1849–53. At this stage the building was probably a warehouse, workshop or residential space behind a hatter's shop.

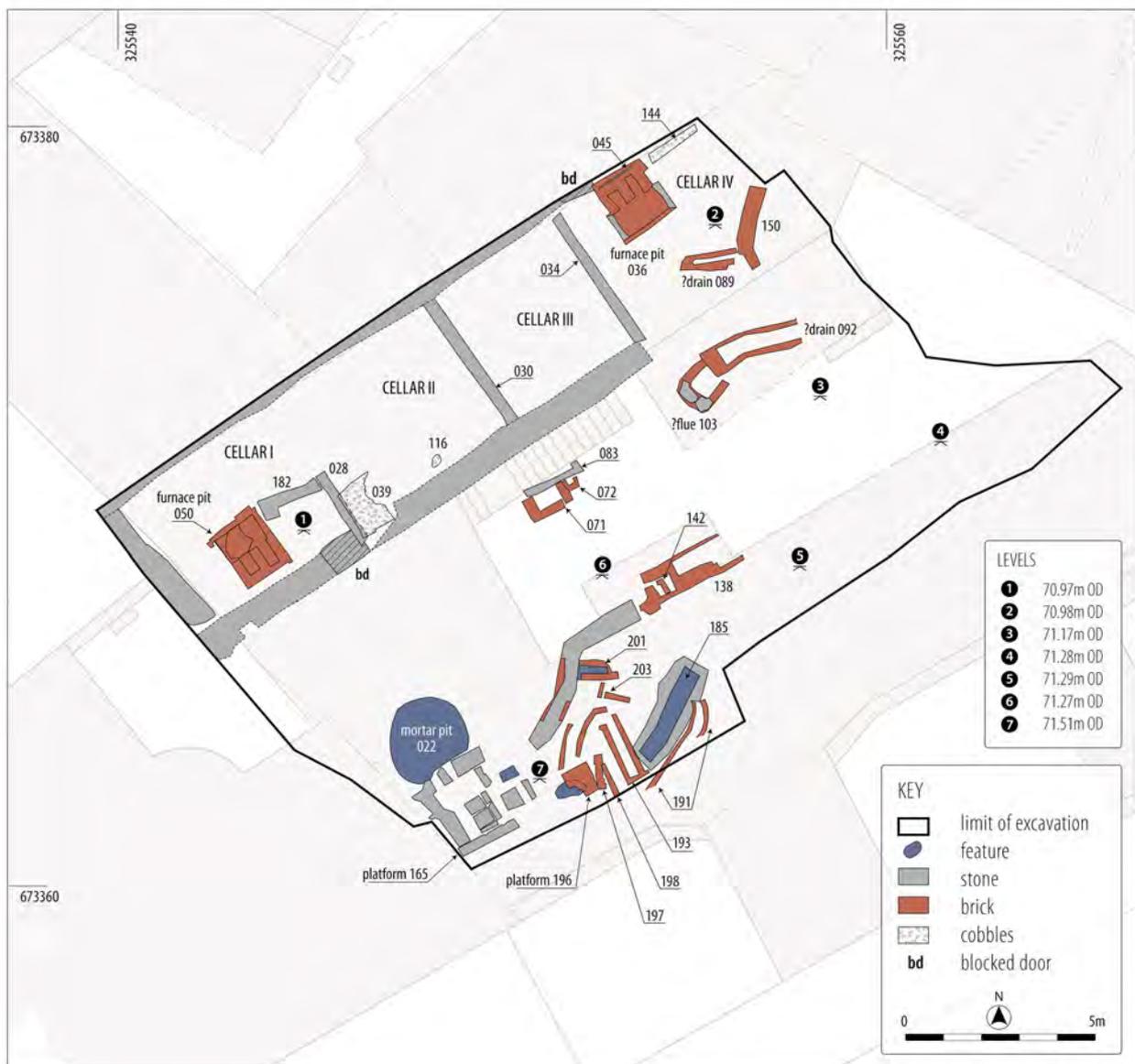
The first of these is an extramural stair constructed in the western corner of the courtyard against the south wall of the tenement. The foundation-wall of

the staircase was built across the northern edge of the well, over the largest of the capping stones. Two C-shaped brick structures built against the side of it (C071, C072) (Illus 11) may have allowed continued access to the well. The stair is still visible on the 3rd edition OS map of 1893–4 but was probably demolished when (or certainly by the time) a later building was constructed filling this courtyard space in the mid to late 20th century (Geddes 2005b: 6).

Another early change was the addition of an extension or lean-to structure to the east of the stair. This seems to have been a temporary addition. It was present in 1849–53, but apparently gone by 1876–7. The tenement wall against which this

structure was built was reduced to ground-level to create one room. No archaeological trace was found of this extension and it is not clear whether the wall was left open to the elements after its demolition, or was rebuilt. A similar extension was built against the northern wall of the southern structure. This is visible on the map of 1849–53 but was gone by 1876–7. Again no archaeological trace of this structure was found, or in fact any trace of the entire southern building, though there were remains of industrial features within it.

There is no way to date precisely the other changes, but it seems likely that they were contemporary with those described above, and some may well date to the



Illus 11 Industrial features (© Headland Archaeology (UK) Ltd)

later conversion to a foundry. The original partition-wall C035 was removed and what had been two cellars (Cellars A–B) was converted into four cellars (Cellars I–IV) (Illus 11) of approximately equal size, though Cellars I and II were separated only by a partial partition. The two original doorways were blocked and new entrances formed. Cellars I and II were accessed via a cobbled ramp C039. Small remnants of cobbling C116, C144 in Cellars II and IV respectively suggested that the floors of the cellars were cobbled at this time. This cobbling was probably robbed out during the construction of the later warehouses. Two large (2m and 1.4m wide) pits C022, C208 (the latter not illustrated) found in the southern corner of the site under the footprint of the most southerly building were probably large mortar-mixing pits associated with the construction. Both were filled with lime mortar.

5.3 Industrial features

The remains of furnaces, possible flues, drains and other features were found covering the footprints of both northern and southern buildings as shown on the contemporary OS maps (Illus 11). It seems likely, however, that different processes, probably entirely different businesses, were undertaken in each.

The northern building was the only structure specifically marked on the 1893–4 OS map as a brassworks, and the archaeological evidence certainly confirms this. The two most distinctive features were two brick-lined pits found at opposite ends of the northern building (C036 and C050) (Illus 11). Both were of the same shape, best described by the Greek letter Π (Illus 12), *c* 1.8m x 1.6m, and 0.6m below ground-level. Both contained traces of waste deposits in the form of heavy pieces of green slaggy material and burnt coal, forming a solidified mass concreted onto the brick base of the structure. In the best preserved example (pit C036, Illus 13) this deposit could be seen to have accumulated underneath an iron grill placed over the pit. A length of iron bar found within the waste at the base of pit C050 implied this contained a similar grill. Both were orientated with their bipartite side to the wall and their long side facing the room. Pit C036 was built using some bricks marked ‘J & M Craig, Kilmarnock’,

a maker recorded as working between 1855 and the 1940s (Douglas 1985) which is in general agreement with the dating of the brassworks, but cannot refine the dating of this feature.

The pits were the bases of twin crucible furnaces. Similar features were excavated recently in a 19th-century brass-foundry in Glasgow (Nevell 2016: 44–6). They represent the ashpit below the firebox, the base of the firebox formed by the iron bars. They would have been accessed from floor-level some 0.5m or so above the level of the bars. There would have been holes in the floor above each of the bipartite sides of the pit, with a removable cover. The fuel and crucible full of raw or scrap metal would have been placed in this hole, resting on the iron bars. When the metal in the crucible was melted it would have been lifted out with tongs and poured into moulds which probably sat nearby on the floor. The wall-footing C182/C028 adjacent to pit C050 (Illus 11) might have supported a surface for casting. The long edge of the pit furthest from the wall would have been covered with removable boards. This is the surface on which the founder would stand to work, and after use the boards could be removed to allow access to clean out the ash pit (Illus 14). A similar furnace can be seen in use at the Black Country Living Museum (Illus 15).

The rubble backfill of both furnace-pits contained material relating to the brassworks. In pit C050 this included unfinished products: a curtain-ring, brass nails, wire and other fittings (Illus 16). In pit C036 they included a complete ceramic crucible (Illus 17), probably discarded due to a crack near its base. The crucible was substantially made, 230mm high with an estimated maximum capacity of 10–11 litres (19 pints or *c* 2.3 gallons). It was covered in copper waste deposits, both inside and out. It was very similar in size to that pictured in use in the Black Country Living Museum, Dudley (Illus 14) where crucibles typically last only a day before being crushed and recycled. This is thus a rare survival and may relate to the last casting at the foundry before its abandonment.

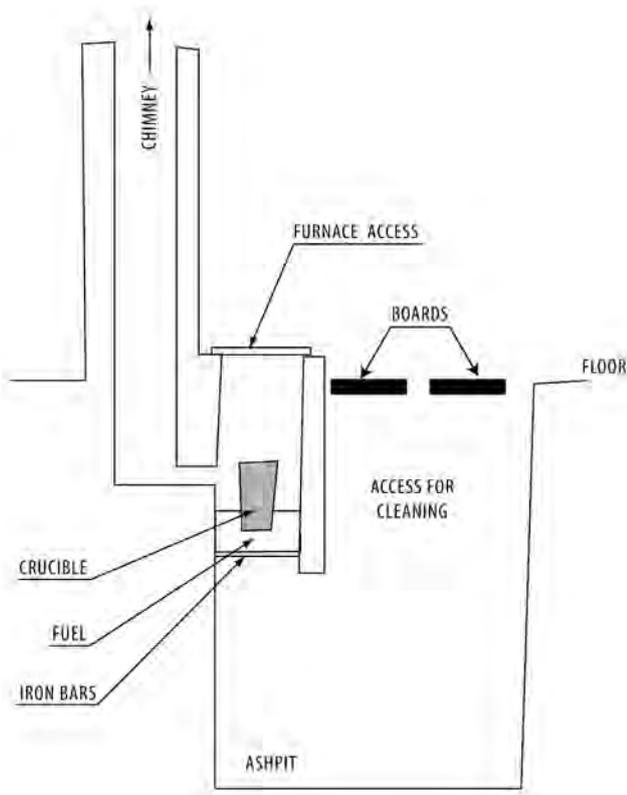
Both furnaces were built against external walls and it is likely that both were ventilated via a chimney built into the wall. The various brick-built linear features excavated in the northern building did not join the furnace pits, and are likely to belong to other features or possibly different phases of



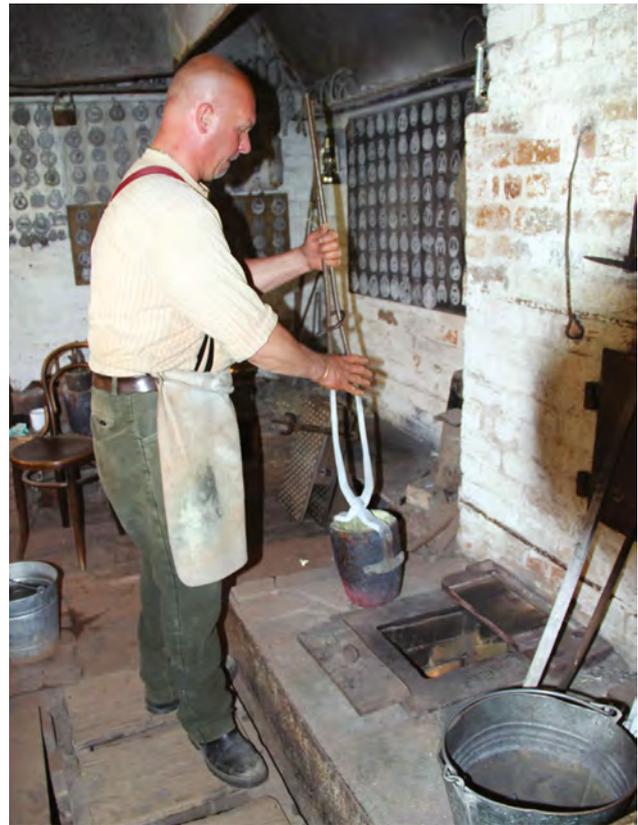
Illus 12 Furnace-pit C036 (© Headland Archaeology (UK) Ltd)



Illus 13 Iron grill over furnace-pit C036 with slag deposits below (© Headland Archaeology (UK) Ltd)



Illus 14 Cross-section of crucible-furnace (after Tim Young)



Illus 15 Twin crucible-furnace in use. Photo by Tim Young, with permission of the Black Country Living Museum, Dudley (www.bclm.co.uk)

activity. The nature of these features is not clear. Some may have been flues for other apparatus such as annealing furnaces, or a drying-room for moulds, while some may have been drains. The burnt coal and ash forming the primary fill of C103 might suggest the former, while the silt forming the primary fills of features C092 and C089 (Illus 11) suggests the latter. This would possibly indicate a change of function between the initial construction of C103 and the rebuild C092. The only evidence to tie any of these linear features to the brass-foundry was a mid-deposit in feature C092 containing ash, clinker and a brass tap or spigot (Illus 16, top left) and some red sand in the basal fill of C089. The latter may conceivably be casting-sand, though is somewhat ambiguous; the former is clearly related to the brassworks but may represent backfill of an already derelict feature during the deconstruction of the foundry.

Linear features C103 and C092 (Illus 11, 18) lay within the Cellar IV extension which according to cartographic evidence was constructed at some point

before *c* 1850 and demolished by *c* 1876 (Illus 7). Assuming this was an internal feature it is likely to have been used by one of the businesses in residence during this period (see above): firstly a hatter; then a millwright & machinist with a tin-plate worker; and lastly the brassworks of John Vance. Thus it is likely that the earlier of the two features, C103, can be tentatively identified as a flue belonging to one of the earlier businesses, while the later C092 possible drain belonged to one of the later ones, though somewhat irritatingly, it would probably have made more sense the other way round. There were no clues to the dating of the two smaller features C089 and C150 within Cellar IV.

The identical form of the two furnace-pits implies they were both contemporary, or near-contemporary, and both must have been in use by Ramage's foundry until it closed in the 1890s. While the function of these areas is clear, there were no clues as to the function of the space in-between in Cellars II and III. Of course, given that the floor itself was at least 0.5m above the height of the



Illus 16 Brassworks products (© Headland Archaeology (UK) Ltd)

furnace-pit remains, the internal dividing walls may not represent separate rooms at all, simply supporting walls for floor-joists, with the whole building being one long room internally. The cobbled ramp C039 into Cellar II may suggest that this area had a different floor-level, though it may simply have been to facilitate the use of the under-floor space for storage. However divided and floored, the space between the two furnaces is likely to have been used for the storage and preparation of casting-sand, casting-boxes and supplies of fuel and raw and scrap metal. Sand-casting was cheap and effective and is still commonly in use today. The sand is mixed with a bonding agent such as clay and moistened with water to make it sufficiently plastic. The cavity of the mould and the gate system are impressed into the sand using mould-former models and left to dry. The two halves of the mould are then joined together and the molten metal poured in. When cool, items can be easily removed from



Illus 17 Brassworks crucible (© Headland Archaeology (UK) Ltd)



Illus 18 Linear features C094, C103 in Cellar IV extension with linear features C089, C150 and furnace-pit C036 in background (© Headland Archaeology (UK) Ltd)

the sand and finished off. The finishing off of items and assembling composite items such as mangles may also have happened within these rooms, or may have been undertaken in upper storeys or possibly in the western or southern buildings. This work would leave little archaeological trace.

Other finds from the backfill of the furnace-pits and other features probably derived from domestic waste incorporated into demolition and backfill deposits. Most notable were the remains of three large stoneware bottles marked for various Edinburgh wine and spirit merchants in Fountainbridge and the New Town. They may have held refreshments imbibed by the workmen undertaking the demolition, or were possibly refuse from the public house at no. 86. Finds of animal bone suggested butchery and food waste from the surrounding tenements. A single human femur, meanwhile, found within the northern building is

clearly residual from the neighbouring Greyfriars Kirkyard.

The features within the footprint of the southern building looked superficially similar to those in the north. There was a whole series of brick- and stone-built linear features, with at least two phases present (Illus 11, 19), there was also a brick platform C196 and a large stone-built platform C165 made of squared sandstone blocks, possibly footings for pumps or engines. The two earliest features were the stone-built flues C185 and C199. The former, C185, showed traces of heating and contained some evidence of heat-affected iron remains, while C199 appears to relate to the stone platform C165. Two of the later brick flues also contained ash and clinker fills, suggesting some sort of heating process. However, there were no traces of copper slag associated with any, and no finds from the backfill that could be tied to the brassworks. There were no

finds of any kind, in fact, to give clues to what this structure was used for.

It is also hard to pull anything firm from the historical evidence, not least because it is unclear what address this building was listed under or even how it was accessed. It seems most likely that it was accessed via the pend and courtyard, but equally it could have been accessed from behind 84 Candlemaker Row, or even via Warden's Close off the Grassmarket. There were no clues in the brickwork to the relative age of these features. They may indeed relate to different processes undertaken within the brassworks. Equally they may relate to works of ironmongers Redpath, Brown and Co, at no. 84 from the 1830s–1840s, to the millwright and machinist Duncan Forbes, or tinsplate worker James Miller listed at no. 90 in the 1860s, or to the chemical manufacturers McFarland & Co or ironmongers Macnab & Co, both resident at no. 90 successively in the mid 1870s.

5.4 Discussion

The 19th century has left the most archaeological traces on site, chiefly in the evidence for industry cut into the ground within the cellars of the old tenement buildings. However, it is clear that this was not one period of redevelopment, but rather a continually evolving set of structures and features, to serve the continually changing nature of the trades and businesses using the space. It should be borne in mind that the archaeological evidence, relating only to those features at ground-level, relates to just a fraction of the activity of the area. There would have been an upper floor or floors over this, accommodating more businesses and industry.

6. CONCLUSIONS

Though heavily truncated and lacking any deep stratigraphic progression that would give a detailed



Illus 19 Part of flue/drain system in southern building (© Headland Archaeology (UK) Ltd)

picture of the site's evolution over the last ten centuries, the site nevertheless provided evidence for three key periods of development. Early features were enigmatic but hint at some kind of development in the area in the 11th or 12th century, while it was still essentially rural in nature. This might relate to agriculture or cattle-management.

The first urban development of the site, historically dated to the late 15th century, was indicated by the levelling of the site and construction of a tenement. The construction of the tenement itself appears to be a few decades later than the apparent development of the street frontage, and probably took place in the 16th century. Though evidence for the nature of its occupation was scarce, with few deposits that could be tied to it, it was certainly occupied in the early 17th century when the glass and pottery vessel-remains were deposited. The finds, particularly the glass vessel, imply a certain affluence in the area, which agrees with the historical evidence for burgesses' and merchants' residences.

It is likely that over the course of the six centuries during which buildings stood on these cellar footings, many different and constantly changing activities were undertaken in the space, including residential accommodation, horticulture, retail and manufacturing. It is only during the 19th century that historical records can give a detailed account of exactly what changes happened and when and precisely where. There does seem to have been a general downward slide to a rather grubby area of retail and industry in the 19th century, before its regeneration, largely linked to the tourist industry in the later 20th century. The concurrence between

historical records and archaeological evidence in the northern part of the site provided a good insight into the brass-foundry business which occupied it between the 1870s and 1890s. However, other businesses have left little archaeological trace. It was also not possible to tie the industrial activity on the southern side of the site conclusively to any particular businesses, though clearly machinery and pyrotechnology were also in use there.

Of interest was the lack of any findings relating to the Franciscan friary itself, and given the activity on the land apparently contemporary with the friary it can be reasonably assumed that this land was never part of it. The friary buildings thus remain unlocated.

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