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Finding the Blackfriars: Excavations at Old High School, Infirmary Street, Edinburgh

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1. ABSTRACT

Redevelopment of the Old High School, Edinburgh, provided an opportunity to investigate the speculated location of a Dominican friary, known to have been founded in the early 13th century. The site was also the known location of the 16th-century Royal High School, a predecessor of the present Old High School building constructed in 1777.

The scope of the archaeological work included the excavation of a relatively small area to the front of the Old High School building. This area contained some of the most significant archaeological remains recently found in Edinburgh's Old Town. These included an early medieval boundary ditch; the surviving remains of two walls, interpreted as being associated with the medieval Dominican friary church and 88 accompanying burials spread across three distinct areas. Six of these burials were radiocarbon dated, returning a range of dates between the 13th and 17th centuries, providing the first clear evidence of the existence of the friary in this location. The most significant of the burials was associated with a cross slab grave cover and located in an area interpreted as the claustral area of the friary. Both the cross slab and the associated burial were dated to the late 13th century.

Further stone wall foundations relating to the 16th-century Royal High School building were also identified within the excavation area. Several further features ranging from medieval stone-lined drains to 19th-century walls and culverts were recorded during further groundworks across the remainder of the site.

2. INTRODUCTION AND BACKGROUND

The area occupied by the Old High School, located on Infirmary Street, Edinburgh (NGR: NT 2615 7347; Illus 1), has played an interesting and important role in the history of the city. From the medieval period up until the present day it appears to have been prominent in shaping the city's religious and academic character. Perhaps most significantly, this area was thought to be the location of a medieval friary founded by the Dominican order (or Blackfriars) in the 13th century.

The site was also the known location of the Royal High School, established in the 16th century, the area subsequently becoming a key location for education in the city. The Old High School itself has been present on this site since 1777 and counted many prominent figures in Scottish history among its pupils.

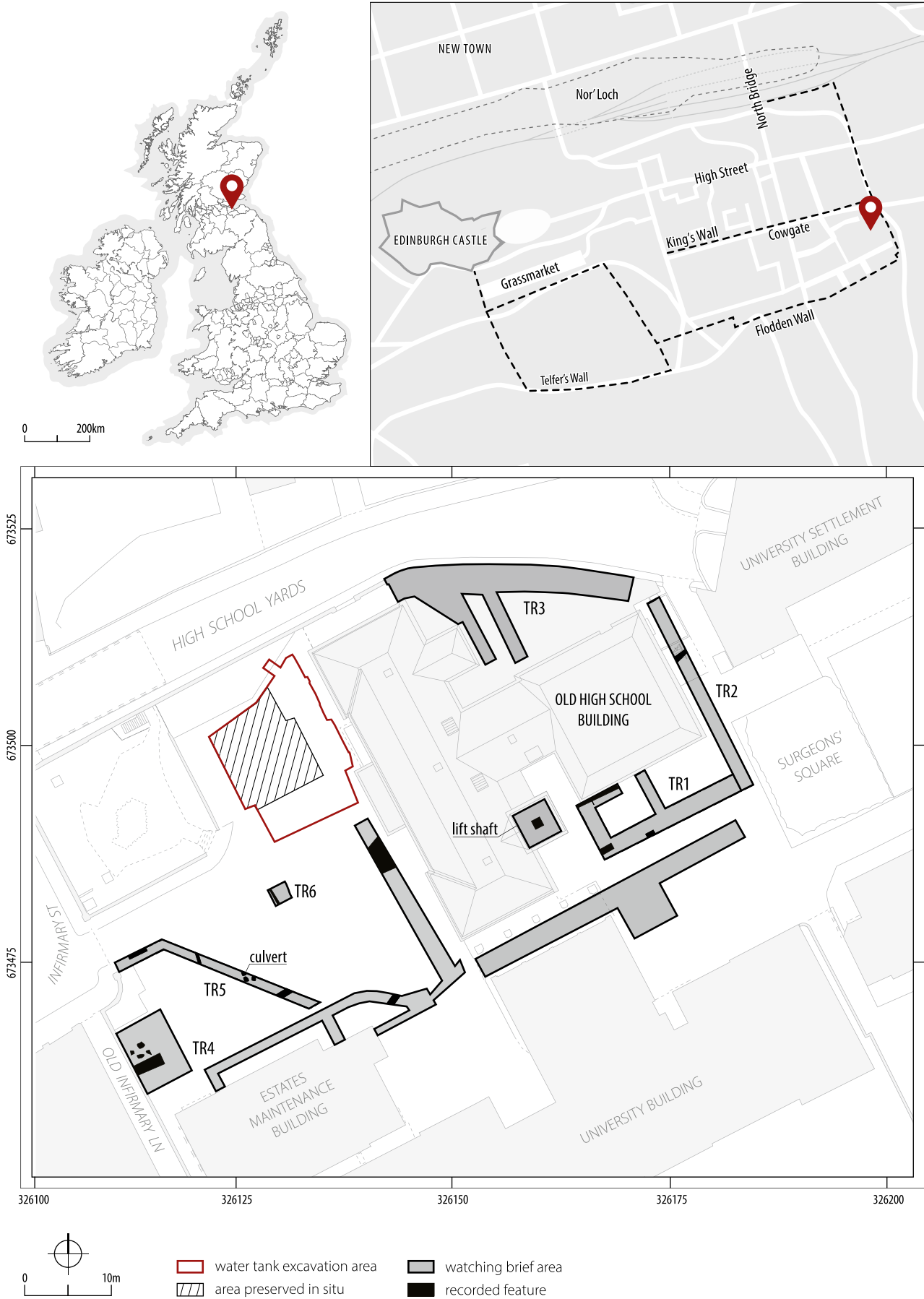
Due to the historical associations attached to the site and its location close to the heart of Edinburgh's Old Town, the redevelopment of the school into the Edinburgh Centre for Carbon Innovation required an extensive programme of archaeological mitigation. The redevelopment involved the alteration of the internal layout of the Old High School building, the insertion of a water catchment tank to the front of the building and several associated service trenches within the grounds of the school. Malcolm Fraser Architects commissioned Headland Archaeology (UK) Ltd to undertake the archaeological works associated with this development, the scope of which was agreed with City of Edinburgh Council Archaeological Service (CECAS). The archaeological programme included an evaluation and historic building survey

(Borden & Murray 2010), a watching brief on all ground works and subsequently the excavation of the water catchment tank trench (Murray 2014).

The only previous archaeological investigation undertaken in the area comprised the excavation of a test pit in Surgeons' Square in 1977 (Holmes 1977). This was excavated to a depth of 1.7m and recorded a large deposit of mortared rubble. No evidence of upstanding walls or structures was noted.

The historic building survey and evaluation (Borden & Murray 2010) were carried out prior to the redevelopment. This produced an in-depth historical record of the school, a summary of which is included below. The evaluation provided largely negative results, the most significant discovery being the remains of a crude wall to the rear of the Old High School. The wall was set into a shallow garden soil that had been heavily truncated.

The most archaeologically sensitive part of the Old High School's redevelopment involved the excavation of a large trench to the front of the building for the insertion of a rainwater collection tank. During the monitoring of the water tank excavations, in-situ human remains and a series of walls were uncovered. Following this, a mitigation strategy was agreed with CECAS to preserve in situ as much of the area as possible while allowing the development to continue. The area of the water tank was reduced, and an excavation was carried out on the new footprint of the water tank area and all connecting pipes. The development also required the excavation of several service trenches across the car park to the front of the building. These contained the remains of several walls and stone-lined culverts. The results of this work are discussed in detail in this report.



Illus 1 Location plan of the site showing the excavation area and the watching brief areas

3. HISTORICAL DEVELOPMENT

The city of Edinburgh's origins reach back to the prehistoric period, with known settlements recorded on Arthur's Seat (Ritchie & Ritchie 1981; Stevenson 1947) and Blackford Hill (RCAHMS 1929). By the early Iron Age, Castle Rock had been established as an enclosed settlement which began to grow in stature from this period. By the late Iron Age, it had become a regional power (Driscoll & Yeoman 1997).

Medieval Edinburgh emerged from these early beginnings with gradual piecemeal settlement developing along the High Street. It was a royal burgh in the early 12th century, though no foundation charter survives and its exact date is unknown (Stevenson et al 1981: 2). The Canongate, immediately to the east, held its own burgh status. The foundation charter for Holyrood Abbey (1128 × 1136) grants the abbey the right to build and enclose a burgh between the abbey and Edinburgh (Donaldson 1970: 20–3).

3.1 The development of the Cowgate

Cowgate, the street that runs parallel and to the south of the eastern part of Edinburgh's High Street and western part of the Canongate, was developed from around 1330, though probably existed prior to this as a route for droving cattle out of the town to pasture (Harris 2002: 185). Its development perhaps represented the town's first municipal extension (Stevenson et al 1981: 11). It is thought this development was concentrated on the south side of the road because of the burn to the north (Malcolm 1937: 8). The burn was filled in, probably around 1490, with buildings laid out with piles of oak and willows on the levelled ground (*ibid*).

The Old High School site is situated on raised ground to the south of the Cowgate. The earliest known town boundary was the 14th-century ditch identified to the north side of the Cowgate at the site of St Patrick's Church (Jones 2011). This may have been superseded by a late 14th-century defensive wall (The King's Wall), identified during recent excavations in the area (Dalland 2017). Thus, in the 13th century the site was outside the confines and defences of the town but in an area that would have provided a good outlook over, and easy access to, the emerging burgh.

The site was eventually enclosed within the limits of the burgh after the construction of the Flodden Wall in the early 16th century. The existing eastern boundary wall of the friary at this time may even have been incorporated into the wall (Bryce 1909a: 71). It has been suggested that stone from the demolished friary was used in a later reconstruction (1561) of the Flodden Wall (*ibid*: 71).

3.2 Establishment of the friary

The mendicant houses of friar preachers emerged in the 13th century, thanks in large part, in Scotland, to the patronage of King Alexander II (1214–49). The mendicant houses differed from monasteries in that their purpose was not removal from the world, but to work within it, administering to the spiritual needs of the local populace. The Dominican order was founded at Toulouse in 1215 by the Spaniard Dominic de Guzmán (later St Dominic) (Cowan & Easson 1976: 114). They spread rapidly in early 13th-century Europe due to their attractiveness to potential patrons. Their rule was austere, they were relatively cheap to establish, being sustained largely on alms, and were highly visible in their urban settings (Oram 2012: 219). They became known as the Blackfriars after the colour of their cloaks.

They were invited to Scotland by Alexander II in 1230; he helped them as a patron and founded friaries for them (Bower 1990: vol 5, book IX, 145). Though no foundation charters survive, it is possible that Alexander founded Dominican friaries in Aberdeen, Ayr, Berwick, Edinburgh, Elgin, Inverness, Perth and Stirling during the 1230s (Oram 2012: 219). Edinburgh's seems to have been one of the first, probably founded *c* 1230 (Bryce 1910: 16; Cowan & Easson 1976: 118), granted the land of one of Alexander's own manor estates (*ibid*). Rulers' interest in religious orders was generally driven by their need for intercession on their behalf before God. Oram (2012: 220) suggests Alexander's interest in the more austere orders in the 1230s was driven by a period of excommunication and by his need to produce a legitimate male heir, a feat he achieved in 1241. More houses followed over the successive decades and centuries. There were probably

16 houses in total, 13 of which were still in existence at the Reformation (Cowan & Easson 1976: 116–8).

The site donated by the king was outside the town at the time of the friary's establishment (see section 3.1 above). This extramural location was normal, though not universal, in the siting of friaries and does not seem to have been solely related to availability of space, as it seemed to occur even where there was available land within the town walls and where there was distinct threat of military unrest (Schofield & Vince 1994: 166). All the 13th-century Dominican friary foundations in Scotland were suburban. At Perth the Blackfriars were located just outside the northern perimeter (Spearman 1988: 49; Simpson & Stevenson 1982b: 31; Canmore ID [28428](#)). In Berwick it was at the north-western edge of the town, just to the east of the castle, though it was enclosed within the town walls there within a few decades (NCC 2009: 24–5). In Stirling it was to the north-east of the burgh (Gourlay & Turner 1978: 10; Page & Page 1996; Page & Page 1997; Canmore ID [46223](#)); Inverness, outside the northern end (Gourlay & Turner 1977b; Canmore ID [13333](#)); Aberdeen, to the south-west (Dennison & Stones 1997: 37; Canmore ID [20147](#)); Ayr, immediately to the east (Gourlay & Turner 1977a: 10; Canmore ID [41853](#)); and in Elgin it was to the north-west of the burgh, north of the castle (Simpson & Stevenson 1982a: 30–1; Canmore ID [16673](#)).

Bryce, rather poetically, notes that the friars 'loved to dwell amid sweet meadows and flowers' (Bryce 1910: 16) though there were no doubt various practical considerations, such as water supply, as well (Greene 1992: 168). The location close to, but apart from, the population to whom they administered seems to have been the ideal.

The size of the Blackfriars site in Edinburgh is not known and it may well have grown over time. Bryce depicts the friary precinct in the early 15th-century (after the erection of the Flodden Wall) extending south and east as far as the wall itself, along present-day Drummond Street and just west of the Pleasance. To the north it had some plots on the Cowgate frontage and to the west it fell short of Nicolson Street. It also shows a large piece of land to the south, outside the wall, of roughly equal area to the precinct itself termed 'Croft of the Black Friars' (Bryce 1910: 97).

The Dominicans followed a rule based on that of the Augustinian Canons, of which Dominic himself had been a member. St Dominic had a mission to train a special body of public evangelists to preach the tenets of religion in the towns and cities across Europe (Bryce 1910: 6). The order renounced worldly goods, embracing absolute poverty, and were dependent on voluntary alms for their housing and subsistence.

The friars preached in Edinburgh and the surrounding villages and towns, travelling up to 30 miles away. They were only permitted to travel on foot and always preached in the vernacular (Bryce 1910: 23). They also acted as confessors, ministered to the poor, sick and dying, said prayers for the dead and collected alms (Ross 1981; Foggie 2003: 55).

Teaching and education were of vital importance to their work. They were the first in Europe to devise and implement a complete and systematic course of education for their students in theology, philosophy and art which ended in a university degree (Bryce 1910: 26). To become qualified to preach, a brother had to be examined by inspectors (Bryce 1910: 23). The leading Scottish Dominican School was considered to have been in Perth (Page & Page 1996: 2). There are no records of a school in Edinburgh, although it is likely that one existed. This is of note, given the later use of the site as a school, though the Dominican schools were for their own novices not for the local laity (Foggie 2003: 104). Somewhat ironic is the later establishment of the nearby medical school near the site, given that the practice and teaching of medicine and surgery were absolutely forbidden by the Blackfriars in the 15th century (Bryce 1910: 27).

While the first generation of friars were probably incomers, by the 14th century they were probably largely drawn from the local urban population (Foggie 2003: 58–9). The number of friars at Edinburgh is unknown. Ross (1981: 3) suggests that a Dominican community would have consisted of at least eight priest brothers. A document of 1479 names 13 friars, but this only notes those who had attended the chapter and were thereby enabled to sign the document and thus there may have been more (Cowan & Easson 1976: 118). The community would also have included a sizeable number of lay people who would help with the day-to-day activities of the friary.

The friary subsisted on income and property from many different sources. While its records were lost during the Reformation (Cowan & Easson 1976: 31), some historical records survive of sums paid to the friary and other sources can be surmised based on historical records at other friaries. Bryce (1910: 80–96) records various annuities and other endowments, including 10 merks from the Royal Exchequer which seems to have been paid yearly from the friary’s foundation up until the Reformation. There are others from various gentry, burgesses and clergy, some for a specific purpose, such as the maintenance of lamps in the church or to sing masses for the souls of departed relatives. People would also have paid for the privilege of being buried within the friary graveyard or, more prestigiously, within the church or cloister.

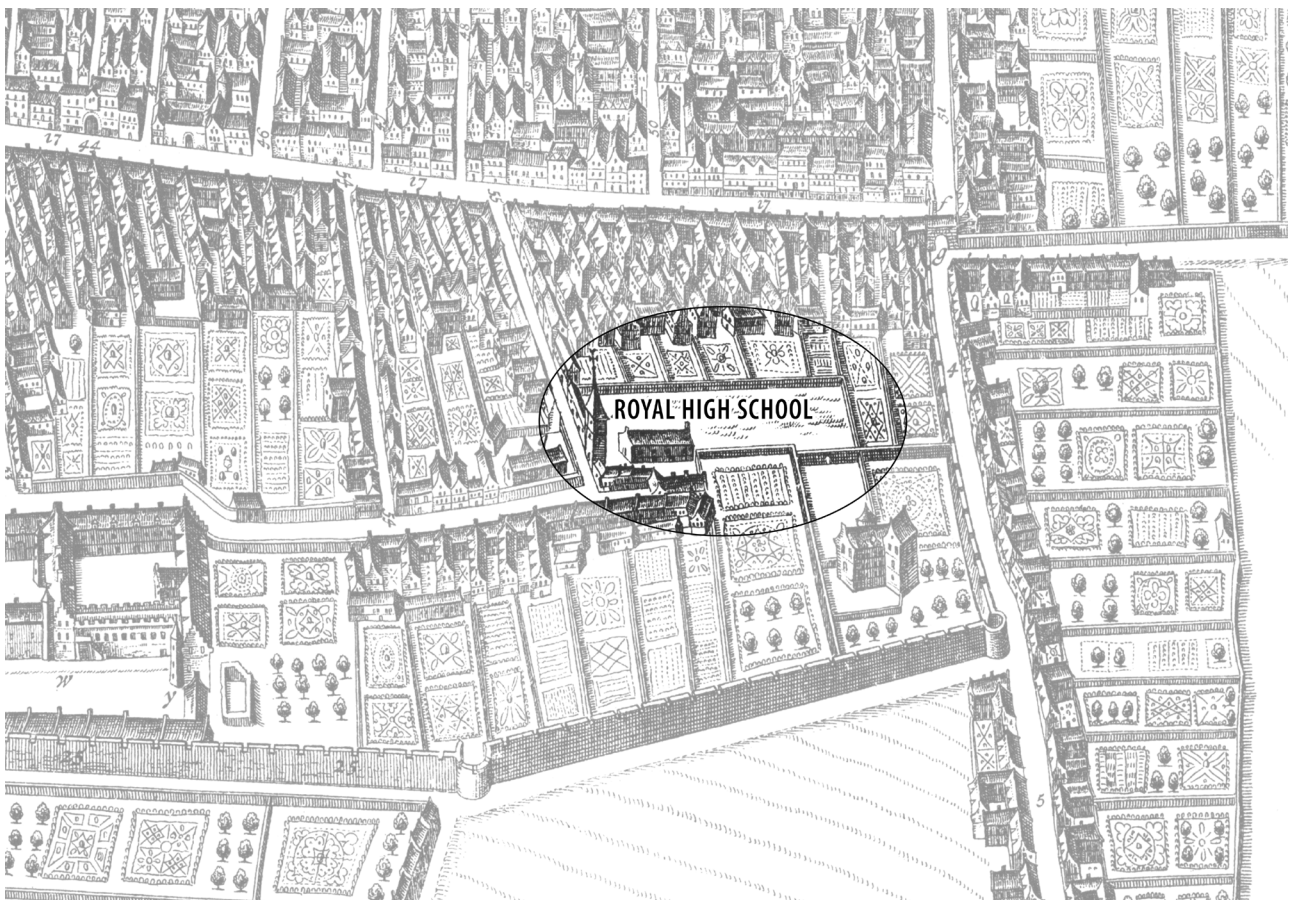
Other documents grant lands and other property, mostly local, to the friary or note collection of rentals for such lands. Some endowments were in kind rather than money, such as an annual grant by the

magistrates of Edinburgh of six barrels of beer (*ibid*: 23). Some friars inherited property from relatives which under Dominican rule became friary property. Endowments could also be forthcoming for specific causes such as repairs to the church (*ibid*: 20). The Edinburgh Blackfriars also maintained royal favour (and remuneration) by providing confessors for the king in the 14th and 15th centuries (*ibid*: 24).

The friary would also have received income from other services provided by their brethren, including gardening, fishing and whisky distilling (Foggie 2003: 86–9). As learned men, their services could be much in demand. Some taught at universities (*ibid*: 101) and friars skilled in clock repair and even gun-making were noted (*ibid*: 86–9).

3.3 The Reformation and the destruction of the friary

The friaries across Scotland suffered particularly badly during the Reformation. Their acquisition of



Illus 2 Extract from Gordon’s 1647 *Edinodunensis Tabula* map, with approximate excavation area highlighted. Reproduced by permission of the National Library of Scotland

property in the burghs they served meant it was easy to paint them as harsh landlords and while they would have had familial links to the local population, by the 16th century they lacked powerful friends. Their proximity to the towns also made them easy targets (Foggie 2003: 231–2).

The Burgh of Dundee was the great stronghold of the reformers, and on 31 August 1543 they gave a practical hint of their intentions by sacking both the Dominican and Franciscan friaries in that burgh (Bryce 1910: 49). Four days later reformers intended to wreck the friaries in Edinburgh. The burghers, however, assembled at the sound of the common bell and drove them outside the walls of the town. This remarkable demonstration in favour of the friars drew from John Knox, a key proponent of the Reformation, the curt comment that ‘the towne of Edinburgh, for the most parte was drowned in superstition’ (ibid: 49).

In May 1544 the English army under the command of the Earl of Hertford destroyed the city of Edinburgh by fire. The Dominican friary did not escape this destruction although the church, being built of stone, may have suffered little from the fire raising (Bryce 1910: 59). The attack may have only damaged the roof and spire, which were probably repaired within a year or two.

The records indicate that the last appearance of the Blackfriars in public in Edinburgh was at the procession on St Giles’ day, 1 September 1558, which ended in a violent assault by the reformers that in turn led to the procession being broken up (Bryce 1910: 62). The Reformation eventually attacked the friary in June 1559, leading ultimately to its complete destruction and its lands and possessions being granted to the magistrates and town council of Edinburgh (Cowan & Easson 1976: 118).

3.4 The development of the Royal and Old High Schools

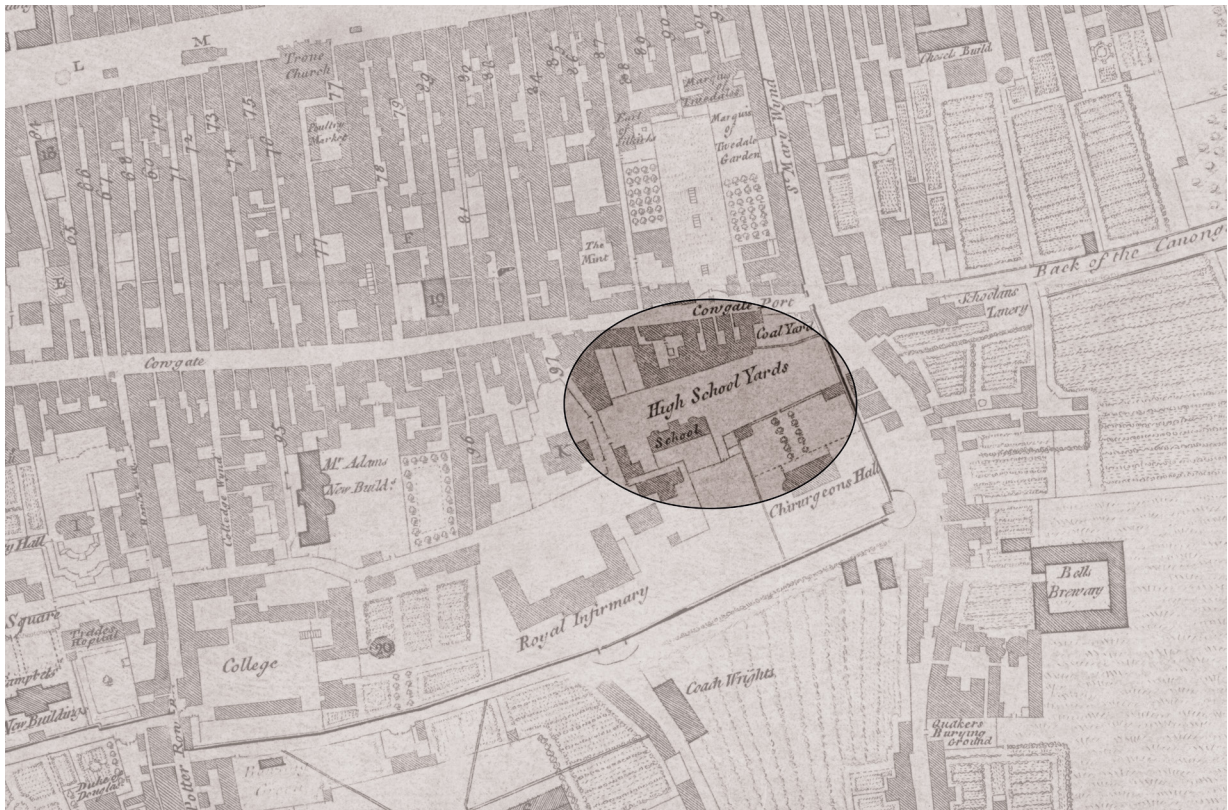
In March 1566 the magistrates of Edinburgh received, as a gift from Queen Mary, the lands belonging to the Grey and Blackfriars of Edinburgh. Initially the town council agreed to build a hospital on the site of the Dominican friary, but this never came to fruition (Cowan 1912: 68). It was not until January 1577 that it was resolved to build a suitable school house in the gardens of the site. This

was constructed in 1578 at a cost of £250 (Steven 1849: 14). It is unclear at this point how much, if any, of the friary still existed. Gordon’s 1647 map of the area (Illus 2) is misleading as it depicts the school slightly misplaced. However, it does show a spire fronting the road to the west side of the school building. Could this be the remains of the Dominican church? The Royal High School on this map is depicted within a large area of garden, suggesting very little of the friary still existed by the mid-17th century. Edgar’s 1765 map (Illus 3) continues to depict the Royal High School (now approximately in the correct location).

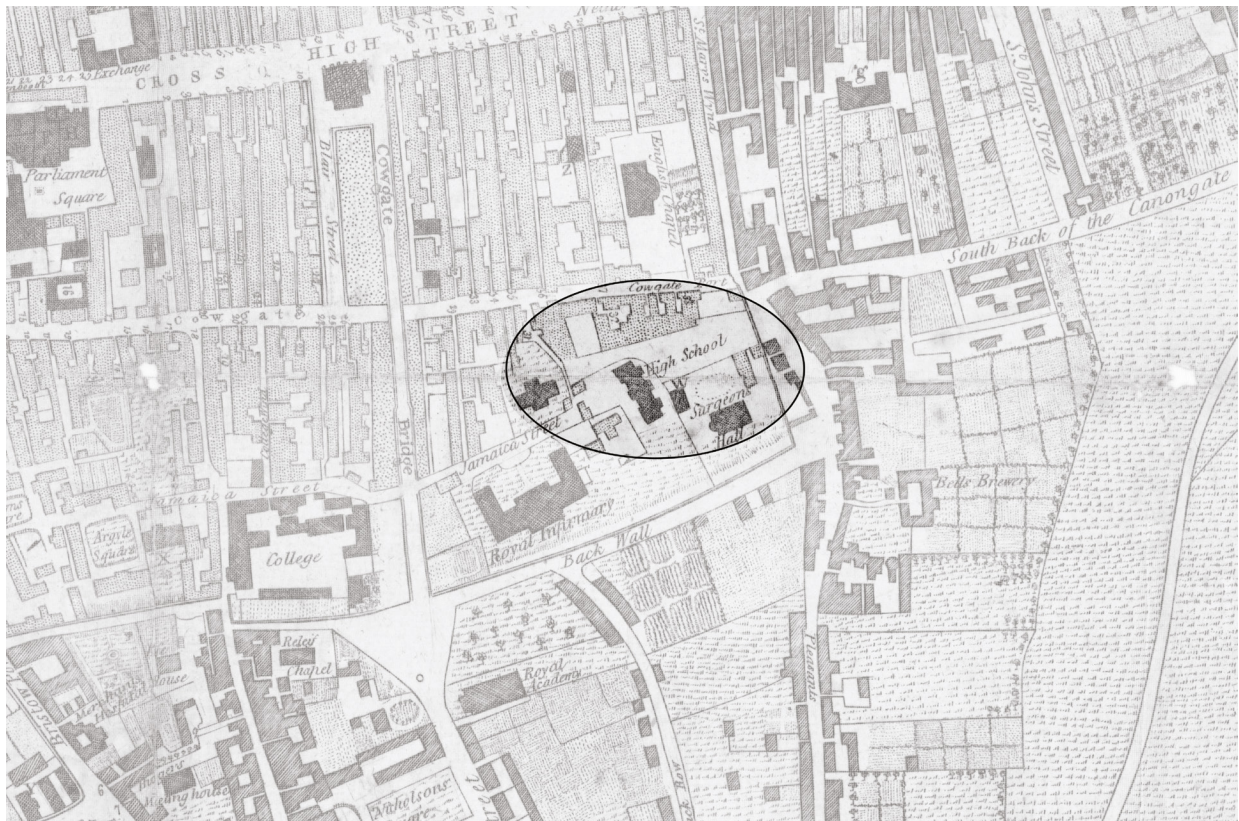
By the late 17th century the school was becoming too small for the number of scholars and a subscription was raised in March 1777 to enable the construction of a new High School (latterly, and somewhat confusingly, known as the Old High School). Over £2,000 was raised, although the eventual cost was closer to double that figure (Steven 1849: 123). The school was built in 1777 to the design of Alexander Laing (d 1823) with the foundation stone laid in June of that year by Sir William Forbes. The alignment of the new school building was perpendicular to the Royal High School (as noted on Ainslie’s 1780 map; Illus 4) with the eastern foundation of the original school being overlain by the new building.

The new school was constructed in the classical design idiom popular in Edinburgh in the 18th century and survives to this day as The Old High School. It is a Category B Listed building (Historic Environment Scotland (HES): [LB-27999](#)) and has an entry in the National Record of the Historic Environment (Canmore ID [118777](#)). In 1829, the High School moved to Calton Hill and the building was subsequently converted to a surgical hospital as part of the Royal Infirmary in 1832. It was later joined to the new Surgical Hospital (now the University Geography Department) when that was built in 1853. A central block containing an operating theatre was added to the rear of the building at this time and the interior of the high school was drastically altered. The infirmary moved to a new site on the Meadows in 1879. From 1879 to 1903 the building was used as part of the City Hospital for Infectious Diseases.

In 1904, the building was purchased by Edinburgh University and refurbished to the



Illus 3 Extract from Edgar's 1765 City and Castle of Edinburgh map with approximate excavation area highlighted. Reproduced by permission of the National Library of Scotland



Illus 4 Extract from Ainslie's 1780 City of Edinburgh map with approximate excavation area highlighted. Reproduced by permission of the National Library of Scotland

designs of R. Rowland Anderson & Balfour Paul to accommodate the Engineering and Science Departments. It may have been at this point that the building became known as the Old High School. As part of the refurbishment all interior walls were knocked out of the front block of the building and its tower was heightened and given an ogee shaped roof. The Old High School was

then occupied by the Department of Geography from 1932 to 1984 and was subsequently refurbished for use by the University Dental School, when most of the original internal features were removed or covered up (Gittings & Morrison 2015). Since 1995 the building has been occupied by the University of Edinburgh Department of Archaeology.

4. RESULTS OF THE ARCHAEOLOGICAL INVESTIGATIONS

The archaeological investigations were primarily centred on the excavation of a trench for the insertion of a rainwater capture tank. This was located in the existing car park of the Old High School immediately north-west of the main entrance. The initial area measured approximately 25m × 20m (Illus 5), although the ground reduction in some of this area was minimal. Following the initial removal of the tarmac and overburden from the excavation area it was decided, in order to minimise the impact on the exposed archaeological remains, to reduce the size of the excavation area and locate the tank to the southern part of the stripped area. The maximum excavated depth was 1.7m, although this was not applied across the whole area as the construction design was altered to lessen the impact on the surviving archaeology.

Elsewhere a series of groundworks was carried out across the site (see Illus 1). These works included areas of ground reduction, and the excavation of test pits and service pipe trenches. The latter of these involved the excavation of a series of linear trenches both to the front and rear of the present building. Within these, several stone walls and culverts were recorded. The isolated nature of the features encountered meant it was not always possible to determine their purpose or phase.

The archaeological features encountered across the site represented four general phases of activity. The earliest of these predated the construction of the medieval friary and may relate to either earlier medieval burgage plots or potentially a boundary ditch. A second phase comprising wall foundations and 88 burials can be assigned to the development of the Dominican friary between the 13th and 16th centuries. A small number of stone-lined culverts may also belong to this phase. Phase three was characterised by two large stone walls and a few associated features that represent the remains of the Royal High School. Several drains and culverts represent the final phase associated with the Old High School *c* 1777.

4.1 Phase 1 – early medieval (pre-13th century)

A truncated segment of a large linear ditch at Context 210 (C210) (Illus 5 and 6) proved to be the earliest archaeological feature within the excavation area. This

was orientated north-east to south-west continuing under the Old High School at the north-east end and truncated to the south-west by a later negative feature, cut C156 described below. The exposed ditch was between 1.8m and 2.3m wide, with a maximum depth of 0.75m. The steeply sloping sides (*c* 45°) led to a narrow, slightly uneven base. The single homogeneous fill of this ditch contained small amounts of charcoal and marine mollusc shell but very few artefacts or charred plant remains.

The absence of substantial anthropogenic material suggests the ditch was not located near any kind of settlement foci, with the homogeneous fill suggesting it was in-filled in a single event. The foundation course of a clay-bonded wall (C146), thought to represent the partial remains of the Dominican friary, was found revetted into the north side of this ditch. This implies that the ditch was potentially backfilled as part of the construction of this wall.

4.2 Phase 2 – The Dominican friary (13th–16th centuries)

4.2.1 The structural remains of the friary

The second phase of activity was represented by the remains of a large stone-constructed building and 88 inhumations. The building was formed of two large walls representing part of the 13th-century friary complex, most likely the church. These walls seemed to respect the 88 inhumations, suggesting they were also associated with this phase of activity.

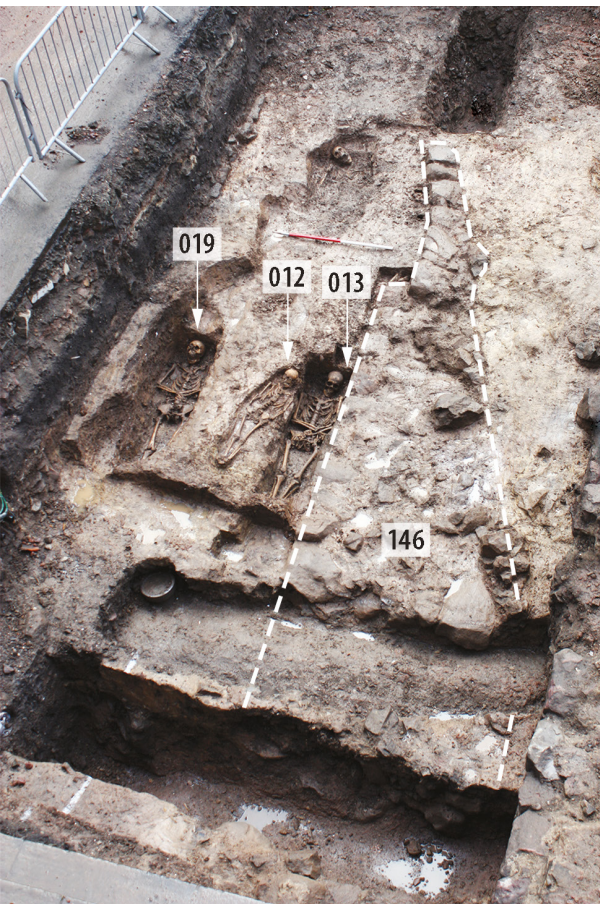
The two north-east to south-west-aligned foundation walls (C052 and C146) formed the partial remains of the lateral walls of a large building (see Illus 5). The southern wall (C146) was revetted into the northern edge of Phase 1 ditch C210, suggesting that the ditch had been open and partially utilised as a foundation trench where the two features intersected. This wall was constructed with clay-bonded stones with random or irregular coursing (Illus 7), this being more regular and neater along its south-eastern elevation, particularly to the south-western end where it incorporated a small stepped foundation course. The wall had also been truncated twice to the north-east by relatively modern service trenches. Here it was noted that the wall survived to a depth of 1m within the earlier ditch cut. At the north-east end, the wall measured



Illus 5 Excavation area showing the location of exposed walls and burial groups



(Above) Illus 6 The medieval ditch C210, facing east



(Left) Illus 7 Friary wall foundation C146, facing west

1.75m wide tapering to 0.75m to the opposite end, at which point it was truncated by cut C156. The apparent tapering of the wall was probably incidental, a consequence of it only surviving within the earlier ditch cut. To the north-western side of the tapered wall (and to the north side of the earlier ditch) a shallow spread of mortar C149 was recorded above the geological subsoil. This layer probably represented the extant remains of the wall and thus indicates that it had originally been wider than the remains at the south-west end suggest. It must be noted that the internal and external faces of this wall were not exposed during the excavation, so it was not possible to compare its construction with that of the northern wall.

The south-west end of the northern wall C052 had been truncated by the construction of the Royal High School wall C042 into which it was keyed.

Though not observed, it had also undoubtedly been truncated to the north-east by the construction of the present Old High School. The exposed internal and external elevations of wall C052 (Illus 8–9) presented roughly coursed slabs of quarried limestone with a rubble and lime mortar core. This construction was distinctly different from that of the later Royal High School wall.

The wall sat on a stepped foundation present on the south elevation. This step projected 0.45m and was 0.45m high. At roughly 0.4m above the top of the foundation course was a narrow scarcement that projected 0.13m from the wall; this would have been used to hold floor joists. The positioning of the scarcement confirmed that the interior of the building was to the south-east side of this wall (ie between walls C052 and C146).

A large stone buttress C369 was situated to the north-west (exterior) side of wall C052 (see Illus 5, Illus 9). This rectangular structure was constructed in the same manner as the adjacent wall and abutted the wall rather than being keyed in. The remains of a potential second buttress, C105, truncated by the Royal High School foundation wall C042, was

recorded further to the west. This was only exposed in section, so the full extent was not revealed.

There were differences observed between the two friary walls although this was difficult to quantify due to the faces of wall C146 not being exposed. In addition, this latter wall was constructed within an open ditch, which may have affected the way it was constructed (eg the use of clay bonding rather than lime mortar, the latter of which would probably have been used on the upper courses).

An L-shaped trench positioned between the two walls (see Illus 5) was excavated to assess the archaeological potential of this area. Beneath the modern layers a well-preserved graveyard soil was encountered which included frequent disarticulated human bone, stone and oyster shell inclusions. Cut into this deposit were several structural remains and several burials. A large square structure, C058, formed of randomly coursed stones bonded with lime mortar was located to the east end of the trench (Illus 10). It was unclear what this represented due to the limited size of the excavation trench, although it may have formed an internal wall foundation to the friary building. A small drystone wall, C055,



Illus 8 Friary wall C052, south-facing internal elevation



(Above) Illus 9 Friary wall C052 and buttress C369, north-facing external elevation



(Left) Illus 10 Truncated stone foundation C058 with wall C055 and culvert base C064, facing east

only two courses high and a stone-built culvert, C064, were present to the west of structure C058. The culvert was adjacent to the wall and shared the same north-west to south-east orientation. It was constructed with a flagstone base, side stones and cap stones. The side stones were set on edge with two courses on the west side and one on the east. The burials in this area are discussed in more detail below.

Further potential friary remains included a narrow stone-lined culvert recorded in Trench 5 and a stone pillar recorded at the base of a lift shaft within the interior of the Old High School (see Illus 1). The culvert was situated close to the centre of the forecourt to the front of the Old High



Illus 11 Stone shaft base found in grave of Sk09

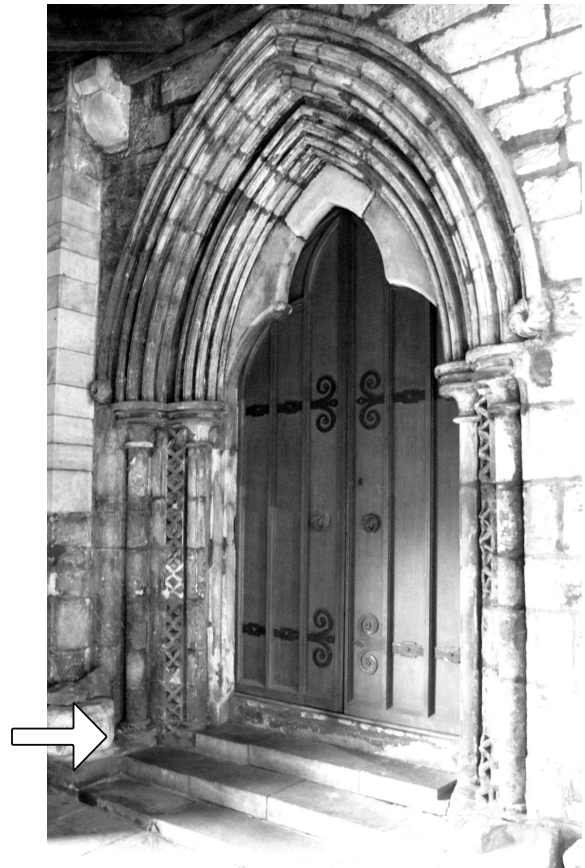
School. Its small dimensions indicated that it may be medieval in date although no dating material was collected from the feature to confirm this. It was cut into the geological clay, with the base formed by the clay surface, rubble stone side walls and topped with large cap stones. The large square stone pier found in the lift shaft measured 1.5m × 1.5m with a height of 1m. It was constructed of lime-mortared sandstone rubble. Its function is unknown, but given its location it has the potential to relate to one of the friary buildings.

4.2.2 The friary finds assemblage

Architectural fragments

Four pieces of moulded stone were recovered from the site; all were of medieval date, and are thus likely to have been part of the friary structure. The relatively small number of architectural fragments recovered from the site may be a result of the recycling of this resource, for the construction of both the Royal High School and the Flodden Wall (Bryce 1909a: 71). Grant (1882: ii, 285) notes that the stones were being used for public works as early as 1560. The remaining fragments provide the only tangible evidence for what the friary might have looked like and to aid visualisation, similar features are depicted from other contemporary Scottish ecclesiastical buildings.

The earliest is a fragment of shaft base (Illus 11) found in the fill of burial Sk09. It is of a coarsely grained and heavily weathered pink sandstone, with some remaining evidence of tooling. It formed part of a small base of ‘water-holding’ profile. This type of base became current in the last years of the 12th century and remained common throughout the first half of the 13th century. On stylistic grounds it is likely that the base was part of the first buildings of the friary, erected c 1230s. The small scale of the base suggests that it supported a nook shaft flanking



Illus 12 Example of shaft base as seen in a doorway at Paisley Abbey © Richard Fawcett



Illus 13 Example of shaft base as seen in a window at Dryburgh Abbey © Richard Fawcett

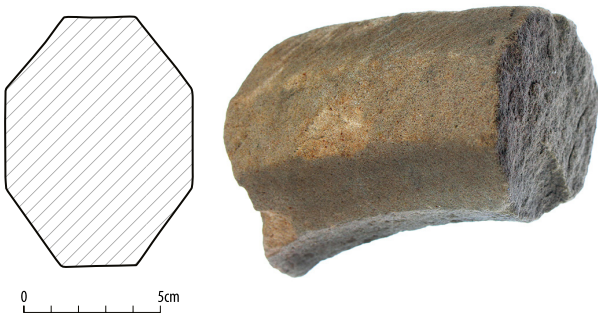
a doorway or window. Similar examples can be seen at Paisley Abbey (Illus 12) and Dryburgh Abbey (Illus 13).

A fragment of a probable window tracery form piece (Illus 14) is probably a little later. It was found unstratified to the southern extent of the excavation area. It is of elongated octagonal section, with traces of diagonal tooling on at least two faces. It is curved on a single plane, indicating it was part of a form-piece in a bar-traceried window. If that is the case, since the earliest datable examples of such tracery in Scotland are of the 1270s, as at Sweetheart Abbey and Elgin Cathedral, a date before the later decades of the 13th century is unlikely. Against the possibility of its being a form-piece is the absence of any provision for glazing, either in the form of a chase or a rebate for a frame. However, the diminutive scale of the piece indicates that it would have been a minor element in any traceried window. Although this identification of a possible function is

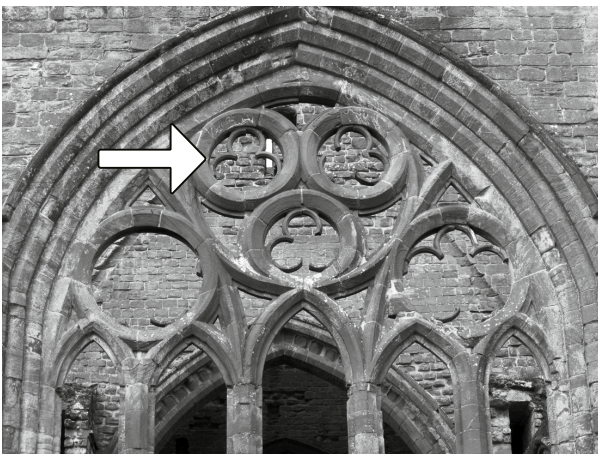
tentative, in the *c* 1270 east window of Sweetheart Abbey the cusps to the circlets in the tracery field appear to be, in some respects, of a similar form to this fragment (Illus 15).

Another piece of possible late 13th-century date is a moulded fragment (Illus 16) found in a disturbed backfill layer at the western extent of the excavation area close to Royal High School wall C042. It is of grey, coarsely grained stone, with some evidence of bedding and vertical tooling. This fragment has mouldings consisting of a sequence of a roll and what appears to have been the commencement of a quadrant hollow. Such a sequence is possible at any date between the 13th and early 16th centuries, and it would be hazardous to suggest a more precise date on such limited evidence. Nevertheless, at the risk of over-interpreting such slight evidence, it may be said that mouldings consisting of sequences of rolls and hollows are particularly common in the later 13th century, as in the west doorways of Glasgow (Illus 17) and Elgin Cathedrals, for example, or in the choir arcade piers of the latter, all of which are likely to date from around the 1270s. However, the small scale of the mouldings of this fragment, in which the total diameter of the shaft appears likely to have been about 80mm, suggests that it formed part of a smaller feature than a major doorway or arcade pier, with the possibility that it was part of a liturgical fixture such as sedilia or a piscina.

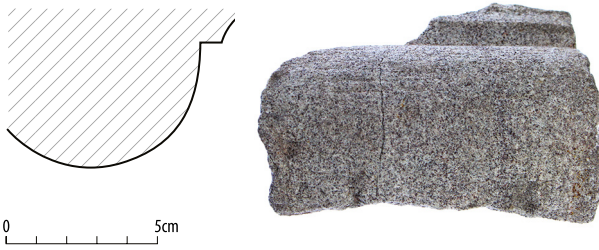
Lastly, a fragment of possible window jamb (Illus 18) was found reused, built into wall C055. It is of greyish pink finely grained sandstone with mainly diagonal tooling except in the more restricted surfaces of the rebate, where the tooling is vertical. This fragment appears to have been broken or roughly re-cut on five of its six sides, probably at the time it was reused in the wall. From what survives of the side that has not been re-cut it was almost certainly from the jamb of a doorway or window with an externally chamfered reveal, an internal rebate and what was presumably a broadly splayed rear-arch. The relatively small scale of the rebate, together with the broad splay of the rear-arch, suggest it is more likely to have formed part of a window than a doorway as seen at Dryburgh Abbey (Illus 19). Windows of the kind indicated by this fragment are generally no earlier than the 14th century and can be found as late as the 17th century; they tend to be found more often in domestic rather than in



Illus 14 Fragment of a probable window tracery form piece, unstratified



Illus 15 Example of window tracery at Sweetheart Abbey © Richard Fawcett



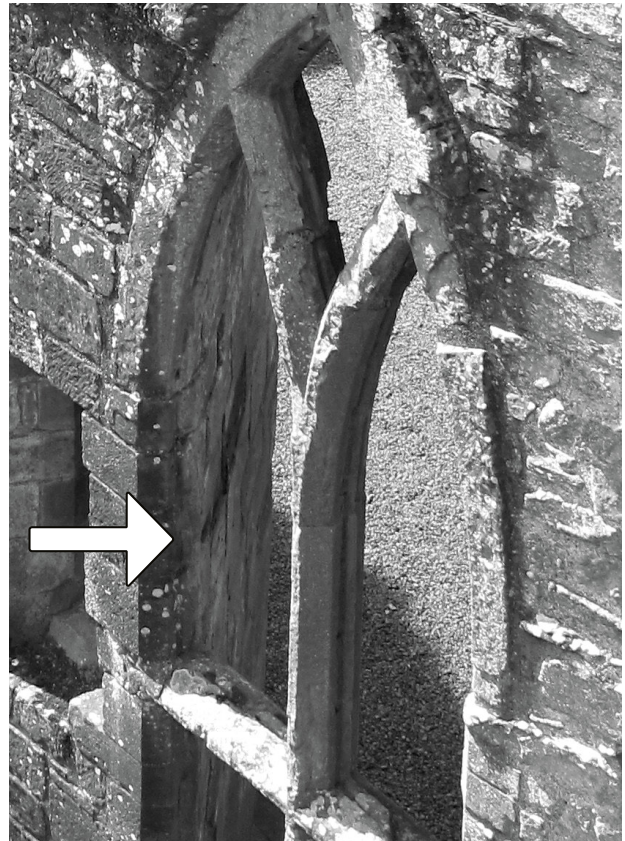
Illus 16 Moulded stone fragment found in backfill layer abutting Royal High School wall C042 (Illus 5)



Illus 18 Fragment of possible window jamb found reused built into wall C055 (Illus 5; Illus 10)



Illus 17 Example of moulded stonework seen in the west doorways of Glasgow Cathedral © Richard Fawcett



Illus 19 Example of window jamb stonework at Dryburgh Abbey © Richard Fawcett

ecclesiastical contexts. If it is from the Dominican friary, it is therefore perhaps more likely to be from the conventual buildings than from the church.

Window glass and lead

Most of the window glass recovered from the site clearly related to post-medieval and later building in the area. Only a handful of fragments, amounting to no more than 5cm², are of probable medieval date. All are in very poor condition, opaque and crystallising, to the extent that their original thickness cannot

be discerned with any confidence. Potentially the earliest stratified were some fragments recovered from the grave of Sk15 (radiocarbon dated to 1485–1955) that also contained pottery of probable 15th-century date. Window glass was a rarity during the medieval period and only used in high-status and ecclesiastical buildings. Thus, it seems likely that the glass once graced the friary church, though in an urban and disturbed environment such as this, its derivation cannot be stated definitively.

Three fragments of lead window came were recovered, all from the fill of the grave of Sk63. The pieces were all straight, with no junctions, though all were distorted and twisted and probably represent waste from repair work. These are likely to have been accidentally dropped rather than deliberately discarded; the value of lead meant that it would have been routinely recycled, hence the paucity of lead comes at the site. The pieces add up to no more than 13cm in length (10g). The grave was found adjacent to wall C052 and ran underneath the perpendicular wall of the Old High School. Given the association with a medieval burial and the fact that these are likely to have been of some age when discarded, it is likely that they are of medieval date.

Ceramic floor tiles

A large collection of floor tiles was recovered, amounting to 80 sherds weighing 5.746kg. They were all of a red fabric, with sandy backs, typically between 20 and 29mm thick (average 24.4mm) and glazed either copper-speckled green directly over the red body of the tile or yellow over a white slip, the finished effect being either dark green or pale yellow. Two tiles had complete dimensions – one was 120mm square, the other 110mm wide – though another incomplete tile was larger, being at least 137mm. Corner sherds typically had nail holes, marking where they had been held and shaped on a board.

These are characteristic of Flemish-type tiles, well known on high-status late medieval Scottish sites, particularly ecclesiastical sites, on the eastern seaboard. They can be dated to between the late 14th and early 16th centuries and were generally laid in chequerboard or other simple patterns (Norton 1994: 150–3).

Tiles of this type are regular finds on sites in Edinburgh's Old Town. Most notable are the 62 sherds found at the Edinburgh High Street site (Eames 1976), between Niddry Street and Blackfriars Street, some 200m to the north-west of the current site, on the opposite side of the Cowgate. Eames suggests the High Street site tiles derived from a building that originally stood on this site. Similarly, a collection of 40 tiles found at St Giles' Cathedral further up the High Street (Hall 2006: 51) may once have been part of the cathedral floor. It is known that Trinity College Collegiate Church,

demolished in the 19th century to make way for Waverley Station, had a floor of this type of tile (Wilson 1862: 557; Norton 1994: 151). There is every chance that the tiles found at the Old High School site were once part of a floor laid in one of the friary buildings during alterations or repairs in or around the 15th century.

In theory, any concentrations of these tiles might point to the location of this floor. The two largest stratified concentrations were within cut C156 at the south-western end of the excavation area (see Illus 5) and through several different grave fills and charnel deposits (Sk20, Sk29, Sk36, Sk48, deposits C223, C264 and C283) bounded by the two friary walls. The fill of cut C156, directly outside this structure, also contained 16th-century pottery. It is possible that the finds within C156 were introduced during post-Reformation demolition works, with the cut representing a robber trench, to extract the foundations of the wall. The grave fills that included tile fragments were all next to the Old High School wall and were therefore likely to represent material incorporated into the fills during its construction in the 18th century. Another more diffuse collection of tile fragments was found in a late levelling deposit to the west side of the excavation area. At least two of these small collections were within the purported footprint of the friary building represented by the two walls described above and while, to a large extent, this does represent the areas best preserved and most intensively excavated, similar areas excavated to the north of the structure revealed only one or two isolated tile sherds. Further concentrations of tiles were associated with later disturbance and therefore their provenance is unknown. It seems likely, in short, that at least some if not all of the tiles originally floored some or all of the structure represented by the two walls.

Medieval pottery assemblage

The pottery assemblage numbered 191 sherds (2.414kg) and was made up predominantly of small abraded and residual sherds (average sherd weight 12.6g). Medieval wares were found in grave fills and graveyard soil deposits or redeposited in later layers, and there is little value in analysing the assemblage in any detail. In all 113 (1.058kg) sherds could be assigned typologically to the medieval period (Table 1). Few sherds could be tightly dated but

Table 1 Medieval to 16th-century pottery

Fabric code	Fabric name	Sherds	Wgt	Reference	Dating
SWGW	Scottish white gritty ware	82 (73%)	542g (51%)	Jones et al 2003	12th–15th C
LWW	Late medieval whitewares	1	45g	Franklin 2011: 44	15th–16th C
LMR/PMR	Late medieval/post– medieval greywares	25 (22%)	438g (41%)	Franklin 2011: 44	14th–16th C
YORKS	Scarborough-type wares	2	8g	Farmer & Farmer 1982	mid-12th– mid-14th C
RSW	Rhenish stoneware – Raeren/Aachen?	2	18g	Gaimster 1997: 224–7	late 15th– mid-16th C
French	French chafing dish?	1	7g	Haggarty 2006: file 14	16th–17th C
Total		113	1058g		

the assemblage is consistent with 13th-century beginnings for activity on the site.

The assemblage is typical of medieval Edinburgh, that is, predominantly whitewares, with some later local greywares and a few imported vessels from Yorkshire and the Rhineland. A small body sherd from a possible French chafing dish is a notable find. They are regular, if uncommon, finds on sites in Scotland (Haggarty 2006: file 14; Hurst et al 1986: 78–82) but, as tablewares, do imply a certain degree of status. The sherd was a residual find in the Sk89 grave fill.

Among the local wares, one vessel stands out from the usual jugs, jars and cooking pots: sherds from the rim of a Scottish white gritty ware (SWGW) curfew (fire cover) or large bowl were found in the fill of grave Sk09. Finds of such vessels are few, though two similar examples were recovered from the Abbot's House, Dunfermline (Hall 1996: illus 13:21–2; Jones et al 2003: fig 1k:25). The sherds lack the tell-tale internal sooting that would confirm use as a curfew and arguably the glazed interior would be better suited to a bowl. Either way, it is an unusual form.

The only context where pottery seemed to be well stratified was within the fills of cut C156 (fills C157, C158 and C159). The cut may relate to the robbing of a friary wall and though the pottery numbers only 13 sherds (349g), the larger sherd

size implies less disturbance after initial deposition. They are distinctly 16th-century in character, being predominantly of post-medieval reduced wares (Table 1), including three examples of small, handled jars with internal glaze and internally bevelled rims, and a base sherd from a pirlie-pig money-box, both forms typical of this period (cf Franklin 1997: fig 26, fig 27:20; Haggarty et al 2011: fig 74:21). The pottery is probably contemporary with the friary's demolition.

4.2.3 The friary burials

A total of 88 interments were recorded within the excavation area. These were divided into three groups (Burial Groups 1–3) based on their location in relation to the wall remains discussed above (see Illus 5). Burial Group 1 was to the south of wall C146 with Burial Group 2 situated between walls C052 and C146 and Burial Group 3 to the north of wall C052. All the burials were orientated south-west to north-east, parallel with the recorded walls, with the bodies placed in the supine position with the head lying to the south-west.

In the main the bone preservation was good, owing to the high clay content in the graveyard soil and underlying natural clay. Various methods were used to age the skeletons, including tooth-wear analysis (as outlined by Brothwell 1981: 72), examination of the pubic symphyses (Brooks &

Suchey 1990), the auricular surface of the ilium (Lovejoy et al 1985) and the sternal end of the fourth rib (Iscan et al 1984 and 1985). The age of the immature individuals was estimated from tooth development, or from the length of diaphyses of the longbones. Sex was assessed by examining the form of the skull and the pelvis (WEA 1980), with more emphasis being given to pelvic form. All bones were examined for pathological lesions and, where possible, these were classified according to cause.

In total there were 35 males, 25 females, six adults not assigned a sex and 22 immature individuals (Table 2). All ages were represented, from perinatal babies to aged adults. A quantity of disarticulated bone was also recovered, both from within the graves and from the general graveyard soils. All the skeletons had suffered some post-depositional damage caused by intercutting of graves and subsequent building and ground-works, leaving only 11 skeletons that were over 90% complete and 35 individuals represented by less than 25% of the skeleton.

Males had a range of estimated height of 1.60m–1.83m (5' 1" to 6') with a site mean of 1.71m (5' 7"). The female range was 1.51m–1.75m (4' 11" to just under 5' 9") with a mean of 1.60m (5' 3"). This estimated stature of both the males and the females falls into the range found in many medieval Scottish sites, eg Aberdeen and Linlithgow (Cross & Bruce 1989: 126), but the ranges are slightly taller than the broadly contemporary local

site of St Giles' Cathedral, High Street, Edinburgh (male 1.55m–1.80m, mean 1.68m; female 1.49m–1.67m, mean 1.56m) (Henderson 2006: 30).

Statistically, the adult population recovered from the site as a whole records a slightly higher ratio of men to women (Table 3) at 1.4M:1F, however, Burial Group 3 contained a higher proportion of women (0.7M:1F) and also contained the highest proportion of children (44%, 18/41). Both Burial Groups 2 and 3 contained a high proportion (32%, 25/77) of individuals who displayed signs of chronic disease or (apparently) debilitating injury. This proportion is similar to the Period 2a (13th/14th century) burials at St Giles', Edinburgh (30%, 7/23) (Henderson 2006), which were hypothesised to have derived from the in-dwellers of the Hospital of St Giles. It is very possible that the interments in Burial Groups 2 and 3 are also derived from the sick and injured receiving charity at the friary hospital.

Six of the burials were radiocarbon dated, selected on the basis of stratigraphically early and late burials from each burial group. They returned dates from the 13th century potentially into the post-medieval period (Table 4). The dates all fit comfortably within the expected historical early 13th- to mid-16th-century date range of the friary, though it is possible that three of the dated burials (Sk41, Sk64, Sk15) post-date this. The earliest of these seems to be that of Sk19 (Burial Group 1). This burial was associated with a stone cross slab grave cover (also dated to the 13th

Table 2 Demography of the burials

Age group	Abb	Definition	Male	Female	Unsexed
Birth to 2 months	PE	Perinate			5
2 months to 2 years	IN	Infant			6
2–6 years	CH	Child			3
6–12 years	YJ	Young Juvenile			5
12–18 years	OJ	Older Juvenile	1		3
18–25 years	SA	Adolescent	3	3	
25–35 years	YA	Young Adult	11	5	
35–45 years	MA	Mature Adult	7	3	
over 45	OA	Older Adult	7	6	
25–65	AD	Adults	6	8	6
Total			35	25	28

Table 3 Demography by Burial Group

Age/Sex group	Burial Group 1	Burial Group 2	Burial Group 3	Total
Male adult	6	19	9	34
Female adult	1	11	13	25
Unsexed adult	–	5	1	6
Immature (18 or younger)	4	1	18	23
Total	11	36	41	88

Table 4 Radiocarbon dates listed in chronological order. (See section 7: Note, for information on the dates.)

Skeleton	Burial Group	Lab code	Uncalibrated date BP	$\delta^{13}\text{C}\text{‰}$	Marine %	Calibrated date at 68%	Calibrated date at 95%
Sk19	1	SUERC-56326	797 ± 39	–19.0	24%	1245–1310 1370–80	1215–1395
Sk93	3	SUERC-56333	656 ± 39	–19.8	14%	1305–70 1380–1400	1285–1420
Sk60	2	SUERC-56332	665 ± 39	–18.9	25%	1310–65 1385–1415	1295–1435
Sk41	2	SUERC-56325	452 ± 39	–18.6	28%	1480–1530 1555–1630	1450–1645
Sk64	3	SUERC-56327	328 ± 39	–20.0	12%	1520–1600 1615–65	1470–1685 1775–1800 1950–5
Sk15	1	SUERC-56328	372 ± 39	–18.1	34%	1525–95 1620–85 1780–1800	1485–1710 1720–1815 1940–55

century), indicating the potential high status of this individual.

General traits of the human remains

A summary of the skeletal traits is presented here, with more detail given in the descriptions of the individual burial groups. Of those skeletons with at least one femur available for measurement, 52% of males (13/25) and 69% of females (9/13) displayed flattening of the femur, a commonly reported finding from among pre-industrial populations. It is suggested (Brothwell 1981: 89) that the flattened shape of the bone is a bio-mechanical response to the stress produced on the leg by a more robust lifestyle (eg long-distance walking on rough ground). The results are broadly like the rates recorded in Aberdeen and Linlithgow (Cross

& Bruce 1989), although a much lower rate than was found in the contemporary individuals from St Giles' (Henderson 2006). The majority of the tibiae (72%: 21/29 right; 20/28 left) also exhibited lateral squatting facets, small extensions of the distal joint surface which are thought to be caused by habitually adopting a squatting position when sitting.

As would be expected with the 13 individuals in the older adult category (45+ years), degenerative changes to joint surfaces were commonly recorded. The most commonly affected joints (outwith the spine) were at the shoulder and the hip, although skeleton Sk48 (Burial Group 2) had very severe arthritis of the knees, probably limiting her mobility.

In general, the human remains displayed typical pathologies seen in many medieval burial assemblages. These include iron-deficiency anaemias caused, for example, by a heavy load of gut parasites, and signs of ill-health and stress.

Trauma and infectious disease

Twenty-three of the individuals (26%, 23/88) had experienced at least one fracture of a bone. The most commonly fractured bone was the ulna, usually a break of the styloid process at the wrist end of the bone, as commonly occurs with a fall onto an outstretched hand. Leg fractures at the ankle were also recorded, some of which had healed very badly, leading to mobility problems for the individuals concerned.

Evidence of bacterial disease caused by infections were seen on the tibiae of seven individuals and two individuals (Sk32, Burial Group 2 and Sk65, Burial Group 3) had scalp infections. Two men and two women had signs of irritation and infection of the sinuses, possibly caused by habitual exposure to particulate matter in the air, such as in an enclosed smoky room.

Of a more serious nature, several individuals displayed signs of infections which can possibly be attributed to specific, chronic, diseases, some of which were very probably the cause of death. A small number of the skeletons (Sk09, Burial Group 1, Sk20 and Sk41, Burial Group 2 and Sk79, Burial Group 3) displayed evidence of tuberculosis or brucellosis. An infection associated with leprosy was also identified on Sk28 (Burial Group 2). Single cases of pneumonia (Sk29, Burial Group 2) and cancer (Sk88, Burial Group 3) were also identified that were likely causes of death for the individuals.

Burial Group 1

The area immediately to the south of wall C146 contained the burials of 14 individuals (Illus 20; see also Illus 7), although only 11 of these were excavated, the remaining three being left in situ as the required levels of the development had been reached. Of these 11, seven were adults (two older men, four young men and one young woman; 6M:1F) with the remaining four being

Table 5 Burial Group 1 demography, pathology and burial details

Skeleton	Age	Sex	% present	Stature (m)	Pathology	Burial details
Sk09	MA	M	100	1.68	Poss brucellosis → kyphosis; R thumb prox phalanx fracture	Cross-incised copper alloy sheet, wire pin
Sk10	IN	?	60			
Sk11	YA	M	100	1.62		
Sk12	YJ	?	95		Severely hypoplastic enamel at 2 yrs	
Sk13	OA	M	100	1.70	Poss old depressed fracture of frontal; poss spinal L4 injury; hyperextension facets both halluces	
Sk14	PE	?	40			
Sk15	YA	M	98	1.83		Dated 1485–1955
Sk17	OJ	M?	78		Spina bifida atlanta (1% incidence, asymptomatic)	
Sk18	SA	F	10			
Sk19	YA	M	60	1.75	Left hallux (big toe) DP fracture	Cross slab, wooden coffin Dated 1215–1395
Sk21	YA	M	25		Spinal degeneration T7 to T10	



Illus 20 Burial Group 1

juveniles or infants (Table 5). The burials in this area were in two rows, with those to the west being mostly juvenile or infant burials with a single adult inhumation. The row of bodies to the east contained mostly adult burials with a single juvenile present.

The most prominent of these burials (Sk19: a young adult male) most likely represented an individual of high status, identified by the presence of an overlying cross slab grave cover C133 (Illus 21). This skeleton returned a radiocarbon date of 1215–1395 (Table 4), the earliest of all the dated burials at the Old High School. At least ten coffin nails were recovered from the fill of the grave, indicating the likelihood of the presence of a wooden coffin. The use of a wooden coffin in a burial of this date is unusual and probably connected to the high status of this individual.

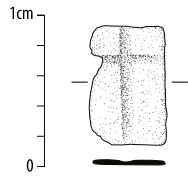
The cross slab overlying Sk19 had been disturbed, lying at a slight angle, which caused some confusion during the excavations as to which of the three burials in its proximity (Sk09, Sk11 and Sk19) it was originally associated with. Initially it was

thought to be Sk11, as the angle of the cross slab suggested it had been moved to the side, exposing Sk11. It was only during further excavation and the removal of the cross slab that the sequence was fully understood. The only burial that lay directly under the slab was Sk19. Stratigraphically it was also the earliest in the sequence of the three burials, having been truncated on its right side by Sk11, which in turn was directly overlain by Sk09. It is likely that the cross slab was disturbed during the burial of Sk11, leading to its angled position. The cross slab itself is discussed in more detail below (see ‘The cross slab grave cover’ on p. 34).

The skeletal remains of Sk19 and Sk11 were unremarkable. The only issue of note was that Sk19 had a fracture on his big toe. Sk09, on the other hand, was more interesting. The skeleton displayed spinal lesions on the front of vertebral bodies in the lower thoracic and upper lumbar regions. This had led to kyphosis, a bending of the spine leading to mobility problems. While this can be the result of the spinal form of tuberculosis, the lesions were more consistent with the semi-lunate, non-sclerotic



Illus 21 Grave slab over Sk19 with neighbouring Sk09, facing north



Illus 22 Copper alloy incised sheet found with Sk09

erosions of the upper body surface attributed to brucellosis, a chronic disease transmitted by ingesting undercooked meat from infected animals (Aufderheide & Rodriguez-Martin 1998).

Sk09 was also interesting artefactually. He was found with a small fragment of copper alloy sheet (Illus 22). It was rectangular, 8mm × 5mm, though a slight irregularity to one long edge suggests it may have broken off a larger strip. Two perpendicular lines were scored into the surface, forming a neat Christian cross. The grave contained several other finds of pottery and other debris and thus this fragment's presence in

the grave may be entirely coincidental. Likewise, if it is a broken fragment from a larger object, the apparent incised cross may also be entirely coincidental. It is, however, possible that it served as a simple talisman, possibly made from an offcut and placed in a grave to accompany a burial, whether Sk09 or one nearby.

Nearby Sk12, a younger juvenile of about six years old, was the only other burial in this group to show any significant medical traits. It had evidence of a very severe check to growth at the age of two years, and several subsequent episodes in the last year of life.

Further stratigraphic intercutting was seen in the row of three burials (Sk17, Sk18 and Sk21) placed up against the south-eastern side of wall C146. Here the bodies were laid directly over the foundation step (Illus 23). The most complete body (Sk17) had truncated a grave cut to the west that contained only a skull (Sk18). It is possible that this skull is redeposited charnel rather than a disturbed burial. This grave had in turn truncated a further grave to the west where only the left



Illus 23 Sk17 and Sk18 lying over the foundation of wall C146

rib cage, upper left arm and part of the jaw had survived (Sk21).

Situated to the south of the three burials along the wall edge were a young adult male (Sk15) that had been overlain by the later interment of a perinate (Sk14). Sk15 returned a radiocarbon date of 1485–1955 (Table 4), implying that the overlying perinatal burial could have taken place after the friary had been destroyed *c* 1560. An infant burial (Sk10) was also located close by but no stratigraphic relationship with the dated burial was apparent. All three of these burials overlaid an earlier grave cut that was not excavated.

It was initially assumed that along with Sk19 the rest of the individuals in Burial Group 1 were high-status individuals due to their distinction from the densely used rows of burial plots recorded in Burial Groups 2 and 3. However, the small sample size in this area precludes any definitive osteological comment on this. Certainly, no obvious differences in the general medical traits was noted between the three groups.

Burial Group 2

This group of burials (Illus 24) was located between the two exposed friary walls, indicating these individuals had most likely been interred within the interior of a building. Within the graveyard soil in this area, 36 burials were exposed, although some of these were in a very poor condition. Almost all were adults, with the exception of a single older juvenile (Sk60) and there were more men than women (1.7M:1F). The spread of the males and females was indiscriminate throughout the area, with no evidence of segregation by sex. The remains of five adult skeletons were in too poor a condition to identify a sex (Table 6).

In plan the graves were placed in three rudimentary rows, with the middle row overlapping the other two. In most places up to three tiers of burial were present, with the best bone preservation found in the uppermost of these. The row of burials closest to the Old High School was the densest in terms of number of burials. The majority of these had been truncated by the foundations of the Old High School building and as a result only the torso and skulls survived (Illus 25). The westernmost row of bodies had also been severely truncated (by a modern service trench), with only the legs and

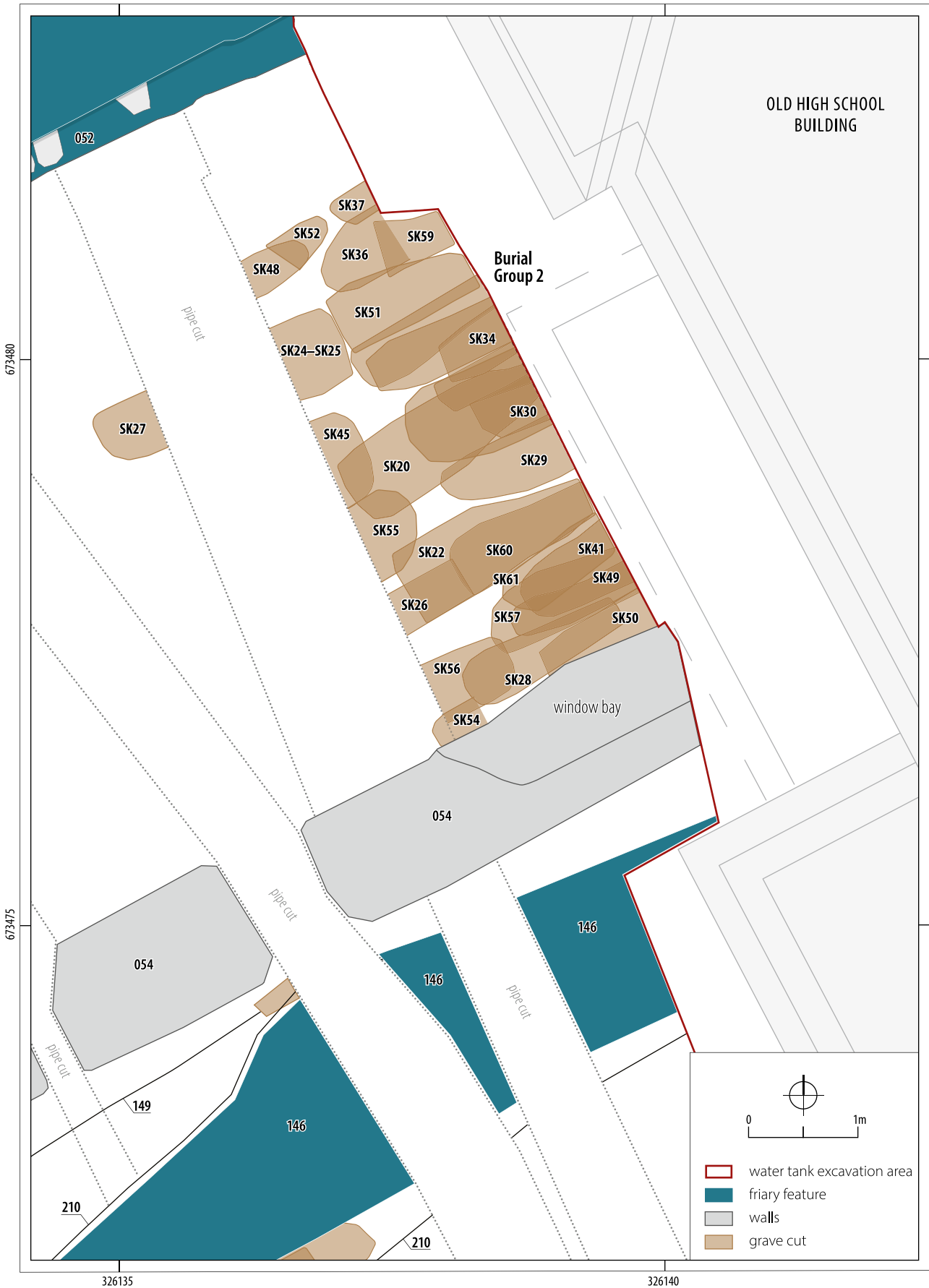
feet surviving. The middle row mostly contained complete burials, although several had been truncated by later inhumations. Some of the burials had also been truncated by stone wall C054, which was associated with the Royal High School building.

The dating evidence for the use of this area came from a series of intercutting burials, forming a stratigraphic sequence of at least six burials. Sk60, dated to 1295–1435 (Table 4), was the earliest in the sequence. This had been truncated by Sk61, which in turn had been truncated by Sk49. Above Sk49 was Sk46, which had been truncated by both Sk22 and Sk41; the latter of these was dated to 1450–1645. Therefore, the sequence of burials can be placed firmly within the 14th–16th-century range. This sequence certainly fits within the known date range of the friary, although other burials outwith this sequence may be earlier or later.

Evidence of trauma was identified in several of the burials in this group. Both Sk25 and Sk55 showed evidence of having received crushing injuries to the feet, which had caused the bones of some toes to fuse in a flexed attitude, affecting their gait. Also, the poorly preserved femurs of Sk56 showed an old injury (possibly a penetrating injury) on the left femur. The right femur of this skeleton was also considerably thinner, possibly wasted through disuse of that limb, suggesting further trauma at some stage of the man's life. An older man (Sk22) had healed fractures of the left clavicle and third and fourth ribs, with an unreduced dislocation of the right shoulder. A younger adult male Sk32 had a spiral fracture of the third metacarpal of his left hand. This injury is of a type commonly seen as a result of the individual punching a hard object and was in the process of healing when the young man died.

One of the burials (Sk20) not only had well-healed fractures to his right tibia and rib but also a massive lesion which had eroded a large part of the right hip-bone, part of the femur head and his 12th thoracic vertebra, leading to a kyphosis of the spine (ie sharply angulated forward at the level of the waist). These lesions were most likely caused by chronic tuberculosis.

Spinal lesions on the front of lower thoracic and upper lumbar vertebral bodies of Sk41 and resulting kyphosis, may also be related to tuberculosis, but, as with Sk09 in Burial Group 1, they are more likely to

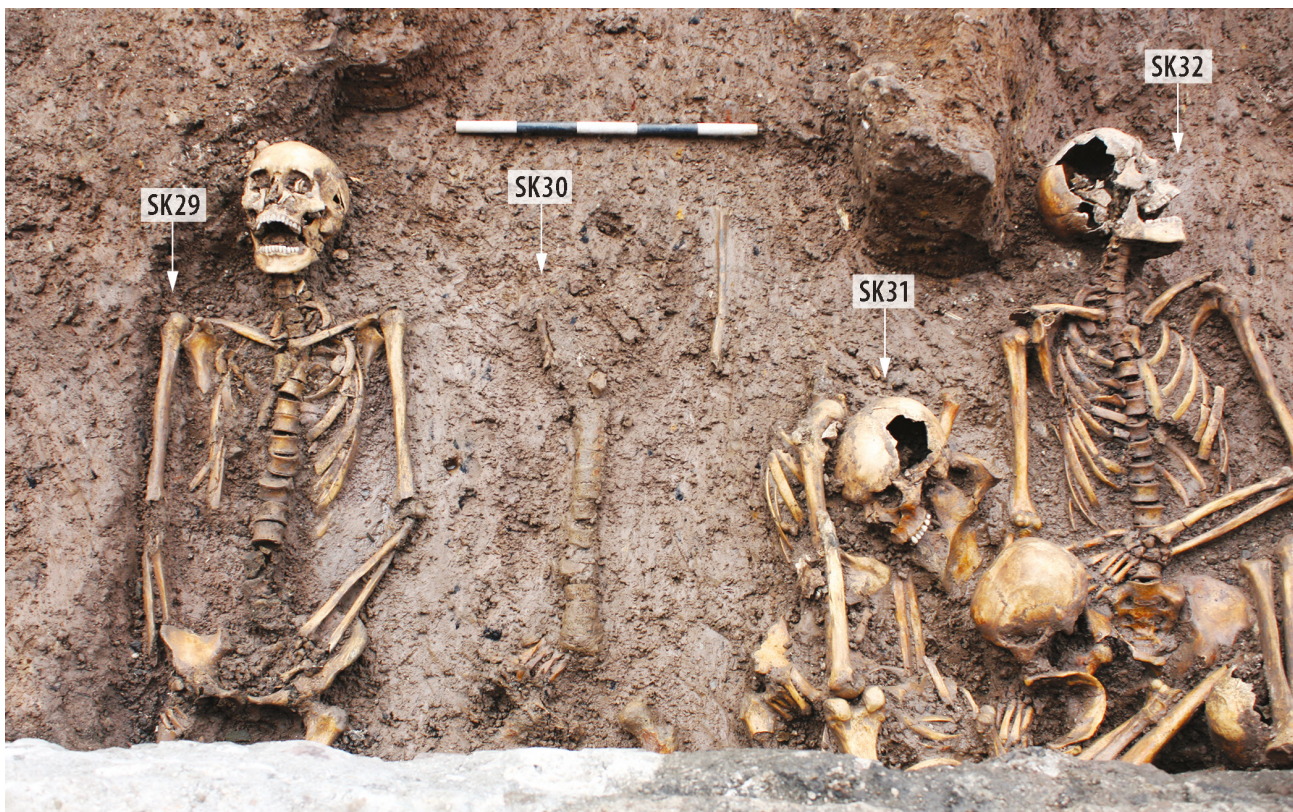


Illus 24 Burial Group 2

Table 6 Burial Group 2 demography, pathology and burial details

Skeleton	Age	Sex	% present	Stature (m)	Pathology	Burial details
Sk16	OA	F	15	1.53		
Sk20	OA	M	95	1.75	Major tubercular lesions, right hip, lower thoracic spine, ribs; well-healed fractures, right tibia and rib 10/11	Wooden coffin, lace tag
Sk22	OA	M	100	1.79	Fractured L clavicle and ribs 3 and 4; R shoulder dislocated (unreduced); 5th lumbar, unilateral spondylolisthesis on left	
Sk24	AD	M?	20	1.68		
Sk25	AD	?	15		R toe 3, fused in plantar flexion	
Sk26	AD	M	12	1.76		
Sk27	YA	F	30		Healed cribra orbitalia and porosity of parietals. Dental enamel hypoplasia at approx 1 yr old	
Sk28	OA	M	100	1.59	(?Tuberculiform) Leprosy	Silver pendant
Sk29	YA	M	60	1.72	Infection of inferior apical lobe of L lung	Three wire pins
Sk30	MA	M	15		Ossified sacro-iliac ligament	
Sk31	YA	M	35	1.73	Fracture of ischio-pubic ramus, un-united but healing	
Sk32	YA	M	85	1.71	Perimortem MC III fracture (punching hard object); scalp infection	
Sk34	OA	F	40	1.63	L2 with herniation of disc into spinal canal ? → mobility probs?	
Sk35	AD	M	5			
Sk36	MA	M	80	1.69	Old fracture R 9th rib	Lace tag
Sk37	MA	M	40	1.70		
Sk41	OA	F	65	1.64	?Brucellosis, ?TB, osteoporosis; 1st sacral spondylolisthesis; R ulna styloid fracture	Dated 1450–1645
Sk43	YA	M	10		Cribra orbitalia	
Sk44	AD	F?	20	1.62	Osteochondritis dissecans 1st metatarsophalangeal joints	
Sk45	AD	?	2			Wooden coffin
Sk46	SA	M	40			
Sk47	AD	F	2			Wooden coffin

Skeleton	Age	Sex	% present	Stature (m)	Pathology	Burial details
Sk48	AD	F?	25	1.56	Severe arthritis at knees	
Sk49	OA	M	70	1.63	Poss old fracture of inferior left L5 zygopophysis → OA of lumbar spine	
Sk50	OA	M	20		Extensive osteoarthritis of spine	
Sk51	YA	M?	15			
Sk52	AD	?	5			
Sk53	AD	?	2			
Sk54	OA	F	35	1.56		
Sk55	AD	?	5		Left foot crushed	
Sk56	AD	M?	20		Old injury to left femur, right femur ?withered	
Sk57	AD	F?	20	1.65		
Sk59	MA	M	50	1.71	Scoliosis; molars non-occluding (?restricted diet)	
Sk60	OJ	?	20			Dated 1295–1435
Sk61	MA	F	25		?Rickets; well-healed fracture of L ulna	Bone apple corer
Sk62	YA	F	10			



Illus 25 Truncated remains of some of the burials in Burial Group 2

have been caused by brucellosis (see ‘Burial Group 1’ above at section 4.2.3). Similar traits were identified in Sk79 (Burial Group 3). One individual, Sk29, displayed signs of pneumonia on his ribs. The infection was active at the time of death and may well have been the cause of death.

Of a different nature, the feet, shins and skull of the older adult male Sk28 showed extensive infection associated with leprosy, though perhaps of a form progressing from the tuberculoid to the lepromatous form (Aufderheide & Rodriguez-Martin 1998: 141). A mysterious silver object (Illus 26) was found with this individual. It takes the form of a round-sectioned rod, well made, with a loop at one end. It is complete, with a neat rounded lower end. It might have served a function as a pin to secure a small hasp or similar object, though it would be unusual to find such a functional object made of silver. It may in fact have had a more decorative function and been a rather simple kind of pendant. No medieval parallels could be found for a pendant of this type. Cruciform pendants were, needless to say, popular during the period, but there is no sign that this object is missing a cross bar.

Another interesting artefact recovered was found with Sk61, a mature adult female. It was a bone cheese scoop or apple corer made from a sheep metapodial, broken at the tip, crudely decorated with knife cuts (Illus 27). These implements are regular finds in archaeological contexts, but almost uniformly date to the post-medieval period, that is, the 17th and 18th centuries (MacGregor 1985: 180; Margeson 1993: 120; Hurley 2004: 463). A rare example found in a medieval context in York (MacGregor et al 1999: 1,974, fig 929.8156) was more crudely made and undecorated. The grave of Sk61 was towards the lower end of the dated chain of

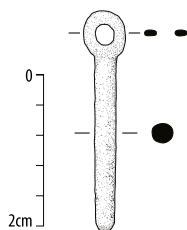


Illus 27 Bone apple corer/cheese scoop found with Sk61

intercut burials (see above) and can be given an approximate 14th-century date. The scoop/corer may then be a very early example of its type, but it is perhaps more likely that it is intrusive. The grave was cut at the foot end by the wall of the Old High School, and the find may have been introduced at this point. Perhaps one of the site workmen was making the tool when it broke during manufacture and was discarded.

The tools were made by removing one end of the bone and part of the wall of the shaft, creating a scoop-shaped blade. Functions suggested are for coring apples, an aid to eating apples for people who had lost their teeth or for sampling cheeses to test for ripeness (MacGregor 1985: 180). MacGregor records a tradition that these scoops were made by young men for their sweethearts (ibid), which, if the find was in situ in the grave of this woman, might suggest a rather romantic story behind it.

Four potential burials were present within the evaluation trench (see Illus 5) to the west of Burial Group 2. Only one of these was excavated, with the other three being preserved in situ. The excavated burial Sk01 contained a complete juvenile inhumation. The bone preservation was good, though the ribs and skull had been crushed due to the fragile nature of the skeleton. One of the three burials, Sk60 preserved in situ, was partly exposed and consisted of a coffined juvenile, identified due to an exposed tibia.



Illus 26 Silver ?pendant found with Sk28



Illus 28 Burial Group 3

Burial Group 3

Another 41 burials were present to the north of wall C052, the densest group of burials within the excavation area (Illus 28; Table 7). There were burials of all ages present in this group, from babies to the elderly. Over a quarter (29%, 12/41) were under the age of six years and amongst the adults there was a bias towards female remains (nine men to 13 women; 0.7M:1F). While this group contained the highest proportion of women and children, no spatial patterning based on age or sex was observed within it.

The graves respected the wall and buttress, indicating they were contemporary with or later than the building. Their location to the north side of the wall indicated they lay outwith the building. This area had later been disturbed by the construction of an outshot or tower forming part of the Royal High School building (see Illus 9) which truncated several of the burials. It was noted that, as in Burial Group 2, there was an increase in the density of the burials along the eastern edge of the excavation area.

Two stratigraphic sequences amongst this burial group were radiocarbon dated. The first of these sequences involved five intercutting inhumations, with the lowest (Sk93) dated to 1285–1420 (Table 4). This was overlain in sequence by Sk95, Sk75, Sk88 and Sk70 (a perinate). The second sequence, also of five inhumations, comprised Sk66 recorded below Sk68 followed by both Sk72 and Sk84 and finally Sk64. The uppermost of these burials (Sk64) was radiocarbon dated to 1470–1955 (see Table 4).

Three perinates or infants were recovered from the uppermost stratigraphic layers of Burial Group 3 (Sk03, Sk58 and Sk70), these, potentially, being examples of later burials of unchristened babies, inserted after the graveyard had fallen into disuse (see section 5.2.3).

This area was not excavated to natural glacial deposits as it was not necessary for the purposes of construction and some graveyard soil was left in situ. Human bone was observed at a level of 1.7m below present ground surface but was covered and left unexcavated. This part of the cemetery was located on a natural slope, with the ground dropping away to the north.

Again, several of the burials here showed signs of trauma and disease. Burial Sk64 displayed poorly healed fractures of the right fibula and some bones

of the toe which would certainly have affected his gait. Other serious injuries identified include major trauma to the left ankle of Sk89. This led to the distortion of the tibia and fibula and the bones of the ankle becoming fused immobile to the tibia. Sk78 had a fracture of the right pubis, the bone having subsequently become infected (osteomyelitis), which may well have been the cause of death. An older adult female (Sk42) had a scoliosis (lateral bending of the spine) probably requiring the use of sticks or crutches to aid mobility, which may have contributed to the wear identified in her shoulders.

Definite mobility problems were recorded for Sk67. This individual had congenital dysplasia of the hips, where the congenitally shallow hip joint spontaneously dislocates as a baby becomes more mobile, preventing the normal formation of the joint and restricting normal locomotion.

Of note was Sk76, a three- to four-year old child. Only the right side of the skeleton was recovered, from skull to hip; multiple healed and healing fractures were recorded including of the fourth to ninth ribs (at least four different ages of fractures) (Illus 29), the radius and ulna (ulna healed askew; Illus 30), possibly the ilium bone of the pelvis, the femur (probably multiple times, the bone is bowed and distorted) and possibly the mandible. Much of the bone had a disorganised structure and the child was very small for its age (based on tooth eruption),



Illus 29 Multiple fractures on ribs of Sk76

Table 7 Burial Group 3 demography, pathology and burial details

Skeleton	Age	Sex	% present	Stature (m)	Pathology	Burial details
Sk01	CH	?	100			
Sk02	YA	M	35	1.81	L ulna styloid fracture	
Sk03	PE	?				
Sk33	YJ	?	25			
Sk38	IN	?	20			
Sk39	CH	?	20			
Sk40	AD	?	5			
Sk42	OA	F	95		Osteoporosis, bilateral subluxation of humeral head; scoliosis (left at L1/2, R at T9/10), L5 spondylolisthesis	
Sk58	IN	?	15		Cribra orbitalia	
Sk63	MA	F	90	1.61		
Sk64	SA	M?	20	1.75	Fractures of feet and right ankle, poorly healed	Dated 1470–1955
Sk65	YJ	?	65		Infection of frontal bone	
Sk66	AD	F	40	1.52		
Sk67	SA	F?	70	1.62	Congenital hip dysplasia	
Sk68	AD	M?	20	1.64	Well-healed fracture of distal right fibula	
Sk69	YJ	?	98			
Sk70	PE	?	50			
Sk71	IN	?	15			
Sk72	YA	F	35	1.57		
Sk73	YA	M?	45	1.77		
Sk74	OJ	?	50			
Sk75	OA	M	95	1.71	Healed rickets; healed fracture of left ulna	
Sk76	CH	?	25		Extensive healed and healing fractures (ribs, femurs, radius, ulna), possible osteogenesis imperfecta or possible shaken baby syndrome	
Sk77	YA	F	50	1.75	Spondylolisthesis and marks of stress on pelvic joints	
Sk78	OA	F	100	1.61	Fractured right pubic ramii with osteomyelitis; osteoporosis, spondylolysis at L5	
Sk79	YA	F	40	1.56	Widespread erosive and proliferative lesions (TB?/syphilis?); healed fracture, L 1st metacarpal	

Skeleton	Age	Sex	% present	Stature (m)	Pathology	Burial details
Sk80	PE	?	80			
Sk82	PE	?	30			
Sk83	IN	?	70			
Sk84	SA	F	60	1.63		
Sk85	OJ	?	30			
Sk86	MA	M	60	1.70	Osteomyelitis of R clavicle; ossified haematoma (?) right index finger	
Sk87	AD	F?	20		Active periosteal new bone formation of both shins	James IV billon penny <i>c</i> 1500–10
Sk88	SA	M	65	1.73	Extensive erosive lesions of skull ribs, clavicle, scapula: metastases (neuroblastoma?)	
Sk89	AD	F?	25	1.51	Healed unreduced fracture of L ankle and tibia	
Sk90	MA	M	65	1.67	Cribra orbitalia; possible old well-healed cranium injury	
Sk91	IN	?	40			Lace tag
Sk92	YJ	?	30			
Sk93	MA	F	70	1.65	Recently healed fracture of L fibula.	Dated 1285–1420
Sk94	AD	F?	20	1.60		
Sk95	AD	M?	40	1.60	Severe periostitis R fibula midshaft (healed)	

probably smaller than a modern 18-month-old. In view of these multiple and repeated injuries, either of two diagnoses seem possible; either the child was repeatedly attacked by an adult or suffered from the genetic condition osteogenesis imperfecta or brittle bone disease. This latter is characterised by the body being unable to produce the normal form of collagen and leads to an extreme fragility of the skeleton.

One definite case of cancer was recorded from the site. In Sk88, the skull, scapula, ribs and clavicle all displayed extensive erosive lesions with irregular edges showing no sign of remodelling. So extensive were the lesions of the skull bones, they presented a ‘moth-eaten’ appearance (Illus 31 and Illus 32). It is certain that cancer was the eventual cause of death.

Very few artefacts were recovered from the grave fills of this burial group although of interest was

a coin found with Sk87. It was a James IV billon penny, second issue, type II and can be dated to *c* 1500–10. No midden material was found in the grave and so it is possible that this was a deliberate inclusion, though its location in relation to the body was not recorded. The inclusion of coins in graves has been noted elsewhere in medieval England, France and Scotland (Gilchrist & Sloane 2005: 100–2; Bain 1998: 1054), most often they are of silver and sometimes found in pairs at the shoulders, sometimes bent or halved. It has been speculated that they represent a prayer to a saint or a token coin to pay the debts of the deceased (Gilchrist & Sloane 2005: 102).

The cross slab grave cover

The cross slab was found covering the body of Sk19, Burial Group 1, a young adult male (aged 18–25). This was the earliest burial stratigraphically in that



Illus 30 Healed fracture on ulna of Sk76



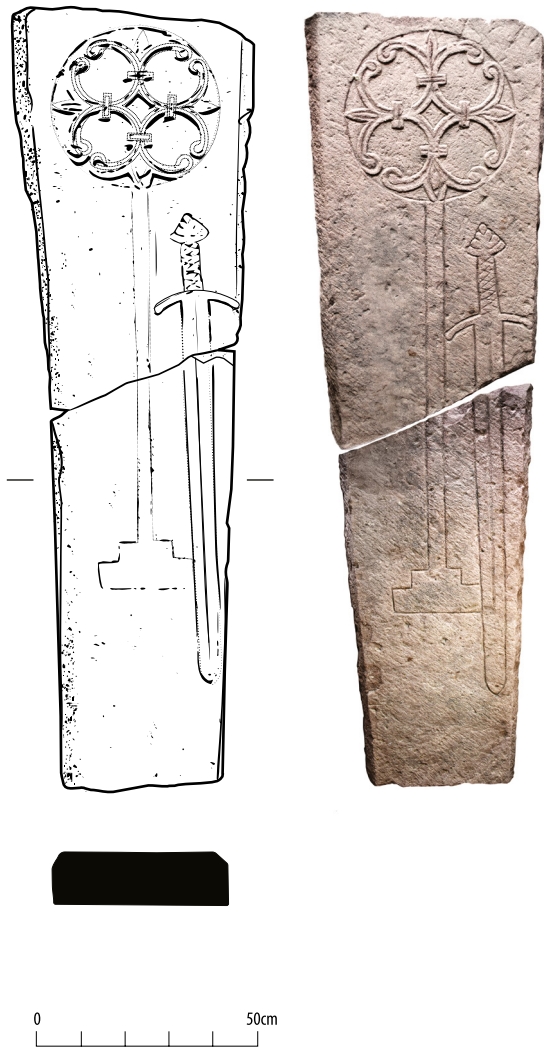
Illus 31 Cancerous erosive lesions on rib bones of Sk88



Illus 32 Cancerous erosive lesions on skull of Sk88

area and was also the earliest of the radiocarbon-dated burials, dating to 1215–1395 (see Table 4). Several coffin nails found with Sk19 imply that the body was buried in a coffin, a rarity in the 13th century and possibly an indicator of wealth and status. It is probable that when first interred, this slab would have been visible, probably as part of a

paved surface. The deceased may have been afforded this honour as a wealthy benefactor or founder of the friary, though given his age, he may have been the son of the same. The stone was carved and incised with a round-leaf bracelet-headed cross plus a sword with a lobed pommel and curving quillon to the right (Illus 33).



Illus 33 Grave slab found with Sk19

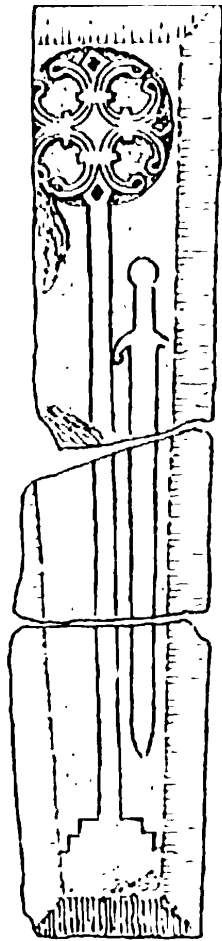
The recumbent cross slab grave cover is the most common form of medieval sepulchral monument to survive in Britain. Recent individual studies of the northern counties of England have shown that Northumberland has *c* 730 slabs (Ryder 2000, 2002, 2003), Durham over 700 (Ryder 1985), Cumbria *c* 525 (Ryder 2005), and there are well in excess of a thousand in Yorkshire. Numbers in Scotland are less certain. In Scotland the term ‘cross slab’ is often used to refer to an upright slab, often of early medieval date, whereas the slabs of the type discussed here are recumbent stones sometimes termed ‘grave covers’ usually distinguished by a full-length cross often accompanied by an emblem.

Whilst the cross slab form has its origins before the Norman Conquest, the great majority of known examples appear to be of 12th- and 13th-

century date. The accepted wisdom is that in the later medieval period other monument forms, such as effigies and brasses, became more popular and that cross slab production declined, although some forms, such as rectangular (rather than tapered) ‘floor stones’, often with inscriptions (rare on earlier cross slabs) remained popular in some regions up to the Reformation. In the absence of inscriptions and dates, stylistic design, usually of the cross, is the only tool for establishing any sort of chronology for these monuments, but it may not be as trustworthy as has previously been thought.

The Edinburgh cross slab is a very typical example. It is a sandstone slab, now broken into two pieces. Overall it measures 1.69m long, tapering from 530mm to 435mm wide and 160mm thick. Its surface has light diagonal tooling, and a narrow chamfer to each of the long sides, and it bears an almost full-length cross and an emblem, a sword, alongside it on the right. The majority of cross slabs bear an incised design; others, often of a higher status, carved in relief, a more painstaking process. This slab shows a not-uncommon combination of the two techniques, the cross head, the most elaborate part of the design, being carved in relief within a sunk circle whilst the remainder of the design was incised.

The cross upon the slab is of the classic ‘bracelet’ form, formed from four broken circles with their openings set diagonally, and round-leaf terminals. The four bracelets are bound together by short ‘cross bars’ and have lanceolate ‘buds’ between them, and all the raised elements of the design are enhanced by incised medial lines. There are a great many variants upon the common bracelet design; most frequent of all is the simple form with round-leaf terminals and pointed buds, as seen on a broken slab in the lapidary collection at Jedburgh Abbey. The cross upon the Edinburgh slab is paralleled more or less exactly on two slabs at Stanwix, near Carlisle (Ryder 2005: 111–112; Illus 34). A rather more elaborate version stylistically is seen on a slab at Torthorwald, Dumfries (Illus 35); here there is a slender straight-armed cross at the centre of the bracelets, and the terminals have all become multi-lobed leaves, and further pairs of leafy shoots spring from the cross shaft, whilst a shield with bearing overlies the sword blade bracelets and there is also an inscription, a real rarity on all but the very latest cross slabs. The



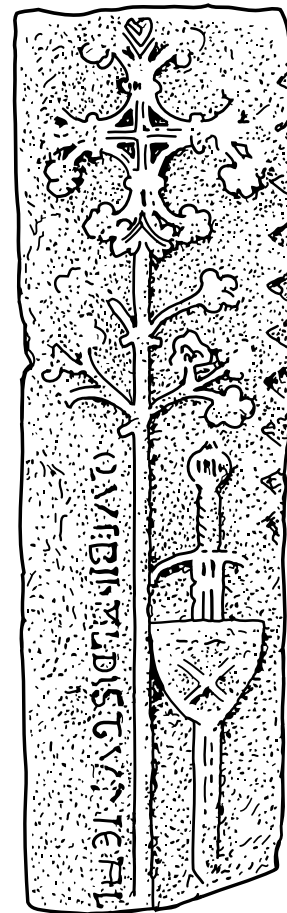
Illus 34 Comparative grave slab from Stanwix, near Carlisle (after Ryder 2005) © Peter Ryder

Torthorwald slab is probably of later 13th-century date.

Round-leaf bracelet crosses are so common, at least throughout the north of England, that it seems doubtful they can be restricted to a short time bracket. Whilst round-leaf foliage is undeniably associated with architectural forms of the late 12th and early 13th centuries, it could be argued that crosses of this type simply came to be seen as appropriate for memorials and their use extended over a longer period, although not denying that new forms may come into use alongside them. It also seems likely that persons commissioning the carving of a new slab might ask for an earlier one to be copied. There is plenty of evidence that the crosses on recumbent slabs were copied from other forms of cross. The near-universal stepped bases or ‘calvaries’ imitated free-standing churchyard crosses, indeed on some late medieval floor stone slabs elaborate stepped bases made up of individual blocks of stone

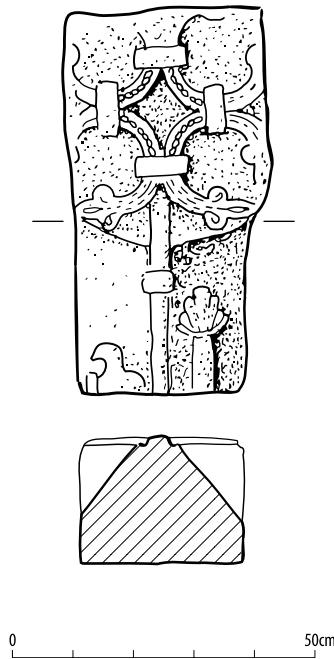
are represented. The one unusual feature on the Edinburgh slab is the manner in which the stepped calvary is set 480mm short of the foot of the actual slab, the adjacent sword blade continuing some distance beyond it.

The sword itself is a very fine example, shown in such detail that one wonders whether it might be a full-scale depiction of an actual weapon. It has a broad blade with a central groove, down-curved quillons, light cross-hatching on the hilt and a multi-lobed pommel in the Viking tradition; it bears a close resemblance to the Cawood sword, found in the River Ouse below York in the late 19th century (Yorkshire Museum online). The sword is the most common emblem to appear on cross slabs (Ryder 2003: 114) and is most frequently placed, as here, on the right of the cross. Its symbolism is clearly male and may well denote



0 50cm

Illus 35 Comparative grave slab from Torthorwald, Dumfries © Peter Ryder



Illus 36 Comparative grave slab from Kirklevington in North Yorkshire © Peter Ryder

the right to bear arms. The multi-lobed pommel is seen again at Bywell in Northumberland, and on three slabs at Kirklevington in North Yorkshire, including one which has a cross almost identical to that on the Edinburgh slab, although the form of the slab is different, its main part being of coped section, with the head being set on a raised block (Illus 36).

Coffins

Evidence of wooden coffins was found with four of the burials: Sk19 in Burial Group 1; Sk20, Sk45 and Sk47 in Burial Group 2. Identification of coffins was based on remains of wood within the grave cuts and spreads of coffin nails in each location. Finds of nails within other graves were assumed to be residual where the graves contained three nails or less and the nails bore no traces of mineralised wood.

The four coffined burials represent 4.5% (4/88) of the total burials. This is towards the lower end of coffin use as seen in other medieval graveyards (Gilchrist & Sloane 2005: 113–6). Similar low coffin use, 5.9% (3/51), was seen among burials excavated at Holyrood Abbey (Bain 1998: 1,054). At Constitution Street, Leith, the figures were higher, at 20.7% (63/305) (Franklin et al 2019) and at St Giles' Cathedral, at 19.7% (23/117) (Collard et al

2006:19). At the Carmelite friary in Aberdeen coffins were found in 30% (15/50) of the graves, with suggestions that coffin use was more common during the friary period than during later post-Reformation use of the graveyard (Stones 1989a: 114).

While there was a cost factor involved in burial within a wooden coffin, the link between the use of coffins and wealth or status is not clear-cut during the medieval period. Coffin use has been shown at medieval sites in England to be more common in Black Death cemeteries (Gilchrist & Sloane 2005: 114). It has also been shown to be more common for burials of women in monastic cemeteries, where learned monks held the belief women's bodies were more prone to decay and therefore needed more protection in the grave (Gilchrist & Sloane 2005: 222). There is no evidence of either of these factors here. There is no suggestion of Black Death-related burials at the site, though it is entirely possible that some were (though at least one of the coffined burials, Sk19, probably pre-dates the mid-14th-century pandemic, Table 4). There was also no observable bias towards women. The four coffins all contained adults: two men, one woman and one unsexed. The association of a wooden coffin with Sk19, on the other hand, would seem to denote a connection with status. The location of the remaining three coffins within a friary building might also suggest a higher status (see section 5.2.3).

Shrouds and clothing

It may be assumed that most if not all of the bodies buried at the site were interred wrapped in shrouds. This was the standard method of dressing the body during the medieval period (Gilchrist & Sloane 2005: 23). The shrouds were typically secured with stitching. Findings of small wire pins are sometimes found in later medieval graves and have been assumed to be shroud fastenings (eg Nicholson 1997: 361). On the grounds that they would not have secured the shroud particularly effectively, it has been suggested that these pins were incidental inclusions in the grave, used to secure the shroud during stitching and then accidentally left in place (Gilchrist & Sloane 2005: 110). At the current site, Sk09, Burial Group 1, contained a pin and Sk29, Burial Group 2, contained three. The above explanation of their presence is entirely plausible,

though both graves also contained finds of medieval pottery and fragments of the building fabric and so it is also possible the pins were introduced to the grave as part of medieval midden deposits worked into the graveyard soils.

Lace tags, too, have been linked to shroud fastenings, suggesting that some shrouds were laced up. They are regular, if occasional, finds in graves of the period (Stones 1989b: 159; Nicholson 1997: 375; Franklin & Collard 2006). However, the role of lace tags within graves is unclear. They were common dress accessories of the 15th to 17th century, used to bind the ends of laces which were used to secure a variety of male and female clothing (Margeson 1993: 22). It is possible that lace tags represent the remains of clothing used to dress the body for burial. Burial of bodies wearing some form of clothing has been noted occasionally during this period (2–3% of burials recorded by Gilchrist & Sloane 2005: 80). It has been linked to status, with wealthier individuals being dressed in their finery, but also occurred in hasty burials in times of catastrophe (ibid). Lace

tags were found buried with two adult men in Burial Group 2 (Sk20, Sk36). Again, both graves contained finds of medieval midden material and thus the lace tags cannot be unequivocally tied to the burial rite. Their location would be consistent with their being higher-status individuals (Sk20 was also buried in a coffin, see ‘Coffins’ in section 4.2.3). One lace tag was also found in Burial Group 3, Sk91, an infant burial. It is possible that this relates to the hasty burial of an unbaptised baby.

4.3 Phase 3 – Royal High School 1578–1777

4.3.1 Structural remains of the Royal High School

The remains of the Royal High School, a substantial building, were represented by two large north-east to south-west-aligned parallel walls C054 and C042 (see Illus 5). These formed a structure with an internal width of approximately 7m (Illus 37). The southern wall, C054, was constructed with a mixture of roughly hewn random uncoursed red sandstone and grey limestone bonded with a compact light



Illus 37 General view of the remaining Royal High School walls (C042 and C054), facing west

yellow-grey lime mortar. The wall stood to a height of 0.9m and was not faced, probably due to its being the foundation course of the building. Towards the east end of the wall a 0.74m deep trapezoidal-shaped recess was recorded. This formed the only architectural feature visible in the wall and likely represented a window bay.

The north wall, C042, was constructed in a similar fashion to wall C054. To the east end the wall had been constructed over the earlier Dominican church wall, C052, described above. The location and orientation of these walls matches the cartographic sources (Gordon 1647 and Edgar 1765) for the position of the Royal High School. The substantial nature of the wall foundations indicates that they most likely represent the remains of the external elevations of the building, with wall C042 being the frontage of the building and wall C054 the rear.

Further remains relating to the Royal High School building included two phases of stone walling to the north side of wall C042 (and wall C052). Three lengths of rubble stone wall, C049, C220 and C343, forming a large rectangular structure, were considered to represent the earlier phase. An early drawing of the school (Steven 1849) depicts a central gabled extension on the north-facing elevation. These walls may represent this extension. The walls were found to sit above several burials associated with the friary graveyard.

Walls C050 and C053 seemed to represent a later phase extension to the front of the building. Again, these abutted the north side of wall C052 with wall C053 also partially overlying the earlier foundation wall C343 (Illus 5; Illus 38). These later phase walls formed a small L-shaped structure measuring 2.30m by 2.48m. They were interpreted as a porch, potentially forming a remodelling of



Illus 38 Walls C052 and C053 overlying buttress C369, facing south

the school entrance. There were further structures and surfaces to the north of wall C052 that appear to be contemporary with the school building. A cobble and flagstone surface, C039, abutted the north side of the wall, extending to the limit of the excavation area. The cobbled surface had a slight camber and sloped from south to north. It had also suffered truncation, suggesting it was the remnants of a larger area of cobbling along the northern side of the building. A stone pad, C038, of roughly hewn limestone capped with a mixture of slate and lime mortar, was located 0.9m from wall C052 to the west of the cobbles. It was unclear what this represented but it may have formed a column base, possibly for a statue fronting the building.

A large steep-sided ditch cut, C156, was recorded to the south-west corner of the excavation area. It was thought that this may relate to the construction of the Royal High School. The feature had a near

vertical cut and was up to 1.05m deep with a sharp break of slope leading to a broad flat base. The cut truncated the west end of the medieval ditch, C210, and the friary wall, C146. It had three distinct fills although they all included mortar fragments and angular stone with variable quantities of animal bone, oyster shell and hand-made brick fragments. Three rim sherds of a 16th-century ceramic jar were present within the lowest deposit. Further 14th- to 16th-century artefacts were recovered from the middle and upper layers, including Flemish floor tiles and several sherds of pottery. This material seems to indicate that this cut had been backfilled in the late 16th century. No clear function for this cut was identified, although it certainly has the potential to represent a robber trench, excavated to extract stone from what may have been a foundation wall of a friary building. The resultant stone may have been used to build the school or potentially in the reconstruction of the Flodden Wall.



Illus 39 Tin-glazed plate crudely painted with a pavilion design

4.3.2 Finds associated with the Royal High School

The complex building history of the excavation area meant that the post-medieval assemblage was poorly stratified and fragmentary. It represented the building fabric and domestic waste of the Royal High School period from the 17th century onwards, including pottery, glass bottles, clay pipes, bricks, roof slates, mortar, iron nails and other detritus.

Two coins were recovered, both dating to the 1630s: a French Louis XIII double tournois (1637) and a Charles I turner (second issue, 1632–9). The former was unstratified, but the latter was found embedded in cobbled surface C039, which is thought to relate to the Royal High School building. It is possible then that this coin was dropped by someone crossing the cobbles and subsequently trodden into the surface.

One context assemblage stands out as remarkable. It was fill C144 of a modern pipe trench, C143, that had clearly been cut through a midden dump associated with the original school, as the material within dated almost exclusively between the late 17th century and the third quarter of the 18th century. The assemblage was dominated by tin-glazed earthenwares, making up 54% of the assemblage by weight (21 out of 36 sherds), with some red-bodied slipwares, decorated with a white slip and glazed yellow/red brown, making up a further 32% by weight (eight sherds). The most notable of these were sherds making up half a small (19cm diameter) tin-glazed plate crudely painted with a pavilion design in purple (Illus 39). Found with it were more sherds of the same type, but with the designs overlapping, clearly from at least two other identical plates and thus clearly part of a set. The plate is of simple shape with no foot rim and probably dates to around the mid or late 18th century. Other sherds of tin-glazed vessels in the deposit were more finely painted. There was also a rim from a Chinese porcelain bowl and a piece of Seville coarseware olive jar. There was only one small sherd of creamware, and three sherds of local post-medieval wares. Other finds included a clay pipe stem, a copper alloy furniture stud, a bone button and sherds of green wine-bottle glass and window

glass. The deposition of a set of plates may suggest a small domestic disaster or it may mark a point where old crockery was being thrown out in favour of new, more fashionable and harder-wearing creamwares in the late 18th century. The dating suggests this event may have coincided with the demolition and rebuilding of the school building.

4.4 Phase 4 – Old High School 1777 to present

The Old High School is still present on the site although, as mentioned above, the interior of this building has been altered on several occasions commensurate with changes in its use (Borden & Murray 2010). A full set of building plans dating from the 1882 and 1905 alterations is held on file with HES (Historic Environment Scotland). These clearly show that most of the interior of the building dates from 1905 and later. Phase 4 activity within the excavation area was limited to several service pipe cuts that truncated the earlier features, plus layers of made ground that covered the graveyard soils and wall remains. One of these layers comprised demolition material incorporating numerous small pieces of lime mortar and small angular rubble fragments, probably relating to the demolition of the Royal High School. In addition, there were several patches of extremely decayed timber that did not appear in a cohesive enough arrangement to represent a floor but may represent wooden structural elements left behind following this demolition.

Within the overburden layers of the excavation area, a charnel-rich deposit produced four human bones bearing the marks of cutting and sawing; two frontal bones, a left elbow joint (humerus and ulna) and the pubic part of a male right hip bone. The elbow showed signs of being the result of an amputation, although the bones have been sawn off both above and below the joint, suggesting that the bones had been kept as a medical specimen. In all cases, it appears that the bodies had been subject to a post-mortem autopsy or dissection. This is interesting given the proximity to the 18th/19th century infirmary and the residences of several of the great teaching anatomists of the time.

5. GENERAL DISCUSSION

Though the size of the excavation area was relatively small, it contained significant archaeological remains, with evidence of four main phases of development: the pre-13th-century settlement, a high-status ecclesiastic site and the footings of the 16th-century Royal High School all underlying the yard of the late 18th-century Old High School.

5.1 Phase 1 – Early medieval activity

The ditch forming the earliest phase of activity on the site was thought to represent either a property boundary or a defensive ditch. This ditch was exposed in the southern part of the excavation area although little of it was visible. The friary was supposedly situated on land that had previously been the location of the king's manor house (Cowan & Easson 1976:118). Therefore, it is possible that this ditch was related to this property. No artefacts were recovered from the fill of the ditch but based on stratigraphic relationships it clearly predated the 13th-century structures and burials associated with the friary. The placing of the friary wall within the ditch suggests that the ditch had been backfilled during the construction of the ecclesiastical site, probably as a single event, as no stratigraphy was observable within the ditch fills.

5.2 Phase 2 – The Dominican friary

5.2.1 The layout of the friary

The finding of the two foundation walls, C052 and C146 (Illus 5), are the first definitive archaeological evidence for the location of the Dominican friary in Edinburgh. These wall foundations, in conjunction with the three burial groups, have provided some evidence of the layout of the friary.

The alignment of the two stone walls with opposing internal elevations imply they represent the remains of a single building. These walls also demarcated the 88 inhumations into three separate burial groups within the excavation area, aiding the identification of the building and conversely the position of the burials within the friary.

It can be surmised from the topography of the site that the structure formed part of the north range of the friary, since the ground to the north of the

excavation area quickly sloped down to the Cowgate, thus precluding the construction of any substantial buildings there. A potential robber trench (C156) in the south-west corner of the excavation area may represent the previous location of a further north–south friary wall, probably forming the internal wall of the west range, which would locate the excavations area towards the north-west corner of the friary complex. This indicates that Burial Group 3, on the sloping ground to the north of this, lay within an external graveyard. The mixed demography of the burials there is consistent with this representing the general graveyard for the burial of the local population. The cross-slab burial to the south of the structure in Burial Group 1 is also more likely to have occurred within the friary than the external graveyard, adding further evidence to back this supposition. Since the principal graveyard on most medieval ecclesiastical sites was to be found in direct conjunction with the church (Gilchrist & Sloane 2005: 32), it is very likely that the structure was the friary church.

The north-east to south-west alignment of these walls, 27° off true east–west is not an impediment to this theory. While churches were, in theory, aligned east–west, there was, in practice, a wide variation from south-east to north-west, to north-east to south-west. There has been a long-held belief that the orientation was based on the rising (or setting) sun on the feast day of the saint to which the church was dedicated and was therefore subject to seasonal variation. One study (Ali & Cunich 2001) found some correlation with this and suggested that other churches may have been aligned with solar observations at Easter or the equinoxes. However, other studies (Eeles 1914; Hinton 2006) have found no correlation with saints' days. It might be assumed that more practical factors were involved and that the orientation might simply relate to solar observation on the day construction began.

However, Hinton (2006) notes two factors of interest. Firstly, there was a significant variation in the orientation of churches between eastern and western England (churches in the west being, on average, 10° more off-true than churches in the east). He also noted that the chancels of churches located on slopes typically face downhill. He could offer no clear conclusions on why either of these phenomena should be so. In this context it is

interesting to note that the Blackfriars site is located on the eastern side of a hill, the ground falling away to the east towards the Pleasance and, though subsequent building works have obscured the exact 13th-century contours, the orientation may well relate to the site topography.

The nature of the burials within the structure (Burial Group 2) is consistent with intramural church burials as seen at other sites. Burial within the church was a common aspect of ecclesiastical sites, seen at, for example, Stirling Priory (Page & Page 1996), Newcastle Blackfriars (Harbottle & Fraser 1987), Beverley Priory (Armstrong & Tomlinson 1987), Guildford Blackfriars (Poulton & Woods 1984) and the second Blackfriars site in Oxford (Lambrick & Woods 1976). The latter three of these contained both male and female burials. In all cases the burials were almost entirely made up of adults, as was also the case at the Old High School site. Burials could occur within other parts of religious houses, such as the chapter house, but these would be expected to be of friars (Gilchrist & Sloane 2005: 59).

A plan by architect Thomas Ross within Bryce's *The Blackfriars of Edinburgh* (1910) depicts the friary as comprising a long church to the north, with east, west and south ranges around a central cloister. This would appear to be based on the layout of other Dominican houses (Bryce 1910: 20) but in this case, it is broadly in agreement with the present archaeological evidence. The only difference observable at present is the slightly different orientation, with Ross depicting the church closer to true east–west than can now be shown to be the case.

On the assumption that the wall foundations are part of the north range, the area to the south of this must represent part of the cloister ambulatory. Again, burial within this area was a common practice at mendicant friary sites, such as at Beverley Priory (Armstrong & Tomlinson 1987), Cork Blackfriars (Hurley & Sheenan 1995), Guildford Blackfriars (Poulton & Woods 1984) and Oxford Blackfriars (Lambrick & Woods 1976) and in some cases was regarded as a special or desirable place to be buried (Gilchrist & Sloane 2005: 57). The inclusion of the cross slab grave cover to mark one of the graves is therefore entirely consistent with this assumption.

The evidence all points towards the structure

represented by walls C052 and C146 being the church located within the north range of the friary, and the excavation area representing part of the external graveyard, church interior and cloister ambulatory.

The other fragments of potential friary remains were a narrow stone culvert in Trench 5 and a pillar base in the lift shaft trench (see section 4.2.1). Given the layout as described above these would probably have been, respectively, outside the west range and in the vicinity of the south-east corner.

5.2.2 Structural remains of the friary

Gauging the size of the friary at Edinburgh has been constrained by the small size of the excavation area. The range of sizes of mendicant ecclesiastical sites found across the country seems to vary significantly. Extensive excavations at Guildford friary (Poulton & Woods 1984) provided one of the most complete ground plans of a Dominican ecclesiastical site. Here the friary covered 10 acres in extent, although this was regarded as modest in size compared to some. The second Dominican friary at Oxford covered almost 22 acres, though the first friary there was actually much smaller (Lambrick & Woods 1976). In contrast, one of the smallest known friary sites is at Newcastle-upon-Tyne, covering approximately 7 acres (Knowles 1920). In general, although seemingly small in comparison to the sizes of towns and cities today, the areas taken up by these friaries would have been considerable within the existing medieval towns. In Chester there were five ecclesiastical precincts present by the 14th century, which together took up almost a quarter of the medieval town (Greene 1992: 165). In Perth the Blackfriars owned much of the north-eastern suburb of the burgh, including the Royal Gardens (Milne 1891). In Edinburgh, the area taken up by the Blackfriars and the Greyfriars to the west would certainly have been significant.

There seems to be no standard size for the churches at these sites. The only gauge for the size of the church at the Old High School site comes from its width, which had an internal measurement of approximately 7.5m. This compares favourably with the church at Guildford (Poulton & Woods 1984). There the choir of the church was approximately 6.5m wide and the nave 12m wide. Excavations at

Beverley, North Yorkshire (Armstrong & Tomlinson 1987) revealed similar dimensions, with the west end of the church 6.5m wide internally, the walls being 0.95m thick, a similar measurement to that recorded in Edinburgh. The original form of the church at Beverley was an aisleless nave and choir forming a simple rectangular building aligned north-east to south-west with a postulated length of no more than 53m. There is too much variation in church proportions at other sites to extrapolate the possible length of the church from its width.

Although the sizes of these sites varied, the majority tended to be based on a comparable layout. The buildings of the friary at Newcastle included a church in the north range with a six- or seven-bay aisled nave; a square south cloister with lean-to walks; an east range, including a sacristy and possibly a chapter house with a warming house and dormitory above; a south range, including a refectory and kitchen and a west range with an external lavatorium and guest hall (Harbottle & Fraser 1987). At Oxford the site included a church to the north with an aisled nave and long choir, a cloister to the south with chapter house and range to the east side (Lambrick & Woods 1976).

The best idea as to the appearance of the friary at the Old High School comes from the few architectural fragments recovered and their comparison with other contemporary structures (see Illus 11–19). The quality of the decorated stone fragments recovered from the site and the floor tiles confirms that it was a substantial and well decorated building.

Three of the stonework fragments recovered from the excavation have been typologically dated to the mid- to late 13th century, possibly a little later than the *c* 1230 date for the foundation of the friary. This suggests the stone structures were potentially still under construction several decades after the foundation of the friary. The only evidence for later alterations is the collection of Flemish floor tiles. These appear to have been part of the church floor but were clearly added some time after the main phase of building, suggesting 15th-century refurbishment.

Several episodes of phasing were recorded at Beverley from an early timber hall through to the establishment of a walled cloister and north and east ranges. It was suggested that this level of building

work indicated a reasonably high level of prosperity. Similar episodes of expansion and improvement were recorded at Chester (Greene 1992: 165), revealing five phases of construction. Again, the earliest phase was a simple aisleless structure with subsequent developments finally resulting in a building with a broad nave incorporating two aisles with a tower over the crossing. This seems to be the most common form of friary church, in which the premium was placed on the capacity of the nave for preaching. The large site at Oxford also saw multiple phases of construction (Lambrick & Woods 1976). The general trend for expansion and enlargement of the friary sites seems to prevail in many cases, although not in all. At Newcastle Blackfriars just a single phase of building was identified (Harbottle & Fraser 1987).

The friary at Edinburgh was destroyed in June 1559 during the Reformation and the archaeological excavation showed that much of the building has since been removed. There was no evidence of any in-situ floors and little stone debris that could be related to the upstanding northern church wall. It appears that once the friary had been demolished much of the reuseable stone was robbed, possibly during the construction of the 16th-century Royal High School and the Flodden Wall (Bryce 1909a: 71). This robbing of stone was particularly evident in the northern part of the site, where most of the friary wall had been removed along the line of the later Royal High School wall, apart from the one section that had been incorporated into the later building.

5.2.3 Observations on the burials

Medieval souls were perceived as bodies marked by rank, sex and occupation (Bynum 1995: 10), and these central tenets are thought to directly affect the material preparations of the corpse and the grave, including its location (Gilchrist & Sloane 2005: 6). The burials recorded at mendicant friary sites are typically mixed in terms of sex and age, indicating that they represent the local population, not just the brethren of the site. The locations of the burials across a range of different areas within the friaries is also a common feature. At Edinburgh the burials were recorded within three separate areas interpreted as:

- the cloister ambulatory – Burial Group 1
- the friary church – Burial Group 2
- the external graveyard – Burial Group 3

The dating of six of these inhumations indicated that the burials ranged from the establishment of the friary in the early 13th century up to, and probably beyond, its dissolution in the 16th century.

Burial within the cloisters was certainly commonplace at mendicant friaries (Hurley & Sheenan 1995; Armstrong & Tomlinson 1987; Poulton & Woods 1984; Lambrick & Woods 1976). Gilchrist & Sloane (2005: 57) suggest that they were the spiritual core of the friaries, being evocative of eternal paradise and the lost gardens of Eden. It is unsurprising then that this was a favoured place of burial. Hurley & Sheenan (1995) suggest that the east cloister ambulatory linking the church with the domestic area was favoured for the burial of patrons, based on the evidence of a distinct group of burials found in this area at Cork. In Edinburgh the claustral burials seem to be located at the west end of the north cloister, though there was little excavation in other areas with which to compare this. A tomb burial (male 35–45) in the cloisters at Oxford Blackfriars (Lambrick & Woods 1976) interred close up against the south wall of the north aisle may signify that this was another preferred or special place reserved for wealthy patrons.

It was noted in the claustral burials at Oxford (*ibid*) that the majority had been buried within coffins, leading to the suggestion that the cloisters were reserved for friars on this site. The four burials excavated within the cloisters at Beverley Priory (Armstrong & Tomlinson 1987) were also all male, indicating these too may have been monks. In contrast, at both Cork (Hurley & Sheenan 1995) and to a lesser extent at Edinburgh, a mix of males and females were identified, implying these were patrons rather than monks.

Whatever the character and demography of the claustral burials, their location implies they were probably people of relatively high status. Certainly, the discovery of the cross slab over Sk19 would imply this. This tallies with the evidence from Oxford and Cork, both of which recorded stone-lined graves and coffined burials in the claustral area. The cross slab at Edinburgh can be dated to the 12th or 13th century, and the radiocarbon dating of the skeleton

associated with it suggests a date in the second half of the 13th century is most likely. This places it relatively early in the history of the friary. Given its decoration, it seems likely that the slab was meant to be seen. It may have formed part of the floor surface to the cloisters although no specific wear or weathering has been noted. It is possible it was only visible for a short period prior to being covered over either by later alterations to the friary site or due to later interments.

The burial of adult men and women rather than friars within the church also seems to have been a normal practice of the mendicant orders (Lambrick & Woods 1976; Armstrong & Tomlinson 1987; Hurley & Sheenan 1995; Page & Page 1996). These were likely to have been rich benefactors to the friary. At Stirling Priory, it was known that in 1425 Murdoch, Duke of Albany, and others were interred beside the high altar (Page & Page 1996: 893). The high number of burials in stone-lined graves (60 out of 109) or associated with cross slabs (eight) found within the church at Cork (Hurley & Sheenan 1995) also imply high-status individuals being buried here. It seems that in return for their patronage these rich benefactors were afforded desirable burial plots. At Oxford documentary sources suggest that both male and female benefactors of religious houses were buried in prominent positions such as in front of a particular altar they had actively supported (Bryce 1909b: 317). At Newcastle there are several grave recesses in the north and south walls of the nave, indicating the importance of these locations for burial (Harbottle & Fraser 1987). It is more unusual to find child burials within the church, although at Oxford the west end of the chapter house in particular seemed to have been reserved for this purpose (though not exclusively).

The burials within the graveyard provided the densest concentration as well as being the most mixed in terms of sex and age. This is typical of most known sites, although at the Dominican friary at Drogheda, Co. Louth (Halpin & Buckley 1995) the graveyard burials were predominantly males, with very few infants or juveniles. The only infant burials here were located close to the edge of the walls of the friary building. The burials at Edinburgh were representative of a graveyard location, although again the small size of the area excavated diminished the quality of any statistical analysis or comparisons

with other sites. The two dated burials from this group at least implies a long sequence of use from the earliest period of the friary up until its dissolution, and potentially later.

The four burials of perinates within the graveyard (Sk03, Sk70, Sk80 and Sk82) are thought to be unchristened babies inserted after the graveyard had fallen into disuse. This is not an uncommon finding, the practice having been repeated on a number of sites (Gilchrist & Sloane 2005: 67). Where a religious prohibition against the burial of the unchristened infants in the parish cemetery was strictly upheld an old graveyard was still regarded, in some sense, as hallowed ground. This may also account for a perinate burial (Sk14) in the cloisters. This practice was also identified in the burial record at the three friary sites in Aberdeen, Linlithgow and Perth (Stones 1989a: 111), which all saw the continued use of the respective graveyards after the Reformation.

Although a significant number of burials were recorded at the Old High School site very few were complete, with many also in a poor condition, limiting the quality of the pathological data. They displayed generally typical traits of medieval populations. A synthetic study by Gilchrist and Sloane (2005: 210) identified several common traits within medieval burial groups, mostly caused by malnutrition, stress and chronic infections, poor hygiene and wear and tear from hard work. Certainly, the burials in the church and the graveyard at Edinburgh had a moderate proportion of individuals displaying signs of chronic disease or debilitating injury, although the claustral burials were not markedly any healthier, as may have been expected from a group of apparently high-status individuals. These traits have also been identified from the human remains excavated at two other local medieval burial grounds in Edinburgh, St Giles' Cathedral and St Mary's Church, Constitution Street (Henderson 2006; Franklin et al 2019).

Incidences of trauma were also relatively common across the three burial groups at the Old High School site. Twenty-three of the in-situ individuals had experienced at least one fracture of a bone; three fractured bones from the unarticulated assemblage were also recorded. Of those where the sex was identified the majority displaying trauma were male

(12 men, four women). No single type of trauma predominated, although injuries to the legs and feet were slightly more common than those to the arms and hands. The predominance of injuries to males is typical, men of this period generally leading more active lives and undertaking more dangerous work.

5.3 Phase 3 – The Royal High School

The two stone wall foundations associated with the Royal High School roughly matched the cartographic evidence, confirming the location of this building. Finds, including 16th-century pottery fragments, within a large robber ditch indicated that this feature was probably in-filled during the construction of the school. This ditch may even have been a foundation trench for the friary from which the stone was removed to be used in the construction of the school building. Unfortunately, only a small length of this ditch was investigated and its stratigraphic relationship to either the friary or the school was not consolidated.

A sketch showing the north and east elevations of the school building in Steven's *History of the Old High School* (1849; published over 70 years after the school's demolition) depicts the earlier school as a two-storey building constructed of rubble stone and having a gabled roof. The north (front) elevation included a central projecting entrance topped with a crow-stepped gable and flanked by two projecting rounded stairwells with conical tile roofs.

When the Royal High School was demolished to make way for the larger 1777 Old High School, it seems it was taken down to foundation level, with no evidence of floors remaining. Spreads of mortar-rich demolition rubble were found beneath modern overburden and levelling for the present-day car park. These were probably deposited when the Royal High School was demolished.

5.4 Phase 4 – The Old High School

The construction of the Old High School formed the final phase of major development in the area, with the front elevation of the building surviving relatively true to its original form. Original drawings of the building held at the National Records of the Historic Environment show little alteration to this elevation of the school. The

records and recent survey of the building confirm that from the 19th century onwards the interior of the school was modified and extended on several occasions. The archaeological evidence for this phase was dominated by service pipes, boundary walls and

stone-lined culverts to all sides of the building. The areas monitored to the front of the Old High School contained several stone culverts of unknown date, though several were constructed of brick and are therefore likely to be 19th- to 20th-century in date.

6. CONCLUSIONS

The excavations have provided the first archaeological evidence for Edinburgh's Dominican friary. This includes part of the north range, most likely the church. The burials provided further evidence of the friary's layout, identifying part of the external graveyard to the north and cloister to the south. The claustral burials also included an impressive cross slab grave cover.

The site revealed both earlier medieval occupation of the area, in the form of a large

boundary ditch, as well as evidence for the construction of the Royal High School building in the 16th century and the Old High School in 1777.

The flexibility of the construction design for the redevelopment of the site led to a reduction in the area disturbed by the works. A number of burials both within the limits of the church area and the graveyard were left in situ, thus providing further opportunities to enhance this work in the future.

7. NOTE

Regarding Table 4

All the calibrated dates are cal AD. The dates were calibrated using OxCal 4.3 (Bronk Ramsey 2009). They have been rounded to the nearest five years. They are quoted in the text at 95.4% probability. The $\delta^{13}\text{C}$ values for these dates indicated a variable but typically high percentage of marine component to the diet of these individuals. The marine reservoir effect would therefore have had a significant effect on these dates, increasing the apparent radiocarbon age and making the dates seem earlier than they should be (Arneborg et al 1999). The marine component

percentage was calculated on the basis of a $\delta^{13}\text{C}$ value of -21.0‰ for a 100% terrestrial diet and -12.5‰ for a 100% marine diet (ibid: 158). The results ranged from 12% to 34% marine component, with an average of 23%. The dates were recalibrated in consultation with SUERC, taking into account the $\delta^{13}\text{C}$ value of each sample. For these purposes, the IntCal13 atmospheric curve was used (Reimer et al 2013) and the Marine 13 curve (ibid). The marine component was given an error of $\pm 10\%$ and the Delta R value was set at -47 ± 52 (Russell et al 2015). The calibrated date ranges typically cover a long range due to a plateau in the calibration curve during the late medieval and early post-medieval period.

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