e-ISSN: 2056-7421

Cowhides and motorcars: the history of Beaverbank Tannery

How to cite:
Cross, M, Dalland, M & Moretti, D 2024 'Cowhides and motorcars: the history of Beaverbank Tannery', *Scottish Archaeological Internet Reports* 106.
https://doi.org/10.9750/issn.2056-7421.2024.106

Cowhides and motorcars: the history of Beaverbank Tannery

Morag Cross, Magnar Dalland and Debora Moretti

Author contact
Julie Franklin
julie.franklin@headlandarchaeology.com

Funding
CCG (Scotland) Ltd

e-ISSN: 2056-7421
DOI: https://doi.org/10.9750/issn.2056-7421.2024.106
Published by the Society of Antiquaries of Scotland

Society of Antiquaries of Scotland
National Museums Scotland
Chambers Street
Edinburgh EH1 1JF
United Kingdom
www.socantscot.org

Registered Scottish charity no. SC010440

Managing Editor: Adela Rauchova and Kate Bailey
Copy-editor: Rachel Cartwright
Production: Raspberry Creative Type, Edinburgh

Received 28 June 2023 | Accepted 18 December 2023 | Published 24 June 2024

TABLE OF CONTENTS

1. ABSTRACT

The proposed development at Beaverbank Place, Canonmills, Edinburgh led to the excavation of the remains of the 19th-century Beaverbank Tannery. Accompanying historical research allowed the history of the ownership and tenancies of the buildings and various businesses to be traced from 1807 to 1959. This included the early 19th-century Clark's Mill linen bleachers and the 1868 tannery built by the Johnston family and later leased by family firms of the Pringles and Walkers. A period of abandonment between 1913 and 1915 was followed by the repurposing of the building as a sawmill and cooperage. Part of the site changed again to become a motor garage in 1928.

The remains can be matched well with historic map evidence and appear to relate predominantly to the late 19th-century tannery structures. Remains were found of approximately 100 tanning pits set out in a grid pattern, with further features related to drainage, paving and other structures. Very little environmental or artefactual evidence was recovered to shed light on specific practices, materials used or materials produced.

There were also scant structural remains that could be related to the earlier linen bleachers and to the later motor garage.

2. INTRODUCTION

'Memories of a Country Tannery'

'Now, I concede a tannery located in a city

Is something very few would count as wholesome, sweet, or pretty

And urban sloughs of clayhold sort offend the sense of smelling …

Adjacent to one's dwelling

… that old tanyard pond where I first learned … of skating

The chimney of the tannery … is spouting

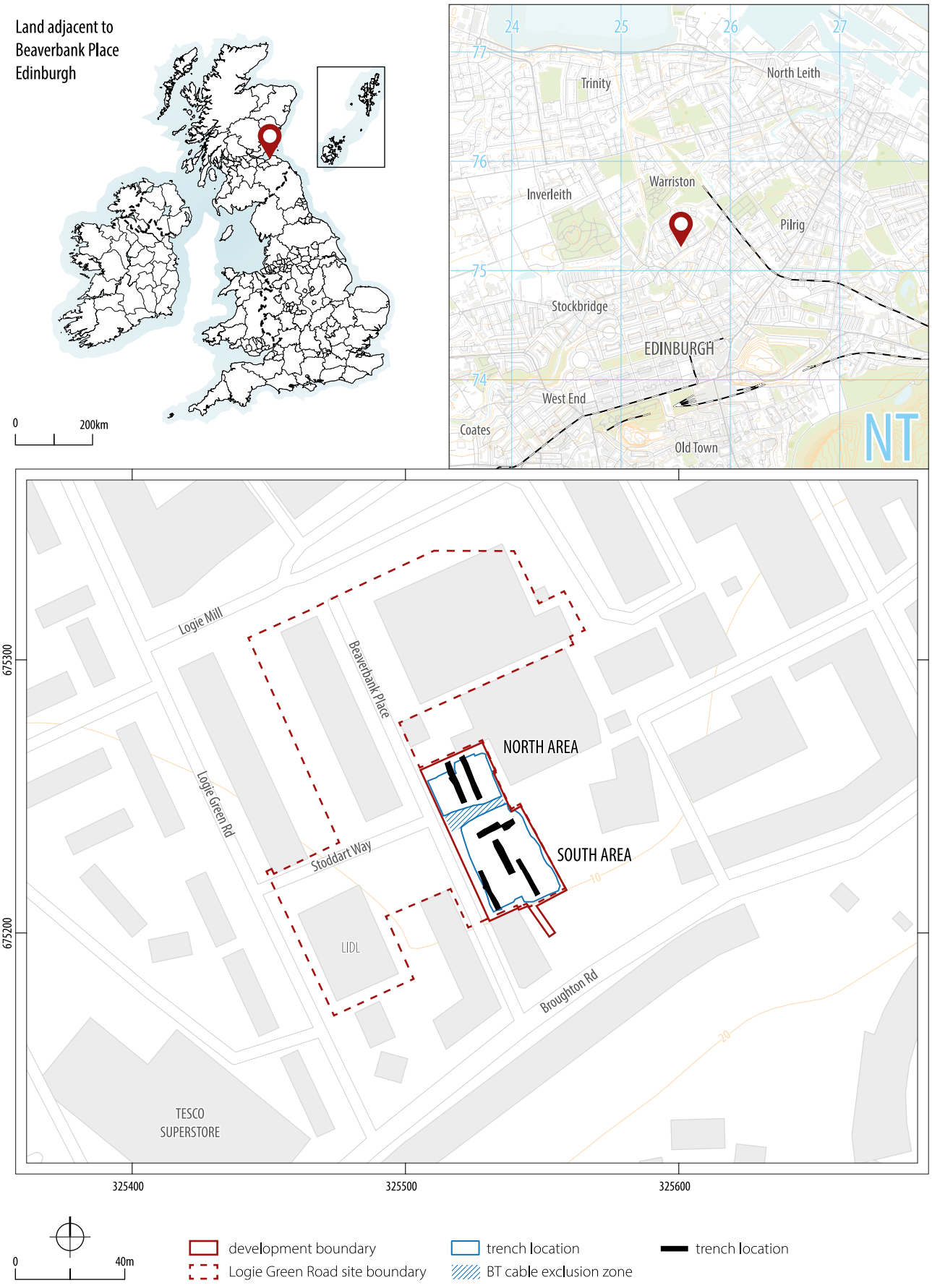
Great cheery waves of bluish smoke, and from the door come shouting

Those thawed-out skaters … ranked about that giant stove, in ruddy fury burning'.

(SLT 1897, 22)

Headland Archaeology (UK) Ltd was commissioned by CCG (Scotland) Ltd to undertake a programme of archaeological works on the east side of Beaverbank Place, Edinburgh, in connection with the planning conditions set by the City of Edinburgh Archaeological Services (CECAS) on the proposed development site. The archaeological works consisted of trial trenching in March 2018 (Wilson 2018) and a subsequent open area mitigation excavation in July 2018. The proposed development area, centred on NGR: NT 2551 7524, was located immediately to the east of Beaverbank Place in Canonmills – a district of Edinburgh located on the north side of the city – on open rough ground bound by Beaverbank Place to the west, existing industrial units to the north, a car park to the east and by property facing onto Broughton Road and a playground to the south (Illus 1).

No intrusive archaeological works had taken place within the development area prior to the evaluation in March 2018. The area immediately to the west and north was, however, subject to previous archaeological excavations between 2009 and 2018. In 2009, a desk-based assessment and a programme of trial trenching were undertaken at a site on Logie Green Road immediately north-west of the Beaverbank Place site. The areas of an early to mid-18th-century mill lade and mid-19th-century buildings were targeted by the archaeological trenching. This revealed the well-preserved 18th-century lade, perfectly corresponding to cartographic evidence, as well as a substantial late 17th- to early 18th-century cut feature to the south possibly representing an earlier phase of the lade (van Wessel 2009). A watching brief carried out in 2011 to the immediate north of Beaverbank Place identified an organic deposit containing animal bone, cattle horn, 19th- and 20th-century pottery and leather fragments (Scott 2011). In 2013, an archaeological excavation was carried out for a development at Block A1, Logie Green Road (Wilson 2014). The excavation comprised the removal of the overburden across the footprint of the proposed development down to the formation levels; an area of approximately 1,600 m^2. The excavations exposed sporadic, shallow spreads of homogenised



Illus 1 Site Location

soils derived from cultivation immediately above the geological sediments; indicating much of these deposits had been truncated by later 17th- to 19th-century industrialisation of the area. Remains of the mill lade were also identified and dating evidence from the fill of the lade suggested that it ceased operation by the late 19th century. A well and a sub-rectangular structure, both possibly contemporary in date with the lade, were recorded to the south (Wilson 2014).

The archaeological trial trenching carried out at Beaverbank Place in 2018 comprised the excavation of six 16m long archaeological evaluation trenches to provide a 10% sample of the development area (Illus 1). Upstanding remains were recorded in all six trenches, the majority of which relate to buildings depicted on the 1877 and 1896 Ordnance Survey maps. The most prominent features were a series of brick-built pits recorded in two trenches. These included brick walls and floors and were interpreted as tanning pits associated with the 19th-century tannery. A limited number of additional brick walls relating to the tannery building were also recorded to the south half of the site. Walls associated with later phases of expansion and alteration were recorded to the north half of the development area.

The original client report has been deposited with the Archaeology Data Service as part of their OASIS programme under OASIS headland1-312319. A summary report has also been submitted to Discovery & Excavation in Scotland. The complete project archive was deposited with the Scottish National Record of the Historic Environment (SNRHE).

3. HISTORICAL DOCUMENTARY EVIDENCE

Beaverbank Tannery was located in the Canonmills district. The origins of the name of the district lie in the mills of the medieval period on the Water of Leith in this area which belonged to the monastic community at Holyrood (Canons' Mills; Grant 1880, vol V: 86). The area only began to be developed in the 19th century as various locations along the Water of Leith began to be used for tannery sites. Residential expansion soon followed, with tenement buildings being erected in the vicinity throughout the later 19th century.

Illus 2 a– Site Location, Ordnance Survey 1852; b– Site Location, Ordnance Survey 1877; c– Site Location, Ordnance Survey 1894; d– Site Location, Ordnance Survey 1931 (© National Library of Scotland)

Mapping from the mid-18th century (Roy's Map, 1752–55, not illustrated) indicates the presence of a mill lade running from Canon Loch through the general vicinity of the development and then on to the Water of Leith to the north. A building is shown on the south side of the mill lade at the point the lade turns to the north. This is thought to be Logie Mill, but the specific location of the structure cannot be accurately located from Roy's map. On Robert Kirkwood's plan from 1817 (not illustrated) it was labelled as 'CLARKS MILL BLEACHFIELD. Mr HAY'S PROPERTY' (Kirkwood 1817).

By the mid-19th century, the mapping, being more accurate, shows that Logie Mill and the mill lade lie outside the development area to the south-east (Ordnance Survey 1852; Illus 2a). The land to the north of the mill is depicted on the 1852 map as a sub-rectangular field bounded to the south and east by the mill lade and to the west by a road lined by trees.

By the time of the second edition of the Ordnance Survey (OS) in 1877 a tannery and skinnery had been built in the southern half of the development (Illus 2b), joined by further buildings in the north of the site by the publication of the 1894 OS map (Illus 2c).

The site where the tannery was originally located was absorbed into Robert Lamb's sawmill at Logie Green during WW1 and later became a vehicle repair shop. During the first decade of the 20th century the structures at the north end of the area were demolished and replaced by a garage, first depicted in the 1931 OS survey (Illus 2d).

3.1 Brief history of the Scottish leather trade, 18th–19th centuries

The manufacture of leather, albeit ancient, had a boom from the mid-18th century onwards and played a significant role in the country's economy and trade. Scotland had an abundance of raw materials required for tanning. The primary source of hides and skins came from livestock farming, particularly cattle and sheep. These animals were raised for meat, but their hides were valuable byproducts. The extra production of tannin – essential to turning untreated hides and skins into workable leather – from stripped bark, a by-product of the charcoal and ironworks industry, as well as easy access to water contributed to the expansion of this trade, although the final push was very likely given by the increased demand due to demographic expansion and industrialisation.

Scottish leather was highly regarded for its quality, and a significant portion of the leather produced in Scotland was exported to the rest of the UK and to the United States, Canada and other countries. It was used in various industries, including the production of shoes, belts, saddles and upholstery. Edinburgh was considered the 'chief seat of the leather manufacture in Scotland' and as early as 1778 '…there were several tanneries in the outskirts of the city, and that skinners were well employed' (Bremner 1869/1969 ed: 352).

The 19th century witnessed significant changes in the tanning industry. Technological advancements, such as the invention of new tanning machinery, improved the efficiency of the tanning process. The use of steam power and mechanised equipment allowed tanneries to scale up production, aided by the introduction of 'new' tanning agents such as sumac, valonia and gambier (SLT 1882: 48, 1886: 16), imported from Asia and the Americas, which drastically reduced the length of the tanning process. Chrome tanning also became popular due to its faster processing time. It used chemicals containing chromium to tan the hides, reducing the time required compared to traditional bark tanning (Church 1971: 550). The expansion of the British Empire and the inclusion of territories such as Canada, for example, contributed to the further development of this industry. More exotic animals' skins such as porpoise and seal skins were advertised (SLT 1894: 2): 'Ladies will be interested that for … their comfortable winter jackets … 736,336 seal skins were imported' (Morn Post 1871).

The tanning process involves several stages, including cleaning, soaking, de-hairing, tanning and finishing. Specifically, tanning or curing skins involved steeping fresh (and therefore putrefying) hides for months in pits of lime solution to soften. This enabled workers to 'unhair' or depilate them on a convex surface (SLT 1897: 17). The best hides, and those for splitting into thinner slices, could be further cleaned by 'bateing' with animal dung. One description had '4 bushels' (*c* 200lbs) of hen or pigeon droppings and water heated to 90°F (32°C) before 30–50 hides were added (SLT 1897: 17).

Dog excrement collected from kennels or streets was also used (Procter 1914: 61). Tanning pits were the next stage, filled with 'liquor' of tanbark or, by the 1890s, artificial tanning substitutes.

Currying was a secondary stage, mostly done by hand, inducing flexibility and waterproofing by 'smoothing the surface and then working in a mixture of cod oil and tallow, called dubbin' (Church 1971: 549). Wet skins were draped on a flat beam where the currier used a sharp knife for 'skiving' (loosening putrescent flesh) and then 'shaving' the skin (SLT 1896: 392). With a sharp blade, a skilled worker obtained an even, clean surface and consistent thickness of the hide.

Tanneries were often located near water sources for the tanning process and transportation. The earliest and more rural tanneries would often be located near 'slaughter houses and cattle market' (Donnachie 1971: 48). In an urban context, 'the skinning process was carried out in a separate plant, and hides often went directly to the tannery' (*ibid*).

This led to the growth of towns and cities in areas with active tanning industries. For example, places like Dumfries, Glasgow, Paisley and Dundee became prominent tanning centres (Waterer 1944: 171). This became such a profitable business that as early as the mid-19th century, Leeds leather manufactories employed more than 100 workers each (Gomersall 2000). Around 1870, 500 tanneries in Britain (120 of which were located in Scotland) gave 'employment, directly or indirectly, to nearly 400,000 persons', of whom 32,000 worked in Scotland (Bremner 1869: 353; Bir DP 1871).

The figures for 1896, taken from the census, record over 27,000 horse-gear makers, 10,300 tanners and above 25,500 curriers, totalling 55,000. Although the number of UK tanning firms fell from 708 in 1880 to 576 by 1900, and 390 in 1911, likely due to consolidation and industrialisation of formerly smaller-scale processes, leather dressing companies (for example dying, graining and varnishing) greatly increased (Church 1971: 548).

The use of leather became more specialised, though the range of trades lessened during the 19th century (SLT 1882: 52, 88, 1886: 377, 1896: 331) as new materials were substituted for it, particularly rubber. The Leather Trades Directory for 1896 shows 279 different specialised trades (increasing to 314 in 1911), ranging from currier's knife dealers to gaiter and closed-shoe upper manufacturers, bristle merchants, depilating fluid suppliers, cap-lining cutters and leather gilders (Kelly & Co 1896: xxvii–xxviii; 1911: xxviii–xxx).

The tanning industry was notorious for its environmental impact during this period. The tanning process produced a lot of waste, including chemicals and effluents that were often discharged into nearby rivers, causing pollution and environmental concerns. Over time, there were attempts to regulate and improve these practices.

The Alkali Act of 1863 (Great Britain. Parliament 1847–1876) was one of the earliest pieces of legislation in the United Kingdom that aimed to control pollution from industrial processes, including tanning. This act required industries, including tanneries, to install condensing chambers and other equipment to reduce emissions of noxious gases, such as sulphur dioxide. In addition to national legislation, many local authorities in Scotland implemented their own bylaws and regulations to control tanning pollution. These regulations often addressed issues like the disposal of tannery waste and the construction of tannery buildings to minimise the impact on nearby residents. Tanneries were significant sources of river pollution due to the chemicals and waste products generated during the tanning process. In response to concerns about river pollution, some local authorities and the central government introduced regulations to limit the discharge of tannery effluents into rivers and streams. Government inspectors were appointed to ensure compliance with pollution control regulations. Tanneries were subject to regular inspections to assess their adherence to the law. Non-compliance could result in fines or even the closure of a tannery. As the understanding of public health improved in the 19th century, there was growing awareness of the potential health risks associated with tanning pollution. Foul odours, contaminated water and air pollution were all concerns for nearby communities, and this led to increased pressure on authorities to enforce pollution control measures. Some tanneries adopted new technologies and

processes that were less polluting. For example, the introduction of the chrome tanning method in the latter half of the 19th century was seen as a cleaner and more efficient alternative to traditional bark tanning.

Several 19th-century tanneries played important roles in the city's tanning industry. While it is difficult to single out a definitive list of the 'most important' tanneries, as the prominence of specific establishments may have varied over time, there were notable tanneries that made significant contributions to the industry. The Caledonian Tannery, located in the Grassmarket area of Edinburgh, was one of the largest and most well-known tanneries in the city during the 19th century. It was known for producing high-quality leather and had a reputation for innovation in tanning processes. The tannery's location in the heart of the city made it easily accessible to both suppliers of raw materials and markets for its finished leather goods. J. & W. Howden's Tannery, situated in the Canongate area of Edinburgh, was known for its production of leather for harnesses, saddles and related equestrian equipment. The Howden family had a long history in the tanning business in Edinburgh, and their tannery was a respected establishment in the industry. William Henry & Co. Tannery was known for its production of curried leather, a type of leather used for making bookbinding and other high-end leather goods. The tannery was located on the High Street in Edinburgh and was one of the more specialised establishments in the city. Tanners' Hall, located on Canongate, served as a significant hub for the city's tanners and leatherworkers. It was not a tannery itself, but rather a gathering place for members of the trade, where business transactions and interactions among tanners took place. The establishment reflected the importance of the tanning industry in Edinburgh's economic and social life.

By the end of the 19th century, the tanning industry in Edinburgh, as in other parts of the UK, faced increasing competition from other regions and countries. Technological advancements and changes in the leather industry led to the decline of traditional tanning methods and some consolidation of the industry (Singer 1954).

3.2 The Johnstons (1830s–1881)

3.2.1 David Johnston's Tannery in the Old Town, 1830s–1868

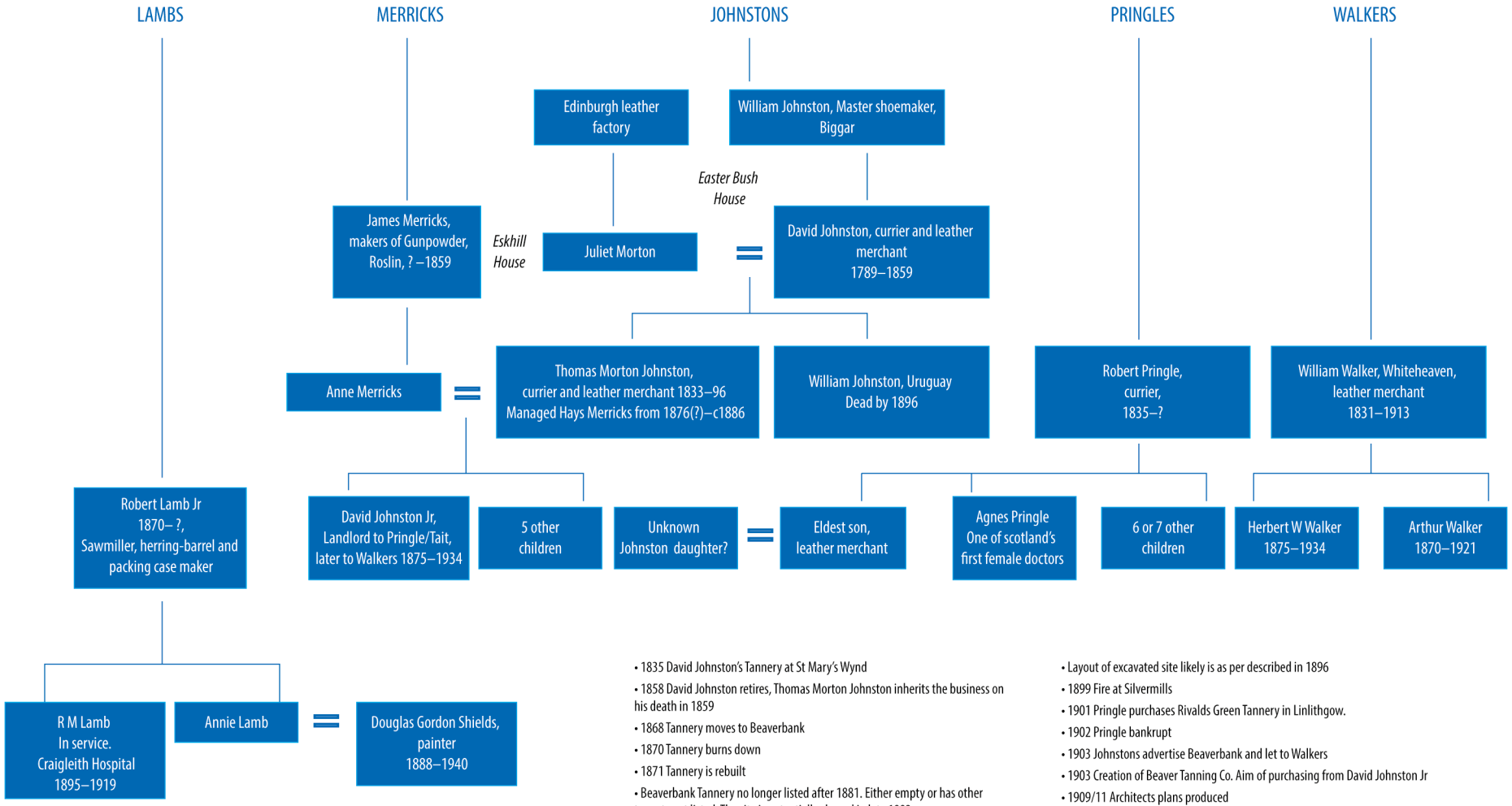
The Beaverbank Tannery, dating from *c* 1868, represented a late addition to the Edinburgh tannery infrastructure and its trade started with the Johnston family (Illus 3).

David Johnston (1798–1859) was one of nine children of William Johnston, a master shoemaker from Biggar (Census 1841; NRS, Johnston 1859). He followed the family leatherworking tradition and was a 'currier and leather merchant' when in 1825 he married Juliet Morton, daughter of an Edinburgh leather factor (Blackwood 1825). The couple had five children, and by the mid-1830s, David and one 'Adam Johnston, currier' (probably related, but not brothers) were established in St Mary's Wynd. David lived off the Canongate and could afford two live-in servants (Census 1841). His brother James, another currier, appears in later directories, next door to David's tannery (for example Dir 1855: 263, 1860: 355, at Nos 68, 70).

In the absence of any of Johnston's company archives, the tannery's history must be reconstructed from other records. In 1851, as a tanner, currier and leather merchant, David Johnston employed 11 men (Census 1851). Around 1858 (age 61 and a year before his death), he retired and moved from the impoverished Old Town to the lavish Easter Bush House at Roslin (Dir 1857: 375, 1858: 400), a large Adam-designed mansion. On his death in 1859, his son Thomas Morton Johnston (1833–96), inherited the business (NRS, Johnston 1833; NRS, Johnston 1859) and by 1861, the workforce employed by the business had doubled to 22 and records confirm that the firm was producing some shoe leather for a local wholesale boot manufacturer (Census 1861; Ed Gaz 1866). T M Johnston was by now living in affluent suburban Newington (Census 1861; Ed Gaz 1866).

3.2.2 City Improvement Act, slum clearance and fires 1867–8

The Johnstons moved to Beaverbank between May and December 1868 (Dir 1868: 337, 1869: 410; Fleet & MacCannell 2014: 182). They were probably prompted by the knowledge of the



Illus 3 Timeline of owners and businesses at Beaverbank

approaching redevelopment of St Mary's Wynd, which began in May 1868.

Due to the sheer size of the leather industry in Edinburgh, some areas of the city saw an increased number of tanneries developing alongside slums. St Mary's Wynd and West Port were two of these areas. According to Dr Henry Littlejohn's famous sanitary improvement report of 1865, St Mary's Wynd was notoriously among the most overcrowded areas in Europe, with 646 persons per acre (Laxton & Rodger 2013: 169, Report 113). Tanning removed putrefying flesh from dead animal skins, which were stored on-site before being processed, and various processes emitted ammonia. In addition, the foul-smelling 'flesh and refuse' from cleaning hides in St Mary's Wynd was sold to gluemakers (SLT 1880: 25), adding to 'the stink industries' (Adamson et al 2016: 195).

Throughout the 1860s, opinions both municipal and public, coalesced to tackle the grotesque overcrowding and filth of the city's slums. Major fires, building collapses and disease prompted the proactive Lord Provost, William Chambers, to promote large-scale clearance of congested areas, and the City Improvement Trust was formed in 1867 (Rodger 2001: 430–47; Johnson 2010: 23, 38–45; Fleet & MacCannell 2014: 181–6). These measures were required to prevent incidents such as the large fire at Hewit's Tannery in North Gray's Close in October 1867, and another at a 'small' fireworks factory in Canongate. The tannery was hemmed in by tenements:

> being within 15 or 16 ft of the [fire] … towering in all directions to most unwieldy heights … the fire burst into the bark store [holding] a great quantity of oil and pitch … the open windows of the [houses] were crowded [with spectators. The tannery appeared] in glowing perspective, shooting out solid sheets of flame (Scotsman 1867a).

This was not the first tanworks fire, their 'highly inflammatory material' being 'open invitations … to calamity' (Scotsman 1867b). New Council legislation decreed 'no new tanworks shall be set up in town', but used the 'noxious and offensive' stench, rather than fire-safety, as their justification (ibid).

The ground from the south-eastern side of the Wynd had been cleared by January 1869, including Brown's and Johnston's tanneries, whose grids of pits appeared on the 1st edition OS map (OS 1852: 36; Dir 1868: 243; Scotsman 1869). This suggests construction probably began at the Beaverbank site in late 1867, or early 1868, in advance of the firm's arrival. David's brother, the currier James Johnston (born 1801), also moved to Beaverbank Cottage, near the new site, with his son William, an upholsterer (NRS, Johnston 1801; Dir 1869: 250; Census 1871a; VR 1875a, No 8).

The business moved from St Mary's Wynd to enhance fire-safety and permit expansion, but probably also due to market forces. From the 1850s, ever-larger tanneries were needed to process increasing imports (especially from South America where one Johnston son emigrated) and to fulfil growing demand for leather. Rising production costs also saw relocation to cheaper areas, with space for 'vats, drying rooms and storage … [supplies of] huge volumes of water', and access to ports (Church 1971: 551). Traditional oak bark continued in use, so reliable, constant bark supplies were vital, but its bulk made transport and storage expensive, making good roads and larger warehouses essential.

3.2.3 David Johnston's Tannery moves to Beaverbank: Post-1868

Unlike St Mary's Wynd, the tannery's new site off Lower Broughton Road offered all of the above facilities. It was beside the Water of Leith, a watercourse which skinners had used from 'time immemorial' (Colston 1891: 87; Canmore ID 161690), and the tannery could be connected to a folklore reference that Beaverbank allegedly derived its name from an 18th-century felted beaver-hat factory (Harris 1996: 84). Folklore aside, the location was essential as 'The Water o'Leith, though only a wimpling bairn compared with some of our rivers', once powered over 70 mills, 'in full whirl' (Walker 1797: 590; SLT 1889: 426).

The tannery's new location was originally known as Clerk's or Clarke's Mill, after a former owner (NLS, Ainslie 1804; RoS MID1858, MID5930). An alternative historical name, Logie Mill, continues to be in use today.

In 1807, Clerk's was advertised as 'a bark-mill and for dressing chamoy leather', with a 3-storey dwelling house (Cal Merc 1807). By 1814, it was a bleachfield, with a pump well and spring water reservoir, and tenants included linen-bleachers James Duncan & Co, and in the 1820s, David Horn's firm, who also undertook domestic laundry (Cal Merc 1814, 1817, 1822; Scotsman 1824).

Before the acquisition of the site by the Johnstons, in the mid-1860s, Beaverbank was owned by Col William MacDonald of Powderhall (VR 1865a, Items 27–31). Beaverhall House and outbuildings, part of the site, were rented by Bernard O'Connell, a whip and gut manufacturer. It is possible that the Johnstons had learned of the site's availability through business links with O'Connell. In 1866, MacDonald advertised 'Clark's or Logie Mill, and 3 arable acres, for sale at £1700' (Scotsman 1866). From sasine search sheets consulted, the Johnstons' purchase was probably recorded in early 1868, with a further bond or feu in 1869 (RoS, MID1858: 620–22).

The firm was established at Beaverbank late in 1868, and then suffered a devastating fire on 10 December 1870. There are no Dean of Guild plans for any period of the tannery, so the newspapers give the only description of the premises. The firm of 'J Johnstone [sic] & Sons … was entirely destroyed' (Scotsman 1870a, 1870b). The site covered ¾ of an acre, the leather-processing plant being 150ft x 45ft, partly rented to tanner Robert Smith. 'The office and warehouse of Johnstone & Sons [sic] were … in a detached block fronting Bonnington Road' and were undamaged (Scotsman 1870a, 1870b). The bark mill began smouldering, and six reels of [leather!] hoses and four fire engines were summoned by telegraph:

> Water [was] pumped from the mill-race … Whenever [oil, tallow and dubbin] caught fire, the flames spread with great fierceness, curling out of the open spaces always found in a currier's workshop … the roof fell in with a crash … illuminating the whole of Canonmills … a copious supply of water from the lade' preserved the main offices facing the street to the south, though their windows cracked. Worker's housing, along with 40 cows in a wooden byre, all lying eastwards, were saved (Inv Cour 1870; Scotsman 1870a, 1870b).

There was a large brick building:

> 120ft long by 86 broad. The gables were … two storeys [with] a slanting roof … formed a third flat in the middle … The ground floor … was partly covered with tanpits, and … heavy machinery, two steam boilers, and a bark mill. On the second floor … for currying was … lighter machinery and ten tons of oil and tallow. The upper floor … for drying, contained … prepared leather (Scotsman 1870a, 1870b).

Damage was placed at £10,000, all covered by insurance. The improved water supply and leather hoses were at least useful, and the compensation enabled Johnston to rapidly rebuild, again without official plans.

In 1871, Thomas M Johnston had fewer employees than in his previous tannery (22 in 1861, 15 in 1871) but whether this was due to mechanisation or the continuing recovery from the fire, is unknown. Thomas had married Anne Merricks in 1860, and by 1871, they lived at 6 Inverleith Row with five (later six) children (NRS, Merricks 1860; Census 1871b). This was one of the most affluent areas in Edinburgh, showing Johnston's wealthy status. William Johnston, brother of Thomas, had emigrated before 1870, to north-west Uruguay, famous for cattle-raising. Living around Salto city on the border with Argentina, he was probably sourcing and exporting leather for British customers like his brother (RoS, MID1858, 621–23, MID5930: 593). Salto faced its twin port, Concordia (in Argentina) across the Rio Uruguay, this being the highest navigable point on the river. For several decades from the 1880s–1920s, there was a large Argentinian (and lesser Uruguayan) trade in beef (and hides), which were exported downstream to meat packing plants in Buenos Aires, and thence worldwide.

3.2.4 Johnston and Roslin Gunpowder mills; 1876 onwards

It is ironic that having traded from Powderhall's grounds, named after an explosive chemical,

Johnston should find himself making gunpowder. His in-laws, the Merricks, had owned Roslin gunpowder mills from around 1804, but advertised the foundation of their company as '1790' (Field 1880; *Dal Adv* 1886; Meighan 2012: 42). They had built the nearby Eskhill House (HES, LB13846; HES, NT26SE 137).

T M Johnston's father-in-law, James Merricks, had died in 1859, and his firm of Hay, Merricks & Co was restructured in 1876 (NRS, Merricks 1859, 1860; Lon Gaz 1870; VR 1874; Ed Gaz 1876). 'Hay, Merricks' became a limited company managed by Thomas, while his wife's cousins probably still held shares (NRS, BT2/715; Dal Adv 1882). Thomas ran Beaverbank and Roslin simultaneously until around 1886. He made Eskhill the principal family residence from 1877, possibly to better supervise the mills (Dir 1876: 504; 1877: 108, 561; 1878: 111; VR 1884). As a major local employer (employing a total of 98 men and eight girls in 1881), Thomas adopted the traditional role of philanthropic laird around Roslin and Lasswade (Census 1881a; Dal Adv 1886, 1896) thus completing his social ascent which produced amateur odes in his honour: 'Johnston yet, in his official den … He'll bless or ban by telephone at the auld pooder mills … He hangs his hopes on tramway ropes … When commerce spurns the earth beneath' (Dal Adv 1885; 1886; Port Adv 1896).

Meanwhile, the Canonmills area was fast-developing, and various leather works there changed hands. Boyce & Johnston, iron founders, appears in 1876 and may have involved one of currier James Johnston's relations (though this is unconfirmed by research; Dir 1875: 256). Currier Archibald Donaldson was sequestrated in 1877 (Ed Gaz 1877b), and the rented premises of leather merchants J L Currie were later sold (Ed Gaz 1877a; Scotsman 1879). Adam Dean's tannery was established before 1880, when mat-maker James Easton erected a skinnery (Dir 1879: 274; Scotsman 1880). Local builder John McAnsh erected speculative tenements along Beaverbank Place in the early 1880s, some of them co-financed by Thomas Johnston (Ed Ev 1881; VR 1885). In 1882, the Council formally 'adopted' the street for maintenance, improving local transport (Scotsman 1882).

In the early 1880s, the Scottish tanners' trade was booming and advertising became more commercially relevant. The 'Scottish Leather Trader', an industrial review, started in July 1880 and was densely packed with reports on new machinery and techniques. However, Beaverbank is hardly mentioned, and presumably advertised elsewhere, if at all.

Johnston's eponymous firm was no longer listed at Beaverbank after 1881 (although he continued in ownership) and the works either stood empty or hosted short-term tenants (Dir 1881: 289, 477, 1882: 291). Engine ashes and iron-bound oil casks remaining from the tannery were advertised in late 1883, as if the premises were being cleared to make way for new occupants (Ed Ev 1883).

3.3 The Pringles (1884–1902)

3.3.1 Robert Pringle at Beaverbank and Silvermills Tanneries

From early 1884, Johnston leased the works to Robert Pringle – currier – and David Tait, a waterproof cover-maker (Dir 1884: 303; VR 1885). Pringle (born Peebles, *c* 1835) had been a currier for Andrew Isles & Son, and then rented their Pleasance workshop on his own account (SLT 1882: 59). In the mid-1870s he was trading from Silvermills, which already housed upholsterers, cabinet makers and associated crafts (Dir 1873: 397, 1880: 467; VR 1875b). He employed 23 people in 1881, and by the time he was a Beaverbank tenant, Pringle was a well-established, middle-class father of 10 (Census 1881b). His motive for transferring business in 1884 is unknown, but with such a large family, it was possibly driven by financial necessity.

The grid of tanpits uncovered at Beaverbank must resemble those described for liming skins in 1896: 'The pits are … of stone or brick, covered with cement to make them waterproof. A pit to hold 50 hides of medium weight should be about 6ft x 5ft x 6ft … so that four or six pits lie together' (SLT 1896: 392–3). Hides were manually rotated within each pit, and also passed, successively, along this chain of pools of increasingly concentrated de-hairing 'liquor'.

There were various banks of pits for different soaking-processes. Hugh Brown's town-centre tannery used mains water, and drained into the common sewers (SLT, 1880: 25). His steam engine saved money by using spent tanbark as fuel, mixed with coal. In Glasgow, covered tanpits ensured

that rainwater did not dilute the 'liquor', while steam-power enabled water-changes 'in a few minutes', using hoses, while more mechanised works had hot steam pipes under the tanks to heat the liquid (SLT 1882: 53, 89). Vivid snippets convey the atmosphere: Legget's 'modern skinnery' on the Water of Leith still involved:

> navigat[ing] … across soaks [pits] and over limes [liming pits] where the pathway was very narrow and … under joists where the headroom was very scant, a dent on our new hat being the only damage' (SLT 1889: 426). At Andrew Isles & Son, 'the air is filled with hanging hides so close that we have to open up a path through them with our hands, as if … through the thick foliage of a wood (SLT 1882: 59).

Pringle exhibited his products at the Edinburgh International Exhibition of 1886, held in a temporary domed pavilion on the Meadows, visited by up to 14,000 people each day (Scotsman 1886; SLT 1886: 265). This left a rare Beaverbank products review:

> The grain hides and grain butts exhibited are masterpieces in the art of currying and perfect in workmanship. The fine calf skins for linings are good. A Glasgow leather merchant, attracted by the rich grain[ed] hides … bought them out (SLT 1886: 265).

Pringle expanded into further premises at Silvermills in 1891 (Dir 1891: 585, 1892: 516, 591; VR 1895a). This additional tan yard could produce '400 to 500 hides per week' (SLT 1890: 387). The census shows him living in a spacious tenement, midway between his two workshops (Census 1891). Two adult sons living at home are each vaguely described as 'tanner's son', probably indicating they worked for him.

The lime-pits, drying sheds and tannery at Silvermills were advertised to let in 1894, but Pringle remained there for several more years (Ed Ev 1894; VR 1895a). The Beaverbank proprietor, Thomas M Johnston, died in 1896, and his son, David Johnston Jr, became landlord to both Pringle and longstanding renter David Tate, waterproof cover-maker (VR 1895b, 1905). Pringle's trade seems to have continued without incident until 1899 when a fire broke out in the four-storey wooden drying shed at Silvermills (Ed Ev 1899; Scotsman 1899). The stored flammable oils fed the flames but, counteracting this, the plentiful water supply helped quench the blaze. The smoke, fire and water damage to the skins was only partly insured.

Pringle's eldest son followed his father as a 'leather merchant', and in 1899, he married one of the Johnstons, the daughter of the founder of Beaverbank tannery in 1868 (Census 1901; NRS, Pringle 1899). This union shows the continuing importance of informal business and kinship networks and the extent to which Edinburgh's mercantile society revolved around these.

Further afield, Pringle purchased Rival[d]s Green Tannery, at Linlithgow in 1901, possibly to provide for his sons' futures and for them, 'The new firm … are to have the works improved and extended' (Ed Ev 1901). Unfortunately, this major investment soon failed, potentially due to the ongoing challenge from the rubber industry, and Pringle's assets were seized barely 18 months later (Ed Gaz 1902). Bankruptcy was both socially humiliating and personally ruinous – the 'whole stock in trade, plant and machinery' of Silvermills and Beaverbank were sold in September 1902 (Yorks Ev 1902a, 1902b). The sheer volume of goods meant that the original auction was postponed and publicised as far afield as Yorkshire. The 6.5-acre grounds and fixed machinery of Rivald's Green were slow to sell, despite a price reduction from £3,000 to £2,750 (Scotsman 1902a, 1902b).

3.4 The Walkers (1903–1913)

3.4.1 The Walkers of Whitehaven and some unbuilt architecture

The Johnstons advertised Beaverbank tannery to let in early 1903, along with the adjoining byres apparently 'capable of accommodating 70-80 cows' (Scotsman 1903). The last leatherworkers at the site were the Walkers, from Whitehaven in Cumbria. It is unclear why long-established and wealthy leather merchants from England would extend into eastern Scotland. Their tannery, an offshoot of a Bolton concern, was run by William Walker (1831–1913) and his sons, Herbert W (1875–1934) and Arthur (1870–1921). They had interests in collieries and were generous local Cumbrian philanthropists,

funding scholarships, churches and hospitals (Whit Par 2019).

On 20 May 1903, the Beaver Tanning Co Ltd was formally registered as a joint stock company with shareholders including William, Herbert W and Arthur Walker, and various relatives based in Liverpool (NRS, BT2/5354). Their Edinburgh manager/secretary was a cousin, William Walker Wigfield, but apart from a local leather factor/director, Thomas MacPherson, everyone else was England based. Their stated aims were to purchase from David Johnston Jr (Thomas M's son) and run the Beaverbank tannery, sheds, pits and boilers as a leather factory. As with previous occupants, there is almost no trace of the Beaver Tanning Co's activities. The 'skinworks' at 26 Beaverbank Place, belonging to T G White, were a separate, unrelated concern (VR 1905, No 17).

The Walkers never did purchase the tannery from Johnston, although they made serious plans to extend and rebuild it. In 1909–10, well-known Edinburgh architect James B Dunn (1861–1930), one of the co-designers of The Scotsman buildings on North Bridge, was asked to produce plans for new street-front offices and workshops (DSA 2019; HES, EDD/818/1–10). This was a potentially expensive project as the proposed elegant red-brick building would have been an entirely new-build (for example HES, EDD/818/4, 8). Fronting Beaverbank Place, it would have adjoined the neighbouring tenement's gable and infilled the existing tannery's front yard (HES, EDD/818/5). A sketch shows that many of the existing structures were single-storey timber sheds and Dunn has marked one as being in 'bad repair' (HES, EDD/818/2) (see Illus 4).

These drawings span a period between December 1909 and January 1911, but no contemporary 'planning permission' was either sought or granted by the Dean of Guild Court (ECA, DoG Index; ECC, Plan Index). Map regressions show that Dunn's design was never implemented, but the 14-month date range indicates that it was under prolonged and serious consideration (Dalland 2018: 45). For unspecified reasons, the Beaver Tanning Co was wound up in Liverpool in August 1912, and finally liquidated in April 1913 (NRS, BT2/5354). William Walker died in late 1913 at the age of 82 years, leaving a colossal sum of £405,783 (Scotsman 1914) to his heir.

Illus 4 Historic drawings by Dunn (1909–11) (© National Library of Scotland)

3.5 The Lambs (1915–1940s)

3.5.1 'Shell(s) for Leather': Robert Lamb, munitions crates and WW1

The demand for leather belts, boots and other military equipment soared during the First World War, but Beaverbank lay empty until 1915 when Robert Lamb & Sons moved in and used the site as a sawmill/cooperage. David Johnston still owned the disused office, workshop and tan pits, but there is no evidence of him trading despite his neighbouring competitors, leather-dressers T G White, continuing in operation during this period at Nos 25–6 (Dir 1915: 485; VR 1915a: Item 14).

The original Logie Mill to the south-east was now part of Logie Green Works, lying further to the east, owned by Robert Lamb Jr (born 1870), sawmiller, packing case- and 'herring barrel-maker' (Dir 1915: 210). The working life of this company is well documented, from WW1 through to a 1990s photographic record compiled by local historian Peter Stubbs (Stubbs 1991–2003).

Beaverbank lay west of the mill-lade whereas Logie Green Works lay to the south-east, before the channel re-entered the river at St Mark's Bridge (Cadell 1984: 52–3; Dalland 2018: illus 2). The lade began at Dean Village, and powered both Silvermills and Canonmills, with Logie as the last in the chain of waterwheels. Logie Mill's earlier history as a snuff mill, and then a jewellers' grindery is not discussed in this report, but Johnston let it to various trades in the 1880s and 90s (VR 1865b, 1885, 1895b; Priestley 2001: 71). By 1895, Robert Lamb & Sons, builders and joiners, part-owned and part-rented Logie Green Works immediately adjacent to Beaverbank (VR 1895b: Items 17–19). The Lambs had absorbed the mill into their factory before 1915 (VR 1915b: Items 8–10). Beaverhall Cooperage, a near-neighbour, was run by William Lindsay, of Canonmills Cooperage, who, like the Lambs, was probably kept busy supplying the military with containers.

Military Service Tribunals show how deeply the war affected the plant. Lamb had 85 employees (HH30/10/5/5), and after conscription began in 1916, he struggled unsuccessfully to retain skilled workers. His cashier (the 'only male representative in my office'), besides two clerkesses, a sawyer and a boxmaker were only granted temporary deferments from enlistment in 1916–17 (NRS, HH30/10/5/5; HH30/13/6/15; HH30/15/3/35).

The war affected Lamb even further as his 20 years old son, a sub-lieutenant in the Royal Naval Volunteer Reserve (NA, ADM 339/9/998), had fallen ill with 'trench fever' and influenza while with the British Expeditionary Force in France. After his first hospitalisation, he was declared 'Unfit for General Service' in mid-1917 and, in 1919, readmitted to Craigleith Hospital, Edinburgh. Tragically, he died of 'influenza-pneumonia', two months later.

Robert Lamb's daughter, Annie had married the portrait artist Douglas Gordon Shields in 1918, and he also became a shareholder in the sawmill.

Although Robert Lamb's limited company was dissolved in 1925, the work carried on under other titles and continued to produce boxes and packing-cases, with maps from the 1940s labelling the building as a cooperage. Lamb made various alterations and additions to the Logie Green/Beaverbank complex; he extended his workshops eastwards in 1922, installed a petrol tank in 1923, and added sheds in the late 1930s–40s (ECC, Plan Index).

3.5.2 Beaverbank Motor Works (1928–1959)

Part of the property was let to Beaverbank Motor Works ('Ltd' from 1928) in the early 1920s (Dir 1923: 606; VR 1925: Items 16–18), and this arrangement would have prompted the installation of the petrol tank and possible inspection pits.

The engineering company was owned by 'Gilbert' Blyth (born 'Gillanders' in 1888) and two colleagues (NRS, BT2/1967/280; Dir 1927: 679, 1930: 715). Blyth began as an 'engineer's fitter', but he and a relative, William Blyth (born 1905), eventually became the only shareholders (Census 1911). They ran Beaverbank Motor Works until it closed in 1959, and Gilbert/Gillanders died in 1960 (NRS, BT2/1967/280; NRS, Blyth 1960). It had been a successful business, as the assets at the final winding-up in 1967 were over £12,000 (NRS, BT2/1967/280: Liquidator's Account, 22 Nov 1967).

4. ARCHAEOLOGICAL EVIDENCE

The archaeological excavation at Beaverbank Place was carried out in two parts for logistical reasons caused by services running east to west across the site. Fortunately, the two areas touched by the excavation revealed archaeological remains perfectly aligned with the different histories of the site: the garage to the north and the main tannery to the south.

4.1 North Area (Illus 5)

The northern area, measuring 24m in length and 17m in width, presented the remains of concrete wall foundations lying close to the present ground surface in the east and remains of structures and associated features cut into the natural gravel in the west. These structures appeared to be associated with three different phases of activities characterised by the initial construction of the tannery in the 1860s, the expansion of the tannery complex in the late 19th century and the final replacement of the tannery buildings with a garage in the first part of the 20th century.

4.1.1 Tannery shed

The earliest identified features were a series of five post-holes [061, 029, 031, 034 and 036] (Illus 6) on a north to south alignment along the western

Illus 5 North Area

edge of this northern section. They were relatively evenly spaced 1.9m to 2.3m apart and three of them still contained the stub of the wooden post. The post-holes measured between 0.7m and 1.1m in diameter and were up to 0.6m deep and cut into the natural gravels. The line of the posts seems to align precisely to the eastern side of a structure shown on the Ordnance Survey map of 1877 which appears to be the only structure shown in this area of the site at this time. The presence of post-holes seems to imply the structure was less formal than the brick-built construction to the south and this would fit with various records of tanneries indicating that there would have been numerous storage sheds around the main tannery structure, needed to house the skins as they arrived from suppliers, and this structure identified immediately to the north of the main building, seems a good example of that.

4.1.2 The expansion of the tannery

The archaeological features associated with the second phase, the expansion of the tannery, were fragmentary in nature and comprised a series of pits and small structures also cut into the natural gravels. Of these, the main one was a rectangular brick-built structure [046] aligned WSW to ENE comprising the remains of a double-skinned brick wall in the north-east end of the northern area (Illus 7). The structure, measuring approximately 6m by 3m, extended beyond the northern edge of the excavation area with only the southern part of it exposed. The northern wall [4007] however, was exposed by the previous evaluation trenching indicating it was 2m wide internally and 3.5m long. The western wall of the structure lay below concrete foundations [049], forming, therefore, part of an earlier phase of buildings in this area. Associated with structure [046] was a fragmented area of paving [045] comprising closely fitted square slabs of fired clay 0.3m by 0.3m by 0.05m thick, laid on top of a 0.05m deep layer of light grey sand (044).

Two oval pits, [087] and [089], about 5m south of the paving, also appeared to belong to this second phase. The pits, measuring between 0.6m and 0.7m in width and, less than 0.1m in depth and were cut into natural gravels. They were set 2m apart on an

Illus 6 Post-holes [061, 029, 031, 034 and 036], looking north-west

Illus 7 Brick Structure [046], looking north-east

east to west alignment parallel with the majority of the buildings in the area.

Still belonging to this second phase and located 2m south of the oval pits, was the base of a brick-built man-hole [093], measuring 1.45m by 1.4m. The basal course of the single brick wall survived along the south-east side of the structure. The feature lay below the concrete foundations [050] of the later rectangular building in this area. Further features associated with the construction of the tannery were also identified to the west of man-hole [093]. Here, a square plinth [017] made of bricks and concrete measuring 1.4m wide, 1.4m long and 0.5m deep was identified. Vertical iron rods were anchored at the corners of the plinth likely for securing a metal superstructure to the plinth.

Surrounding the plinth to the south and north-west were a series of pits [018], [024], [028], [039], [040] and [060] cutting into the natural gravels. One of the pits [018] contained a barrel lining 0.9m in diameter and over 0.7m deep. All wooden elements of the barrel had disintegrated but the iron hoops still survived in situ. The basal layer (020) was 0.15m thick and comprised clinker; above this was a uniform deposit (021) of clean clay 0.22m thick. The upper deposit (022) was 0.45m deep and comprised gravel and rubble representing rapid infill of the barrel-lined pit. Two of the other pits, [024] and [039], were elongated and aligned north to south, parallel with the general alignment of the buildings in this area. The others were sub-circular in plan, up to 1.3m across and 0.25m to 0.4m deep.

4.1.3 The garage

The third and final phase was represented by structures associated with the garage constructed in the 1920s. The main structure was defined by a concrete wall foundation [049/053], aligned NNW to SSE. The foundation was between 0.7m and 0.9m wide and up to 0.5m deep. Remnants of the basal brick courses of wall [048/052] survived in places. From this, it could be seen that the wall was built from a combination of headers and stretcher bricks 0.36m wide. Perpendicular to this were the

Illus 8 Brick Structure [043], looking south-west

concrete foundations of two further walls [008] and [051]. Remnants of brick walls [048, 050 and 011] were also present on these foundations suggesting that they were part of the same building, and formed the north, west and southern walls of a rectangular room measuring 4.8m wide by over 10m long. Two small areas of brick flooring [001 and 007] were present in the north-east corner of the area, at a level corresponding to the concrete foundations, suggesting that the northern part of the structure at least had brick floors. Overall, the main structure, measured 20m in length and 14m in width and represented the footprint of the main garage area. Associated with and very likely part of this structure were two smaller structures. Structure [043] within the north-eastern section, was a brick-built rectangular pit (Illus 8) aligned WSW to ENE and measuring 2.5m by 1.5m externally. The walls survived to a height of 0.9m (ten courses) and were built from a single line of bricks resting on a brick floor. The external face of the southern wall was largely exposed, and shown to be of very rough construction, with the construction cut for the pit filled with a mix of mortar and bricks. A rectangular brick-built structure [056] was uncovered at the southern end. It was aligned WSW to ENE, measured 3.75m by 1.83m externally and was cut into natural gravels. The walls were 0.29m wide, over 0.75m high and the fabric consisted of a combination of headers and stretchers. The brick structure enclosed a cylindrical metal tank, 2.3m long and 1m in diameter. An oval opening measuring 0.4m by 0.2m at the west end of the top of the tank was framed by a square brick chamber mortared onto the tank. An iron pipe was incorporated into its south wall, presumably leading into the tank, but broken off just inside the chamber (Illus 9). There was a raised lip around the hole, likely for fixing a cover over the hole. The south end of the pipe extended into the unexcavated BT buffer zone to the south.

A third small pit-structure associated with this later phase was also identified to the north-west. Brick-built pit [014], aligned WSW to ENE, measured 4.6m by 1.5m, was cut into natural gravels and filled with demolition rubble. The walls

Illus 9 Brick Structure [056], looking north

Illus 10 Brick Structure [013], looking south-west

survived up to a height of 0.7m (seven courses) and were constructed from a double line of bricks resting on the concrete base of the pit. The lower six courses were stretchers while the top surviving course comprised headers. Mortar remains on the top course indicating that the walls were truncated at the top. There was a circular hole 0.1m in diameter in the concrete floor approximately 1.45m from the north-east end. Rust stains around the hole indicate that it may have had a metal cover (Illus 10). A mound of corroded ferrous material was located at the south-west corner of this pit-structure.

4.2 South Area (Illus 11)

The southern area measured 36m in length by 25m in width and was entirely dominated by the remains of the mid-19th-century tannery and its associated brick-built structures. Most of the footprint of the building comprised a grid of tanning pits arranged in a line of nine to eleven pits east to west (described as rows) by a line of eight to ten pits north to south (described as columns) presenting in total 78 fully exposed pits and eight partially exposed pits. These pits were contained within an external brick wall, sitting on a series of sandstone foundation blocks [253] and forming a rectangular building. The eastern limit of the building extended beyond the limits of excavation, but the exposed part measured 21.4m by over 18m. The pits within the wall varied in size but appeared to have been laid out in four blocks, A to D, with the pits of each block being of a similar size. All pits were constructed of brick, with brick bases. Distinctions between blocks could also be identified on the basis of the thickness of brick walls between pits. A further block, Block E, abutted the southern extent of the building adjacent to Block D.

Only sample excavations of the pits were carried out following an agreed strategy to maximise the results following the most efficient and least time-consuming methodology.

Generally speaking, the pits were all deliberately backfilled with brick rubble containing very limited artefactual or ecofactual material.

After a full investigation, survey and recording of the tannery building and associated structures, along with any later buildings, the pits were removed by machine under archaeological supervision and monitoring. Although the majority of the pits and structures were cutting into natural geology confirming, therefore, the absence of earlier archaeological remains, an earlier stone-built pit structure was identified underneath pits [080] and [084].

4.2.1 Earlier phase: Pre-tannery features

Following the removal of the foundations of the tannery in the area around pits [080] and [084], a rectangular stone structure [276] was identified at the southern end of this area and extending outside the limits of the excavation (Illus 11 and 12). The structure, measuring at least 5m in length and 1.6m in width, was aligned east to west and the walls, surviving to a height of 2.5m, were built of squared stone blocks with moss packed in between them. This appeared to be of the Amblystegiaceae moss family (Laura Bailey, pers comm). The structure had a surviving floor characterised by stone slabs. A stone-lined drain [270] very likely associated with structure [276] was identified immediately to the north running east to west. It may have been associated with the earlier bleachworks, though there is no firm evidence of either date or function.

4.2.2 The tannery buildings

The southern section of the excavation was almost entirely occupied by a single unified structure – the tannery. This was characterised by a reversed L-shaped plan aligned north-west to south-east along the longest axis and north-east to south-west along the shorter axis. The interior of the tannery was characterised by an orderly grid of tanning pits forming the bulk of the structure (Illus 13). A total of 86 pits were identified although further pits are very likely present further to the east, outside the limits of the excavation and in an area where asbestos was identified. To the south of the grid of pits was an open area, possibly a courtyard, and a line of at least five large tanks, which partially overlaid the earlier sunken structure [276]. The shorter axis of the 'L' was occupied by a series of rooms of which at least five were exposed. These rooms, although characterised by a different construction technique seemed to be associated with the main tannery.

The structures associated with the tannery appeared to be broadly contemporary, and the

Illus 11 South Area

Illus 12 Stone Structure [276], looking south-west

main grid of pits seemed to have been constructed as a single event with later alterations such as the removal and reconstruction of the walls between the tanning pits taking place at later times. The rooms to the west of the tannery pit complex, although contemporary, presented a more refined method of construction indicating a different use of the space, very likely dedicated to offices and storage.

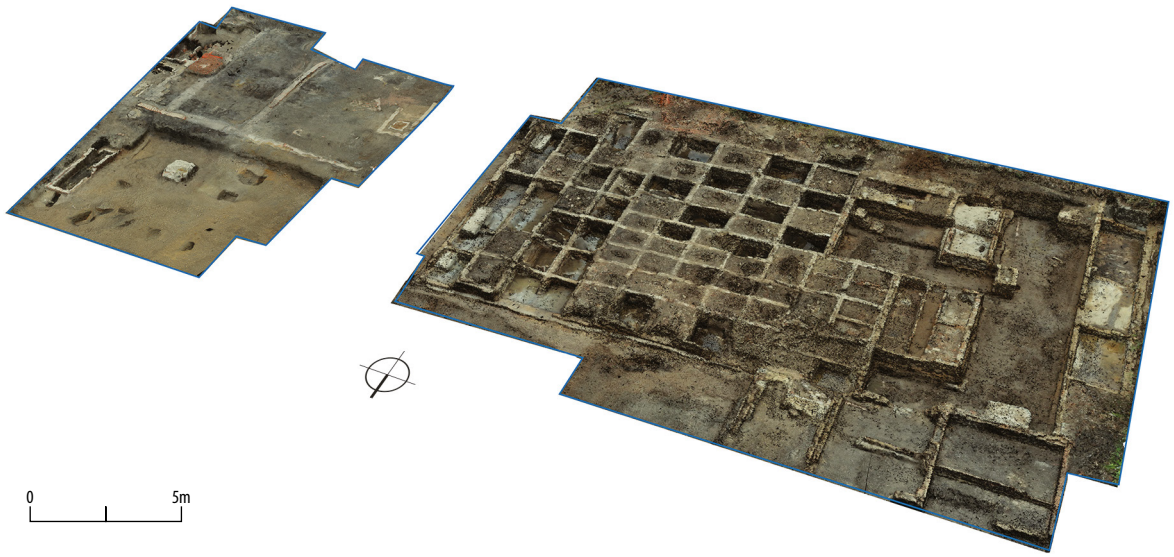
4.2.3 Layout and structures

The arrangement of the pits identified during the excavation most likely represents the original function and use of the building in the period between 1868 and 1896. The structure identified corresponds perfectly with the layout of the building as it was recorded, as seen above, around 1910 by Dunn, a renowned Edinburgh architect (Illus 4; HES, EDD/818/2–4).

The internal layout of the building has been divided up into eight blocks or areas by the authors, for ease of description. Blocks A to E relate to the grid of tanning pits which varied in size, whilst F to H cover other aspects of the overall structure.

Unfortunately, no material was recovered from within the pits to help in the understanding of whether the different blocks related to different activities. Cast iron column bases were recorded at the intersections between A and B/C, B and C, B and D and all along the southern limits of the pit complex. Where the external foundations of the brick walls could be seen, a sandstone plinth was present, set into a foundation trench recorded on the western and northern sides of the building.

The bricks provided a little dating evidence, though few had makers marks and even fewer were legible. Most can only be generically dated to the mid-19th century or later. The few that can be more closely dated are noted in the text. A mixture of red and yellow bricks was used in construction but it is not clear if there is a dating distinction between these two or if they were used contemporaneously.



Illus 13 Photogrammetry of the tannery

Block A ran across the total length of the north section of the building. It comprised four rows of a presumed total of eight pits, with a longitudinal axis running south-east to north-west. Some evidence of alteration of the pit sizes was seen in the insertion and removal of sub-dividing walls. Where this had happened, the scars of the removed walls were visible at the base and up the internal walls of the pits (Illus 14).

In general, the pits of this block were larger than those in B, D and E to the south. On average they were around 1.9m long and 1.5m wide, so likely based on a 6ft long, 5ft wide original design despite several inches of variance between many of the pits. The internal walls were two bricks wide, with three bricks wide on the external walls. Here, the third line of bricks came to a lower height creating a ledge, which is presumed to have been for supporting planks or boards to walk across the area more easily. This is a pattern that was also seen on the edging pits in other blocks (and in some other locations internally to the structure).

Illus 14 Example of tanning pit in Block A, looking south-east

Block B comprised five rows of five pits, with long axes aligned north-west to south-east. There was more variance in their dimensions, but in general, they were around 1.7m long and approximately 1m wide. The two westernmost rows were wider (1.9m), and these showed the most instances of later alteration.

Block C also comprised five rows of five pits (making assumptions for those only partially excavated beyond the eastern limit), aligned north-west to south-east, similar to Block B. The pits measured between 2.2m and 2.3m north to south, and, also similar to Block B, the rows of pits got wider closer towards the edge of the structure. The bricks separating the three westernmost rows were different from those seen elsewhere; they were of yellow fire-clay fabric and slightly bigger than those of the rest of the building; the internal walls were also only a single brick wide. It is also of note that all the excavated examples in Block C had traces of cement render on the walls, in particular on the faces of the single-brick thickness walls. Some sub-division of the pits in the two westernmost rows could be discerned.

Block D was made up of two rows of six pits, aligned north-west to south-east. All the pits measured around 1.75m long and 1.1m wide. At least one of the walls between the pits had been removed to create a larger pit. The brick floor of one of the pits contained two bricks stamped 'EDMONSTONE FIRE CLAY WORKS DALKEITH PATENT', a company located near Newfarm, north of Dalkeith that was trading from 1851 until it went bankrupt in 1884 (Illus 15).

Block E was immediately to the south of Block D and it was clearly a later addition, as the side walls abutted the main structure. There was nothing distinctive about the types of brick used in its construction. Similarly to Block A, the alignment of the pits was generally south-west to north-east. Here the pits were square and measured 1.2m by 1.2m. Of particular note was the central pit out of the three rows, which measured the full width of the block. Unlike almost every other pit within the complex, it was filled with homogenous brown sand.

Illus 15 Stamped brick from Block D

The pits to the north and south of this had their internal brick divisions removed at some stage to form a single space. The remnants of the four pits could also be seen in the presence of four drainage holes in the floor of each pit at the south-east corner, all of which led into a drain running along the central pit. The three westernmost holes contained the remains of wooden linings, though these were in very poor condition and wood type and construction details were not discernible. The furthest west example also contained a pipe sealed with a circular iron lid with a metal hoop (Illus 16).

Illus 16 Pipe sealed with a circular iron lid

Further evidence of drainage was seen in the pits of the southern row of Block E. The pit furthest east had a drain hole in the north-east corner, with a wooden lining and a round plug. The pit next to this had a rounded lump of concrete at the same location, indicating the drain had been sealed off. The evidence from the excavation of the two pits indicates that this originally was a block of eight equal-sized pits, all with drains leading into a pipe located within the middle partition. Later, the four pits to the north were combined into one long pit while the pits to the south were made into two pits linked through a hole in the partition wall.

To the south of the main tannery complex was an open L-shaped space, with further structures forming Block F, large shallow tanks forming Block G, and a series of rooms of apparent different functions forming Block H to the south-west.

Block F included two brick surfaces on either side of a channel with two large pits to the south of

these. The channel [161], aligned north to south and measuring 3.2m in length and 0.6m in width, sloped from 0.18m to 0.3m deep from north to south as the base sloped significantly towards the south end probably to allow better drainage. Approximately halfway along the channel, two brick pillars set opposite each other narrowed its width to 0.25m. At the base of the lower south end of the channel was a ceramic pipe. The brick pillars may have supported a removable board sealing off the north end of the pit, while the sloping base down to a drain hole could indicate that the channel was used for rinsing. The large pits might also have had a rinsing function, or alternatively, might be condensation chambers, as required by the 1863 Alkali Act. On either side, concrete-rendered brick floor surfaces ran parallel with the channel. Two brick pillars joined by a brick wall lay around 1m to the west of the channel and surfaces and were both approximately 0.75m high. It is likely that the brick pillars formed the base of a machine.

Block G, which, as seen above lay over the location of the earlier pre-tannery structure [276], comprised five shallow tanks, approximately 0.5m deep (Illus 17). Each tank was 3.85m long and 2.1m wide and cement render was used for the floors and the internal walls. Upon removal of the block, a V-shaped drain was identified running east to west, lined and capped with flagstones. The drain was likely fed by a series of drainage holes in the tanks above, although at least one of these had been sealed off.

Block H was a rectangular building measuring approximately 16m by 8m, abutting the southern half of the tannery complex on its western side. Similar to the areas of pits, the external and internal walls were of brick construction, and the northern exterior wall also lay on a sandstone foundation. The surviving internal walls divided the space into five rooms, the northernmost of which had a small alcove in its south-eastern corner. Other details of interest include a large sandstone slab on the eastern wall of the middle room, which very likely formed a threshold into the 'business' part of the tannery complex. A brick sample retained from this area was stamped for local maker Hawkhill Brickworks, Restalrig, Edinburgh, who were manufacturing between *c* 1870 and 1885.

Other features of interest which were identified across the tannery complex were the bases of a series of hollow cast iron columns; 15 in total. They were set in four rows, which largely matched the division of the different blocks of the pits. They were 0.22m

Illus 17 Block G, looking south-east

in diameter, 0.05m thick and made entirely of cast iron. Within the complex of tanning pits, the column bases were set into the brick walls and were therefore not visible, but the southernmost row were set into an external wall and their full extent was visible. Here they could be seen resting on square sandstone slabs, with each slab then resting on a concrete foundation up to 0.3m in thickness. In terms of design, they appeared to be modelled on classical Greek columns, with a square base plate, above which two rings formed the interface with the shaft (Illus 18).

The implication of the presence of the columns is that, overall, the tannery structure was something akin to an open shed, rather than a series of enclosed rooms, and this certainly compares well with surviving photos from other tannery sites (Illus 19). Although the groups of pits would likely each have separate functions, they all lay in one large hall or shed as seen in reconstructions of tanneries in Edinburgh such as the Hewit's tannery (Hewit website). The skins could easily be moved from one set of pits to the next without obstruction, and the odours of one part of the process would soon mix with the next, very likely creating a foul atmosphere throughout.

Although the main focus of the tannery activities was on the southern part of the site, it is possible that the set of features from the north portion of the excavation described above, also related to this phase.

Illus 18 Example of hollow cast iron columns

Illus 19 An example of a 19th-century tannery (© Keighley News)

5. DISCUSSION

The narrative above winds through a variety of aspects of the industrial and commercial history of the city of Edinburgh, and the area of Beaverbank specifically. The excavation aimed to contribute to an understanding of the tanning process by examining the evidence available. However, the limited presence of both artefactual and ecofactual remains has limited the ability to delve into the intricacies of this process, particularly the understanding of the specific utilisation and interconnections of the individual pits. Despite this, the site has proved a focus for a more linear and historical account of its development and growth. Additionally, some important threads can be teased out of the excavated evidence.

5.1 The linen mill

The stone structure found at the south of the site, predating the remains of the tannery, is most likely relating to the linen-bleaching undertaken by Clarke's Mill (or Clark's or Clerck's Mill), also known as Logie Mill, operating on-site in the early 19th century. Although the structure spanning the mill lade illustrated in mid-19th century Ordnance Survey mapping is unlikely to be that found during the excavation (the location does not match), it indicates the presence of structures along this part of the lade prior to the development of the tannery. The structure was, at the time of the excavation, below the water table and it was assumed during the excavation that the moss found in the bonding was used for making the structure watertight. Moss was commonly used for caulking in boats in Scotland during this period (Seaward & Williams 1976: 174).

A wall was seen on the southern side of the structure within a sondage, but it may have had an entrance or gap along it, leading into the presumed position of the mill lade. Given the map description of the area as being a bleach field, it is possible that the structure was used as a retting pit for the processing of flax to make linen. After harvesting flax, the fibres must be loosened from the stalk. This is achieved by immersing the plants in water and using bacteria to decompose the pectin that binds the fibres together. Historical records show that the area was used as a bleach field for linen by 1814 and that tenants in this area included linen bleachers (*Cal Merc* 1814, 1817, 1822; *Scotsman* 1824). The structure is an important addition to a key industry of Edinburgh in the late 18th and early 19th centuries.

5.2 The Beaverbank Tannery in context

There is a growing body of archaeological evidence for Edinburgh tanneries though for the most part these are of late medieval to early post medieval date, when tanneries were clustered around the Grassmarket and Cowgate. Tanneries of this period are generally characterised by barrel-lined tanning pits, occasionally stone-lined pits. These are frequently associated waste material predominantly in the form of animal bone with cuts deriving from skinning and, where burial conditions allow for good preservation, waste leather trimmings and animal hair. Tannery remains of this period have been identified archaeologically at the Holyrood Parliament Site, Holyrood Road (Stronach 2010: 124–9); the Holyrood North site (Mel Johnson, CFA, pers comm) and India Buildings, Cowgate (Franklin 2023: 8).

An archaeological excavation of a 19th-century Edinburgh tannery of a form similar to the present site was undertaken at Jeffrey Street in the Old Town, where the remains were linked to Hewit's tannery (Masser et al 2014: 22–6). The same grid pattern of tanning pits was seen there, though only a fraction of the number was revealed. At Jeffrey Street they were better preserved, however. They were stone-built, and lined with wood and clay for waterproofing. Wood chippings found might be the remains of organic material used in the tanning liquids. The backfilled pits also contained a considerable amount of artefactual material, including waste leather that probably related to the work undertaken there. This material was notably absent from Beaverbank, but remains found during fieldwork at the neighbouring Logie Green Road site (van Wessel 2009) of organic deposits containing cow horn and leather fragments must relate to the workings of the tannery. Therefore, waste material, it appears, was not disposed of within the Beaverbank Place excavation area.

Historic building recording and a limited amount of excavation was undertaken at a later Hewit's

tannery, the Kinauld Leather Works, located some 15km to the west, in Currie, on the banks of the Water of Leith (Sproat 2011). It was of a considerable size, spread over four storeys. However, no record was made of tanning pits at this site, though it is not clear if they had been filled in or whether this function was served by another mechanism, such as free-standing vats.

Beaverbank Place is by the far the most complete excavated floor plan of an Edinburgh tannery of this period and the accompanying historical research means it is possible to theorise about the tannery's development by comparing archaeological, cartographic and historic evidence.

The outline of the excavated structures corresponds well with the historic maps of the area and this provides some useful information about the dating and function of various areas. The structures overlap the outline of the building labelled 'Tannery and Skinnery' on the 2nd edition OS map surveyed in 1877. The map depicts a rectangular building aligned NNW to SSE that measured 18.7m in width and 35.5m in length. The north-east and south-east corners of the building coincided with the outline of the site boundary. The map shows that almost the entire tannery was exposed during the excavation except for one row of tanning pits along the east side.

During the excavation, it was noted that Block E, which originally contained eight tanning pits, had been added onto the south side of Block D and not keyed into the wall, although the original partition walls followed on from those in Block D. This evidence suggests that Block E was a later addition to the tannery. However, the layout of the cast iron columns built into the south wall of Block E indicates that it was part of the original design of the building. The solution to this apparently conflicting evidence may be found in the documentary sources. Just two years after the Tannery had been built in 1868 it suffered a devastating fire and burnt to the ground. The building was fully insured and rebuilt soon after and Block E might represent the post-fire phase.

The brick-built tanning pits which were all set into the ground and mostly filled with liquid would probably have survived the fire largely undamaged and indeed there was no visible sign of this fire in the pit fabric. It is likely that most of the old tanning pit complex would have been retained when the tannery was rebuilt after the fire. However, the fact that Block E was added to the original pit complex at a later stage while still having new structural columns incorporated, indicates that this block was added during the rebuild after the 1870 fire.

The tannery was leased to Robert Pringle in 1884 and later to William Walker in 1903. The two tenants are likely to have had different requirements in terms of the layout and size of the tanning pits, which may be reflected in the evidence of sub-divisions and enlargements of the original pits.

Although the structure of the tanning pits had not been drastically altered, at some point in the intervening century, they had been deliberately backfilled with building rubble. The amount of brick present within the rubble might indicate that this occurred more recently, at the point when the whole of the building was demolished, and the site levelled. As such, it seems possible that any alteration to the main structure for repurposing of the tannery would have involved laying a solid floor over the pit complex and reinforcing areas where heavy machinery was to be located. Potentially the large concrete lumps which lined the edges of the building, in some places cutting through the brick walls of the pits, may date to this period.

The annexe to the south-west corresponds well with the archaeology and map evidence (Illus 2c). The terminus of the west wall in the middle room coincides with the south side of an apparent vestibule in the middle of the entrance from the street. The remains of a brick wall foundation exposed along the western edge of the site coincide with the west side of a small rectangular yard to the south of the 'vestibule'. The architectural plan from 1909 identifies this building as the office fronting Beaverbank Place.

The development of the north area is well documented through a series of Ordnance Survey maps. While the outline of the tannery to the south remains largely unchanged from 1876 until 1931, the layout of the north area undergoes significant changes during this time, and these are reflected in the three different phases identified in the archaeological excavation.

The first building in this area was rectangular in shape and located along the east side of Beaverbank Place as shown on the 1877 OS survey. It is

depicted on all later OS maps up to and including the architect survey from 1909 where it is labelled as 'wooden shed'. The remains of this building, uncovered during the excavation, comprised a row of substantial postholes, some of which contained solid wooden posts confirming the documentary evidence.

The dimensions of the posts appear to indicate that this was a substantial two-storey structure similar to the ones shown in a 19th-century photo from Rhayader Tannery in Wales (Museum Wales website). In this instance, the building was used for storage and drying of skins hence the open slats in the wall in the background to allow good ventilation as shown in a tannery in Jedburgh where louvred openings are typically found in areas for 'drying hides after tanning' (Hume 1976: 26). Its ground plan is considerably larger than the tannery at Jeffrey Street, Edinburgh (Masser et al 2014), although it is not known how many storeys the latter occupied.

By 1894 a series of structures were added within the north area. There were minor changes in the layout over the next 15 years and most of these are labelled 'wooden shed' on the architectural plan from 1909 (Illus 2c).

A second structure identified in the north area appears to correspond to features mapped from this period. This was the square brick and concrete plinth located within the western half of the area. Its dimensions indicate that it may have been a crane base. It is shown on the 1894 survey, published at a scale of 1:500, as a square with a straight line running from its north-west corner up to the middle of a building to the north-west. The feature was not depicted in the architect's plan from 1909 and may have been taken down by then (Illus 2c). A crane located at this location could have been used to hoist goods up to the upper floors of the adjacent buildings.

A rectangular brick-built structure was recorded at the northern edge of the area [046]. Remnants of a tiled floor surface were found on its south side and are likely to be contemporary with the structure. Stratigraphic evidence indicates that this pre-dates the later garage built in the early 1920s and it is likely that it also pre-dates the clearance of the area around 1912. Its outline, however, does not correspond with any mapped buildings from this period and it might be possible that it represents a building erected and demolished during the 18 years between 1876 and 1894.

Two brick-built pits were uncovered towards the northern edge of the excavated area. None of these can be directly stratigraphically linked to any of the mapped buildings. Both pits are aligned with the plot boundary as are all buildings in the area. The pit to the north-east is shorter and wider than the other. Its location indicates that it cannot be contemporary with the buildings mapped in 1894 and 1909 and is not likely to lie within the building mapped at this location in 1905. Its position may suggest that it is contemporary with the 'cavity walls building' to the west; if so, it could pre-date the 1894 survey. The dimensions of the pit are comparable to many of the tanning pits recorded in the south area and given the proximity to the tannery, it seems likely that it was a separate tanning pit. It is difficult, however, to explain why a single pit was built away from the main complex unless it was part of a separate smaller business.

The narrower pit to the west lies within the outline of a rectangular building located in the north-west corner of the site and originally mapped in 1894 (Illus 2c). It is very likely, although not provable with certainty, that this pit was originally located within this building. The pit is similar in size and proportion to the north tanning pit in Block E. The inside walls were rendered to make it watertight, and it had a drainage hole at the base presenting therefore all the characteristics of a tanning pit.

5.3 Garage

The 1912 OS survey shows that all the buildings in the north area recorded on the architect's plans three years earlier had, at this point, been demolished. This may have been the initial stage of the planned redesign by Beaver Tanning Co that never took place as the company was liquidated in 1913 (NRS, BT2/5354).

As seen above, in 1915 Robert Lamb & sons took over the area. They erected a large rectangular building along Beaverbank Place and in 1912, expanded the workshops eastwards and, as such, part of the property was let to Beaverbank Motor

Works. The buildings are mapped on the 1931 survey and labelled 'Garage' on the 1944 OS map.

The two pits along the north edge of the site lie within the footprint of the original garage and could therefore be part of the garage structure, possibly used as car inspection pits. However, the pit to the north-east was 1.2m wide internally, which would have been too wide for most vintage cars.

The pit to the south-west was significantly narrower and longer and perhaps more suitable to be used as a car inspection pit. As with the previous pit, this was located within the garage footprint. This made the existence of an inspection pit much more likely. As this pit shared many characteristics with the tanning pits, it may have originated as one and was later re-used for car inspections during the garage period.

6. CONCLUSION

The excavation at Beaverbank Place has yielded significant insight into the history and development of the tannery whose structural remains were preserved remarkably well. Moreover, the excavation has enabled a more comprehensive understanding of the earlier land use of the site in relation to the evolution of Edinburgh's industrial and technological history spanning almost two centuries. The excavation also provided a valuable opportunity to delve into part of the city's social history during the 19th century, capturing the intangible cultural heritage and psychogeography associated with the site, which is typically overlooked in developer-funded archaeological projects.

The historical account begins with place names, purportedly tracing their origin to the production of 'beaver-felt' hats and gunpowder. It also traces the family history of the Johnstons who were displaced in 1868 by the Old Town Improvement Act (Chambers 1868) and it carries on with the social and financial relationship of the family associated with the running of the tannery.

The excavation area presented an array of power sources. Beaverbank hosted mills powered by water, later by steam engines and latterly by electricity. Machinery transmitted movement by means of drive belts, initially of leather (which could have been produced on site) and later superseded by rubber.

Through the combination of archaeological and historical evidence, it has been possible to identify the diverse historical and social narratives associated with the site which, despite their self-contained nature within chronological boundaries, interconnected to create a cohesive and fluid biography of Beaverbank Place.

7. ACKNOWLEDGEMENTS

The project, undertaken by the staff of Headland Archaeology, was commissioned by CCG (Scotland) Ltd. The project was managed by Kirsty Dingwall. The fieldwork was carried out by Magnar Dalland, Aisling Fitzpatrick-Sinclair, Kim Gaunt, Asta Pavilionyte, Don Wilson and Genevieve Shaw. Illustrations were produced by Headland Archaeology graphics team, Caroline Norrman, Beata Wieczorek-Oleksy, Dunia Sinclair, Marc Zubia-Pons and Rafael Maya-Torcelly.

Morag Cross would like to thank the ever-helpful staff of Edinburgh City Archives, namely Jennifer Hogg, Ashleigh Thompson and Vikki; Edinburgh Council Plan Store, Cockburn St; Diana Sproat, of AOC Archaeology for her information on Kinauld Tannery; Peter Stubbs, historian and curator of www.edinphoto.org.uk, for sharing his local knowledge; Iain Milne, librarian of the Royal College of Physicians of Edinburgh, and Prof Anthony Seaton, CBE, for their expertise on Victorian industrial diseases; to Alan Cross for his terminological creativity; Catherine Walker, Curator, War Poets Collection, Napier University, and Neil McLennan, Education Dept, Aberdeen University, for valuable help on Craiglockhart; Kathryn McKee, Special Collections Librarian, St John's College, Cambridge, for discussing Dr Rivers's portrait, and lastly, to Victoria Green, curator of the National Leather Collection, Northampton, for kindly sending bibliographic details.

8. REFERENCES

8.1 Archival sources

Bir DP 1871 = 'The Leather Trades Directory', *Birmingham Daily Post*, 31 Oct 1871, 7.

Blackwood 1825 = Marriage Notices, *Blackwood's Edinburgh Mag*, May 1825, 638.

Cal Merc 1807 = 'To be Let … Clerks Mill with Houses and Ground', *Caledonian Mercury,* 16 Feb 1807, 1.

Cal Merc 1814 = 'Clerk's Mill, with Houses … To be Let', *Caledonian Mercury,* 29 Jan 1814, 1.

Cal Merc 1817 = 'Clerk's Mill, Bleachfield', pricelist, *Caledonian Mercury*, 19 April 1817, 2.

Cal Merc 1822 = 'Clerk's Mill, Bleachfield', new season advert, *Caledonian Mercury* 30 Mar 1822, 3.

Canmore ID 161690 https://canmore.org.uk/site/161690/currie-lanark-road-west-kinauld-leather-works. Accessed 13 November 2023.

Census 1841 = Johnston, David, age 40, St Johns St, Edinburgh (Reg Dist 685/1, Canongate; Enum Dist 16/9) at www.findmypast.co.uk. Accessed 4 Oct 2019.

Census 1851 = Johnston, David, age 52, St Johns St, Edinburgh (Reg Dist 685/3, Canongate; Enum Dist 44/10), at www.scotlandspeople.co.uk. Accessed 5 Oct 2019.

Census 1861 = Johnston, Thomas M, age 28, Findhorn Place, Edinburgh (Reg Dist 685/5 Newington; Enum Dist 80/2), at www.scotlandspeople.gov.uk. Accessed 5 Oct 2019.

Census 1871a = Johnston, James, age 69, Beaverhall, Edinburgh (Reg Dist 685/2 St Andrew; Enum Dist 85/2) at www.findmypast.co.uk. Accessed 10 Oct 2019.

Census 1871b = Johnstone [sic], Thomas Morton, age 37, Inverleith Row, Edinburgh (Reg Dist 685/1, St George, Enum Dist 85/9), at www.scotlandspeople.gov.uk. Accessed 22 Oct 2019.

Census 1881a = Johnston, Thomas Morton, age 47, Scotland St, Edinburgh (Reg Dist 685/2, St Andrew; Enum Dist 80/ 1), at www.scotlandspeople.gov.uk. Accessed 11 Oct 2019.

Census 1881b = Pringle, Robert, age 46, Henderson Row, Edinburgh (Reg Dist 685/1, St George; Enum Dist 102/9), at www.scotlandspeople.gov.uk. Accessed 11 Oct 2019.

Census 1891 = Pringle, Robert, age 56, Eyre Place, Edinburgh (Reg Dist 685/2, St Andrew; Enum Dist 62/2), at www.scotlandspeople.gov.uk. Accessed 11 Oct 2019.

Census 1901 = Pringle, Robert, age 26, Visitor, George IV Bridge, Edinburgh (Reg Dist 685/4, St Giles; Enum Dist 28/6), at www.scotlandspeople.gov.uk. Accessed 12 Oct 2019.

Census 1911 = Blyth, Gillanders, age 23, Trinity Cres, Leith; (Reg Dist 692/1, Leith North; Enum Dist 22/6), www.scotlandspeople.gov.uk. Accessed 12 Oct 2019.

Dal Adv 1882 = 'Contravention of the Explosives Act', *Dalkeith Advertiser*, 8 June 1882, 2.

Dal Adv 1886 = 'Social Meeting of the Employees of Hay, Merricks', *Dalkeith Advertiser,* 15 April 1886, 3.

Dal Adv 1896 = 'The Late Mr T M Johnstone', [sic], *Dalkeith Advertiser,* 29 Oct 1896, 3.

Dir = *Edinburgh and Leith Post Office Directory,* Published annually, Correct to May yearly, at www.archive.org.

ECA, *DoG Index* = Edinburgh City Archives, Dean of Guild Indexes, Edinburgh 1864–81, Edinburgh Minor Warrants, 1892–1910; Edinburgh DoG Register, 1860–83, and all vols to 1923; Leith 1877–1914, 1893–1920; Search Room, Edinburgh City Archives.

ECC, Plan Index = Edinburgh City Council, Plan Index Cards, 'Beaverbank Place', and 'Minor Works' Plan Store, Cockburn St, Edinburgh.

Ed Ev 1881 = 'Beaverbank Place', To Rent, *Edinburgh Evening News,* 23 Feb 1881, 1.

Ed Ev 1883 = 'Engine Ashes', Advert, *Edinburgh Evening News,* 14 Sept 1883, 1.

Ed Ev 1894 = 'Silvermills: To Let', *Edinburgh Evening News,* 1 Dec 1894, 1.

Ed Ev 1899 = 'Fire in Stockbridge', *Edinburgh Evening News,* 16 Aug 1899, 3.

Ed Ev 1901 = 'New Linlithgow Industry', *Edinburgh Evening News,* 22 Jan 1901, 2.

Ed Gaz 1876 = 'Notice: Dissolution of Hay, Merrick & Co', *Edinburgh Gazette*, 19 Dec 1876, 955.

Ed Gaz 1877b = 'Sequestration of Archibald Donaldson', *Edinburgh Gazette,* 6 April 1877, 262.

Ed Gaz 1902 = 'Sequestration of Robert Pringle', *Edinburgh Gazette,* 10 June 1902, 581.

Grant J 1880 Old and New Edinburgh, vol V, chapter IX Canonmills and Inverleith accessed online at http://www.oldandnewedinburgh.co.uk/volume5/page97.html. Accessed 5 May 2020.

Hewit website 'J Hewit & Sons: A Company History Part 2 - 1864–1868 - by Roger Barlee', at https://www.hewit.com/skin_deep/?volume=40&article=3#article. Accessed 13 November 2023.

HES, EDD/818/1–10 = *Dunn and Findlay Collection*, 'Plans and Elevations of proposed buildings, Beaverbank Place for Beaver Tanning Co, 1909-11', Historic Environment Scotland, John Sinclair House, Edinburgh.

HES, LB13846 = Listed Building No 13846, 'Roslin, Eskhill House … Description', Historic Environment Scotland, Listed Building Portal, at http://portal.historicenvironment.scot/designation/LB13846. Accessed 7 Oct 2017.

HES, NT26SE 137 = Canmore ID 212987, Site No NT26SE 137; Site: Roslin, Eskhill, Country House, NGR NT 26416 62498, Historic Environment Scotland, at http://canmore.org.uk/site/212987. Accessed 7 Oct 2019.

Inv Cour 1870 = 'Great Fire', *Inverness Courier*, 15 Dec 1870, 3.

Kelly & Co 1896 *Kelly's Directory of the Leather Trades … England, Scotland and Wales*, 7th Edition. London: Kelly & Co Ltd.

Kirkwood, R 1817 'This plan of the City of Edinburgh and its environs' https://maps.nls.uk/view/74400073. Accessed 14 March 2023.

Morn Post 1871 = 'The Leather Trades Directory', *Morning Post*, 2 Nov 1871, 6.

Museum Wales 'Rhaeadr Tannery' https://museum.wales/stfagans/buildings/tannery/. Accessed 13 November 2023.

NA, ADM 339/9/998 = RNVR Service Records Index, 1903–22; ADM 339/9/998 Lamb, Robert Melville, Naval Service Record 1915–18, p52, DoB 23/1/1895; National Archives, Kew.

NRS, Blyth 1960 = Statutory Registers: Deaths 1960, Blyth, Gillanders, age 72, Reg Dist 685/5 472, George Square, National Records of Scotland, Edinburgh.

NRS, BT2/715 = 'Hay, Merricks and Company Ltd, Company No 715', Registration and Articles of Association, Incorporated 1876, Dissolved 1899, National Records of Scotland, Edinburgh.

NRS, BT2/1967/280 = 'Beaverbank Motor Company Limited, Company No 15359', Registration and Articles of Association, Incorporated 1928, Dissolved 29 Nov 1967, National Records of Scotland, Edinburgh.

NRS, BT2/5354 = 'Beaver Tanning Company Limited, Company No 5354', Registration and Articles of Association, Incorporated 1903, Dissolved 1913, National Records of Scotland, Edinburgh.

NRS, HH30/10/5/5 = William M Wilson, cashier, 'Military Service Appeals Tribunal (Edinburgh)', Decisions Appealed, No 2317, 15 Dec 1916; Outcome: Dismissed; Submitted by R Lamb, sawmiller, Logie Green, National Records of Scotland, Edinburgh.

NRS, HH30/13/6/15 = Robert MacDonald, sawyer; 'Military Service Appeals Tribunal (Edinburgh)', Decisions Appealed, No 3101, 23 Mar 1917; Outcome: Exempted; Submitted by R Lamb, sawmiller, Logie Green, National Records of Scotland, Edinburgh.

NRS, HH30/15/3/35 = William Preston, boxmaker; 'Military Service Appeals Tribunal (Edinburgh)', Decisions Appealed, No 3500, 10 May 1917; Outcome: Dismissed; Submitted by R Lamb, sawmiller, Logie Green, National Records of Scotland, Edinburgh.

NRS, Johnston 1801 = Old Parish Registers: Baptisms, Johnston, James; Parents - William Johnston, Grisal Mure, date 2/8/1801, Parish No 623/ 10 134, Biggar, National Records of Scotland, Edinburgh.

NRS, Johnston 1833 = Old Parish Registers: Baptisms, Johnston, Thomas Morton; Parents - David Johnston/ Juliet Morton, date 5/4/1833, Parish No 685/2 340 600, St Cuthbert's Parish, National Records of Scotland, Edinburgh.

NRS, Johnston 1859 = Statutory Registers: Deaths 1859; Johnston, David, age 60, Reg Dist 687/12, Glencorse District (Midlothian), National Records of Scotland, Edinburgh.

NRS, Merricks 1860 = Statutory Registers: Marriages 1860; Merricks, Ann L and Johnston Thomas Morton, Reg Dist 691/ 31, Lasswade District, National Records of Scotland, Edinburgh.

NRS, Pringle 1899 = Statutory Registers: Marriages 1899, Pringle, Robert and Johnston, Agnes, Reg Dist 685/4 117, St Giles District, National Records of Scotland, Edinburgh.

RoS, MID1858 = Sasines 1st Series, County of Edinburgh, Search Sheet MID1858, Feu Contracts and Notarial Instruments for '*Clark's Mills now called Beaverbank*', descriptions of lands conveyed, post-1868, Registers of Scotland.

RoS, MID5930 = Sasines 2nd Series, County of Edinburgh, Search Sheet MID5930, Beaverbank transactions post 1892, including assignation by commissioners of late Wm and Thomas M Johnston, Registers of Scotland.

Scotsman 1866 = 'Mill, Houses and Land … Canonmills … Sale', *The Scotsman,* 24 Jan 1866, 5.

Scotsman 1867a = 'Great Fire in Edinburgh … Destruction of a Tannery', *The Scotsman*, 11 Oct 1867, 2.

Scotsman 1867b = 'Editorial: Of the four great fires …' *The Scotsman*, 12 Oct 1867, 2.

Scotsman 1869 = 'The City Improvement Trust: St Mary's Wynd', *The Scotsman*, 12 Jan 1869, 2.

Scotsman 1870a = Fire report, 'On Saturday evening the tannery … ', *The Scotsman*, 12 Dec 1870, 2.

Scotsman 1870b = 'Destruction by fire of a tannery at Canonmills', *The Scotsman*, 12 Dec 1870, 7.

Scotsman 1879 = Advert: 'Beaverbank: To be Sold', *The Scotsman,* 1 Feb 1879, 2.

Scotsman 1880 = 'Edinburgh Dean of Guild Court', *The Scotsman*, 12 Nov 1880, 4.

Scotsman 1882 = Untitled notice about Road Surveyor, *The Scotsman,* 11 April 1882, 3.

Scotsman 1886 = 'The International Exhibition', *The Scotsman*, 7 Aug 1886, 6–7.

Scotsman 1899 = 'Fire in Stockbridge', *The Scotsman*, 17 Aug 1899, 4.

Scotsman 1902a = 'Linlithgow Tannery For Sale', *The Scotsman*, 16 July 1902, 2.

Scotsman 1902b = 'Linlithgow Tannery … Re-exposed', *The Scotsman*, 16 Aug 1902, 2.

Scotsman 1903 = 'Beaverbank … Tanwork to Let', *The Scotsman*, 21 Feb 1903, 12.

SLT 1880, 25 = 'St Mary's Tanworks, Edinburgh, Messrs Hugh Brown & Sons', *Scottish Leather Trader*, 5 Aug 1880, 25.

SLT 1882, 48 = 'Tanning Materials Fifty Years Since Contrasted with the Tanning Materials of Today', *Scottish Leather Trader,* 2 Feb 1882, 48.

SLT 1882, 52 = 'No Belting Like Leather Belting', *Scottish Leather Trader,* 2 Feb 1882, 52.

SLT 1882, 59 = 'Andrew Isles & Son, Curriers and Leather Merchants', *Scottish Leather Trader,* 3 Aug 1882, 59.

SLT 1882, 89 = 'St Catherine's Leather Works, Glasgow', *Scottish Leather Trader,* 2 Mar 1882, 89.

SLT 1886, 16 = 'The Tanning of Dressing Hides by an Old Scotch Tanner, Pt VII', *Scottish Leather Trader,* 1 Jan 1886, 16–7.

SLT 1886, 265 = 'The Edinburgh Exhibition', *Scottish Leather Trader,* 1 July 1886, 265.

SLT 1886, 377 = 'Leather Belts', *Scottish Leather Trader,* 1 Oct 1886, 377.

SLT 1889, 426 = 'Robert Legget & Son, Skinners, Water of Leith …', *Scottish Leather Trader,* 5 Dec 1889, 426.

SLT 1890, 387 = 'To Let: Silvermills Tanyard', *Scottish Leather Trader,* 7 Nov 1889, 387.

SLT 1894, 2 = Adverts, 'Andrew Isles & Sons', *Scottish Leather Trader*, 4 Jan 1894, 2.

SLT 1896, 331 = 'Belting v Cogwheels: John Tullis & Son, St Ann's Leather Works, Glasgow', *Scottish Leather Trader*, 1 Oct 1896, 331.

SLT 1896, 392–3 = 'The Practical Currier Pt I', *Scottish Leather Trader,* 3 Dec 1896, 392–3.

SLT 1897, 17 = 'The Tanning of Dressing Hides by an Old Scotch Tanner, Pt III', *Scottish Leather Trader,* 9 Jan 1897, 17.

SLT 1897, 22 = 'Memories of a Country Tannery', *Scottish Leather Trader,* 9 Jan 1897, 22.

Stubbs, P 1991–2003 'Robert Lamb Wood Flour Mill; 23 Dunedin Street, Edinburgh', in 'Edinburgh at Work', *Edinphoto* website, at www.edinphoto.org.uk/0_my_p_edwk_r/0_my_photographs_edinburgh_at_work_-_robert_lamb_jb38_1024.htm. Accessed 5 Sept 2019.

VR 1865a = *Valuation Roll* 1865, Burgh of Edinburgh, St Cuthbert's Parish, VR010000060, 20, Powderhall, Items 27–31, Propr Col W Macdonald; Beaverhall, Items 33–6, tenant B O'Connel[l].

VR 1865b = *Valuation Roll* 1865, Edinburgh, St Cuthbert's Parish, VR010000060, p21, Logie Mill, Items 1–3, Proprietor Hay's Trustees; Logie Green, Items 4–6, Proprietor W Reid.

VR 1874 = *Valuation Roll* 1874, Midlothian, Lasswade Parish, VR010800017, p333, Eskhill House, Roslin Powder Mill and Kirkettle Mill.

VR 1875a = *Valuation Roll* 1875–6, Edinburgh, St Cuthberts Parish, VR010000098, p26, Lower Broughton Rd, and Beaver Bank, Item 8, tenant William Johnston, upholsterer.

VR 1875b = *Valuation Roll* 1875–6, Edinburgh, St Cuthberts Parish, VR010000098, p96–7, Silvermills, tenants of R Simpson, upholsterer including leather dressers, French polisher, currier.

VR 1884 = *Valuation Roll* 1884–5, Midlothian, Lasswade Parish, VR010800021, p189, Item 473, Eskhill House, occupier T M Johnston.

VR 1885 = *Valuation Roll* 1885–6, Edinburgh, St Cuthberts Parish, VR010000131, pp15–16, Beaverbank Place and Beaverbank, 'Proprietors', TM Johnston per J McAnsh; also, J McAnsh, builder.

VR 1895a = *Valuation Roll* 1895–6, City Parish, Edinburgh, Silvermills, VR010000171, 243 Item 7, workshop; Item 18, office, tanwork, yard, occupant R Pringle; proprietor Simpson's Trust.

VR 1895b = *Valuation Roll* 1895–6, City Parish, Edinburgh, VR010000171, p250 Beaver Bank, Logie Mill, Tanworks; Item 13, R Pringle, Item 14, D Tait, Items 17–19, R Lamb.

VR 1905 = *Valuation Roll* 1905–6, City Parish, Edinburgh, VR010000234, p443, Beaver Bank Place, Item 17, Proprietor T G White; Item 22, Proprietor D Johnston.

VR 1915a = *Valuation Roll* 1915–16, City Parish, Edinburgh, VR010000318, p288; 30–33 Beaverbank Place, Office, Workshop, Tanpits; Item 14, T G White skinworks.

VR 1915b = *Valuation Roll* 1915–16, City Parish, Edinburgh, VR010000318, p290; Item 8–10, Logie Green Works and Mill Proprietor R Lamb); Item 21, sheds at Beaverhall.

VR 1925 = *Valuation Roll* 1925–6, City Parish, Edinburgh, VR010000497, 107, Beaverbank Pl and Beaverhall Rd, Items 16–19, property of R Lamb, occupied by Beaverbank Motor Works.

Whit Par 2019 = 'William Walker and the Opening of the Gardens', in *St Nicholas Guided Tour, Parish of Whitehaven,* Church of England [online resource], at https://www.whitehavenparish.org.uk/about-us/st-nicholas-centre/. Accessed 8 Oct 2019.

Yorks Ev 1902a = 'To be Sold … Rivalds Green', *Yorkshire Evening* Post, 28 June 1902, 2.

Yorks Ev 1902b = 'Postponement of Sale', *Yorkshire Evening Post*, 5 July 1902, 2.

8.2 Secondary sources

Adamson, A, Kilpatrick, L & McDonald, M 2016 *Pints, Politics and Piety: the architecture and Industries of the Canongate*, HES Urban and Industrial Survey, March 2016. https://i.rcahms.gov.uk/canmore-pdf/WP00004445.pdf. Accessed 2 Oct 2019.

Bremner, D 1869 *The Industries of Scotland, Their Rise and Present Condition*. Edinburgh: David & Charles.

Chambers, W & R 1868 'Concluding Notice' in *Chambers's Encyclopaedia*, vol 10, v–viii. Edinburgh: W and R Chambers.

Church, R A 1971 'The British Leather Industry and Foreign Competition, 1870-1914', *Economic History Review* 24: 543–57.

Colston, J 1891 *The Incorporated Trades of Edinburgh*. Edinburgh: Colston and Company.

Dalland, M 2018 *Beaverbank Place, Edinburgh. Archaeological Excavation for CCG (Scotland) Ltd*. Unpublished client report by Headland Archaeology (TTBP/BBPE).

Donnachie, I 1971 *The Industrial Archaeology of Galloway*. Newton Abbot: David & Charles.

Fleet, C & MacCannell, D 2014 *Edinburgh: Mapping the City*. Edinburgh: Birlinn.

Franklin, J 2023 India Buildings, Cowgate, Edinburgh: post-excavation research design, unpublished client report, Headland Archaeology (IBPX).

Gomersall, H 2000 'Departed Glory: The Archaeology of the Leeds Tanning Industry 1750 to 1914', *Industrial Archaeology Review* 22(2): 133–44.

Harris, S 1996 *The Place Names of Edinburgh*. London: Steve Savage Publishers, Ltd.

Hume, J 1976 *The Industrial Archaeology of Scotland Vol 1. The Lowlands and Borders*. London: Batsford.

Laxton, P & Rodger, R 2013 *Insanitary City: Henry Littlejohn and the Condition of Edinburgh*. Lancaster: Carnegie.

Masser, P, Kimber, M, Franklin, J, Cross, M & Tourunen, A 2014 'Excavation at Jeffrey Street, Edinburgh: The Development of Closes and

Tenements North of the Royal Mile during the 16th–18th centuries', *Scottish Archaeological Internet Report* 58. https://doi.org/10.9750/issn.2056-7421.2014.58.

Meighan, M 2012 *Scotland's lost industries*. Gloucestershire: Amberley.

Priestley, G 2001 *The Water Mills of the Water of Leith,* (2016 repr), Water of Leith Conservation Trust.

Procter, H R 1914 *The Making of Leather*. Cambridge: Cambridge University Press.

Rodger, R 2001 *The Transformation of Edinburgh: Land, Property and Trust in the 19th Century*, Cambridge: Cambridge University Press.

Scott, L 2011 'Logie Green Road, Archaeological Watching Brief' unpublished client report, Headland Archaeology LGRE09/002.

Seaward, M R D & Williams, D 'An Interpretation of Mosses found in Recent Archaeological Excavations', *Journal of Archaeological Science* 3: 173–77.

Singer, C (ed) 1954 *A History of Technology, Vol V The late 19th century*. Oxford: Clarendon Press.

Sproat, D 2011 'Kinauld Tannery, City of Edinburgh (Currie parish), standing building recording, watching brief, evaluation and excavation', Discovery and Excavation in Scotland (new series) 12: 71.

Stronach, S 2010 'The Archaeological Evidence from the Parliament Site', *in* Holyrood Archaeology Project Team *Artefactual, environmental and archaeological evidence from the Holyrood Parliament Site excavations*, 117–40. Edinburgh: Society of Antiquaries of Scotland. https://doi.org/10.5284/1017938.

Walker, J 1797 'Parish of Collington', [Colinton], *Old Statistical Account* XIX: 579–91.

Waterer, J W 1944 *Leather in Life, Art and Industry*. London: Faber and Faber.

van Wessel, J 2009 'Logie Green Road, Edinburgh, Results of a desk-based assessment and archaeological evaluation', unpublished client report, Headland Archaeology LGRE09/001.

Wilson, D 2014 'Logie Green Road, Edinburgh: Archaeological Works on Block a1, Excavation', unpublished client report, Headland Archaeology (LGRE).

Wilson, D 2018 'Beaverbank Place Edinburgh, Archaeological Trial Trenching', unpublished client report, Headland Archaeology (TTBP/BBPE).