Building stones of Perth - an excursion

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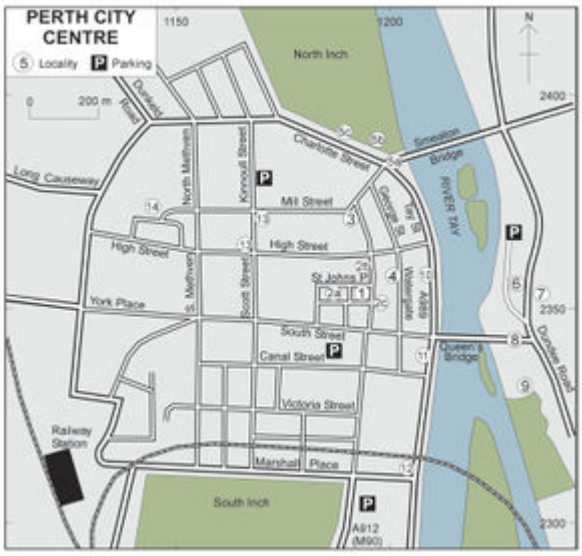

Figure 16.1 Perth city centre locality map.

Plate 16.1 Locality 16.1. St John’s Kirk;

sandstones from various quarries in Scone Sandstone Formation.

Plate 16.2 Locality 16.2c. Former Bank of Scotland; blonde Carboniferous sandstone.

Plate 16.3 Locality 16.5a. Smeaton Bridge; sandstone from Scone Sandstone Formation, Quarrymill.

Plate 16.4 Locality 16.11. Wall of demolished former town jail; quartz-dolerite from Lamberkine Quarry.

Plate 16.5 Locality 16.13 Sandeman Building; red Permian sandstone, Locharbriggs, Dumfries.
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Contents

Excursion 16 Perth: building stones

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Purpose: To examine some of the most-important historical buildings and most-interesting examples of the uses of building stones in the historic centre of Perth.

Logistics: This half-day walking excursion starts at St John's Kirk and finishes in West Mill Street. Toilets are available in South Street near the start of the excursion and the west end of Mill Street near the end.

As this excursion is in a busy city centre, care must be taken when walking and looking at buildings. Saturdays in particular can be very congested, with only parts of the route pedestrianised. Note that façades may be altered, and also there are changes of use of buildings that can affect the visible geological features.

*Maps*locality map (Figure 16.1).

Traditional Perth building materials were derived from local andesite and basalt lavas of the Ochil Volcanic Formation and sandstones of the Scone Sandstone Formation. Other sources used included quartz-dolerite dykes that intrude these rocks, as at Corsiehill Quarry (Excursion 15). Other materials include red sandstones of the Glenvale Sandstone Formation around Bridge of Earn and in the Carse of Gowrie. Late-glacial marine clays (14,500 years old) were used for brick making at Errol until recently. Metamorphic rocks from the Dalradian north of the Highland Boundary Fault include roofing slates from Dunkeld and Logiealmond.

Until the arrival of the railways in 1848, Perth was largely confined to the low ground west of the Tay. Without crossing to the east bank for Quarrymill, the nearest source of building stone was on the higher ground of the Burgh Muir, where sandstone was quarried until the twentieth century at the now infilled Burghmuir and Newhouse quarries. Because transportation was downhill and did not involve crossing the river, the Burghmuir Quarry [NO 0830 2385] was a possible source when stone was first used for Perth buildings in medieval times. The earliest record of stone being brought in is 1379, when Robert II arranged for stone for his monument to be taken from Leith by sea. As the Tay was navigable as far as the High Street, it would have been easy to bring stone from Kingoodie, near Dundee, or from farther afield. In 1651, Oliver Cromwell built one of his five great Scottish fortresses in Perth, in the process demolishing older buildings that could provide stone for his citadel on the South Inch.

Locality 16.1 [NO 1195 2355] St John’s Kirk

This is the oldest building in Perth (Plate 16.1); it is sometimes open to visitors and guided tours may take place. It was granted to Dunfermline Abbey in 1126, but nothing of the earlier building remains above ground. If the three consecration crosses in the choir are correctly identified, that part of the kirk had been built before 1242. The stones in the choir are smaller, less regular in shape, and less well finished than those in the nave. All appear, however, to be of local Scone Sandstone Formation, from the supposed quarries at Kinharrachie (Kincarrathie) and Balcormac. This may have been at the request of Robert the Bruce in 1328. The rather massive sandstones in the kirk were from Quarrymill. The pillars in the nave are noticeably simpler than those in the choir. About 1400 the Chapel of St James, on the south side of the kirk, was repaired, and in 1440 funds were assigned for building the choir and porch of the church. About the same time the names of Bailie John Fuller and his wife, no doubt donors, were commemorated on the pillar towards the SE end of the choir, and a reference in 1448 to the new choir of the parish church shows that this part of the kirk was completed by about 1450. The nave was completed by 1500 and the central tower before 1511. The vaulting in the porch of the Halkerston Tower is fifteenth century. A programme of repairs to the nave began in 1598, and the north transept was shortened in 1823, to widen St John’s Place. Sir Robert Lorimer was responsible for a major restoration of the kirk in 1923–26.

There are many examples of pebbles in the exterior walls of the kirk, and there are some in the

interior walls, e.g. to the left of the door leading from the nave to the Halkerston Tower. Clay pellets or rip-up clasts are common in Perth's older buildings: good examples are visible on the second buttress from the east end of the exterior north wall of the kirk, and the SE corner of the base of the great pillar at the NW corner of the crossing. Some of the setts in the streets beside St John's Kirk and the City Hall are fine-grained igneous rock. A few other setts, such as some of those in Flesher's Vennel and its extension into South St John's Place, are blocks of imported granite. Those now on the west pavement of Tay Street came from China.

Locality 16.2 [NO 1185 2355] The City Hall

Just west of St John's Kirk is the disused baroque-style City Hall with ionic pillars (Locality 16.2a) (Plate S.13). It was completed in 1914 and is made of a uniform, rather fine-grained greyish sandstone with numerous examples of truncated cross-bedding and one or two examples of contorted beds (soft-sediment deformation) resulting from the escape of water during the compaction of what were once loose sand layers at the bottom of a river. The best place to look for these is near the SE corner of the building. The texture and colour of this rock differ from that of the Sheriff Court, or indeed of other buildings on Tay Street. According to *The Perthshire Advertiser*, 1911, the City Hall is 'built of bluish grey stone from Leoch Quarries, Forfarshire'. The Leoch Quarry [NO 359 361] near Dundee was still being worked in 1952 (Armstrong *et al*., 1985) and is in the Dundee Flagstone Formation. Across the road, at the west end of the City Hall, is the King Edward VII Memorial, a model based on Edinburgh's Mercat Cross, and also the well-sculptured and hybrid-styled Salvation Army building (1904) on South Street, built in Permian red sandstone. Locality 16.2b [NO 1197 2360], Clydesdale Bank nos 3–5 (1845?), is a modest building with ionic pillars and Locality 16.2c [NO 1200 2350] Bank of Scotland nos 48– 50 (1847) in John Street (Plate 16.2) is in grand Italianate renaissance style; both are of Carboniferous sandstone.

Locality 16.3 [NO 1194 2372] Old City Wall

From here walk north to High Street, cross and find the narrow entrance of Albert Close/Skinnergate on the left. A 'primitive' wall forms the north side of Albert Close, between George Street and the north end of Skinnergate. It is on the line of the original defensive wall, which used the city lade as a moat, but lacks the strength required for defence. A conspicuous feature of the wall is the variety of rock types used. Different sizes and shapes of sandstone are common, mainly small slabs split along prominent bedding planes and a few rounded boulders of massive sandstone. Of particular interest are clusters of water-rounded quartzite, 'greenschist' and garnet schist, probably from the beach at the north end of Friarton (Moncreiffe) island. This is the only known Perth wall that incorporates Highland rocks.

Locality 16.4 [NO 1203 2357] The Watergate

Return to the High Street and turn left, cross and walk east to the Watergate and turn right (south). No. 27 in the Watergate bears the date 1725, and although commemoration stones of this kind can be re-used at later dates, there is no reason to doubt this is the date of construction. Unfortunately, here and in a number of other buildings, the walls have been plastered and painted so that the stone work is concealed. The date 1780 is found high on the gable of the first building on the west side of George Street at its junction with the High Street. Here also the stonework is concealed. Uncoursed walls made of random rubble (rough and ready local sandstone) can be seen in the backs of some buildings in the city centre: for example, some with frontages on George Street, St John's Street, and St John's Place. Return to the High Street, turn right and then left (northwards) at the riverside to Perth (Smeaton) Bridge.

Locality 16.5 [NO 1202 2385] Smeaton Bridge

Stone from Quarrymill was shipped downstream to build Smeaton Bridge (Locality 16.5a). Work began in 1766 and was completed in 1771. The bridge, to which there is easy access at the west abutment, displays good examples of purplish red stone from the Scone Sandstone Formation (Plate 16.3). Many water-rounded pebbles of older rocks, including local Devonian lava and quartzite and vein quartz from the Highlands, are scattered through the red sandstone matrix. These sandstones are typical fluviatile deposits, that is, sandbars in braided rivers. The original sediments may have been flash-flood deposits; they are cross-bedded and poorly sorted. The circular features (spandrels, between the arches) are black basalt. Note the marks recording levels of the larger floods that have inundated Perth over the centuries; the last two in 1990 and 1993 resulted in the completed major flood prevention scheme. The pillars of the new flood gates (Locality 16.5) on the North Inch adjacent to the Smeaton Bridge consist of pale-red Dumfries Permian sandstone (presumably Locharbriggs Quarry), displaying the fine layering and uniform constitution found in a sand dune. The statue of Prince Albert (Locality 16.5c) [NO 1190 2390] nearby on the North Inch (1864) is of cross-bedded Carboniferous sand-stone from Redhall Quarry, Edinburgh (Gullane Formation). The statue rests on local sandstone that displays cross-bedding, with blocks both right and wrong way up.

Locality 16.6 [NO 1230 2354] Kinnoull Parish Church

Return to Smeaton Bridge, cross to the east side of the river and turn right (south) along Gowrie Street for about 400m to the next localities. The church, on the west side of Gowrie Street, was built in 1826 in Gothic style with quality ashlar stonework. The stone is cross-bedded Scone Sandstone containing pebbles of lava and limestone, as well as clay clasts, and shows decorative chisel marks. The east-facing buttress of the north doorway shows two sets of cross-beds indicating currents coming from the left. They are right way up, and between them is a layer containing red mud flakes.

Locality 16.7 [NO 1235 2350] Kinnoull Primary School

Almost opposite the church stands Kinnoull Primary School, built in 1876 in plain Greek style. The building is in a reddish sandstone, with buff-coloured sandstone at the corners and around the doors and windows. The red stone has been decorated by chiselling that makes it difficult to see the internal structure of the rock, but several blocks contain flakes of reddish clay fragments up to 10cm long. Some of the buff-coloured sandstone blocks are cross-bedded. The school occupies the site of the former Witch Quarry, a local source of basalt. This volcanic rock, with angular joints and gas cavities (vesicles) is well exposed at and near the north end of the site. Beside the pavement, the rock has been cemented over to prevent rockfall onto the road. The basalt was used extensively in walls along the Dundee Road between the Smeaton Bridge and Branklyn Garden. In places, dressed rectangular blocks are incorporated in the walls, but lava has rarely been used for building in Perth.

Locality 16.8 [NO 1226 2342] Queen’s Bridge

Continue southwards along Gowrie Road and turn right (west) onto Queen’s Bridge. The old bridge (Victoria Bridge) was jacked up by 2m during the construction of the replacement concrete bridge. In the northern approach, walls at the east end are grey Carboniferous sandstone blocks showing cross-bedding, soft-sediment deformation and fine conglomerate beds (grit). Quartz clasts up to 1cm are present; this stone is not local and may have come from the Glasgow or Denny area.

Locality 16.9 [NO 1231 2332] Kinnoull Aisle

From the south side of the bridge enter the riverside gardens and head south to the walled enclosure of the graveyard. The only remains of old Kinnoull Church are in the small, almost square aisle (sometimes open during the summer), now a vault with a modern steep, gable-ended roof. In the east wall is a doorway with an armorial panel over it. The Kinnoull family keep the building in good repair. Their burial vault is beneath the floor and the monument to the First Earl of Kinnoull, Lord Chancellor Hay is within. The stone in the building is of local red-brown Scone Sandstone and thin blocks of Ochil Volcanic Formation volcaniclastic sandstone and siltstone that spall badly. The church was built before 1361, when it was granted to Cambuskenneth Abbey, then rebuilt in 1779 and demolished in 1826.

Locality 16.10 [NO 1210 2357] St Matthew's Church

Return to the Queen's Bridge and turn left to go back to the west bank of the river. Turn right into Tay Street. Most of the stone for the Gothic St Matthew's Church, built in 1871, came from Huntingtower Quarry. This quarry was excavated in Scone Sandstone Formation, like Quarrymill, Burghmuir and Newhouse. The yellowish sandstone around the door may be of Carboniferous age.

Locality 16.11 [NO 1207 2340] Sheriff Court

Remaining on the west side of Tay Street, walk south to the Sheriff Court, built in 1822 in the Greek style, using columns originally intended for Broomhall, Charlestown, Fife. The stone may have come from Carboniferous rocks in Fife or the Lothians. While many of Perth's grey sandstones show cross-bedding, it is particularly obvious on this building. The parking area behind the court was formerly the County Prison. It was built with quartz-dolerite from Lamberkine Quarry (1km west of bypass). Records show that this rock (a dyke) was once an important source of building stone. The quartz-dolerite, seen in the walls of the former prison around the parking area, is black when fresh and weathers to a rusty surface (Plate 16.4).

Locality 16.12 [NO 1204 2311] J. D. Fergusson Gallery (old water cistern)

This building on Tay Street, at the junction with Marshall Place, was formerly the local water works. Filtered clean water was pumped from Moncreiffe Island to its cast-iron cistern. Adam Anderson's Roman Doric design (1802) was converted to an art gallery in 1992. It is mainly in blonde Carboniferous sandstone with cross-bedding and soft-sediment deformation; the rear is partly in local reddish brown Scone Sandstone with large red-brown mudstone rip-up clasts.

Locality 16.13 [NO 1165 2370] and [NO 1170 2372] Sandeman Building and Gloag Building

From here, head west along Marshall Place, noting terraced properties showing subsidence damage. At the junction with Scott Street, turn right (north) and walk for about 500m to the Sandeman Building (former public library, Plate 16.5) and the former Gloag Building on Kinnoull Street. Both are in red cross-bedded sandstone. The opening of the railway in 1848 made possible the transportation of this superior Permian rock from Locharbriggs (Dumfries) to Perth. This sandstone, much of it deposited in desert dunes, has individual grains that are more rounded than those from a water-lain variety, and have a frosted surface appearance. The grains are coated with iron oxide

(hematite), which accounts for the red colour. The former St Paul's Church (1807) on Old High Street and South Methven Street, with its octagonal design, is however of pebbly sandstone (Scone Sandstone).

Locality 16.14 [NO 1145 2373] Perth City Mills

From here turn left (west) into Mill Street. The mills, on West Mill Street, are built of Scone Sandstone, showing typical features such as cross-bedding, clay clasts, and pebbles of quartz, lava and limestone. Presumably the Burghmuir/Newhouse quarries supplied this stone. These buildings have been restored in the last 40 years, including as a hotel, formerly the Upper City Mills and granary (1792) and tourist information centre in the Lower City Mills (completed 1805). The old city lade is visible here, formerly powering the working external undershot water wheel in the Lower Mills. Two undershot wheels are visible under the foyer of the hotel.

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Personal tools

- Not logged in
- Talk
- Contributions
- Log in
- Request account

Namespaces

- Page
- Discussion

□

Variants

Views

- Read
- Edit
- View history
- PDF Export

□

More

Search

Search Go

Navigation

- Main page
- Recent changes
- Random page
- Help about MediaWiki

Tools

- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Cite this page
- Browse properties

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