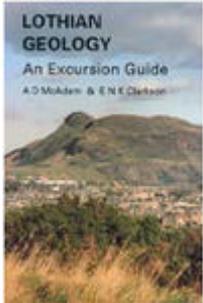


Building stones of Edinburgh - an excursion

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Introduction

Edinburgh is a city built of sandstone, both the Old Town of narrow wynds and tenements clustered round the Castle and the Royal Mile, and the planned New Town stretching north from Princes

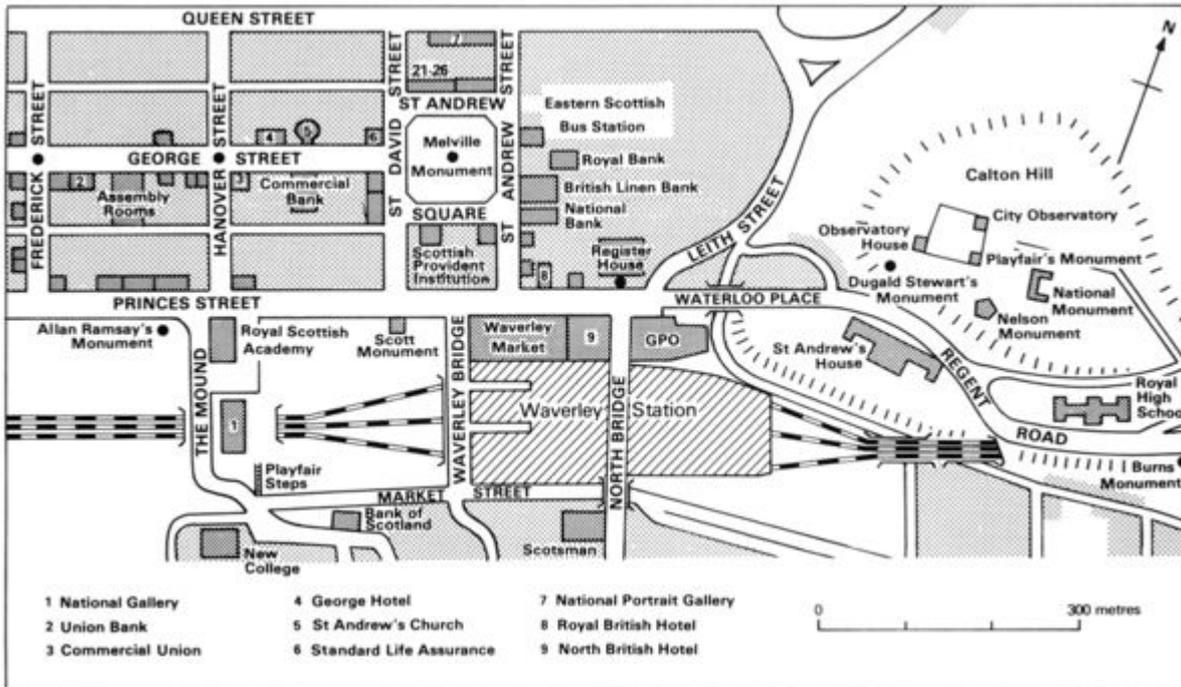
Street in spacious streets, squares and terraces. For the Old Town much of the building stone was pink and purple sandstones of Upper Old Red Sandstone age, quarried locally at Bruntsfield or Craigmillar. White and pale grey sandstones in the Lower Oil-Shale Group around Edinburgh became available for the New Town, particularly Hailes Sandstone from Hailes and Redhall quarries, Craigmillar Sandstone (Figure 10) and Ravelston Sandstone. The advent of canal, railway, finally road transport allowed stone to be carried from further afield, such as the yellow Binny Sandstone in the Upper Oil-Shale Group from Binny, Humbie and Dalmeny quarries in West Lothian, Cullaloe stone from sandstone quarries in a similar horizon near Aberdour in Fife, and New Red desert sandstones from Locharbriggs Quarry, near Dumfries, Corsehill Quarry at Annan, and Moat Quarry near Carlisle. As Scottish quarries closed, Lower Carboniferous sandstones were brought from quarries in the north of England, e.g. Doddington near Wooler, Prudham near Hexham, Blaxter at Elsdon, Cragg at Bellingham and Darney at West Woodburn. More recently, exotic stones, mainly polished, including marbles, limestones and granites have been used as 'geological wallpapers' on the steel-framed constructions of the 20th century (Craig 1892). By the 1950's most of Edinburgh's sandstone buildings were obscured by layers of black grime, a legacy of household coal fires which earned the capital city its nickname 'Auld Reekie'. In the past few decades many buildings have been cleaned revealing their original colours and the structures and textures of the building stones.

In a short walk from the Old Town near the top of the Mound, by the first phase of the New Town, to the top of the Calton Hill, a selection of the most widely used local and exotic stone can be seen. Since this walk covers the busiest parts of Edinburgh, it is recommended for during the quieter evening traffic. Hand lenses could prove useful, but it goes without saying that hammers are unnecessary.

Building terms used in this account

architrave	the lowest horizontal member lying above a column in a colonnaded building
ashlar	hewn blocks of masonry finely dressed to size and laid in courses
cornice	the moulded ledge projecting along the top of a building or feature in a building
course	a continuous layer of stones of the same height in a building stones laid in layers
dress	to work stone to a comparatively smooth surface drove - to work stone to smooth face then finish with sharp horizontal tool marks
mullion	vertical division between the lights of a window
quoins	dressed stones at the angles of buildings
rock-faced	masonry worked to a rugged natural appearance like natural rock
rusticated	treatment of joints in masonry giving a V-section chamfering or a square section channelling
rubble	masonry of stones in a rough state and of irregular shape and size, can be laid in courses or uncoursed (random)

sneck	small stone in squared rubble often used to make up bed for bonding-hence 'snecked rubble'
stugged	masonry which has been roughened with a pointed hammer to provide key for rendering
stucco	external smooth rendering of wall (literally plaster)



Building stones of Edinburgh excursion map.

Top of the Mound

The walk begins at the top of the Playfair Steps, poised between Old and New Town. To the south is St James Court, an eight storey double tenement (built 1723-27) typical of the Old Town. The left half of the recently restored eastern tenement, housing a small restaurant, is built in random rubble, mostly pink, bedded Upper Old Red Sandstone, with relieving arches over the windows. Offices occupy the right half of the tenement which is similarly constructed, apart from the western turret in an orange-coloured sandstone. The western tenement, housing the Consistorial Department of the Sheriff Court and the Free Church Offices, is markedly different, having been rebuilt in 1860. Its greyish sandstone is in coursed, squared, rock-faced snecked ashlar with decorations in polished ashlar.

New College to the west is built in orange-coloured Binny Sandstone. The stonework has a stugged finish, but the pinnacled buttresses are in polished ashlar. The Bank of Scotland (1806) to the east was possibly the first large building in Edinburgh to use Binny Sandstone.

The Mound itself was formed from cartloads of earth dug from foundations for houses in the New Town, from 1783 onwards. Up to 1800 cartloads a day were dumped, allowing passage for carriages up the completed earth path within 3 years. By 1791, 1.3 million loads had been dumped, and by 1830, 2 million loads at no cost to the City!

Towards the west the attractive red sandstone building of the recently cleaned Caledonian Hotel (1903) can be seen in the middle distance. Use of Locharbriggs stone, brought in from Dumfriesshire

by the Caledonian Railway, became popular from the 1880s. It was an obvious choice for the company's Edinburgh terminus. The hotel is still open, but the railway station closed in 1965.

Foot of the Mound

Descent of the Playfair Steps gives access to two very important and recently cleaned buildings at the foot of the Mound. Both the more austere National Gallery and the Royal Scottish Academy to the north were designed by the architect William Playfair.

The National Gallery (begun in 1850) is built of Binny Sandstone brought the 20 km to Edinburgh by the Union Canal (opened 1822) which passed only 3 km from the main quarry near Uphall. Binny stone was fairly easy to work when fresh from the quarry but soon hardened on exposure to the air. It was said that a stone-worker could chisel 15 linear feet of Binny stone in the time it took him to dress 6 feet of Craigleith stone. Iron content produced the orange colour of Binny stone while bitumen gave it a freckled appearance and was believed to increase its durability. Ripple-marking and cross-bedding can be seen in the large polished ashlar blocks.

The Royal Scottish Academy was built as the Royal Institution in two stages. The original building (1822-6) is a mixture of polished Craigleith stone and Cullalo sandstone from Fife. The Board of Trustees for Manufacturers and Fisheries who held the feu accepted the lowest of five estimates which depended on the use of the softer, cheaper Cullalo stone, but harder, more expensive Craigleith stone had to be used when the Fife Quarry was unable to produce enough good quality stone. In extending the building(1831-6) Playfair doubled the columns in each colonnade, elaborated the porticos at north and south ends and added a second row of columns and decorative detail to the Princes Street end pediment. This newer work, which stands out in the cleaned building, probably used Binny stone. The eight sphinxes carved by Sir John Steell and the statue of Queen Victoria seated in the robes of Britannia are known to be in this stone. Twice in its 150 years history the Royal Scottish Academy building has suffered failure of the wooden piles used as foundations on the 'mound' of earth. First in 1898 the north-west corner was affected. and in 1909 the north-east corner, leaving the edge of the roof on the west side looking uneven.

Almost opposite the Royal Scottish Academy. on the north side of Princes Street. No. 70 in New Red desert sandstone stands out and is an early example (1886) of the use of this stone from Corse hill Quarry near Annan.

Across the foot of the Mound. in West Princes Street Gardens. the statue of the poet Allan Ramsay (1865) by Sir John Steell was carved out of Carrara marble and stands on a restored and cleaned yellowish sandstone base near the famous floral clock.

Princes Street-middle part

Before crossing to the north side of Princes Street pause to see how the original street of elegant sandstone town houses has been much altered by development and the ground floors submerged by later shop frontages. In 1954, at a time when it was expected that Princes Street might be rebuilt from end to end, a panel was set up to regulate New Town developments. The two massive shop and office blocks directly opposite. following the panel's recommendations. were built to include a first floor balcony, expected to set a pattern for later developments. The eastern block above the balcony is faced with alternating whitish travertine slabs and narrow grey granite slabs. the western block with large bluish-grey slabs. The travertine is probably Italian and the xenolithic granite is from the ancient Rubislaw Quarry just outside Aberdeen. At street level the shops are faced with assorted grey granites. Larvikite, a variety of syenite from Norway, has been used for the facing on Mothercare. The polished limestone conglomerate used to face Radio Rentals is of a variety known

as Perlato Appia imported from Italy.

Thin slabs of fine-grained riven slate have been used on Elena Mae and the adjoining building to the east. Another cream Perlato conglomerate can be seen on Roland Cartier. this time a Sicilian stone. Springwell Quarry near Gateshead provided the sandstone on this shop.

Littlewood's store is faced above with sandstone quarried in the Millstone Grit at Heworthburn near Felling on the south bank of the River Tyne. This sandstone sometimes had a bluish-grey colour when fresh but here the colour has been lost. Stonework around the entrance is enlivened by harder rocks: a polished grey medium-grained granite above the doors which could be from Rubislaw Quarry, an unpolished grey gneiss behind the shop name and a polished brown coarse-grained syenitic rock at either side of the doors.

The original house fronts in droved sandstone with polished quoins can be seen in some buildings before Frederick Street. At the corner Salisbury's is faced with creamy bioclastic limestone and greyish blue larvikite.

Frederick Street

At street level new shop fronts obscure the original sandstone frontages up Frederick Street, although the original sandstone can be seen in higher floors, some recently cleaned. A great variety of facing stones have been used. Fastframe, Martin's Light Bite Restaurant and John Smith's Wools share a facing of cream-coloured limestone full of crinoid, bivalve and bryozoan fragments. The facing on Millet's is a brecciated serpentine marble, with dark reddish fragments in a pale green matrix very similar to the marble known as Rosso Antico d'Italia, which comes from Genoa. The next shop has a very light grey granite facing from Baveno in the Piedmont district of North-west Italy. The Stakis Steak House and the Anglia Building Society have a very dark green larvikite.

At the junction with George Street, the Woolwich Building Society has three varieties of facing granite: round some windows a very light medium-grained granite is very probably also from Baveno. There is also a grey coarse-grained granite and, in panels between windows, a dark greenish-grey medium-grained granite with aligned feldspars and occasional xenoliths. Under the windows a highly polished black medium-grained stone of the type known as Black Bon Accord, comes from Sweden and is intermediate in composition between a diorite and a gabbro.

Across George Street the Nationwide Building Society on the corner opposite has a delicate shade of pink granite facing very similar to another of the Baveno granites. It is accompanied by a dark pink variety which is very like Scottish Corrennie from near Alford, Aberdeenshire.

The bronze statue of William Pitt at the junction of George Street and Frederick Street stands on a grey sandstone plinth.

George Street-from Frederick Street to Hanover Street.

On the south side of George Street. No. 68-70, the Sun Alliance Office (1955), is mostly faced with polished Blaxter stone, a buff micaceous, yet featureless sandstone. from Elsdon, Tyne and Wear. Around the ground floor windows and along the base Black Bon Accord has been used again. The entrance steps are of green slate, probably Cumbrian.

No. 62-66, Bank of Scotland, originally the Union Bank, is built of polished Dalmeny stone, a greyish sandstone from West Lothian. This stone has weathered well apart from the balustrade and one column at the eastern entrance where cement repairs have been necessary.

The Assembly Rooms, built in 1782 and 1817, are probably built of Craigleith stone. Later arches (1906-7) bridging lanes at each side are probably in a north English sandstone.

No. 39 across the street, Justerini and Brooks, is notable for the green Cumbrian slate facing.

No. 46 has been extensively restored with a modern droved finish, in Stainton brown sandstone from Durham above the rock-faced ashlar basement, and can be compared with the early 19th century dressing of the local sandstone in adjacent buildings.

No. 34, Reader's Digest, has a facing of highly polished grey dioritic rock, weathering badly.

No. 32, James Allan, and No. 30, P & O Travel, share facings of travertine. The Hanover Street front of P & O Travel is faced with a faded dark green serpentine marble, which could be Verde Imperiale from Genoa.

The statue of George IV at the junction stands on a plinth of grey porphyritic granite.

George Street-from Hanover Street to St. Andrew Square

The Commercial Union Insurance Building, originally the Edinburgh Life Assurance Co. Offices (1908-9), is the only building in Edinburgh constructed of Portland Stone, an Upper Jurassic white limestone from Dorset, though this stone is used elsewhere as facing. Harder shell fragments, including large bivalves, weather out on the surfaces. At the base is an unpolished grey granite.

The George Hotel is made out of three buildings: The Adam Rooms in grey polished ashlar with cement skinning above, The Chambertin Restaurant in freshly cleaned rusticated yellowish sandstone at street level and grey droved sandstone above is followed to the east by a grey polished sandstone building.

St. Andrew's Church (1785-one of the earliest buildings in George Street) has columns, buildings and steps of Craigleith stone, while the ashlar of Hailes Sandstone from Redhall Quarry is polished in front and droved behind. This uncleaned building shows little weathering in the sandstone, laminar bedding and current-bedding can be seen near the entrance on the right.

The Royal Bank of Scotland, originally the head office of the Commercial Bank (1847), directly opposite, is in the form of a Graeco-Roman temple, built of Binny Sandstone, mostly polished, each large Corinthian-style column made up of ten stones.

The Life Association of Scotland, adjoining, has an alternation of polished and flame textured grey granite. The bulk of the building is faced with Rubislaw granite from Aberdeen on the main facades and gables. On recessed areas round windows on ground floor level and in the entrance black Bon Accord has been used. Grey Creetown granite from Kirkcudbright forms the copings, sills and mullions. Just inside the entrance Imperial Grey marble from France can be seen and on the main staircase and just visible another French marble, Bois Jordan, which is grey with pink and white patches.

St. Andrew Square, west side

The westernmost part of the Guardian Royal Exchange building (1940) has buff sandstone above its gabbro-faced lower storey. The origin of the sandstone was Heworthburn Quarries in the Millstone Grit from Felling, Durham. The eastern part of the same Guardian Royal Exchange building at the end of George Street continues the black Bon Accord Ht ground floor level with Creetown light grey granite above.

The Scottish Widows' Fund & Life Assurance and Manpower Service's building (1962) next door, is once again faced with black Bon Accord which continues inside the building in the entrance hall where it is used together with Carrara marble. The upper part of the outside of this building is clad in Derbydene Carboniferous limestone, a grey fossiliferous stone from Matlock in Derbyshire. Large bivalve shells can be seen even from street level.

The Standard Life Assurance building (1901) has a large frontage on the corner with the north side of George Street, built of a pale yellow sandstone, polished at ground level, rusticated up to the first cornice and polished above that. The stone is likely to have come from Northumberland and the newer part of the building fronting the square has a sandstone facing, perhaps from Blaxter.

In the centre of the square the monument to Henry Dundas, Viscount Melville was completed in 1821 in Cullaloe sandstone, with the statue added in 1828.

St. Andrew Square-north side

The first six houses are original, built between 1770 and 1775, though much altered. No. 21 has a droved ashlar west gable with the basement partly coursed rubble and a front refaced in polished ashlar with an added Doric porch. No. 22 has coursed rubble below, coarsed, squared rubble above and an added Corinthian porch. No. 23 is in greyer polished sandstone with an Ionic porch. No. 24 has yellow sandstone and a Doric porch. No. 25 has a porch in Blaxter-type sandstone, added in 1964. The walls are stuccoed as they would have been when the house was first built. No. 26 shows the original random rubble.

The Scottish Equitable building (1899) replaced the other houses in this row, using characteristic purplish grey Doddington sandstone.

Queen Street

The National Portrait Gallery (1890), reached down North St. Andrew Street, was the first large building in Edinburgh to use New Red Sandstone, quarried from Moat near Carlisle and Corsehill at Annan. The main walls are in regular, coursed, rock-faced rubble, while the flanking buttresses, window dressings and doors are of polished ashlar in which dune-bedding can be seen. The paired windows on the first floor level have grey coarse-grained granite pillars in the arches. The red sandstone has suffered from erosion and has been necessary to remove the corner spirelets. The restoration, due to be completed by 1991, includes rebuilding the spirelets using red sandstone saved from a former Caledonian Railway viaduct in Leith and from the specially re-opened Corsehill Quarry.

St. Andrew Square-east side

The large office block over the Eastern Scottish Bus Station (1970) is faced with Prudham stone, a buff, coarse-grained, slightly micaceous sandstone.

No. 35 and No. 36 were built as a pavilion for Dundas House from a polished light micaceous sandstone, full of black silty streaks or feaks.

Dundas House (1774), now head office of the Royal Bank of Scotland, was built of Hailes Sandstone from Redhall Quarry as a private house for Sir Laurence Dundas. A feature of this house is the remarkable domed ceiling over the main concourse of the bank. Outside, on the right of the building, weathering has picked out cross-lamination in the sandstone.

The Bank of Scotland building to the south, completed in 1852 for the British Linen Bank, is an

elaborate structure in Binny Sandstone, rusticated up to balcony level.

The Royal Bank of Scotland next to it was originally the head office of the National Bank of Scotland (1936) and is faced up to the first floor level with a rusticated yellowish sandstone from Darney in the north of England. Along the base is a grey granite from Rubislaw, Aberdeen, containing felspar laths and large black xenoliths.

St. Andrew Square-south side

One of the most striking of the modern buildings in the square is the Scottish Provident Institution building (1961). which makes impressive use of a grey Italian gneiss, likely to have come from Novara.

On the south-cast corner of the square the former Prudential Office (1895) is faced with New Red Sandstone from Dumfriesshire while the lower part, up to the springers of the window arches uses Peterhead granite.

South St. Andrew Street

Notable among stones seen here is Rankin's in blue larvikite. The Job Centre and adjacent building to the north are faced with a yellow Carboniferous sandstone, from Wellfield near Huddersfield. No. 7-9 (1883) is in coarse Cragg sandstone from Northumberland.

Princes Street-south side

From the foot of South St. Andrew Street is an impressive view of the 60 m high Scott Monument (1846) built of Binny Sandstone and extensively restored in the 1970's using Permian sandstone from Clashach Quarry. Hopeman in Moray and a very little Blaxter stone. It stands tribute to the famous author, Sir Walter Scott, whose statue has been carved of Carrara marble by Sir John Steell.

Also on the south side of Princes Street is the newly completed Waverley Market in pale grey flame-textured Portuguese granite, with large white felspars. This stone already shows signs of oxidation on the west side exposed to the weather.

Princes Street-east end

The Royal British Hotel (1898) is faced with badly weathered sandstone and has Peterhead granite columns on its windows. Both the hotel and Dorothy Perkins' shop have facings of light grey granite with large white felspars and xenoliths.

The former Woolworth's building (1925) is faced with buff sandstone which may be from Prudham. Some minor alterations at a later date used Blaxter sandstone. This building has now been divided into several shops. Those so far opened are mostly faced with a cream coloured bioclastic sandstone, though one has polished green volcanic tuff facing.

Robert Adam's Register House was begun in 1774. After careful examination of local building stones. Adam chose Craigleith Sandstone and Hailes Sandstone. Interruptions owing to cash shortage and the Napoleonic War delayed completion until 1834 by which time Binny Sandstone was in vogue. Cleaning in 1969 has revealed the yellowish appearance of the latter stone. The ashlar is rusticated to first floor level and polished above. Extensions in 1882 used sandstone from Longannet in Fife. The bronze statue of the Duke of Wellington by Steell rears up on a plinth of Peterhead granite.

Across the street, the North British Railway Hotel was completed in 1902 in cream Prudham

sandstone. a stone seen to better advantage in the distance in the recently cleaned Scotsman Building (1902) at the south end of the North Bridge.

The Renaissance style Post Office (1866) was originally built of Binny Sandstone, but has been enlarged twice. In 1890 the back, to the south, was doubled in the same stone, but purplish Doddington stone was used for an extension to the south-west and for another floor completed in 1909.

Waterloo Place-Regent Road

Almost all the stone for Waterloo Place (1822) came from Hailes Quarry. but many buildings have since been refaced with another sandstone. Waterloo Place connects Princes Street with Calton Hill across the ice-gouged Low Calton ravine by means of the Regent Bridge (1819), a Napoleonic War Memorial constructed in Craigmillar stone.

The Governor's House is the only part of the old Calton Gaol still standing. It was built of Hermand sandstone from the Upper Oil Shale Group in West Lothian. St. Andrew's House, on the site of the rest of the Calton Gaol, was completed just before the Second World War, by which time little stone was quarried in Edinburgh. It was cheaper to transport polished sandstone from Darney as facing panels for this steel-framed building. Darney blends with other Edinburgh monuments and buildings and is resistant to grime. Fine light grey Creetown granite was chosen from the walls along Regent Road and for the mullions of the main staircase windows. Black Bon Accord granite was used for decorative work at other entrances and windows.

Calton Hill

The former Royal High School building, begun in 1825 as a replacement for the original school in High School Yards in the Old Town, and more recently adapted for use of the proposed Scottish Assembly, is built of Craigeith Sandstone. Many other buildings on the Calton Hill are built of the same stone, including Observatory House (1792), the Nelson Monument (1816), the City Observatory (1818) and Playfair's Monument (1827). Most impressive of all is the incomplete National Monument to the Scottish Dead of the Napoleonic War. Started in 1823, work was abandoned in 1829, though several later plans were put forward for its completion. Part of a particularly large stone, dug out of Craigeith Quarry soon after work on the monument began, went to the architrave; the rest of this stone went to Buckingham Palace. The twelve pillars are made of the commoner of the two types of freestone from Craigeith laid on its natural bed. The Dugald Stewart Monument (1831) is built of light yellow Humbie freestone from West Lothian, also used for the Burns Monument (1830) across Regent Road. Extensive refacing of the latter monument in 1978 has meant that it is now almost all Darney stone that is seen there.

The summit of the Calton Hill marks the end of the walk. It is a fine vantage point from which to survey the local geology. Prominent to the south east is the Salisbury Crags teschenite sill and the vents and lava flows of the Arthur's Seat volcano, of which Calton Hill is a faulted fragment (Arthur's Seat Excursion). Ice erosion moulded these crags into their present form, just as it sculpted the crag and tail which forms the head and backbone of the Old Town (Castle Hill Excursion), where this walk started.

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