

Building stones of Edinburgh - introduction

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[Jump to navigation](#) [Jump to search](#)

The City of Edinburgh and its geological backdrop

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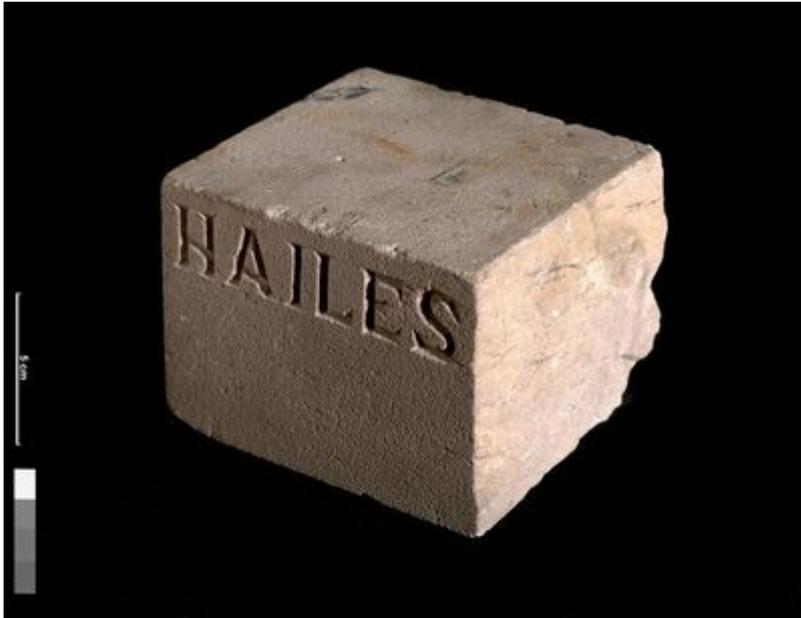
"...a dream in masonry and living rock"

Robert Louis Stevenson in Edinburgh: picturesque notes



View over Edinburgh to the Firth of Forth from Blackford Hill. Edinburgh Castle is seen on top of the volcanic Castle Hill.

The City of Edinburgh possesses some of the finest sandstone-constructed buildings in Europe. Set in spectacular volcanic scenery carved from parts of an ancient extinct volcano, which erupted some 300 million years ago, the city was endowed with excellent local sandstone resources. The construction of both Old and New Towns exploited these building stones, some of which, for example the famous Craigleith stone, were exported around the world. The original Old Town was built on small hills, overlooked by the crags of the largest volcanic remnant, Arthur's Seat and by Calton Hill, another part of the volcano. To the south of the modern city are the higher hills of the Pentlands, volcanic rocks of even earlier eruptions. Variation in resistance to erosion between these hard volcanic rocks and the contemporary softer sedimentary strata has resulted in a landscape of hills and hollows. During the last 1.6 million years, glaciers of the Ice Age further exploited the variable physical characteristics of the ancient bedrock. Ice of the last glaciation disappeared some 12,000 years ago leaving the bold scenery we see today.



Rock specimen of sandstone from Hailes Quarry, Edinburgh, Lothian Region, Scotland. Oblique view of sample block of Hailes sandstone showing hand-polished faces and name of quarry cut into the stone. This specimen is of Carboniferous age. British Geological Survey Petrology Collection sample number U991. The black flecks in the pale yellow-grey sandstone are fragments of carbonaceous fossil plant debris. Large accumulations of such plant debris are what we know as coal deposits, and come from rocks of the same age as the Hailes sandstone. Size of specimen: 10x10x8 cm. Munsell colour code and colour 5YR7/1, pinkish grey. P519528

The sedimentary rocks, in particular the top quality sandstone, provided the local natural resource so effectively exploited in the construction of Edinburgh's buildings. Expansion of the city, with the development of the New Town on the north side of the Nor' Loch beginning in 1760, offered exciting challenges to architects and builders alike. During the latter part of the 18th century the demand for quality stone, so readily available on the doorsteps of the city, reached its peak. Continued expansion of the city during the 19th and early 20th century exhausted supplies of locally available material and led builders to look elsewhere, firstly in the Lothians and Fife and latterly to other parts of Scotland and Northern England, as transport systems including canals and railways developed.

The use of natural stone declined following the First World War as concrete started to gain the ascendancy. In the last 30 years this decline has to some extent been reversed with the recognition that, used appropriately, the natural product is not only aesthetically more pleasing but more durable, enabling architects to build on that unique character which is Edinburgh. The revival in the use of sandstone was required firstly to make good the ravages of two hundred years of exposure to Edinburgh's smoke-laden atmosphere and secondly to provide modern buildings that at least give the illusion that they are built of natural stone.

Interest in the sources of sandstone grew during the 19th century as architects and builders started to look for new material which matched the colour and physical properties of stone in existing buildings. The first detailed published account of Edinburgh's building stones was written by George Craig (c.1852 - 1928), architect to the Leith School Board. His paper, published in 1893, 'On the building stones used in Edinburgh: their geological sources, relative durability, and other

characteristics' (Transactions of the Edinburgh Geological Society, Volume 6) showed that, even then, when natural stone was much more widely used, it was difficult to ascertain the sources of stone. He commented that 'even now much trouble is entailed in finding out the quarries from which many of the modern buildings have been obtained'. Aware as he was of the incompleteness of his results, Craig hoped that his work would be a useful 'first contribution to a branch of practical local geology that has been but little investigated, though full of both economic and scientific interest'. The problems which faced Craig are still with us and few detailed records are kept even of today's use of sandstone. Building Stones of Edinburgh (first published in 1987) attempts to bring his work up-to-date.



Specimen of Craigleith sandstone, Craigleith Quarry, Edinburgh, Lothian Region. Sample of Craigleith Sandstone from the building stone collection of the Edinburgh World Heritage Trust. The stone has a cut surface with a very pale buff colour with variable dark wispy markings. This specimen is of Carboniferous age. Edinburgh World Heritage Trust sample no. EWHT 19. This specimen is of the best quality 'Liver rock' from Craigleith Quarry, which gained a world-wide reputation as a durable building stone. It was used for the fronts of the best houses and public buildings because it could be given a very smooth surface ('polished ashlar') and was also suitable for decorative moulding work. Apart from being used in Edinburgh, Craigleith stone was exported to London, Europe and the USA.

In recent years there has been a noticeable resurgence of interest in the use of natural stone for construction and cladding. In Scotland the increasing use of sandstone for both repair and new build has encouraged both the opening of new quarries and the re-opening of long abandoned workings. Sometimes a quarry will be reopened for a short interval to supply material for a specific building project. Other quarries have a long history of more or less continuous working. Of some twenty stone quarries currently (1998) in production in Scotland about eight are producing dimensioned sandstone and six are working flagstone (laminated, fine-grained sandstones suitable for paving). These quarries together with several in England are supplying material for buildings and streetscaping projects in many Scottish towns and cities. The renewed use of sandstone can be seen

in many major developments in the City of Edinburgh, and heralds a revival in the traditional use of this material which was once locally abundantly available from famous quarries such as those at Craigmyle, Hailes and Craigmillar.

Location Map

City Centre Map

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[Category](#):

- [Mineral resources](#)

Navigation menu

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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