



Mineral: a natural solid material of fixed chemical composition with an orderly internal atomic structure.

Marble: metamorphosed limestone.

Lithification: Process, involving compaction and cementation, whereby a loose sediment is converted into solid rock.

Granite: a light coloured, coarse-grained, igneous rock composed of quartz, plagioclase, and mica.

Grading: the mechanical sorting of grains in a sediment with coarse material at the base and finer at the top.

Gneiss: coarse-grained metamorphic rock with irregular banding; the augen prefix refers to "eyes" or large crystals, often of feldspar.

Gabbro: a dark, coarse-grained igneous rock composed of plagioclase and pyroxene.

Foliation: refers to the fine layering of a metamorphic rock and formed by the parallel orientation of elongate or flaky minerals.

Feldspars: group of rock-forming minerals, common in igneous rocks; includes plagioclase and orthoclase.

Alkali feldspar: a mineral of the feldspar group containing sodium and potassium.

Biotite: a dark coloured flaky mineral belonging to the mica group.

Bivalves: marine/freshwater creatures with two similar shells, like mussels and cockles.

Brachiopod: marine creature with two unequal shells and stalk used for anchorage on seafloor.

Cleavage: Planes of easy splitting, as in slate; caused by the alignment of minerals under pressure during metamorphism.

Cross bedding: formed by sand being deposited on a slope under water, such as a delta front, to produce a series of curving beds truncated at the unit top by subsequent erosion.

Schlierization: play of colours displayed by alkali feldspar crystals due to light interference by microscopic lamellae of other minerals.

Serpentine: a greenish metamorphic rock formed by the alteration of igneous rocks rich in magnesium- and iron-bearing minerals.

Slate: a fine-grained, strongly cleaved, metamorphic rock derived from mudstones.

Styloites: irregular traces in limestone/marble caused by the solution of the carbonate and retention of insoluble material along the trace.

Tuff: fine-grained sedimentary rock composed of layers of volcanic ash.

Xenolith: variably assimilated fragments of pre-existing material trapped in cooling magma.

Glossary of terms



2. SEDIMENTARY

Rocks formed from the deposition and subsequent consolidation (*lithification* process) of sediment. Most sedimentary rocks are initially produced by the erosion and subsequent accumulation of rock debris.

Sedimentary rocks seen here include: sandstone, limestone, travertine, tuff.

Laminated sandstone

Platy limestone



1. IGNEOUS

Rocks are naturally occurring aggregates of minerals and are divided into three main groups:

These rocks represent the cooling of molten or partially molten material (known as *magma*). Magma can crystallize within the Earth's crust or be extruded from volcanoes, when it is referred to as lava.

Igneous rocks seen here include: granite, gabbro, lavakite.

Rock groups

Acknowledgements and sponsors

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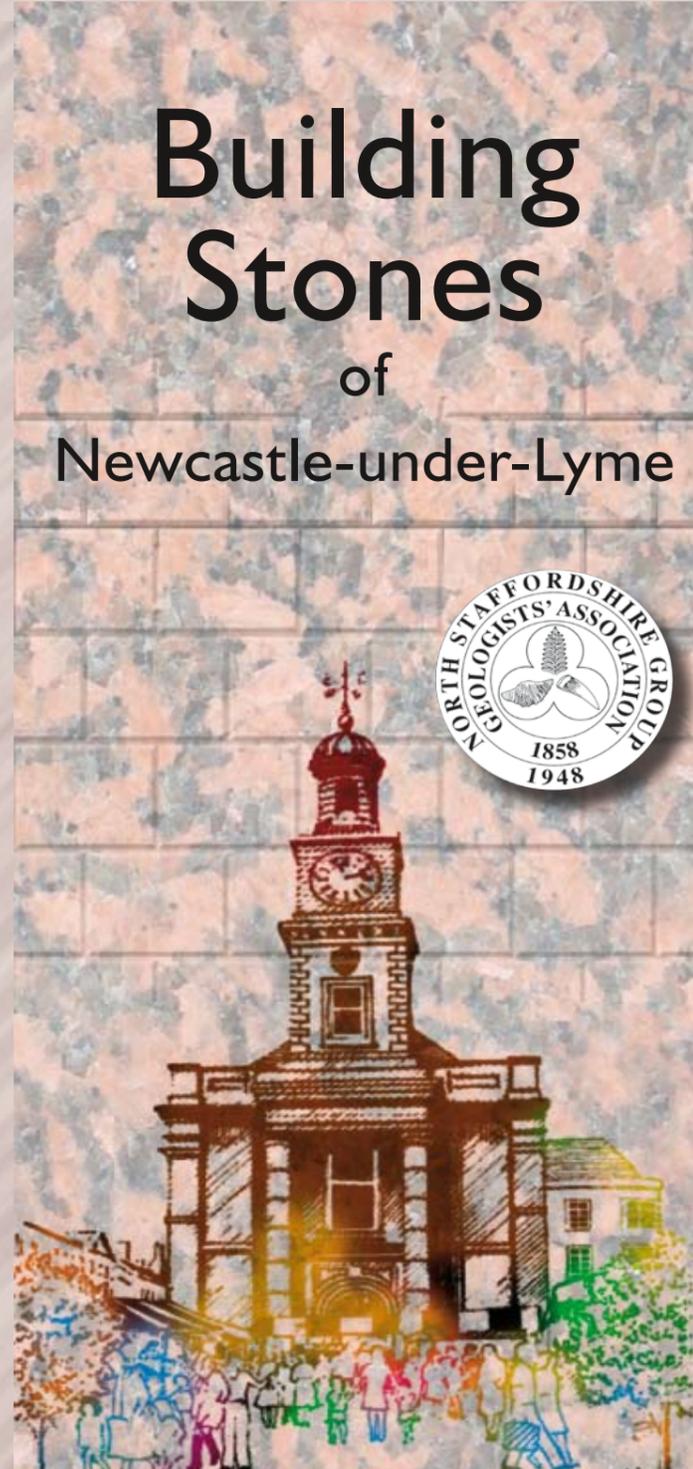
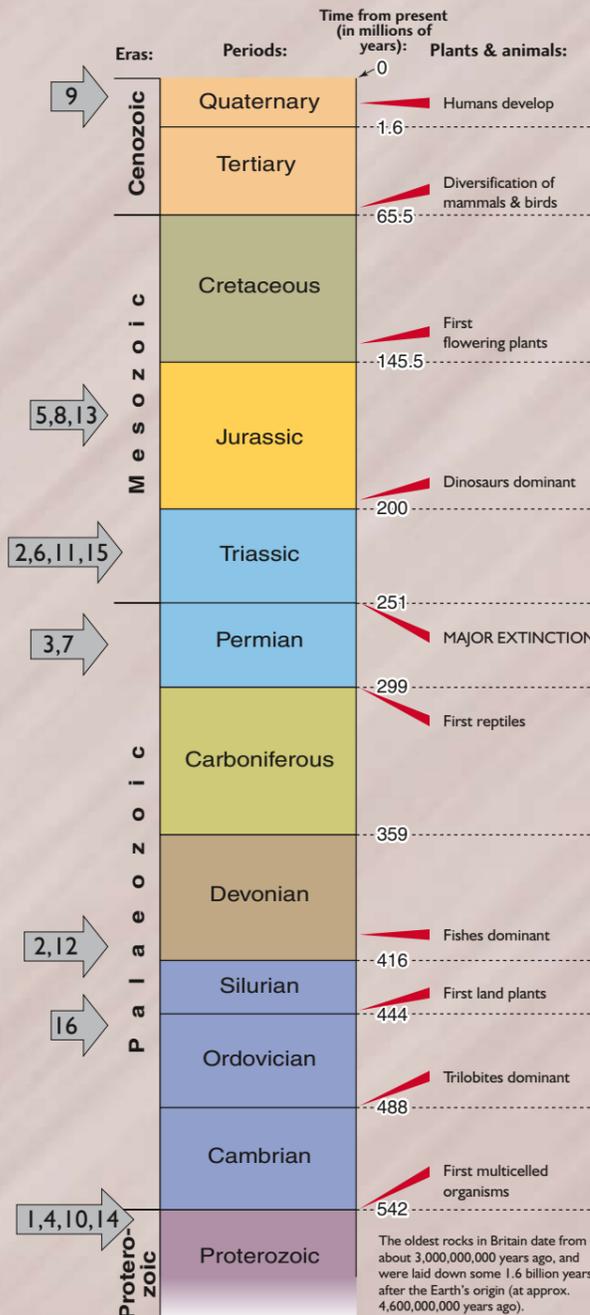
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Pamphlet produced with the support of:



Stratigraphic column with ages of the building materials observed



A convenient car park is in The Midway (paying) for starting the tour at the War Memorial in High Street.

1 War Memorial

Plinth of red porphyritic Balmoral Granite, base of dark S.African gabbro and column of grey granite. The granites are from Finland and Precambrian in age. Surrounding slabs of Carboniferous fine-grained sandstone (flagstones).



2 Royal Bank of Scotland

Main building of mottled cream and pink laminated sandstone, in places current bedded, of local Triassic Sherwood Group sandstone (Hollington Formation). Base and pillars of grey Dalbeattie Granite from Scotland.



Mottled Sherwood Group sandstone



Dalbeattie granite

Turn left into the Iron Market for Cancer Research UK to view a popular shop front material.

3 Cancer Research UK

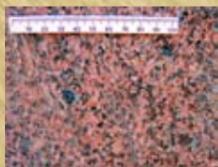
Polished slabs of Permian-aged Larvikite from southern Norway with large alkali feldspar crystals exhibiting a play of colours known as schillerization. Commercially known as Blue Pearl Larvikite.



Larvikite

4 Review

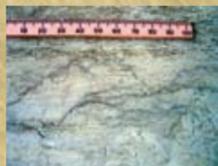
Dark red Balmoral granite from Finland with perthitic feldspars and small dark ragged xenoliths of Late Precambrian age.



Granite

5 Nation

Shop is faced with a Portuguese marble showing pressure-induced stylolites and fossils (bivalves). At floor level is a pink, deep water, clay-rich, limestone, called Ammoniti Rosso, of Jurassic age, from Italy.



Marble with stylolites



Pink limestone

Continue down the Iron Market past the Library and cross over the road to The Arnold Machin pub.

6 The Arnold Machin

Main building is made of a grey Triassic sandstone (Sherwood Group) with good cross bedding.



Current bedded sandstone

7 News Shop

A coarse-grained bluish Larvikite, from southern Norway, forms the shop frontage, but at ground level is a grey uniform Cornish granite, from the De Lank quarries, Bodmin Moor.



Cornish Granite

Walk up to the top of the Iron Market and continue across the road to the covered Roebuck Centre.

8 Roebuck Centre

The floor tiles of the Roebuck Centre are a Middle Jurassic limestone (Jurakalk) from Germany and contain an abundance of fossils. The spiral whorls of ammonites are common, but bullet-shaped belemnites and fragments of corals may also be seen.



Ammonite



Belemnite



Coral

9 Lancaster Building

The portico is composed of a yellowish Italian travertine, deposited from hot active springs, while the main building is a cream coloured travertine (natural holes are infilled with a yellow filler). Around the base of the building is a greenish Serpentinite, probably from the Italian Alps.



Broken layers of travertine



Serpentinite

10 The Link

The shop frontage is a dark gabbro from the Precambrian Bushveld Complex of Southern Africa. Pale plagioclase and dark pyroxene are the main constituents of this rock.



Gabbro

11 The Guildhall

The building by the open market (often referred to as "The Stones") is composed of various local sandstone blocks. The base is a reddish Sherwood Group laminated sandstone of Triassic age, whereas the pale grey sandstone above is Upper Carboniferous and exhibits some cross bedding and slumping.



Laminated Triassic sandstone



Current bedded Carboniferous sandstone

From the Guildhall cross the High Street to the HSBC (built of a buff coloured Upper Carboniferous sandstone).

12 Select

A polished porphyritic red granite, probably from Scotland, shows large zoned perthitic orthoclase crystals.



Porphyritic granite

13 W.H. Smith

The shop frontage is a pale grey coloured marble crossed by numerous white calcite (calcium carbonate) veins. The marble shows the effects of deformation during metamorphism from a limestone.



Marble

14 McDonalds

On either side of the main window is a gabbro with prominent crystals of pale plagioclase.



Gabbro

At the traffic lights cross High Street to the corner of Hassell Street and face the National Westminster Bank

15 National Westminster Bank

Another local sandstone of Triassic age from the Sherwood Group. Good cross bedding may be seen.



Current bedded sandstone

Cross the High Street again by the open market to the Market Hall and Arcade. Continue down this side to the Nationwide and Barclays Bank colonnade.

16 Nationwide & Barclays Bank

The colonnades of both these buildings are faced with finely layered dark grey slate, whereas above is a chaotically bedded tuff (called Lakeland Green Slate); both are from the Lake District. The Nationwide also has a South African gabbro and a polished base of augen-gneiss (with ragged xenoliths) from the Swiss Alps.



Augen-gneiss with dark xenolith



Laminated grey slate



Slumped bedding in airfall tuff



P Parking
T Toilets

approx 50 metres