



# Rock around campus



## 3 Dover Street (Campus map location C8 & D8)

This fully accessible trail is one of a planned series of walks around the University of Liverpool. The aim is to introduce the rocks and man-made materials used in the buildings and paving around the campus.

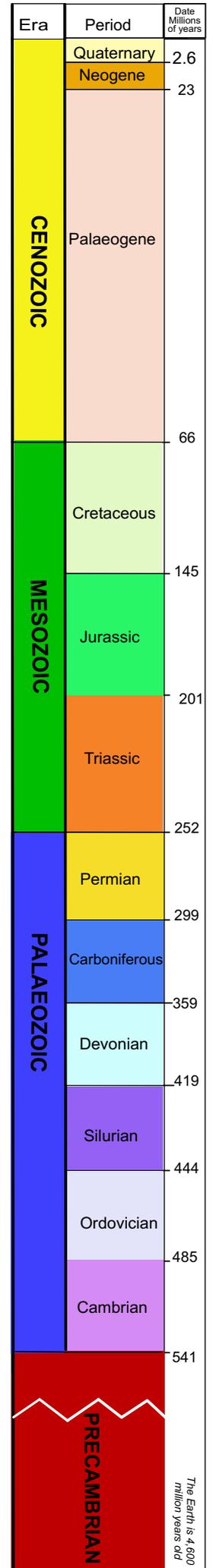
To help you, in this leaflet you will also find:

- a map showing the names of buildings in Ashton Street;
- a glossary of terms;
- a geological timechart.

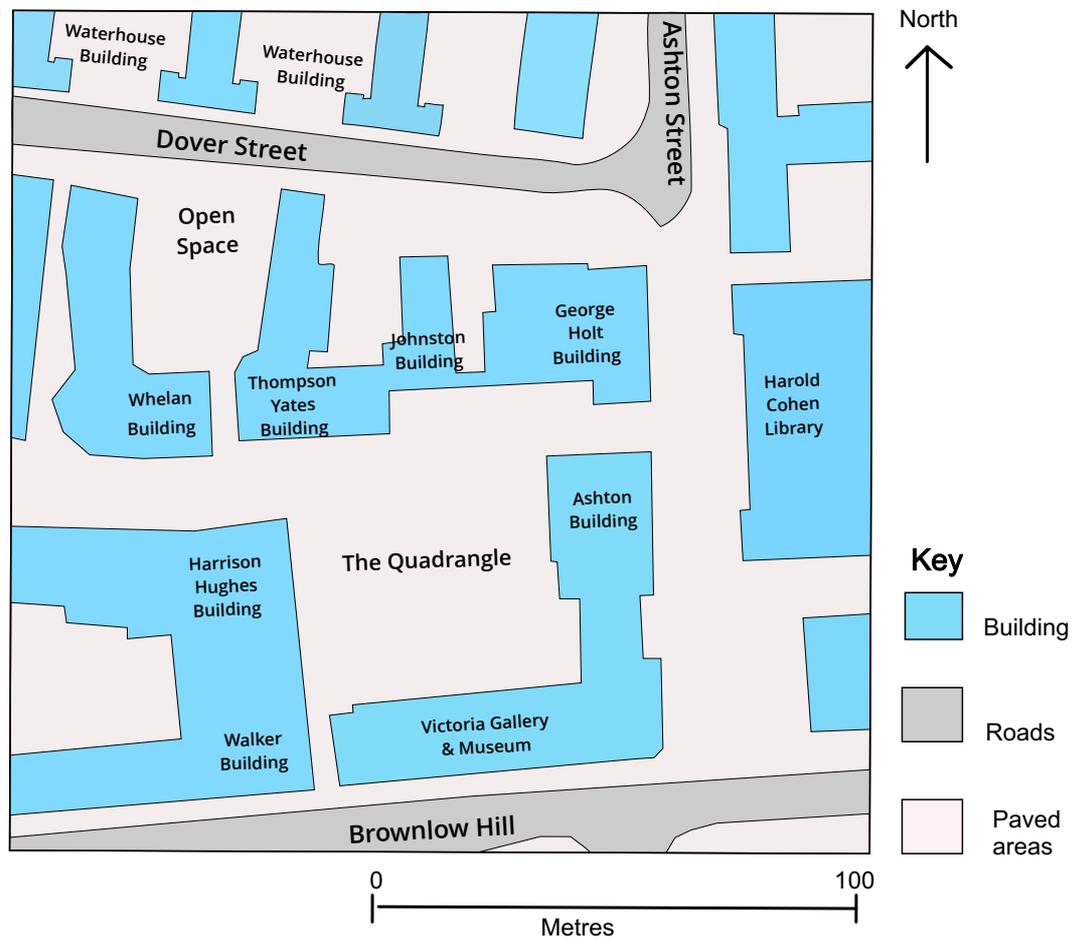
This is a self-led guide and you need to get close to the buildings so that you can see the fine details. Allow an hour to complete the trail.

*N.B. Building work is in progress along this trail and this guide will be amended when work has been completed)*

There are three types of rock: **igneous** (crystallized from molten rock); **sedimentary** (derived from the breakdown of other rocks) and **metamorphic** (rocks changed by heat and/or pressure). Man-made materials are also derived from Earth materials. Examples include **bricks** (baked clays); **concrete** (a mixture of sand, gravel and limestone); **glass** (a mixture of sand and limestone); **mortar** (a mixture of sand and limestone); **metals** (lead used in flashings, copper used in wires and lightening conductors, iron used in drain pipes and railings) and **alloys** (mixtures of metals for example bronze used in statues).



Map showing the names of the buildings in Dover Street



Start at the corner of Ashton Street [Rock around Campus 2] and Dover Street and progress away from the Harold Cohen Library towards Brownlow Street.

Near the beginning of Dover Street note the traffic calming structure in the road. It uses setts (pieces of rectangular quarried stone). These setts are made of granite (an igneous rock).



On the left of Dover Street is the wall at the back of the *George Holt Building* while on the right are the *Waterhouse Buildings*.



To begin, let's concentrate on the wall on the left-hand side. Part of it is made from relatively poor-quality brick (photo C) while further along the road, sandstone blocks are used. All are cemented into place using mortar.



Mortar is a mixture of sand and limestone and in places it is possible to see a lime-rich sedimentary deposit known as tufa being deposited as water seeps through the mortar and evaporates on the surface (photo D). Plants growing in the mortar are facilitating biological weathering by producing a weak humic acid which eats into the mortar.

Cross the road (beware of traffic) to look at the *Waterhouse Building* (photo E).

Close to the pavement, dressed ashlar (shaped stone) blocks of buff-coloured Carboniferous sandstone (a sedimentary rock) have been used (photo F). Many of these blocks exhibit layers (a sedimentary structure called bedding). Plants can be seen growing in the mortar between these blocks (photo G). Look in the mortar near pavement level to see the purple/grey slate (a metamorphic rock) used as a damp-proof course. It is not a straight layer but steps as the road slopes (photo H).

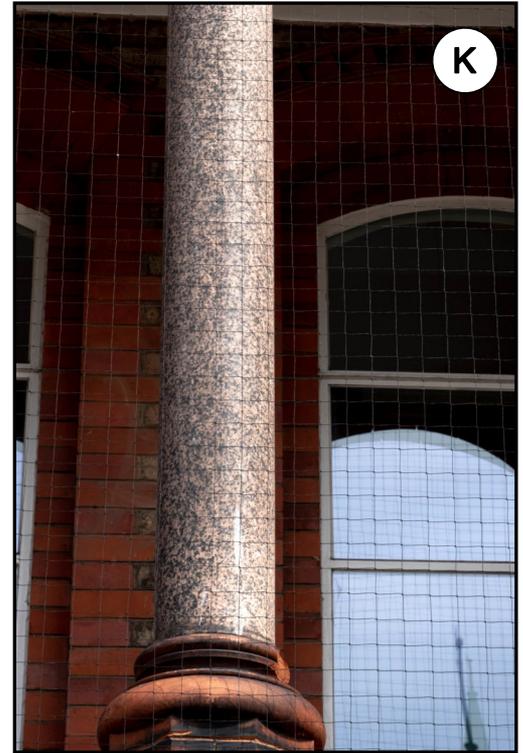


Above the basal stone blocks there is a mixture of bricks – standard-sized brown bricks and the more decorative, smoother terracotta bricks (photo I) around the windows and balconies (photo J). The arches on the first-floor balcony are supported by pillars of polished granite (an igneous rock).



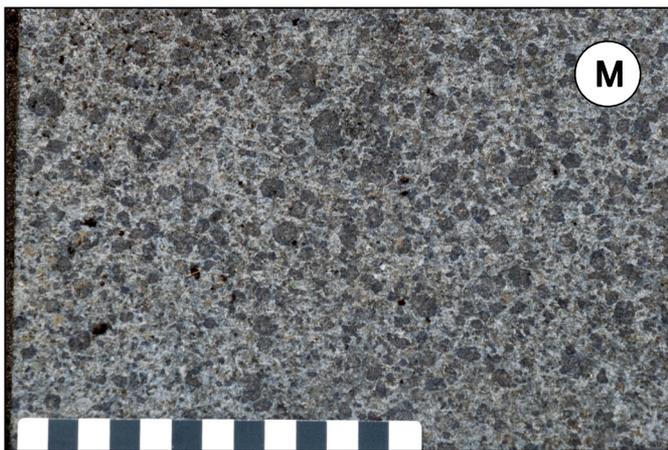
The arches on the first-floor balcony are supported by pillars of a polished igneous rock called granite (photo K).

Look up towards the roof of the *Waterhouse Building* (photo L). The roof is made of the metamorphic rock slate and lead flashing is used at seams or joints on the roof to deflect water away.



Cross back over the road (beware of traffic) and continue to the open space between the *Thompson Yates Building* and the *Whelan Building*.

Notice the raised platform on the left which is faced by a dark igneous (crystalline) rock called gabbro (photo M). The adjacent pavement is made from a paler igneous rock called granite (photo N).



Progress towards the archway between the buildings. Near the entrance stop and look at how metals have been used (photo O). Copper forms the lightning conductors and the roof of the spire above the archway while cast iron has been used for gutters, drain pipes, grid covers and railings. It is important to protect the iron from attack by water otherwise rust is formed, and the cast iron will lose its integrity.



Beyond the archway the mixed metal statue “Shemaiah” by Sean Rice stands on a plinth made from a block of granite (photo P).



[Continue into the Quadrangle](#) [Rock around Campus 1]

## Glossary of terms

**Bedding:** term that describes the layering that occurs in sedimentary rocks.

**Cast iron:** a hard, relatively brittle alloy of iron and carbon which can be readily cast in a mould. It has a higher carbon content than steel.

**Feldspars:** rock forming minerals that are common in igneous rocks; includes plagioclase and orthoclase.

**Flashing:** a sheet of thin, impermeable material used to prevent water seeping into a building.

**Gabbro:** dark coloured, crystalline igneous rock made up of large crystals of plagioclase and pyroxene that are easy to see.

**Granite:** light coloured, crystalline igneous rock with large crystals of quartz, plagioclase, orthoclase and mica.

**Mica:** a shiny silicate mineral with a layered structure.

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

**Orthoclase:** a type of feldspar mineral rich in potassium.

**Paving slabs (or stones):** naturally-occurring igneous, sedimentary, or metamorphic rocks which can be cut, shaped, or split into blocks or slabs for use as paving materials.

**Permeable:** allowing liquids or gases to pass through it.

**Plagioclase:** type of feldspar mineral.

**Pyroxene:** dark coloured silicate mineral generally containing calcium, magnesium and iron and found in many igneous and metamorphic rocks

**Quartz:** a mineral composed of silicon and oxygen atoms.

**Slate:** a metamorphic rock formed from mudstone and which has small crystals and splits (or cleaves) into thin sheets.

**Terracotta:** moulded baked clay. The clay is refined before firing so has a smooth surface after firing and can be used to provide decorative and ornamental shapes.

**Weathering:** is the breakdown of rocks at the Earth's surface, by the action of rainwater, extremes of temperature, and biological activity. It does not involve the removal of rock material.