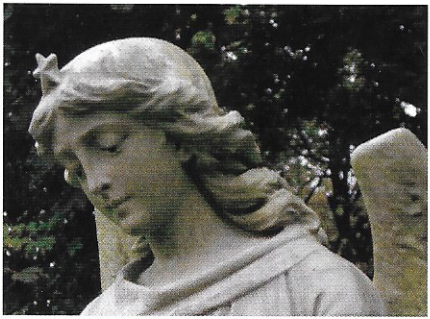
walking through the past



Overleigh Cemetery Geodiversity

CHESHIRE RIGS

NORTHWEST GEODIVERSITY PARTNERSHIP

Overleigh Cemetery Geodiversity

walking through the past

What does the Cheshire RIGS group do?

Cheshire RIGS recommends sites to local authorities for designation as Regionally Important Geodiversity Sites. It also works in partnership with other community groups and businesses as part of the Cheshire region LGAP (Local Geodiversity Action Plan) to maintain geodiversity in Cheshire.

For more information about Cheshire RIGS or if you are interested in becoming involved please contact:

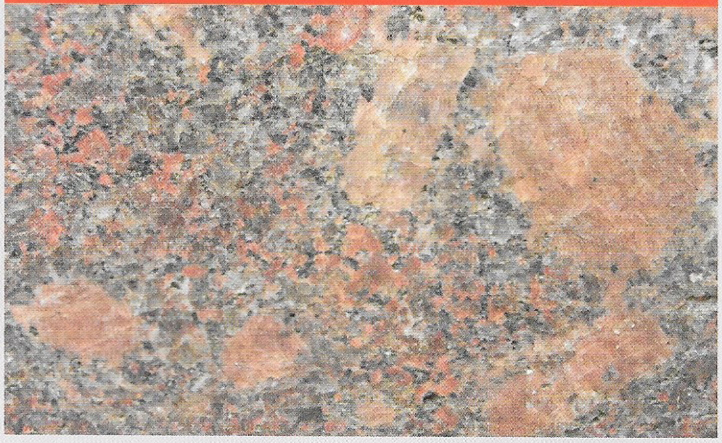
Cheshire RIGS, Grosvenor Museum,
27 Grosvenor St, Chester CH1 2DD.
Phone: 01244 972096.
Email: c.burek@chester.ac.uk

Photos: P. Hyde & K. Riddington. 2012

Rock types found in Overleigh Cemetery

The rock types you will see while walking around the cemetery are igneous, sedimentary and metamorphic. They have different characters and were carefully chosen by each generation, depending on their availability at the time.

Igneous

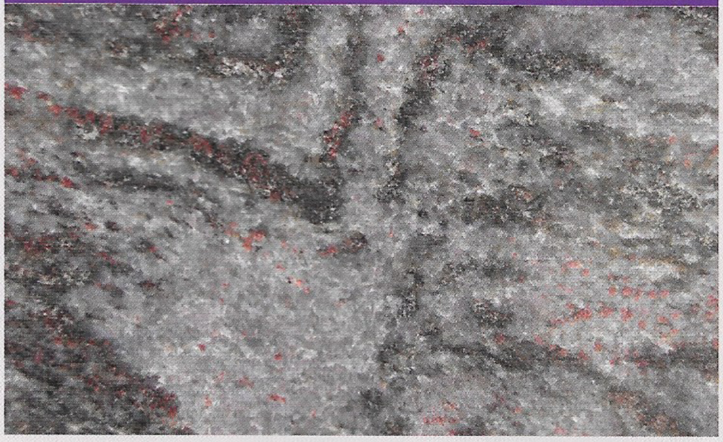


These form when hot magma rises near, or onto, the Earth's surface. The varied cooling rates, and chemical composition, of the magma causes it to crystallize into different types of igneous rock.

Sedimentary

A rock formed by the build-up of weathered rocks and fragments of plants and animals (which become fossils). Often deposited in layers in deserts, and by the sea and rivers; they are then compressed and stuck together.

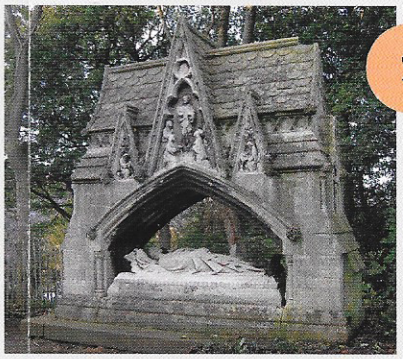
Metamorphic



These are rocks that have been altered by heat and/or pressure into a new, much harder rock with the same chemical composition.

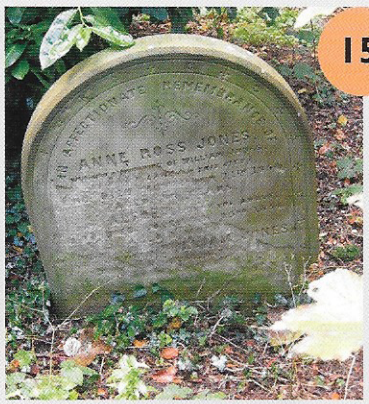
The headstone of Fredrick Stephen Knight is made of a local Triassic wind-blown sandstone, which was laid down in sand dunes in a desert. The local rock is poorly cemented and weathers easily, so is not usually used for headstones.

1



2

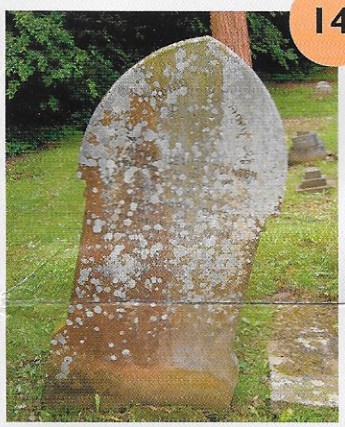
This intricate tomb is made of an o
which was deposited in Dorset d
Period, about 150 million years a
closely you can see fossils and sma
ooids, which form when small grains
down the beach and are coated in ca
Today ooids are formed in the Bahan
of the tomb, in the largest point, ther
of marble: this is formed when limest
to very high temperatures (metamor



15

The headstone of Anne Ross James shows clearly the effects of weathering. Sedimentary rocks are laid down in layers, and are then glued – or cemented – together. You can see the layers have been weathered and have started to peel away. This may have been due to rain, which has run down between the layers and frozen in the winter. After many cycles of freezing and thawing, the rock may crack along these layers.

A lot of headstones in cemeteries are often home to lichens, as the headstones are undisturbed. Lichens grow very slowly – many only 1–2 mm a year, and some may reach 150 mm. Lichens are a combination of two simple organisms: a fungus and one or more algae growing together as partners to their mutual advantage. There are lots of different types of lichen, and a variety can be seen on the headstones in Overleigh Cemetery. Those on the headstone of Martha Eleanor Paynton are particularly impressive.



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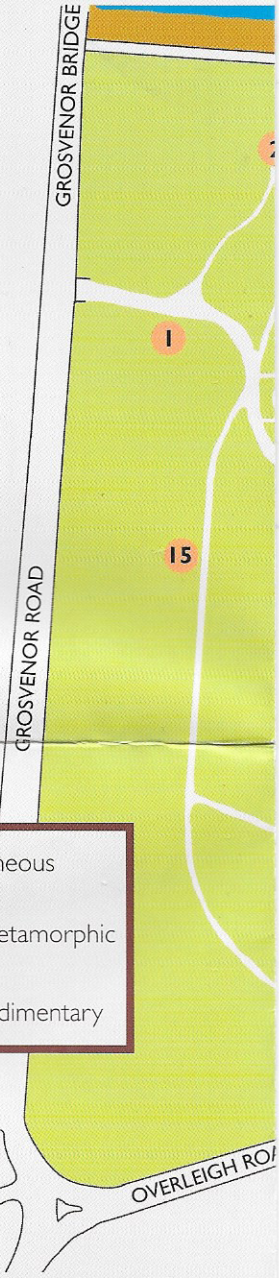
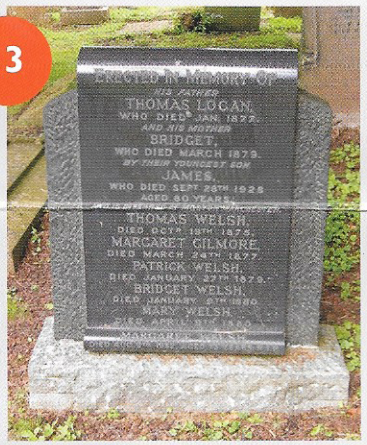
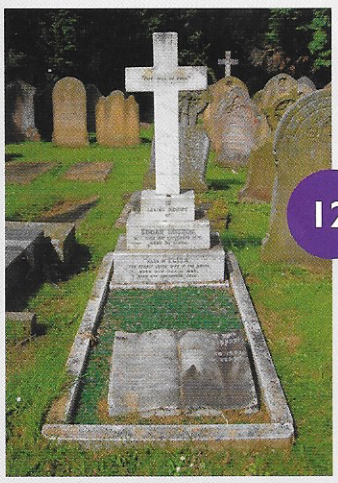


The headstone of Thomas Logan is a medium grained igneous rock (dolerite). It is dark in colour so is 'basic' in chemical composition. Basic rocks have more iron and magnesium minerals in them and are relatively heavy. Acidic igneous rocks are lighter and include granite. This headstone shows how rock can change its appearance when it is polished.



13



12

The headstone of Edgar Dutton is made of marble. Marble is a metamorphic rock that used to be a limestone, transforming when it became heated at a high temperature. Marble is easily dissolved in acid – including rain (which is acidic). When the headstone was new the lead lettering would have sat level against the surface; as the marble dissolved the lead letters have become raised above the surface.

Rita Janet Smith's headstone is made of larvikite. This attractive igneous rock is only found in Norway. It has large crystals (phenocrysts) that are iridescent (changes colour in different lights). More recent headstones such as this tend to be more 'exotic' than those used in previous generations. In the past one of the reasons for headstone choice was the local availability of the rock; today, with good transport across the world, this is no longer an issue.

10

Gneiss (pronounced 'nice') was used for Ethel Allen's headstone. It is a metamorphic rock – that could have been sedimentary or igneous before – that was almost turned into magma (liquid rock) before becoming solid rock again. If you look you can see attractive bands of minerals where the near melted rocks flowed during this process.

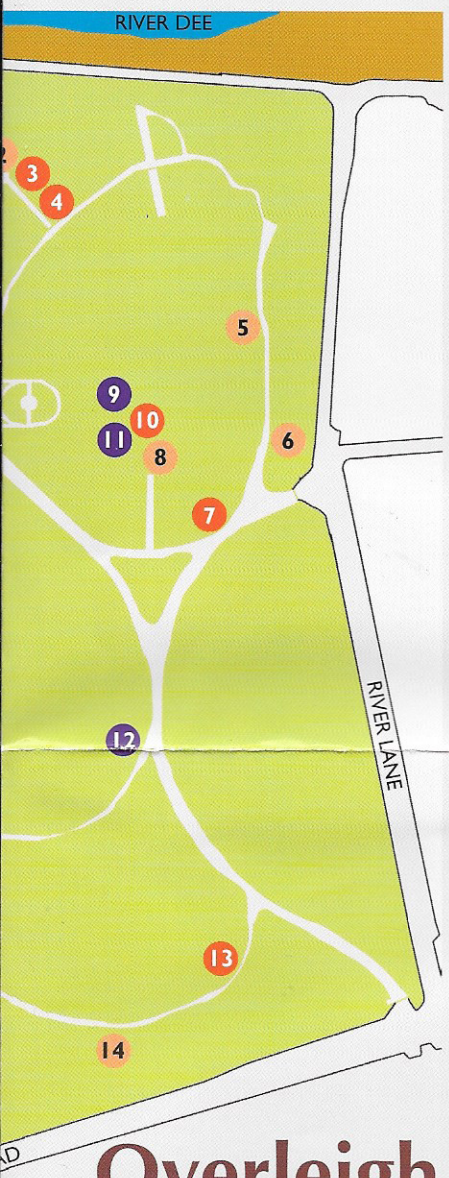
11

Opening ar
April–September 0800–19

The headstones of Hazel Mary Grant and Michael Colin Dunne are both made of slate. Slate is a metamorphic rock that forms when a sedimentary rock like mudstone is squashed by the pressure caused by the earth's crust moving. Slate is often thought to be a dull grey colour. However, as you can see, it ranges from purple to grey to green: the colour being determined by the amount, and type, of iron in the rock.

olitic limestone, uring the Jurassic go. If you look ll balls called wash up and lcium carbonate. nas. On the sides e is a small inset one is heated up phosed).

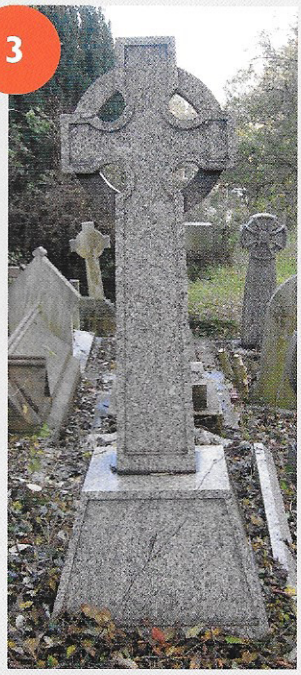
This Celtic cross – Thomas Dickinson's headstone – is made of granite. Granite is made up of three main minerals: quartz (glass crystals), feldspar (white), and mica (small dark crystals).



Overleigh Cemetery

nd closing times
00, October–March 0830–1630

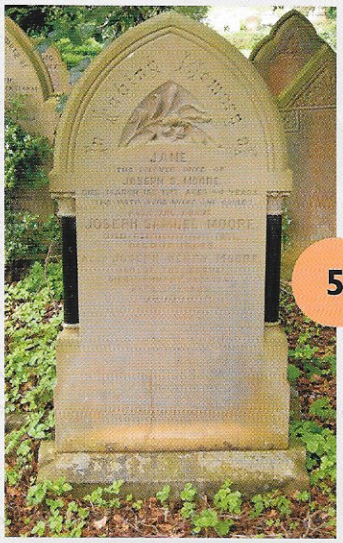
9



3

Ann Broom's headstone is made of another type of granite. This is Shap Granite, from the Lake District. It has large crystals of pink feldspar, which are called phenocrysts. These crystals would have formed before the others in the cooling magma; the smaller crystals then grew around them.

4



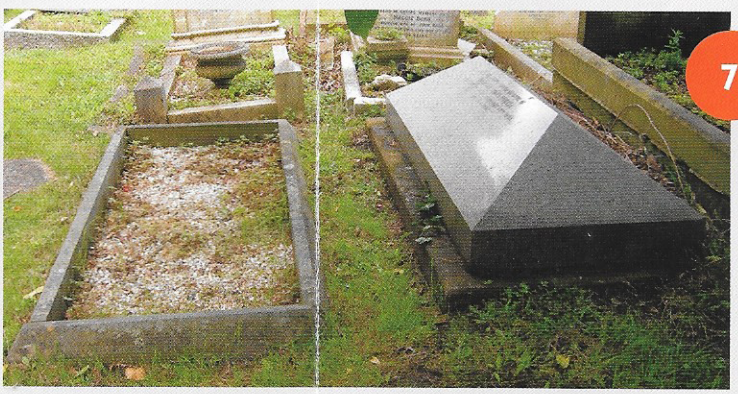
5

The headstone of Jane Moore has two different rock types. The main headstone is made of sandstone, a sedimentary rock, while the two dark columns at either side are made of basalt, an igneous rock with tiny crystals. The crystals are fine here as the magma cooled very quickly. Basalt is currently being formed by volcanoes in places like Hawaii.

The headstone next to that of William Roberts is very weathered. Some rocks make better headstones than others – usually the best are hard and, if sedimentary, well cemented. These two headstones, standing next to each other, are both made of sandstone, but the one on the left has deteriorated far more than the one of the right because it is less well cemented.

6

The tomb of Florence Powell is made from a granite. The crystals that glisten in the sunlight are mica crystals. Next to this grave is the very simple grave of Prof. Robert Newstead. He was the first curator of the Grosvenor Museum, in Chester. He was responsible for finding and excavating a lot of Roman remains in Chester, but he also – importantly – worked around the world looking at tropical diseases.



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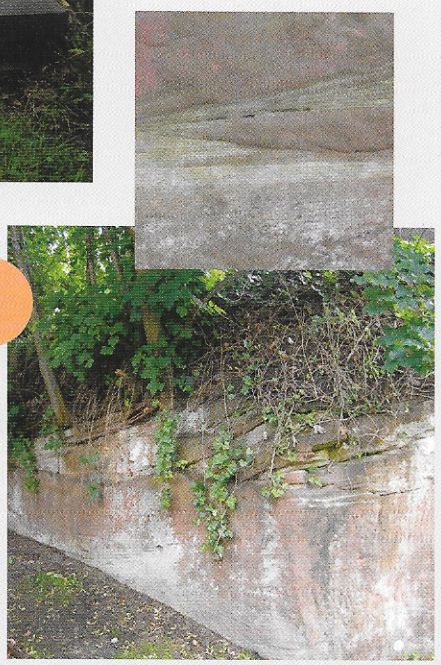
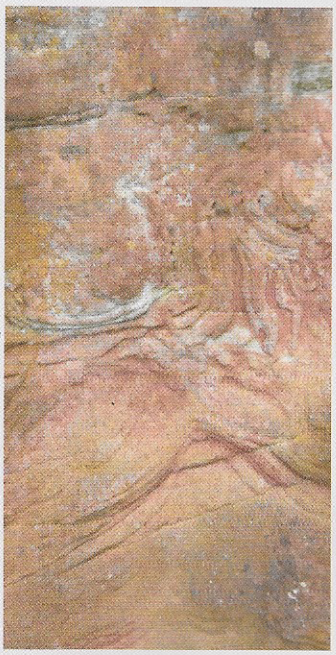
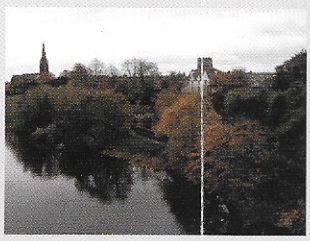


8

This outcrop shows the rock that underlies the whole area. It is called the Chester Pebble Beds, and was deposited about 250 million years ago. At that time Chester was in the middle of a vast desert. At times massive braided rivers flooded the area bringing with them vast amounts of sediment. In this small section of rock you can see various features. Cross beds form when the river current changed direction: you can see them in the rock face when the layers (known as beds) are at different angles. Also present are ancient river channels; beds of fine and coarse sand; and, differential weathering, which picks out beds that have been more poorly cemented than those which stick out. You can also see soil development at the top of the rock.



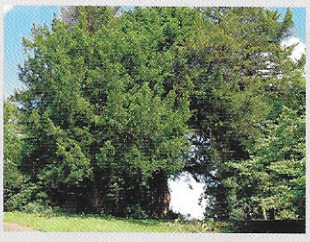
Rocks



Landscape

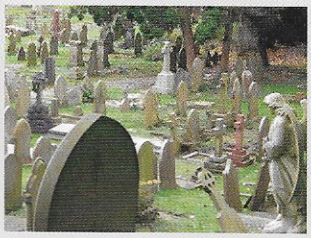
Climate

Soils



Vegetation

Settlement



Land use

Based on an original idea by H. Davies

How does geodiversity link to biodiversity?

Geodiversity – the rich variety of rocks, fossils, minerals, and natural processes forming our landscapes and soils – underpins the variety of life. The massive richness of the planet's ecosystem derives in part from its rocks and soils and the natural processes affecting them.

Geological resources impact on people's lives by shaping the landscape in which they live, how land is used, and the materials that buildings and structures are built from.

For many people the conservation of geodiversity may seem unnecessary. It can be difficult to imagine threats to landscapes which have been there a long time, and to natural and urban geological heritage sites. However, landfill and major construction work (roads, buildings etc.) can all be threats.

Awareness of geodiversity and the Earth's finite resources is essential for the future. If we safeguard our physical environment and well-being then our health and the health of our planet will not suffer.