"What are all these big lumps of rock doing lying around the Cemetery?"

Rock in the Sheffield General Cemetery

by
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Many different types of stone are used on buildings or as gravestones, but what do they look like in their natural state? Find out for yourself as you explore the Gatehouse and Stone Spiral. Nearly all the types of stone used in the Cemetery itself are represented in these blocks.

You may now wish to continue your visit. It is suggested that you continue up the main carriageway but try to stay close to the pathways where possible for your own safety. You may care to try and spot the same stones in their worked form elsewhere in the Cemetery.

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There is a guidebook on sale at the Gatehouse. Further information may be obtained on the website of The Sheffield General Cemetery Trust:
www.gencem.org.uk

This brochure was kindly funded by donations from the Geologists' Association, Curry Fund and the Quarry Products Association.

Layout & Design: Ark Design Management Ltd.
Printed by the University of Sheffield Print Service

The Gatehouse itself, designed by architect Samuel Worth (1779-1870), is constructed of cut blocks of gritstone, from the *Rivelin Grit*. The central section was built in 1836 in the reign of William IV, just before Victoria became Queen. The wings were added in the 1850's, and the west wing which was completely lost in the 1970's has now been fully restored.

Photo: Peter Kennett

You can see rough layers in the stone, sometimes picked out by rows of small pebbles. About 310 million years ago, loose sand from the erosion of a mountain range in "Scotland" was washed down and deposited in river beds in the "Sheffield" area. Rocks formed in this way such as those shown in the photo of Burbage Edge are called *sedimentary*.

Some of the sand layers slope at various angles in the same block, showing that they were laid down in underwater dunes. The brownish colour of the rock shows that the sand grains are cemented by iron oxides.

Pass through the Gatehouse and on your right, in the wall of the West Wing Memorial Room you will find some newly quarried *Rivelin Grit* (from Rivelin Glen Quarry). You can compare this with blocks which are pink in colour as a result of fire damage in the 1970's and the badly weathered material in the main Gatehouse. What processes might have caused the weathering?

The sloping paving to the West Wing ramp is made of *Crosland Hill Sandstone*. This is a hard sandstone, cemented by silica as well as iron oxides, so it will resist wear and tear. The surface has been "shot sawn" for non-slip purposes. When it was cut, on an oversized "bread slicer", iron pellets in water were dragged across the stone by the steel blades.

AT THE GATEHOUSE...

By the Gatehouse on Cemetery Avenue are three squared stone blocks. From left to right they are:

Photo: Ark Design Management Ltd.

Swedish Imperial Red Granite, **from Bohuslan, Sweden** – a dark red rock.

Emerald Pearl, **from Larvik, in Oslo Ford, Norway** – a dark greenish-grey rock, with iridescent minerals.

Rubislaw Granite, **from Aberdeen, Scotland** – a dark grey rock, with a leaf-shaped pattern of drill holes.

Rocks such as these are formed by crystallisation from molten rock deep below ground. The "clean" sides of each block show the characteristics of such *igneous* rocks. They are all coarse-grained, which shows that the crystals had plenty of time to grow, perhaps several million years.

Photo: Ark Design Management Ltd.

These blocks show how they were quarried. The natural surfaces are called joints, mostly resulting from contraction as the rock cooled. Quarry workers exploit these natural weaknesses in order to split blocks. They drill holes in the rock. In each hole they then place a "plug and feathers" consisting of two half-cylindrical rods and a wedge. By tapping the wedges, in order, the rock eventually breaks in half.

You can calculate the mass of each block, given that 1 cubic metre of granite weighs about 3 tonnes. How on earth did the Victorians transport similar blocks? Clearly, such "foreign" rocks did not feature in Sheffield graveyards before the railways came in the 1840s!

AT THE STONE SPIRAL...

From the Gatehouse, follow the restored Robert Marnock (1800-1889) pathway to the left for 125 yards. You will discover 29 stones set in a spiral which are part of the new Memorial Garden designed by Adrian Hallam, architect of the restoration, and horticulturalist Dr. Nigel Dunnett. The spiral path, a symbol found in many religions, reinterprets the romanticism of the 19th century landscape and will allow you access to every stone.

Entering the Stone Spiral, the rocks to your left are placed in clockwise order as follows:

1-2. Hollington Red Sandstone (No: 2 contains rounded quartzite pebbles)

3-10. Crosland Hill Sandstone. 3 and 6 have small plant imprints. 5 has three large plant imprints in the form of an arrowhead.

11-18. Slate. 14 shows a colour change from green to purple. 17 has green spots, probably from the chemical reduction of iron compounds.

19-24. Greenmoor Rock, Sandstone, from Shepley, Huddersfield. 19 & 20 show brown weathering marked the edges of the blocks. All are ripple-marked from when the sand was loose on an ancient river bed. 21 shows these in cross section: 23 shows the top surfaces of these ripples.

25. Dolomitic Limestone, showing "stylolites".

26. Mandale Limestone (crinoidal limestone), crammed with crinoid fossils.

27. Kemnay Granite (grey), with some alignment of the mica crystals, from minor later metamorphism.

28. Peterhead Granite (pink), with small dark "heathen" on top and a better one at ground level.

29. De Lank (Cornish) Granite, with slight alignment of the white feldspar crystals, possibly from flow patterns when it was molten.

21, 26, 27 and 29 all contain drill holes from the quarrying operations

Photo: Peter Kennett