

Glasgow Necropolis

A Geological Trail



by

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Geoconservation Group**

INTRODUCTION

This trail booklet focuses on the geology associated with the Necropolis and a selection of its monuments. For information on the monuments and the stories of the people interred there are two excellent publications by Ruth Johnston, chairperson of the Friends of Glasgow Necropolis. A pocket-size *Necropolis Guide* and a book *Afterlives*, which is much more comprehensive.

Both of these publications are available at the Museum of Religious Life and on the internet from the Friends of Glasgow Necropolis website at www.glasgownecropolis.org. This website also contains a wealth of further information about the site.

The description of the localities in this geological trail booklet guide uses two font styles - *the text in italics contains the geological descriptions and interpretations at each locality*; whereas the regular font style is used for directions, history and other points of interest. Additionally, at each locality the relevant page in '*Afterlives*' is noted.

Please remember when walking round the Necropolis that it is a graveyard and should be treated with respect. Note also that although there are paved pathways there are also steep stairs, grassy and sometimes muddy paths and rubbly, unpaved pathways in the tour suggested in this booklet. The ground may be slippery when wet

A BRIEF HISTORY

One of the suggested interpretations of the name 'Glasgow' is 'the place of the grey rock'; a name given to the hill that now is the site of Glasgow Necropolis. The Grey Rock was bought by the Merchants' House in 1650 and plots of land were feud out to quarry stone. The western side was planted with firs and became known as Fir Park. With the industrialisation of Glasgow at the beginning of the 1800s came pollution and the firs died off. The sandstone monument of John Knox in the highest level of the park was erected in 1825.

In the nineteenth century Glasgow grew in prominence and in population and it became a major industrial city. This resulted in a rise in wealthy merchants and industrialists and Dr John Strang, historian and sometime City Chamberlain decided that Glasgow needed a suitable resting place for its 'well-to-do'.



The design of the cemetery was based on the famous Pere La Chaise garden cemetery in Paris and became Scotland's first 'hygienic cemetery', which was to be open to persons of all faiths and none.

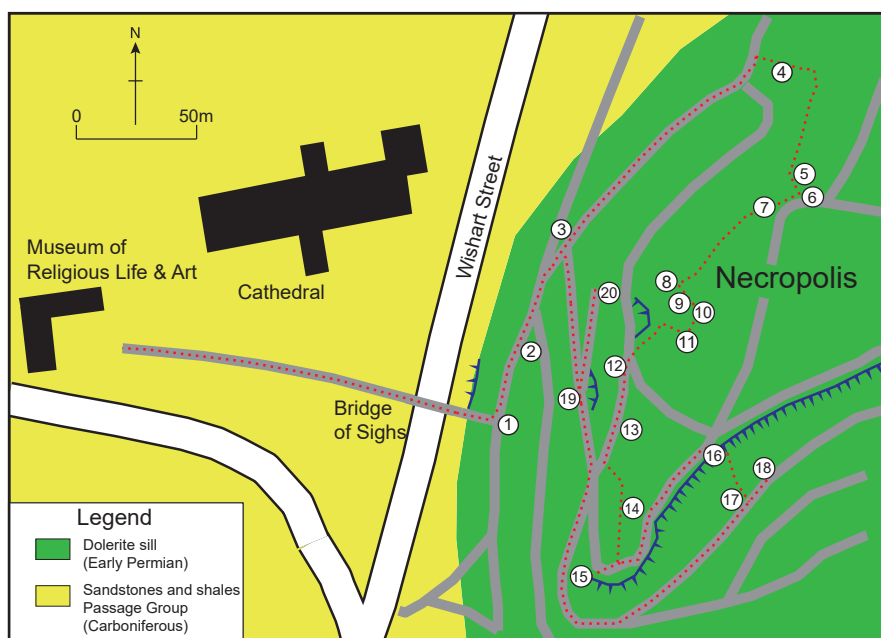
The Necropolis was opened in April 1833; it now contains 3500 monuments, although about 50,000 individuals are buried here.

THE GEOLOGY OF THE NECROPOLIS HILL

The dolerite rock upon which the Necropolis stands is approximately 273 million years old (Permian Period), whilst the rocks underneath are sandstones laid down in the earlier Carboniferous Period about 330 million years ago. Many of the sandstones used for the monuments are from that period. A small section of this sandstone can be seen on the eastern side of Wishart Street below the Bridge of Sighs.

The Necropolis Hill is one of the highest points of old Glasgow. It stands proud simply because it is the outcrop of a near- horizontal intrusion (known as a sill) of more resistant igneous rock into the surrounding weaker sedimentary rocks. The igneous rock is a type of basaltic rock known to geologists as dolerite and to local people and quarrymen by its more traditional name of 'whin'.

TRAIL MAP



The Trail

From the Museum of Religious Life head east towards the Cathedral on its south side and walk along the road towards the Necropolis following the signs and cross the Bridge of Sighs.

Locality 1 [NS 6033 6547] Afterlives pages 8,9

Bridge of Sighs and Entrance Facade

The approach to the Necropolis is over the bridge which originally crossed the Molindinar burn. This burn still runs through Glasgow although now underground. The bridge is known as the 'Bridge of Sighs' due to the funeral processions which passed over it.

The Bridge and the Entrance Façade at its eastern end (Fig. 1) are both made from Carboniferous Kenmure sandstone. It was quarried and mined at Bishopbriggs in Huntershill Quarry.

Go immediately left (north) and look on the right at the first junction for the monuments to the members of the Thomson Family (Fig. 2).



Fig. 1. The Entrance Facade.

Locality 2 [NS 6035 6550] Afterlives page 139

Lord Kelvin

William Thomson, appointed Lord Kelvin, had a long and distinguished career, remaining Professor of Natural Philosophy at Glasgow University for over 50 years, until his eventual retirement. He was also President of the Geological Society of Glasgow for 21 years.

Next to the sandstone monument to the Thomson family is a small modern commemorative stone in Chinese granite.

This was erected in 2007 to mark the centenary of Lord Kelvin's death. Due to the complicated nature of the design it was easier to email the design to China and have the monument flown back a few weeks later. Lord Kelvin's career included being a telegraph engineer and inventor, so this would have appealed to him.



Fig. 2. Granite memorial to Lord Kelvin and Thomson headstone.

Return to the main carriageway and continue uphill for about 50 m up to the monument to William Miller, (Fig. 3).

Locality 3 [NS 6035 6552] Afterlives page 10

William Miller

William Miller is famous as the author of the children's rhyme 'Wee Willie Winkie'.

The monument is made of grey granite, probably from Aberdeen.

Follow the main carriageway for about 120 m uphill heading northeast until it branches, keep left, and a few metres later, on the right, there is a set of stairs with grassy embankment between. After the second flight look for the monument to Rev. Beattie (Fig. 4).



Fig. 3. William Miller.

Locality 4 [NS 6046 6562] Afterlives page 24

Rev. Alexander Ogilvie Beattie

This monument was designed by Alexander 'Greek' Thomson and in the base he has incorporated a design known as 'Cyclopean masonry'. This a term used to describe a type of working of unusually large blocks of stone by fitting them together without the use of mortar, a technique often used in the construction of fortifications.

Continue up two more short flights of grassy steps then at the top turn right and go south over the grass on the edge of the hill to the prominent mausoleum of William Rae Wilson (Fig. 5).



Fig. 4. Cyclopean masonry at the base of the Rev. Beattie monument.

Locality 5 [NS 6046 6558] Afterlives page 68

William Rae Wilson

This Moorish kiosk is constructed of 'liver-rock' from the quarry in Carboniferous-age sandstone at Binnie near Uphall in West Lothian. No wood or metal was used in the concealed joints. The reddish speckles are small pieces of bitumen, which are probably oil residues which moved upwards from adjacent beds of oil-shale.

The rock is a 'massive' sandstone, i.e. it has little or no signs of bedding. Liver-rock is very durable and was used extensively in Edinburgh (e.g Scott Monument, National Gallery and the Bank of Scotland).



Fig. 5. William Rae Wilson's kiosk.

Immediately adjacent to the east is the mausoleum of John Houldsworth (Fig. 6).

Locality 6 [NS 6046 6557] Afterlives page 69

John Houldsworth

The mausoleum has two angels (Hope and Charity) guarding the outside. A third angel, Faith, is inside.

The angels are carved in Carrara marble from Tuscany. Note the more intensive weathering on the marble compared to the sandstone.



Fig. 6. John Houldsworth's mausoleum guarded by marble angels.

About 30 m further southwest is a monument to Charles Tennant with his statue on the top (Fig. 7).

Locality 7 [NS 6044 6556] Afterlives page 66

Charles Tennant



Fig. 7. Charles Tennant 'meditating' on his plinth.

The plinth is granite and the statue is made from Carrara marble. The marble is badly discoloured and corroded due to coal-smoke pollution and the action of acid rain on the marble; somewhat ironic for someone whose fame was as a chemist.

Some 70 m further south-west, near the top of the hill is the prominent statue of John Knox on his 17m high column (Fig 8).

Locality 8 [NS 6040 6551] Afterlives page 59

John Knox

The doric column and its base are made of local Carboniferous sandstone. Note the wave-ripples which have weathered out. The exposed rocks below the monument are weathered dolerite and the locality is an 'earthcache' (see back cover).

Close by, and slightly to the south is the sarcophagus of John Ewing (Fig. 9).



Fig. 8. John Knox monument

Locality 9 [NS 6041 6553] Afterlives page 60

James Ewing of Strathleven

The sarcophagus is red Peterhead granite mounted upon a grey sandstone base. The unpolished Peterhead granite can be seen in the areas where bronze panels have been previously placed. The granite around these is highly polished; showing the contrast of these two finishes. The pink colour of many granites come from the dominant crystals of orthoclase (potassium) feldspar.



Fig. 9. John Ewing's sarcophagus of Peterhead granite.

About 10 m to the southeast across the tarmac path lies the monument to Thomas Brown (Fig. 10).

Locality 10 [NS 6042 6552] Afterlives page 62

Reverend Dr. Thomas Brown



Fig. 10. Rev. Dr. Thomas Brown's tomb has been badly corroded by acid rain.

The monument is made from fine-grained sandstone from the Craigend Quarry near Mugdock. It has been badly weathered by acid rain. Some sandstones will be more susceptible to acid rain than others, especially if they have a carbonate cement.

Going about 25 m downhill (SE) and about 10 m to the left of the path can be seen the recumbent figure of Rev William Black upon a plinth with many beautifully carved figures (Fig 11).

Locality 11 [NS 6041 6550] Afterlives page 63

Reverend William Black

The shelly limestone base is full of fossils – mainly bivalves and is probably of Jurassic age and likely to have come from southern England. The memorial used to have a canopy supported by Mandale stone (Carboniferous-age limestone from Derbyshire).

Walk about 30 m due west to return to the path and continue downhill to the main roadway to reach the Monteith obelisk (Fig. 12)

Fig. 11. William Black's memorial showing the fossiliferous limestone base.



Locality 12 [NS 6039 6550] Afterlives p 36

Henry Monteith

The obelisk to Henry Monteith is of red Peterhead granite on a limestone base (Fig. 12a). Many shell fragments can be seen and they are all the same bivalve species known as 'Productus'. There are also crinoid (sea lily), sponge and coral fragments. Small pyrite crystals can be seen glinting if the sun is shining. It is from the Carboniferous but its locality is unknown.

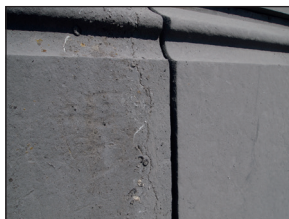


Fig. 12a. Shelly limestone at the base of the Monteith obelisk.



Fig. 12. The Henry Monteith obelisk.

This location is a good place to review the glacial history of the area. It is probable that an approximately 1 km thick E–W moving ice-sheet steepened the western flanks (Fig. 12b) by plucking rocks from the hard dolerite sill and depositing debris (diamictite) on the more sheltered eastern flank. These softer deposits are more suitable for burials. This process is termed 'crag-and-tail' and is the same as that which formed the classic feature of Edinburgh's castle rock. The Molindinar burn occupies a valley formed by glacial meltwater.

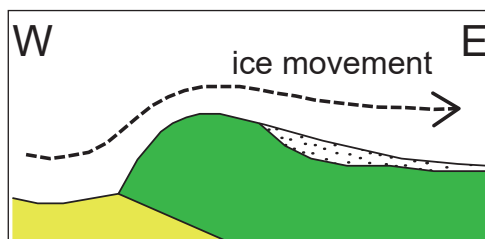


Fig. 12b. 'Crag-and-tail' model for the glacial sculpting of the Necropolis. Ice flowing from west to east has 'plucked' the west face of the sill and left glacial deposits on the east side.

About 25 m south of the obelisk on the left hand side of the path is the dark monument to John Tait (Fig. 13).

Locality 13 [NS 6039 6548] Afterlives page 41

John Tait

This memorial is made from the dolerite rock found in the Necropolis quarry and has a very pitted appearance from the weathering-out of some carbonate minerals. It seems to be the only major monument in the Necropolis made from the local quarried stone.



Fig. 13. John Tait memorial made from locally-quarried dolerite.

About 40 m further south is the large grey octagonal monument to William Dunn of Duntocher (Fig. 14).

Locality 14 [NS 6039 6544] Afterlives page 49

William Dunn

This monument is made of grey granite from Ireland, but its exact locality is unknown. Note the strong alignment of minerals probably indicating magma flow during intrusion.

Fig. 14. William Dunn memorial made from grey Irish granite.



Follow the path south for a few meters to the prominent Monteath Mausoleum (Fig. 15)

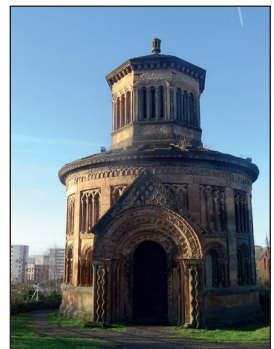
Locality 15 [NS 6036 6539] Afterlives page 48

Monteath Mausoleum

The building is probably made from blonde sandstone, possibly quarried at Giffnock. It is very soft and weathered. The old soot coating probably protected it somewhat.

Fig. 15. Monteath Mausoleum.

Go north to the right of William Dunn to the top of two flights of steps which lead down into the lower terraced area. This is the main face of the quarry which extends E-W for nearly 1/2 km along the southern flank of the Necropolis.



Locality 16 [NS 6043 6546]

Steps down into main quarry - Onion-skin weathering

On the left-hand side of the steps the absence of ivy has revealed the dolerite (Fig. 16), which has been weathered into rounded blocks - often called 'onion skin' or 'spheroidal' weathering as a result of the chemical alteration along intersecting joints and is greatest along the corners of each block, followed by the edges, and finally the faces of the cube.



Fig. 16. 'Onion-skin' weathering of dolerite adjacent to the steps down to the quarry.

At the bottom of the steps look on the left for the columnar pillar monument to Hugh Barnett with a broken-off top (Fig. 17).

Locality 17 [NS 6043 6545]

Hugh Barnett

This cylindrical pillar is probably made from Argentinean granite.

Fig. 17. Hugh Barnett's memorial in red granite.



Walk about 30 m northeast along the path and look for the stubby columnar monument to John Gordon on the left (Fig. 18).

Locality 18 [NS 6046 6547]

John Gordon

This memorial is made of an unusual purple-coloured granite. The colour comes from purple staining (possibly from manganese) in the quartz crystals (Fig. 18a). There is some interesting use of etching in the decoration.



Fig. 18. John Gordon's purple granite memorial.



Fig. 18a. Detail of the purple granite. The colour comes from purple staining (possibly manganese) in the quartz crystals.

To get to the next localities walk south-westwards along this terrace around the base of the mausoleum, then at a point above the entrance facade, take the main path sloping downhill to the Davidson mausoleum on the left (Fig. 19).

Locality 19 [NS 6049 6550] Afterlives page 125

Davidson of Ruchill

The memorial is constructed of a very-fine grained Carboniferous-age sandstone from the Craigland quarry near Troon in Ayrshire.

Fig. 19. Sandstone mausoleum to Davidson of Ruchill.

Carry-on downhill for a few metres and take the narrow tarmac path uphill to the prominent Aitken of Dalmoak mausoleum (Fig. 20), which has been recently renovated with a new roof.



Locality 20 [NS 6037 6552] Afterlives pages 122,123

Aitken Mausoleum

This sandstone monument has eight polished columns made from red Peterhead granite.

Fig. 20. Aitken mausoleum.



Return to the main path and carry on downhill on the path to the junction near the William Miller monument and turn left to reach the Bridge of Sighs and the park exit which takes you back to the start.

This leaflet was produced by the Strathclyde Geoconservation Group, which is a sub-committee of the Geological Society of Glasgow.

Our aim is to conserve and promote local geology and identify sites which highlight local geodiversity and earth heritage.

Geodiversity is the variety of rocks, minerals, fossils, soils and landscapes and the natural processes which form them.

If you would like to find out more about geology in and around Glasgow go to www.geologyglasgow.org.uk

To find out more about Scotland's Geology and the 51 best places to view it, visit www.scottishgeology.com

Earthcaching



Earthcaching is a form of Geocaching - which is a real-world, outdoor treasure-hunting game using GPS-enabled devices. Participants navigate to a specific set of GPS coordinates and then attempt to find the geocache (container) hidden at that location. At an earthcache location there is no actual cache but a set of earth-science themed questions which can be answered (by email to the cache's 'owner') so as to 'log' the cache.

See www.geocaching.com

Strathclyde Geoconservation Group

<https://www.geologyglasgow.org.uk/geoconservation/strathclyde/>

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ISBN 978-1-901514-52-0



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