

## SAFETY & CODE OF CONDUCT

### KNOW THE CODE...

-  Enjoy Scotland's outdoors – responsibly!
-  Everyone has the right to be on most land and water providing that they act responsibly.
-  Your access rights and responsibilities are explained fully in the Scottish Outdoor Access Code.

If you're in the outdoors or managing the outdoors, the key is to:

-  Take responsibility for your own actions.
  -  Respect the interests of other people.
  -  Care for the environment.
-  Read more by visiting [www.outdooraccess-scotland.com](http://www.outdooraccess-scotland.com)
-  A copy of the code is available from: Scottish Natural Heritage on 01738 444177

### ...BEFORE YOU GO.

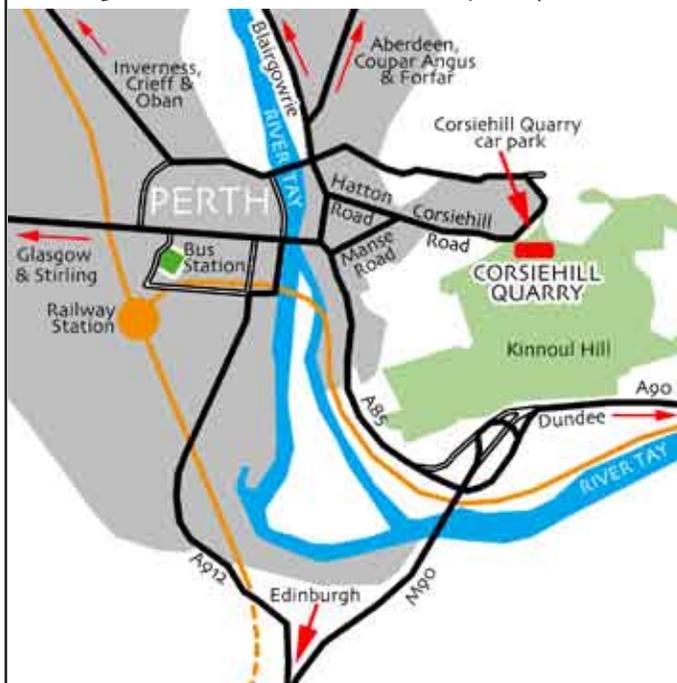
The Corsiehill Quarry forms part of the Kinnoull Hill Site of Special Scientific Interest (SSSI) and is also Perthshire's first Local Geodiversity Site.

In addition to following the Scottish Outdoor Access Code:

-  Please do not hammer the rocks
-  Please do not remove any material without prior permission

## LOCATION AND ACCESS

Located on the east side of the Tay, Corsiehill Quarry is reached by turning off the A85 near to the Queen's Bridge across the Tay. Turn into Manse Road at the Isle of Skye Hotel and then right into Hatton Road which leads onto Corsiehill Road. After half a mile turn right into the Corsiehill Quarry car park.



## CONTACT DETAILS

Tayside Geodiversity  
c/o Perth Museum, George St., Perth, PH1 5LB  
Tel: 01738 632488  
Email: [museum@pkc.gov.uk](mailto:museum@pkc.gov.uk)  
[www.taysidebiodiversity.co.uk/geodiversity](http://www.taysidebiodiversity.co.uk/geodiversity)



# CORSIEHILL QUARRY

**KINNOULL HILL**  
*near Perth*



Kinnoull Hill lies on the eastern outskirts of the City of Perth. Its wooded slopes and tall cliffs overlook the beautiful River Tay and are a well known landmark on the southern approaches to the city. Corsiehill Quarry cuts into a narrow band (dyke) of dolerite rock that runs across the northern flank of the hill. The quarry is now a visitor car park that gives access to the woodland walks on the hill.

## HOW & WHEN WAS IT FORMED?

## WHAT KIND OF ROCK IS IT MADE OF?

## HOW OLD ARE THE ROCK FORMATIONS?

## WHAT IS ITS HISTORY?

### FIND THE ANSWERS IN THIS LEAFLET

Visit this Local Geodiversity Site to see the geological features of the quarry and hill, and explore the woodland park. Take in the landscape from the viewpoints and see Kinnoull Tower folly.

# WHAT TO FIND AT CORSIEHILL QUARRY

## Feature B - Andesite Lava

Here the Lava is seen in the north wall after the dyke material was extracted. Note the uneven pattern of cooling cracks. The rock has a purplish appearance where not weathered. It is fine grained due to rapid cooling. Look closely at it and see mineral crystals glinting in it (plagioclase feldspar, augite, hornblende and biotite mica).

## Feature C - Dyke/Lava contact

The baked contact ① between dyke magma ② and the lava ③ is exposed on the sliver of dyke rock ④ left in place after quarrying.

Note the regular cracking at right angles to cooling direction ②, in places forming polygonal columns, and also the spheroidal weathering of dyke rock (dolerite).

## Feature A - Quarry Entrance

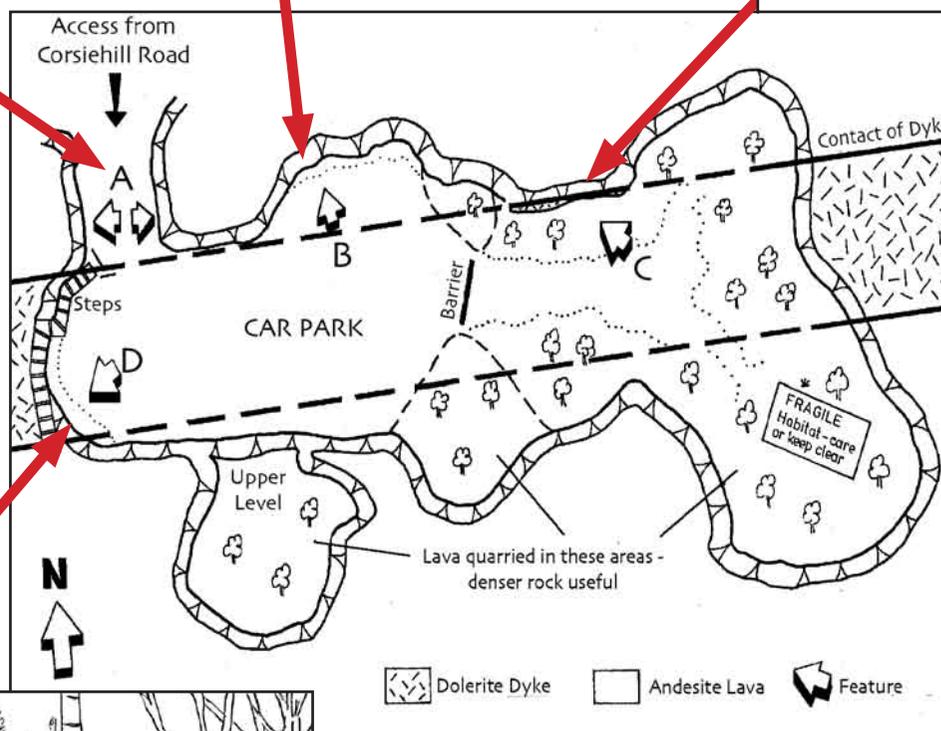
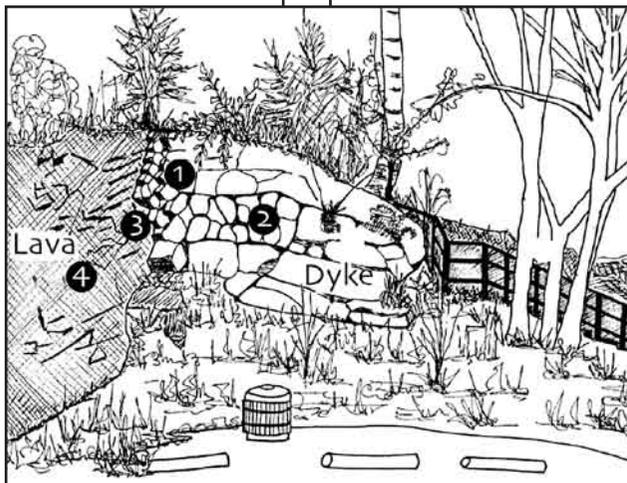
The entrance cuts through andesite lava at right angles to the line of the dyke.

Note the massive appearance of the lava, with coarse layer dipping gently to the north. It looks 'slaggy' in places with vesicles (originally gas bubbles in the liquid lava), some filled with minerals (chlorite, calcite or quartz).

## Feature D - Dyke cross-section

A cross-section of the dyke is seen across the west end of the quarry below the wooden steps. The dyke is 'blockier' ① than the andesite lava and has more regular cooling cracks. See how some polygonal cooling columns have developed at right angles to the lava at the sides of the quarry. The lava solidified and cooled long before the molten magma of the dyke

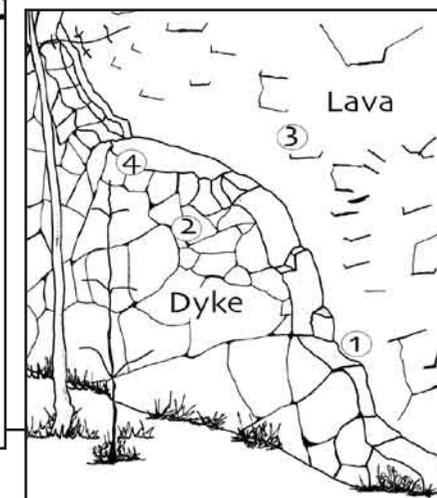
was injected from below. The dyke is composed of a type of rock called quartz dolerite. It is blue/grey in colour on fresh surfaces and has medium grain size due to relatively slow cooling. On close examination, the dyke rock can be seen to be crystalline, composed of the minerals augite, quartz and labradorite (plagioclase feldspar).



Plan of Corsiehill Quarry

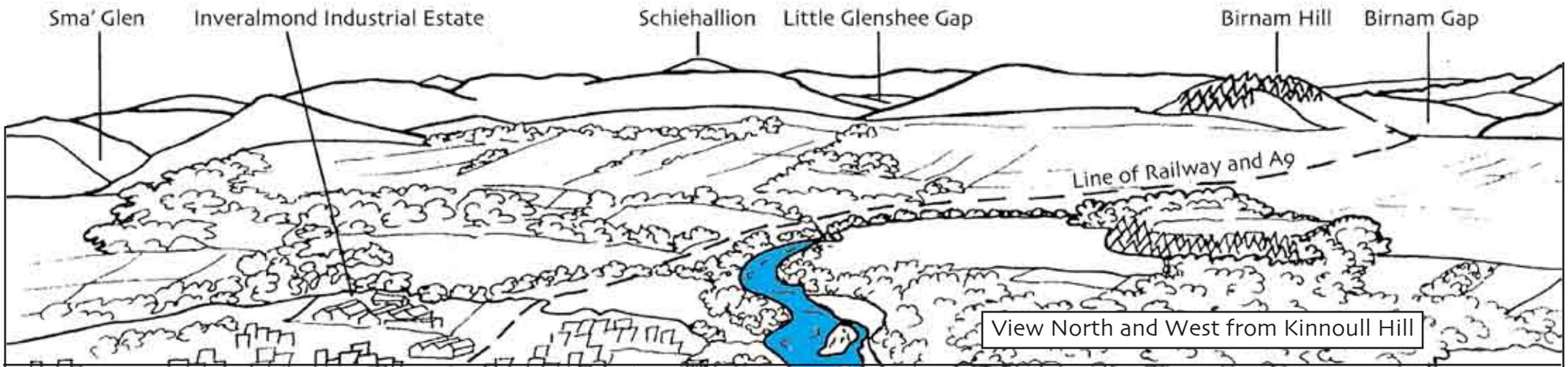
The more massive andesite lava, with irregular cooling cracks, is seen in the main quarry face behind the dyke material.

The dyke, intruded as liquid magma, cuts across the solid layers of the much earlier andesite lava, like a vertical wall.



Note how some of the blocks are rounded in appearance due to spheroidal weathering ②. The weathered rock is iron-stained and crumbly on the outside, usually with a solid core remaining at its centre. The baked contact ③ between dolerite and lava ④ can be clearly seen in the southeast corner where a 'skin' of the dyke material has been left on the quarry wall.





## WHAT IS A LOCAL GEODIVERSITY SITE?

A Local Geodiversity Site can be a landscape, landform or rock feature that has particular value for education & tourism, academic research, the history of science, or for its aesthetic appearance. The sites usually exhibit a diversity of features, such as geology, natural history, historic interest or archaeology. Local Geodiversity groups identify sites, in co-operation with the landowners, and inform the local council of their potential value.

Local geodiversity sites were formerly known as Regionally Important Geological & Geomorphological Sites (RIGS).

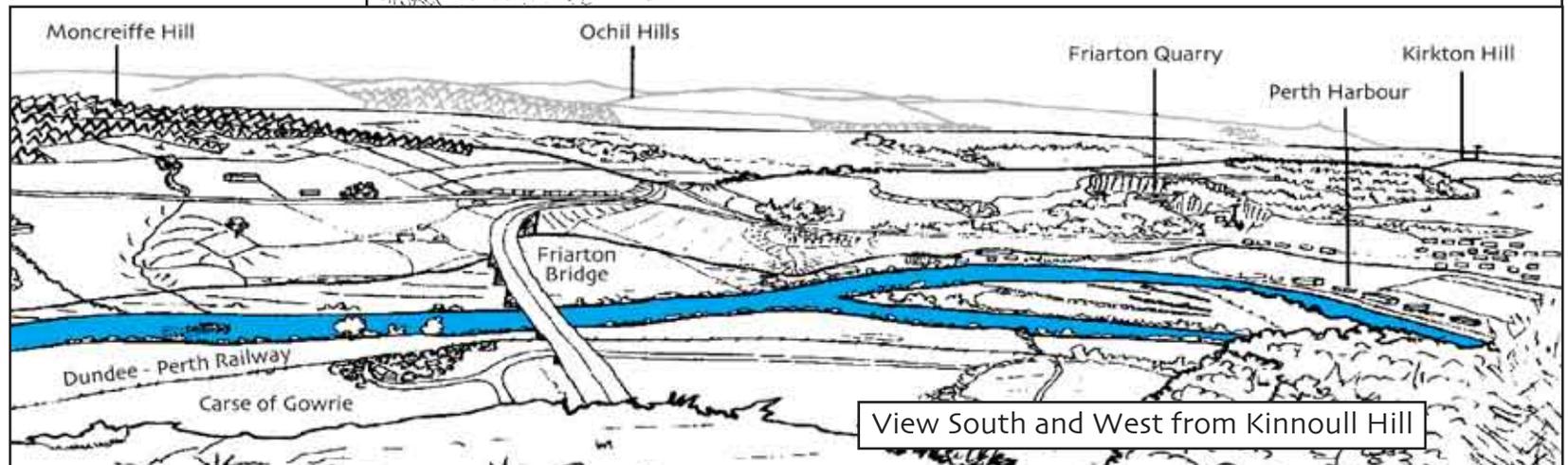
The main aims are:

- 👍 Conservation, and where appropriate, development and interpretation of sites
- 👍 To publicise sites within the local community for the purposes of education, scientific and general interest.
- 👍 To increase awareness in the local community of what exists in the landscape where they live or visit, including information on a website.

## NATURAL HISTORY

Kinnoull Hill Woodland Park encompasses the hills of Kinnoull, Corsiehill, Binn Hill, Deuchny Hill and Barnhill. It is home to mixed woodland - from open deciduous woods, to the closed canopy of plantation conifers, it is a habitat for both red and grey squirrels, roe deer and a wide variety of woodland birds can be seen, including Jay and Green Woodpecker, and in the winter Redwing and Fieldfare.

As well as being a Local Geodiversity Site, the hill is designated a Site of Special Scientific Interest (SSSI) with areas of unique vegetation, including remnants of lowland heath and interesting plants such as the Northern Marsh Orchid.



## GEOLOGY OF CORSIEHILL QUARRY

Kinnoull Hill is formed from a series of volcanic igneous rocks, mainly from flows of andesite lava. These had erupted about 410 million years ago (in the Devonian era) onto a landscape that was probably semi-arid and desert-like. The lava flows may have been part of either a magnificent range of high volcanic cones or set in a more subdued landscape like modern Iceland. There was little vegetation at this time as land plants were only just evolving and starting to colonise damp niches in the landscape.

At this time Scotland was located south of the equator on the southern fringes of the tropics.

Subsequent earth movements, about 380 million years ago, squeezed the local strata into a great arch with its axis running approximately along the line of the present River Tay valley. Much later, around 300 million years ago, the direction of movement changed and the earth's crust in this area was stretched. This created faults along the line of the fold and the centre part of the arch dropped to form a rift valley between what is now Tayside and north Fife. Because the rock strata on Kinnoull Hill are on the north-west side of the arch, they slant (dip) towards the north with a south facing scarp, whilst the corresponding strata in Fife slope towards the south with north facing scarps.

Some 300 million years ago during a period of further igneous activity in the late Carboniferous period, molten magma was forced along cracks and faults in the strata as a suite of dykes and sills throughout the Midland Valley of Scotland.

One of these dykes cuts through the layers of the earlier lava flows which form Kinnoull Hill. It is mainly this dolerite dyke that has been exploited at Corsiehill Quarry for aggregates and setts.

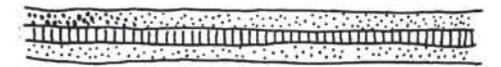
Over the following 300 millions years the land has been uplifted and worn down by wind, rain, ice and frost to its present level. Thousands of feet of rock have been removed by erosion to expose the rocks as we see them today. During the last two million years glaciers have planed and scraped the land surface, leaving the more resistant hard volcanic rocks standing as prominent high ground.

## HISTORY OF THE QUARRY

Corsiehill Quarry was owned by the Earls of Kinnoull. It is clearly marked on the first Ordnance Survey map of 1806. It was rented to various tenants, mainly in the Taylor family. It is thought that the quarry supplied broken stone for road construction. The quarry cut was extended progressively eastwards until it reached a maximum length by 1932 when further extension was no longer possible owing to the nearby houses. The south side of the quarry was worked for a time until quarrying became no longer viable.

## EVOLUTION OF TAY RIFT VALLEY

Underwater, about 390 million Years Ago

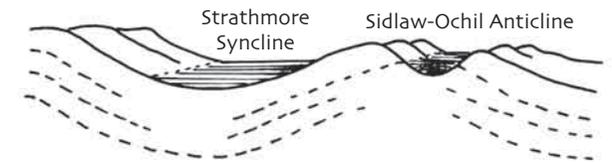


Jawless Fish



Water Scorpion

Folding, about 380 million Years Ago



Faulting, about 300 million Years Ago



**DYKE:** This is a wall-like sheet of igneous rock formed when molten magma was intruded into a crack or fault in the Earth's crust, cutting across the layering in the country rock. It is usually vertical or steeply dipping.

**SILL:** This is horizontal or gently dipping sheet of igneous rock formed when molten magma was injected between layers in the Earth's crust.