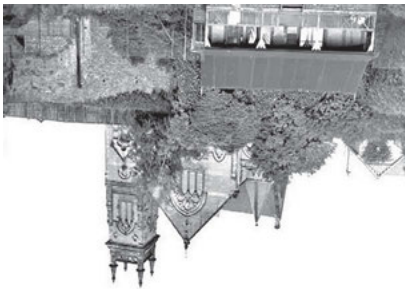




Tracey Dixon

The Law Tunnel southern entrance is clearly seen here. The wooden building on the left stands where the engine house stood.



the East Port.

Burn to the West Port, and of the Dens Burn to near textiles. The first factories followed the courses of the Scouring water was used both for power and for the treatment of During the early industrial development of Dundee, running

In Dundee "Rockwell", "Butterburn", "The Ladywell", "Ninewells" and "Wellgate" are all familiar names but many people do not realise that they refer to natural wells and springs where water comes to the surface. Water flowing through permeable sandstone may be forced to the surface when it encounters an impermeable igneous rock intrusion. Similarly water flowing through glacial till may come to the surface as a spring or well if it comes up against igneous rock or even a less permeable layer of sandstone or mudstone. Water can flow through cracks (known as joints) in igneous rocks but these can also channel water to the surface again forming springs.

Wells and Springs

Tracey Dixon



The War Memorial

The Dundee War Memorial is the most obvious feature on the summit of the Law. It was completed in 1925 and the architect was Thomas

Braddock of Wimbeldon. It has massive bronze doors and stands on a base of light grey Cornwall granite. A beacon is lit on several significant days - 25 September (the Battle of Loos 1914); 24th October (United Nations Day); 11 November (Armistice Day) and on Remembrance Sunday.

The Law Tunnel

In the 1820s, a 300 metre long and 3 metre diameter tunnel was driven through the "tail" of rock and boulder clay on the eastern side of the Law. It carried the Dundee to Newtyle railway. This was one of the earliest powered railways in Scotland. The tunnel was in use until the 1860s when the railway was rerouted. The location of the tunnel is still marked on modern maps, running from Kinghorn Road to just short of Byron Street.

People have been using the Law for thousands of years. Burials dating from the Bronze Age, 3,500 years ago, have been found on the hill. A steatite (soapstone) cup-shaped lamp of Iron Age date has been found. During the Iron Age the summit area was levelled and a defensive parapet erected. Some fragments of reasonably fine Roman Samian ware pottery have been unearthed. One of them appears to be a fragment of an ink-pot.

People and the Law

The conical grassy slopes of Dundee Law are a well known and dramatic landmark, dominating the skyline from many areas of the City of Dundee. It is only 572 feet (174 metres) high but the view from the summit of the Law is uninterrupted in all directions making it a spectacular location on a clear day.

The prominence and shape of the Law is the result of a long history that began with massive river floods and violent volcanic eruptions some 415 million years ago. The story of how the dramatic origins of the Dundee area helped to shape the character of both the Law and the City of Dundee is told in this leaflet.

In October 2000 Dundee Law was designated a Local Geodiversity Site.

DUNDEE LAW A Local Geodiversity Site



DUNDEE LAW A Local Geodiversity Site

Location and Access

It is possible to drive to the top of Dundee Law via Law Road. This can be reached from Hill Street or Kinghorn Road at the east end of the Law. The Law can be easily climbed from any direction, except from the north where there are rocky outcrops. From the roads around the hill, well-maintained paths lead through woods on the lower slopes.



There are parking spaces on the summit of the Law at the end of Law Road. The summit complex includes a balustrade and walkway, illustrated information boards, a direction indicator and the Dundee War Memorial.

About Local Geodiversity Sites (LGS)

Dundee Law is a Local Geodiversity Site. This means it is a place that people can visit to learn more about their local landscape and its geology.

Tayside Geodiversity aims to identify and publicise a network of Local Geodiversity Sites to increase public awareness of the Region's rich geological heritage. It also aims to conserve and develop these sites. Other Local Geodiversity Sites include Balkello Hill in the Sidlaws, Stannergate Shore near Broughty Ferry and Seaton Cliffs at Arbroath.

If you would like to join a small group of dedicated amateurs and professionals to continue this work, then please contact:

Tayside Geodiversity
c/o Perth Museum
78 George Street, Perth, PH1 5LB
T: 01738 632488
E: museum@pkc.gov.uk
www.taysidebiodiversity.co.uk/geodiversity

This leaflet was produced in the memory of Mr John Scobie of Lawside Road.

"Still greatly missed, many thanks for all the happy hours up the Law. Thank you Grandad."

Tayside Geodiversity is affiliated to the Edinburgh Geological Society, a charity registered in Scotland : Charity No. SC008011



A microscopic view of the minerals in the Andesite.

Using the Rocks

1. Quarrying the Law

The igneous intrusion of the Law is made of a rock called Andesite. Andesite is named after the Andes Mountains in South America where it is a very common rock type. The andesite was quarried as a reinforcing stone for building.

The old quarry is on the north side of the Law and can be examined from the road that leads to the top. The molten rock (magma) cooled into crude polygonal columns. There are also vertical joints with some brown iron staining. Rain and frost continues to decompose the outer skin of the rock to expose fresh surfaces which, in their turn, are attacked by weather. This is called spheroidal or "onion-skin" weathering.

2. Paving Stones from Mud

The Lower Devonian mudstones make good paving stones and have been extensively quarried, particularly in Angus. Fossils have been found in these mudstones including primitive fish, crustaceans and plants.

3. Dundee Tenements

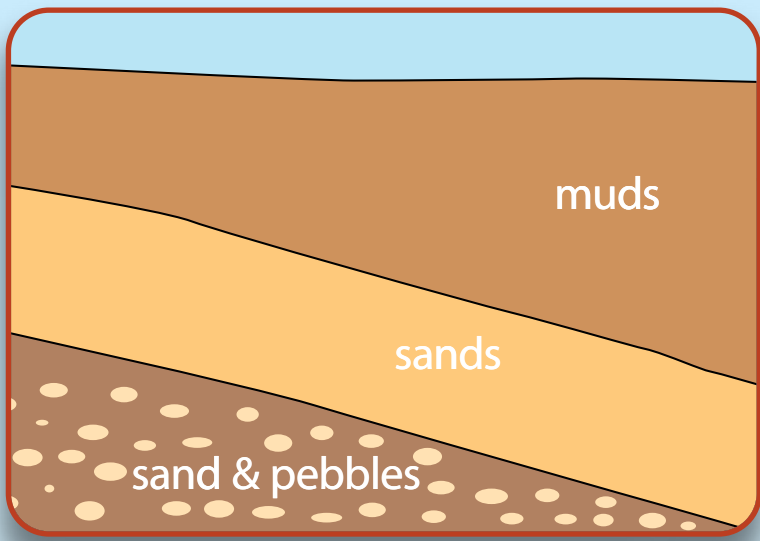
The tenement buildings of Dundee were built to house a rapidly growing work force as the city expanded. They are built from stone obtained from local quarries such as Carmyllie near Carnoustie and Kingoodie at Invergowrie. These provided grey sandstones of variable quality. Some sandstone is very rich in the mineral mica that causes the stone to flake and weather badly.



L. Booth



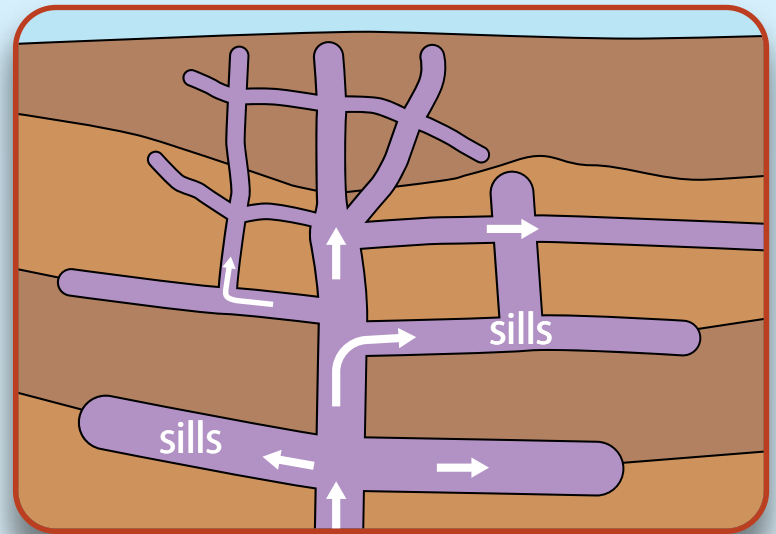
Making of the Law



Lower Devonian

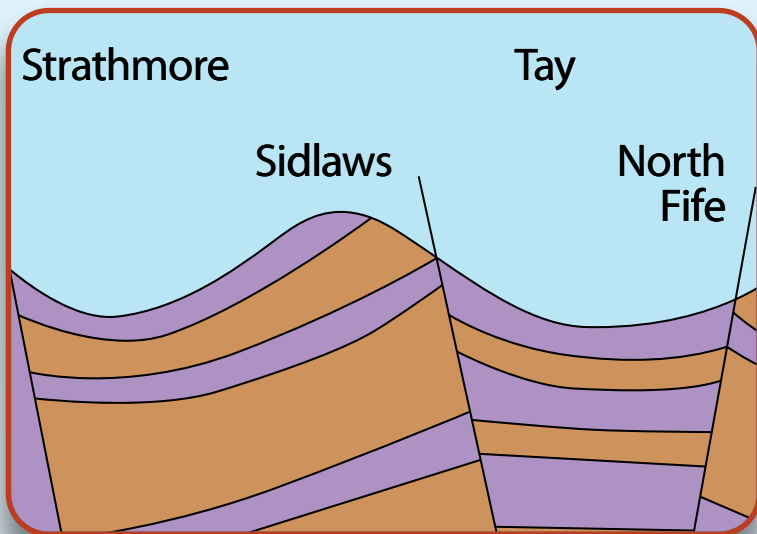
1. Deserts and Floods

About 415 million years ago during the Lower Devonian geological period, the site of Dundee was in the interior of a large continent called Laurentia. The climate was hot and dry with seasonal floods. During the floods, rivers left masses of sand and gravel that now form grey to brown sandstone in the Dundee area. Similarly, muddy sediments, laid down in rivers or in shallow lakes now form mudstones.



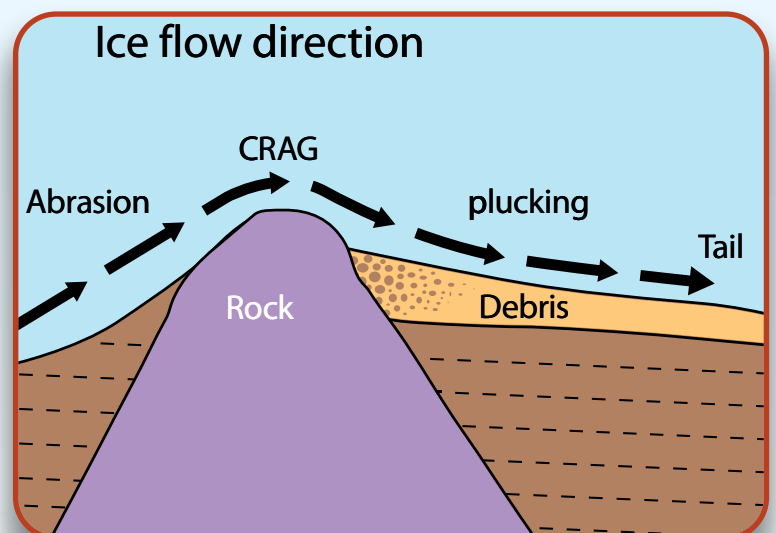
2. Volcanoes

Volcanic activity during the Lower Devonian erupted thick layers of lava onto the river and lake sediments. Some magma (molten rock) did not erupt at the surface but solidified underground. These are known as igneous intrusions. Dundee Law is formed from one of these igneous intrusions. The volcanic activity was associated with the final closure of an ancient ocean called the Iapetus Ocean, which previously separated Scotland and England.



3. Tilting and Erosion

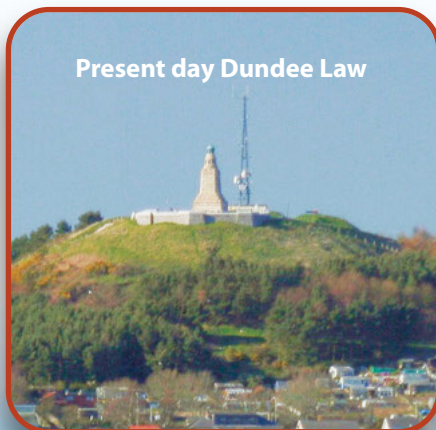
Over the millions of years since the Lower Devonian earth movements have tilted, folded and faulted the layers of rock in the Dundee area and erosion has exposed rocks that were once deeply buried.



Ice Age

4. Ice Age

During the Ice Age which began around 2.6 million years ago, a succession of ice-sheets flowed from the west. The hard lavas and igneous intrusions resisted the erosive power of the ice better than the softer sandstones and mudstones. The ice sheets moved over the Law and the ice was so thick that it covered the top by several hundreds of metres. The ice sheet excavated deep troughs in the sedimentary rocks to the north and south, while the igneous intrusion of the Law remained as a high point. The western slope of the law, exposed to the full force of the ice-flow, is steep, but the eastern side, protected by the crag, is a "tail" made of softer glacial debris known as till.



Present day Dundee Law

5. After the Ice

After the ice sheets finally melted, around 15,000 years ago, soil and plants gradually returned to cover the slopes. The volcanic rock and glacial till of the Law now produces fertile soil, which is good news for those with allotments on the lower slopes.

