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A short walk to one of the most historically important geological sites in the world. The observations that James Hutton made here were crucial in forming our modern understanding of geology and the age of the Earth.

Walk 1

Hutton's Unconformity



Distance: 3 km / 2 miles

Approximate time: 1.5 hours

Start: Newton Road, Lochranza

Terrain: On road, path and rocky, often slippery shore.

Route description: The first marker post is just before the end of the paved road. Follow the path along the shore, looking out for the Geopark marker posts. Return by the same route.

For information on our interpretation centres, guided walks and other events please visit:

www.ArranGeopark.co.uk

Arran Geopark is a project of the Arran Access Trust

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Hutton's Unconformity

This short walk takes you to one of the most historically important geological outcrops in the world. The observations that James Hutton made on Arran were crucial to forming a modern understanding of geology and the age of the Earth.



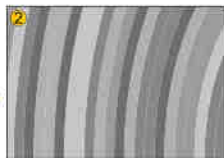
These rocks have been deformed and folded by tectonic processes deep in the Earth

1 Folded Dalradian schists

The Dalradian schists are the oldest rocks on Arran. They were formed as sediments on the ocean floor around 540 million years ago. As tectonic plates collided, they were metamorphosed and deformed by intense heat and pressure deep within the Earth.



540 million years ago, sediment was deposited in an ocean and compacted to form sedimentary rock.



Collision of tectonic plates caused immense heat and pressure, which folded and tilted these rocks.



As the landscape eroded away, these rocks were brought to the surface.



350 million years ago, this landscape was covered by a shallow sea. More layers of sedimentary rock formed on top.



Once again, these rocks were tilted and uplifted to the Earth's surface.



Erosion at the surface has shaped the outcrop into what it looks like today!

Unconformity

On the shore here, you can see how much they have been folded. Imagine the pressures involved in deforming these solid rocks like toffee!

2 Carboniferous sandstones

So far, the rocks you have been walking over have been the grey Dalradian schists. At this point they are very steep – almost vertical. Ahead of you, you can see layers of brown Carboniferous sandstone, which are sloping gently towards the sea. It is this difference in 'dip direction' that shows an unconformity is nearby.

3 Hutton's Unconformity

James Hutton was an eighteenth century Scottish geologist who visited Lochranza in 1787. At that time it was thought that the Earth was around 6,000 years old. He noticed that the gently-sloping sandstones lay directly on top of the steeply-dipping schists. It is this contact between the two that is the famous 'unconformity'. He reasoned that such a structure must have taken millions of years to form.

From his observations on Arran, Hutton concluded that the Earth must be much older than previously thought, and introduced the concept of 'deep time' to the scientific community.



Hutton's Unconformity is the junction where Dalradian schist meet Carboniferous sandstone

