

WALKS around PORTOBELLO

Description: A stroll along Portobello Promenade and a scramble around a rocky coastline; note that Joppa Rocks are only accessible when the tide is far enough out. Hugh Miller was one of the founding fathers of modern geology, and Joppa Rocks were a very fruitful subject for his studies. He lived for two years in Portobello.

Length: One mile each way from Town Hall to Joppa Rocks.

Time: as long as you can spare!

Terrain: standard town footways to the Rocks, then difficult scrambling; sturdy, waterproof footwear advised.



Joppa Rocks is a 'RIGS' – a 'Regionally Important Geological Site'. The rocks were laid down during the Carboniferous Period over 300 million years ago, long before dinosaurs roamed the Earth, and about 15 million years after the volcanic activity which resulted in Arthur's Seat and the Castle Rock. Exhaustive study and analysis have revealed a cycle of land, sea and freshwater lagoon over the area – which at the time was close to the Equator and part of a land mass which included modern Europe and North America.



With your back to the Town Hall, turn right, walk to the traffic lights, cross over and walk along Bath Street until you reach the Promenade; turn right.



Walk right along the Promenade to the end (where there are toilets); keep going straight on.



At the end of the Promenade turn left to go down on to the beach. The rocks begin immediately below the large building on your right (a pumping station).

Joppa Rocks were laid down in layers which were subsequently tipped over by about 45° in a massive upheaval, and the ends of the layers eroded away. As you walk eastwards towards Musselburgh you are effectively walking upwards through some 20 million years of history.



These rocks have not only been tilted way over, but have been dislocated along a fault line

During the Carboniferous Period during which these rocks were formed, Scotland was near the Equator and plants and animals thrived. For some of the time the area was covered by a shallow tropical sea – indicated by the presence of sea-living fossils – and layers of limestone sediment were created by the accumulation of the remains of marine organisms such as coral and foraminifera. As sediment grew it pushed back the sea to leave freshwater lagoons, which created new layers of sandstone and mudstone, and a different kind of fossil. Eventually the water receded for long enough to allow lycopod forests to grow (rather like today’s mangrove swamps); these decayed



This sandstone bed stands out in clear relief, the softer underlying mudstone having been eroded away

into layers of peat which eventually turned into rich deposits of coal. After a while the sea would break in again, and the whole cycle would repeat, leaving another set of layers in the Joppa Rocks.

Joppa Rocks forms one end of the ‘Midlothian Syncline’ – a gigantic bowl-shaped feature, many miles across – which was formed when the land was squeezed by tectonic forces as land masses jostled into one another. There is an information board which describes the local geology in detail, in the grassy area above the rocks, immediately to the West of the little cluster of buildings that includes the Rockville Inn.



This is one of the many layers of coal in Joppa Rocks. The thicker seams have been dug away; the thinner ones are usually hidden under silt and sand.

This unique formation indicates a dramatic but short-lived event such as an earthquake. Here movement occurred before the sediment had solidified – in this case sand sinking into mud.



The information board at the Eastfield bus terminus indicates the other great attraction of Joppa Rocks – the life to be found in its pools when the tide has receded. To improve your chances of catching a glimpse of the wide variety of creatures which make their living here, try dropping some small bits of food – especially seafood – into a likely-looking pool.

The Lothian & Borders RIGS Groups has produced an excellent leaflet entitled *Joppa Shore* which describes the geology and history of this fascinating area in great detail; copies are available from Portobello Library. Further information is available at <http://www.EdinburghGeolSoc.org/> or by emailing labrigs@bgs.ac.uk

