

Sill edges climbers closer to geological knowledge

Scaling the heights of your local geodiversity: The Edinburgh International Climbing Arena (EICA)

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Situated 2 km west of Edinburgh City, Ratho Quarry, (2.2 hectares) has had a long and varied history. Originally, quarried extensively as a source of building and roadstone it is now the UK's premier indoor climbing and activities centre. As such it is unique and brings thousands of people a year into contact with geology many of whom are blissfully unaware of the history preserved in its rocky walls. The British Geological Survey and the Lothian and Borders RIGS Group are now actively investigating the potential to raise public geological awareness in this magnificent playground.

The early Ordnance Survey map of 1853 (primary survey) shows the quarry to be in operation with a footprint of about one third of its current size, the area now occupied by the centre buildings. By 1895 it had expanded to the present outline. With its proximity to the Union Canal, Ratho and other similar quarries along the outcrop supplied stone to the housing and road building markets throughout the Central Belt of Scotland. By 1926, Ratho Quarry closed and fell into disuse to become in more recent times the preserve of local Edinburgh rock climbers. With the rock described as 'loose and scary', climbing routes typically had names like, *Shear Fear, This Sceptic Hell, Gruel Britannia and Grapes of Wrath!*

The inspiration to turn the western part of the old Ratho Quarry into a climbing centre was the brainchild of Duncan McCallum who with two other leading Scottish climbers purchased it as the Ratho Quarry Company Ltd in 1995. The challenge set in 1996 to Moidart Architects and Apriori Designs was to change the green and overgrown site into a world class climbing venue. The eastern part of the quarry has been landscaped and is essentially untouched with public right of access. In the main arena, a mix of artificial and natural walls some 30 m high, are framed with a canvas roof that boasts a scary aerial assault course. It includes an International Competition wall that hosted the 2005 World Youth Climbing Championship with competitors from around the world. Other facilities included a conference centre, gym and Olympic class judo hall. The facility first opened in 2004 but then went into liquidation. It recently re-opened after major alterations and is now operated by Edinburgh Leisure on behalf of the City of Edinburgh Council (<http://www.adventurescotland.com>).

The outcrops of rock here and in the adjacent M8 Motorway cutting to the north are of well-jointed quartz-dolerite (whinstone) representing part of a very extensive intrusive igneous sheet (covering 1600 km²) known as the Midland Valley Sill. The sill intrudes strata from Upper Carboniferous to top Devonian in age and is related to the Whin Sill of Northumbria; both possibly linked to lava eruption in the Oslo Fjord area. What makes this part of the sill interesting, apart from the climbing, is the presence of late stage segregation veins ('micro-sills') dipping westwards at about 15 degrees. These consist of pale coloured microdioritic rock (aplite) up to c. 40 cm thick. These veins have recently yielded a Uranium/Lead radiometric date of c. 307.6 +/- 4.8 million years for the date of intrusion of the originally

molten rock, indicating that the sill post-dates the main episode of folding and faulting (Variscan) of the Carboniferous strata in the Midland Valley of Scotland. Interestingly, the occurrence of the greenish grey mineral Pectolite (a fibrous pyroxene) in amygdales (former gas cavities) was described by the famous Scottish Mineralogist, Matthew Forster Heddle (1826-1897) from Ratho. His book 'The Mineralogy of Scotland' was published posthumously (1901) and his collections are deposited in the National Museums of Scotland.

Both authors climb at EICA, and are keen to see the geology of the site interpreted for all who visit for whatever purpose. Climbers will understand why 'loose and scary' rock occurs in parts of the quarry because of the joints and modern weathering processes. Information boards, leaflets, web pages and rock-naming can provide the public with a greater awareness of the links between the local landscape and geology and nationally how Scotland, blessed with an excess of these riches, has influenced the style and development of climbing. Finally, the Lothian and Borders RIGS Group are discussing with the City Council to incorporate various Local Geodiversity Sites including the EICA into the revised Rural West Edinburgh Local Plan.

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