

## Day trip to Carstairs Kames

Saturday 6<sup>th</sup> July 2013.

Leader John Gordon

Participants 25

Reporter: Margaret Greene

Carstairs Kames – one of the most famous landforms in Scotland

The following is from the SNH citation of the site

“ Carstairs Kames Site of Special Scientific Interest (SSSI) lies less than 0.5km north of Carstairs and illustrates one of the most striking and important groups of glacial landforms in Britain. Extending over a distance of 7km, the site comprises a series of braided sand and gravel ridges (eskers) and mounds (kames) with intervening peat-filled hollows (kettle holes). These features, which reach an exceptional height of 25 metres above the surrounding topography, are the product of glacial meltwater charged with sediment draining out from the front of the last ice sheet as it retreated approximately 15,000 years ago. Carstairs Kames is a historically important site that has been a focus of scientific study for over 160 years, and it remains a key locality today for interpreting the processes and patterns of landscape development associated with ice sheet melting “.

On a warm and sunny morning we set off from the Gregory building, and met up with three others at the Ryeflat Peat Extraction site near Carstairs. From there we travelled a short distance to the south-eastern end of the ridge. Scotland experienced multiple episodes of glaciation especially in the past 1.7 million years – the landforms at Carstairs Kames relate to the last major ice sheet. The main phase of ice initially came from the north pushing south and eastward but following this the ice sheet came from the Southern Uplands pushing northwards – therefore the latest ice to arrive in the area was from the south. There is a long history of investigation of the site which is a series of anastomosing ridges with kettle holes in between the ridges. They are the remnants of a huge suite of deposits stretching from Lanark almost to Edinburgh left by the westward retreat of the last ice sheet. The composition of the ridges is variable, being mostly sand and gravel. They are not strictly kames as this refers to features on the edges of a glacier. Interpretation of the ridges has varied over the years from moraines to eskers (sub ice flows) to a recent more complex interpretation of a mix of glacial and subglacial rivers leading to the mix of coarse and fine sediments. Dead ice would result in forced river channels which would then appear as ridges. Despite the site being classified as a SSSI in the 60's work still went ahead on quarrying on the south side which is now a featureless flat area.

John pointed out that the fact that gorse has been cleared off the kames and animals allowed to graze there, is an example of land management playing its part in geoconservation, without which the outlines of the land forms would be obscured. Clasts of ‘haggis’ rock – a chert and quart micro conglomerate of the lower Ordovician could be seen in a small exposed section on the kames – this being evidence of the direction of ice flow from the Southern Uplands.

Lunch was eaten at Lanark Loch and after that it was decided to walk to New Lanark. Leaving Lanark Loch we walked up the road with the cemetery on our right then into a small side road to our left which leads to Bonnington Power Station. In the distance we could see the present workings at Hyndford Quarry. Cemex, who run the quarry have applied to extend it and this is the subject of a strong local protest. In extending the quarry Cemex have agreed to restore the original glacial features to the landscape and to carry out recording of sections for Geoconservation purposes. Andrew Highton, in the party, explained that he is involved in giving advice on restoring the features. One of the focuses of interest will be the investigation of a probable former channel of the river Clyde. Evidence of this channel had previously been uncovered during the building of the nearby power station.

The land on our right opened out to a large field with kettle holes, kames and eskers – a very good example of post glacial landforms.



Looking along the Esker Ridge



A Kettle hole

This hummocky surface marks a marginal ice position with outwash to the east where the flat land used for Lanark racecourse is to be found. Some of us descended into an abandoned section of the quarry on the left which had been worked out 10 years ago. The quarries here have a very high proportion of sand (69%) and the sides of the abandoned quarry show many crossbedded and ripple structures as well as differentiate layers of mud from glacial lake beds and more sandy lacustrine sediments – the latter interbedded with lignite – some fine particles and some coarser small pebbles – this is clear indication of the ice picking up Carboniferous sediments as it passed over these.

We then made our way towards New Lanark, passing the Bonnington Pavilion which the Victorians built and lined with mirrors in order to reflect the falls at Corra Linn. The highest of the falls here is Bonnington Linn which we did not ascend to but came down to Corra Linn via the pathway managed by Scottish Wildlife Trust. When the Clyde was diverted at the end of the last ice age it found this new route and the volume of water produced by glacial outflow soon scoured out this gorge through layers of Old Red Sandstone. The new channel is steeper and exploited joints in the bedrock – there are a number of right hand bends in the river reflecting joints in the bedrock with layers of harder more resistant sandstone interbedded with weaker layers of shale. Today there are four major falls here in the Clyde.



The falls of Clyde

John explained that this was one of the first sites of geotourism in the late 18<sup>th</sup> century when the Falls of Clyde became one of the iconic tourist destinations alongside Loch Lomond and Staffa. It was described in early tour guides and journals and visited by such as Wordsworth and Sir Walter Scott and painted by many famous artists including Turner. It was popular all through Victorian times and when the railways came along day trippers from Glasgow could visit the site.

#### Falls of Clyde

Unfortunately the building of Bonnington Power Station in the 1920's has reduced the volume of water flowing over the falls. The mill at New Lanark was developed due to the water power from the third set of falls and is now a World Heritage Site.

The visit was finished here with a welcome ice cream to cool off after hot day. Chris Henderson gave the vote of thanks to John expressing all of our thanks for such a