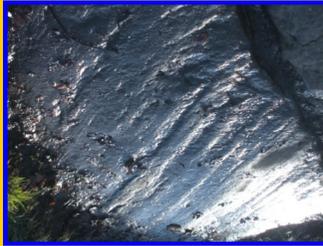


## THE ICE AGE

1 Starting at the tea room next to the boating pond, follow the path round to the left. You will come to some large flattish rocks. These rocks are made of sandstone and if you look closely at the surface you can see long straight scratches. These scratches were made by glacier ice dragging rock fragments over the surface of the sandstone. Run your fingers over them to feel how smooth the rock has been worn. The glacier was part of a huge ice-sheet moving south from the Highlands.



2 Follow the path away from the pond and you will see a large boulder on the grass to your right, between the path and the railway line. Look closely at the boulder and you will see it is a mixture of large and small rock fragments. This type of rock is called a conglomerate and nothing like this can be seen in the surrounding area. This boulder was probably carried here by the ice sheet and dropped when the ice melted; boulders like these are called erratics.



## RIVERS, SWAMPS AND SHALLOW SEAS

3 Return to the pond, and follow the path round. Take the path to the waterfall and pass it to the large flat lying "Picnic Rocks" beyond. These rocks, along with the waterfall and the steps down to the burn below, are all parts of one thick layer of sandstone called the Giffnock Sandstone.

This rock was one of the most important buildings stones in the Glasgow area during 19<sup>th</sup> century with huge quarries near Orchard Park Road, and at Braidbar. These are now mostly filled in, so this is the best place to see the Giffnock Sandstone. Many of the houses in the area are built of this stone as well as some buildings in the city centre.



The sandstone was laid down as sand in wide river channels. At the waterfall, the layer, or bed, of sandstone may be up to 15 metres thick, but at the Picnic Rocks the sandstone bed seems much thinner – this may have been near the edge of the channel.

4 The steps at the waterfall are mostly carved directly from the massive sandstone. At the bottom of the steps, you can see the upper part of the Giffnock sandstone on the far side of the burn. These upper parts are finely layered which made it useless for quarrying. This fine layering indicates a change in the environment – the flow in the river was reduced, and these layered rocks were deposited in quieter swampy waters, which were sometimes briefly flooded by the sea.

5 Downstream from the first bridge at the base of the steps, you can see that the layers or beds of rock in the river are quite thin and tilted. There are layers of sand, silt, mud, and even coal. These were deposited in shallow swampy areas, which sometimes dried out, and were sometimes crossed by small



rivers. As you walk downstream you are walking over younger and younger rock layers.

6 Further downstream just above the second bridge down from the steps, a little side stream comes in. This marks the position of a thin layer of limestone – formed in open sea water, and indicating a major change in conditions. For about 150m downstream from here, a very important series of rock layers (called the Orchard Beds) are exposed in and around the burn, containing very interesting marine fossils. Unfortunately, the rocks are a bit hard to see at the moment, due to vegetation and other debris falling into the gorge.

7 Above the Orchard Beds are thinly-bedded siltstones and sandstones, and finally a thick sandstone layer, which forms the prominent overhanging cliff, on the bank opposite the path between the second and third bridges down from the waterfall steps. These sandier rocks were formed as rivers brought increasing amounts of sand into the sea.



## SPECIAL DESIGNATION

Despite the fact that soil is covering most of the exposures, Rouken Glen is the best place in Scotland to see the Orchard Beds. Most of the other exposures have been lost by filling in of quarries, or development, and because of this, the part of Rouken Glen Park on either side of the Auldhouse Burn is designated a Site of Special Scientific Interest (SSSI)



*The rocks* which you can see in Rouken Glen were mostly formed during the Carboniferous geological period about 325 million years ago. At this time Scotland was close to the equator with a humid tropical climate. This area was part of a huge coastal plain on the edge of a shallow sea – a bit like some bits of Borneo today. The landscape was changeable. Sometimes the sea flooded the land and the shallow tropical seas allowed corals to grow and marine plants and animals to thrive. Sometimes there were large river deltas and muddy swamps. The thick sandstones represent river channels. The thin-bedded sandstones were formed in wet swamps, or in the shallow tidal seas. Coals represent forests growing in drier swamps and mudstone represents quiet water: either in swamps, or offshore. Limestones represent deeper marine conditions. The Rouken Glen gorge is one of the best remaining places where these rocks can be seen.

More recently, about 20-15 thousand years ago Scotland was covered by a large ice sheet. The ice above where you are now standing would be over 1 kilometre thick. As it moved it dragged along boulders and rock fragments. Today when you look round the park most of the rocks formed during the Carboniferous are hidden by deposits of mud and rock left behind when the ice melted.

### What Are RIGS ?

RIGS are **Regionally Important Geological and Geomorphological Sites** which have been notified to the local planning authority.

A RIGS is a landscape, landform or rock feature identified by a local voluntary group as having a particular value for education and tourism.

RIGS are currently the most important sites for geology and geomorphology outside statutorily protected land such as Sites of Special Scientific Interest (SSSI). The designation of RIGS is one way of recognising and protecting important Earth Science and landscape features for future generations to enjoy.

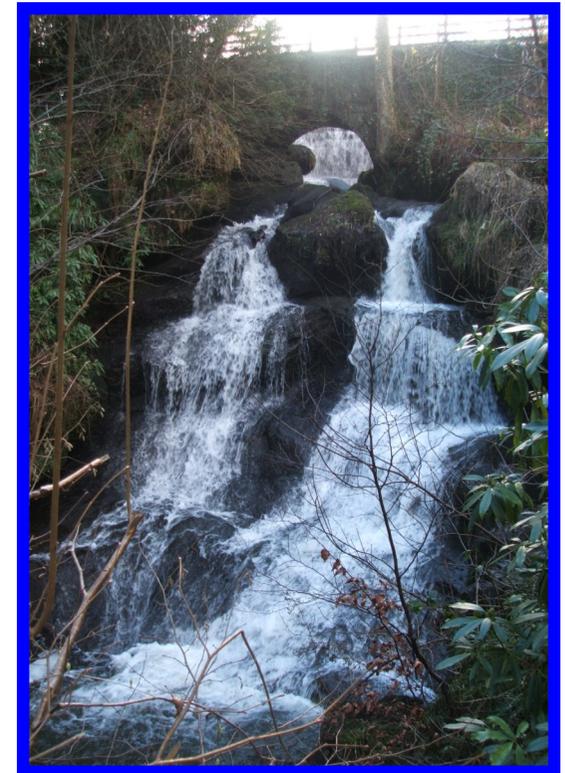
**The Strathclyde RIGS Group** is part of the Geological Society of Glasgow. If you would like to join a small group of dedicated amateurs and professionals to continue this work, then please contact:

Honorary Secretary, The Geological Society of Glasgow, Department of Geographical and Earth Sciences, Gregory Building, University of Glasgow, Lilybank Gardens, Glasgow, G12 8QQ

[www.geologyglasgow.org.uk](http://www.geologyglasgow.org.uk)



# The Geology of ROUKEN GLEN



Exploring a land of  
tropical deltas  
and ice flows...