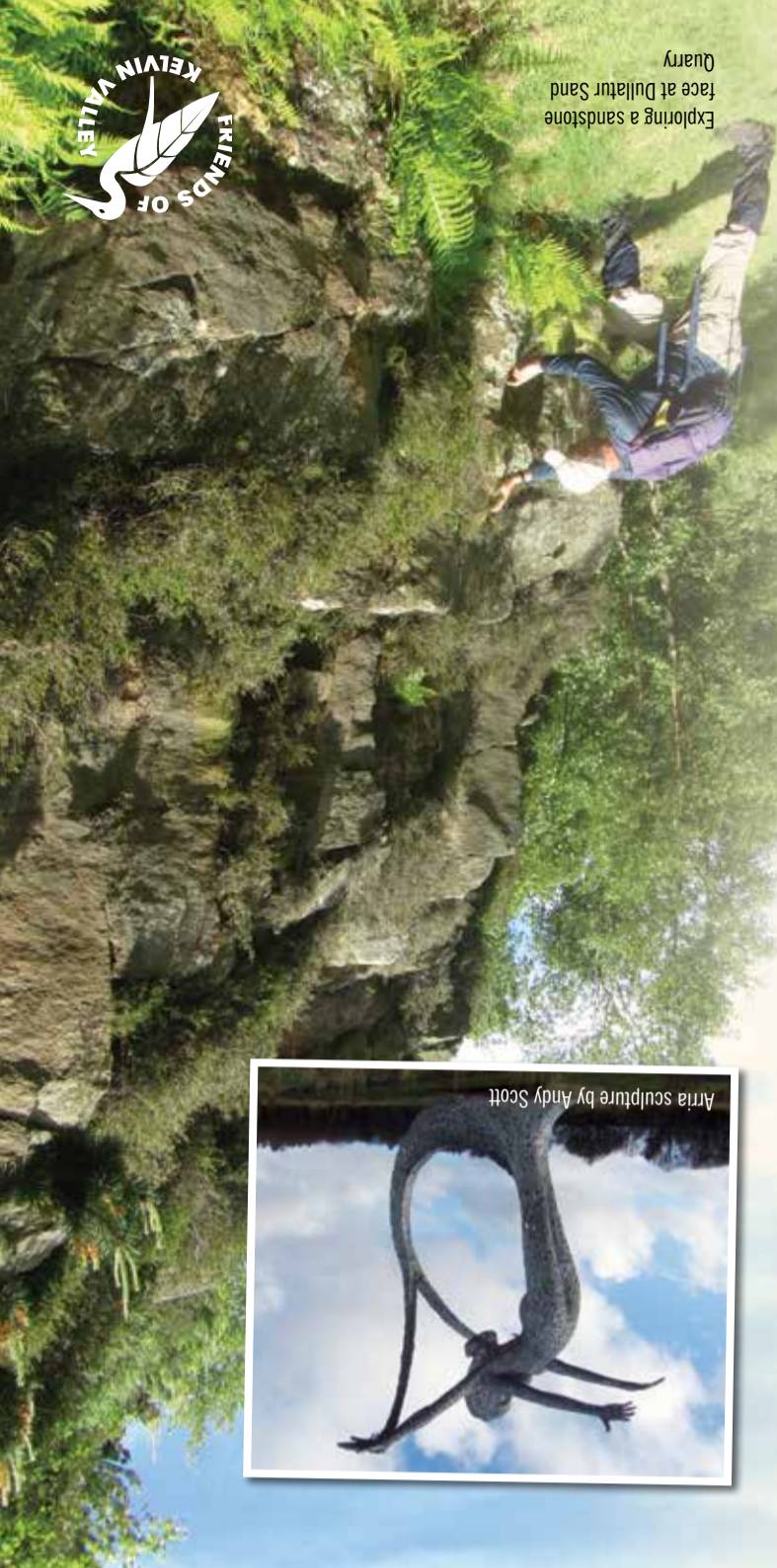




Exploring a sandstone face at Dullatur Sand Quarry



Arria presides over the watershed between the Atlantic and watersheds has been created by an immensely long history of geological events. Now see overleaf to explore for yourself.

Arria

We have thoroughly exploited all the resources created by these geological events. Mining and quarrying extracted sandstone for building, coal for heating, mudstone for bricks, fireclay for pipes, limestone for fertiliser, hard rock for roadstone and gravel for concrete. The last deep mine, Bedlay near Mollinsburn, closed in 1981 but there are now plans to extract coal bed methane.

Mining

As the Ice Age came to an end the ice retreated northwards, damming up a great expanse of freezing cold water, about twice as big as Loch Lomond. About 15,000 years ago this giant loch lapped against Cumbernauld, and then broke through the Lenziemill Gap, sawing down through the rocks to form the deeply incised Vailt Glen. As the ice retreated further, the water broke through the Arria Gap, creating the deep Cumbernauld Glen. So Cumbernauld once stood on the banks of a mighty glacial River Clyde.

Ferocious Floods

In the last one million years the Ice Age saw ice caps about one kilometre thick cover the area. These reshaped the land, rounding off the hills, widening and deepening valleys such as the Kelvin, the Arria (M80) gap and the Lenziemill (railway) gap. The ice plastered the hills with stony clay, often containing stones brought all the way from the Highlands, and created streamlined hillocks called drumlins.

Ice

Around 300 million years ago, our area cracked wide open. Some of the cracks filled with hot volcanic rock from deep below, forming dykes. The Mollinsburn Dyke stretches all the way from Glasgow to West Lothian. Some of the hot rocks were injected sideways to form hard sills, like the one quarried at Craighaber. Many giant cracks saw continued movement, like the Campsie Fault which forms the south face of the Kilsyth Hills and has a total vertical downthrow of over a kilometre to the south. Erosion must then have set to work over millions of years, gradually stripping off kilometres of material.

Earthquakes

Our area was swamped by fiery eruptions of hot lava flows around 340 million years ago. Today, these are buried a kilometre beneath our feet, but to see them just look north to the Kilsyth Hills, which are entirely made of volcanic rocks. Eruptions took place over ten million years, building up around one kilometre of hard lavas.

Tropical Paradise

The next 10 million years were much quieter. A large coastal delta covered the area, sometimes growing a lush tropical rainforest. Shifting delta rivers covered the forests with sand and mud. Sometimes the sea would encroach, bringing shells and limy mud. This all happened over and over again, covering the lavas in kilometres of sediment and creating the coals and fireclays, sandstones, mudstones and limestones that underlie Cumbernauld today.

Volcanoes

Further back to when we were a land of tropical forests and lagoons. And even further back to when a massive ice cap covered Cumbernauld. Back TAKE A journey with us through deep time. Back

The Story So Far...

Cumbernauld Rocks!

VIEWPOINT

Enjoying our local heritage

Geoconservation is a vital element of our living landscapes. Our rocks and sub-soils (e.g. sand & gravel) underpin our biodiversity and provide many of our resources.

The Scottish Geodiversity Forum is the national body for local groups who encourage the appreciation, conservation and promotion of local geological sites for education and public benefit.

Strathclyde Geoconservation (your local group) has signed the Scottish Geodiversity Charter. Cumbernauld has a fascinating geological story to tell as this leaflet shows.

I hope Local Geodiversity Sites will be recognised in North Lanarkshire Council's new Development Plan, as we need to conserve, as far as possible, our natural heritage for future generations.

Mike Browne,
Vice Chair Scottish Geodiversity Forum



FACTFILE

Getting here Cumbernauld straddles the M80 between Glasgow and Stirling. It is well served with bus and rail services to other towns and also has internal bus routes.

Getting around Most of our 'top ten' sites are public access sites with path systems. Scottish Wildlife Trust has produced a series of leaflets with maps showing paths for their Cumbernauld Greenspaces sites. North Lanarkshire Council provide a leaflet 'Paths to and around Palacerigg Country Park' and can advise on other sites. Golf Clubs can be asked about their path systems. 'Walk Cumbernauld' leaflet by NLC shows eight Round Town Walks. Please follow the Scottish Outdoor Access Code, Countryside Code and the Scottish Fossil Code.

Who does what? Cumbernauld Living Landscape (www.scottishwildlifetrust.org.uk/cumbernauld-living-landscape) is led by Scottish Wildlife Trust, North Lanarkshire Council and FCS. Its development is supported by the Central Scotland Green Network. **Scottish Wildlife Trust** runs the Cumbernauld Glen, Forest Woods, Luggie Water and Seafar (Northside) Woods Reserves tel: 01236-781270.

North Lanarkshire Council run Palacerigg Country Park, Ravenswood Nature Reserve, Broadwood Loch, Mosswater and Cumbernauld Community Park tel: 01236-780636.

Community Organisations such as Cumbernauld Environmental Society, Friends of Cumbernauld House Park, Friends of Cumbernauld Glen and Friends of Cumbernauld Community Park support their areas and organize activities.

British Geological Survey publishes a geological map and memoir Airdrie Sheet 31(w) which covers the area. Glasgow Geological Society host volunteer body Strathclyde Geoconservation who promote local geo-conservation sites www.geologyglasgow.org.uk

Acknowledgments Thanks to Central Scotland Green Network, NHS Lanarkshire and North Lanarkshire Council for funding. Thanks also to Cumbernauld Living Landscapes, Scottish Wildlife Trust and local Community Organisations for support.



GET INVOLVED

Cumbernauld Rocks!

This project is being carried out by Friends of Kelvin Valley as part of Cumbernauld Living Landscapes, overseen by Scottish Wildlife Trust and with the help of Scottish Geodiversity Forum.

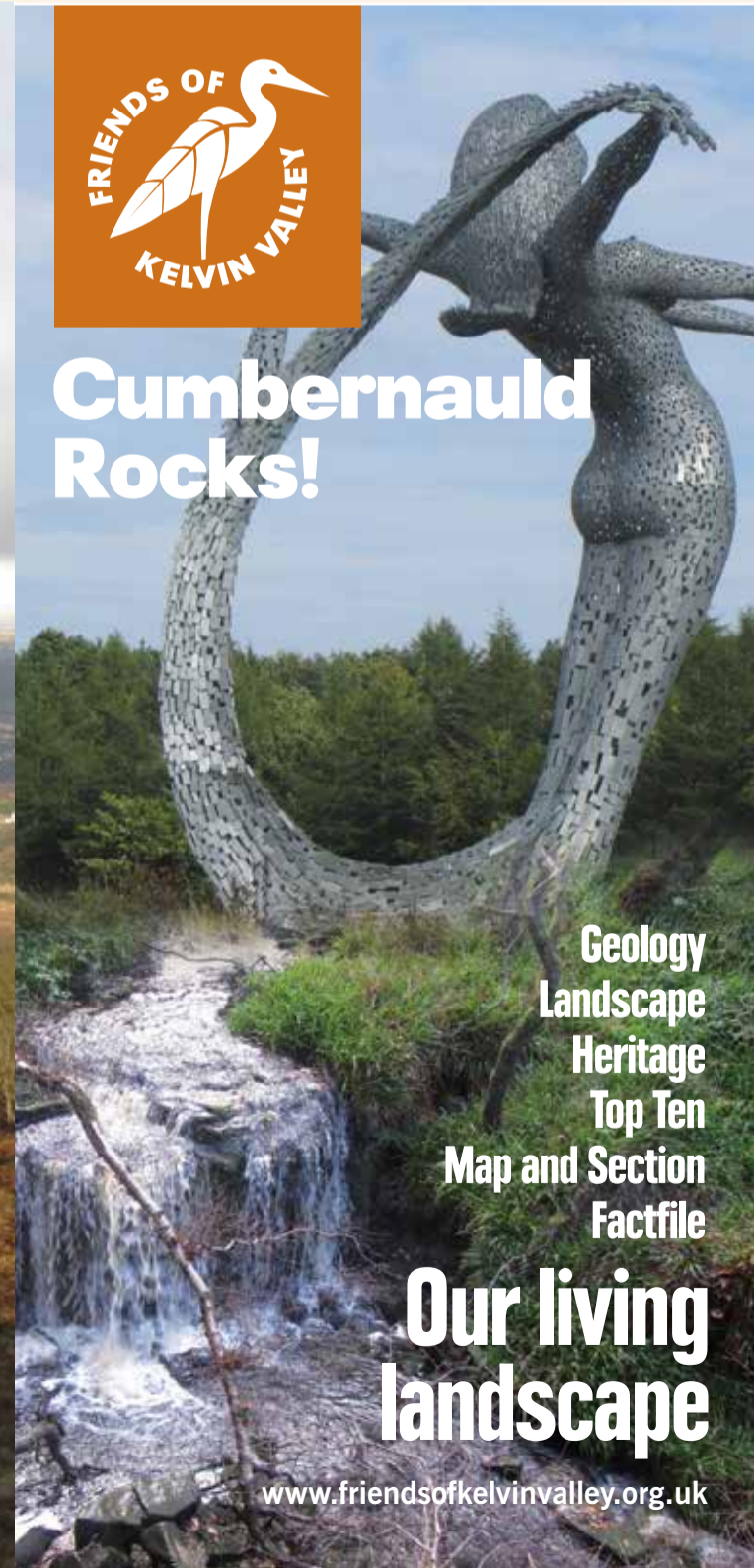
Cumbernauld Rocks! is a natural follow on to our Kelvin Valley Rocks! Project. We hope this leaflet will provide an extra geological flavour to local walks. We are very happy to give talks, do rock shows and lead geo-walks for local groups. We have already done several of these whilst compiling this leaflet and grateful to local groups for their interest.

The Friends campaign for the Kelvin Valley which lies right along Cumbernauld's northern boundary.

We lobby the powers that be, publish newsletters, leaflets and guidebooks (check local libraries for copies) and erect path signs. Check our website for further information and contact details.



Cumbernauld Rocks!

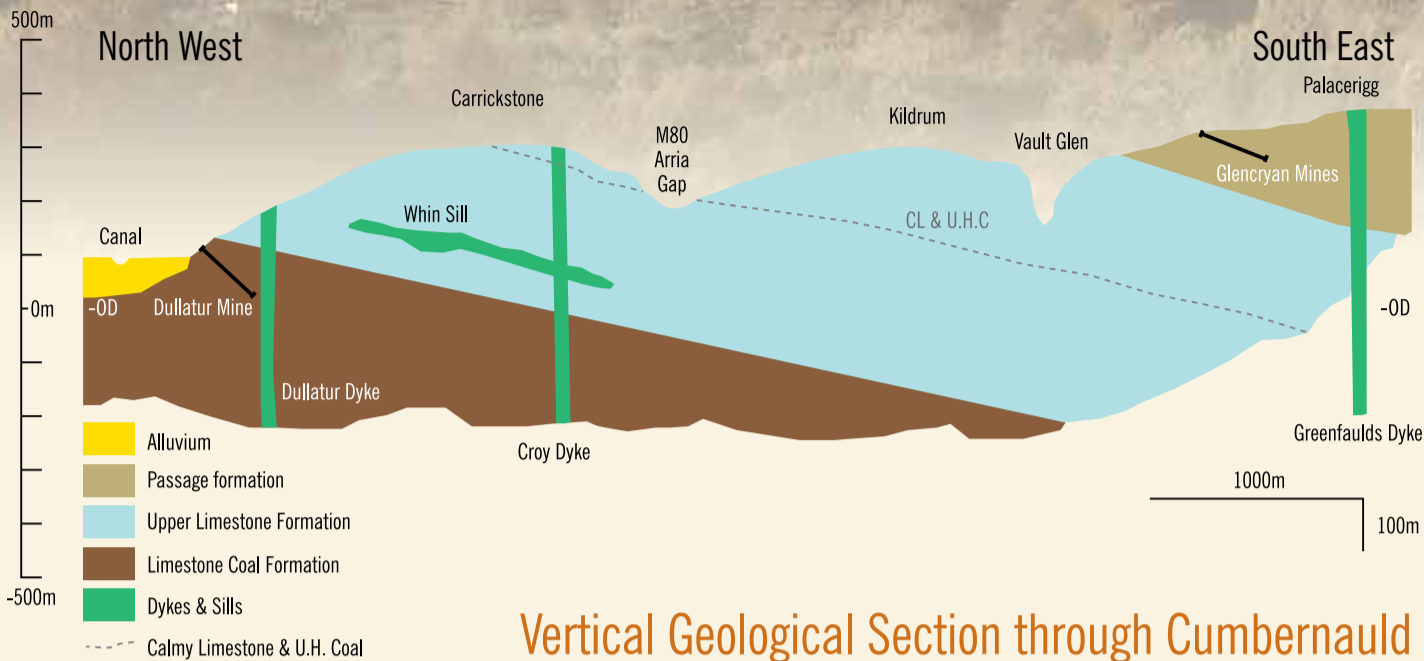


Geology
Landscape
Heritage
Top Ten
Map and Section
Factfile

Our living landscape

www.friendsofkelvinvalley.org.uk

Cumbernauld Rocks! - A living landscape



Vertical Geological Section through Cumbernauld

burned can be seen downstream of the railway bridge over the Red Burn. Just upstream from the bridge, two rocky knolls are part of the volcanic Croy Dyke, which runs all the way to the Bathgate Hills. The Red Burn continues downstream from the Park, over waterfalls, to meet the Bonny Water at Castlecary. There are more limekilns near the M80 crossing.

Seafar Wood and Ravenswood

Seafar Woods (North Side Woods) show the remains of old workings for the Calmy Limestone and Upper Hirst Coal near Allanfauld Road. Through the trees the views to Arria show the broad valley that once carried a large glacier, and now carries the M80. Ravenswood Ponds and recreation area occupy an old lake bed, possibly the eastern shore of glacial 'Lake Clydesdale'. The lake became infilled with soft alluvium and peat giving the motorway builders a headache, and more recently with earth removed from the construction of Condorrat.

Glencryan and Forest Wood

Glencryan and nearby Deep Stank are deep valleys cut through mudstone and sandstone as the glaciers melted. One thick sandstone bed forms an impressive waterfall. Fireclay workings underlie much of the area, which supplied Cumbernauld Brick and Pipe Works from 1882 to 1958. Up to 20 men worked underground digging out the clay, some of the mine entrances and collapsed workings can still be seen. Clay was taken down to the works using a continuous cable, hauling hutches through a tunnel and along a tramway. The main part of Forest Wood sits on Passage Group sandstones, which give sandy soils which support heath and woodland.

Palacerigg

The western half of Palacerigg is underlain by a layer of boulder clay laid down by the glaciers in the ice age. Since the ice age a thick layer of peat grew up, particularly over the eastern half of the Country Park. Between 1905 and 1939 up to 800 unemployed men a day would arrive from Glasgow to try and grow crops on this unpromising land. They cleared over 90 acres of peat, which was used for fuel, animal litter and firelighter manufacture. The underlying rock, mainly sandstone, appears in places and there are also small exposures of the Greenfauld volcanic dyke and the Roman Cement limestone, packed with fossil sea shells.

Luggie Water

East of Greenfaulds Station the Luggie flows through a deep winding glen cut into the bedrock, mainly mudstones and sandstones. The mudstones were quarried for brick making. The sandstones sometimes form small waterfalls and provide a solid foundation for the intake dam for Lenzie Mill lade. West of the station the Luggie flows through an alluvial plain between glacial drumlins. On the south bank between the A73 and railway bridges, glacial outwash sand and gravel can still be seen.

Mollinsburn Dyke

This is Cumbernauld's only drive-through geo site. But don't look too closely as you are likely to be heading at speed through the M80/M73 junction. The rock cuttings are formed in an impressive volcanic dyke which extends from Bearsden all the way to Torphichen. The hard rock forms a prominent ridge from Mollinsburn to Craigmend Nursery. This vertical sheet of once hot rock is about 20m thick and has baked the surrounding mudstone to a hard brick. Bedlay Colliery was situated a kilometre south of Mollinsburn. Over 800 miners worked more than 350m underground, producing over 500 tons of coal a day, until closure in 1981.

Top ten places to enjoy our natural geology and landscape

Westerwood Golf Course

The golf course is very attractively laid out and has an extensive path system. Dullatur Sand quarry occupied the western end of the course. The coarse gained clay bound sandstone was crushed down to make foundry sand. The thick sandstone beds can still be seen in the quarry faces. A wooded ridge called 'The Shore' or 'Deil's Seat', runs east to west through the middle of the course. This is formed by the volcanic Dullatur Dyke, which runs right through to Linlithgow. The Hirst Glen forms the eastern boundary of the golf course, this contains the Calmy Limestone and Upper Hirst Coal that were mined here.



Fannyside Loch, Palacerigg



Mine entrance, Cumbernauld Glen



Mollinsburn Dyke



Lime kiln, Cumbernauld Glen



Underground workings, Glencryan



Calmy Limestone, Carrickstone



Dolerite, Craighalbert Quarry



Glencryan Waterfall



Dullatur Glen



Iron seeps in Luggie Water

Community Park

Cumbernauld Community Park sits on a glacially moulded hill, shown by the characteristic steep slopes at the western end overlooking Craighalbert Road and the gentler slopes to the east. The hard volcanic sill is well seen where it has been worked in Craighalbert Quarry. Carrickstone Glen at the east end of the park has a layer of Calmy Limestone exposed in the burn bed, along with a mudstone layer packed with fossil shells. Small quarries and mines worked the limestone and the underlying Upper Hirst Coal. The tall gas vents just west of the glen mark a recent landfill site, a man made geological deposit.

Cumbernauld Glen

Cumbernauld (Bog Stank) and Vault Glens were deeply incised by highly erosive glacial meltwater. The present small burns could never have cut these deep valleys. Look out for sandstone beds, sometimes ripple marked, in the burn beds. Hard durable sandstone was quarried on the glen sides near where the two valleys join. This rock may well have been used for Cumbernauld Castle. A valuable layer of Castlecary Limestone was worked from mines and quarries in Cumbernauld House Park. Remains of the old lime kilns where the limestone was

Dullatur

The golf course is mainly formed on glacial boulder clay. The thick Midland Valley volcanic sill is exposed in Auchinbee Quarry on the northern boundary and also forms the Craigmore ridge which runs through the course. Dullatur Glen is a deep gorge with old sandstone quarries. The course of the Chanticler Burn down to the railway line suggests it had been diverted round a glacier front at one stage. It cuts through sandstone with a number of waterfalls. Near the railway the Dullatur Dyke crosses the bed of the burn.

Broadwood & Moss Water

Broadwood Loch is an artificial reservoir built in an 'inter drumlin hollow'. Drumlins are elongated mounds of stony clay formed by glaciers and the loch is surrounded by these. Blackwood, Westfield and Orchardton all sit on drumlins. Local names like Drum Mains Park and Little Drum Road are a bit of a giveaway. The hollow between these drumlins became infilled with soft alluvium and peat after the glaciers melted. The stony clay can be seen on the loch shore in places south of the boardwalk. Also, imported rocks for the stone circle and drain covers, show a variety of Highland rock types. Follow the Mosswater from Broadwood Loch to Mosswater LNR and enjoy wildflower meadows on soft alluvial soils.

Friends of Kelvin Valley

Tel: 01236 822437 www.friendsofkelvinvalley.org.uk

