
Craiglockhart and Edinburgh's Seven Hills

Text and photographs by Cliff Porteous

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Figures

Note: not all figures are shown in this web page — to view all see the [PDF](#)

(Front cover)

(Figure 1) Simplified geological map of Edinburgh and the Seven Hills.

(Figure 2) View from Blackford Hills of Craiglockhart Hills.

What are RIGS and why should they be protected?

A regionally Important Geological or Geomorphological Site (RIGS) is a landscape, landform or rock feature identified by a local RIGS Group as having significant value for educational and tourist information; academic research; for the history of science or for its aesthetic appearance.

With the knowledge of the landowner, RIGS are indicated to the local council.

Why do geological sites need looking after?

Geology has great influence on everyday life. Soils and rocks provide essential water and raw materials. Demand is continually increasing for land for housing, commerce, waste disposal, recreation, etc. This can lead to the destruction, damage or burial of important geological features.

Copies of this and other leaflets and posters may be obtained from:

<https://www.edinburghgeolsoc.org/publications/geoconservation-leaflets/>

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Craiglockhart Hydropathic

The hydropathic hotel was opened in 1880, designed by Kinnear and Peddie architects. The stonework appears to have come from at least two sources, one local and one from the north of England (possibly Prudham), most likely by rail. In 1916 the building was taken over by the Government for use as a hospital treating shell shocked officers during the first World War.

Wilfred Owen and Siegfried Sassoon met there in 1917 and their poetry on the futility of war is held in the War Poets Collection at Napier University. In 1920 the building was sold to the trustees of a convent and teacher training college. In 1984 it was taken over and is now used by Napier University as part of its campus and has recently undergone renovation.

Pentland Hills

Although not really considered one of the seven hills of the city, lying on the south side of the town they present us with considerable summits. They consist of over 1500m of lavas and sedimentary strata deposited around 410 million years ago, long before the Arthur's Seat volcano erupted. There are many walks in these hills with the Midlothian Ski Centre at the eastern end on Caerketton. Here below the rock cliffs can be seen 'pink' scree slopes made of blocky debris fallen from the precipitous faces, since the last ice retreated from the area about 15000 years ago.

The Pentland Hills Regional Park established in 1984 has a Ranger service and a useful web site.

Further information may be found in the SNH publication Edinburgh and West Lothian – A Landscape fashioned by geology.

Craiglockhart Hills

Craiglockhart really consists of two hills of Lower Carboniferous basalt lavas and ashes lying on sandstone. Easter Craiglockhart with a summit of 158m is separated from Wester Craiglockhart (175m) by a dry valley Glenlockhart. The valley took its present form over 17000 years ago when a great ice sheet covered the area. Meltwater from the Water of Leith, then dammed by ice, cut this channel eastwards.

Easter Craiglockhart Hill [NT 23189 70402]

The lavas here lie on basal Carboniferous sandstones (Kinnesswood Formation) laid down in desert conditions. The hill is mostly ash (tuff) with more solid basalt faulted against sedimentary rocks along its northwest edge by the Colinton Fault.

In 2004 this hill was designated a Local Nature Reserve safeguarding it against new developments. The pond was originally built for ice skating in 1875 and has now become a haven for birds such as mallards, swans, moorhens and coots. The woodland walk contains a variety of trees such as ash, beech, elm, sycamore, elder, horse chestnut and silver birch. These trees were planted by Alexander Monro secundus, professor of Anatomy (1758). He made a major contribution to the understanding of the human nervous system. He also granted entry for local residents to his estate.

A leaflet has been produced by Friends of Craiglockhart Nature trail. Chair Barbara Richardson Tel 0131 447 8156.

Wester Craiglockhart [NT 22828 70063]

At the Northern end of the Napier University Campus, are exposed an upper section of basalt lava about 30 metres thick with a central area of well formed columns. When this molten lava cooled down and crystallized, contraction was equally developed throughout the body resulting in a series of hexagonal cracks producing the columnar structure we see today. This type of structure is prone to toppling over (usually after wet periods). A small rockfall occurred recently which is why catcher wires are now in place.

Steils Quarry [NT 23119 70086]

Eastern edge of Wester Craiglockhart Hill

Sedimentary strata dipping towards the north west - calcareous and pebbly sandstones of the Lower Carboniferous Kinnesswood Formation under the volcanics.

Here we see a large augite crystal and two olivine crystals surrounded by a ground mass of feldspar laths - A distinctive type of Carboniferous basaltic lava: porphyritic with large crystals of augite (r) and olivine (l). The basalt has been cut and polished to a thickness of about 0.03mm. The slide when viewed through polarized light shows different colours.

Summit Wester Craiglockhart [NT 22828 70063]

The photograph shows the remains of one of the four anti-aircraft gun emplacements built for the protection of the city following the Zeppelin raid of 2 April 1916 which caused considerable alarm and several deaths.

The Royal Commission on Ancient and Historical Monuments of Scotland have details of small scale archaeological excavations on the summit.

The Other Six Hills

Corstorphine Hill [NT 20644 73868]

This hill stands about 162m above sea level and was formed during a period of igneous activity about 340 million years ago. Like Salisbury Crags, it is a sill of whinstone (dolerite) intruded between sedimentary beds and subsequently tilted to the west. It has been quarried in the past for roadstone and pavement setts but is now a Local Nature Reserve where recreation and outdoor leisure can take place alongside wildlife conservation.

It is well known for badger activity.

The Lothian and Borders RIGS Group have published a leaflet on [Corstorphine Hill](#) and designated it a RIGS.

Castle Rock [NT 25088 73500]

This basalt rock forms a cylinder or plug intruded almost vertically through Lower Carboniferous strata. The plug represents the frozen subterranean plumbing of a small 340 million years old volcano (cinder cone) long since destroyed by erosion. Glaciation over the last few million years or so has hollowed out depressions on either side with Princes Street Gardens to the north and the Grassmarket to the south. It is associated with the Arthur's Seat volcano. Edinburgh Castle is perched on its rock, guardian of the city and of the Regalia of Scotland and also home of the Scottish National War Memorial.

Arthur's Seat [NT 27556 72957]

Lying uniquely in the heart of the city in the Royal Park of Holyrood with its ancient and royal history, this area is quite rightly designated a Site of Special Scientific Interest. The volcano was active about 340 million years ago and subsequent uplift and erosion allows a view of the inside 'plumbing', with the remains of the two central vents, the Lion's Head and the Lion's Haunch.

Many layers of lava and ash can be seen spreading out from the summit. On the west side of the hill molten rock forced its way between Lower Carboniferous strata to form the spectacular Salisbury Crags sill. This was saved from further quarrying by a House of Lords ruling in 1831.

Edinburgh Geological Society has published a geological Guide to the Park the park entitled Discovering Edinburgh's Volcano.

Calton Hill [NT 26205 74187]

This is part of the Arthur's Seat volcano displaced from it by a geological fault. The hard volcanic rocks were formed about 340 million years ago and have remained as upstanding hills dominating the city landscape. This hill with William Playfair's noble monuments to Dugald Stewart, and John Playfair (uncle), stands at the eastern end of Princes Street with the National Monument built of Craigleith Sandstone, alas unfinished, as was the city's first Astronomical Observatory.

Blackford Hill [NT 25428 70629]

Blackford Hill is made up of a variety of lavas called andesite and trachyte which were erupted around 410 million years ago, about the same time as the Braid Hills and Pentland Hills.

Like the Castle Rock it was affected by glaciation forming a crag and tail shape. Ice moving eastwards (like sandpaper with basal debris) eroded the rock. Thin volcanoclastic rocks (not necessarily ashes) may be seen in a small quarry at the west end of Blackford Pond.

It was here in 1840 that Louis Agassiz, the famous Swiss geologist recognised marks on the rock as 'the work of the ice'. This was the first recognition in Scotland of the former existence of ice sheets where now there is no ice. It made the front page of the Scotsman on Friday 8th October 1840 since the editor, Charles MacLaren was very interested in geology. There are a range of walks possible on the hill. It was chosen as a site for The Royal Observatory outwith the city in 1896, replacing an earlier observatory on Calton Hill which had become affected by New Town lighting.

The Edinburgh Geological Society has published a leaflet on The [Hermitage of Braid and Blackford Hill](#).

Braid Hills [NT 24859 69496]

Here are more trachyte and andesite lavas erupted in Lower Devonian times as part of the Pentland Hills Volcanic Formation. They are about 410 million years old. There is a viewpoint indicator on the summit, and a bridle path encircles the two golf courses.

Photographs ([see PDF](#))

Craiglockhart Hydropathic. Courtesy of the Sacred heart, Dublin

Pentland Hills

Simplified geological map of Edinburgh and the Seven Hills

View from Blackford Hill: Wester Craiglockhart, Glenlockhart, Easter Craiglockhart

View from Locharton Avenue looking southwest

Glenlockhart Valley

View from car park Napier University campus.

Steils Quarry

Fallen block Basalt block lying near footpath at base of cliff Wester Craiglockhart Hill. A well formed, five sided basalt block

Craiglockhart basalt in thin section.

Taken from Napier University Craighouse campus

Taken from Craiglockhart Hill

Taken from Braid Hills summit

Calton HillBlackford Hill

Braid Hills, Taken from Wester Craiglockhart

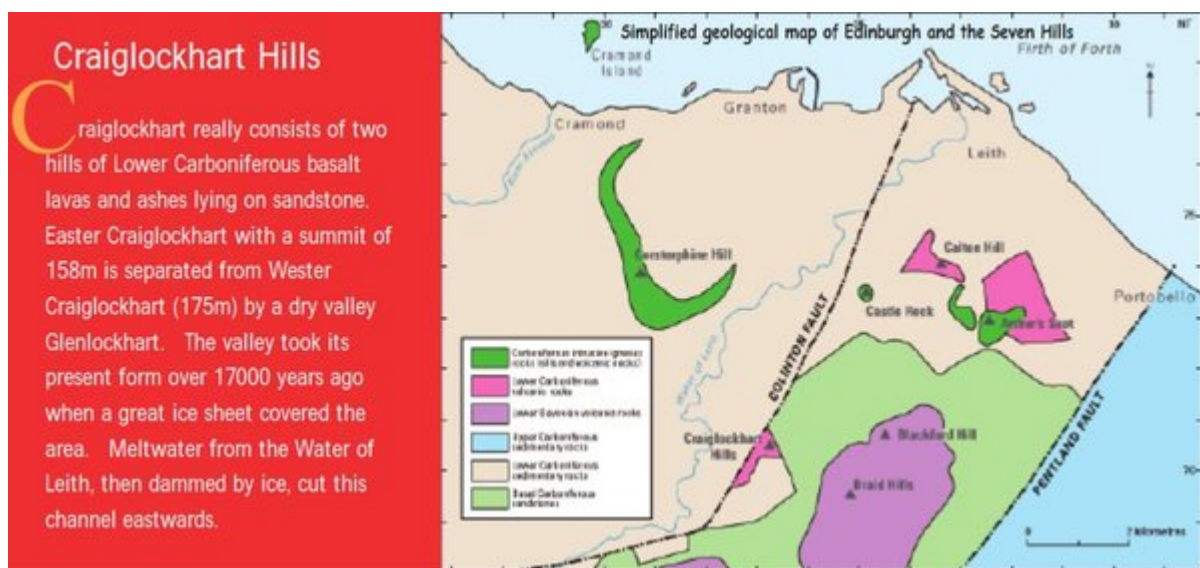
Craiglockhart & Edinburgh's Seven Hills



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Front cover



Simplified geological map of Edinburgh and the Seven Hills.



View of the Craiglockhart Hills from Blackford Hill.