

# Arthur's Seat, Whinny Hill, Edinburgh - an excursion

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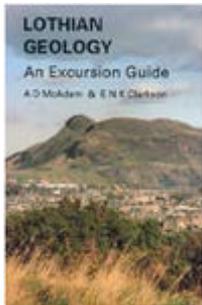
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## Arthur's Seat, Whinney Hill, Edinburgh - an excursion



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By G.P. Black. From: [Lothian geology: an excursion guide](#). Edited by A.D. McAdam and E.N.K. Clarkson. 1996.

[Arthur's Seat, Edinburgh - introduction](#)

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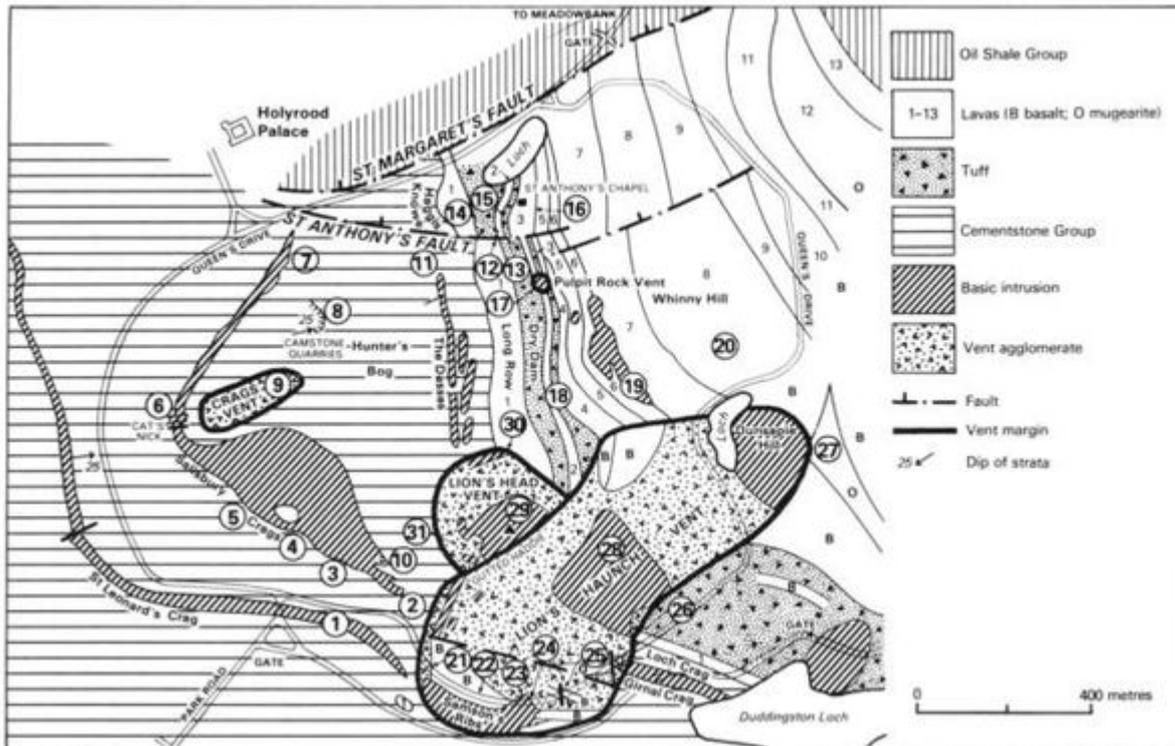
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The approach to Whinny Hill for localities 11 to 20 is most easily made from the western end of St. Margaret's Loch which can be conveniently reached from either the Holyrood or Meadowbank Gates car parks.

## 11. Dasses Sill

The sill of the Dasses here forms a low westward facing cliff. Only a metre or so in thickness, it consists of highly altered Markle basalt transitional to mugearite. The top of the sill is well-exposed and shows a number of north-west-youth-east corrugations, representing casts of drag-folds in the overlying sediments caused by the movement of the magma. A few centimetres of very slightly indurated sediment can be seen above the sill and directly below the turf at the eastern margin of the outcrop.



Arthur's Seat, excursion localities.

## 12. Long Row: Lava 1

The Dunsapie basalt which forms Lava 1 is well-exposed at the northern termination of the Long Row, The base of the flow is not seen but the greater part of its thickness is exposed, The flow is sparsely vesicular throughout and the central part shows a crude columnar jointing. The irregular and slaggy top of the flow is exposed in the path leading to the Dry Dam almost where it joins the path uphill past St. Anthony's Well; the irregularities in the top of the lava are filled with basaltic ash.

## 13. St. Anthony's Well: Lower Ash of the Dry Dam

The Lower Ash of the Dry Dam is somewhat poorly exposed at this locality, Above the top of Lava 1 there crops out a bed of white limestone, a metre thick. The limestone contains cherty nodules and is associated with dark sandy shales containing plant remains. In the small scrape on the south side of the path leading past St. Anthony's Well, ashy and shaly beds are exposed and are overlain by another impure limestone. Lava 2, which overlies the Lower Ash, is not exposed at this locality on the south side of the St. Anthony's Fault.

## 14. St. Anthony's Well: Lava 2

This locality lies to the north of the path running to the east past St. Anthony's Well and is the lowest

westward facing cliff on the slope below St. Anthony's Chapel. The well lies on the east-west St. Anthony's Fault so that Locality 14 is separated from Localities 13 and 12 by this dislocation; the fault has thrown the rocks down to the north by some 23 m. At Locality 14 Lava 2 crops out. The flow of Craiglockhart basalt is of no great thickness and is decomposed and vesicular throughout. At the south-western extremity of the exposure the flow has been gas-brecciated, the fragments now being cemented by calcite. The upper surface of Lava 2 is irregular the irregularities being filled with ash or sediment.

### **15. Lava 2: Upper Ash of the Dry Dam**

The upper surface of Lava 2 forms a small ledge in the westward facing cliff below St. Anthony's Chapel. Above and to the east of the ledge the ash is exposed and is covered by the columnar basal portion of Lava 3. The metre-thick ash is well-bedded and contains occasional volcanic bombs up to 0.7 m in diameter. Near its base the ash carries numerous coalified plant fragments; a tooth of *Rhizodus* and remains of *Eloniclzthys striatus* and *Callopristodus pectinatus* have been found here.

### **16. St. Anthony's Chapel: Lava 3**

Lava 3 is a basalt of Craiglockhart type and the lower part seen around the ruins of St. Anthony's Chapel, is markedly columnar, the individual columns being about 0.7 m in diameter and inclined steeply to the west. Some 5 m above the base of the flow the markedly columnar portion grades into an irregularly columnar portion which is exposed locally at the base of the cliffs to the east of the Chapel. This in turn passes very gradually upwards into the topmost zone of the lava-an assemblage of basaltic blocks lying in a matrix of identical composition. The blocky portion has a marked pyroclastic appearance and most probably originated by the brecciation of the cold crust of the lava by the movement of the still liquid interior. The blocky portion is about 15 m thick. The total thickness of the flow exceeds 25 m.

### **17. Pulpit Rock: Basalt Plug, Lavas 2,4**

The small parasitic vent of the Pulpit Rock is occupied by a plug of Craiglockhart basalt which forms a prominent cliff high on the eastern slopes of the Dry Dam. Columnar jointing is well-developed, the columns being curved; in the centre of the mass they are more or less vertical but on being traced towards the margin the individual columns approach the horizontal indicating that they have been chilled against the vertical wall of the vent. To the south of the cliff the contact of the plug with Lava 2 is exposed, the lava being much altered in proximity to the junction. Lava 4, which to the south forms the cliff along the eastern wall of the Dry Dam, also comes into contact with the Pulpit Rock Vent but, being younger, naturally shows no increase of alteration at the contact. The connection between Lava 3 and its feeder-the plug in the Pulpit Rock Vent is still preserved and may be traced on the north side of the vent.

### **18. Dry Dam: Upper Ash, Lavas 2,4,5,6**

At this locality the Upper Ash of the Dry Dam is exposed in a number of outcrops. Its base can be observed resting on Lava 2 and its top seen to be covered by Lava 4 which here forms the cliff immediately to the east of the Dry Dam. The ash here is coarse, especially in its upper part, and contains numerous ejected blocks and bombs of basalt. Between Localities 18 and 19, lavas 4, 5 and 6 can be examined. The foremost is a Dalmeny type basalt, the latter two are of Jedburgh type.

### **19. Whinny Hill Intrusion**

Whinny Hill Intrusion. a small sill, lies between Lavas 6 and 7. The two flows are microporphyrific

Jedburgh basalts and present a strong contrast in appearance to the markedly macroporphyritic Craiglockhart basalt of the sill. The sill lies along a hollow between the dip slope of Lava 6 to the west and the scarp of Lava 7 to the east. The feeding pipe of the intrusion cuts Lava 5, another Jedburgh basalt. 45 m to the south-west of the northern extremity of the sill outcrop.

## 20. Whinny Hill: Lavas 7,8-10

The return route from Locality 19 lies at first eastwards across the dip slope of Whinny Hill. Here exposures of Lavas 7 (Jedburgh), 8, 9 and 10 (all Markle) can be seen. On reaching the Queen's Drive the road is followed northwards and westwards; roadside exposures of the same flows can be examined in descending order.

The Park can be left either at the Meadowbank or the Holyrood gates.

At all times follow: [The Scottish Access Code](#) and [Code of conduct for geological field work](#)

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