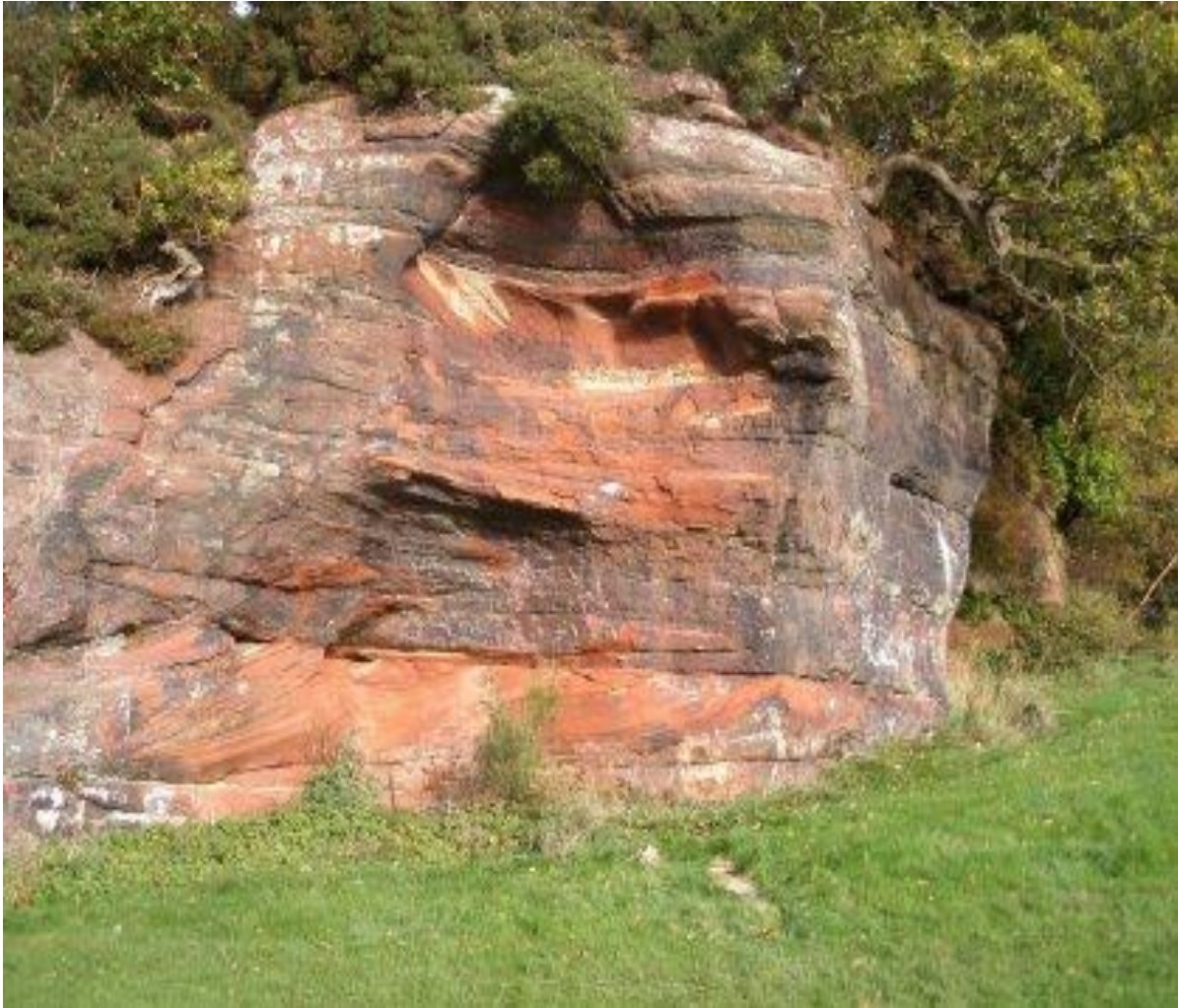


Havoc Hole

Dunbartonshire



Photograph M. Cummings

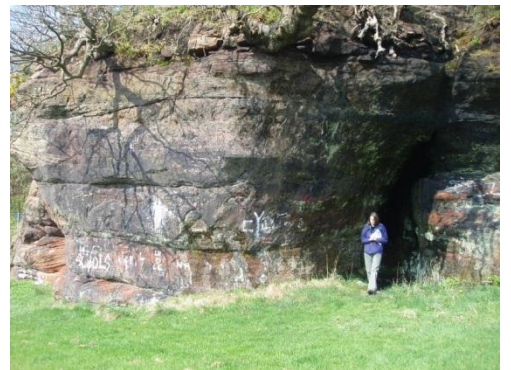
Havoc Hole is a remnant of a fossil sea cave which can be found in the raised beach cliff at the back of the playing fields accessed by Havoc Road at the west end of Dumbarton.

The red sandstone of which the cliffs are made dates from the Upper Red Sandstone of the Devonian Period, approximately 375 – 360 million years ago, and would have been deposited at a time when the area we know as the British Isles was part of a large continent. The red colour of the sandstone is due to the iron oxide coating of the sandstone grains and indicates an arid, desert environment. The paler sections of rock are the result of water seeping through the rock at some time and chemically altering this iron content.



Close inspection of the sandstone reveals rounded grains indicating that these were weathered and deposited by wind. At the bottom of the outcrop cross bedding can be clearly seen. Cross bedding occurs when the direction of deposition changes; the surface of the underlying bed having been planed off due to a period of erosion before the next bed is deposited.

The sandstone cliffs were a shore line at the end of the last ice age, about 12,000 years ago. The sea would have worn away at the sandstone and the pressure of water would have resulted in cracks appearing in the rocks, These cracks eventually widened into caves.



Photographs N.Everett

As a result of the ice melting and the weight of the ice being lifted from the land, the land rose and cliffs which were once on the shore line now lie back from the water's edge. This raised beach can be seen at places all along this part of the Clyde.



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