

# A TRIP to HELL in SWITZERLAND

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An opportunity to visit Höllgrotten (“Hell Grottoes”) in Switzerland arose for Marjorie Coggan and me in September 2017. The small show cave operation is located just outside the town of Baar, about 40km south of Zurich. Despite the name, the two caves open to the public are very interesting and nothing untoward happened during our visit but there was one aspect of the caves’ management that made us wonder if satanic forces are at work.

The Höllgrotten area is unusual in that there is no limestone in the immediate area, and the caves formed as cavities in tufa that was being deposited on the flanks of a valley. In other words, they have formed by accretion, rather than by solution, which is normally the case for karstic caves. According to information on the Höllgrotten website, the Lorze Valley was carved out by glacial meltwaters towards the end of the last Ice Age. Later, percolating ground water several kilometres away dissolved calcium carbonate from limestone fragments in glacial moraines and subsequently precipitated it as tufa at springs on the lower slopes of the valley, forming a number of voids in the process. The tufa deposit is around 200 metres long, 50 metres thick and around 40 metres high, all deposited in as little as a few thousand years - either 3000, 5500 to 8500, or perhaps 10,000 years, depending on whether you believe interpretative signs in the caves or various pieces of information on the Höllgrotten website. Regardless of which figure is correct, the grottoes are VERY young for caves in carbonate rock!

Accretion caves are not at all common in Australia and the best example I can think of is in the Ravine Karst area in the Kosciuszko National Park in New South Wales where calcium carbonate from thinly bedded and impure limestones has been redeposited further downslope, generally over cliffs of sandstone and shale, creating a number of cavities, the largest of which (Milk Shanty Cave) is about 15 metres long and 2-3 metres wide and high.



*Entrance to the Upper Höllgrotten Cave  
Photo: John Brush*

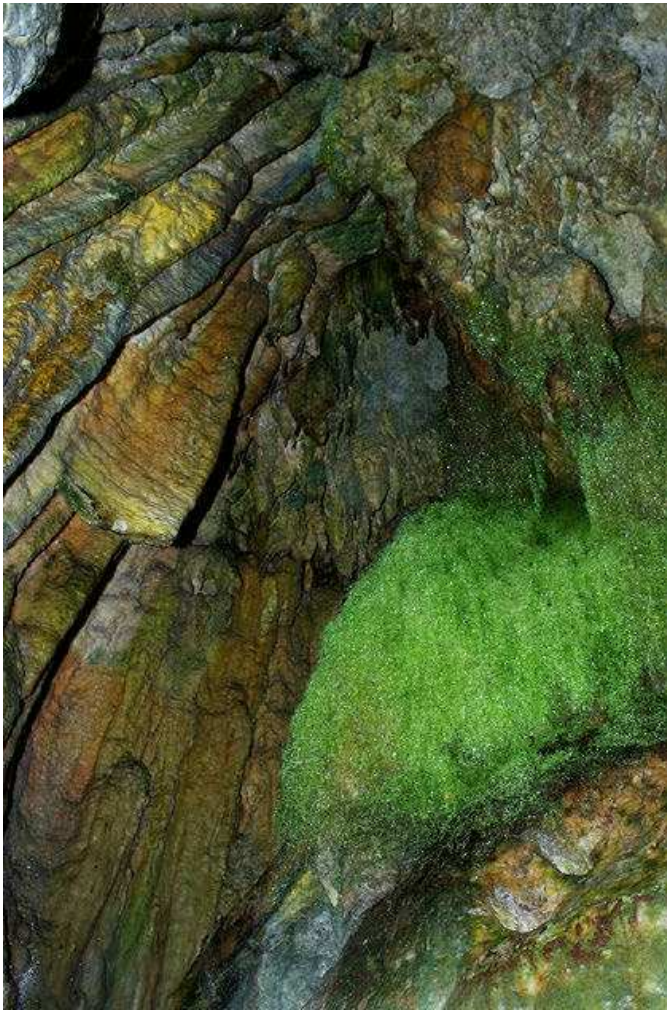
At Höllgrotten it is a short uphill walk, with an elevation gain of about 40 metres, from the ticket kiosk to the entrance of the upper cave. Although guided tours for groups of up to 12 people are available, Höllgrotten is essentially a self-guiding experience. Entry is gained by presenting the cave ticket to a barcode scanner at the entrance turnstile. From there the show cave route meanders down through the cave, continues through an artificial tunnel dug in 1917 and then, after a few metres on the surface, enters the lower cave. The exit point from the lower cave is at the base of the hill close to the ticket kiosk.

The cave is open from 9.00am to 5.00pm every day from 1 April to 31 October. The ticket price is currently 12CHF (about \$17).

The upper cave was discovered during quarrying operations in 1863. The tufa was in demand as a construction material as it



*The Coral Canyon.  
Photo: from the Höllgrotten Website and taken  
by Flavio Heggli/ Daniel Christen.*



*The Green Beard, a particularly luxuriant growth of lampenflora.  
Photo: John Brush.*



*Calcite encrusted electrical cable  
Photo: John Brush*

was light, porous and easy to cut and was used, among other things, for lining railway tunnels. Fortunately, quarrying was halted in 1885 to protect the cave. At about the same time, there were concerns that several 'lakes' in the cave were impeding access, so Josef Leonz Schmid, a local Councillor and son of the original discover, decided to drain them by digging a tunnel through to the surface. Two years later, in 1887, the cave officially opened for public inspections. Further grottoes

were discovered in 1892 and in 1902 and Schmid purchased neighbouring plots of land to ensure he would be able to link up all the grottos and preserve the cave system for posterity. Today, the caves - as well as the surrounding land and a nearby restaurant - are still owned by the Schmid family through a trust set up in 1942.



*Coloured lights display in the Enchanted Castle.  
Photo: John Brush.*

From the upper entrance, the show cave trail meanders through a series of small chambers with evocative names like the Root Grotto, the Bear Grotto, the Green Beard, the Coral Canyon, the Enchanted Castle and the Fairy-tale Grotto, all seemingly at odds with the name of the cave. As to be expected in a cave that was formed by calcite deposition, there is no lack of speleothem development. Stalactites, draperies, stalagmites and flowstones are common. Botryoidal coral-like growths predominate in some grottoes and, as they most likely formed underwater, are indicators of where those drained lakes once were. Tree roots, mostly calcified, can be seen in several places and the rapid rate of calcite deposition can be gauged from the coating of some electrical cables.

Throughout the caves there are internally-illuminated interpretative signs with detailed explanations in German and English. Some also have accompanying diagrams. We thought the signs significantly enhanced the visitor experience.



*It is difficult to avoid noticing the LED light fittings in the Enchanted Castle.  
Photo: John Brush*



*Botryoidal coral-like speleothems above a small pool.  
Photo: John Brush*

In 2012, the caves were entirely relit using, as the Höllgrotten Website states “cutting edge LED technology, affording the very first opportunity for visitors to enjoy a proper view of the stone’s vast range of shapes and colours in all their subtlety”. There is one place in the cave (the Enchanted Castle) where coloured lights are used. The room, which has a shallow pool about 3 metres long and 2 metres wide is bathed in white light but soon after visitors enter, the lights go through a sequence of orange, reds and purple followed by blues and greens. I can’t say I am much of a fan of coloured lights in caves but this did strike me as being pretty spectacular. Perhaps my brain is rotting?

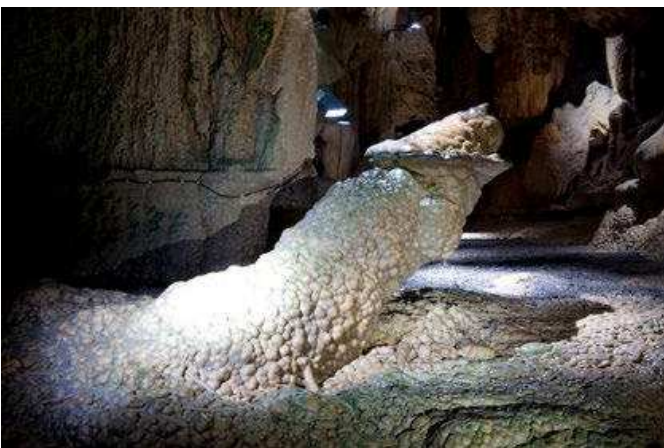
In general the cave lighting has been done quite aesthetically but the emphasis seems to have been on what the lights were illuminating rather than what they were attached to.

It is also a pity that the rewiring project was not seen as an opportunity to also install cutting edge motion detectors and timers so that passages are only illuminated while visitors are present. We gained the impression that all the lights are switched on first thing in the morning and not switched off until after closing time. The result is that the cave’s range of colours

includes a lot from the green part of the spectrum. Lampenflora is everywhere and seriously detracts from the aesthetic qualities of the cave. Patches of black (dead algae) might suggest attempts are sometimes made to control the lampenflora but it is more likely that they result from the seasonal nature of the caves’ operations – the caves are closed for 5 months over winter during which time the lights are presumably switched off and the lampenflora would die off.

Management has attempted to turn this lampenflora negative into a positive by highlighting one particularly luxuriant area (a lampenforest?) and naming it the Green Beard. The accompanying interpretative sign blandly states that “the ‘green beard’ growing over the tufa is the result of artificial illumination” and by doing so perhaps gives the impression to visitors that nothing can be done about it. Why can’t the operators implement an integrated lampenflora control strategy?

In conclusion, the small show cave operation is well worth a visit, despite the lampenflora, as the mode of formation of the caves is unusual and there is a good range of attractive decoration.



*The Crocodile.  
Photo: from the Höllgrotten Website and taken by Flavio Heggli/ Daniel Christen.*



*View of the tufa deposit/ cliff from the track between the upper and lower caves.  
Photo by Marjorie Coggan.*