Treak Cliff Cavern and Rainwater

What The Rainwater That Falls On Treak Cliff Can Do

Visit Treak Cliff Cavern and look carefully at the stalactites forming there; one rarely sees water dripping from them, 4 to 7 drops of water per hour is the best rate of dripping to form stalactites. Many of them drip much more slowly.

In Treak Cliff Cavern the average rate of growth of stalactites is about 1 mm every 65 years. Radio Carbon Dating suggests the formations in Treak Cliff Cavern are about 111 thousand years old.

Limestone rock is calcium carbonate, a sedimentary rock soluble in water. Stalactites, stalagmites, cave formations and calcite are minerals, they also are calcium carbonate but not soluble in the same way as limestone. Limestone rock is permeable not porous.

The very noticeable dripping of water in the cavern varies with rainfall. This water is not stationary long enough to deposit minerals so it does not make any formations. After heavy rain on the surface the rainwater takes from about an hour in a few places and up to several weeks in other places to appear inside the cavern, this depends on the size of the tiny cracks in the rock the water has to get through. Dye tests prove the water from Treak Cliff Cavern enters Peaks Hole Water about 50 metres above Russet Well on the opposite side of the river. Treak Cliff Cavern is not subject to flooding.

It has been scientifically calculated that the rainwater falling on about six square miles of local limestone watershed continually dissolves away the limestone rock lowering the surface area of the limestone watershed about 30 centimetres every 5000 years. This rainwater eventually finds its way into a natural underground drainage system that comes to the surface in Castleton, some from the Russet Well and some from an opening below the entrance to Peak Cavern. Together they are the main sources of Peaks Hole Water, the river that runs through Castleton.

Peaks Hole Water flows east from Castleton and joins the River Noe at Hope, in turn the Noe joins the River Derwent at Bamford, the Derwent flows south into the River Trent which flows north and joins the River Humber. The Humber flows out into the North Sea. This water takes with it all the dissolved limestone referred to earlier, out into the sea where it will be dispersed and can then be recovered by living sea life to make their shells and bones thus completing a huge cycle of nature that started about 350 million years ago.

Think about this, it has taken about 350 million years for the limestone rock to get here from the Equator. If we continue to move north at the same rate, in about 200 million years we will be at the North Pole. But if the limestone rock continues to dissolve away at the current rate it will all be gone long before we get there. The “speed” we are drifting north is about the same rate as the growth of healthy fingernails.