

Blue John – England’s rarest and most beautiful stone

At the western end of the Hope Valley, between Winnats Pass and Mam Tor is a steeply sloping hill. This is Treak Cliff, the only place in the world where the rare and beautiful mineral Blue John has been found. Treak Cliff is made of limestone rock from the Carboniferous period and is around 359 million years old. Blue John is about 290 years old. Its story is fascinating.

Long after it was laid down under the sea, powerful volcanic forces split and cracked the limestone rock, pushing it upwards and creating what geologists call the “Derbyshire Dome”. From these volcanic sources came minerals, usually in solution in very hot water. The water, with its mineral content, was forced up into the faults (large cracks) in the rock. As the mineral-rich water cooled, the minerals started to crystallise out in the faults. That is how all kinds of minerals, under great pressure, cooled and hardened to create the Peak District ore field, the main minerals of which are: fluorspar, lead ore, barites, calcite and barium.

When all this activity was taking place the limestone rock was deep underground, approximately 2 kilometres below the earth’s surface. At what is now called Treak Cliff, a form of erosion took place causing huge boulders of limestone rock to be released from the mass of limestone that now forms the Cliff. These boulders created what geologists call a “boulder field”. The spaces between the boulders vary in width but are never more than about 15 metres deep. Into these spaces came some of the hot mineral-rich water that then crystallised. The main mineral that was deposited in the boulder field was fluorspar – and fluorspar is the basis of Blue John stone.

As the fluorspar was crystallising some peculiar chemicals were present and were trapped within the fluorspar’s cubic crystal system. It is these chemicals that are responsible for the lovely colours in Blue John, but possibly not in the way you might think.

Over the years many theories have been put forward to suggest what makes the colours in Blue John. It is only recently, as science has developed and scientific instruments have become more and more sophisticated, that we have come to know the truth. It seems that when the microscopic films or mats of chemicals, trapped within the cubic crystals of the fluorspar, are heated they twist and become invisible. But if the fluorspar is subjected to mild radiation, the chemicals twist again and the colours return, creating the unique Blue John Stone. Treak Cliff is the only place, as far as is known, where this has happened.

Historians suggest that giving names to some of the veins of Blue John Stone was an 18th Century marketing ploy, introduced by the ornamental trade. There are 14 named veins and many more veins without names. Crafty traders would pass off specimens from unnamed veins as coming from the more prestigious veins. Nowadays the beauty and scarcity of the stone is all that is needed to sell it. Prior to the 1760s, what we call Blue John was called “Derby Drop” by the miners and “Derbyshire Spar” by the ornamental trade.

Naturally occurring Blue John is very brittle and has to be boiled in resin before it can be cut and polished. In the early days, the resin that was used was yellow and gave a yellowish tint to the bands of lighter colour within the stone.

In the 18th century French craftsmen were the best clock makers in the world. They sometimes used this rare mineral, which they called “blue and yellow stone”, as a mount for their clocks. In French, “blue and yellow” is “bleu et jaune”. So the name we use today is a corruption of this – Blue John!

In this Centre we are fortunate enough to have some excellent specimens of Blue John from a number of veins as well as a beautiful Blue John bowl. These have been gifted to us by Peter Harrison, formerly of the Treak Cliff Cavern and a skilled worker in Blue John and other stone.