



Geology Sheet 14

Veins and minerals; hot fluids from the deep



The pressures that formed the folds and fractures in the Burren also forced hot mineral-rich fluids from deep below the limestone through the layers of rock. The mineral-rich fluids often filled the fissures and small cracks in the limestones. When the fluids cooled, minerals crystallised into hard mineral deposits: we call these *veins*. Most of the veins found in the rocks of the Burren contain calcite (CaCO_3). Other veins contain minerals such as quartz (silica) fluorite (calcium fluoride), galena (lead sulphide), malachite (copper carbonate), and pyrite (iron sulphide).



Fig. 1. A: Cream coloured calcite

B: White calcite veins.

C: purple fluorite vein.

Many of these veins have weathered away in many places in the Burren. This is because the mineral-rich fluids that seeped through the cracks in the rock were so hot (with temperatures of a few hundred degrees Celsius) that they 'cooked' any of the rock that they came in contact with. The slightly 'cooked' rock is weaker than the surrounding rock – and therefore it weathers away faster. The 'cooked' limestone is often paler in colour and is slightly sponge-like or grotty looking. The bigger the mineral vein - the wider the band of cooked limestone either side of it.



Fig. 2. A. Crystals in a calcite vein.

B: Thick calcite deposit

While several small mines were worked by hand in the 19th century, there are no economic deposits of minerals in the Burren.