
Cumpston Hill North and South Veins, Cumbria

[SD 781 976]

Introduction

Two parallel, roughly NE–SW-trending veins which cut Dinantian and Namurian limestones and sandstones at Hanging Lund Scar, on the east side of the River Eden, south of Kirkby Stephen, are distinguished by containing copper mineralization. These deposits form part of a small cluster of veins dominated by copper mineralization on the western margin of the Askrigg Block. Comparatively few metalliferous minerals may be seen in the small exposures of these veins. Much richer samples of metalliferous veinstone are available in small spoil-heaps associated with old trial workings on these veins.

The mineralogy of the veins, and their paragenetic significance within the Northern Pennine Orefield, have been the subject of studies by Small (1977, 1978, 1982), Shepherd (1979), and Dunham and Wilson (1985). Nothing is known of the history of these small workings or of any output of ore from them, although Dunham and Wilson (1985) suggested that at least some of the workings may be ancient.

Description

The Cumpston Hill South Vein is exposed in the bed of the River Eden [SD 777 969] where it cuts sandstone beneath the Undersea Limestone. It can be traced uphill into this limestone where, near Intake Farm, its outcrop is marked by a belt of silicified Undersea Limestone up to 3 m wide. Dunham and Wilson (1985) noted that a shaft sunk on the vein in the Main Limestone shows highly silicified limestone, azurite, malachite and 'a little yellow sulphide', presumably chalcopyrite. They reported similar veinstone from small trials on the higher ground to the north-east along the course of the vein which here forms a distinct low topographical feature. The North Vein also forms a wide belt of silicification up to 6 m wide where it cuts the Main Limestone. Dunham and Wilson (1985) reported a shaft on this vein at [SD 7832 9768], the spoil from which is identical to that from the South Vein. Small (1977) described tetrahedrite from here. This dump cannot today be located at this grid reference, although a small spoil-heap at [SD 7815 9748], above the Main Limestone outcrop, contains abundant quartz veinstone with disseminated sulphides including tetrahedrite and chalcopyrite, together with conspicuous crusts of azurite and malachite. This spoil heap has clearly been used as a source of hardcore which has been incorporated into nearby farm tracks.

Interpretation

The Cumpston Hill veins are representative of the suite of copper-bearing quartz-rich veins, designated as '0,2 Zone' veins by Small (1977). These occur in the north-western part of the Askrigg Block, between the Dent Fault and the comparatively intensely mineralized area centred on Swaledale, the 'North Swaledale Mineral Belt' of Dunham and Wilson (1985). The Cumpston Hill veins are unlike others in the Askrigg Block in being dominated by quartz, often accompanied by extensive silicification of wall-rock, in which copper sulphides are commonly present. The presence of 'fahlerz' (tennantite-tetrahedrite) in the veins of this area was first recognized, at Fell End Clouds, by Clough (in Dakyns *et al.*, 1891), and more recently occurrences of such mineralization have been described from High Stennerskeugh Level [NY 749 010] and Stennerskeugh Clouds [NY 7440 0025] where tennantite rather than tetrahedrite accompanies galena and minor chalcopyrite (Small, 1982). The silver content of the tetrahedrite and tennantite in these deposits is, like that of the galena in the Askrigg Block, characteristically low (Small, (1982). Dunham and Wilson (1985) regarded the silicification as an early feature. They also reported that formation temperatures for this quartz, obtained by Shepherd (1979), are below the minimum temperature of around 100°C for the fluorite zone and concluded that this mineralization represents a recrudescence of relatively low-temperature, low-grade copper mineralization in the outer zones of the orofield. They further discounted any suggestion that this mineralization represents the source area for the strong mineralization of the North Swaledale Mineral Belt. The role, if any, of the nearby Dent Fault in the origins of this

mineralization has not yet been fully explored.

Conclusions

The Cumpston Hill North and South Veins are strong quartz veins which locally carry small concentrations of copper sulphides, mainly as tetrahedrite. They are typical of a minor suite of veins in the north-western part of the Askrigg Block, within the outer zone of the orefield and close to the Dent Fault. Fluid-inclusion evidence suggests that they are of low-temperature origin and may be part of a small episode of copper mineralization emplaced late in the mineralization of the Askrigg Block. The veins have considerable research potential, including investigations of the role of the nearby Dent Fault in their emplacement.

[References](#)