
Wurt Pit, Somerset

[ST 559 539]

Introduction

The Wurt Pit GCR site is a large cup-shaped depression, 15 m deep and 45 m in diameter, located on a gentle slope of the Mendip plateau. The site lies some 2 km south-west of the village of East Harptree (see (Figure 6.12)) and is readily accessible by road. Geomorphologically important, the pit is essentially a karst-collapse feature probably formed due to the collapse of a cave system in the underlying Carboniferous Limestone. The 'Pit' exposes mineralized Harptree Beds, thought to be of an early Jurassic age. Unfortunately the Harptree Beds usually occur as a jumbled mass of residual chert blocks and boulders, and stratigraphical relationships are unclear. However, at this site, a 4 m-thick succession of Lower Lias limestones has been completely altered to chert by hydrothermal silicification genetically linked to the Mendip lead-zinc mineralization. The beds locally contain small quantities of limonite and yellow ochre, barite, sphalerite and galena.

Description

The Harptree Beds of the central Mendip area comprise limestones of Lias to Inferior Oolite age that were altered to chert by hydrothermal silicification, more-or-less contemporaneously with the lead-zinc mineralization. Over most of the outcrops silicification was patchy, and subsequent weathering has leached away the calcium carbonate and left a residual mass of clay and jumbled chert blocks. At Wurt Pit, however, a succession of Lower Lias limestones 4 m thick was completely silicified.

Wurt Pit is a natural circular sink-hole 15 m deep and 45 m in diameter. The horizontal chert-beds form a continuous cliff around one-third of the circumference near the rim as well as cropping out at intervals around the remainder of the depression. Below this structure, fallen blocks of chert make for steep rocky slopes down to the bottom of the sink-hole.

The chert is micro-crystalline, grey to black when fresh, but which weathers to a rusty-brown. Bedding and contained fossils are faithfully preserved in some outcrops, while in others the rock appears to be a massive replacement breccia, retaining nothing of the original structure. Cracks in the weathered chert contain films of limonite and yellow ochre, and the same minerals occur as cellular masses filling small cavities. Green and Welch (1965) quoted some early writers' descriptions of ochre mines near Wurt Pit; the yellow ochre was associated with the chert. On this evidence, the Jurassic limestones were most probably slightly pyritized as well as silicified. Minor amounts of barite, sphalerite and galena are also locally present.

Interpretation

Silicification of the sedimentary rocks associated with various areas and types of mineralization has been an area of active research throughout the Mendip region. Silicification of the Harptree Beds has been the focus of these studies.

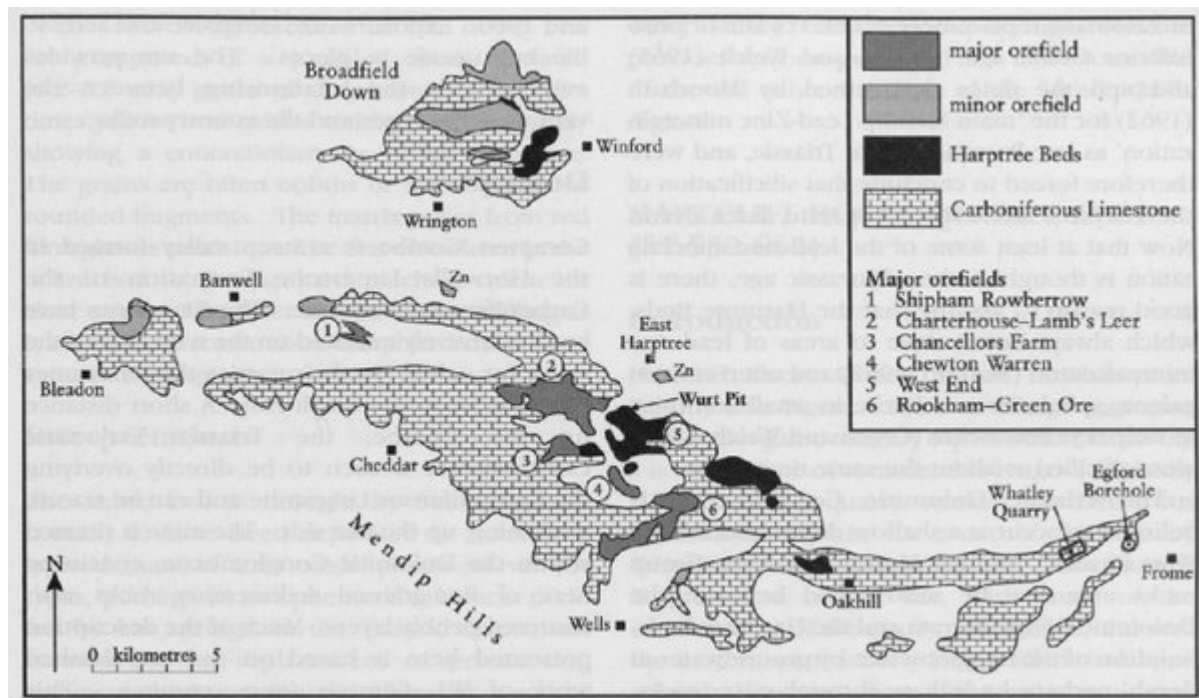
The Harptree Beds of the central Mendip area are silicified Jurassic limestones (Lias and Inferior Oolite) that have been largely decalcified. Woodward (1893) suggested that they were the products of ascending hydrothermal solutions, and Green and Welch (1965) commented that the Harptree Beds appeared to be the result of metasomatic replacement of chert of late or post-Inferior Oolite age. Green and Welch (1965) accepted the dates determined by Moorbath (1962) for the 'main Mendip Lead-Zinc mineralization' as late Permian to late Triassic, and were therefore forced to conclude that silicification of the Harptree Beds was a separate, later, event. Now that at least some of the lead-zinc mineralization is thought to be of Jurassic age, there is good reason to assume that the Harptree Beds, which always occur close to areas of lead-zinc mineralization (Stanton, 1982) and often contain galena, sphalerite and barite in small amounts, as well as yellow ochre (Green and Welch, 1965) were silicified at about the same time.

The Triassic Dolomitic Conglomerate is believed to occur at a shallow depth beneath the Wurt Pit site. Younger Mercia Mudstone Group rocks may also be sandwiched between the Dolomitic Conglomerate and the Harptree Beds. Solution of the conglomerate by groundwater at depth, perhaps by leakage through cover rocks, is believed to have resulted in collapse.

Conclusions

Wurt Pit is an important geomorphological site. However, it is also of considerable geological/ mineralogical importance, being the focus for the studies of the Harptree Beds of Jurassic age and their hydrothermal silicification. It is considered that this silicification was closely associated with the fluids of the main Mendip lead-zinc mineralization, and the quartz replaced anhydrite nodules (so-called 'Potato Stones' and 'Bristol Diamonds') which are found throughout the area (Tucker, 1976; Harding, 1978).

References



(Figure 6.12) Individual orefields of the Mendip district in relation to outcrops of the Harptree Beds, showing the location of the Wurt Pit GCR site. After Stanton (1981).