

## MINING HISTORY NOTES

### Devonshire Cavern, Coalpit Rake, Matlock Bath, Derbyshire: firesetting with coal

#### John Barnatt

I have been visiting Devonshire Cavern, or to use its miners' name, Coalpit Rake, for years. This has often been in the company of Jim Rieuwerts. These visits with Jim, have often involved looking at detailed evidence of how the workings had been mined and exploring his suspicion that this was an early mine, i.e. possibly of medieval or even earlier date. These have gradually brought evidence for this into focus. Detailed underground archaeological recording has recently been started with some trepidation, for given the complexity of the mine and the need for maintaining the enthusiasm of a support team, this is a long-term project that may well take several years to complete. This note has been written to share Jim's and my own preliminary observations and interpretations of this frequently visited but often poorly appreciated and taken-for-granted mine, which has much of great historical and archaeological interest.

The bulk of the accessible mine comprises a series of closely spaced, roughly parallel but frequently interconnecting veins, trending NNE/SSW, the upper and possibly the lower stratigraphic limits of which are determined by clay wayboards. The workings come close to the surface high on the hillside to the west, and may have first been found via bedding caves following the dipping wayboards; down-dip the mineralised horizon is covered by an increasing depth of rock. Mining has clearly had a long and complex history and many earlier passages are partly or wholly backfilled with the waste of later working. The following observations on the archaeology of the mine can be made:

1. There is extensive sooting in the narrow stopes, although this has survived only intermittently on the roofs of passages, as these are often at wayboard horizons and there has consequently often been more recent flaking. Evidence has also been masked in some heavily used passages, by modern explorers inadvertently coating walls with mud. The sooting, from firesetting, is found throughout much of the mine, from the passages up-dip, which may well be some of the earliest, to those at greater depth near the eastern end of the accessible workings. It is usually visible in passages that had already been worked before the soot collected, presumably also by firesetting, formed as the smoke travelled up-dip. This extraction technique has been used since prehistoric times and went out of use in the early 18th century (Rieuwerts 1998b; Ford and Rieuwerts 2000).

2. The use of firesetting is confirmed by floor deposits throughout the mine where there are commonly small pieces of coke. This indicates the firesetting was carried out using coal, which may have been mined locally less than 3 km away at Lumsdale, Matlock or at Wirksworth. The name Coalpit Rake is also relevant. It may be more than idle speculation to envisage later miners returning from re-exploration of old workings and remarking '*its like a . . . coal pit down there*'. If true, this has interesting implications for the date of the earliest firesetting here, for recent research by Jim Rieuwerts in the Public Record Office has found that the name Coalpit Rake has been current since at

least the early 16<sup>th</sup> century, at which date mining was taking place here (JR *pers. comm.*).

3. Some packs of deads have been built with atypically small irregularly-shaped stones that may well be a distinctive feature of rock broken by firesetting. Some of these, and parts of the stope walls, have a distinctive pinkish tinge together with spalling of surfaces which may be the result of heat treatment.

4. There are a number of holes cut between veins, both in the wayboards and through limestone, that are probably thurls (ventilation holes) associated with the firesetting.

5. There are a series of narrow shafts from the workings to surface, spaced at irregular but frequent intervals, the majority of which appear to be hand picked. These include fine examples comparable to those at the Nestus Pipes (Barnatt and Rieuwerts 1998, plate 9), thought to be medieval to 17<sup>th</sup> century in date.

6. Several places throughout the mine have extensive buddling waste, indicating ore has commonly been dressed underground.

7. The majority of workings have been undertaken without the use of powder and pickwork is very common, often in the form of heavy sweeping work covering the sides of stopes. This work is often at the vein/limestone interface or cut into gangue rather than through limestone.

8. Shotholes from gunpowder work are found in small numbers throughout the mine. However, wherever observed they are either related to secondary work in pre-existing passages, usually as trial work cutting through the sooted or otherwise dirty surfaces to see if further lead-bearing gangue existed, or they are in small exploratory workings at the edges of a core band of earlier passages. Powder was introduced to Peak District mines in the 1660s and its use became common in the 18<sup>th</sup> century (Barnatt *et al* 1997; Rieuwerts 1998a). Most of the shotholes are of typical 18<sup>th</sup> and, less commonly, the larger 19<sup>th</sup> century type. However, in the lower workings to the east, particularly small shotholes have been identified, which may well indicate late 17<sup>th</sup> century work.

In conclusion, the workings at Coalpit Rake are highly distinctive in character, and Devonshire Cavern can be shown to be an ancient mine of particular importance, both for its intrinsic interest and the ease with which it can be explored and thus shown to people in order to promote interest in mining history and archaeology. Other rare Peak District mines that provide evidence for extensive early underground work include the Nestus Pipes at Matlock Bath (Barnatt and Rieuwerts 1998) and Old Ash Mine at Northern Dale between Wensley and Snitterton (see report in this volume). However, both of these are within pipe workings rather than the more common Peak District vein workings. While a few isolated examples of firesetting at scrins can be quoted, the most impressive of which is perhaps that at Owlet Hole at Matlock Bath, the mine at Devonshire Cavern stands out due to the extensive evidence for this ancient mining technique.

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just the two of us, explored the more obscure, seriously thrutchy and little visited corners of the mine, and Terry Worthington whose stimulating comment and devil's advocacy has proved invaluable.

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## Old Ash Mine, Northern Dale Derbyshire: preliminary observations on an early mine

John Barnatt

My first trip to this mine, near Wensley, was in Spring 2000, with members of the Masson Caving Group. I knew that there was evidence for firesetting (Jim Rieuwerts *pers. comm.*), but to my surprise I found that the evidence for early mining is extensive and takes several forms. This note has been written to quickly inform members of this exciting discovery and give first impressions of the archaeology this important mine. A detailed underground assessment was started late in 2000, and is soon to be resurrected after a long break due to the foot-and-mouth outbreak and work on other projects; it is hoped that this will be submitted to *Mining History* in due course. This assessment includes the nearby Lords and Ladies Mine and other pipe workings, possibly equally early.

The bulk of the accessible mine comprises natural caverns, mostly phreatic in character and developed in mineralised pipe deposits. It is these areas, entered from Northern Dale, which appear to have been modified by early mining. In contrast, parts of the mine have also been worked again in the 17th and/or 18th century. The deep shaft from surface to Bridge Cavern may be of this date and in both the stoped vein and pipe caverns nearby there is gunpowder work. This was introduced to Peak District mines in the 1660s and its use became common in the 18<sup>th</sup> century (Barnatt *et al* 1997; Rieuwerts 1998a). A second scrin working nearer the entrance has also been driven with powder.

There are a whole series of clues as to the great antiquity of much of the mine. The ones identified so far are:

1. Extensive areas of sooting on the roof throughout much of the mine, which indicates some passages have been mined using firesetting and smoke from this has spread throughout natural and mined passages alike. This extraction technique has been used since prehistoric times and went out of use in the early 18th century (Rieuwerts 1998b; Ford and Rieuwerts 2000).

2. There are a number of packs of deads built with atypically small irregularly-shaped stones, similar to some of the deads in Devonshire Cavern (see report in this volume), which may well be a distinctive feature of rock broken by firesetting.

3. There are several places where the pickwork in the pipe workings is very fine, often cutting through the firesetting soot. The only other place where this type of pickwork has been found is in the Nestus Pipes at Matlock Bath (Barnatt and Rieuwerts 1998). Here there is evidence that this extraction probably took place in the late medieval period and possibly before. It is believed that this fine pickwork results from the care needed to extract galena in large pieces. It was only with the introduction of ore-hearth smelting technology in the late 16th century that small pieces of ore could be processed. The implication is that the Old Ash pickwork dates to the 16th century or earlier and that the firesetting is of similar or earlier date.

4. In one roof vugh near the entrance there are large quantities of galena but in many individually small pieces. This was also a distinctive feature of the early workings at the Nestus Pipes. That this galena has not been removed again suggests mining before the introduction of the new smelting technology.

5. A hole in the roof of one of the pipe chambers relatively near the entrance leads immediately to a short stretch of cross-cut which has been filled with deads from its other end. It is the smallest cross-cut I have ever seen in a Peak District mine, with only enough room for crawling. This may again be a particularly early feature - a similar but slightly larger cross-cut is known in Masson Cavern (Barnatt and Rieuwerts 1998 plate 7); this links two of the medieval pipe workings.

To conclude, Old Ash Mine is demonstrably one of the oldest mines in the Peak District that can still be explored. Only the Nestus Pipes (Masson/Rutland Caverns) and Coalpit Rake (Devonshire Cavern), both at Matlock Bath, provide similar evidence for extensive early underground work. Old Ash Mine is at least 400 years old, and could easily be significantly earlier.

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