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# STONE HAMMERS FROM THE ECTON MINES IN THE BATEMAN COLLECTION, SHEFFIELD

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**Abstract:** A small group of stone hammers found in 1855 at the Ecton copper mines is described and discussed.

## INTRODUCTION

In a sequel to his account of the discovery of stone hammers at the Ecton mines Guilbert (1994b) described a group of stone tools found there in 1855. The recent radio-carbon determination of 1880 - 1630 cal. BC on an antler tool from the mines (Barnatt and Thomas 1998) now provides a Bronze Age date for mining at Ecton and a prehistoric context for the 1855 discovery.

The stone hammers found in 1855 formed part of the collection of the Derbyshire antiquary Thomas Bateman (1821-61). This collection was originally kept in Lomberdale Hall near Youlgrave and was transferred on loan to Sheffield Museum after Bateman's death. In 1893 his debt-ridden son, Thomas William, instructed Sotheby's to sell the collection and most of the local archaeological material was purchased by Sheffield Corporation for the City Museum (Marsden 1988, 37). Six years later a detailed catalogue of the collection was published by the museum's curator (Howarth 1899) but no mention was made of the stone hammers from Ecton (Note 1). They appear to have remained forgotten until their rediscovery in 1991 by Julien Parsons, the museum's former Keeper of Archaeology.

How did the Ecton hammers find their way into Bateman's collection? In addition to material from Bateman's own excavations the museum at Lomberdale Hall contained items acquired from various parts of the country including some hammer-stones and bone tools found in 1849 at the Great Orme copper mines, Llandudno (Ford 1994). One of Bateman's principal helpers and fieldworkers was Samuel Carrington, the village schoolmaster at Wetton near Ecton. Carrington was responsible for the excavation of a remarkable number of prehistoric burial mounds in North Staffordshire including two Bronze Age barrows on Ecton Hill which he opened in 1848 and 1851 (Bateman 1861, 111, 147, 176). In the absence of other evidence it is likely that Carrington, a locally respected figure with a known interest in antiquities, would have been told of the discovery of the stone hammers at the Ecton mines. Being familiar with the contents of Bateman's museum it is also likely that he recognised the similarity between the Llandudno and Ecton hammer-stones and readily acquired the latter for his mentor.

## DESCRIPTION

The collection consists of 10 stone artefacts:.

1. Long quartzite cobble with an oval section and naturally polished surface; 195 x 105 x 55 mm, 2200 g. Extensive areas of batter and flaking at both ends although the edges of one flake scar are rounded and polished suggesting earlier, perhaps natural damage. One face is blackened. (Accession number 1991.222).

2. Quartzite cobble, naturally polished, with flat to concave faces and rounded sides; 160 x 100 x 60 mm, 1950 g. Extensive areas of batter at both ends with some small flake damage at the broader end. One face is blackened and there are isolated mud encrustations and spots of malachite on both faces. (Accession number 1991.228).

3. Long quartzite cobble, naturally polished, with an oval profile; 185 x 75 x 65 mm, 2300 g. Extensive wear marks at both ends with heavy flake damage on both faces at the broad end. One edge is blackened along its length. (Accession number 1991.219).

4. Irregular quartzite cobble, naturally polished, with a flattened oval section slightly ridged on one face; 150 x 85 x 60 mm, 1400 g. Compact batter marks at both ends. One face is blackened. (Accession number 1991.227).

5. Quartzite cobble, naturally polished, with an oval section; 135 x 80 x 40 mm, 1050 g. Compact batter marks at both ends with a single area of flake damage at the broader end. One side also exhibits a linear area of isolated, discontinuous batter. One face is blackened and the other face has some malachite staining. (Accession number 1991.225).

6. Squat quartzite cobble, naturally polished, with an irregular trapezoidal section; 135 x 80 x 45 mm, 950 g. Compact batter marks at both ends with a large flake scar running along the body of the cobble from the broad end. There is an isolated patch of abrasion on the centre of one side. (Accession number 1991.220).

7. Split quartzite cobble, naturally polished, with flattened oval section; 105 x 65 x 35 mm, 350 g. There are no wear marks on the ends but two small flake scars are present on one edge of the broken side which could be contemporary with the fracture or relate to post-damage use. The face of the fracture retains a surface coating of orange-brown mud with traces of ore. (Accession number 1991.221).

8. Tabular cobble of naturally polished quartzite with flat faces and irregular sides; 135 x 135 x 40 mm, 1350 g. Batter marks with some flake damage form a linear area along the edge of the broader end of the tool. There is an isolated area of battering on the corner of the opposite end. One face has isolated areas of black staining and some malachite traces. (Accession number 1991.224).

9. Tabular cobble of grey, banded limestone; 125 x 100 x 45 mm, 975 g. One side and the broad end appear to be unifacially flaked but it is not apparent whether this is natural, is a sign of deliberate shaping or results from use-damage. The flaking on the broad end is overlain by a linear area of battering and there is an isolated area of battering at the corner of the other end. (Accesssion number 1991.223).

10. Circular cobble of quartzitic sandstone, unpolished, with one

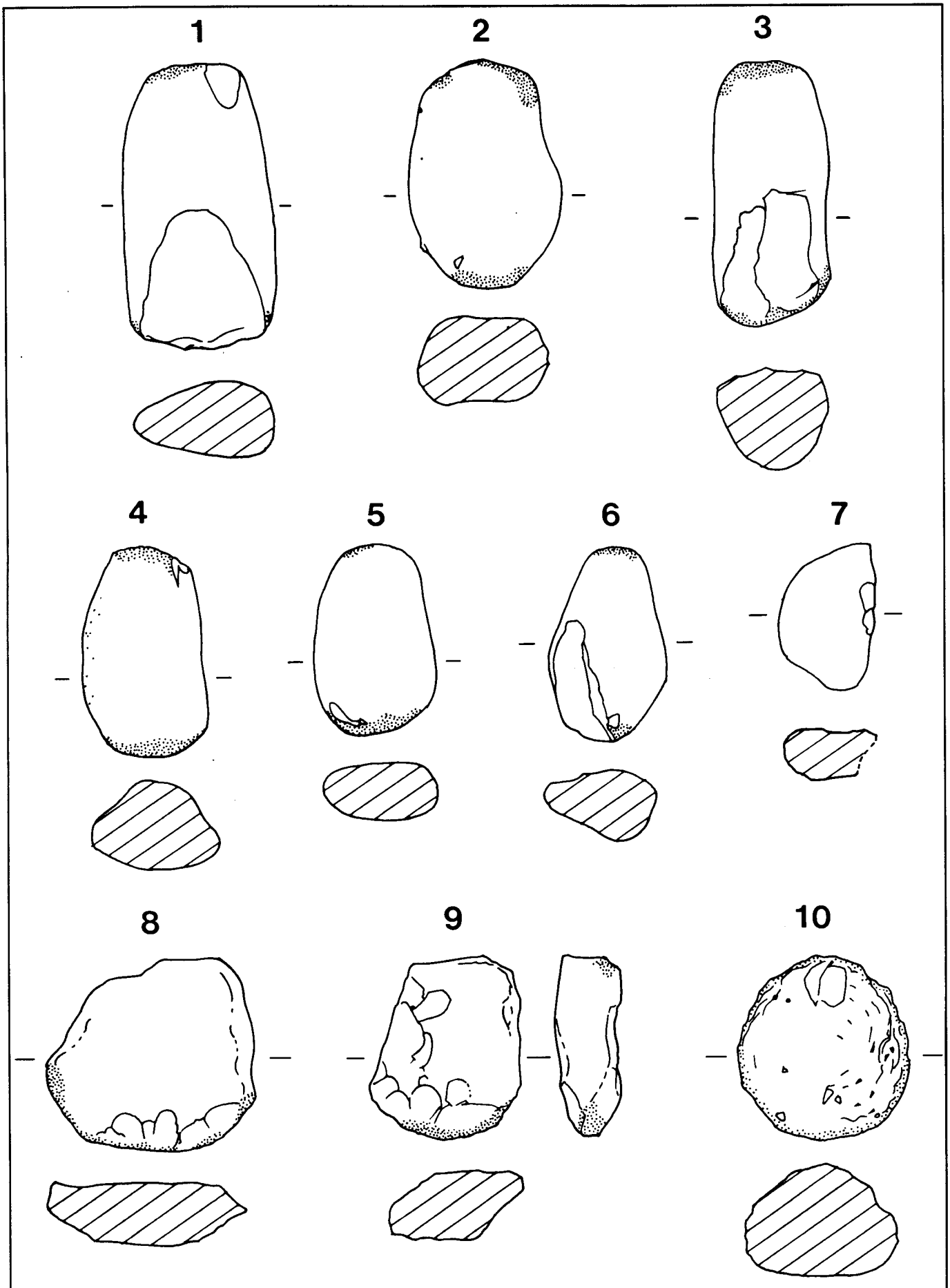


*Fig. 1. Sketch of Ecton Hammer-stones. Batter-marks and abrasion shown by stippling.*

domed face and one slightly convex face; 115 x 125 x 80 mm, 1850 g. The domed face is naturally pitted with a rough, vesicular surface. The surface of the convex face is smoother, the result perhaps of grinding or attrition. Batter marks form a linear band encompassing the cobble at its widest point. (Accession number 1991.226).

The tools are accompanied by a hand-written label, already published by Guilbert (1994b), which reads:

'A collection of pebbles shewing marks of pounding and sharpened pieces of stag's horns found in an ancient copper mine at Ecton, Staffordshire in June 1855 - The working tools of the aboriginal miners.'

The 'sharpened pieces of stag's horns' can no longer be traced but were presumably antler tools similar to the example recovered recently from Stone Quarry Mine (Barnatt 1998).

Six of the tools (1-6) form a coherent group. They are all naturally rounded, elongated quartzite cobbles with close-pitted wear marks at both ends characteristic of heavy pounding. They can be compared with the unmodified, multi-functional cobble hammers now familiar from a range of dated Bronze Age mines in Britain (O'Brien 1996) and the mean length and weight of these Ecton examples (160 mm; 1640g) is within the standard range recorded at both the Mount Gabriel and Cwmystwyth mines (O'Brien 1994, 124-27; Timberlake 1990). These hammers also appear to be identical in form and use-damage to the two broken meta-quartzite tools previously recovered from the Dutchman mine tips at Ecton (Guilbert 1994a, Fig.1, a-b). Tool 7 is lithologically similar to tools 1-6 but lacks the rounded section and has no sign of abrasion on the ends. Although the implement is split laterally it is not obvious if this is a natural break or the result of damage during use.

Tool 8 is an unmodified Millstone Grit cobble. It has an irregular form and can be compared with the two Millstone Grit tools recovered from the Dutchman tips (Guilbert 1994a, Fig.1, c-d). It is also similar to some of the irregular Millstone Grit hammers (unpublished) noted recently by the writer on surface tips at The Lumb and in the Stone Quarry - Deep Ecton Pipe area.

The lithology of tool 9 is unusual. It is a tabular cobble of banded, muddy limestone and appears to have been shaped along one side and one edge before being used as a hammer. The limestone, on surface inspection, is similar to Ecton limestone and this may be an example of the adoption of available local materials to meet a particular need.

Tool no.10 is also unusual. It is a domed cobble of granular and pitted sandstone, possibly Millstone Grit, with wear marks forming a continuous linear band around the circumference. The face is slightly convex and compared to the rest of the cobble has a smooth surface. This may be due to natural weathering and polishing but could also result from deliberate grinding; the coarse nature of the stone is such that surface striations or other signs of mechanical grinding cannot be seen by the naked eye and microscopic examination would be needed to distinguish between natural and artificial markings. It is tempting to interpret this as a top stone, perhaps used in conjunction with a concave bottom stone, in a specific grinding or crushing operation. The abrasion around the edge, if contemporary, may also be related to this crushing-grinding process. Similar tools are rare at early mining sites in Britain although pestle-type stones, possibly associated with stone mortars, have been found in surface workings at the Great Orme (Dutton and Fasham 1994, 269 and Fig.15).

Six of the tools (1-5,8) are partly covered with a black, apparently carbonaceous material. This may be no more than a natural organic coating, perhaps manganese oxide, which was deposited while the stones lay in the mine. It could equally be a carbon deposit derived from contemporary fire-setting and as such deserves further investigation. Also of interest are the malachite traces found on the surface of some of the tools (2, 5, 7, 8) which, if analysed, could provide information on the composition of the ore being worked.

## DISCUSSION

Where was 'the ancient copper mine' discovered in 1855? By 1854 all extraction below adit level had finished at Ecton Mine (Robey and Porter 1972, 49) and, although small scale exploration and reworking may have continued in the higher parts of the mine, it seems that there was little activity here until the formation of the Ecton Consolidated Mining Company in 1857. Further south on the hill the Ecton Mountain Mining Company had been exploring above river level in the Goodhope, Clayton, Chadwick and surrounding mines since 1851. Trial work by this company could well have broken into early workings but the major phase of mining was over by 1854 (Porter and Robey 1972, 48). In the same year, however, work began at the New Trial and Bowler Mine and continued into 1855 which means that both mines were operational when the hammer-stones discovery was made.

New Trial has now been identified as the working popularly known as Fly Mine and recent exploration suggests that the accessible 19th century workings may have 'reopened and considerably enlarged workings that were significantly older' (Barnatt et al 1997, 42). Barnatt (op cit) also suggest that Fly Mine/New Trial was planned to test the extent of mineralised ground between there and Goodhope Mine and that a shaft was sunk to the Goodhope Level. Waste material trammed out along Goodhope Level was dumped on the Dutchman spoil tip and so the hammer-stones found there by Guilbert could derive from workings in the Goodhope, Fly or Bag mines as well as the Dutchman Mine itself.

Unlike the other Ecton ventures, very little is known about Bowler Mine. It was certainly in operation by 1737 and work continued, presumably intermittently, until its final abandonment in or just before 1859 (Porter 1970,206); there are no records of modern exploration underground and the condition of the workings is unknown.

It is unlikely that the 'the ancient copper mine' will ever be re-located but in the absence of other evidence both New Trial and Bowler must be seen as good contenders for the site of the 1855 discovery.

Many collections of stone mining tools in British museums are the result of random surface collecting and thus of limited interpretive value. The Ecton tools, however, are a unified group from an *in situ* underground context. The large unmodified cobble hammers (tools 1-6) are common prehistoric mining tools and would have been effective, both hand-held and hafted, for breaking rock and ore-crushing. Although experimental work has not been carried out it is assumed that the compact quartzites used for these hammers would have proved effective on the friable, bedded limestones and shales at Ecton. The suitability of Millstone Grit and limestone hammer-stones (tools 8 and 9) is, however, open to question although they could have been used in association with antler points to work the softer parts of a vein. The circular tool (10) with its abraded edge and ground face suggests a more specialised function, perhaps connected

with crushing and grinding, and raises the possibility of underground ore-dressing.

The Ecton hammer-stones found in 1855 form a small but interesting assemblage. They add to the growing evidence for early mining in the Peak District and highlight the importance and potential of Ecton for future work.

Note 1
The Bateman collection catalogue produced by Sheffield City Museum does list a "boulder - of celt-shape - probably been used for pounding ore. Found at Long Low, near Wetton, 1853. [catalogue no.] J.93.905" (Howarth 1899, 158). The "boulder" is actually a trapezoidal cobble of quartzite with a flattened oval section (140 x 120 x 65 mm; 2200 g). The surface is generally smooth with an overall natural polish. A linear band of discontinuous abrasion runs across the broad end and the opposing end shows signs of light bruising. These wear marks, although generally much lighter than those seen on the Ecton hammer-stones, suggest that the stone was used for gentle pounding or hammering.

Long Low (SK 122 539) is a complex Late Neolithic monument comprising two burial mounds joined by an earth and stone bank. It was examined by Samuel Carrington between 1848 and 1851 but excavation was hampered because "Longlow Barrrow, situated on a mineral vein - has been so extensively worked as to render the extent of the tumulus almost undistinguishable amidst the mine hillocks" (Bateman 1861, 131); these workings are probably on the Nut Bush Vein (Critchley and Wilson 1975 - shafts 34 and 35). It is not clear if the "boulder" in the Bateman collection came from the barrow or from the nearby mine workings. It is interesting to note, however, that it was found in 1853. This was two years after Carrington's excavations had finished but at exactly the time when the Nut Bush mine was being explored and reopened (Porter and Robey 1974, 274). As an artefact the "boulder" is undiagnostic and undateable but there is a strong possibility that it could have been found in association with mining remains rather than with the Neolithic barrow. Could it be another indicator of early mining in the Manifold Valley?


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## REFERENCES


Barnatt, J and Thomas, G. H. 1998 Prehistoric mining at Ecton, Staffordshire: a dated antler tool and its context. *Mining History* 13:5, pp72-78.

Barnatt, J., Rieuwerts, J. and Thomas, G. H. 1997 The early use of gunpowder in the Peak District: recent exploration and re-evaluation of the workings at Stone Quarry Mine and Dutchman Level, Ecton. *Mining History* 13:4, pp 24-33.

Bateman, T. 1861 *Ten Years Diggings in Celtic and Saxon Grave Hills.* London and Derby.

Critchley, M. F. and Wilson P. J. 1975 A survey of the shafts of Bincliff, Oversetts and Highfield mines, Wetton, Staffs. *Bulletin of the Peak District Mines Historical Society* 6:2, pp 73-81.

Dutton, A. and Fasham, P. J. 1994 Prehistoric copper mining on the Great Orme, Llandudno, Gwynedd. *Proceedings of the Prehistoric Society* 60, pp 245-86.

Ford, T. D. 1994 Hammer-stones from the copper-mining site at Ecton - Editor's note. *Bulletin of the Peak District Mines Historical Society* 12:3, p 27.

Guilbert, G. 1994a Hammer-stones from the copper-mining site at Ecton, Staffs. *Bulletin of the Peak District Mines Historical Society* 12:3, pp26-7.

Guilbert, G 1994b More on the Ecton hammer-stones. *Bulletin of the Peak District Mines Historical Society* 12:4, p14.

Howarth, E. 1899 *Catalogue of the Bateman Collection of Antiquities in the Sheffield Public Museum.* London.

Marsden, B. M. 1988 *The Barrow Knight. Thomas Bateman - pioneer archaeologist.* Eldwick.

O'Brien, W. 1994 *Mount Gabriel. Bronze Age mining in Ireland.* Galway.

O'Brien, W. 1996 *Bronze Age copper mining in Britain and Ireland.* Princes Risborough: Shire Publications.

Porter, L and Robey, J. 1972 *The copper and lead mines of Ecton Hill, Staffordshire.* Leek.

Porter, L. and Robey, J. 1974 The copper and lead mines of Ecton Hill, Staffordshire. Moorland Publishing Co., Leek. 92pp.

Porter, L. and Robey, J. 1974 A history of the Bincliff lead mines, Wetton. *Bulletin of the Peak District Mines Historical Society* 5:5, pp271-78.

Timberlake, S.J. 1990 Excavations and fieldwork on Copa Hill, Cwmystwyth, 1989. In Crew, P and Crew, S. (Editors) *Early Mining in the British Isles.* Occasional Paper No. 1, (pp 22-29), Snowdonia National Park, Maentwrog.



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