BRITISH MINING No.50

MEMOIRS
1994

Fairbairn, R.A. 1994
"Bales of Alston Moor, South Northumberland and Weardale"
British Mining No.50, NMRS, pp.93-99

Published by the

THE NORTHERN MINE RESEARCH SOCIETY
SHEFFIELD U.K.

ISSN 0309-2199

BALES OF ALSTON MOOR, SOUTH NORTHUMBERLAND AND WEARDALE.

by Raymond A. Fairbairn

SYNOPSIS

A search has been made to locate early lead smelting sites on, and to the north east of Alston Moor, including the Allen, Wear and Derwent valleys. The research has largely been based on place names, and has proved to be complicated by the presence of iron smelting sites at some of the 'name' locations.

The sites have been divided into those which smelted locally derived ore, and those that are remote from the mines.

INTRODUCTION

The original intention was to limit this work to the location of bales which may have been associated with the Alston Moor lead industry. It was then realised that this would leave a small gap between the present work and that published by Pickin covering Teesdale.[1] To avoid this, the area of Weardale above Wolsingham and the Derwent valley has been included.

The lead mines of Alston Moor, Weardale and Derwent were extensively worked from early times. Written records refer to the exploitation of the lead from the 12th century, and it is evident that the mines were active before that time.[2,3] The earliest reference to an Alston Moor bale is dated 1279, when it was written that Ralf de Levington removed the gallows of the king from Amshaugh to Bales. At the time of writing, Ralf was already dead, and the word 'bales' appears to be a place name. Smelting in Weardale was very active at that time and in 1210-11 it was possible to supply 40 cartloads of lead from the Durham mines. Wallace wrote that "*The considerable quantities of lead ore raised in Alston Moor towards the close of the seventeenth century could not possibly have been smelted and refined on the Bayle Hills*".[4] While he did not take into account the introduction of ore-hearths in the 16th century, his observation would nevertheless be valid if applied to the pre ore-hearth period. Only two bale sites are known on Alston Moor.

Much of the orefield lies above the 1000 ft contour and, because of this, tree growth is retarded. Shortage of fuel on Alston Moor affected iron smelting there as early as 1356 and, because of the shortage, it apparently became necessary to transport lead ore out of the area for smelting. The evidence for this lies in the number of bale sites between the orefield and Newcastle. No written information is available for Alston Moor, but in Weardale in 1426 ore from the upper part of the dale was transported to 'les Bolehill' at Wolsingham for smelting.[5]

The economic balance between transporting fuel into the mining region, and transporting ore to an area with sufficient fuel cannot be calculated, but the transport of ore seems to have been the more economically favourable. When the only means of transport in most of the region was the pack horse, the quantity of either brushwood

or chopwood that a horse could carry would probably be small because of its low bulk density. Conversely the high bulk density of ore would mean that each horse could carry a full load.

During the research several iron smelting sites have been found and these are included in the records.

EARLY LEAD SMELTING SITES.

Most of the sites have been found by finding place names on O.S. maps. Bale occurs in various spellings, i.e. Bale, bail, bayle, and baal. Bell and Bull need to be added to the list as possible 'bale' names, e.g. Beldon near Blanchland and Bulls Hill near Allendale. A further possible spelling is 'bole' and may be included in Bollihope south of Stanhope. A further complication is introduced by the occurrence of the surname 'Bailes' and 'Bell' in the region.

It would seem that at the beginning of the 20th century bale sites were more readily located than today for Smith wrote that "*Old heaps of lead-scoria are found in many exposed places around the South Tyne, the Allen and Derwent.*"[6] Of the 31 locations visited, slag was only found at five sites.

A second group of names relates to slag, and while there is no reason why these should not refer to iron smelting, in fact they are related to lead smelting and lead slag has been found at Slag Gill in the Derwent and Slag Hill near Whitfield. There seems to be an association between 'slag' name sites and the location of smeltmills, e.g.

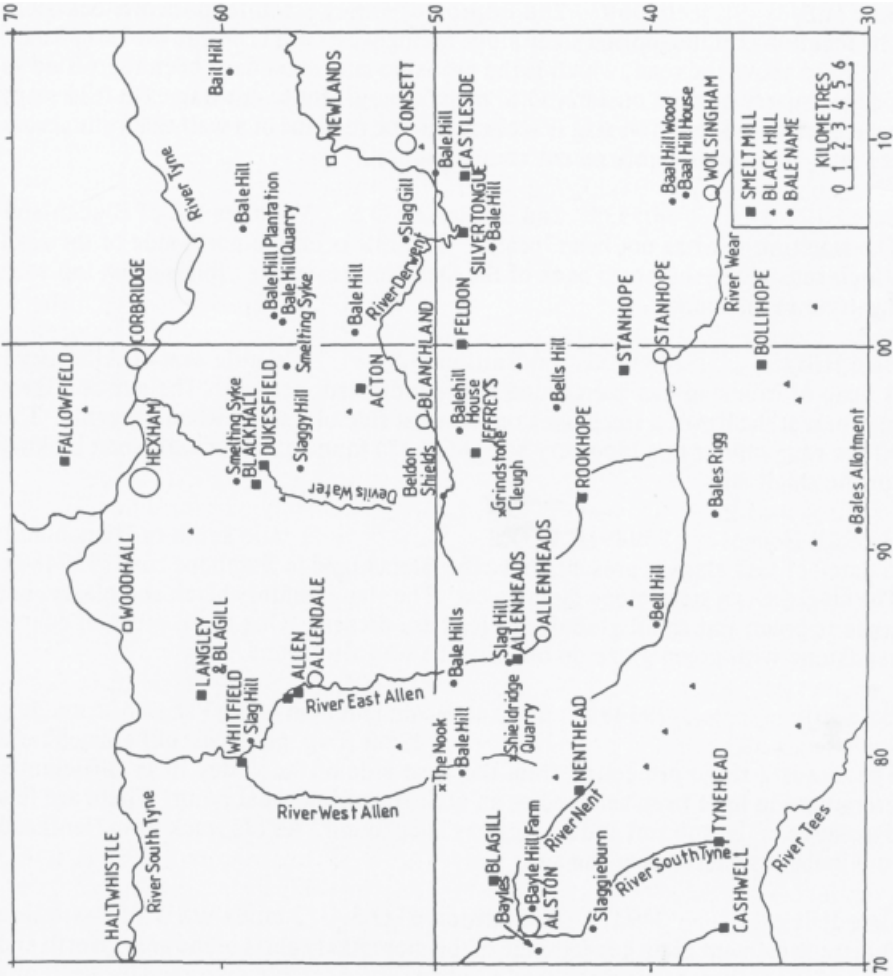
LOCATION	NAT' GRID	DISTANCE TO	SMELT MILL
Slag Hill	807589	½ mile	Whitfield
Slag Hill	848467	¼ mile	Allenheads
Slag Gill	051513	2½ miles	Castleside
Slaggy Hill	940563	1 mile	Dukesfield

Two 'Smelting Sykes' have been located, the one near Blackhall being associated with the lead industry for a long period.

Consideration has also been given to the name Black Hill. Many of these occur, but so far none have been identified with the lead industry, although Black Hill near Hamsterley may have been an iron smelting site.[7] As Black Hill is a common name in the area to the north of the Tyne, which has no link with lead smelting, it seems that the name usually refers to a peat covered hill.

Iron slags present a problem, as many lead ores from the oxidation zone are associated with limonite which meant that the slag could have a high iron content. Because of the high density of lead ores, however, it is unlikely that the concentrates would contain sufficient iron compounds to produce a bloomery type slag. It is, therefore, assumed that such slags are evidence of an iron industry.

It is possible to divide the sites into two types: those which probably smelted locally produced ore, and those which were remote from the mines. The Alston bales, Bells Hill in Weardale and the sites to the SW of Blanchland probably smelted local ores. The situation in the Allendales is more complex, as, although there are major lead veins at the head of both valleys, there are also important lines of communications from the Nenthead region to Newcastle through the valleys. The Allendale bales may have smelted Alston Moor lead as well as local ore. The line of sites to the north of the River Derwent are all within easy reach from the Lead Road which carried the Alston Moor and Allendale lead to Newcastle. One bale which lies just to the north of the Derwent Reservoir (005535), is remote from the Lead Road, but is well placed to have smelted Derwent ore.



SITE DESCRIPTIONS

Baal Hill House 074385 1st Edition 6" O.S. 1 mile north of Wolsingham
Baal Hill Wood 071391 1st Edition 6" O.S. 1½ miles north of Wolsingham
The area is classical bale country with steep, west facing slopes. A fairly brief attempt to find a bale site failed, but the area involved is large and cultivated and may repay a more extended effort.

Bail Hill 131598 1st Edition 6" O.S. Between High Spen and Horsegate
The site lies within a golf course, and is an exposed prominence covered with a thick planting of young conifers. No evidence of smelting has been found.

Bale Hill 056593 2nd Edition 6" O.S. 1 mile south of Stocksfield
The location is at the top of a steep slope facing west, and is beside the Lead Road. The field above the road, which is the probable site, must have been reprofiled as a small quarry marked on early O.S. maps is now totally missing. No lead slags have been found, but iron slag is included in the remains of a wall that runs across the site. This is probably recent contamination.

Bale Hill 005535 2nd Edition 6" O.S. 3¼ miles NE of Blanchland
The smelting site has not been located. The hill is on the north side of the road which runs along the north bank of the Derwent Reservoir. It has a flat top with clear views all round.

Bale Hill 083500 1st Edition O.S. ¼ mile east of Allensford
A heap of iron slag has been found at the indicated location. The site is a level platform at the top of a steep bank on the west side of a small wooded ravine. The site is very similar to a bloomery site (863643) found at Woodhall when looking for the smelt mill.

Balehill House 959491 1" O.S. 1 mile south of Blanchland
A patch of lead slags is present above the Blanchland to Stanhope road (959488). The slag site is a steep slope facing west. The slag is mainly black and glassy, but some is green and small globules of lead are present. One small piece of coarse sandstone with green glaze on one surface was also found.

Bale Hill 793489 Blackett Beaumont Plan of the Parish of Allendale 1861 1286 ft. Trig' point east of Farney Shield
The site is a ridge projecting from the west side of the valley, it is sufficiently prominent to have been selected as an O.S. trigonometrical point. There are few exposures of the sub soil and no slag has been found. An old track from Nenthead to Ninebanks passes near the site.

Bale Hill 049474 1st Edition 6" O.S. 2 miles WSW of Castleside
A water treatment plant covers some of the more likely parts of the area. North and west of the treatment plant the land has been considerably disturbed by small pits and mounds, but no evidence of smelting activity has been found.

Bale Hills 835492 Blackett Beaumont Plan of the Parish of Allendale 1861 1 mile SW of Sipton Shield
The site is alongside a major track from Coalcleugh to Allendale. It is similar to Bale Hill (793489) in that it is on the west side of the valley and the ground generally slopes to the east, but the two small hills are exposed to a westerly wind. Despite exposures being available owing to recent drainage work, no slags were found.

Bale Hill Plantation 015577 2nd Edition 6" O.S. 2½ miles south of Riding Mill
Bale Hill Quarry 009572 2nd Edition 6" O.S. 1 mile NW of Minsteracres
The west boundary of Bale Hill Plantation runs along a prominent west facing escarpment. No evidence of smelting has been found, but this is not surprising because of lack of exposure. The quarry name probably refers to the same bale.

Bale's Rigg 918371 2½" O.S. 3/4 mile SE of Westgate
Nothing has been found to associate the site with smelting. It therefore seems probable that this is an outlying farm belonging to a family with the surname Bales. This ties in with the two sites in Teesdale, Bayles Hush and Bayles Allotment, which are just over the watershed and which Picken considered may be connected with local land ownership.[8]

Bayles 706452 1st Edition 1" O.S. 1 mile SW of Alston
The name refers to a region rather than a distinct site. No slag has been found.

Bayle Hill Farm 727456 1st Edition 1" O.S. 3/4 mile SSE of Alston
The farm is in a very exposed position at the NW end of Middle Fell, overlooking Alston. A search of the area yielded only one small fragment of black slag, and this was found at the side of the road leading up the fields as a continuation of Potters Lane.

Bell's Hill 970444 1st Edition 1" O.S. 3¼ miles NNW of Stanhope
No evidence of lead smelting has been found, but the flat topped hill projects into the valley of Stanhope Burn and has a good west facing slope.

Bell Hill 864396 l957 2½" O.S. ½ mile E of Wearhead
Now called Bail Hill and shown as such on 1989 Edition. The farmhouse is situated beside the Slitt/Wearhead vein and there are many small mounds and excavations. The situation is further confused by the presence of small limestone quarries made to feed field kilns. lt is not surprising that no slag has yet been found.

Bulls Head 845358 2½" O.S. 2 miles SW of Irishopeburn
High in the hills near the head of Irishope Burn. Not visited.

Bulls Hill 848561 2nd Edition 6" O.S. 1½ miles east of Allendale
To the east of Allendale on a west facing slope with good access to one of the fell roads leading from Allendale to Whitley Chapel. No lead slag found.

Bullman Hills 705372 2½" O.S. 1 mile NW of Cashwell Mill
An exceedingly exposed remote location within a short distance of several lead mines. Not visited.

Slag Gill 051513 2nd Edition 6" O.S. ¼ mile SE of Carterway Heads
A small patch of green and black lead slags is present where a small spring flows into the small valley, about 30 metres below the road. It may have been a place to wash slags, although the flow of water is very small. Alternatively it could be a bale site. There is a good clear view to the SW.

Slag Hill 807589 Alston Turnpike Map 2 miles NE of Whitfield
A thin spread of black and green slag is present below the turf at the side of the turnpike. Two rings of stones about two metres in diameter are present nearby and may be associated with the slags.

Slag Hill 848467 1" O.S. 1 mile NW of Allenheads
The site is near to the Allenheads Smeltmill, but the name probably refers to an earlier operation. It is unlikely that slag would be transported up a steep hill from the mill. No slag has been found in the area.

Slaggieburn 716428 2½" O.S. 2 miles south of Alston
Rotherhope Fell Vein and Sir John's Vein both cross the burn, and mineral occurs in the burn. No slag has been found.

Slaggy Hill 940563 6" O.S. 1 mile SE of Whitley Chapel
The site is within the Slaley Forest, but the only exposures are made by the forest roads and no slag has been found.

Other slag locations.

Grindstone Cleugh 917468 3½ miles SW of Blanchland
"*Near the foot of Grindstone Cleugh and on the west side of the stream upon an exposed elevation, angled between the Cleugh and Knuckton Burn, there lies a quantity of lead-slag of some remote period. It is mostly vitreous and of a green or light-green colour grading into black, but some specimens are scoriaceous and include pieces of charcoal. They all contain globules of metallic lead and under the microscope some specimens exhibit interesting states of devitrification. Analyses of three samples were made by Mr. T.E. Hull, F.C.S., of Huddersfield.*[10]

	Sample 1 %	Sample 2 %	Sample 3 %
Silica	25.64		
Iron and alumia	52.88		
Lime	trace		
Magnesia	2.46		
Lead sulphide	4.21		
Free lead	15.21	17.67	68.06

Barhaugh 700510 (about) 3¼ miles NNW of Alston
"*A north-and-south fault crosses the east-and-west fracture about 750 yds east of Barhaugh Park. Eastward from the park the track of the latter is marked by ancient heaps of lead-scoria and wood-charcoal, strongly suggesting that ore has been obtained here and smelted at some remote period.*"[9]

The Nook 785498 West Allen 2 miles WNW of Carrshield
This is an unlikely site for a bale, being on an east facing slope. No lead slag has been found, but a spread of iron slag is present in the garden in front of the house.

Shieldridge Quarry 803464 West Allen 3/4 mile SW of Carrshield
A layer of iron slag is present above the face of the smaller quarry. The site is alongside the old Coalcleugh to Carrshields road which runs down the west side of the West Allen.

ACKNOWLEDGEMENTS
I am indebted to Dr S. Linsley of the Centre for Continuing Education, University of Newcastle upon Tyne, who provided references for some of the sites and who kindly commented on the paper prior to publication.

REFERENCES

1 Pickin, J. "Early lead smelting in Teesdale" *Boles and Smeltmills*, Historical Metallurgy Society Ltd, 1992, pp.25f.

2 Drury, J.L. "Medieval smelting in County Durham" *Boles and Smeltmills*, Historical Metallurgy Society Ltd, l992, pp.22f.

3 Fairbairn, R.A. *The Mines of Alston Moor* (Keighley: NMRS, British Mining No.47, 1993) p.12.

4 Wallace, W. *Alston Moor: its Pastoral People its Mines and Miners* (Newcastle upon Tyne: Davis Books Ltd, 1986. Reprint of 1890 Edn) pp.99f.

5 Raistrick, A. and Jennings, B. *A History of Lead Mining in the Pennines* (London: Longmans, 1965) p.53.

6 Smith. S. *Lead and Zinc ores of Northumberland and Alston Moor, Memoirs of the Geological Survey*, Special reports on the mineral resources of Great Britain, Vol. XXV, 1923, p.7.

7 Drury, J.L. 1992, p.23.

8 Pickin, J. 1992, p.25f.

9 Smith. S. *Lead and Zinc ores* ..., p.88.

10 ibid. p.51.

Editor's note: Two sites, just outside the area covered by this paper are:-

Baal Hill - 187395
Smelt House - 160338 at Howden-le-Wear.

Paper submitted - April 13th 1994: R.A. Fairbairn,
Allendale,
HEXHAM
Northumberland
NE47 9ND