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THE COST OF PRODUCING LEAD FROM SHARPLEY LEAD MINE IN NORTHUMBERLAND DURING THE 18TH CENTURY.

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SYNOPSIS

Sharpley Mine was worked by Sir Lancelot Allgood of Nunwick in the middle of the 18th century, on his own estate near Sharpley, N.C.R. 35/879 723, about one mile SSE of Simonburn in the North Tyne valley. According to Wallace, 1769, the ore was good, but not in sufficient quantity to continue working it. Smith,[1] who quoted Wallace, added no further information. A single document in the Allgood papers dated 1765, Northumberland Records Office reference ZAL 56/3, adds considerably to our knowledge of the economics of the venture, giving production data for 1750 and 1751, as well as the cost of transporting and smelting the ore, and taking the lead to Blaydon to be sold. This document is the basis of this account.

INTROPUCTION

Sharpley lead mine is north of what is normally regarded as the orefield. The most northerly productive lead mines were Settlings tones Mine, 3½ miles SW of Sharpley and Fallowfields Mine four miles to the SE. Smith records 30 sites in Northumberland north of the Roman wall where lead ore has been found, but none have been of economic importance.

A fault running WNW and down throwing to the south occurs near Sharpley, and it is thought that this was the vein. The strata was probably the Whin Sill, or the Jew Limestone that lies below the Whin.

Recorded outputs are:-

1750	May 4	5 bings
1751	June 27	13¼ bings
	Total	18¼ bings at 45 shillings per bing £41 1s 3d.

A bing is equal to eight hundredweight, i.e. 896 lbs so that the total produced was 16352 lbs.

The payment of 45 shillings per bing is exceptionally high for the time, and indicates that the lead ore was very difficult to extract. Comparative rates of pay for Coalcleugh miners in 1771 were between 15 and 28 shillings per bing,[2] and for Alston Moor miners in 1737, between 20 and 26 shillings.[3]

Only one partnership is recorded for each year, 1750 Thos Armstrong and Partners, 1751 Jose Armstrong and Partners.

Sir Lancelot Allgood, owned the mineral rights of the ground that the mine was on, and would therefore not have to pay duty on the ore.

Transport From Mine to Smelt Mill

At the time the only means of transport would be by packhorse. The route taken is not known but the distance from Sharpley to Dukesfield Smelt Mill is about 11 miles. The cost of transport was 3 shilling 4 pence per bing, that is 3.64 pence per mile per bing. A packhorse could carry about 300 lbs, (a third of a bing) with a range of about 20 miles, therefore they would complete a return journey in a day, making the cost per horse per day 13.3d, this seems to be a high value for the period.

The cost of transporting the ore was £3 0s 10d.

The Smelt Mill

Dukesfield Mill, 35/941 580, is situated on the east side of the Devil's Water a mile east of Whitley Chapel, four miles south of Hexham. The mill was the property of Sir WaIter Blacket, and was mainly used to smelt the ore from his Weardale and Allendale mines.

The Sharpley ore yielded 67 pieces of lead from the ore hearth and one piece from the slag hearth. A piece of lead was defined as 11 stone, i.e. 154lbs, so that the total production of lead was 10472lbs. The ore was probably galena which contains 86.6% lead, so the ore should have yielded 14161 lbs of lead. Assuming that the slags contained 5% unrecoverable lead i.e. 185 lbs, the original ore must have contained 75.3% galena, this is as good as some of the better dressed ores from Alston Moor at that time.

The ore hearth was worked by John Steel and Partners at a cost of 4½d per piece, additional to this was the cost of fuel at 3/4d per piece. Thomas Blenkinsop produced the one piece of lead from the slag hearth at a cost of 9 pence per piece, the cinders, i.e. coke, cost 9 pence. The cost of handling the lead, referred to as "pileing" was 2d per piece. The total cost of smelting the ore was £1 11s 6¼d.

Transporting the Lead

Transportation costs were divided into two sections, from Dukesfield Mill to Apperly Bank at 2s 4d per 10 pieces, and from Apperly Bank to Blaydon as 2s 5½d per 10 pieces. Apperly Bank 45 056 585 is 7 miles east of Dukesfield Mill, though the location of the enclosure where the lead was

stored when being transferred from one carrier to the other is not known. As a horse would carry two pieces the cost per mile per horse load was 0.80d. However because a packhorse was limited to about 20 miles per day only one return journey would be made each day, so the earnings per horse per day would be 5.6d. If three journeys could be made per day the earnings per horse would be 8.4d.

From Apperly Bank to Blaydon is about 8 miles and the price of transport was 2s 5½d per 10 pieces. The cost per mile per horse load was 0.73d, and earnings per horse either 5.9 or 8.85d per day.

The total cost of transporting 68 pieces was £1 12s 6¾d.

Profit

The value of the lead was said to be £12 per Fother
The value of 68 pieces of 11 stone per piece is £53 8s 7d
The cost of production was:

	£	s	d
Winning the ore	41	1	3
Transporting the ore	3	0	10
Smelting the ore	1	11	6¼
Carriage of lead to Blaydon	1	12	6¾
Total cost	47	6	2

Profit to Sir Lancelot Allgood was £6 2s 5d. This assumes no capital outlay on mine development, which is very unlikely. It seems very probable that the venture was run at a loss. This being the case it is also likely that the mine had a short life, possibly only the two years recorded.

Units

No attempt has been made to convert into modern units as it was felt that this would only increase the difficulty of handling the data.

The following units were in common use in the 18th century:-

1 fother (Newcastle) = 23521bs. = 1067 kg, in this case the fother being defined as 21 hundredweight.

1 piece; Normally there would be 16 pieces to the fother, making a piece based on a Newcastle fother weigh 147 lbs. In this case a piece is defined as

11 stone i.e. 154 lbs, sixteen of which would weigh 2464 lbs, or one Stockton fother.[4]

1 bing = 8 hundredweight = 896 lbs = 406.4 kg
£1 = 20 shillings 240 pence.

It is not surprising that the use of pieces based on a Stockton fother and prices based on the Newcastle fother has resulted in calculation problems, and the calculated value of the lead according to the document is £54 5s 8½d. Why a mill that dispatched all its lead to Blaydon where it was refined or sold, should use a larger piece than one sixteenth part of a Newcastle fother is a mystery.

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