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LEAD AND LEASES
Production from the Wanlockhead Mines - 1710-1780

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INTRODUCTION

Figures for lead production are a valuable barometer of mining progress, but those for the 18th Century are difficult to come by. There was not the obsession with statistics which is found today, and what records were made have all too often since been destroyed. So that information which has recently come to light on lead production at Wanlockhead is of more than particular interest. The details are in papers at Drumlanrig Castle and were examined by the courtesy of His Grace, the Duke of Buccleuch and Queensberry. The figures given here are taken from lists and accounts of the lead produced by the mining companies who operated at Wanlockhead, and from the 'tacks' or rents paid to the Dukes of Queensberry, landowners at the time.

Subsequent examination of the transcripts made, showed that while production figures for certain periods are discontinuous they could be estimated in many instances, and Notes on the compilation of these published statistics are given where appropriate. The production figures have been augmented with a commentary on the Lessees to provide a better picture of operations at one of Scotland's principal mines during the early years of the Scottish industrial revolution, and before the boom period in metal mining induced by the Napoleonic Wars. While the quantities of lead produced were not large, they were the result of great physical effort in the mines; of ore washing out of doors in the severe climate of the high moorlands, and of smelting operations using little peat-fired hearths.

In Scotland, the mines were the exclusive property of the landowners, and were either worked by him or leased. The lead 'farm' was a valuable asset, and lessees were carefully chosen to ensure their efforts would bring mutual rewards. Sufficient capital to finance a large and lengthy operation was an important criterion. This is shown by a letter from the Duke of Buccleuch's factor in 1813, when he wrote that an applicant for a lease could "....*command money sufficient to carry on the concern of large works .... "*.[1] The basis for a return was a rental or tack which was usually paid as a royalty in bars of lead. Details of the various tacks during the period studied are as follows, [21] and the accompanying lists of lead quantities produced reflect the. scale and success of the operations.

EARLY COMPANIES

Although mining on the moorlands of the Dumfriesshire Lanarkshire borders has a long history, it was only in 1675 that mining on an industrial scale can be said to have begun in Wanlockhead. In that year one William Blackett examined old workings and considered they could be re-opened. This led

Sir James Stansfield, a merchant with interests in Edinburgh, to form a company with himself and Blackett as partners, and involving a John Lindsay and a Mr Vormuyden. They leased the upper part of the Wanlock valley from the Duke of Queensberry for a rental of 1000 Scots Merks - about £55 sterling. Although a smelt mill was built in 1682, little lead seems to have been smelted. Instead, dressed ore was exported to the continent, the production from June 1682 to October 1683 being 5829 stones Amsterdam - about 50 tonnes (See Notes). The partners ceased operations in 1684, and appear to have spent £4,000 on developing the mines with but little return.

Their combination of mining skills and mercantile interests was a typical one and, in 1692, their lease was taken by a similar partnership, that of Matthew Wilson and Arthur Wall of County Durham. These agreed to a royalty of 1/10th of the ore they mined and worked the grounds until 1710. No accurate details have been found of the amount of lead produced by them, but the Duke's tack of smelted lead is recorded as 5160 stones Amsterdam.

THE GOVERNOR & COMPANY

The production figures here listed begin in 1710 when a lease of all the mines within four English miles of Wanlockhead was given to a concern generally referred to as 'The Governor & Company'. Unlike the previous operators, who had formed partnerships expressly to work the mines, the new tenants had a record of metal mining elsewhere in Britain. They comprised an English Chartered Company first formed in 1692 as 'The Governor & Company for Smelting down Lead with Pittcoal and Seacoal', and had smelting works at Bristol. The company was later acquired by a group of Quakers and thereafter variously known as 'The Governor & Company', the 'Quaker Company', or the 'London Lead Company', the latter because the Court of Directors met in London.[2] The tack was one bar in every seven smelted, and the Duke also had a quarter share in the business. This was the only example of the landlord having a direct share in operating [22] the Wanlockhead Mines until the 5th Duke of Buccleuch, whose grandfather had succeeded to the Queensberry title, took over all the mines, in the 19th century.

As befitted a company of its size, the Governor & Company embarked on extensive investments which covered the driving of drainage levels, a new smelter, and the installation of water-powered pumps. By 1719 it was producing at an annual rate of over 25,000 stones of smelted lead. After 1721 production figures are missing and when they resume in the 1730's output had fallen and operations appear less satisfactory. A contemporary report found that "... *the managers of the work had carried up the* [drainage] *level in a wrong way...*".[3] Later, another lessee, Robert Wightman, wrote "... *the Quaker Company have done nothing since our Society separated from them ...*" and went on to refer to "... *their blundering way of managing ...*".[4] It might be thought that management in London was too remote, but its contemporary at Leadhills, the London-based Scots Mines Company, was

later to prove that distance need be no obstacle, provided there was effective direction at the mines.

THE FRIENDLY MINING SOCIETY

The fact that the Duke had a quarter share in operations at Wanlockhead allowed him some flexibility, and in 1721 he used this to give Robert Wightman, an Edinburgh merchant and that city's Dean of Guild, a foothold on the mining ground. A lease was later drawn up, and to work it Wightman formed the Friendly Mining Society, having a capital of twenty £500 shares. Most of the subscribers were Edinburgh merchants but two, Richard and Nicholas Ridley, were from Newcastle. The terms of the lease gave a tack to the Duke of 1/10th of "... *all clean ore* ..." and a condition was a fifteen year co-partnership with the Governor & Company.[5] However, the latter withdrew from the partnership in 1729, and the Friendly Mining Society's activities seem in any event to have been short-lived.

ALEXANDER TELFER OF SYMINGTON

The Governor & Company had taken a lease for 31 years, but their dwindling interest in the 1730's seems to have encouraged the attention of other speculators. One of these was Alexander Telfer who, with his brother,. began mining at Wanlockhead in 1735, by first securing the Wightman lease [23] but later extended his activities to other mines including New Glencrieff.[6] This mine was later to prove to be one of the richest at Wanlockhead, and the last to be worked there, 200 years later.

All too little is known of Telfer. He is believed to have come from a mining family, and was probably the only miner to take a lease in Wantockhead on his own account.[7] Nothing has come to light of the source of his capital, but the scale of his operations shows he was not short of money and, by 1743, he was employing 240 out of the workforce of 350 in the village.[8] His success is indicated by the quantities of lead he produced, his output for 1741 being the highest for any company to that time. However, his success seems to have gone to his head, for he so bombarded the Duke with proposals for ever more grandiose operations and extensions of his lease that the latter lost patience and eventually went to law to have the lease annulled and Telfer put out.[9] Nothing daunted, Telfer contrived to keep an interest in operations through other lessees, and his descendants were to play an important role in Scottish coal mining down to the 20th century.

RONALD CRAUFORD & PARTNERS

By 1755, with the expiry of the Governor & Company's lease, the Duke was in a position to re-let the whole mining ground and looked again to traditional mercantile interests for his tenants, in this instance a partnership led by Ronald Crauford of Restalrig who, with his brother had trading links with Rotterdam and was already exporting lead from the nearby Leadhills mines (Drumlanrig MSS). Shortly after they had, begun mining at Wanlockhead the partnership was joined by another Edinburgh merchant, Gilbert Meason,

who took over the day to day management of the mines. Meason was the son of an Orkney trader, and he continued with his business in those northern isles while directing operations at Wanlockhead.[10] Like his contemporary, James Stirling at Leadhills, Meason's lack of experience in mining proved no handicap and the success of the company at this time was largely due to his efforts. Aided by skilful engineers, he embarked on developments which involved considerable technical innovation. A tunnel was driven through the watershed to bring in water from outside the valley, and the first steam engine was [24] later erected.[11] This was obtained from Boulton & Watt in 1778 and was the second Watt engine on a Scottish mine. Meason also encouraged William Symington to develop and patent an engine, and one was erected on the Bay Mine in 1789.[12]

The company continued to work all the mines until 1842, by which time the main shareholder was the Marquis of Bute, a grandson of Ronald Crauford through the marriage of the latter's daughter to the Viscount Monteagle. No output figures have been found for the later years, but Reports of the mines prepared for the Marquis suggest that the impetus engendered by Gilbert Meason was not maintained by his management successors.[13]

SUMMARY

Gaps in the output records obscure the total picture, but one can see evidence of the varying fortunes inherent in these early, speculative ventures. Five-yearly averages derived from the figures show that the rate of production rose during the early years when much of the ore was above level and new veins were being developed, and fell later when workings deepened and, despite improvements in technology, transport and pumping difficulties increased.

Total production was not great, but probably is comparable with mining elsewhere during the period, Production from the nearby Leadhills Mines has been estimated at 1500 tons in the year 1768, but single figures are misleading.[14] Elsewhere in Britain, a Welsh mine, Rhandir-Mwyn in Carmarthenshire, is said to have produced 1000 tons of ore per quarter in the 1780's, equivalent to about 3000 tons per year of smelted lead.[15] This seems exceptional, and the 700 tons of lead from the Grassington Moor Mines in the 1760's was probably a more usual figure.[16]

PRODUCTION OF SMELTED LEAD

Figures in Stones Amsterdam Weight

Date	Governor & Co.	Friendly Soc	Alex Telfer	Tack	**TOTAL** st.Am.,	Tonnes
1710-1712	8832 x	-	-	4904	13736	119
1713	10111 x	-	-	5614	15725	137
1714	15316 x	-	-	8504	23820	207
1715	11552 x	-	-	6414	17966	156
1716	6134 x	-	-	3406	9540	83
1717	9056 x	-	-	5028	14084	122
1718	14592 x	-	-	8102	22694	197
1719	25658	-	-	13035	36500	317
1720	19516	-	-	10842	30359	264
1721	22933	-	-	12740	35674	310
1723-1724		2146	-	858	3005	26
1724-1725	Not	5040	-	2016	7056	61
1725-1726	Given	1950	-	780	2730	24
1726-1727		4310	-	1724	6035	53
1729-1730		32665 *	-	6533	39198	341
1731-1732	3935	19782	-	4743	28450	247
1732-1733	7192	14865	-	4374	26431	230
173S-1734	5370	7338	-	2593	15301	133
1734-1735	11070	2189	6897	4036	24192	210
1735-1736	6879	-	20725	5520	33124	288
1736-1737	9685	-	25135	6963	41783	363
1737-1738	16135	-	29185	9062	54382	473
1738-1739	9363	-	42424	10356	62143	540
1739-1740	3132	-	38619	8353	50104	436
1740-1741	9649	-	47564	11442	68655	597

x Production estimated from the Duke's Tack

* This figure probably includes both the Governor & Co. and the Friendly Society's output.

PRODUCTION OF SMELTED LEAD (2)

Figures of production for the years 1741 to 1755 missing.

Date	Crauford & Partners	Tack.	**TOTAL** St. Am.	Tonnes
Aug 1755 to Jan 1757	40521	8073	48594	423
Jan 1757 to Jan 1758	65564	13112	78676	684
1758-1759	71341	14228	85569	744
1759-1760	44177	9202	53379	464
1760-1761	35404	7137	42541	370
1761-1762	28380	5706	34086	296
1762-1763	38614	7789	46403	404
1763-1764	45911	9182	55093	479
1764-1765	47887	9577	57464	500
1765-1766	40930 x	8264 x	49194	428
1766-1767	84208 x	17004 x	101212	880
1767-1768	81110 x	16378 x	97488	848
1768-1769	66407 x	13409 x	79816	694
1769-1770	64600	12996	77796	677
1770-1771	59083	11860	70945	617
1771-1772	49811	9962	59774	520
1772-1773	35525	5094	42669	371
1773-1774	55975	11233	67208	585
1774-1775	59679	11978	71657	623
1775-1776	71909	14432	86341	751
1776-1777	73579 x	18730 x	112309	977
1777-1778	104326 x	21065 x	125392	1091
1778-1779	83459	16852	100311	872

x Figures estimated from total production,

OUTPUT FROM THE MINES 1769 to 1778
Bars of Smelted Lead

Date	Margret Mine	Straitsteps Mine	Others
1768	91	4371	5302
1769	381	3144	5973
1770	531	923	7111
1771	1073	1151	4958
1772	110	1418	3566
1773	325	4269	3470
1774	1061	2885	4596
1775	2824	2858	4557
1776	7937	1074	4447
1777	9466	197	5337
1778	3799	223	7978

The figures for the Margret and Straitsteps Mines taken from Mine Reports in the Wanlockhead Collection. Hornel Library. That for the other mines is the difference between the sum of these and the total production. Other mines being worked at the time included Beltongrain and Cove.

Five-yearly averages of the total output in tonnes

1710-1716	140
1717-1721	242
1731-1736	221
1737-1741	402
1757-1762	512
1763-1767	538
1768-1772	671
1773-1777	661

NOTES: The Amsterdam weights used were introduced into Scotland in the 17th Century and continued in use at Wanlockhead and Leadhills until the 19th. They had a pound of 17oz 6.15/16 drams, and a stone of 16 pounds. In the present instance a conversion of 100 Stones Amsterdam to 0.87 tonnes has been used. The bars were said to be ‘8 stones Amsterdam or thereby’ but in fact the weight was kept well over 8 stones so as to reduce the amount of the tack duty, and an average of 8.4 stones seems usual.[17]

SRO	Scottish Records Office, Edinburgh.
NRRO	North Riding Records Office, Northallerton
Hornel Lib.	Hornel Library, Kirkcudbright.

SOURCES

1. SRO GD 224 Box 666 - Wm. Cuthill to John Grieve.

2. Raistrick, A. *Quakers in Science and Industry*, (1950).

3. SRO GD 18/2656 - Report on the Duke of Queensberry's mines, 11th May 1736.

4. SRO GD 18/2675 - Robert Wightman to Sir John Clerk. 1st January 1740.

5. SRO GD 45/26/1a2, and Drumlanrig MSS.

6. SRO GD 18/2675) - Robert Wightman to Sir John Clerk.

7. Smout, T.C. "Lead Mining in Scotland", in *Studies in Scottish Business History*, 1967.

8. GRO GD 18/2679 - Peter Rae to Sir John Clerk, 30th April 1743.

9. Drumlanrig MSS.

10. NRRO, ZNKX/2/1/ 223.

11. Downs-Rose, G. "Waterwheel Pumping Engines on the Straitsteps Vein at Wanlockhead", *Memoirs of the NC&MRS*, Vol.2 No.2 (May 1972), pp.80-88.

12. Harvey, W. & Downs-Rose, G. "Mr Symington's Improved Atmospheric Engine". Paper read to the Newcomen Society, March 1974.

13. Hornel Library MSS.

14. Harvey, W. "Lead Mining in 1768", *Industrial Archaeology*, Vol.7 No.3, 1970.

15. Lewis, W.J. *Lead Mining in Wales*, 1967.

16. Raistrick, A. & Jennings, B. *A History of Lead Mining in the Pennines*, 1965.

17. Harvey, W. "Weights and Measures at the mines of Leadhills and Wanlockhead in the late 18th century" *Memoirs of the NC&MRS*, Vol.2 No.3 (September 1973), pp.139-144.