

TWO LEAD SMELTING MILLS IN NORTH STAFFORDSHIRE

by

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1. Introduction

The north Staffordshire non-ferrous metal industry is usually associated with the copper mines at Ecton and copper smelting at Ecton, Cheadle, Whiston and elsewhere. In addition there were a number of small lead mines scattered throughout the limestone area, as well as the better known Dale Mine and the numerous mines on Ecton Hill, many of which also produced sizeable quantities of galena as well as copper ore. Although in the 19th century all the galena mined in Staffordshire was sent to Derbyshire for smelting; at least two smelting mills were operating in the region in the 18th century. These are in addition to the lead cupola built at Ecton prior to 1783 to process the galena from the Duke of Devonshire's mines and a lead slag mill built at the same place in 1787-8; these probably ceased working in 1826 when the Duke of Devonshire gave up his operations at the Ecton mines.

The smelting mills considered here were in the parish of Alstonfield and at Alton, and although not much is known of their history, particularly the quantities of ore processed and its source, sufficient documents are available to enable some record of their operations to be given.

2. Greenlowfield Smelting Mill, Alstonfield.

The earliest Staffordshire lead smelting mill known was at Greenlowfield or "Reigis end" in the parish of Alstonfield, the details of which are recorded in two leases in the Staffordshire Record Office (D 240/M/K/d63). It has not proved possible, as yet, to locate the site of this mill and although there is a Greenlow near The Rakes at Alstonfield, the complete absence of any stream or water supply must eliminate this as a possible site.

Work on building the mill commenced some time before October 1739 by William Hall Walton, a yeoman of Stanshope 1 mile south of Alstonfield, but by this time it had not been completed. Walton's son, Hall Walton (described as a gentleman), was among a number of adventurers who took subleases on the mines at Ribden and Thorswood in 1722 and 1729, but these were very short lived ventures (Robey 1970), while an attempt to lease

copper and lead mines at Grindon in 1736 was not even executed (D 593/I/3/22). In addition Hall Walton was one of the adventurers who commenced the Ecton Sough from Apes Tor in 1723 (Dev. Coll.), but this venture is supposed to have cost £13,000 with no return (Efford 1769), and the fact that Walton was not included in the second lease for the sough in 1739 indicates that heavy losses in this venture had necessitated his father's withdrawal from the lead smelting business. On October 2nd 1739 William Walton agreed to finish the mill with its dam, floodgates and watercourses before the 11th November, and then to convey all his rights in the mill to Paul Nightingale, a grocer from Derby, for £100. The author has not found any other connections between this Nightingale and the lead trade, so the reason for his interest in the Alstonfield mill remains obscure, unless it was thought that this was a lucrative market for investment.

The mill was not finished on time and the conveyance never took place, so that on the 10th May 1740 it was agreed in order that the mill could be completed for the "smelting and running of lead ore" that Paul Nightingale should employ a workman to finish the building, the expences to be deducted from the £100 payable to Walton. This was apparently done by July 1741 at a cost of £90, when the mill was leased to Paul Nightingale for a term of 99 years for a nominal sum, plus the £10 necessary to complete the transaction. In addition Nightingale made a loan of £500 to William Walton and his son, confirming that financial pressures could have been the reason for Walton giving up the smelting mill. All the tools and implements were also sold to Nightingale.

Nightingale's interest in the mill was not to last long, for 6 months later, on Jan. 16th 1741 (=1742 by the modern calendar*) the mill was assigned to Thomas Gilbert of the Inner Temple, London for the remainder of the 99 year term for the sum of £200. Thomas Gilbert came from Cotten in north Staffordshire and was brother to John Gilbert the noted canal and mining engineer (Malet 1961). The Gilberts had many interests in mining and quarrying in north Staffordshire and elsewhere, including the Ecton mines (Porter and Robey). The smelting mill was described as having two hearths, with "Mill Pools, dams, floodgates, Wheels, Bellows and other Utensils and Implants", so clearly it was a lead ore hearth of the type illustrated by Clough (1962). Apparently Paul Nightingale relinquished his rights to the mill due to financial reasons so as to raise £200, for the lease states that the agreement could be made void if he paid back the £200 back to Gilbert, plus 4 $\frac{1}{2}$ % interest, by July 16th 1742. Gilbert may well have had interests in the smelting mill before he formally acquired it for his father's will (also Thomas Gilbert) dated two weeks before the assignment from Nightingale includes the

* At this period it was customary to start the "New Year" on 25th March, so that the day following 24th March 1741 was 25th March 1742!

statement "my son Thomases share of the smelting mill at Greenlow ffields", (D 240/A/I/52).

It would seem likely that the source of supply of ore for this mill would come from the mines on Ecton Hill for the Burgoyne royalty was being worked at this time by Thomas Gilbert, Robert Bill and others. (The Bills came from Farley, and as well as being neighbours of the Gilberts they were business partners and related by marriage.) The only documentary evidence for the Ecton Mines being the source of the ore is contained in an account between Thomas Gilbert and Robert Bill in 1741 (D 554/55) - "Cash paid Mr Nightingale for Mr Bill £100, rec'd. in part from Mr Bill at Ecton £2. 12s. so remains £87. 8. 0."

Of the smelting mill's subsequent history nothing is known, apart from £1. 9. 6. paid for bricks "to the Smelting Mill" on 27th October 1743 in the same accounts, which could refer to either the Greenlowfield for Alton mills. It seems likely that the mill became disused about 1760 when the Alton Smelting Mill was taken over by the partnership who were working the Burgoyne mines at Ecton.

3. Alton Smelting Mill

Of the second lead smelting mill at Dimmings Dale in the beautiful Churnet Valley near Alton (SK 061432), not only is its location known with certainty and the buildings still remain (although much modified), but its known operations cover a wider time span. Although most of the buildings are intact, as is part of the waterwheel, very little trace can now be found of its former metallurgical connections for the site has been in use for nearly 200 years as a corn mill. This mill is currently being surveyed by members of the Staffordshire Industrial Archaeological Society and the detailed report will be published in their Journal.

The wheel was powered by water supplied by three large dams, now used as fishing pools, but whether the upper two were built when the site was operating as a smelting mill or a corn mill is not known. The main mill building certainly dates from the 18th century as 1789 and IS ES are roughly carved near the door. That extensive alterations must have taken place is evident for the main building now possesses no flue or chimney, a feature that must have been prominent during the period of lead smelting.

On the 7th October 1741 George Talbot, Earl of Shrewsbury, who lived at Alton and owned much land in the area, leased "that new Erected building for the Melting of Lead commonly called a Smelting Mill refinery and Slag harth lying upon Alton Common", for 99 years at a rent of 1 shilling per annum to Thomas Gilbert Junior, Anthony Hill and his son Edward of Pepper Hill, Shropshire (D 240/M/E/III/45). Anthony Hill and Thomas Gilbert Senior had previously leased the Ribden and Thorswood copper and lead mines from the Earl of Shrewsbury, which they sublet to various groups of miners (Robey 1970). Thomas

Gilbert senior also seems to have been involved in the mill for in his will dated Jan. 1st 1741/2 he left "one 24th part of the Smelting Mill at Alton" to his son John. By January 1747/8 Anthony Hill had died, so Thomas Gilbert's brother John was then included in the lease of the smelting mill (D 240/E/III/52).

The smelting mill was certainly still operating in 1760, and still under the original 99 year lease from the Earl of Shrewsbury, when Thomas and John Gilbert agreed to divide their shares in the mill among the partnership (which included themselves, the Duke of Devonshire and four members of the Bill family) that was working mines at Ecton "likely to produce large Quantities of Lead Oare" for the remainder of the 99 year term in the same proportion as the shares in the mines (D 554/57, Bag 734). The mines concerned were those in the Burgoyne royalty at Ecton, and since it is known that the Gilberts were also involved at this time at the Chadwick Mine on the Duke of Devonshire's property, it seems that initially the Duke of Devonshire was interested solely in copper production, so any lead mines (such as Chadwick) were let to the partnership in return for a 1/12th share in the Alton lead mill (Porter & Robey).

The property at Alton included a "Smelting Mill, Refinery, Slag Hearth, Smith's Shop, Two Houses, a Barn and about Nine Acres of Land lying near the same with a Pool of Water." The sum of £504 had been expended on the mill and this was estimated to be its value; lead still in the bottom of the furnace was to be valued later and credited to the Gilberts. The agent at the mill was a Thomas Hurd. The smelting mill was mentioned in 1772 in the will of Edward Coyney of Alton (D 239/M 850), a major shareholder in the partnership who held 1/5th of the shares, so presumably it was still operating at that date. Three years earlier 14 tons of galena had been sent from Clayton Mine (the principal mine in the Burgoyne royalty at Ecton) to the Washgreen cupola near Wirksworth (Bag 593) indicating that either the Alton Mill could not cope with the quantity of ore being produced, or that it had ceased working. Certainly by January 1786 the mill had stopped smelting for a lease of that date concerning neighbouring property also includes "free liberty to a certain Mill (formerly a Smelting Mill) now a Corn Mill upon Alton Common." This deed also confirms the site of the smelting mill as being in Dimmingsdale (D 240/M/E/III/45).

The ore for this smelting mill probably came initially from the Ribden and Thorswood mines as well as from the small amount that was produced by the Gilberts from their mines at Waterfall, Calton Moor, Mixon, Swinscoe and Grindon. Later the mill probably took over from the Greenlowfield mill when the lead ore from the Gilbert's mines at Ecton was sent to Alton, the more copious water supply and proximity to the Cheadle coalfield more than offsetting the extra distance involved in carting the ore from Ecton. By the 1780s the Duke of Devonshire had built a lead cupola and slag mill at Ecton, and being more efficient than the older type of ore hearth these probably put the Alton mill out of business.

Prior to the construction of this cupola the small amount of lead ore from the Duke's Ecton Mine as well as his Wetton duty ore was sold to the Barkers in Derbyshire.

During the whole of the 19th century the buildings at Alton were in use as a water corn mill, with three pairs of stones in use and it continued as a corn mill until early this century (D 240/W/K/A). The site, with its waterwheel and corn grinding machinery in a delapidated state, is still known as Smelting Mill and is marked as such by the Ordnance Survey.

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| D 240/A/I/52 | Will of Thomas Gilbert 1741/2 |
| D 240/E/III/52 | Will of Thomas Gilbert 1741/2 |
| D 240/E/III/52 | Lease 1747 |
| D 240/M/E/III/45 | Leases 1741, 1786 |
| D 240/M/K/A | Leases 1801, 1822, 1839, 1844 |
| D 240/M/K/d63 | Leases 1741, 1742 |
| D 554/55 | Accounts between Thomas Gilbert and Robert Bill, 1741 |
| D 554/57 | Agreement 1760 |
| D 593/I/3/22 | Lease 1736 |

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