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ALLEN MILL FLUES AND CHIMNEYS

by Raymond A. Fairbairn

SUMMARY

This brief history was prepared using material in the Northumberland Record Office, and photographs and measurements made in 1993-4. The latter are of value because the chimneys and part of one flue have been consolidated and rebuilt. The first horizontal chimney serving Allen Mill was built in 1808, but the main period of construction was from 1835 to 1840.

HISTORY

Allen mill was the first Beaumont mill to get a horizontal chimney, and a note of May 13th 1808 stated that, "*The horizontal chimneys erected here have answered the utmost expectation*". The decision to build horizontal chimneys at his other mills was left to Col. Beaumont because of the cost involved.¹ At that time they were taking down the old chimney because it was in a bad condition and was not large enough, and replacing it with a new one. It is interesting to note that the reference to horizontal chimneys is in the plural. This probably refers to the various flues necessary to join the different furnaces to the main flue, as seen in a 1847 plan.² In 1805, the nearby Langley Mill had a horizontal flue, 70 metres (230 feet) long, and it seems likely that the Allen mill flue was of similar length.³

In 1835 a horizontal chimney was built for Allen mill, the accounts for which survive. Unfortunately the accounts are not detailed, but over the period 1835-6 £1851 was set against the chimney. A further £579 may be additional to this cost. Further expenditure, amounting to £981, was made building Allendale Chimney in 1838-9.

According to Dickinson, the first flue outlet was at Cleugh Head. This would be compatible with claims in 1840 for damages incurred at Dryside and Oustley by fumes from the chimney. Dickinson also says, "*On the construction of the second one [flue], both were continued to their present position on the moor, about three miles west of the mill*", but fails to explain the presence of two chimneys.⁴

The first edition O.S. map 1860 and the 1861 plan of the parish of Allendale prepared for W. Beaumont both clearly show that the flues were complete, including both chimneys and the link between the chimneys (Figure 1).

CONSIDERATIONS

It remains to try and piece together the sequence of flue construction from the evidence on the ground. The plan of the mill suggests that the flue which passes out of the mill at right angles to the main walls of the mill was the first to be built i.e. c.1808. Bewick's 1847 plan shows the position of a second flue leaving the plant at an angle, and dotted in, probably to indicate

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that it was underground. From this evidence, it is apparent that construction of the second flue predates 1847.

The flue that passes through the field near Brides Hill appears to pass under the flue that follows the Allendale-Ninebanks road near Juniper, which suggests that the flue that crosses the fields was the first to be built.

The location of the chimney at Cleugh Head is not certain, but it was probably where the two flues meet again (NY820555). An examination of the area suggests that the two flues were not necessarily linked, but came together then diverged.

The general appearance of the two flues differs considerably, the flue that crosses the fields and goes to the small chimney being more ruinous than the other. No section of standing arching has been seen on the former flue, and its line has been more completely grassed over. The completed system, as known today, is shown on various maps of about 1860. By 1896 only one of the flues was being used and it is fairly certain that this was the one following the road system.

The flue served by the small chimney has been diverted just before the chimney, to go past it in a direct line to the large chimney. As the small chimney is sited slightly down-slope from the top of the fell, it may have failed to provide sufficient draught.

Information on the cost of building flues is not widely available, but one example comes from Grassington mill in 1840.⁵ This breaks down to:-

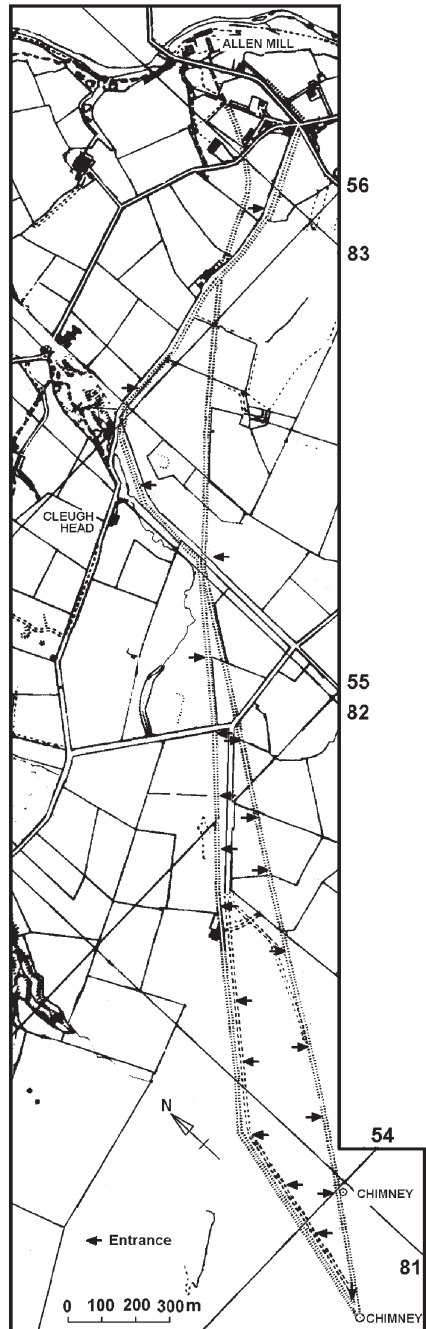


Fig.1 Layout of the Allen flues.

	s	d	per yard
Cutting flue	4	¾	
Raising stone	8		
Raising flags	4		
Building flue	2	0	
Total	3	4¾	

The Allendale flues are about 8,600 yards long and cost about £3,000 in 1835-9, giving an average of seven shillings per yard. While it is not intended that the flues should be directly comparable, the Allen flues being probably of greater cross section, the figures do establish the order of magnitude of the costs. It seems that the expenditure in the 1835-39 period at Allendale was sufficient to build all of the flue complex and carry out the various modifications.

THE FLUES

Sections of the flues have been demolished for stone or to recover land. The best preserved sections show that the cross section was as in Plate I (Cleugh Head NY81925544). Entrances, measuring 1.0 metre by 1.8 metre, were built into the flue to allow the flue dust to be removed. They were not spaced at precisely equal intervals, the distance between them averaging 270 metres, but varying between 180 and 310 metres. At two places (NY81685518 and NY81825395), where an entrance has been built, an enlarged section of flue has been constructed. The former entrance to the west flue, by the side of the road near Frolar Meadows, has recently had the arching of the enlarged section removed and been consolidated to allow viewing. Most of the entrances have ready access to a road, in one instance (NY81505495), where the flue has diverged from the road system, the entrance has been constructed as a tunnel from the boundary wall to the flue. The reason for the tunnel was almost certainly to prevent contamination of the pasture with flue dust.

Where possible, a level access for carts was cut to each entrance, as at the Fell House entrance, Figure 3 (NY81315480).

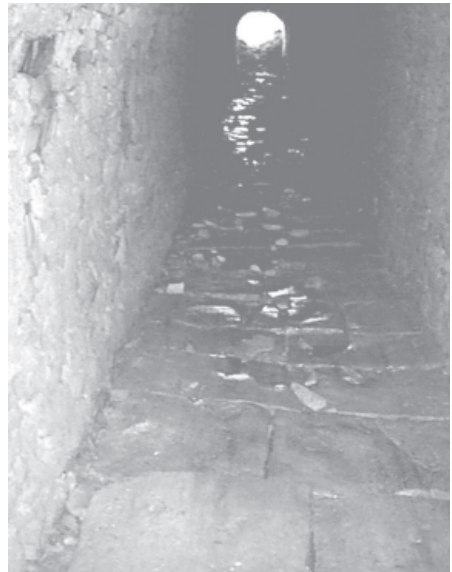
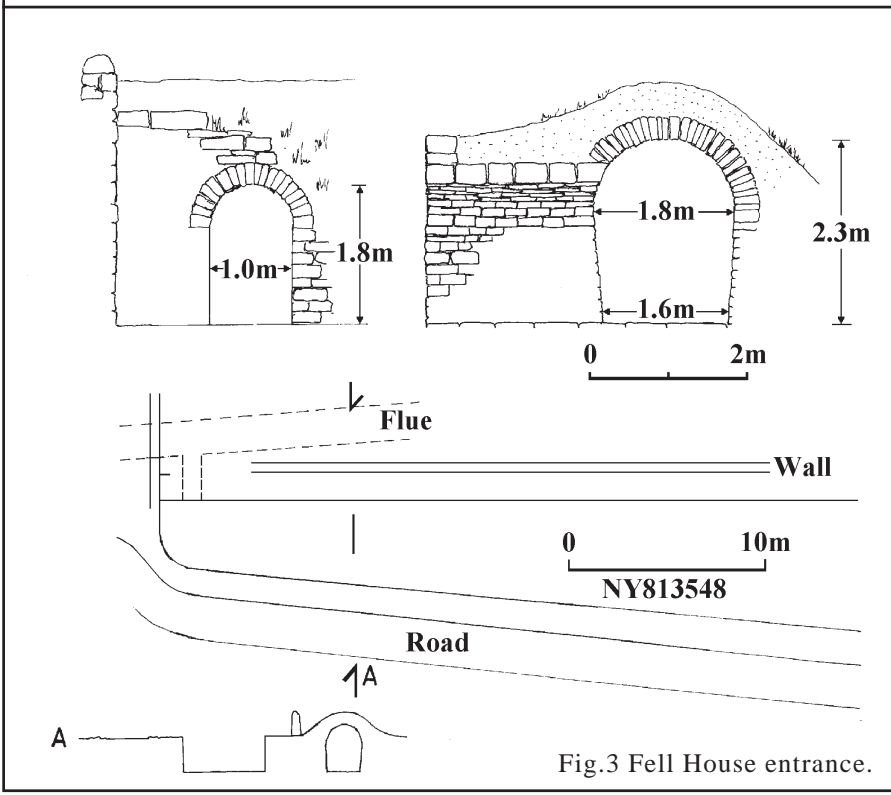
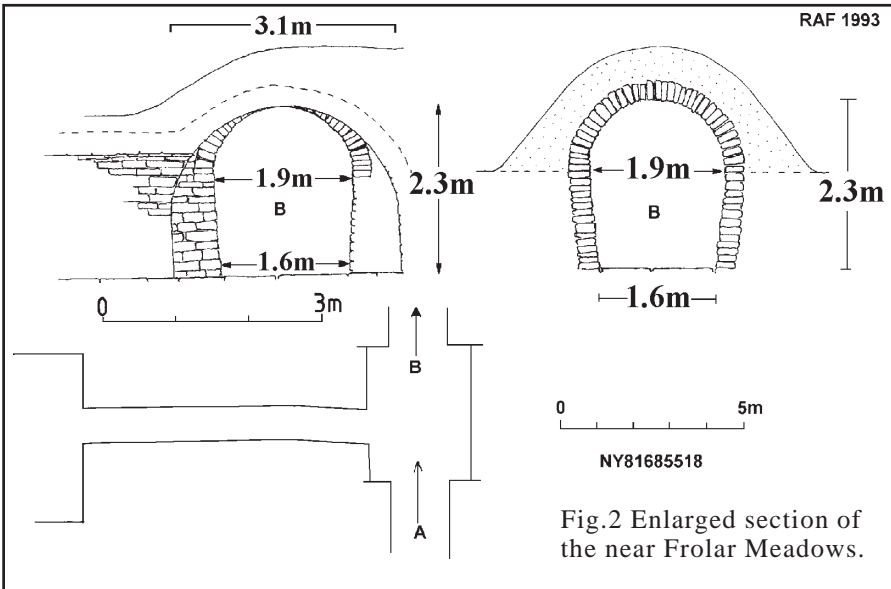
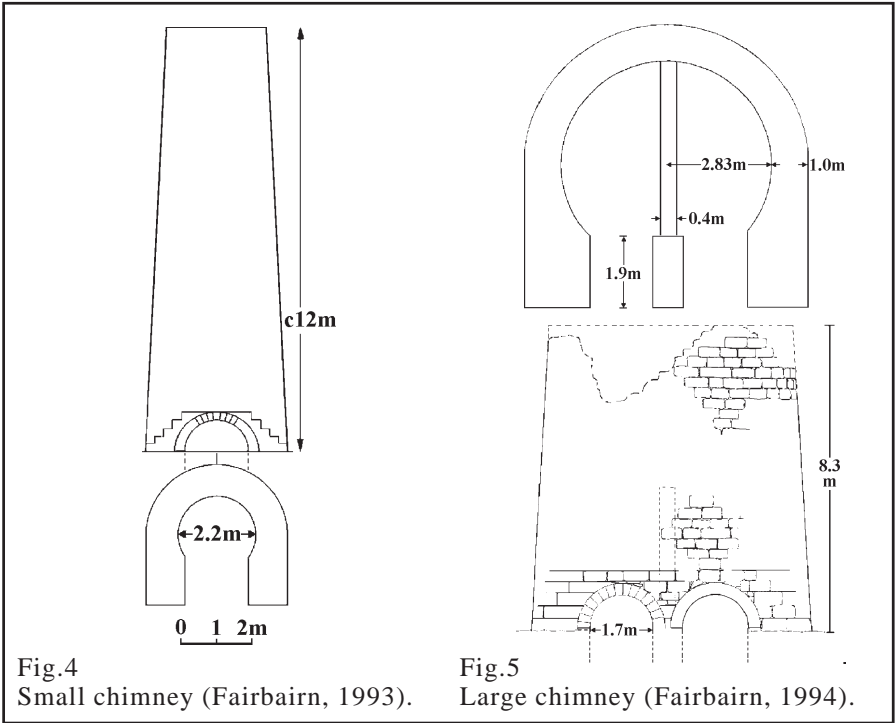


Plate I. Flue near Cleugh Head (Fairbairn, 1994).

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RAF 1993





Plates II & III The small chimney after the collapse (Fairbairn, 1994).

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THE CHIMNEYS

The small chimney (NY80975398) has an internal diameter of 2.2 metres and was about 12 metres tall (Figure 4). The upper third of the chimney developed a list over the years and in 1994 it collapsed during a storm. It was said to have been struck by lightning, but the collapse was probably because of instability, caused by the list and helped by the lubrication of the downpour (Plate II). The North Pennines Heritage Trust rebuilt the chimney and retained as much of the original structure as possible.

The large chimney was in a ruinous state in 1994. Judging by the quantity of materials lying about the site, it had never been any higher than when measured in 1994 (Figure 5). It had an internal dividing wall which extended half-way up the chimney and separated the gases from the two flues.

ACKNOWLEDGEMENTS

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REFERENCES

1. NRO 672/2/53 May 13th 1808
2. Dickinson, G. *Allendale and Whitfield* (Third Edition, 1903), p.56.
3. Bolton MSS, Bargains for work on extending the flues at Grassington.

*Plate V Enlarged section of flue
at NY81825395 (Fairbairn, 1995)*



*Plate IV Large chimney during
re-building NY80735367
(Fairbairn, 1995)*



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