

MEMORANDUM by Vin Ayre for Report to Duke of NORFOLK on  
ATTERCLIFFE COLLIERY, and effects on  
Darnell & Sheffield Park Collieries – 17 April.1789.

Bud-70

[N.B. Text in Red [ ] Brackets is Transverse on page]

[Bud-70]	Bud   70 [1]	[2] Memorandums Made at Attercliff - Common Colliery, April 17 <sup>th</sup> : 1789. (being a View there for the Duke of Norfolk.)
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[3]	Attercliff - Engines Dimensions. Old Engine. [a Diam. of Cylinder – 50 Inches 13 Draws 2 – 12 Inch Bores each 48 Y <sup>ds</sup> . or & 24 Fath <sup>s</sup> . 12 also for the Water Wheel two In Bores Feet each 5½ Fathoms. Boiler] Also a Jack Head 7 In. Bore 6 Fath <sup>s</sup> . Stroke 7 Feet or 5 Inches. New Engine. [2 Diam. of Cylinder – 46½ Inches Boilers Draws 2 – 12 <sup>1</sup> / <sub>8</sub> In. Bores each 24 Fath <sup>s</sup> . For the Wheel a 12½ In. Bore 5½ Fath <sup>s</sup> . each A Jack Head 7 In. 40 Feet a d <sup>o</sup> . 7 In. 36	[4] Attercliff - Engines Charge of Keeping them P. Week £. s. d 1 Engine Wright ----- 14..0 4 Engine Men @ 14/- ----- 2..16..0 Boiler Cleaning ----- 2..0 Smithwork & Iron ----- 2.. 0..0 Leather, Oil & Candles Buckets, Clackers, Tar Paint } 1.. 8..0 Lapping. &c. &c. ----- } Coals consumed ----- 10.. 0..0 Wrightwork & Timber ----- 1.. 0..0 Unforeseen Incidents ----- 10..0 <u>£18..10..0</u> 52 Weeks at 18 £10 P-- <u>966 £.</u>	[5] [Bud-70] Attercliff – Water – Machine. Dimensions. Water Wheel ----- 18 Feet Diameter Rope D <sup>o</sup> ; ----- 8 d <sup>o</sup> . d <sup>o</sup> . Width of Sole in Clear 22 Inches A: Bucket holds -- 8 Gallons N <sup>o</sup> . of Buckets -----
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12.. 4.]	Feet. F. In. Stroke about 6 ..10	N.B. The above for two Engines	
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<p>[Bud-70] [6]</p> <p>Attercliff – Water – Machine. Charge of Keeping &amp; Drawing the Coals.</p> <table border="0"> <tr> <td>Break-man -----</td> <td>P. Day</td> </tr> <tr> <td>2 Banksmen -----</td> <td>P. d°.</td> </tr> <tr> <td>2 Helpers or Men below</td> <td>P. d°.</td> </tr> </table> <p>For the above at large see further on! -----</p> <p>A Pair of Ropes will wear 12 Months and draw 120 Tons of Coal Per Day, that is 3000 Tons.</p>	Break-man -----	P. Day	2 Banksmen -----	P. d°.	2 Helpers or Men below	P. d°.	<p>[7]</p> <p>Seams of Coal under Attercliffe Common – Dimensions from the Roof downwards.</p> <table border="0"> <tr> <td></td> <td>F. In</td> <td>F. In</td> </tr> </table> <p>This Seam is from 4.. 6 to 6.. 0 thick, at 6½ In. from the Thill lies the Branch, a Channel Coal, of 5 In. thick.</p> <p>This Branch lies like a Wedge, Thickening to the North, and is quite out in Damal Colliery, near the Basset.</p> <p>In the Facings of the Branch are deposited a good Deal of Scythe sand</p> <p>The Roof bad to the North, but grows better to the South, and at this Time very dry.</p>		F. In	F. In	<p>[8]</p> <p>Attercliff Common. Remarks <u>on the Coal, Roof, &amp;c. &amp;c.</u></p> <p>They have been forced to bind with Coal, on Account of the Water Spoiling the Roof, in most Places which is common to near Openings.</p> <p>The Basset Workings have been taken off many Years since in Damel Colliery, and the Strata broke Down to the Surface permits great and Sudden Influxes of Water in wet Weather.</p> <p>M<sup>r</sup>. Dakon is working two Course of Pits between the Out-Burst and the Duke of Norfolks Boundary, which lies about 300 Yards to the Rise of</p>
Break-man -----	P. Day										
2 Banksmen -----	P. d°.										
2 Helpers or Men below	P. d°.										
	F. In	F. In									

<p>[9]</p> <p>Attercliff Common Engines, And has two Engines to do his Business. The Water has been greater at his Engines during this Winter than at any Time heretofore.</p> <p>M<sup>r</sup>. Deacons Coal seems much brighter and harder than his Graces Coal, owing to its being better drained</p> <p>F. In and is about 4. 5 thick.</p> <p>The Water that is so injurious to the Benks quits the Face as soon as they have got a goo Fall. –</p>	<p>Grit [10]</p> <p>The Facings are full of Sharp^ Sand in M<sup>r</sup>. Deacons Coal, plainly Shewing a deposit from Water having percolated through the same.</p> <p>On every Sudden Fall of Rain, the Water flows immediately into M<sup>r</sup>. Deacns Workings from the Hollows on the Surface.</p> <p>There are no good Strata of Stone in either Collieries there is some Thickness of broken Measures about 20 or Yards above the Coal which admits Water to pass through it very</p>	<p>[11] [Bud-70]</p> <p>the Benks.</p> <p>There is several Yards of blue Bind above the Seam, and in some Places a little black Shale sometimes Follow<sup>g</sup>. Stone.</p> <p>They call Gibs-Spraggs, and the Juds not taken down the Buttock.</p> <p>The Coal appears very wet and troubled to the North.</p> <p>In M<sup>r</sup>. Deacons Colliery, from Changes in the Water-Level, the Plum Board, or Basset Bord bears S 56°.. 30' W. S 55° W, and sometimes</p>
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The Thill is Soft, and the Barrow Gait along the Face of the Bank little more than 1 Yard.

copiously: – it has taken off in some Degree at Attercliff on the Falling of

S 59 W.

After Showers of Rain the Waters Flows very copiously into M<sup>r</sup>. Deacons

[Bud-70]

The Attercliff and Damall Coals are very hard, they burn very open, and are therefore fit for Blast & Steel Furnaces.

M<sup>r</sup>. Deacons Props are very thick Set, which enables him to get them again. \_\_\_\_\_

Packing, (called Bratticees in the North) is much practiced here.

M<sup>r</sup>. Deacon leaves 4 Yards of Posts or Pillars next his Barrow gaits, at Sheffield 4 Y<sup>ds</sup>. between the Barrow-Gaits, and Posts of 10 Y<sup>ds</sup>. Part of which they [Jude] off

[12]

The Weights and Prices of Attercliff-Common Coals at the Pit. \_\_\_\_\_

The Load of 5 double Corves weighs 27 Cw<sup>t</sup>. That is each Cart weighs C qr lb

5.. 1..16<sup>4</sup>/<sub>5</sub> . of 112lb to Cw<sup>t</sup>.  
s d

Round at the Pit – – – 1.. 1½ P. Corf.  
Small at d<sup>o</sup>. – – – – .. 8 P. d<sup>o</sup>.

Produces round and Small in nearly equal Quantities.

M<sup>r</sup>. Deacon produces 16 Corves round for 6 Small. – – – – –  
22 Loads are a Pits Days Work

[13]

Prices of Working the Colliery at Attercliff Common.

Driving the Headings, about 2<sup>s</sup>./ 6<sup>d</sup> P. Yard. – – – – –

N.B. Every Colliery Should have a double Level & Stentings Holed at 2 or 3 Yards

thick & the Stentings as Air Suits. Driving the Barrow Gaits.

The same Prices as for Heading or nearly so.

Bolt Holes are put through at about 12 Yards Distance. – – – – –

Opening out the Benks.

The same Price as Heading.

N.B. The Pitmen or Getters, do every Thing, that is Getting, finding & Candles, Geer, Sharping, & Harrying, &c. – – – –

[14]

[15]

Opening the Bank afresh when they have got in.

For the Works they pay about 10<sup>d</sup>. per Yard.

N.B. Getting in, means, when the Roof has come over the Poops, [close up to the Faul, and be won or opened a-fresh.

The build a great many Packs in order to save Punches. – – – – –

Props or Punches.

[16]

State of the Expençe of the Winning and opening out of Attercliff Common Colliery from its Commencement in June 1786 to Easter 1789.

	£
Total Disbursements from the Colliery Books – – –	9800
Interest on the above for 1½ Years at 5 £. per Cent.	735
	<u>£ 10535</u>

[17]

M<sup>r</sup>. Binks informs me that the Winning at Attercliff must be very near a Swelly or Swallow, as the Strata at a few Hundreds of Yards from the Engine rise in a contrary Direction, proved by his Iron Pits, and that the Seam itself bassets out a little farther to the North-East. – M<sup>r</sup>. Stephenson says the Contrary, and that it is not the same Seam.

2 Wells have been drained, viz:

[Bud-70]

They buy Oak Punches in the long Poles that will cut into Several Lengths. The Workmen are allowed 2 Punches for every Load, and for every Punch saved of that Quantity the are allowed 1 Sh. per Score. -----

M<sup>rs</sup>. Fells Pump at the Forge, and M<sup>r</sup>. Hartops at Brightside. -----

[Pages 18 and 19 Blank]

[Bud-70] £ [20] [21]  
 Brought back ----- 2100  
 Sinking 50 Fath<sup>s</sup>. Buntory  
 Collarings, Lander Boxes, Cistern,  
 Cutting Room for d<sup>o</sup>. Deals, for  
 Sundry Uses, Nails, &c. &c. to } 500  
 complete the Pit -----  
 Ponds or Recevoirs, Lying Pipes,  
 &c. &c. ----- } 50  
 Incidents 10 P. C<sup>t</sup>. on the whole 265  
 £ 2915

Coals not considered being Supposed to be begun with Immediately. -----  
 N.B. The present Engines to keep the Water during the Time. -----

[21] Estimate for anew Engine at Attercliff- Common of 70 In. Cylinder and Sinking the Pit  
 House ----- 250  
 Cylinder & BottomPiston; }  
 Sink- Pipe, Snifing, &c. } 250  
 2 Boilers of 17 Feet & Pipes, }  
 Setting, &c. &c. ----- } 500  
 Regulator, Injectur, Cock, }  
 Injection Pipes, Caps, Snift<sup>g</sup>. &c. } 150  
 Comm. Pipes, Receiver, &c. - 50  
 Working Plug, Working Geer, &c. 50  
 Cistern, Valves, &c. &c. --- 50  
 50 Fath<sup>s</sup>. of Pumps, Spears &c. 500  
 Jack Head ----- 50  
 Chains for Regulator Beam &  
 Sheer-Legs, Capstan, Gin, Capstan, d<sup>o</sup>. } 100  
 & Gin Ropes, Sheaves ----- }  
 Fitting-up ----- 50  
 Carried back £ 2100

[22] Estimate of introducing a 70 In. Cylinder and Pumps into one of Attercliff Engines. -----  
 £.  
 Cylinder, Piston, Bottom, &c. -- 200  
 [2] 1 Boilers or 17 Feet, Pipes, } - 220  
 Grates, &c. &c. & Chimney }  
 50 Fath<sup>s</sup>. of 16 In. Pumps --- 370  
 Buckets, Clacks, Spears, &c. &c. 80  
 Regulator & Receivers ----- 20  
 Injection Pipes, Cap, &c. ----- 50  
 Jack Head, &c. ----- 50  
 Beam Alteration ----- 20  
 Taking dopwn & Fitt<sup>g</sup>. Up ----- 50  
 £ 1060  
 Materials of little Engine, not considered, as they will go to the [Park].

[23] Suppose a 24 Peck Corf a Lanchester Common to weigh 7 Cw<sup>t</sup>. then a Horse can hurry 6 Scores or 42 Tons for 500 Yards.  
 Now on a Medium of 600 Y<sup>ds</sup>.

[24] Annual Expençe of Drawing the Coals by M<sup>r</sup>. Currs Machinery.  
 A Machine Man ----- 35  
 Oil and Grease ----- 10

[25] [Bud-70] Darnall  
 JC: Punchons Acc<sup>t</sup>. of the Attercliffe Expençes, that Mess<sup>rs</sup>. Clay, Dalkin, &c.,  
 Heading for a new Pit, the first 60 y<sup>ds</sup>.

an Horse can hurry 35 Tones.  
Therefore 3 Horses at Attercliff can  
hurry 105 Tons. -----

Ropes -----	45
Corves -----	50
Upholding with Timber, Iron, and Labour the Machines,	} 15
Ropes, Tiplers, Cast-Road, &c.	
6 Topsmen -----	<u>150</u>
	£ 305

at 2<sup>s</sup>/ 6<sup>d</sup> P. Yard: – Next 60 at 3<sup>s</sup>/ 6<sup>d</sup> P. Y<sup>d</sup>.  
They give 1<sup>s</sup>/4<sup>d</sup> P. Load for Hard. and 7<sup>d</sup> P. d<sup>o</sup>.  
for the Small.

The Bank Prices.

Under the Bottom 2<sup>s</sup>.. 6<sup>d</sup> P. Load  
Above ---- d<sup>o</sup>: ---- 2 .. 4 P. d<sup>o</sup>:  
Deep Pits to South – 2 ..10 P. d<sup>o</sup>:

[Bud-70] [26]

Expence of Making Roads in  
Yorkshire at Attercliff.

A Road of 7 Y<sup>ds</sup>. In Length and 6 Y<sup>ds</sup>. in  
Breadth contains 42 Square Yards.

	£ .. s. d
42 Yards of Sett <sup>g</sup> . (viz. Paving at 2½ <sup>d</sup> . -- 8..9	
Casting ----- -- 1..6	
102 Loads of Bolders ---- at 18 <sup>d</sup> P. -- 15..9	
– Leading d <sup>o</sup> . ---- at 6 <sup>d</sup> P. -- 5..3	
Sand for d <sup>o</sup> : ----- -- 5..3	
	<u>£ 1..16.6</u>

	£ .. s. d
Medium Length 171 Roods } £ .. s. d } <u>312.. 1..6</u>	
at 1..16..6 P. Rood ---- }	

Interest on the above ----- 31  
Upholding for 18000 Loads at 1<sup>d</sup>. – 75  
Annual Charge £ 106

[27]

Attercliff Colliery.

Seam supposed to afford in the Clear,  
allow<sup>g</sup>.  
for Pillars left, Small Slowed in Hocks, &c.  
Cub. Y<sup>ds</sup>.

Then 1 Acre at 4 Feet thick will be 6450  
Or the Acre will produce 6000 Tons  
Supposed to work 96 Tons per Day,  
5 Days per Week, & 50 Weeks per Year  
will be 24000 Tons or 4 Acres.

24000 X 20 = 18000 Loads per An  
27

Suppose the round or hard to Small as  
3 to 2, then the yearly Vend or Sale  
will be Loads  
Hard ---- 10800  
Small -- 7200  
18000 Total.

[28]

Attercliff.

Iron Plates wanted to compleat

the Heading & Gait-Ways of Atter-  
cliff Common.

	Yards
To go upon the Heading --	<u>900</u>
D <sup>o</sup> . upon the Bord, ----	<u>280</u>
3 Pair of Banks each } double will take -- }	<u>1680</u>
	<u>2580</u>

But Say ----- 2600  
2600 Yards at 5<sup>s</sup>/ 6<sup>d</sup> P. = 715 £.  
For 18 Years comes to P. Year 40£.

N.B. The Value of the Expiration of the  
Terms not considered here but  
will be valuable.

[29]

M<sup>r</sup>. Deakin's Prices.

Hard per Load ----- 1<sup>s</sup> .. 3<sup>d</sup>  
Small -- d<sup>o</sup>. ----- .. 8  
The above for Getting & hurrying.  
Deep Pits – 4 Horses for 20 or 22  
Loads per Day.

[30]

Strata in the Engine and Bye

Pit at Attercliff Colliery. ----  
Strata or N. End of the Common.

	F	F	In.
Blue Bind -----	7..	0..	0
Brown d <sup>o</sup> : -----	3..	3..	0

[31]

Strata under the South End of Atter-  
cliff Common. -----

	F	F	In.
Soft Iron Stone Bind -----	6..	0..	0
Coal -----	0..	3..	0
Black and White Striped Sparin	0..	3..	0

3 D<sup>o</sup>. on the Basset  
 Levels -- 2<sup>s</sup>. 6<sup>d</sup> & common Heading  
1 .. 6 P. Yard.  
 3 Tops-men to every Pit  
 20 or 22 Loads a Days Work at  
 each Pit.  
 Each Pit is 120 Yards Square.  
 & they go 80 Yards to rise & 30 to dip  
 Each Pit 120 by 110 or nearly.  
 Allowed 2 Punches to the Load & allows  
 3 Sh. P. Score for each Score Saved.

Brown Stone -----	3.. 0.. 0
Strong White Stone -----	-- 4.. 0
Bind -----	3.. 0.. 0
Soft Stone (or <u>Broken Measures</u> )	3.. 0.. 0
Black Shale -----	0.. 1.. 0
Spavin -----	0.. 1.. 0
Coal -----	0.. 1.. 2
Spavin -----	0.. 3.. 0
Strong blue Stone -----	0.. 3.. 0
Blue Bind (or Milkbed) -----	7.. 0.. 0
Coal -----	<u>0.. 5.. 0</u>
	Fath <sup>s</sup> . 28.. 3.. 4

N.B.

Strong Brown Stone -----	1.. 0.. 0
D <sup>o</sup> . -- Blue Bind -----	5.. 0.. 0
Coal -----	-- -- 10
Black and White Striped Sparin	-- 3.. 0
Strong Blue Stone -----	15.. 0.. 0
----- Bind -----	2.. 0.. 0
Intermixed the two above ----	3.. 3.. 0
Strong Kank or Gallard -----	-- -- 9
D <sup>o</sup> . -- Blue Bind -----	3.. 3.. 0
D <sup>o</sup> . -- Stone -----	2.. 3.. 0
Black Shale -----	0.. 1.. 0
Coal -----	-- -- 9
Spavin -----	1.. 0
Coal -----	1.. 0
Spavin or Topping -----	3.. 0
Stone -----	1.. 3.. 0
Blue Stone or Milk-Bed -----	7.. -- --
Coal -----	<u>-- 4.. 9</u>
	Fa. 50.. 4.. 1

[Bud-70]

**The Request.**

To Mess<sup>rs</sup>. Buddle & Stephenson.

Gentlemen.

You are requested to view and examine the Colliery at Attercliff Common and give your Opinion to the Following Queries.

1<sup>st</sup>. Is it prudent or advisable to continue the Workings of the said Colliery in its present State and Appearance?

[32]

[33]

2<sup>dly</sup>. If unexpected Influx of Water is such as to render its Continuance precarious, can any Ways and Means be devised, and of what Nature to ensure its probable Continuance as a working Colliery?  
 3<sup>dly</sup>. If such be devised, what will be the probable Expence of executing the same, and what the annual Expence of applying the same to their destin'd Purpose?  
 4<sup>thly</sup>. It is probably that this Colliery after being loaded with the above additional Debt, will repay the Monies expended in it, or, if not the whole of such Monies, what Proportion thereof?  
 5<sup>thly</sup>. If this Colliery should be, unexpectedly

[34]

whilst the Water is kept down are recoverable?  
 6<sup>thly</sup>. How far is it probable that the Darnall Colliery will feel the effects of this Colliery's being abandoned?  
 7<sup>thly</sup>. If the Darnell Colliery, owing to the above Circumstance or any other, should also be given up, how could the Trade of Sheffield be Supplied with Coal of this necessary Quantity? Or, if Supplied, must it not be at a very considerable advanced Price?  
 8<sup>thly</sup>. Would not the Continuance of this Attercliff Colliery be continued Opposition to the Duke of Norfolk Colliery in the Park, and, on that Account, has the

drowned, will there not be a very heavy Loss Sustained of valuable Articles, which

Duke of Norfolk less Reason to hesitate about abandoning Attercliff Colliery? and, can any probable Conjecture be formed to what extent such Opposition may go?

[35]

9<sup>thly</sup>. Should the Opposition from the Attercliff Colliery, by discontinuing to work it, be done away, would not an equal Opposition be made thereof by Darnal Colliery bringing to Masket an additional Quantity of their Coal, or would they have it in their Power so to do?

11<sup>thly</sup>. If the Town of Sheffield does not think that this Coal will bear such an ~~come forward at present in advancing~~ advance in its Price as to enable the Owner ~~the Coals to render the Colliery as such a~~ to get it

~~State as to work~~ without Loss, would it be advisable to Set it down for a few so that principal Machinery Years ~~^and Works and Materials^~~ can be procured and again preserved<sup>^</sup> in the mean Time, ~~as much as possible?~~ made serviceable?

10<sup>thly</sup>. If the Pit or Shaft near Attercliff-Chapel was got down, and a Communication was effected with the other Works, what Advantage or Security would be derived therefrom?

[36]

12<sup>thly</sup>. As this Colliery has hitherto been worked by a new Mode you will please thereof to give your Opinion<sup>^</sup> ~~upon the Alteration~~ with and draw a Comparison ~~^between~~ it, and Mode of Working the<sup>^</sup> Darnal Colliery which is nearly similar in Point of Situation?

If it should occur to You that I have omitted any other material Question proper to be taken into Consideration, I must beg that You will Supply the Omission

of Gentlemen,  
Your very humble Serv<sup>t</sup>.  
Vin: Eyre  
Sheff<sup>d</sup>. 15 Apr. 1789.

Here follows the Report, tyed up with this Book. -----

[B1]

[Bud-70]

Remarks.

1. On the Fall of Rain.  
Suppose 30 In. Depth of Rain to fall in one Year.  
Then there will fall on the Surface of one Acre [ ] P. Y<sup>d</sup>. Hh<sup>ds</sup>.  
4840 X 30 X 2.6226 = 10590  
36  
Suppose <sup>1</sup>/<sub>3</sub> to run off  
<sup>1</sup>/<sub>3</sub> to evaporate & be used in Vegetation.  
& <sup>1</sup>/<sub>3</sub> to Sink into the Coal  
Attercliff Engines going 12 Hours P. Day and drawing 600 Hh<sup>ds</sup>. P. Hour will draw one Years Rain in <sup>1</sup>/<sub>2</sub> Day.

[Bud-70]

[B1 cont]

At Birmingham the Coals are Sold by the Ten of 20 Cw<sup>t</sup>. & 120lb. to the Cw<sup>t</sup>. Called the great Cw<sup>t</sup>. or the Ton is 2400lb. Avoirdupoise.

[B2]

Prices of Coals P. Newcastle Chaldron.  
at Sheffield  
Hard ----- 13..9

[B3]

Sheffield.  
Binks, Booths & Hartop's Prices.  
Bar Steel ----- 29<sup>s</sup>/6<sup>d</sup> per Cw<sup>t</sup>.  
Hoop Iron ----- 22/ 6 per d<sup>o</sup>.

For Attercliff and Sheffield  
Collieries they pay 6<sup>d</sup> P. lb for  
their Pit Ropes. -----

Small or Slack ----- 10..0  
at Attercliff.  
Hard ----- 11..9  
Small or Slack ----- 6..8

Corfe Wheels ----- 15/ 0 per d<sup>o</sup>.  
Road Plates ----- 12/ 0 per d<sup>o</sup>.  
Bushes, ~~Buckets, Clacks,~~ 18/ 8 per d<sup>o</sup>.  
Pipes in Loam ----- 14/ 0 per d<sup>o</sup>.  
Barrs ----- 10/ 0 per d<sup>o</sup>.  
Brass Bushes ----- 11<sup>d</sup> P. lb  
Buckets, Clacks ----- 14<sup>d</sup> P. lb

N.B. They charge for Turning besides.  
Bored Barrels ----- 21/ 0 per Cw<sup>t</sup>.  
Barr Iron ----- 19/ 0 per Cw<sup>t</sup>.  
Rolled Iron -- 23<sup>s</sup>/0<sup>d</sup> -- 25/ 0 per Cw<sup>t</sup>.  
Rod Iron ----- 19/ 6 D<sup>o</sup>.  
Clack Doors ----- 10/ 0 D<sup>o</sup>.  
Pipes in Dry Sand ----- 12/ 0 d<sup>o</sup>.