

[Note: These reports were found as part of the Mulcaster papers in the care of Wigan Archive Services (Ref D/DZA/264). They set out the prospects for all the veins on Alston Moor and were written by the Moormaster, John Dickinson (1755-1833 who was appointed Moormaster in 1790), and his son Thomas, who was Clerk of the Ore Deliveries and later succeeded his father as Moormaster. (Thomas Dickinson's daughter Mary Dickinson married Thomas Sopwith.) The reports incorporate copies of an earlier set of similar reports compiled in 1778 by Joseph Hilton, the Moormaster at the time. Both sets of reports, those from 1778 and those from 1821, were compiled for the mineral rights owner, the Greenwich Hospital. Thomas Wailes and Robert William Brandling (1775-1848) were the Receivers for the Greenwich Hospital northern estates and lead mines. Joseph Forster (d.1821) was Brandling's predecessor as Receiver. The reports give insights into the understanding and thinking about mineral deposits and geology shown by mining engineers in 1778 and 1821. Some of the theories about which veins would be productive are wildly wrong (particularly those of Hilton) but nevertheless it is abundantly clear that by 1778 there was an excellent understanding of the stratigraphy of the whole manor. Readers interested in the development of the Alston Moor mines may also find earlier reports amongst the Greenwich Hospital receivers letters (TNA) from the mid-1730s, such as Daniel Wren's report of 29 Sept 1735.]

**12 May 1821 John and Thomas Dickinson to Thomas Wailes and Robert Brandling**

Messrs. Wailes and Brandling,

Gentlemen,

We have carefully read over the Report made by Mr. Hilton of the Alstonmoor Lead Mines with which Messrs. Forster and Wailes favoured us, and we shall begin the Report we were requested to make of the same Mines by taking notice of the Maxim laid down by Mr. Hilton under the head of Ale Burn Veins respecting the prospect of Mines or Veins carrying Lead Ore from the nature of the Surface of the Ground through which they pass; which Maxim is now never mentioned among Miners, and which we think at most, can only be applicable to the Stratum next the Surface, and so cannot affect the general prospects of a Vein in the Strata below, and to which maxim there is a great number of exceptions. He mentions Thorngill East End and Blagill Veins as exceptions, he also might have mentioned Lough Vein, Lough Slitt, Nentsberry Greens Veins, Nentsberry Haggs, Crag Greens Veins, Greengill Veins, and from discoveries made since there may be added Farnberry Veins, Bayle Hill, Holy Field, and Leehouse Well Cross Vein; and as the Mines in general are situated on the sides of the Mountains and the Strata lying nearly Horizontal, so that Limestone, Plate and Hazel are putting on regularly in rotation one above another and frequently little change of the Surface of the Ground upon consideration of all these circumstances, we think the maxim very objectionable, and calculated to curtail the spirit of adventure.

The principal facts which the Miner now wishes to ascertain are these two. Are the Strata sound and of a kind likely for a Vein to bear Ore in? which may in some measure be learned from adjoining Mines; and secondly, is the Vein of sufficient strength and of a promising appearance and (which may also be a strong recommendation of it) has it produced Ore in other situations? but Lead Mining is altogether of that uncertain nature that Men of the greatest skill differ very materially in their judgment respecting them, but that difference of opinion tends very much to get the Mines more generally worked.

The Great Limestone which is between ten and eleven Fathoms, and keeps its thickness pretty regularly throughout the whole Manor where it is on, has produced the most Ore, we believe, we may say without fear of contradiction, that it has produced more than all the other Strata put together. The Ore that has been got in North and South running Veins, which we call Cross Veins, has been principally in the Great Limestone, none has been got that we know of above it, but several of the Strata below have produced Ore in the Cross Veins which Mr. Hilton in his report for Old Carr's states not to have been the case at that time.

We beg leave to mention that the Cross Veins (except in one instance at Scale Burn) always traverse the East and West Veins, that is, take them out of their point, where any Traverse takes place as there generally does. This is a confirmation of the maxim laid down by the German Mineralogists that the Veins have not all been formed at one time, but that the Cross Veins have been formed previous to the East and West Veins; as it is evident that a Vein that was first formed can not be taken out of its point by one that has been formed at a later period.

Since the time Mr. Hilton made his Report of the Alstonmoor Mines a very material improvement has taken place in Mining by the Walling of Shafts and the Walling, and Arching of Levels which was first introduced into this Country by Lord Carlisle and Company, and which makes the Mines accessible at any future period, and is now become very general. Mr. Utrick Walton of the Nest also introduced Crushing Mills and Brake Sieves into this Country about Twenty four years ago, which have been of very considerable benefit for the washing of the Ore; the first was erected at Crag Greens. Richard Trathan and Sons from Cornwall have also introduced into this Country a great improvement in dressing the very smallest part of the Ore called Slime, by Slime Pits, Nicking Buddles and Dolly Tubs, and by these means a great quantity of Ore has been gotten which could not, according to the former modes of Washing have been saved.

In the time of Mr. Hilton's Agency for Greenwich Hospital, Nent Force Level was begun, in which, at first was laid a Railway for bringing out the Work in a Waggon by a Horse, which example was soon followed by other Mining Companies and Horse Levels are now become quite general through all the Country, they are an incalculable improvement and have enabled the Miners to go through all the old worked Mines over again, which have raised an immense quantity of Ore and have been the means of many valuable discoveries. The former method of working Mines was, by driving very small Levels to take off the Water where necessary, and by sinking Shafts and

Sumps upon the Veins, and drawing the work up the same by Kibbles with a Roll and Rope by the Miners. The work was brought to the drawing place along the Drifts by a number of Boys, who had their Stages fixed, and in some places where the workings are very deep, there was a large Shaft called a Whimsey Shaft, where the work was drawn up by a Horse. By the modern System of Mining an easy and cheap way of getting out the work is obtained, the Drifts are made much larger so that there is a better circulation of Air in the Mines and the Mining business is not so destructive which at best is a very unhealthy employment. Of late a very great improvement has been made in conveying Air into such parts of the Mines as require it; formerly this was done by Wooden Boxes which soon decayed, and could not be made so close but that they lost part of the Air, and also contaminated in some measure that Air which went to the Forehead. The method now general is, by Cast Iron Pipes, and in Nent Force Level by Lead Pipes, and though they cost a little more at first yet you have the Lead after they are done with. Both the Lead and Cast Iron Pipes can be made Air tight at the Joints and convey the Air quite pure. After Nent Force Level was altered to a Boat Level a Cast Iron Railway was laid to convey the work from the Boat to the Team, and since that was done, the Governor and Company for Smelting down Lead have laid Cast Iron Railways in most of their principal levels, which will be found to be very durable and a great deal easier to bring the Work along than Wooden Railways.

We would also beg leave further to observe that the establishment of the Zinc Works at Langley Mill has contributed to the raising of Lead Ore as many of the Veins which contain the Ores of Zinc also contain Lead Ore but in such small quantities as would not pay for working it only, and by working for both valuable discoveries for Lead Ore may also be made. We have no doubt that since the Zinc Works commenced upwards of One Hundred Bings of Lead Ore have been annually raised which would not have been the case but for the working of the Zinc Ores Vizt. Black Jack and Calamine.

In consequence of the difficulties which several of the Mining Adventurers had in getting their Lead Ore sold and obtaining a fair price and regular payment for the same the Commissioners and Governors of Greenwich Hospital began to Purchase Ore of their Lessees in the Year 1812 so that since that time they have had a sure Market for it and regular payments which have given an incalculable stimulus both to working the old Mines and opening out new ones. In the year 1811 we got 2155 Bings 3 Cwts. of Duty Ore from Forty four Mines. In the last year (1820) the number of Mines from which we received Duty Ore was Eighty and the quantity delivered was 4302 Bings 3 Cwts. besides about 90 Bings which we have got this Year which was raised but could not be washed in last Year. We have no doubt but there will be an increase this Year both in the number of Veins and quantity of Ore raised. We consider it decidedly the Interest of Greenwich Hospital to continue to support their Lessees by purchasing Lead Ore, if the contrary should be the case we have no doubt that it would materially curtail the spirit of adventure, and that many of the old worked Mines which are now raising considerable quantities of Ore, would be given up, and the Timber for supporting the workings in the Veins would soon go to decay, so that they would close

together and could not be opened out again but at a very considerable expence and many of them would no doubt remain closed up.

We shall now proceed to give a detail of the workings of the different Mines and to make such observations as may tend (with the Plans and Books of reference) to convey a general idea of them.

John Dickinson      Thomas Dickinson

### **Ale Burn Vein and Ale Burn Cross Veins.**

**1778** The first Vein known next the Manors of Ale and Whitfield is Ale Burn Vein, and the North and South running Veins discovered in those Works, with respect to Ale Burn Vein the trial made in it is of little or no signification as to judging of the likelihood of its being an object worth expending a few Thousand Pounds upon by way of Tryal, but if the trial already made be admitted to have produced any effect to alter the prospect in my opinion, the alteration is for the better, and for this general Maxim which I believe I gave to Messrs. Walton and Smeaton about the Year 1774 and as nearly as I can recollect in the following words. "It is generally observed that when the Surface of the Ground thro' which a Vein runs is of Clay or Moss and the uppermost Sill a Limestone, that Vein is a promising object for trial in the Limestone, and the contrary when the Surface is hard Benty Ground and the uppermost Sill a Hazel, it is also a promising object to try in Hazel, but if the Surface be Clay or Moss and the Hazel uppermost it is not likely, or when the Surface is hard benty Ground and the uppermost Sill Limestone it is also not likely, for we find that Clay seldom or ever mixes with Hazel, or Soil with Limestone in our Lead Ore Veins". All the uppermost Sills at Ale Burn where this Vein has been tried are Hazel Sills, but the situations of the North and South running Veins are such that when one Sill puts on you cannot get to where there is any firmness 'til you meet with a Cross Vein and as all the Cross Veins throw down the East Cheek, the Sill is so much below the Level that it cannot be tried for Water; in all the trials they have made in Ale Burn where ever they have had the Vein in any Sill tho' ever so much broke, they have had pretty Knotts of Ore, nay even in the plate they had some knotts and very proud likely rider, which confirms me in my opinion that were there a Level deep enough to try the Fire Stone East of the Cross Veins, the prospect there is not so much to be despised as has hitherto been the common opinion; as to the Cross Veins in that neighbourhood, I think there are none worthy of attention for this reason they all throw so much down to the East that there can be no prospect in any Sill except the Great Limestone and the great difficulty in getting that Sill tried, in my opinion, exceeds the prospect as it cannot be tried in the Ale Burnhead Cross Veins without both a very long Level and an Engine.

Josh. Hilton

**1821** Isaac Walton, Thomas Kirkpatrick and Partners have driven a Level out of Ale Burn a considerable length for these Veins in the Plate Bed upon the Great Limestone,

and tried to sink into the Limestone in the Ale Burn Vein, but could not get down for Water, they then drove further Eastward and again attempted to sink into the first Cross Vein and got through the Tumblers, but had a great quantity of Water which the Limestone would not take, so that they were under the necessity of giving over that trial without cutting the Vein in the Great Limestone, they had two Strings in the Sump which were quick in the Limestone. They made a further trial by rising above their Level into the Little Limestone, and got a few Bings of Ore in Ale Burn Vein. No effectual trial can be made of these Veins without a Level under the Great Limestone which we think some Person will consider worthy of expending Money upon at some future time.

John Dickinson

Thomas Dickinson

### **Bridge Mere Syke Or Clargill Veins.**

**1821** About three or four Years ago several pieces of Float Ore were found in Clargill Burn which induced the Alston Brewery Company to make trial into both sides thereof to find the Vein which the Ore might be expected to come from. They found an East and West running Vein apparently of sufficient strength, but the strata were very much broken. As none of the Partners had much skill in Mining they engaged Mr. Jacob Wilson of Clargill to be a Partner, and to conduct the trial. They then began to carry forward a Level which had been driven Sixty five Fathoms South from Bridge Mere Syke upon the Great Limestone and which they have driven One Hundred Fathoms further and have cut an East and West Vein which appears to be of sufficient strength, they are just beginning to sink into the Great Limestone in which we hope the Vein will bear Ore; and should that be the case, it would be a stimulus to exploring the Ground to the South where there is a large district of whole Ground and in which there is a great probability of other Veins being found. By pursuing the Vein Eastward which they have cut, it will intersect Ale Burn Cross Veins and Thatch Cleugh Cross Veins and try them on likely Ground for their bearing Ore

John Dickinson

Thomas Dickinson

### **Taylors Grove**

**1778** The next East and West Vein known is Taylors Grove the uppermost Sill is the Great Limestone under hard Benty Ground and when you come so far East as to get on the Hazels, the Surface turns to Moss and Clay, for the general maxim given I am much of opinion the prospect is not to be admired

Josh. Hilton

**1821** Since Mr. Hilton made his Report this Vein has been tried in all the Strata from the Great Limestone to the High Slate Sill. It was always quick and the appearance

was so good, as to entice the Adventurers to make considerable trials, but they never raised any Ore of consequence

John Dickinson      Thomas Dickinson

### **Cooperholehead, Coatlethill-Green, Slote, and Greenends or Shield Well**

**1778** I look upon Cooperholehead, Coatlethill Green, Slote, and Greenends or Shield Well all to be parts of Thorngill and Goangill Veins, and the place where the intersection of those two Veins happens to be so near where the Hill falls away very suddenly that they have not yet had an opportunity of collecting into their proper strength but remain in Strings, therefore any Trial to the Westward of that intersection I think not likely to turn out well except in the Great Limestone, and from the nature of Thorngill and Goangill Veins I am apt to believe that was any Trial to be made in them near Slote the most proper one would be to take a Level upon the Great Limestone and cut those Veins as near the point of intersection as upon examination could be come at, which would be attended with this very good convenience of having four chances for the great Limestone to take Water, which would be a most essential benefit, for I am satisfied from the nature of the Great Limestone in that part of the Country that if it takes its own Water it will take almost any quantity which three or four other Veins will afford; it's a Trial which I think will at some future time be made and which I did recommend to Mr. Slack when the Level for Slote was begun upon the Little Limestone, Mr. Slack was then concerned for Adamson and Pearson and the Trial which I recommended would not have cost more Money than they have already laid out, and what they have done is no way satisfactory for tho' they have raised a small quantity of Ore in Pattinson's Sill, they never had any regular Vein for more than eight or ten Fathoms together and seldom above half that length.

Josh. Hilton

**1821** There have been several small Trials made in these Veins, but no discovery of consequence since the last report. Slote Vein some Years ago raised a few Bings of Ore in the Quarry Hazel at Lowbyer Loaninghead, and also in the Pattinson's Sill and lately Greenends has raised part Ore in the Great Limestone but no so much as to pay the adventurers for their Labour either place. As to the Trial which Mr. Hilton seems to recommend we never heard of any Person who had a notion of making it.

John Dickinson

Thomas Dickinson

### **Thorngill Sun Vein.**

**1778** As to Thorngill Sun Vein, it's a thing so trifling that I do not think it worth while mentioning it further.

Josh. Hilton

**1821** William Todd, Joseph Watson and Co. got a considerable quantity of Ore in this Vein about twenty Years ago in the Four Fathoms Limestone near the East end of the Boundary of Thorngill West End, and within Forty Yards of that Vein. John Summerset and several of his Partners at Holy Field Mine are now carrying forward a Level for this Vein, which was formerly begun upon the Great Limestone near High Spency Croft and which had been left short of the Vein.

John Dickinson  
Thomas Dickinson

### **Thorngill West End**

**1778** Thorngill West End has raised a great deal of Ore in the Firestone Pattinson and Little Limestone as supposed by many people, but I am of opinion the Little Limestone has of itself yeilded very little if any, and if I can demonstrate this, it corresponds with the general given maxim of the uppermost bearing Sills being Hazel under hard Benty Ground. I dare say every person who knows the Works of Thorngill West End will give me credit when I say that she never raised any Ore of consequence except when they had a good deal of Rider, which Rider not only took its origin in Pattinson's Sill and run thro' the Plate to the Little Limestone but even into the Little Limestone itself and as soon as the Hazel Rider ended in depth there was also a total end of the Ore and tho' as I said before, some Ore might be raised in the Little Limestone in common opinion yet I defy any person to shew where any Ore was got in the Little Limestone and both Cheeks on, or any Rider which can properly be deemed Limestone Rider for the whole is brown Rider whereas the Limestone Rider is a very dark grey generally and sometimes almost quite black; I am of opinion there are two likely trials, the one is by cutting cross to the North near the Whimsey Shaft Foot under Pattinson to see if any thing be lying off, this would be a very easy trial: The other is by an Engine to try the Quarry Hazels and this I think a very likely trial, if those Sills be thick enough, but I do not know their thickness at Thorngill, it would be attended with a great expence to be sure, but I think the prospect counterbalances that and if I could recommend a trial there it should be made immediately underneath where the Vein was best in Pattinson's Sill

Josh Hilton

**1821** Near Thirty Years ago there was a considerable quantity of White Lead Ore got in a Flatt in the Little Limestone in this Vein, it was composed of fine small Crystals in different directions of one another, it was laid amongst brown Soil, and the Vacuum between the Crystals was filled up with brown Soil. The Flatt having been worked a considerable width and length, and care not having been taken to secure the Roof the workings all crushed together and there has been nothing done at it since, for as the workings and the Level above them were a long way before any Shaft the Air in them

had become impure. To remedy this the Lessees set on a Shaft to air the Level forehead in sinking which they met with a very good Grove in the Firestone and got in it a very great quantity of Ore, for it continued very good in the Firestone all the way Westward till it came near Slote Vein, when it began to be poorer and when it came to that Vein the Ore went entirely out and Thorngill Vein changed its point and went along with Slote and although they drove in it we believe upwards of Twenty Fathoms there was no appearance of its going off to the North as it ought to have done if it had kept its point. We are of opinion that after having gone along with Slote Vein a considerable way it goes off it in small Strings which afterwards collect together and become Coatleth Hill Green Vein. A trial was made in the Vein in Pattinson Sill underneath where it had been good in the Firestone but it did not answer. William Todd and Sons the present Lessees have lately made further trial in Pattinson Sill and also in the Little Limestone but have not discovered any thing that will pay for working.

Mr. Hilton recommends two trials for this Vein, to drive a Cross cut to the North at the Whimsey Shaft foot which was done and we understand a Vein was cut but it did not bear Ore; the other was to try the Quarry Hazel; the way he recommended of doing it was by an Engine but it was done by driving forward a Level from Thorngill East End, a considerable trial was made both in the Four Fathoms Limestone and Quarry Hazel but it did not answer the Vein in these Strata appeared strong but it had little Ore in it

John Dickinson

Thomas Dickinson

### **Thorngill East End**

**1778** At Thorngill East End there is an instance contrary to the general maxim, which is that the Great Limestone was good when the Surface was hard Ground upon it, but it did not continue good after it got any Cover on and though the Ground was hard at the Surface, the Sill itself being bare yet the Vein was filled with Clay amongst the Ore, and no great quantity of Rider. That Vein is thoroughly robbed I think

Josh. Hilton

**1821** Mr. Hilton reports that this Vein in his opinion was "thoroughly robbed" but it has since raised upwards of Four Thousand Bings of Ore by going over the old workings and in Strings that accompany the Vein. The Mine is at present poor, but we think it probable that it may yet continue to raise Ore.

John Dickinson

Thomas Dickinson

### **Thorngill Cross Vein**

**1821** This is a continuation of Blagill Foot Cross Vein. It was worked long since in the Great Limestone near Thorngill East End Vein and seemingly had raised a considerable quantity of Ore, but it had not been looked at for time immemorial before Blagill Foot Cross Vein turned out good which induced James Johnson and Partners to begin a fresh Trial of it. They got part Ore among the old workings but in pursuing the Vein Northward it turned quite dead and broke to pieces so that they entirely lost the Vein, and although they drove a Level upon the Great Limestone a long way Northward, they did not meet with any East and West running Veins in it

John Dickinson

Thomas Dickinson

### **Goangill Veins**

**1778** Goangill I take to be so much broke by crossing Blagill Burn Cross Vein that she has not yet got her strength collected Westward, and if she had I have no very great opinion of her, because by the time she gets to rights from Blagill Burn Cross Vein she will be likely to be affected by Thorngill West End both which Veins will have a greater effect upon her, by crossing them obliquely, and by the situation of the Ground than many people imagine, and to demonstrate that more clearly I have made the following Sketch to which I beg leave to refer

Josh. Hilton

**1821** There have been several small Trials made in Goangill Veins (there being more than one) but none of them has been successful; we do not see any reason to differ from Mr. Hilton's opinion respecting those Veins.

John Dickinson

Thomas Dickinson

### **Blagill Burn Cross Vein.**

**1778** Blagill Burn Cross Vein is much in the same situation as those at Ale Burn, and as there has been no instance of any North and South running Veins having raised Ore in any Hazels I shall mention no more of them but give a general opinion about them at the latter end of this report.

Josh. Hilton

**1821** About twelve years ago Matthew Hetherington and John Archer drove a Level upon the Great Limestone for this Vein and attempted to sink in it into the Limestone but they were prevented by Water and the appearance of the Vein was not promising.

John Dickinson

Thomas Dickinson

### **Lough Vein and Lough Slitt**

**1778** Lough Vein raised a great deal of Ore in the great Limestone considering the length of Ground she was good, but I conceive that to be upon the general maxim of Clay at the Surface upon the Limestone, and as she is worked almost quite to Blagill Vein, no proper trial can be made, in her, except from the Trials carrying forward by the Blagill Company which will be done of course in case they meet with success at Blagill.

Josh. Hilton

**1821** Thorngill Vein in going Eastward divides into two parts which on the East of Blagill Burn take the Names of Lough Vein and Lough Slitt. Lough Slitt has raised a good quantity of Ore in the Great Limestone from Blagill Burn Eastward till the Coal Sills put on where it left off carrying Ore. Lough Vein also bore Ore very well in the great Limestone as may be seen in Mr. Hilton's Report, since that time it has raised a vast quantity of Ore in all the Sills there are on above the Great Limestone to the Surface in which the Firestone is included. The Vein in all the Sills went up good to Blagill Cross Vein and was then totally cut off; they were then working in the Coal Sills at 6s/- per Bing. In the Year 1784 Lough Vein raised upwards of Five Thousand Bings of Ore. The Blagill Company a few years ago discovered to the North of Lough Vein but within its boundary another Vein in which they have got a good deal of Ore, principally in the great Limestone, and part in the Coal Sills which was also cut off by Blagill Cross Vein. They tried the Vein in the Firestone Pattinson Sill and Little Limestone but it did not answer in any of these Sills. It is probable that this Vein is a continuation of Thorngill Sun Vein which bears a direction to cross Thorngill Vein.

John Dickinson

Thomas Dickinson

### **Blagill Vein and Blagill Cross Vein**

**1778** At Blagill or Fistas Rake there is a case very contrary to the general maxim but I cannot say that ever I enquired how far the Hazels above the great Limestone have been tried but if I am right in conjecture there has been very little Ore raised in any Sill above the great Limestone, and if it be so, I do think the present Company may very properly be advised to make a Trial which certainly may be done at a moderate expence, this is a thing which never struck me 'till now, or otherwise I should have mentioned it to the Company before this time, and with respect to the present Trial at Blagill I must confess I have not that good opinion of it, which I once entertained for the following reason it was always the opinion of the late Steward, Brown as well as the rest of our principal Lead Miners that if the great Limestone could be won on the East side of the Cross Veins, it was a very likely chance, in which opinion I agreed and still continue to do, had those Veins laid so near as was then expected, but I now find from observation, that what is called Whinnie Croft Cross Vein will in all reasonable

probability be the same as the Easternmost Cross Vein at Ale Burnhead, and if so, it carries her so much further to the East at Blagill Vein, that the whole cover will be on before Blagill Vein gets clear of the effects of those Cross Veins, and as you know there are no Veins in all Alston Moor which have carried Ore near Carrs Vein on the East side not even Rampgill itself, this will make their Level so much longer than was expected, that I fear the present Company will leave off unless they meet with something sooner to encourage them to carry forward their Works, as I think they can expect nothing in Blagill Vein 'till she gets to the East of the Easternmost Cross Veins for I dare say she will not have an opportunity of getting together so as to carry Ore between any of those Cross Veins, they lying so near each other, that before she gets clear of one, another interferes, and it will be so on, 'till the Vein gets through them all

Josh. Hilton

**1821** Both these Veins have been worked and have raised a great quantity of Ore from time immemorial in the Great Limestone, and as the mode of getting out the Work formerly was by drawing it up Shafts several of which appear it is evident that they must have tried the upper Sills out of those Shafts but it does not appear that those Sills have been productive. Blagill Vein has also raised a great deal of Ore in the Four Fathoms Limestone and Natrass Gill Hazel, about Thirty Years ago Blagill Cross Vein was very good in those Sills but it did not continue a great length of Ground and we are inclined to believe that its being productive was occasioned by the intersection of Lough Vein, Lough Slitt &c. which go up to Blagill Cross Vein in a swinning or oblique direction, and after going along with it a good way they leave it in small parts or strings for both to the North and South of the place where it carries Ore, the Vein is quite altered in its appearance. The present Blagill Company drove a Level (11.11) under the Pattinson Sill for the discovery of Blagill and Lough Veins on the East side of Blagill Cross Vein, but they discovered nothing of any strength, and they have lately driven a Level Southwards under the Firestone out of Blagill Burn until it has about overlapped the former Level, which shews that according to Mr. Hilton's opinion, the Cross Veins break all those East and West Veins to pieces, and that they are not likely to collect into sufficient strength until they come at Whinnie Croft Cross Vein, so that we have no higher opinion of these East and West Veins than Mr. Hilton, but Cross Veins are now of more repute than they were in his time, and it is our opinion that as these East and West Veins filled Blagill Cross Vein with Ore, so it is very probable that they may also cause Whinnie Croft Cross Vein (which is a continuation of part of Carr's Vein) to carry Ore, although they may only go into it in strings. The greatest danger is of this Cross Vein being too strong, yet it does appear that it is divided and that it is not so strong as it is further South. Some Years ago the Blagill Company drove their Level under the great Limestone through Blagill Cross Vein, and cut a small East and West running Vein and got a little Ore out of it in the Great Limestone; but after driving about ten Fathoms in it the Trial was dropped, they have however lately resumed it, and we sincerely wish that they may be successful.

John Dickinson

Thomas Dickinson

## **Blagillfoot Cross Vein and Hudgill Cross Vein**

**1821** About Twenty eight Years ago a Vein was discovered by pursuing Nent Force Level, the North end of it from the Level was let to the Blagill Company under the Name of Blagillfoot Cross Vein, and the South end to the Governor and Company for Smelting down Lead under the name of Hudgill Cross Vein. They began a joint Trial of the Vein by rising in it from Nent Force Level but got no Ore in the Scar Limestone, in which Stratum the Vein seemed unpromising, but when they rose into the Hazel above, the Vein altered its appearance for the better, and they got a few Bings of Lead Ore which encouraged them to begin a Shaft which they sunk to the top of the Rise. Blagillfoot Cross Vein carried Ore Northward to within about Thirty five Fathoms of Blagill Vein and has raised upwards of Three Thousand and Four Hundred Bings, the greatest part of which was got in Arthurs Pits Hazel, but the Vein also raised part Ore in all the other Strata above the Scar Limestone. The Blagill Company also drove a Drift Northward from Nent Force Level in the Vein, and rose twice through the Scar Limestone, but got no Ore in it. They also tried the Vein in the two Fathoms Limestone on the North side of Blagill Vein, but as they did not meet with Ore they abandoned the Trial. This Vein was after that let to Joseph Scott, John Baxter and Partners who began in the Sump which the Blagill Company had sunk into the two Fathoms Limestone and sunk into Arthur's Pits Hazel which lies immediately under it and then met with good Ore and have been raising about Two Hundred Bings annually; the Vein is likely to continue to raise a considerable quantity of Ore Northward. Arthur's Pits Hazel or what is generally called the Six Fathoms Hazel is in this situation Eight Fathoms thick and the Vein produces Ore the whole thickness in it.

Hudgill Cross Vein was very good near the Shaft and raised upwards of Three Hundred Bings of Ore the first Year in Arthur's Pits Hazel and the Limestone under it, but the Vein in the end soon went poor, and after that was the case the Governor and Company drove a Drift in the Vein a long way further South but without success. They also drove a Level on the West side of Nent River, and cut the Vein and drove in it a considerable way to the South but got very little Ore and they abandoned the Trial. Thomas Sanders and Partners lately engaged this Vein and are now sinking a Shaft for Air on the Level forehead on the West side of Nent River which will enable them to make further trial in the Vein.

At Blagill Foot Cross Vein they have the Water to Pump out of their present workings into the two Fathoms Limestone which takes the Water. The Blagill Company drove a Level Northward upon the Scar Limestone in Blagill foot Cross Vein from the Shaft into Nent Force Level but it is about 75 Fathoms short of the present workings in this Vein, and it is very desirable that that Drift should be taken forward to take the Water from the present workings. If this was done it would give an opportunity of trying Blagill Vein, which may be considered a very fair trial in the Strata below the Level they now have for that Vein; And by pursuing the workings in Blagill Foot Cross Vein Northward a Trial would be made in Thorngill East End in the lower Strata. Blagill

Vein is a prior grant to Blagill Foot Cross Vein and on that Account the Blagill Company have right to Forty Yards on each side of their Vein, which has prevented the present Lessees of Blagill Foot Cross Vein from taking up that Level. It is very desirable that an Agreement should be entered into between the two Companies for taking forward that Level. It is very probable that the Ground between the old Workings of Blagill Company and the present workings of Scott, Baxter and Company in Blagill Foot Cross Vein may contain a considerable quantity of Ore which the beforementioned Level would discover and enable them to work.

John Dickinson

Thomas Dickinson

### **Foreshield Grains**

**1778** As to Foreshield Grains Vein, the place where she is seen is so much amongst the Cross Veins that no judgement can be formed in consequence of the Trial made there

Josh. Hilton

**1821** The success which Blagill Company met with in the Top Sills at Lough Vein induced Henry Errington Esq. and Co. to apply for Ground to make Trial in Foreshield Grains, which is particularly described in Mr John Donkin's proposal bearing date the 23rd. day of December 1782. Agreeably to that proposal they began a Level under the great Limestone on the South east side of Foreshield Burn which they drove in a North East direction upwards of Two Hundred Fathoms at the end of which they cut an East and West running Vein which had a pretty good appearance and they tried it in the Sills that were above them but without success, and as by the throw of Whinnie Croft (alias Carr's) Cross Vein their Level was then standing upon the Little Limestone, they could not sink from thence into the Great Limestone to try the Vein because of Water they therefore began a deeper Level out of Foreshield Burn in the Plate bed under the Four Fathoms Limestone which they drove to the place where they expected to find the East and West Vein which they had cut in their higher Level, but they did not meet with it, and dropped the trial. Their Level on the East side of Carrs Vein was in the lower part of Great Limestone and very hard.

About ten years ago Mr. John Little and Company drove the lower Level Eastward about Forty Fathoms, to try two Cross Veins which are to be seen in Foreshield Grains. The Level cost fourteen Pounds per Fathom cutting, so that the trial went on slowly, and the slowness of its progress together with the failure of some of the Partners occasioned the Trial to be dropped without accomplishing their object but we think it not improbable that the trial may at some future period be resumed by some other Company. The Level is a good one and will not run together, and we think the trial a very fair one. John Pearson and partners are now driving a Level under the Firestone Sill in Foreshield Grains to try an East and West Vein which they have

discovered; it is very quick where they are driving it and only wants strength to enable it to carry Ore so as that it may be wrought with profit.

Messrs. Jonathan and Robert Walton and Partners are also driving a Level under the Great Limestone in Foreshield Pasture on the West side of Carrs Vein for the discovery of Veins.

John Dickinson

Thomas Dickinson

### **North Grain Veins**

**1778** The next Vein is North Grain which I think too weak for any thing.

Josh. Hilton

**1821** North Grain Cross Vein was discovered rather more than Thirty Years ago by working for Crow Coal. It is but a weak Vein but has raised upwards of Thirteen Hundred Bings of Ore in the Great Limestone but it ceased to carry Ore at both the North and South ends when it lost the Coal Sill for a Cover. A part of the abovementioned Ore was got in two small East and West running Strings on the East side of North Grain Cross Vein.

John Dickinson

Thomas Dickinson

### **Loveladyshield Grains Vein**

**1778** Loveladyshield Grains Vein has been tried before my time and I never could learn what was done there, but every person agrees that Joseph Walton who carried up the Level from near High Loveladyshield and lived at Nenthall was a very sensible Man, and a good Miner, and had he not been persuaded that the prospect was good, he never would have begun so great an undertaking as this Level, had it been completed, which there is no doubt he intended when he began, but he died, and consequently it was dropped, as to my opinion about that Vein it must be all founded on conjecture, and the appearance of the Rider, which looks very well at the old Shaft Heaps: where this Vein goes up there is a great piece of Ground from the South end of Loveladyshield Greens, to the North end of Nentsberry Greens, which is called in the plan "Loveladyshield Grains" in which Ground the Great Limestone is entirely cut off most likely occasioned by several Veins running thro' that Ground, and consequently the great Limestone being broken there, the same effect will take place in the Sills above it, how far it may effect those below, I will not pretend to say, but I believe it does not alter the four Fathom Limestone as we see it sound near High Lovelady Shield, therefore I think this not an unlikely Trial upon the general maxim of Clay at the Surface, and the Four Fathom Limestone being the uppermost Sill and it resting upon Nattrass Gill Quarry Hazel they together make a Sill of eight Fathoms, which is very near as thick as our great Limestone and as Joseph Walton's Level is drove under

Natgrass Gill Quarry Hazel and I believe more than halfway towards where the Vein has been tried, the Trial would not cost much.

Josh. Hilton

### **Loveladyshield Veins**

**1821** There have been Six Veins discovered in Nent Force Level between from Fifty Fathoms on the North side of Lovelady Shield and Nenthall. One of these Veins is in Loveladyshield Shaft and was tried by Messrs. John Lowrey and William Todd in which they got about One Bing of Ore in the Grey Bed under the first Limestone, but it was too weak for carrying Ore in the lower Strata. The Governor and Company made trial of three of these Veins, which are to the North of Loveladyshield Shaft by driving a Level upon the Scar Limestone until they cut them and then rose into the Hazel above: they also drove Southward from the Shaft to another Vein in which they rose and they also sunk into the Scar Limestone but the appearance was unpromising in all these Veins in the Strata where they were tried. The Vein that lies furthest to the South and which has the strongest and best appearance of any in Nent Force Level remains yet untried, but the Governor and Company having been unsuccessful in so many of those Trials, they were more out of love with the Strata than the Veins and resolved upon trying the Veins in the Great Limestone on the East side of Carrs Vein; for this purpose they have begun a Level near High Loveladyshield, which they are vigorously carrying forward, and which they expect to be under the Great Limestone on the East side of Carrs Vein. The Great Limestone in that situation we have no doubt will be sound and good, and the Veins we think are of sufficient strength for bearing Ore in it, and we should certainly have considered it a very good trial were it not for the reasons given by Mr. Hilton respecting the trial of Blagill Vein on the East side of Blagill Cross Vein in his Report he says "You know that there are no Veins in All Alstonmoor which have carried Ore near Carrs Vein on the East side not even Rampgill" An exception may be made to the above at Middle Cleugh Veins and Long Cleugh which have borne Ore on both sides of Carrs Vein but which are there so much broken to pieces that at Long Cleugh they have Carrs Vein in five different parts, and in three of them they are at present working for Ore.

The above observations quoted from Mr. Hilton's Report is very true in respect to East and West Veins, in all cases where Carrs Vein is strong, which is the case at Lovelady Shield, but Mr. John Brumell and Company have lately got a considerable quantity of Ore in a Cross Vein, which is about Ten Fathoms on the East side of Carrs Vein and runs appoint paralel with it, and as there is also a North and South running Vein lying on the East side of Carrs Vein in Lovelady Shield Grains, we think there is a prospect of their getting Ore in that Cross Vein, and more especially on Account of its being intersected by the East and West Veins which are likely to make it productive of Ore. Messrs. Lowry and Todd attempted to make a trial of it by sinking a Shaft but could get very little into the Great Limestone, and had to give up the attempt on Account of the



very unsatisfactory, and with me has made the prospect neither better nor worse in any shape; they did discover one Vein and sunk into the Firestone near it, but never cut so far from the Sump as to see it in the Firestone which I think was left very short and indeed all the Ore which has been got in the Nentsberry Greens Veins on the West side of Carrs Vein has been got very near the Surface and very poor stuff in my opinion; to be sure there has been a very considerable quantity raised out of Nentsberry Hagg's Vein both in the Great Limestone and Four Fathom Limestone on the west side of Carrs, I do therefore really think it an object worth trying East of Carrs and as the Level under the four Fathom Limestone is driven close up to Carrs Vein, in my opinion a Trial would be most effectual there, and it might be accomplished by putting down a Shaft into that Level and fixing a Water Blast and then drive Two or Three Hundred Fathoms Eastward, from whence I would cross both to the North and South at least One Hundred Fathoms each way, I do suppose from the throw of Carrs Vein and the natural rise of Strata, the Trial would be made in the Plate Bed upon the Great Limestone which is as good a place as any.

Josh. Hilton

**1821** With respect to the Trial that has been made for these Veins on the East side of Carr's Vein, we beg leave to differ in opinion from Mr. Hilton, by looking at the Plan No. 3 you will see that the Level marked 3.3. has been laid on very well for cutting them, and we have been informed that it was driven in a good sound plate bed, in which the Veins might have been discovered if they had been there in any strength Mr. Hilton says "they did discover one Vein and sunk into the Firestone near it but never cut so far from the Sump as to see it in the Firestone". Thomas Kirkpatrick who is allowed to be a good Miner was of the same opinion in respect to that Vein and proposed to take a Lease of it on the 11th January 1794 and after he had opened out the workings to the Sump he went into it and drove in the Firestone, until he was satisfied that no Vein was to be found there; and we are strongly inclined to believe that Carrs Vein breaks all these Veins to pieces, and that they are not collected into any body where that Level is driven.

Messrs. John Brumell and Partners have now that Ground for making Trial in; they began by driving forward Nentsberry Hagg's Level, the forehead of which was standing in the Great Limestone in the East Cheek of Carrs Vein or what is there called Nentsberry Greens Cross Vein. They have driven forward the Level about ten Fathoms and cut a cross Vein running Parallel with Nentsberry Greens Cross Vein, and which has obtained the name on the North side of the Level of Nentsberry Greens East Cross Vein, and on the South of the Level to Guddamgill Burn it is called Brownleyhill East Cross Vein, from which Vein they have been raising Ore both North and South, but the South end is now poor and at present unworked. The Ore set down deeper in the Vein where it was first cut than their Level, and in order to enable them to work the lower part of the Great Limestone, which there yields a great quantity of Water, and also to get a softer part to drive forward to the East in, they began about Seventy Yards back in their Level, which had risen so much that by taking up a true Level, they got

seven Yards deeper, and they are pursuing that Level Eastward in which they have a part of the Limestone and a part of the Tuft. Mr. Hilton in his Report of this Ground has not taken notice of Wellgill Cross Vein which may be considered the best trial in it: from its point it appears to be about Sixty or Seventy Fathoms to the East of Nentsberry Greens East Cross Vein, after they cut that Vein by pursuing it North and South they will meet with the East and West Veins which if they be collected together, are likely to bear Ore Eastward; but should they not be collected together, they are likely to make Wellgill Cross Vein productive of Ore by passing through it in Strings. Guddamgill Burn Cross Vein lies further to the East, and is an other object worthy of Trial which no doubt will be made if Wellgill Cross Vein be successful. Wellgill Cross Vein and Guddamgill Burn Cross Vein have both been worked from Broomsberry Level Northward through Brownleyhill North Vein and have been left off poor, but retain strength sufficient to bear Ore, the Ore that has been got in them was in the Great Limestone.

Nentsberry Greens Middle Vein has been worked by John Spark and Sons on the West side of Nentsberry Greens Cross Vein for several Years, where they have been raising Ore in the old workings principally in the Great Limestone and Quarry Hazel, and they have lately begun to drive a Level to try the Vein in deeper Strata.

Nentsberry Greens Sun Vein has lately been tried by Messrs. Westgarth Forster and Partners by driving a Level near Nentsberry Hall but they unexpectedly found that the Old Man had been there before them.

John Dickinson

Thomas Dickinson

### **Brownleyhill Veins**

**1778** As to Brownleyhill I shall beg leave to observe, she has proved the general maxim first mentioned, she lies in hard Ground with Hazel next the Surface and raised a great deal of Ore in Hazels, and has deceived our best Miners, for it was always said that the Governor and Company's Soles in the Little Limestone would pay for a Level to be carried from the Fields below Greenends which was expected to Land upon the Great Limestone where Brownleyhill had been good in the upper Sills, and the Great Limestone would undoubtedly be very rich. The Governor and Company began this Level; I have heard the late Steward Brown, who every person yet allows to have been our best Miner, say that he could see five Hundred Bings in the Little Limestone Soles, but I dare say the present Company have not raised a quarter part of that quantity in the Little Limestone, and what they have got in the Great Limestone has been very trifling compared to the expectation, so far the best judges are deceived, and as to the other Veins there, Brownleyhill North Vein has never been tried any where but in the Great Limestone and in it only so deep as to the High Flatt on account of being prevented by Water, and it cannot properly be tried in any way except either by an Engine or by carrying up Guddamgill Burn Cross Vein Low Level, and as the appearance in Guddamgill Burn Cross Vein so far as it has been seen is an object

worthy of laying out a Sum equal to either of those undertakings I would most undoubtedly recommend the carrying up of Guddamgill Burn Cross Vein low Level, for besides the prospect at Brownleyhill North Vein there will be an opportunity of trying Brownleyhill Sun Vein, Brownleyhill Middle Vein, and Brownleyhill, as well as Brownleyhill North Vein and by turning the Level East it will try Brownleyhill Moss Cross Vein: There is in my opinion the greatest prospect of success by carrying up Guddamgill Burn Cross Vein Low Level North wards to Brownleyhill North Vein and then turning her East, near the Vein which proves most successful to Brownleyhill Moss Cross Vein; for as to Brownleyhill Sun Vein, she had very good Ore in the Plate above the great Limestone Tumblers, but never could see her in the Sill; for want of Air the Trial could not properly be made, and some of the Partners were unwilling to be at any further Expence: The next is called the Jugg Vein, within the Forty Yards of the Sun Vein which was also tried and left off for the same reason, it also had a good appearance in that same Plate bed; Brownleyhill Middle Vein was also tried but they were prevented getting into the Limestone by Water; they have also lately met with another Vein which was not seen in carrying up their Level upon the great Limestone, I believe she is proposed for by the name of Brownleyhill Moss Vein, at present they are raising Ore in the little Limestone in this last mentioned Vein; the next Brownleyhill, is known to have good Ore in the Soles which cannot now be got, but would if this Level was completed, and as to Brownleyhill North Vein it is itself an object worth the whole expence, and I am certain Brownleyhill Moss Cross Vein would work at half the Expence she now goes at was this Level finished; therefore upon the whole as I said before I do really think this Ground an object worth laying out almost any reasonable Sum of Money in and I hope the Brownleyhill Company will carry up that Level; its a thing I have long recommended and had my opinion been taken the Level might have been a long way up before now, William Hutchinson the Lessee is in the same way of thinking with me and had he had his own option that would have been begun ere this time, its a piece of good sound Ground and all the Sills are strong and put on regularly, which makes me entertain so good an opinion of it.

Josh. Hilton

**1821** Since Mr. Hilton wrote his Report Messrs. Monkhouse Hopper and Company have driven up Guddamgill Burn Cross Vein Level, or, what is now called Broomsberry Level, and cut the Brownleyhill Veins which has already been the means of raising a great quantity of Ore, which could not otherwise have been got. They pursued that Level Eastward in Brownleyhill Vein to within about One Hundred Fathoms of Brownleyhill Moss Cross Vein and had there left off driving it for several Years previous to their selling their Interest in these Mines. It is a very singular circumstance, that they worked these Mines with considerable loss when considered with what the Mines have done in the hands of their Successors, as they did not raise Two Hundred Bings of Ore in any one Year during a number of the last Years they had them in their possession.

About five Years ago Messrs. Jacob Walton, Thomas Shaw and Partners purchased the Brownleyhill Mines for a trifling sum of Money, not much more than the Value of the Materials that went along with the Mines; since that time they have opened out the different workings in the Veins and have raised a considerably greater quantity of Ore. The last two Years they have raised above One Thousand Bings in each Year, and there appears to be a great part of the Veins in the lower part of the great Limestone which will yet pay for working provided the Value of the Ore keep up. The present Brownleyhill Company have been driving forward Broomsberry Level Eastward by the side of Brownleyhill Vein upon the Quarry Hazel to cut Brownleyhill Moss Cross Vein, which has been worked in the high part of the great Limestone and was very rich in Ore but has been little worked for between Thirty and Forty Years. It appears from the report of old Work men that there was Ore left in the Soles of their workings, and though it is not general that Cross Veins bear Ore so well in the lower part of the Limestone as the higher, yet there is no doubt that the Vein will yet produce a large quantity of Ore. The above mentioned Level will we hope be pursued further East than Brownleyhill Moss Cross Vein which would make fresh openings in Brownleyhill and Brownleyhill North Vein in Ground which has been long closed up and which formerly raised a great quantity of Ore. They have also lately been making trial in Brownleyhill Middle Vein and Brownleyhill Sun Vein in the great Limestone and have got some Ore: these Veins are only weak and have never been much worked but if they were to get a little more strength they might become more valuable, which we think is very probable as there is a number of Strings running pallel with both these Veins, and by pursuing them Eastward they may probably come into them. The present Brownleyhill Company have sunk under their Level into the Quarry Hazel in Brownleyhill Vein, which had been attempted before but they could not then get down for Water, how ever they now find that the Water has settled; or more properly speaking has been drained off three Fathoms deeper than their Level, which must have been effected by the sinking of Nentsberry Shaft for Nent Force Level, or else by the workings of Messrs. John Brumell and Company at Nentsberry Greens: this discovery was not made till they cut Nentsberry Greens and Brownleyhill East Cross Vein but it was ascertained that Messrs. Brumwell and Company's taking up their Level seven Yards deeper did not make any deeper Drain of the Water, so that it is more probable that it has been effected by Nentsberry Shaft. Brownleyhill Vein is not very productive of Lead Ore where it has yet been worked in the Quarry Hazel and would not pay for it only but as it also produces a quantity of Black Jack of a very good quality, it is very probable that the Vein will be generally worked in that Stratum. Brownleyhill Veins we have no doubt will raise upwards of One Thousand Bings of Lead Ore annually for many Years to come, unless the price of Lead should fall materially which certainly would stop many of their workings. The Ore which the present Company have been raising has not been from any new discoveries, but from the old workings in the Veins, and what has contributed very much towards it, has been their letting liberal Bargains to their Workmen; they generally let them for one Year and by giving liberal prices their Workmen are very laborious and search about in the old workings; the success

which has attended their Plans has induced other Mining Companies to follow their example and has added considerably to the quantity of Ore raised at several other Mines.

Brownleyhill Vein has borne Ore in all the Hazels and Limestones from the Slate Sills down to the Quarry Hazel. Brownleyhill North Vein has only produced Ore in the Great Limestone, it has been tried in the Hazels above, but we think not sufficiently.

John Dickinson

Thomas Dickinson

### **Guddamgill Moss North Vein**

**1778** Guddamgill Moss North Vein has never been tried except about twelve Fathoms driven in it in the great Limestone, from Guddamgill Burn Cross Vein workings Eastwards; The Brownley hill Company have lately begun a Level for which you have a Proposal and I think it is the most likely way of trying that Vein I hope it will be attended with Success; upon the face of what I have advanced, it appears to me that the Brownleyhill Works are upon a very respectable footing, if they have unanimity and courage to proceed in their several places with spirit, and in their present situation they require both; I wish they may see their Interest in such a light as to induce them to be agreeable amongst themselves, and I do not doubt their success.

Josh. Hilton

**1821** Mr. Thomas Shaw and Company have made considerable Trial of this Vein in the Great Limestone for Lead Ore, with very little success, but as the Vein produces a considerable quantity of Black Jack, further trial is likely to be made by working for it. This Vein is commonly known in the Country by the name of the Black Jack Vein.

John Dickinson

Thomas Dickinson

### **Guddamgill Moss**

**1778** The trials at Guddamgill Moss by the Governor and Company have been very great and expensive and I am sorry they have not been attended with success, she has hitherto been one of the most unprofitable or rather the worst kind of Veins; in general having so much Ore as to give great encouragement for further and indeed very large trials, yet never so much Ore as to pay the expence of getting it; about eighteen or twenty Years ago she raised a good deal of Ore in the little Limestone but whether she then might yield any profit or no I cannot tell, but I do suppose not much, there has formerly been a good deal of Ore raised near the Inclosures, but I fancy it has been poor and the Vein in Strings consequently the Ore has been raised at the bottom of the Clay and close upon the uppermost Sill; and as I said before the Vein in Strings, occasioned by her intersecting Guddamgill Burn Cross Vein, which Vein I dare say has

never been seen by the Old Man who did these Works, but there is no tradition that I can find out from the oldest people of these Works being open nor of the time of those Levels in Wellgill Grounds being worked, neither could I learn whether anything was cut in Henderson's Cross cuts near the East Boundary. Till lately the Governor and Company have confined themselves to that part of the Vein where the little Limestone is the uppermost Sill and Eastward from thence they have also expended a vast sum of Money in making attempts to get into the great Limestone which they have accomplished at different places but on Account of wanting Air and the great quantity of Water they have to encounter with, they have only just seen enough to encourage them to proceed with more vigour; they are now trying at the West end of their Lease length, and if they should meet with any success, I make no doubt but they will carry up a Level from Guddamgill Burn Cross Vein Low Level which is the only effectual way of trying her; I doubt not but if that Level was up they would raise a great deal of Ore\* [a footnote is added at this point as follows:] \*But whether to repay them or no I am doubtful, its very poor Ore and cannot be worked except at a very high price, if the Level before mentioned was carried up they will get a great deal of Ore, [end of footnote] in the deads which are now coated on the Bunnion; upon the whole I think were I manager for the Governor and Company that I would recommend it to them either to drop the undertaking or to begin immediately with a Level from Guddamgill Burn Cross Vein low Level and proceed without a stop 'till I got to the place where they had the best appearance in the great Limestone, which might be very easily accomplished by a Water Blast, and then she would be so much laid open as to be ready to rise Ore all the way Westward from that place, and Eastward as the Level proceeded forwards.

I will here beg leave to introduce my observations on a practice which prevails very much to the detriment of the Lessees in Alstonmoor which is that of pumping Water instead of driving up Levels, and in no one instance is this more to be seen than at Brownleyhill and Broomsberry Mr. Walton well knows that those two Companies in the price p[er] Bing and expences of pumping making convenience for Air and washing paid above twice the sum for raising Ore at Guddamgill Burn Cross Vein South End, that it would have cost had the Level been up before they raised the Ore, I am well convinced they lost each one Thousand Pounds at least; there are many more instances in my knowledge, but the one already mentioned will suffice, and I hope that practice will be laid aside.

As to the Ground between Guddamgill Moss Vein and Gillgill Syke; I cannot say, I ever entertained any favorable idea of it, but however the trials made there were of no signification as to altering the prospect, I must confess they will be useful in any future trial for they produce a sufficient quantity of Water to work two Water Blasts; there are no known Veins which are certain to go thro' that Ground nor any probability of any known ones except Thortergill Syke Veins which probably are the same as Nenthead Field and Nenthead Field North Vein, and consequently should run thro' the ground between Gillgill Syke and Wellgill Syke, but if it should be so they do not carry

any very interesting appearance with them to induce the laying out a considerable sum of Money, but for all that I may be mistaken and they may do well.

Josh. Hilton

**1821** About ten or twelve Years ago the Governor and Company for Smelting down Lead took a Crosscut out of Guddamgill Burn Cross Vein Low Level or what is now called Broomsberry Level and drove it about Two Hundred Yards Eastward, and got a communication between it and Guddamgill Moss Top Level by boring; they then sunk into the Great Limestone in Guddamgill Moss Vein which was quick but the prospect was unpromising and the Limestone afforded a great deal of bad Air, so that they could seldom get into it and the Trial was dropped.

The Ground between Guddamgill Moss and Gillgill Syke has now been cut through with Broomsberry Level which has been driven by the side of Scaleburn Cross Vein. The principal trial which we would recommend for this Ground now is, to try a number of Cross Veins which are discovered in Rampgill Low Level lying on the East side of Old Carrs Vein and bearing a point to it Northward which must have come into it and increased its strength so much where it crosses Guddamgill Burn. A crosscut from Broomsberry Level to the West to cut these Cross Veins on the North of Gillgill Syke, we hope would be attended with success, and which the Governor and Company's Agents are now in the mind of doing.

John Dickinson

Thomas Dickinson

### **Scale Burn Veins.**

**1778** Scaleburn Moss is a Vein which will speak for itself, only as I have entered upon the subject I must say something about it. The original Trials at Scaleburn Moss I believe have been very trifling, both at the East and West ends, I must confess the trial begun at the West End from Rampgill Low Level was well planned, had it been executed according to the intention as it appears to me, for they have carried a very good Level so far up that Vein as a little above the Inclosures, and why it was left there I know not but do suppose it has been occasioned by their facing some Cross Veins which are there and had they known so much of Cross Veins then as is now known, the Ore raised lately in Shawfoot Cross Vein would have fallen a prey to them, and not have been left for us, and had the Governor and Company when they begun the Crosscut from Rampgill Engine Whimsey taken up that Level which communicates with Rampgill Low Level, and in the first place made it a dead Level from where it crosses Carrs Vein, and carried it a Waggon Level, and fixed a Whimsey so much above the Inclosure as to leave room for a washing convenience in my opinion they would before now have saved three times the additional expence I mean the difference between what the Crosscut from Rampgill and the present Whimsey cost, and what this Level and Whimsey would have cost, they should also have made in different places as they went forward sidings often or fifteen Fathoms in length for the Waggons

to pass each other, this would have been a much more complete convenience than what they now have and they never would needed to have any other, whereas now they are obliged to make a new one by a Level begun upon Pattinson into which Level they will be obliged to have Sumps to draw the work from the little and great Limestone, whereas in the other way the work would only have been to put down a Sump or Rise which is a much easier expence; the loss in changing their Washing place will cost some Hundred Pounds for let them wash their floorings ever so often over there will still remain a considerable quantity of Ore which must be lost, and particularly in such a situation as their present washing place is, the Moss being several feet in depth consequently what Ore gets into it will there remain, and I dare say that is a pretty large quantity as the Flags they have for the Bingstead bottoms are very bad ones. The trial being made by carrying the Level in the way I have mentioned would also probably have been the means of discovering in some degree the occasion of the throw of the Vein last cut by the Broomsberry Company in their Level from Nells Well, and why may there not be another Cross Vein as good or better than Shawfoot Cross Vein has been, for the strings sliding from Rampgill or Scaleburn Moss and intersecting those Cross Veins diagonal-wise are very likely to make a piece of Ore in those intersections. The prospect at Scaleburn Moss must be allowed to be one of the best in the whole Country and tho' she has not yet raised much Ore in the great Limestone, there is no doubt of her turning out well were they drove further East and with respect to that Vein dividing Eastward, I cannot pretend to assign any reason for it, as there is only one Vein known at Coal Cleugh answerable to Scaleburn Moss that I ever heard of, but whether or no the Coal Cleugh people have made any Cross cuts by way of finding out that matter, I will not pretend to say; I hope as I said before there is no doubt of her doing well in the great Limestone, but whether she may do so well as Rampgill has done or not is doubtful, and how far she may be affected by wanting the cover which is upon Rampgill Vein is beyond my judgement to account for, there is just about as much cover at Rampgill High Whimsey as there is at Scaleburn Moss at the long Ditch. To be sure Rampgill was very good a great way to the West of the High Whimsey and consequently where she had as little Cover on as Scaleburn Moss has at the present works. In short if Scaleburn Moss should be as good a Vein as Rampgill has been, she is a better prospect now than Rampgill was when the Governor and Company took her, for Rampgill was then robbed to the bottom of the Firestone and Scaleburn Moss is whole from the Surface, and the Slate Sills are very strong where they have their foremost Shaft: I wrote you on the 26th. December respecting the limits that I think will be proper to be granted to the Governor and Company and have no reason as yet to alter my opinion.

Josh. Hilton

**1821** Scaleburn Moss Vein has been worked Eastward to Coal Cleugh Boundary several years ago; it was very good in the great Limestone and raised Ore very well in the Pattinson little Limestone and Coal Sills, but never any thing of consequence in the Firestone or Slate Sills, which are on near the Boundary of the Manor. A very

promising Flatt has lately been discovered lying on the South side of this Vein in the great Limestone in which they are getting Ore very well.

Scaleburn Cross Vein was discovered by Mr. Thomas Dodd the Governor and Company's Agent in driving up a branch from Rampgill Low Level in Scaleburn Moss Vein which he pursued to the North where the Vein was very good and has raised a great quantity of Ore in the top part of the great Limestone; they drove it Northward until they met with Broomsberry Level, in the same Vein which was at a deeper random being in the Grey beds under the Tuft. There is a quantity of Ore left in the Soles of the workings in Scaleburn Cross Vein which is likely to pay for carrying up that Level, which by the rise of Strata will be under the Quarry Hazel where it will cut Scaleburn Moss Vein, so that Broomsberry Level will give an opportunity of working that Vein as deep as the Quarry Hazel and perhaps a part of the Four Fathoms Limestone and there is little dispute that it will be carried forward to Rampgill, and make a new opening in that Vein.

Scale Burn Vein was discovered by working Scaleburn Cross Vein, which lies about Fifty Fathoms to the North of Scaleburn Moss Vein and has raised a considerable quantity of Ore in the great Limestone. In driving the Vein Westward a Cross Vein came to it from the North which went along with it several Fathoms, Mr. Isaac Hornsby believes twelve or thirteen before it left them on the Sun side which is the only instance we ever heard of a Cross Vein being taken off its point by an East and West running Vein.

John Dickinson

Thomas Dickinson

### **Rampgill Veins**

1778 Rampgill the next in turn is so much opened out that at any rate she must continue a principal Mine for a great while, and if the Works at Broomsberry continue good so as to encourage them to bring forward the Low Level to the South end of their limits and the Governor and Company take it up there and try the four Fathom Limestone which rests upon Nattrass Gill Quarry Hazel, those two Sills with the great Girdle Bed which lies upon the four Fathom Limestone make together a Sill of nine Fathoms which is nearly as thick as our great Limestone and I think if Rampgill turn out good there she will last 'till Nent Force Level be got up if it be proceeded in with spirit, as I hope it will be. It would undoubtedly have been very proper had the Rampgill Low Level been carried up dead from Nentside, but that is now too late and the only way to make a fresh winning there in my opinion is by Guddamgill Burn Cross Vein Low Level as I said before, for the speedy carrying forward of which Level every proper means should be used to encourage the Lessees who are or may be at the expence of it. I must needs say that the Works at Rampgill, since I knew her, have been carried on in the worst manner of any Mine in Alstonmoor, her value considered, for all the while she has been so very good there have been no trials by way of Crosscuts to see if any thing was lying off on either side, except two in the late Mr. Smith's time, which discovered Rampgill Sun Vein, and why may there not be other

Veins still further to the South; nay indeed she was so much neglected in the joint Agency of Messrs. Brown and Tweedale and the former part of Mr. Tweedale's Agency that the principal Level carrying forward Eastwards was stopped, and no preparations for sinking Sumps were made, so that for upwards of two Years, the great Limestone forehead was almost quite at a stand, as she could not be worked for want of Air. That matter is now all over, the opening to Coal Cleugh being made. As to my own private opinion I am persuaded it would be proper to make some Crosscuts both to the North and South in some place between the Wild Mare Shaft and Patterdale Vein as well as below the Wild Mare Shaft in that Ground where Rampgill is said to have been only a joint, that thing with me has such an odd kind of appearance to imagine so strong a Vein as she is both to the East and West of that Ground should in that part be wasted to a joint, that I must think the Vein still retains her strength there, but by the effect of the Cross Veins is carried off her point, and tho' it is contrary to the common received opinion I would expect she is carried to the South in that Ground; the trials in the great Limestone to the East of the Engine Whimsey and between that Whimsey and the Woodhouse Whimsey have also been very shabbily left off, there being several Sumps sunk and small Crosscuts made, but I am much of opinion that none of those Crosscuts are drove so far as to be certain of the Vein being all cut in them, as to my part, I have been in some of them wherein the rider does not seem to be cut thro', and as I have known Rampgill have about a Fathom of Rider on one side of the principal rib of Ore, and yet have Ore at the contrary Cheek, by the same rule there is a probability or however a possibility of their being Ore still left where those Crosscuts are not driven thru' the Vein; and as Rampgill where she has been good, is attended by another Vein called the Black Leader which has been sometimes so near as to make one Vein of very good Ore and in other places two Fathoms distance I think the Crosscuts to be made should not be left short, for it would be an imprudent thing indeed when the Sumps are already sunk to leave the Crosscuts without being quite certain of being far enough driven. There is one other thing which I will mention, that is, Rampgill was never so very good 'till she came above the Woodhouse Whimsey and the reason assigned for it was, that she is there made so good by some Veins or Strings which came in from the South West, now I am clear that those Strings will naturally have a tendency to make thro' Rampgill Vein and as the Vein grew weaker near the high Whimsey Shaft, I would advise a Crosscut to be made Northwards somewhere to the East but within One Hundred Fathoms of the Whimsey to see if they have not collected together and formed another Vein to the North of Rampgill, and what partly convinces me that something of the kind has happened is that in Coal Cleugh Level there are two places, the one called the low Stoups and the other the high Stoups, the meaning of the word Stoups is, where there is a quick loss of Level, and is generally occasioned by a Vein throwing up the Sill, upon which the Level is driven, this is the case at Coal Cleugh, but then as far as I have understood there is no Vein to be seen at either place, how far that may have escaped the notice of the people who had the management I shall not pretend to say but I am very sure that sudden rise could not happen without some cause and tho' it may not be discoverable in the Level, yet there may be a Vein at each

place. As I do not recollect the distance of those Veins from the principal Vein, I will not pretend to advise how far a Crosscut ought to be made, but if it be thought proper to be carried into execution the distances will at any time be very easily come at. The Governor and Company having proposed for Rampgill Rakehead Sun Vein there remains not a doubt of the Ground between Rampgill and Rakehead Sun Vein being cut thro' without loss of time in a proper place which will sufficiently try that Ground near the Boundary; I would not only do that, but have a Crosscut to the South somewhere between the High Middle Whimsey and the high whimsey for it is my opinion, there are more Veins between Rampgill and Rampgill Burnhead Vein besides Rampgill Sun Vein. I shall now take my leave of Rampgill by observing that if the low Level from Guddamgill Burn Cross Vein low Level was completed, there are more deads coated upon the Bunnions in Rampgill which would then be easily drawn, than would by their profits pay the expence of carrying up the low Level from the South Boundary of the Broomsberry Company's Ground exclusive of what would be got out of the Riders which would certainly be a great deal, as many of the Stemples on the North side are footed in very good Ore, the Company not being able to get Timber long enough to reach the whole width of the Vein.

Josh. Hilton

**1821** Since Mr. Hilton's time there have been very great openings made in the Governor and Company's Mines about Nenthead, but not in the method which he pointed out; with respect to Rampgill he observes "It would undoubtedly have been very proper had the Rampgill Low Level been carried up dead from Nentside but that is now too late". But Mr. Dodd was of a different opinion, and having obtained the consent of the Governor and Company, he began a Horse Level a little above Rampgill low Level Mouth in order to get a fall for teeming the Work from the Waggon, and by keeping a true Level got into the old Level and afterwards under it. The old Level was quite a small one merely for the purpose of taking off the Water. The Governor and Company are driving forward this Horse Level (which goes by the Name of Rampgill low Level) their Forehead at present is on the North side of Rampgill Vein about Sixty Fathoms East of Woodhouse Whimsey in the Tuft which is very convenient for robbing the great Limestone, and the Waygate is much shorter, and easier than it would be to go out at Broomsberry Level; not but that Level will be very useful for a fresh winning when it gets up, as that Level will we expect cut Rampgill Vein near the top of the four Fathoms Limestone on the North side and by the throw of the Vein it will be considerably into the Four Fathoms Limestone on the Sun side of the Vein, so the Broomsberry Level will give an opportunity of trying Rampgill Vein in the Quarry Hazel and four Fathoms Limestone, and we expect they will also be able to sink into Natrass Gill Hazel, and make a trial in that Stratum; but Rampgill low Level is far the most convenient for working Rampgill Vein in the great Limestone which will without doubt raise a vast quantity of Ore Eastward to the Boundary of the Manor, both out of the old Workings and in the Soles, as it is considered that there is a great deal of Ore

left in them, especially near the Boundary where the workings were deep and where there were very awkward Waygates for getting out the Work.

Rampgill Low Level has been the means of raising the great quantity of Ore that has been got in Rampgill Cross Vein. That Vein had been seen formerly in the workings in Rampgill Vein but had no Ore in it where it crossed, and by reason of the awkward Waygates for getting out the Work, the trial of it then would have been very expensive, and as Mr. Hilton justly observes Cross Veins were then despised, so that though it was discovered, yet they did not make any trial in it. By working Rampgill Cross Vein a very valuable discovery was made in Rampgill Sun Vein which for several Years has been raising a great quantity of Ore in the great Limestone principally and part in the other Strata above.

Rampgill has unquestionably been the richest Vein of Lead Ore that has been opened in the Manor of Alstonmoor; it has three Fathoms of throw, and has been the most productive in the higher part of the great Limestone. Mr. Hilton in his report states "that many of the Stemples on the North side are footed in very good Ore the Company not being able to get Timber long enough to reach the whole width of the Vein". According to tradition they had a solid Rib of Ore Eighteen Feet wide and which was so hard that none of it could be got without blasting and the Vein in the great Limestone alone raised One Thousand Bings of Ore in each Fathom in length for a considerable distance. The Vein has also been productive of Ore in all the Hazels and Limestones from the Fell Top Limestone (which is the highest in the whole Manor) to the depth of Rampgill Low Level, the Governor and Company made an attempt to try the strata below the great Limestone, but it was further West than where the Vein was so good and they sunk in the Vein to the Top of the four Fathoms Limestone, but on Account of the quantity of Water, and the hardness of the Vein, they gave Twenty Pound per Fathom besides eight Shillings per Week to each Workman, which last Sum at the time it was done was nearly a Workman's Wage so that not much trial was made. They are now driving a Crosscut to the South of Rampgill under Pattinson Sill, which begins what upon the Plan is called old high Whimsey in which they have cut Rampgill Sun Vein and Woodhouse Whimsey Cross Vein, which both appear weak; they have already driven the Crosscut One Hundred and forty Fathoms. Broomsberry Level, which the Governor and Company are taking up to Rampgill is sixteen Fathoms below Rampgill Low Level; but it will not make a winning quite so much deeper as they have lost part Level with driving.

John Dickinson

Thomas Dickinson

### **Rampgill Burnhead Vein.**

**1778** The next known Vein is Rampgill Burnhead Vein which to my knowledge was never seen in any place in Alstonmoor but by Mr. Wilkinson about ten years ago, when he raised five Bings of Ore in the Firestone but by working Eastward met with a Cross

Vein which threw down the East Cheek and in consequence there was nothing more done.

There is a large tract of Ground from Rampgill Sun Vein to Long Cleugh in which some trials have been made but to very little or no purpose, except the discovery of Rampgill Burnhead Vein and Hangingshaw East End, and tho' I mentioned that matter in mine of the 26th. December yet as it comes in turn here I will give you my sentiments about it, I do really think it a piece of the most likely Ground in Alstonmoor for a great many reasons, in the first place it is remarkably well situated as to having all the Sills on, and from every appearance sound, and being on the hard side of the Hill makes it more likely, for the upper Sills being Hazels to carry Ore than if it had been on the other side; secondly, the gradual rise of the Hill gives every Sill an opportunity of having both little cover on and a good deal so as that a Vein may be tried in both situations, and consequently the trial must then be deemed a satisfactory one; thirdly, Carrs Vein being very near the bottom of Nent in that Ground leaves a greater space between Carrs Vein; and the boundary of the Manor for the several Veins which may happen to lie therein to recover their proper strength, and consequently there is the more probability of success; and fourthly from all reasonable probability several Veins should run thro' that Ground which have been good in other places and for the reasons of the situations of the Ground as before mentioned I should hope some of them would turn out well in the Ground between Rampgill and Long Cleugh; for those reasons which I think well founded I should look upon the Ground before described to be an object worthy the most serious consideration of any Company who are in the Lead Mine way, and can have the Ground granted to them, and if a trial be made there, I would recommend as the most likely one to make all the East and West running Veins secure to take a Level from Mr. Wilkinson's deep Level which was taken from a Crosscut East of Carrs, and drive South to Long Cleugh; this Level would not only discover all the Veins which lie in that Ground but would also unwater the great Limestone at Middle Cleugh and Long Cleugh, and pave the way for a trial into the four Fathom Limestone there also, most undoubtedly if the Level I mention was taken from Rampgill Low Level it would be better, because it would be deeper, I suppose about ten Fathoms, but then it would be upwards of One Hundred Fathoms longer, therefore it will rest with the Undertakers and you Gentlemen which to adopt in case it be proceeded with at any future time.

Josh. Hilton

**1821** Besides the trial which Mr. Hilton, reports to have been made of this Vein, Messrs. Errington and Wilkinson had then also driven a Level to this Vein out of Carrs deep Level above One Hundred and Fifty Fathoms in length, the greatest part of which was in the great Limestone, and cost twelve Pounds per Fathom which at the rate of wages at that time was considered a great Price; John Dickinson well remembers this undertaking, being the common talk of the Country and that Adam Wilkinson was considered a bold Miner, but when the Level got up to the Vein the appearance was so bad that the trial was soon dropped and notwithstanding these Mines have been for

several Years in the hands of the Governor and Company, they have never thought them worthy of any further trial, though the Level must be all standing open; Mr. Thomas Dodd was living at Nenthead at that time and must have known what trial was made. Mr. Hilton soon after adverts to it calling it "Adam Wilkinson's deep Level" and recommends a Level to be taken out of it, to be driven to the Sun to cut all the East and West running Veins between there and Long Cleugh, so that he could not be ignorant of it, and ought to have mentioned it for the credit of the Company who spent so much Money in the trial and to shew that the Vein had been tried in the Great Limestone at least to the satisfaction of one Company.

John Dickinson

Thomas Dickinson

### **Small Cleugh Cross Vein, and Small Cleugh Flatt.**

**1821** On the 22nd. September 1787 Mr. Thomas Dodd on behalf of the Governor and Company proposed for Small Cleugh Cross Vein, and about that time began to open out a Level, which had been driven by Messrs. Errington and Wilkinson for the discovery of Hangingshaw East End; he had not pursued that Level far, before he cut Small Cleugh Cross Vein, and upon sinking down found it very good in the Great Limestone and a strong wide Vein which has produced an immense quantity of Ore, and which continued good all the way Southward to Middle Cleugh Veins where the Level by the rise of the Strata and throw of the Veins is in the Great Limestone, so that the Level made a fresh opening into the Middle Cleugh Veins in deeper Strata than they formerly could be worked in, and which have raised a great quantity of Ore. By driving forward that Level Eastward in Middle Cleugh Vein Small Cleugh Flatts were discovered which have been very rich in Ore for many Years; they are still pursuing them Northward, but of late they have been quite poorer than they formerly were. The Ore got in these Flatts lies horizontally and extends in many places several Yards in width and is accompanied with a String or Strings. The workings on Account of being so easy of access are very much visited by Strangers, persons may go directly up to them in Waggon, they have a very pretty appearance, being of a considerable height and width, and the sides and Roof being principally covered with fine rich looking Spar. There is danger of a Stranger after viewing these workings going away with quite a mistaken idea of the general nature of Lead Mining. These workings with a few more in the Country of a similar description are an exception to the general way in which Lead Ore is formed, but no other Flatts that have yet been discovered in the Country are comparatively speaking any thing like these for producing Ore.

By the working of Small Cleugh Cross Vein and Hangingshaw Cross Vein which is a continuation of it Northward, and also by a branch from Rampgill Low Level, which has been driven to Middle Cleugh Veins, a full discovery of the Ground between Rampgill and Middle Cleugh of all the East and west running Veins has been made, but it appears that there are no East and West Veins except those which had been previously discovered Viz. Rampgill Sun Vein and Rampgill Burnhead Vein which is

the same as Hangingshaw East End. Where Caple Cleugh North Vein should have crossed they discovered a small String little better than a Joint which they called Gully Back, being little wider than a Butchers Knife, so that if Mr. Thomas Dodd had pursued the Plan which Mr. Hilton points out in his Report for trying the Ground South of Rampgill Burnhead Vein, that is by taking a Crosscut out of Mr. Wilkinson's Deep Level, it is very probable that he might have spent a large Sum of Money, and not met with any thing, as his Crosscut we presume would have been on the East side of Small Cleugh Cross Vein and would have been under Small Cleugh Flatts, so that he would in all probability have missed both these objects. Upon the whole it appears that Mr. Hilton set too light a Value upon Cross Veins, although he allows that there had been a good deal of Ore raised out of them within the last Twenty Years. Mr. Hilton at that time knew that Shawfoot Cross Vein now included in the Boundary of Hangingshaw Cross Vein had raised a considerable quantity of Ore and he must have known that the same Vein had been discovered at Hangingshaw East End, and from having raised so much Ore at one place, he might have concluded that the Vein was worth trial in another, especially as the trial of it would have accomplished the object he had in view, namely the discovery of East and West Veins. As to the statement of that Cross Vein being neither seen in Mr. Adam Wilkinson's deep Level nor Middle Cleugh deep Level, it is what we cannot credit: it seems to us that Cross Veins were of so little account when those Works were done, that when they went through a Cross Vein they hardly took any notice of it or said anything about it.

John Dickinson

Thomas Dickinson

### **Middle Cleugh Veins, Long Cleugh and Carrs South End**

**1778** With respect to the Long Cleugh and Middle Cleugh Veins, there have been so many Levels and Crosscuts made in almost every direction that I think nothing can be missed especially at Middle Cleugh; there was a strange thing to be sure at the place where the Governor and Company got the Float Ore at Middle Cleugh East End and how far that place was examined properly I do not know, as I do not recollect being in the Works underneath where the Float was got if any were made, but I am sure I was told of the Company having cut underneath that place and could not meet with any Vein, yet it is rather an uncommon thing that two or three Hundred Bings of Ore should lye close under the Moss and amongst very strong Rider without some connexion with a Vein. I have been told of instances of the like kind from very good authority but never saw one. Wherever Float Ore is, it generally lies at some distance from the Vein, but in all cases I have seen has some connection with it. If that place where the Float Ore was got at Middle Cleugh be properly examined, I think there remains nothing more to be done except the finishing the Plans already laid down, and continuing the deep Level Southwards to the boundary near Naggshead, as it is very possible some Vein or Veins may cross in that Ground, for you know there is a Vein called Wellop Knott which runs into Eshgill Liberty both at the East and West Ends,

and at the East End has been worked in Eshgill Liberty by the Name of Woodmearwell; but none of our Middle Cleugh Veins by their direction answer to the point of that Vein, which makes me think it possible she may still lye further to the South than any thing we have yet seen in the Middle Cleugh Works, and as this Vein did raise a good deal of Ore in the two Fathom Limestone and Arthurs Pits Quarry Hazel as well as the four Fathom Limestone and Nattras Gill Quarry Hazel I should hope if she could be met with at Middle Cleugh, there would be a likely prospect of her doing well in the Upper Sills.

Josh. Hilton

**1821** There has been a considerable quantity of Ore raised in Middle Cleugh Veins since Mr. Hilton made his Report in consequence of Small Cleugh Cross Vein Level coming up to them, and after that a Branch from Rampgill Low Level at a deeper random; before the bringing up of these Levels a part of the Great Limestone in these veins was lying under Water, and could not be worked. But there have been few discoveries made at Middle Cleugh Veins except a String that has been found off Middle Cleugh Second Sun Vein in which they have of late got a considerable quantity of Ore in the Great Limestone.

Small Cleugh Cross Vein Level has been continued Southward to Long Cleugh and they have made a fresh opening into it deeper, which is producing part Ore. We believe this is satisfactorily proved to be the same as Woodmer Well Vein. The workings in Long Cleugh Vein have been pursued Westward to Carrs Vein which in that situation goes by the Name of Carrs South End and which they have discovered to be broken into five different parts in three of which they are at present working for Ore.

The Middle Cleugh Veins have we believe, carried Ore in all the Sills that are on as deep as the bottom of the Great Limestone, and both they and Long Cleugh Vein have yielded Ore on both sides of Carrs Vein, which has not been the case with any other East and West Vein, that is not within a considerable distance on the East side, which we think may be attributed to Carrs Vein not being so strong in this situation and being much broken.

John Dickinson

Thomas Dickinson

### **Caple Cleugh Veins**

**1778** The next we come to are the Caple Cleugh Veins and as they are now in the possession of Messrs. Errington and Wilkinson, I shall go thro' the whole of that Companies undertakings before I give my opinion as to the propriety of future proceedings; how far the trials made there have been satisfactory I shall not pretend to say, for there are certainly some unknown causes which are the occasion of the strange things we meet with about Caple Cleugh, and 'till those unknown matters are discovered there will remain great difficulty in pointing out the most prudent method

of making proper trials. The Plan laid down by Dobson and Atkinson when they proposed for the Veins near Black Eshgill Head was most undoubtedly well grounded upon the probability of the Middle Cleugh Sun Veins lying in that Ground, and any Miner will yet allow, that tho' we have proved the Veins to lye more to the North than was expected, the cause of their course being altered is a Secret. Many Veins alter their point by Cross Veins intersecting them, but the Ground from Middle Cleugh deep Level being cut thro' in all the Sun Veins, quite to Caple Cleugh Bog, and indeed a great way farther in Middle Cleugh itself and no North and South Vein being discovered West of Cowslitts Cross Vein, and all the alteration of the direction of the Middle Cleugh Veins happening to be a great way on the West side of that Cross Vein, makes it have a very strange appearance. How far the trial begun by Dobson and Atkinson in Black Eshgill and afterwards finished by Sir Lancelot Allgood to Caple Cleugh may be sufficient, I leave to the judgement of others, but I never was nor yet am fond of making Levels to overlap each other as proper Levels for trial, for the very many variable turns we see in Veins not only in their course but also in their hading and throw makes it necessary to leave no corner without being examined, and the appearance a Vein makes in the same plate Bed in two places at a small distance from each other frequently happening to be exceedingly different, makes it essentially requisite that not only the Workmen employed in driving Levels for discovery should be people of judgement, but also the Agent should daily examine those Levels. As an instance there is a case at Brownleyhill Cross Vein where the Brownleyhill Company are raising Ore in the little Limestone. That Vein was never seen in their Level upon the great Limestone 'till lately, and now upon examination she is very discoverable crossing that Level in four or five Strings; and within about thirty Fathoms of the place where she crosses the Level; and in the same Plate Bed is all together and very strong. Many other instances of the same kind may be quoted. Exclusive of the great turns made by the Middle Cleugh Veins, the Strata also at Caple Cleugh rise very much Eastward which is contrary to the natural rise of Strata and consequently must be occasioned by something unknown, for tho' the Sills as I said before rise Eastward, yet when we come to Brigal Burn Cross, the Strata is as high there, as if they had their natural rise all the way and no Vein intervening. For all this the only Vein known in any other part of the Country which probably may cross in the Ground between Caple Cleugh uppermost Works and Brigal Burn Cross is a North and South running Vein which is seen at Gallygill Syke, Greengill and Brigal Burn but has never been worked in any of those places and consequently no otherwise known than by the effect it has upon the Sills which it throws down Westwards the dip of the Sills and the throw of this Vein should have made the Sills at Brigal Burn Cross lower than at Caple Cleugh, yet for all that it is a certain fact that they are as much higher as they ought to be by the natural rise, for those reasons it is evident that this Cross Vein must either change its throw, that there must be another Cross Vein, or that the Strata after passing thro' this Vein must rise so much faster as to make up the differences, which way it happens I shall not presume to point out, as I do admit there are several things about the Caple Cleugh Veins, which to me are very mysterious and I do not think any Person will be

able to account for them 'till by working they are laid open. The other Works of Messrs. Errington and Wilkinson on the West side of Nent have been exceedingly successful, and I think that Company may look upon themselves remarkably obliged to Fortune for their success, for they cannot in the eyes of a Lead Miner have any merit as to their abilities in management, and I dare be bound to say, take all their Works together they have been carried on in a manner the least like being under the care of a skilfull Miner of any Works in the Country, tho' they have had the opportunity of being in the best way of any; but where there are frequent changes of Agents, works never can be so properly managed, because if you meet with two Persons of equal skill, who both agree upon an object proper for trial in a certain situation, in all probability they will differ in their mode of gaining that situation, a very strong instance of that is very recent in memory at Brownleyhill between the late Steward Brown and William Hutchinson. It was the opinion of both that Brownleyhill would be good in the Great Limestone. Steward Brown who came first begun a Level in the Fields at Wellgill Green ends intending to land that Level upon the Great Limestone on the East side of Carrs, but Messrs. Tweedale and Brown disagreeing the undertaking was dropped. Wm. Hutchinson proposed to take the Vein, and wanted to attain the same point as Steward Brown, but from the uncertainty of the throw of Carrs Vein and knowing nothing of levelling or making Sections, he chose to begin a Level upon the great Limestone East of Carrs; the intentions of the Plans were equally good tho' differently executed, and I must own I would have adopted Steward Brown's Plan, tho' it is now evident the other was much better as being the means of discovering Guddamgill Burn Cross Vein, which otherwise would probably yet have lain unmolested. I alledged before that Messrs. Errington and Wilkinson's Mines have had the best opportunity of being properly conducted and I conclude that from there having been always in the same hands, and the principal Agent never interfered with so as to prevent any Plan laid down by him being fully executed. Their first trial was for Caple Cleugh North Vein, and had they met with that Vein and nothing else, there would soon have been an end of their Works; but instead of meeting with Caple Cleugh North Vein they cut Cowslitts Cross Vein which had a piece of good Ore in the little Limestone; they could not work her with advantage there, and consequently run her point Northwards, hoping to find her in the Great Limestone where it was near the surface, but instead of that sunk directly upon Hangingshaw which turned out very good; the appearance of Old Works at Cowslitts induced them to engage that Ground, and Mrs. Loraine's pretended claim to a right there forced those Works to be proceeded with and has brought them in a good deal of Profit, but there is not one trial of Mr. Wilkinson's exclusive of those mentioned that has been carried on with any judgement or propriety, and even where they got Ore their Works will not bear examination, for their Level from Hangingshaw is driven in Cowslitts Cross Vein all the way to Caple Cleugh North Vein consequently no probability of making any discovery in that Level; Cowhill deep Level is to be sure driven in a proper direction to Hangingshaw Vein where it now stands but Mr. Walton knows as well as me that the intention after cutting Hangingshaw Vein was to drive in that Vein Westward and Hangingshaw West End

was kept in the Moor Masters Books many Years upon that plausible pretence of their intending to work her so soon as Cowhill deep Level could be completed which would have been done had Hangingshaw continued good, but as she failed the Level stood; I shall here beg leave to deviate from what I at first proposed and just take a short view of Nest Dykeheads in this place.

The Plan laid down by Thomas Emerson for trying the Ground at Nest Dykeheads was well founded, and had he had Money enough would have been prosecuted with spirit, when Mr. Wilkinson took a Lease of that part of Alstonmoor, had he gone forward with Thomas Emerson's Level, it would have been a complete trial, but that Company rather chose to go higher up and drove a long Level for discovery in Clay; that trial as well as the one at Nentsberry Hags evidently speak for themselves, as does also the trial near Rampgill Burnhead, for as soon as the Vein was cut by their deep Level taken from Carrs Low Level the further proceedings with that Vein were laid aside even without trying the Vein, therefore as matters now stand it appears to me that the only object which Messrs. Errington and Wilkinson can now have in view for continuing Lead Mine Adventurers in the Manor of Alstonmoor is the Ground from Cowhill to Caple Cleugh and Sun Vein, which Ground cannot be properly tried in any way except by proceeding with Cowhill deep Level Southwards from where she now stands to the Southmost of their works, and then turning and continuing that Level Westwards towards Brigal Burn Cross which would make a thorough trial in that Ground; the particular place to turn the Level Westwards will be best pointed out after the first part is finished to Caple Cleugh and I am certain had that Level been proceeded with when Mr. Donkin and Mr. Wilkinson punctually promised it, their undertakings would have been on a much more respectable footing and at very little more expence than has already accrued by the Engine, Pumps, want of Air &c.

Josh. Hilton

**1821** The Caple Cleugh Veins have raised a great quantity of Ore in almost all the Sills that are on as deep as the great Limestone, they have also been rich in the Great Limestone Eastward from the Engine Shaft, but Westward from that Shaft they became poor, and being much troubled by Water they were not much worked in the Great Limestone except the sinking of several Sumps into them. The Governor and Company are now driving up a Level in Brigal Burn Cross Vein or what is now called Caple Cleugh Cross Vein which will completely relieve those Veins from Water in the Great Limestone and it will be a convenient way-gate for bringing out the Work, and as there is a great length of Ground whole between where the Caple Cleugh Veins have been worked and Longholehead there is every reason to expect that these Veins will yet produce a large quantity of Ore.

John Dickinson

Thomas Dickinson

### **Cowhill, Cowslitts and Hangingshaw Veins**

**1821** These Veins were formerly worked by Messrs. Errington and Wilkinson and raised a great quantity of Ore in the Great Limestone, but in going Westward when more cover put on, the Veins turned poor, and the further they were pursued, the prospect continued the worse until they were dropped. They drove up the Level which Mr. Hilton calls Cowhill deep Level to Hangingshaw Vein, which is driven a little further West than that Level Forehead but is left off very poor with scare [sic] any Ore in it. The Governor and Company who now have these Veins are getting part Ore in the Tumblers or top part of the Great Limestone, but upon the whole there is little but pickings, they have made considerable trials of these Veins especially at Hangingshaw which have been unsuccessful. As to the reflections which Mr. Hilton was pleased to cast upon the management of Messrs. Errington and Wilkinson, but principally upon Mr. Adam Wilkinson who had the chief management I (John Dickinson) consider them to be unjust and which are in some measure pointed out under the head, Rampgill Burnhead Vein; as I have lived Sixty five Years in the Country I have had a very good opportunity of knowing the general opinion which the Country entertained of Mr. A. Wilkinson's Mining Abilities, and can testify with the greatest sincerity that he was esteemed to be a bold good Miner. As to the trials which Mr. Hilton admits to have been exceedingly successful no Person will blame him for them, and as to those which have not been successful posterity will judge respecting them; as yet no Person has proved that he left any trial short, and we believe most people will consider his trials to have been laid on with judgement.

It may perhaps be interesting to some persons who may hereafter read this Report to know that Mr. Adam Wilkinson from being a poor illiterate Miner by speculating in the Lead Mines gained we believe Eight Thousand Pounds by them in a few Years and built Nentsberry Hall to reside at.

John Dickinson

Thomas Dickinson

### **Middle Cleugh Cross Vein and Caple Cleugh Cross Vein**

**1821** In consequence of the success of Brigal Burn Company at Brigal Burn Cross Vein some of that Company ran a point of that Vein over to Black Eshgillhead and engaged Mr. James Johnson and others to join them in making a trial at that place, which they did by driving a Level in Priorsdale under the Coal Sills, and found the Vein very rich in the Great Limestone. They had a Grant of two Hundred Yards in length of the Vein Northward from the boundary of the Manor of Alston Moor which was called Black Eshgillhead Cross Vein. The Vein continued good the whole length of their Ground but very little further North. The Governor and Company who had this Vein Northward to Caple Cleugh under the name of Middle Cleugh Cross Vein have driven a Level all thro' that Ground and sunk several Sumps into the Limestone and driven in it in different places, but have got very little Ore out of it: the Vein has Ore in it all the

way, but seldom as much as will pay for working. The Governor and Company having purchased the interest of James Johnson and Partners in Black Eshgillhead Cross Vein, the whole of that Ground is now granted to them in one Lease under the name of Middle Cleugh Cross Vein. James Johnson and Partners made some trial in the Four Fathoms Limestone in which the Vein was found Quick, but the quantity of Ore was small and they were much troubled with Water, so that the trial in that Stratum was soon dropped.

Caple Cleugh Cross Vein is a continuation of Middle Cleugh Cross Vein Northward, for the trial of which and of the East and West Veins that intersect it, the Governor and Company have lately been expending a considerable Sum of Money in driving a branch from the Level that goes up to Dowgang to Brigal Burn Veins. This Vein was discovered by the Brigal Burn workings, and was there called Brigal Burn Cross Vein, which raised Ore very well Southward in the Great Limestone and has been worked to the extent of about two Hundred and Eighty Fathoms, where the Vein had been left off poor and bad for Air: this Ground together with the other part that is whole to Caple Cleugh is now let to the Governor and Company in one Grant under the name of Caple Cleugh Cross Vein. In consequence of the Forehead of this Vein being a very great depth, it would have been very difficult and expensive to sink a Shaft for Air. The Governor and Company as we have observed before began a branch from Dowgang Level and cut the Vein near the Forehead which has made a circulation of Air; and as Dowgang Level has risen considerably between where the Governor and Company have taken off their branch Level and where the Brigal Burn Cross Vein had formerly been cut they have both got a shorter Level and got under the Great Limestone which was very desirable. They are now pursuing forward the workings in this Vein which have not been very successful, but they have got part Ore, and there is no doubt that this Level will ultimately be the means of raising a great quantity of Ore.

John Dickinson

Thomas Dickinson

## **Old Carrs**

1778 I shall now take a little notice of the North and South running Veins and first of Old Carrs, upon which most of the others seem in some degree dependent. This Vein has as much the superiority of the other North and South running Veins in Alstonmoor as Rampgill has over the East and West, and a much greater power over the East and West Veins than Rampgill has over the North and South Veins, for tho' she is joined and crossed by a vast number of Veins in almost every kind of direction and in a great many different situations, yet none of them ever are able to alter her point whereas Rampgill is carried considerably to the North by Patterdale Vein on the west side of Patterdale Vein, tho' Patterdale is only a weak Vein compared with several others and in many places Rampgill is vastly broke at the intersecting of North and South running Veins, yet no East and West Vein that I know of makes any material change in Carrs; she most certainly is weakest at the South end and gradually increases in strength from

where she enters the County of Durham near Naggshead to Wellgill Greens; if I recollect right she only throws Seven Fathoms at Middle Cleugh Second Sun Vein, eight at Middle Cleugh, ten at Carrs, twelve at Broomsberry and twenty seven at Nentsberry Greens, which made it originally believed that all the North and South Veins which are seen in Rampgill had joined Carrs somewhere about Wellgill, and tho' that appears now to be a mistake yet the increase of her strength Northwards is evidently plain, and I am of opinion this cannot arise without some cause tho' yet unknown. The discoveries lately made at Gillgill Sykehead Level point out a mystery which will in time be unfolded, but I am quite at a loss to account for it in any way whatever. None of the North and South Veins in Alstonmoor were ever tried 'till of late Years except Carrs, and the only ones which have been tried since were found out merely by chance, for Cowslitts Cross Vein was discovered by trying for Caple Cleugh North Vein, Cowhill Cross Vein was won by working old Cowslitts and Guddamgill Burn Cross Vein was worked in consequence of the trial for Brownleyhill being entered into; as to the Broomsberry Works I am confident the sole motive of Baty and Teasdale originally was for Broomsberry, in consequence of the success at Old Carrs in 1764, 1765, 1766 and 1767 and their proposing for the Veins lying further to the East was occasioned by the promising appearance at Guddamgill Burn Cross Vein, when the Brownleyhill Company sunk the second Sump into her which I believe was in 1768 therefore the North and South running Veins have not had a fair chance of shewing themselves being formerly despised, and even yet, I cannot think there is that dependance to be placed upon them which may very properly be given to the East and West Veins, for tho' in the carrying forward of Rampgill Low Level from where it leaves Carrs Vein to Patterdale Vein we have two very strong Veins, yet in Mr. Wilkinson's Level for Rampgill Burnhead taken out of Carrs Low Level there is only one to be seen, and again Hangingshaw East End Cross Vein is never seen in Rampgill Burnhead Level, nor in the Level taken out of Middle Cleugh deep Level for winning Long Cleugh Veins, and in the Level from Nells Well there are now five very strong North and South Veins all cut East of Shawfoot Cross Vein, and even that Vein was never seen till lately, I shall therefore finish my observations of the North and South Veins by remarking that I never knew an instance of any North and South Vein raising Ore except in the Great Limestone, and from the irregularity of their direction as also of their hading, I must own I have no good opinion of them, yet it must be allowed there has been a good deal of Ore raised out of them within the last Twenty Years.

Josh. Hilton

### **Old Carrs West of Nent**

**1821** In the Year 1780 the Trustees of Mrs. Lorraine late of Hexham sold this mine to the best Bidders by Proposal to a Company of eight working Miners for Two Hundred and five Pounds amongst whom were the late Messrs. John and Utrick Walton of the Nest and John Dowson, all of whom in consequence of their success at this Mine became great Mining Adventurers in the Manor of Alstonmoor; the success they met

with at this Mine and which the Waltons and Seatrys met with soon after at Farnberry formed a new era in the Annals of Mining in Alstonmoor as may be seen by the Moor Master's Book. The number of Mining Companies increased very fast from that time, and there arose a spirit of competition and enterprise which we hope will continue; but to return from this digression. Old Carr's has been worked ever since the time abovementioned, and though it was then thought to be nearly exhausted, being an old worked Mine, yet it has raised upwards of Ten Thousand Bings of Ore, and has been very profitable to the Adventurers, so that they never failed to having a good dividend every year, till of late when it has not been so good, but there is no certainty when the Mine will be worked out, as the greatest part of the Ore has been got in Flatts at a distance from the Vein, and how many more Flatts may yet be discovered is quite uncertain. John Dickinson once saw a very good Flatt in this Mine which was more than four Yards wide and three Feet thick in the middle and two Feet at the sides, all lying nearly loose. The Ore had seemingly been formed both from the Roof and Sole of the Flatt until the Ore in the Roof had grown too heavy and dropped down upon the other so that there was a flat Limestone Roof and a space of a foot or half a yard between it and the Ore, so that one might have seen over the Ore for several Fathoms in length. The Workmen raised Ore in that Flatt for three Quarters of a Year at Six Shillings per Bing, although they had to take the Work in Barrows a long way, and draw it up a deep Shaft with a Roll and Rope by their hands, and had to pay for dressing the Ore after it came out of the Mine. The Ore was of an excellent quality; one might have broken many pieces of it with ones hands, and where it was so broken it had a fine polish upon it like a looking Glass. The Ore has been raised principally in the Flatts on the West side of the Vein. The East cheek or side of the Vein is lower by about ten Fathoms, and part Ore is now raising in the Flatts on that side, and it is very probable that further discoveries will yet be made on the East side of the Vein.

This is the same Vein (being a Cross Vein) which has so frequently been alluded to both by Mr. Hilton and in the former part of this Report as breaking the East and West Veins and injuring them for bearing Ore for a considerable distance to the East side of it. In going Northward this Vein increases very much in strength, and though it has been very frequently cut through with Levels, yet the prospect of bearing Ore is very unpromising.

John Dickinson

Thos. Dickinson

### **Peatstack Hill and Brigal Burn**

**1821** Peatstack Hill and Brigal Burn which is a continuation of Rampgill Vein on the West side of Nent River has raised Ore very well in the Great Limestone from Shaw Syke where it puts on sound to a little on the West side of Brigal Burn Runner where it left off carrying Ore in that Stratum; but the Vein has been very productive in the upper Sills to near the Fell Top, where it breaks to pieces and turns dead; but the

workings are mostly very old, and the Vein has been very much tried. This Vein has also been pretty good in the Quarry Hazel Eastward from Brigal Burn Runner.

John Dickinson

Thos. Dickinson

### **Brigal Burn and Dowgang**

**1778** The trials of the Collieries Level, Bacons Level, and sound Coopers Crosscut, being all made before my time and no Account that I can depend on respecting the discoveries in any of them being handed down, makes it difficult to give any opinion with certainty respecting that Ground, only from the appearance of the different specimens of Strata drawn at some of the Shafts, there have been Veins cut, and according to my opinion the most proper trial in that Ground would be made from Brigal Burn if the Gov. & Co. prosecute the trials at Dowgang and Brigal Burn in the way they have proposed, which as I am satisfied it is the most proper Plan I hope they will prosecute with Vigour and that it will be attended with success what I understood they proposed to do was to take a Level from Rampgill deep Level and drive it a true Level to Peatstack Hill Shop, where it would land in the Plate Bed between the Great Limestone Tumblers and the Coal Sill on the North side of Peatstack Hill Vein, and there if necessary to fix a Wheel Engine. This would make a good trial and enable them to try the Ground between there and Brigal Burn Cross.

Josh. Hilton

### **Dowgang and Dowgang North Vein**

**1821** Dowgang which is a continuation of Scale Burn Moss Vein on the West side of Nent River, which is a very old worked Mine and has raised very little Ore in the Memory of Man. Dowgang North Vein which runs in rather a North west direction raised a good deal of Ore in Flatts by the side of the Vein. They have also got a good deal of Ore in another Vein on the North side of Dowgang Vein which runs nearly East and West; it was rather a weak Vein but very quick, and is within the boundary (forty Yards) of Dowgang Vein.

John Dickinson

Thomas Dickinson

### **Dowgang Cross Vein.**

**1778** As to Dowgang Cross Vein I have the same opinion of her that I always entertained, which is that she is one of the worst sort of Veins, that She has promising appearances and raises Ore sufficient for encouragement and to expend Money but I do think she never will carry herself

Josh. Hilton

**Nenthead Field and Nenthead Field North Vein.**

1778 Nenthead Field and Nenthead Field North Vein are both too weak for the strong Sills and I am persuaded are not likely to do any good unless they could be met with in some of the thin Sills near the Top of the Fell but it's a trial I could no way recommend.

Josh. Hilton

1821 Between Twenty and thirty Years ago Nenthead Field Vein raised upwards of six Hundred Bings of Ore in the Quarry Hazel near the putting on of that Stratum, but further Westward where it got several more Strata upon it, it became poor and would not pay for working. It never raised any Ore of consequence in the Great Limestone and William Greenwell and Company in pursuing their Level to the West in that Stratum found that the Vein nearly all broke to pieces by a great number of joints or small Strings which run in a North west direction.

Between twenty and thirty Years ago Messrs. John and Roger Walton raised upwards of Twelve Hundred Bings of Ore in Nenthead Field North Vein in the Great Limestone not far from the putting on of that Stratum, but when they drove further West this Vein also broke to pieces in a similar way to Nenthead Field Vein. This vein has a considerable quantity of Calamine in it which we expect will be of great value to the Zinc Company and in working for it they are likely to get part Lead Ore.

John Dickinson

Thomas Dickinson

**Greengill Cross Vein, Dowgang Burn Cross Vein, Greengill East Cross Vein, Nenthead Field West Cross Vein, Dowgang West Cross Vein, and Greengill West Cross Vein.**

1821 The great quantity of Ore which was raised by Mr. James Johnson and Partners at Black Eshgillhead Cross Vein and by Mr. John Hill and Partners at Brigal Burn Cross Vein induced others to look after that Vein in other places and in consequence Messrs. Robert Jobling and Alexander Whaley purchased above one half of Nenthead Field North Vein of John and Roger Walton with an intention of driving up that Vein to the place where they should cut the said Cross Vein, accordingly Mr. A. Whaley on the 22nd. November 1794 proposed for a part of the said Cross Vein under the name of Greengill Cross Vein, and they began to pursue their Level which was begun under the Great Limestone, but by the dip of the Strata, was then in that Stratum, and they continued driving it until they did cut that Vein. In their way they unexpectedly cut another Cross Vein which was granted them under the name of Greengill East Cross Vein and a part of the same was granted to William Greenwell & Co. at Nenthead Field under the name of Nenthead Field West Cross Vein, also a part of it was granted to the Dowgang Company under the name of Dowgang West Cross Vein who had before met with it in their workings and were pursuing it Northward but it was there only weak

and poor, but grew stronger before they drove far; that vein carried Ore very well Northward until they came near to Greengill East End Vein where it turned quite dead: each of the said Companies raised a great quantity of Ore in this Vein. As to Greengill Cross Vein which was the primary object of Messrs. Jobling and Company it was very poor where they first came at it and after having pursued their trial upwards of two Hundred Fathoms Southward and got no Ore of consequence they despaired of success and gave up the pursuit, and in all probability would have done nothing more at it if it had not been for the success of the Dowgang Company who cut the same Vein in their workings and got a good Grove there which was granted to them under the name of Dowgang Burn Cross Vein which continued good Northward to the end of their boundary, and Messrs. Jobling and Company having resumed their trial in this Vein came at a good Grove which they worked Southward until they and the Dowgang Company met; both Companies raised a great quantity of Ore in this Vein, we have seen it in several places more than a Fathom wide of good Bouse work. Greengill West Cross Vein was discovered by the Dowgang Company further to the West of the other Cross Vein, and is now worked by them but to no profit, as the Limestone is hard and close and the Vein weak.

All these Mines except Dowgang Burn Cross Vein and Greengill West Cross Vein have been given up and not worked for several Years for Lead Ore, but by their working them for Calamine, part Lead Ore is got by the Langley Zinc Company.

John Dickinson

Thomas Dickinson

### **Greengill East End.**

**1778** The trials at Greengill East End have cost a great deal of Money and indeed it must be confessed were at last dropped improperly for the only reason of taking up the Level upon the Great Limestone was for the purpose of trying that Sill which I think is left very short, for tho' there are several Sumps into it, yet they are all near the place where the great North and South Vein intersects Greengill Vein and by that means Greengill Vein is all broke and makes a Vein of 5 or 6 Fathoms wide and consequently no chance of doing any good, there was a Shaft sunk for a Whimsey but never completed, had that been done, and the low Level pushed One or two Hundred Fathoms further West so as to be quite clear of the Cross Vein, and then the Great Limestone tried, it would have been satisfactory.

Josh. Hilton

**1821** The Grass Field Company by driving up their workings in Greengill Syke Cross Vein came to Greengill East End Vein which they effectually tried in the Great Limestone near the place where the Veins intersect which was quite dead and had a bad appearance the Vein being too strong for the Sill which was quite broken and would have taken a very great quantity of Water. Any Ore that has been got in Greengill East End Vein since Mr. Hilton made his report has been raised amongst the

old workings but the quantities have been trifling and we think it probable that they may yet raise a considerable quantity of Ore.

We think it is probable that some Person will think this Vein worthy of a trial into the Great Limestone further East than where it was tried by the Grass Field Company where it would have less cover upon it and be clear of any Cross Veins.

John Dickinson

Thomas Dickinson

### **Greengill West End.**

**1778** As to Greengill West End I look upon it to have been completely tried in the upper Sills; and were I to advise any thing there it should be by engaging all the Ground to Gallygill Syke, for as to the trials for How Blagill Veins I look upon what has been done as of no consequence neither to give any encouragement nor to discourage and my Father knows very well that when those undertakings were first begun I advised a Level upon the Four Fathom Limestone to be taken out of How Blagill Syke or Greengill Hush Gutter which would have completely tried the whole of the Veins from its mouth to Greengill West End and as there cannot be a doubt but the Level might have been driven all the way in Plate, it would have cost no great Sum more than has already been expended, and most assuredly that is the only proper way of making a trial now, unless it be done in the way pointed out in Mr. Gilberts Proposal on behalf of Lord Carlisle.

Josh. Hilton

**1821** This Vein has raised Ore principally in the Slate Sills and a good deal has been got lying Horizontally on the top of the higher Slate Sill with only a cover of Clay and Moss; the Vein is a great width and accompanied with a number of Strings on each side; of late Years it has been worked by hushing the top part as deep as they could, as they could get the water off, under that they have cut out the Vein and Strings about seven or eight Yards wide and taken out the work with Horses and Carts. It was there formerly worked by sinking Shafts into the Vein and cutting Drifts in it and on Account of its great width and softness the the [sic] Old Man has left a considerable quantity of Ore.

This Vein has not raised much Ore under the Slate Sills. Thomas Shaw and Company the present Lessees made a trial into the Great Limestone which was much broken but the Vein was quick in it, yet they did not get quite two Bings of Ore.

John Dickinson

Thomas Dickinson

## **Grass Field Veins**

**1821** In consequence of the success that Messrs. Robert Jobling and Company met with in the discovery of Greengill East Cross Vein the Greengill East End Company made an attempt to try that Cross Vein on the North side of Greengill East End Vein but the great Limestone was very deep and they met with difficulties, so that they could not make a proper trial of the Vein from the workings they then had; in order therefore to make a complete trial of it and for the discovery of other Veins they began about Twenty Years ago to drive a Level from Grass Field in the Tuft under the great Limestone and first they cut Grass Field North Vein, but it made so weak an appearance that they did not make any trial of it into the Great Limestone until they had cut Grass Field Vein and found it very productive of Ore which induced them to make trial of it, and they found it also very productive of Ore in the Great Limestone but only a weak Vein. Grass Field and Grass Field North Vein have raised a very large quantity of Ore and have been very profitable to the Lessees. They raised the greatest part of the Ore in the great Limestone with a thick cover of Clay upon it; for a considerable length they had only about one half of the Great Limestone on, and they had a good thickness of Ore in many places that lay flat between the Limestone and Clay which frequently extended several Yards to the North side of Gass [sic] Field Vein: in pursuing the workings in these Veins westward where more cover put on they grew proportionably poorer until they would not pay for working. They began a lower Level for these Veins a little above Nentsberry Bridge which enabled them to work them in the Quarry Hazel and four Fathoms Limestone out of which they got a considerable quantity of Ore Westward from Nent River, but when they got the great Limestone and other Cover the Veins in these Strata grew proportionably poor.

The Cross Vein for which they originally set on their trial was discovered by pursuing their workings in Grass Field Vein and was granted to them under the name of Greengill Syke Cross Vein which also carried Ore very well near Grass Field Vein, and continued to produce Ore from thence Southward about one halfway to Greengill East End, when getting a great weight of cover upon it, it left off carrying Ore but they pursued their trial of that Vein all the way to Greengill East End.

The Grass Field Company discovered another Cross Vein further West than Greengill Syke Cross Vein which is believed to be a continuation of Black Eshgillhead Cross Vein; they drove in it about Two Hundred Fathoms South of Grass Field Vein in the Great Limestone, but got very little Ore but this Vein produced Ore pretty well on the North side of Grass Field Vein in the Great Limestone and four Fathoms Limestone where there was little cover upon it. This Vein is very weak and seems to be only a part of BlackEsghead [sic] Cross Vein, as they discovered another Cross Vein about two Hundred and thirty Fathoms to the West of it and bearing a more easterly direction in going Southward, so that we think these two Veins are together at Greengill Cross Vein and Dowgang Burn Cross Vein where Messrs. Jobling and Co. and the Dowgang Company raised so much Ore. The Grass Field Company also tried this West Cross Vein by driving near two Hundred Fathoms Southward in it in the Great Limestone

but got no Ore of consequence; the Vein was filled with brown Clay, having no rider or other Mineral substance except a knot of Ore being found occasionally amongst the Clay.

The Grass Field Company for the trial of their Veins brought up a Level at a considerable expence from near Nentsberry which they had to drive about Five Hundred Fathoms in length, about one half way of which was in the Nattras Gill Hazel, they cut Grass Field and Grass Field North Vein further West than they had been worked in the Four Fathoms Limestone and tried the Veins in that Stratum and the Nattras Gill Hazel but found they had little Ore in them.

They also drove a Level out of Gallygill Syke Southward upon the Great Limestone near two Hundred Fathoms in length in order to try the Grass Field Veins to the West of any of their workings; they cut some Strings but they were too weak for carrying Ore. They also drove a Level under the Firestone Sill near the same place but rather further to the South above two Hundred Fathoms in length and cut two weak Veins which they tried into the Firestone and also sunk into Pattinson Sill in one of them, but got no Ore in either of them.

The Grass Field Veins are quite soft to work and are but weak Veins consequently they do not bear Ore but where they have little cover upon them. They have now only the old workings to raise Ore in so that the quantity they are likely to get will not be great compared with what they have formerly raised except they make some fresh discovery, and considering the extensive trials they have made we have no great hopes of the future prosperity of these Mines; but there may be a probability of a continuation of Guddamgill Moss North Vein being to the South of Grass Field Veins, as they cut a Level in the Level above Nentsberry Bridge, but where they cut it, it was so bad for Air that they did not get any trial made of it into the Great Limestone. The Grass Field Company attempted to sink a Shaft for it, in which they had a great quantity of Water, and as they had not properly secured their Shaft it ran together before it was sunk to the bottom. This Vein [there must be words missing from the text at this point] to have been seen in their workings in Greengill Syke Cross Vein, but it is possible that it may have gone through it in strings and not have been taken notice of.

John Dickinson

Thomas Dickinson

### **Gallygill Syke Vein.**

**1778** The trials at Gallygill Syke have been at different times attended with a vast Expence, but that Vein has always 'till she was taken by the Governor and Company been in very poor hands, for I think few people will allow any great abilities in the Lead Mine way either to Daniel Wren or Anthony Hewatson, but as the Governor and Company are pushing the low Level that will certainly be the most proper and effectual way of trying the Vein to satisfaction.

Josh. Hilton

**1821** Near Forty Years ago John Dowson and Company got a considerable quantity of Ore in this Vein in the Coal Sills; in two Years they got upwards of Four Hundred Bings and must have made considerable profit of the Mine. In pursuing the Vein Westward the Coal Sills dipped under Water and the trial was dropped; since then the Mine has been almost constantly worked but has never thrown any profit to the Lessees. John Teasdale and Joseph Watson got a considerable quantity of Ore in the Quarry Hazel and four Fathoms Limestone near Gallygill Syke Runner but the work they got was so poor and brangled that it was very expensive to dress it fit for Smelting, and as they made considerable trials they lost several Hundred Pounds by the Mine. The present Lessees John Cain and Partners may perhaps do some good as they have driven a Horse Level in the Vein in the Great Limestone in which they are getting Ore and also in the Coal Sills. They have also erected a Crushing Mill at the Level Mouth, which is a necessary appendage to this Mine for dressing the Ore.

John Dickinson

Thomas Dickinson

### **Gallygill Syke North Vein.**

**1821** About eighteen Years ago William Todd and Partners discovered this Vein by driving a Level from beside Low Gallygill Houses, and got upwards of Sixty Bings of Ore in the Four Fathom Limestone, but the Vein turned poor in the forehead and was given up. Thomas Hymers and William Hutchinson began to try this Vein in the Year 1813 and in a few Years raised upwards of Eighty Bings of Ore in the Girdle bed above where William Todd and Partners had got their Ore, and where they had only a cover of Clay upon it. The Vein in going Westward ceased to bear Ore and appears to be much broken with a Cross Vein, but should it collect together again on the West side of it, there is a prospect of its producing Ore in the Great Limestone which will put on before their present workings.

John Dickinson

Thomas Dickinson

### **Hudgill Side &ca.**

**1778** And as to the Veins North of Gallygill Syke and between it and Hudgill side Vein as they have never been worked or seen in my time otherwise than the appearances at the Surface, I shall overlook them; and all that I can say about Hudgill side is that as she is fully expected to be a continuation of Nattras or Red Groves, I think there is a probability of her doing well was she fairly tried, but the trial which was made for her being begun at a time when the Governor and Company's Agents were much at variance, and one party contradicted the advice of the other, she has not had fair play. The trial was recommended by Messrs. Tissington and Brown and condemned by Messrs. Hall and Tweedale; had those Agents been all unanimous, the

Level would have been taken upon the Great Limestone which upon every principle of Lead Mining would have been the most effectual, but there being that difference among the Agents, it could not be brought about otherwise than upon the Firestone, and in consequence the greatest part of the Level was in Clay which never agrees with a Hazel being the uppermost Sill. The Veins were discovered and appeared very well in the Firestone, the situation considered, however I hope some other person will make the trial, as I have mentioned upon the Great Limestone at a future time.

Josh. Hilton

### **Hudgill Burn and Hudgill Burn Sun Vein**

[1821] The Level that is used for the working of these Veins was begun by Messrs. John Walton, James Pearson and Partners at Fairhill Flow Edge and was driven by them two Hundred and Fifty Fathoms in length in the Tuft under the Great Limestone; they discovered two weak Veins which were tried in the Great Limestone but which have not been found to bear Lead Ore.

About eight Years ago Messrs. John and Jacob Wilson and Partners began to pursue the abovementioned Level; they changed the point a little more Southward and at the end of Seventy four Fathoms cut Hudgill Burn Vein, and near Twenty Fathoms further South they cut another Vein which being within the boundary of Hudgill Burn Vein has not obtained any distinct name. Both these Veins were very good in the Great Limestone where they were first cut, and the Ore in them was of a great variety of colours, blue, white, black and grey; the Veins continued to produce Ore of this description Westward but in pursuing them Westward they got poor, so that they have not got so much Ore of late as will pay one half of the cost of working; which deficiency may we think, be attributed to the great quantity of Strata which the Great Limestone gets upon it. In working these two Veins Eastward from the place where they were first discovered they came nearer to each other, but before they met together they both broke very much into Strings and were poorer; but in carrying them forward a junction of the two Veins took place and from thence Eastward as far as they have worked they have had the richest Vein of Lead Ore that has been opened in our time in Alstonmoor and which we expect will continue good so long as they have the Great Limestone on, but it is not easy to calculate how far that will be on account of a great thickness of Clay being upon the Strata. The Vein has produced Ore in the top part of the Tuft about two or three Yards high, and from one to two feet wide; and in the Great Limestone from the bottom to about four or five Fathoms high, the Vein produces Ore generally from ten to twelve Feet wide, and in some particular places considerably more, and of late it has improved, so that they have been working it about Twenty Feet wide; this part of the Vein is soft and may be worked with a Pick without blasting; in the higher part of the Limestone the Vein generally gets narrower and harder but bears Ore to the top of it. The greatest part of the Ore has been raised at the rate of from eight to ten Shillings per Bing, which includes besides working in the Mine the expence of Candles,

drawing out the work and paying for washing the same fit for Smelting; the Lessees find Wood for supporting the Mine a great quantity of which is used. The Ore is of a fine rich quality nearly all blue Ore, or pure Galena, and lies amongst Soil without much other Mineral substance. The two Veins which they have Westward, we consider to be a continuation of Nattras and Fairhill Flow Edge Veins, and after the junction takes place the Vein bears the point of Nattras Vein.

In pursuing Hudgill Burn Level Southward, Hudgill Burn Sun Vein was discovered about Fifty Fathoms from the South part of Hudgill Burn Vein; in the first rise into the Great Limestone the Vein was very narrow and contained only about Six Inches wide of poor brangled white and Grey Ore, it has raised very little Ore Westward, but has gradually improved Eastward as the Limestone loses cover, so that the Vein of late is equal in width to Hudgill Burn Vein, but it is not quite so productive of Lead Ore having a greater Mixture of Soil. The two Veins have an appearance similar to each other, and they bear such a direction as if they would meet together Eastward. The Ore that is got in Hudgill Burn Sun Vein is also good, rich blue Ore, and the Vein appears to be a continuation of Crag Greens Middle Vein. In the rise into the Great Limestone where this Vein was first discovered, a Cavity was found about the middle of the Limestone in which a person may travel One Hundred and Sixty five Fathoms in a pretty regular direction about South Twenty Degrees East, a small opening continues further: there is no Vein to be seen crossing it.

The Hudgill Burn Veins do not appear to be very strong and are not of great width in any Strata except the Great Limestone and have not above three feet of throw; and as the Strata lie Horizontally, the Level and all the branches to the different Workings are driven in the Tuft, which lies under the Great Limestone which is good to cut and extremely convenient for working the Vein by taking away the work in Waggon along a Railway with a Horse to the Surface. Last year (1820) these Veins raised upwards of Nine Thousand Bings of Lead Ore and this last half year they are computed to have raised Six Thousand Bings, and can without any extra exertion raise Twelve Thousand Bings in this Year, but Mr. John Wilson the acting Partner thinks that such a large quantity would be more than they could get washed or smelted and therefore has stopped a part of their working for Ore.

The Hudgill Burn Company have tried their veins in the Strata above the Great Limestone, but they have not yet been found to Answer for Ore. They sunk a Sump to try Hudgill Burn Vein near the place where it was first cut in the Level, but neither the Quarry Hazel nor the Four Fathoms Limestone was there productive of Ore; the Four Fathoms Limestone took the Water they met with in sinking that Sump. They attempted to sink again further East where the Vein had been rich in the Great Limestone but could not get down for Water, and they have now begun a Level near the side of Nent River to drive up to Hudgill Burn Veins and try them in the lower Strata, the Level is yet in clay but it is expected when they get into regular Strata, it will be about the bottom of Nattras Gill Hazel.

The Hudgill Burn Company have been driving a Level in the Plate Bed under the Firestone Sill, in which they have cut a Vein running North West and South East,

but have yet not had time to make a trial of it into any Strata that are likely to bear Ore; they will be enabled to try it in the Great Limestone by carrying forward their Level Westward in Hudgill Burn Vein which we have no doubt they will do. They are also driving a Level to discover any Veins to the North of Hudgill Burn; they began about Thirty five Fathoms up from the Mouth of their present Level and are driving in the Tuft.

Since writing the above a Cross cut has been completed from near the East Forehead of Hudgill Burn Vein to Hudgill Burn Sun Vein which is cut Sixty Fathoms East of the Forehead of that Vein, and from the appearance in the Ground that is cut in it, it is as good as usual or better: the distance between the Veins there is Thirty Fathoms. In that Cross cut a Branch is also found which has left Hudgill Burn Vein in which they have a good Grove at about four Fathoms distance on the South side.

John Dickinson

Thos. Dickinson

### **Foreshield Vein and Hudgill Vein**

**1821** About Twenty three Years ago a Vein was discovered by driving Nent Force Level, and the East end of it, which was called Foreshield Vein was let to the late Mr. Robert Hodgson and Westward from the Level to the Governor and Company for Smelting down Lead, and called Hudgill Vein: the two Companies made a joint trial of the Vein by rising from Nent Force Level to the top of the Scar Limestone, and sinking from the Surface to the top of the rise; and as those workings were necessary for airing Nent Force Level the Greenwich Hospital contributed, one third of the expence towards the same.

The Vein in the whole has raised upwards of Six Hundred Bings of Ore, the greatest part of which was got in Arthur's Pits Quarry Hazel, a small quantity in the next Hazel above the Scar Limestone, but none in the Scar Limestone, and very little in the two Limestones above it: after more Strata put on, on each side of the bottom of the Vale of Nent River, the Vein left off carrying Ore, or became so poor that it would not pay for working.

Joseph Lee and Sons have been working in Foreshield Vein for three Years past, and have been raising Ore in the old Workings, and are now making a trial of the Vein Eastward.

John Dickinson

Thos. Dickinson

### **Blagill Vein West End**

**1778** I think there is nothing else between there and Alston except the West End of Blagill Vein in the Inclosures which I think not only an easy but a very likely trial, for I am well satisfied a thorough trial may be completed for Three Hundred Pounds. I would take a Level from under the Scar at high Nent Force and cut the Vein in high

Skellgill Pasture which would give an opportunity of trying her in Arthurs Pits Quarry Hazel and the two Fathom Limestone which rests upon it, and as that Vein was very good on the Eastside of Nent in the four Fathom Limestone and Nattras Gill Quarry Hazel, I should naturally conclude there is no fear of her doing well in the situation I have mentioned, and I have often wondered that nobody ever Leased that part of Blagill Vein, but I doubt not its being tried in a few Years.

Josh. Hilton

**1821** Rather more than Thirty Years ago this Vein was tried by the Governor and Company for Smelting down Lead and the Blagill Company jointly by taking a Level out of the Scar at high Nent Force as recommended by Mr. Hilton in his Report; but they did not drive far before they had their Level in nothing but clay; they drove their Level to where the Vein had been cut in Nent Force Level and sunk down into the Limestone below and we believe also into the Hazel, but the Vein had a bad appearance in those Sills and the trial was dropped. Some years after the Governor and Company made another trial of this Vein further Eastward by sinking into the Vein in Arthur's Pits Quarry Hazel on both side of Nent River, but found the Vein dead in both places.

John Dickinson

Thos. Dickinson

### **Bayle Hill Vein.**

**1821** About the putting on of the Great Limestone this Vein is intersected by another which runs in a South East direction and between them they have caused a considerable quantity of Float Ore which has been raised by different people at different periods; but in endeavouring to make off the Mine into where the Limestone was sound, they all followed that Vein which runs to the South East and which did not carry any Ore after it was pursued a small distance from Bayle Hill Vein. Thomas Hutchinson engaged this Mine about Twenty Years Ago and pursued that Vein which runs nearly East and West, and since that time he and his Family have raised upwards of Fifteen Hundred Bings of Ore in it in the Great Limestone which has very little cover upon it; but a few Years ago they drove Eastward to near where the Great Limestone is off and since that time they have only had the old Pickings, but it will be difficult to say when they will be worked out, as there are several small Strings on the sides of the Vein which cause Flatts in the Limestone. They sunk into the Quarry Hazel and had some Ore in it, but there was too much Water to work it to profit, so that the trial was dropped; but we expect that Joseph Son of the late Thos. Hutchinson will go further West and try both the Quarry Hazel and Four Fathom Limestone.

John Dickinson

Thos. Dickinson

**Farnberry North Vein and Farnberry Middle Vein.**

**1821** Between Twenty and Thirty Years ago William and Henry Coulson raised upwards of Two Hundred Bings of Ore in Farnberry North Vein in the Great Limestone between the putting on of that Stratum and the Swallow Holes. They made a trial for the Vein on the other side of the Swallow Holes but met with nothing worth notice.

John Leathart and Partners have lately got a few Bings of Ore in Farnberry Middle Vein in the same Situation as Farnberry North Vein: but as the distance in that Vein between the putting on of the Great Limestone and the Swallow Holes is very short, we do not expect they will get much Ore, as we have no expectation of their getting any on the other side because these Veins are weak and only make a flutter where the Limestone has no cover upon it except a little Soil; a considerable part of the Ore that has been raised in them has been about the Flat Beds where they get the most ease.

John Dickinson

Thos. Dickinson

**Farnberry.**

**1778** Farnberry being the next in turn, I can only observe upon it that as it deviates much from the common rule of the Veins in Alstonmoor I do not pretend to judge of it so clearly as of the other Veins, the principal part of the Ore which has been raised in that Vein having been got in Flatts at a distance from the Vein, and where little cover is upon the Great Limestone, I do imagine those Flatts will not carry Ore when the Great Limestone gets more weights and consequently I do not look upon Farnberry as a desirable object for trial.

Josh. Hilton

**1821** What we said with respect to Bayle Hill Vein is very applicable to Farnberry Vein, that is, when a Mine or Vein carries Ore in Flatts at a distance from the Vein, it is very difficult to say when that Mine is worked out as very small Strings in different places will cause Flatts of Ore although the Flatt may be quite close in other places, so that it is difficult to trace them or to know when it is prudent to drop the trial. After John Jackson and Partners had as they thought exhausted Farnberry Vein, and after they had given it up, it lay sometime unworked and was taken on the 26th. Jany. 1782 by two Families of the name of Walton and Setrey which Families were as poor we believe as any in the Country and their taking a Mine made a great deal of talk in the Country, but the success they met with gave a great impulse to the Spirit of Mining, for they began to hunt about among the old Workings, and in less than Ten Years they raised upwards of Eight Hundred and Fifty Bings of Ore amongst and near the old Workings; and if they had been as prudent as they were industrious, they might have been in pretty easy circumstances, but however their success was of incalculable

advantage to the Mining concerns in Alston Moor, for before that time a person, who had his living to work for hardly ever thought of taking a Mine, but since then a great part of the Miners are Mining adventurers, and altho' they cannot spare Money, yet when they have opportunity they go to work at some trial they have a share of and they engage other Partners who can spare Money to carry forward the trial and success has in many instances attended such proceedings. But to return from this digression. When the Waltons and Setreys had dropped Farnberry Mine, Messrs. William Hutchinson Junr. and Christopher Wilkinson took it, but made nothing out, after which Mr. William Walton late of Raise took it and brought up a Level under the Quarry Hazel, in expectation of getting Ore in deeper Strata than the Vein had been worked in, but he was disappointed; he then set on a Level near High Skellgill upon the Great Limestone, in order to cut the Vein considerably further East, but met with nothing of sufficient strength. Richard Holmes and Partners have lately pursued that Level further South and cut two Veins, which they have made some trial of, in the Great Limestone, but as yet with out success.

John Dickinson

Thos. Dickinson

### **Holy Field North Vein**

**1821** About Thirty four Years ago Isaac White who then lived at Nattras discovered Holy Field North Vein, and got five Bings of Ore in it within a few yards of that House, being in the Great Limestone between its putting on and the Swallow Holes; he made some further trial but got no more Ore. Afterwards Thomas Stephenson and Partners made a further trial of this Vein by driving a Level upon the Great Limestone Eastward, and sunk into the Great Limestone but found the Vein very weak and gave up the trial. Mr. Utrick Walton and Partners began a further trial of this Vein two or three Years ago, and opened out the abovementioned Level upon the Great Limestone and have pursued it further East about Sixty or Seventy Fathoms and sunk Sumps into the Limestone, and made what we think a satisfactory trial; instead of the Vein growing stronger as they expected in going East, it has grown weaker, so that they have pursued after it until it can scarcely be said that they have a Vein.

John Dickinson

Thos. Dickinson

### **Holy Field and Holy Field Sun Vein.**

**1821** In the Year 1793 and the three following Years Messrs. Thomas Stephenson, Joshua Parker and Partners raised upwards of Two Hundred and Seventy Bings of Ore in Holy Field Vein between where the Great Limestone puts on and the Swallow Holes where it had no cover but Soil, but in pursuing the Vein Eastward the Ore was cut off by a Cross Vein.

About Eight Years ago John Summersett, Joseph Bowman and a number of other working Miners obtained leave to make trial of this Vein; they drove a long Level in the Plate upon the Great Limestone which continued poor considerably to the East of where it had been left off by the former Company, and did not get much Ore until another Cross Vein intersected Holy Field Vein, after which it was more productive of Ore than it had been, and has improved in going Eastward. The above Partners had employment at other Mines in the Country and made the above trial by going to work at it after they had done their regular Days work and when they could get a day to spare for that purpose.

Holy Field Vein is but weak, but there is generally accompanying it a number of Strings on each side, but principally more on the North. It does not bear much Ore vertically as other Veins in general do, but the Ore is got in Flatts, that is, lying Horizontally, and extending on the side of the Vein, many places being worked between four and five Fathoms in width. The principal part of the Ore has been gotten in the High Flatt in the Great Limestone, but of late they have made discoveries in the Middle Flatt which are doing pretty well. The Vein has been tried in the Little Limestone and they are now getting Ore in it but it is only poor.

The Holy Field Company have lately begun to open out a Level which had been driven about Twenty five Years ago by Messrs. Thomas and Henry Walton for the discovery of Veins, as they now find that Holy Field Vein by the point it now bears will be a little before that Level forehead, and so expect to make trial in it, which being a similar situation to Hudgill Burn Vein may fairly be considered a very good trial. The Level was walled and arched a considerable way at first, and after that had been driven in Clay and which stood without support, but is now grown together so that there is scarcely any symptom of the Level left and it is now nearly as bad to cut as it was at first.

Holy Field Vein raised 1550 Bings of Ore last Year and there is a prospect of its getting more this, they are now working it to considerable profit. Several of the Partners have engaged in other trials for Mines and we have no doubt that many of them will become respectable Mining Adventurers.

The Holy Field Company have driven a Cross cut about the Black-bed in the Great Limestone to the South; at the end of Seventy Fathoms they cut Holy Field Sun Vein which is only weak but quick, and is as strong as Holy Field Vein, they are now driving a Level upon the Firestone Sill to try the Vein in the Firestone and Slate Sills.

John Dickinson

Thos. Dickinson

### **Nattras or Redgroves Vein.**

1778 Nattras or Redgroves being now in trial, I shall hope they will make a satisfactory one before they leave off tho' indeed I am apprehensive they will grow weary of the Expence. The Level begun upon the Great Girdle Bed which lies upon the Four Fathoms Limestone was certainly the most proper way of making a trial but I

think they have dropped it too soon, it should have been prosecuted to the Firestone Band which would have completed the trial there.

Josh. Hilton

**1821** Nattras Vein is an old worked Mine and has been very productive of Ore in the Slate Sills, the Firestone and Pattinson Sills, but has never raised any in the Great Limestone; nearly all the Ore that has been got in this Vein within the last Thirty Years has been by hushing the Vein in the Slate Sills and Firestone.

John Dickinson

Thos. Dickinson

#### **Nattras North Vein and Nattras Second North Vein.**

**1821** Nattras North Vein was discovered near Forty Years ago, and raised Ore pretty well in the Slate Sills, and afterwards in the Great Limestone. What Ore has been got in this Vein for several Years past has been in the Slate Sills among the old Workings.

Nattras Second North Vein was discovered two or three Years ago by Joshua Dowson and Partners at Nattras North Vein by a Cross cut from their Level to the North upon the Great Limestone in which they are now raising Ore, but the Vein is only weak. They are also driving their Cross cut further to the North for the discovery of Veins.

John Dickinson

Thos. Dickinson

#### **Fairhill Flow Edge Vein.**

**1821** This Vein has been tried by a great number of different people in the Great Limestone where it put on, and in the upper Strata, but none of them got as much Ore as was worth dressing up, previous to its being let to Mr. John Walton, James Pearson and Partners who have raised several Thousand Bings of Ore in the Great Limestone; when they first cut the Vein in the Level which they drove upon the Great Limestone it was very weak but quick in the Limestone, but in driving Eastward several Strings came to it, and increased its strength until it became a good Grove, and it continued so a great way; but when they had pursued it to the top of the Fell and near to its intersection with Dowpot Syke Vein, the Vein became poor, and it was pursued till it gave up bearing Ore.

Messrs. Walton, Pearson and Partners tried the Four Fathoms Limestone in which they found the Vein dead. They got a few Bings of Ore in the Slate Sills near the Surface.

John Dickinson

Thos. Dickinson

### **Dowpot Syke Veins.**

**1821** Dowpot Syke Vein was formerly tried by the Governor and Company for Smelting down Lead in all the Strata from the Great Limestone to the top of the Fell where the Slate Sills are on, and there have been several other trials made since in several of the Strata by a number of different Companies, but none of them discovered any Ore of consequence. Dowpot Syke Sun Vein and Dowpot Syke North Vein are branches from Dowpot Syke Vein towards the West end where the Great Limestone puts on and are like the Trunk rather unfruitful.

John Dickinson

Thos. Dickinson

### **Nest Dykeheads Vein.**

**1821** On the 7th. December 1793 Mr. William Walton proposed for a certain tract of Ground to make trial in which included this Vein; he opened out the Level 14.14. in plan No. 5 formerly driven by Thomas Emerson and found Nest Dykeheads Vein in it, and also another within fifteen Fathoms of it, both pretty strong Veins and quick, and made some further trial in them, and got some Ore, but not so much as was worth making convenience for washing it.

Further Eastward up Nattras Gill Messrs. Errington and Wilkinson took a Level out of the side of the Gill Southward, expecting to have Nattras Gill Hazel and the Four Fathoms Limestone above them, as they are to be seen in the Gill a little above their Level quite sound, but they were disappointed, as those Sills were cut off by a Clay bed; but after driving their Level for some time in Clay, they got into a Plate bed and cut a Vein a little to the West of the Road which leads from Alston to Garrigillgate, and made some trial in it, but it did not answer. About Sixteen Years ago Mr. James Johnson and others opened out the Level again and tried the Vein in the Limestone under the Level and into a Hazel below it; the Vein in both these Strata was quick but would not pay for working.

John Dickinson

Thos. Dickinson

### **Crag Greens Veins.**

**1778** As I mentioned Nest Dykeheads before I shall next take notice of the Crag Green Veins, which both by tradition and appearance have raised a Great deal of Ore in the Great Limestone near the Surface, but I presume the Ore has been of a very poor quality and much mixed with Rider &c. and only a small quantity of Ore produced from a great quantity of Bouse; how far a trial in the four Fathom Limestone may be eligible, I shall not pretend to say, but I fear it is not so proper as one would wish, for when Mr. Tweddale of Unthank had a Lease of that Vein, a Sump was sunk into the four Fathom Limestone within the Inclosures, and she there had a very bad

appearance, however for all that she may be good underneath where she was good in the Great Limestone.

Josh. Hilton

### **Crag Greens North Vein.**

**1821** This has certainly been a very old worked Mine and has raised a great quantity of Ore in the Great Limestone where there is little cover upon it as there is a great quantity of old Wastes about the place which, before the late Mr. Utrick Walton began to wash them up were covered over with Soil and Herbage, which would not grow in any short time upon Cuttings. It appears that the Ore in this Vein has never laid in any great body together, but has consisted of a number of different leads or strings, all of which have been quick. Different people had tried the Mine, by sinking into the old workings, but none of them met with Ore sufficient to pay them for their labour, before the late Mr. Utrick Walton engaged the Mine above Twenty Years ago, when he drove a Horse Level under the Great Limestone and erected a Crushing Mill near the mouth of it which enabled him to get the work out and dressed at a moderate expence; so that he worked the Mine with profit for several Years, and raised upwards of One Thousand Bings of Ore out of the old Workings. James Pearson of Coatley Hill drove a Level for this Vein in the Quarry Hazel but found no Ore in it.

John Dickinson

Thos. Dickinson

### **Crag Greens Middle Vein.**

**1821** This has also been a very old worked Mine as the Cuttings were grown over with Soil and Herbage a considerable thickness before they were washed over by Mr. Utrick Walton and Partners. The old Man has worked it Eastward from where the Great Limestone puts on to Guttergill Syke where the Limestone is broken off. Mr. Tweddle of Unthank made a trial for the discovery of this Vein on the East side of Guttergill Syke, but missed it. However a little more than Twenty Years ago Messrs. Utrick, John and Robert Walton sunk another Shaft very near Mr. Tweddle's and found the Vein which proved very rich Eastward, until the Great Limestone (in which they got the Ore) got a great deal of cover upon it, when it turned out poor and was dropped by them. They also tried the Quarry Hazel and four Fathoms Limestone under where the Vein had been good in the Great Limestone, but the appearance was very unpromising. They also tried the West end of this Vein in all the Strata as low as the Scar Limestone; the Vein was quick in some of them but none of them produced as much Ore as was worth making convenience for washing it up. They also tried the Upper Strata in the East end, but none of them answered. The first Crushing Mill erected in this Country was at this Mine.

John Errington and Partners are at present raising Ore in the East end of this Vein in Pattinson Sill which they have lately discovered and which they are now working to profit.

John Dickinson

Thos. Dickinson

### **Crag Greens Sun Vein.**

**1821** For the same reasons that have been advanced respecting the other Crag Greens Veins, it appears that this Vein also long since raised a great deal of Ore but not much of late Years Messrs. Utrick Walton and Partners drove a Level under the Great Limestone to the fore end of the old Workings, and got part Ore, which was of a poor brangled nature, but it was very productive of Silver, as were all the other Crag Greens veins, after they dropped the working of this Vein it was engaged by Messrs. Joseph Vipond, Joseph Little and Partners chiefly with a design to drive it up to Crag Greens Cross Vein which they have done.

John Dickinson

Thos. Dickinson

### **Crag Greens Cross Vein.**

**1821** Mr. Hilton in his Report of Thortergill Cross Vein says, "she seldom or never carried any Ore but where she intersected some other Veins", which applies very well to Crag Greens Cross Vein, which is a continuation of the same, for this Vein was very good where it was intersected by Crag Greens Middle Vein, but in driving Southward the Cross Vein became dead, and where it was intersected by Crag Greens Sun Vein it was also very productive of Ore, which it carried for a greater length than the other, the reason of which we believe to be, that Crag Greens Sun Vein, a great way before it comes at the Cross Vein breaks into Strings and intersects the Cross Vein in different places for a considerable length of Ground, but where it gets quite clear of those intersections the Vein turns quite dead.

John Dickinson

Thos. Dickinson

### **Fletcheras.**

**1778** Fletcheras has been long worked I suppose sooner than any other Vein in Alstonmoor, and has raised a deal of Ore, but she has never been what may be called a rich Vein, the Ore having laid principally in Strings and very much mixed with Rider. The Governor and Company made a great trial there, but at last left it in a very shabby manner for after having sunk a Whimsey Shaft and driven their Level upon the Great Limestone a great way East of the Shaft, they on a sudden dropt the trial without

sinking into the Great Limestone at all and as the Works are all run in, it will not be easy to come at it now.

Josh. Hilton

**1821** When Lord Carlisle and Company had Fletcheras Vein they drove a Level to it which was begun under the Great Limestone, but by the dip of Strata to the East, the Level got into the Limestone and was driven into it a great way, but they never got any Ore in it; and from all the information we have had, we may safely conclude that the Vein has never raised any Ore in the Great Limestone, but it has in all the Hazels above, and has been most productive in the Slate Sills which long ago were very much worked. The Ore which the Governor and Company afterwards got was in some Strings which are a little to the Sun of the Vein. The present Lessees George Graham and Thomas Hetherington are now raising Ore both on the Veins [sic] and in Strings on each side of it, and as they are now letting liberal bargains to their Workmen which encourages them to search amongst the old Workings, and as they have been pretty successful, there is a prospect of this Mine raising a considerable quantity of Ore.

Matthew Hetherington and others are now sinking a Shaft a little on the West side of Tyne River to try this Vein, where it appears strong and quick in the bottom of the River; but we are afraid they will not be able to make much trial of it without an Engine, the Expencc of which they probably will not hazard unless they first see a good prospect for raising Ore.

John Dickinson

Thos. Dickinson

### **Black Syke and Hundy Bridge Syke Veins.**

**1778** Black Syke Vein being only a branch from Fletcheras and lately tried in three or four places in the Great Limestone and no probability of her doing good I shall say no more about her.

Josh. Hilton

**1778** Hundy Bridge Syke so far as I have seen her, is to weak a Vein to do any good and I do look upon her to be a string properly belonging to Fletcheras Vein.

Josh. Hilton

**1821** Black Syke is a branch from Fletcheras on the North side and has of late and is at present raising part Ore in the Strata above the Great Limestone.

Hundy Bridge Syke is a branch from Fletcheras on the South side, to which a Level was driven a few Years ago upon the Great Limestone, and a trial was made into it in the Vein, but without success the Vein being too weak.

John Dickinson

Thos. Dickinson

### **Coopers Dykeheads and Garrigill Burn Old Groves Veins**

**1778** Coopers Dykeheads Vein is supposed to be a continuation of Brownley Hill and raised a quantity of Ore at the Outburst of the Great Limestone; she has been sufficiently tried to the West of Garrigill Burn Old Groves, but I have a very great opinion of her on the East side of that Vein and in my opinion there is a good field for trial between Garrigill Burn and Coopers Dykeheads and I still retain the same opinion that the most prudent way to try that Ground is to continue the trial as is pointed out in Mr. Monkhouses Proposal, (I think) of the 14th. February 1773, when the Level was begun on the Northside of Garrigill Burn under Nattras Gill Quarry Hazel; this Level is driven 98 Fathoms if I remember right, and the best Level in Alstonmoor of its size, as there never was a Stick of Wood in it, I think it is six Feet six inches by three feet nine Inches and quite dead level

Josh. Hilton

**1821** The Governor and Company for Smelting down Lead have for some Years past been raising part Ore in Coopers Dykeheads Vein on the West side of Garrigill Burn Old Groves Vein and have made considerable trial to find it on the East side by driving a Cross cut a considerable length without discovering any thing; they have lately driven a Level under the Firestone Sill a good way further East and cut a good strong Vein which they suppose to be Coopers Dykeheads Vein; they have also just now commenced driving forward their low Level which is in the Plate under the Quarry Hazel to the East for the further trial of the Vein: Garrigill Burn Old Groves Vein (which is a continuation of Thortergill Cross Vein Northward) must either have traversed Coopers Dykeheads Vein a great way of [sic] its point or else broken it very much into Strings on the East side.

Garrigill Burn Old Groves has raised Ore about the intersection with Coopers Dykeheads, and has produced part [Ore?] Northward; there have been extensive workings in this Vein between Coopers Dykeheads Vein and Garrigill Burn but they have not been opened in the Memory of Man.

John Dickinson

Thos. Dickinson

### **Coopers Dykeheads Sun Vein.**

**1821** A very considerable trial has been made of this Vein on the Eastside of Garrigill Burn Old Groves by Messrs. Thomas Milburn, Brown Hodgson and Company by driving a Level upon the Great Limestone into which they made considerable trial of the Vein but it had only a poor appearance; they rose into the Little Limestone in which the Vein has produced a few Bings of Ore.

John Dickinson

Thos. Dickinson

**Benty Field Benty Field Sun Vein and Thortergill Syke Veins.**

**1778** Benty Field or Taylors Syke has been thoroughly tried as also the Sun Vein, and as to the Thortergill Syke Veins they are laid open so deep as the Great Limestone.

Josh. Hilton

**1821** Benty Field formerly raised Ore in the Great Limestone near where it crosses Garrigill Burn near the foot of Taylors Syke, but it is very weak and has never been rich.

Benty Field Sun Vein is stronger than Benty Field and has produced more Ore; it has been the best near Thortergill Cross Vein on the East side thereof; the Ore that has been got in it, has also been raised in the Great Limestone. The Level which the Governor and Company are now driving from Browngill Level to Thortergill Syke Veins is intended to be continued to this Vein which will make a trial of it further to the East.

Thortergill Syke and Thortergill Syke North Vein formerly produced Ore pretty well near Thortergill Syke Runner in the Great Limestone; but in going further East they lose their strength and become quite poor. The Governor and Company have lately begun to drive a Level or Cross cut from Browngill Level, or what is generally called White Syke Level to cut and try these Veins further to the East of where they have been worked.

John Dickinson

Thos. Dickinson

**Browngill and Sun Vein, Thortergill and Sun Vein, and Longholehead.**

**1778** Browngill and Sun Vein and Thortergill and Sun Vein and Longholehead being in such a situation as no doubt remains of their being fully tried to the depth of the several Levels which the Governor and Company have, I shall decline saying any thing about them in that situation, but there is a trial there I have often advised and I make no doubt but would turn out well was it well executed, that is, to begin a Level in Garrigill Burn under Nattras Gill Quarry Hazel and drive it South by which you will not only have an opportunity of trying all the East and West Veins in the four Fathom Limestone, but also of trying Thortergill Cross Vein, and as it is a Clay surface and Limestone the Upper most Sill, there is almost a certainty of success, and what greatly adds to the prospect is that you have both very strong Veins, very weak Veins, and Veins of middling strength within the Ground mentioned, and the Great Girdle Bed, the four Fathom Limestone, and Nattras Gill Quarry Hazel lying close to each other make a Sill of upwards of nine Fathoms thick, and should any one of the Veins turn out good it would pay the whole expence of the trial.

There being no more Veins known between Thortergill Sun Vein and Wellop Knot which last has been very much worked, I must observe that there is a greater space of Ground here than in any other part of the Mining Country within the Manor

of Alstonmoor without a known Vein, and as Garrigill Burn is well situated for discovering North and South running Veins and Tyne River for discovery of East and West Veins and nothing of consequence is observable in either place I cannot help being of opinion that Ground is without any promising prospect for Adventurers tho' at the same time there is a possibility of something valuable lying in it. Thortergill Cross Vein and Windshaw Bridge will both lye within it but neither of those Veins are yet known to be good for as to Thortergill Cross Vein, she seldom or never carried any Ore but where she intersected some other Vein, and as from appearance she will in the above mentioned Ground be deprived of that benefit, I doubt her very much, and as to Windshaw Bridge Vein what Ore she got in Tyne Bottom Limestone was just where a Vein or string which runs up near Crossgill Bridge joined her, and as there is no appearance of any other String coming towards Windshaw Bridge at the South East End, I have no kind of hopes from her, however Mr. Gilbert seems to be of a contrary opinion and I hope he will make a trial, if he does, I most sincerely wish him good success.

Josh. Hilton

**1821** These Veins were formerly productive of Ore especially Browngill Sun Vein in the Four Fathoms Limestone, in which we believe it has raised more Ore than has been got in all the other Veins in the Country in that Stratum. Of late Years they have only had the old Workings for raising Ore in; but the Governor and Company have for the last few Years been pursuing their Level which is generally called White Syke Level under the Great Limestone to Longholehead; and as they will soon get before the old Workings in the Great Limestone there is a great probability that their taking forward that Level will be the means of raising more Ore: they are now sinking a Sump from what is called Colonels Level marked No. 6.6.6. in Plan No.4. to air their Level Forehead. The Level which Mr. Hilton recommends in his Report to be begun under Nattras Gill Hazel was driven up to Thortergill Cross Vein, and continued Southward in it to where it intersected Benty Field Vein, but has not been the means of raising any Ore.

John Dickinson

Thos. Dickinson

### **Wellop Knott.**

**1821** This has been a pretty old worked Mine, and according to the best information we can gain has raised Ore in all the Strata from the Great Limestone which is the highest to Arthurs Pits Hazel, which is the lowest, that can be come at in this part of the Manor; there have been good Groves in most of them, but seldom of long continuance, so that upon the whole, it has not been a profitable Mine to the Adventurers. It is considered to be only a weak Vein, and has seldom carried Ore in any Strata after it got much cover upon it.

John Dickinson

Thos. Dickinson

**Windshaw Bridge.**

1821 This is a Cross Vein and of late Years has raised part Ore in Flatts in Tynebottom Limestone, immediately under Tyne River, under which the Vein runs a considerable length a little above Garrigill Gate. The Governor and Company have met with this Vein in their Workings at Tyne Bottom Sun Vein on the West side of Tyne, and are at present raising part Ore in it.

John Dickinson

Thos. Dickinson

**Crossgill Head, Dowke Burn, Cornriggs and Cash Burn Veins.**

1778 I shall now take a general view of the Veins on the West side of Tyne, and first of those to the South of the Back Bone which I think are Crossgill Head, Dowke Burn, Cornriggs and Cash Burn, All of those have been worked within my time, and as to Crossgill Head I look upon that place to have been dropped in a most scandalous manner, for the Governor and Company had an exceeding Good Grove there for a little while, and after their working failed, they drove in a joint and I am confident had not the Vein, nor did the Company ever make a trial to discover her again, the Vein divided as they drove Southwards and they pursued the west part 'till it all fled off in Strings, when they found this to be the case, they should have cut cross to the East to try the East part, but instead of that left off, and so she stands. It was in the Scar Limestone where the Ore was raised. Dowke Burn was never tried but in a thin Slaty kind of hazel which lies next above the Scar Limestone; she was quick there, and I thought very promising, but she was left off without more being done. Cornriggs has most assuredly been good in places formerly in the Scar Limestone, and I should hope would be more regularly good, if she was pushed to where she gets all the cover on, but she is left off without ever getting to the breast of the old Mans workings and Cashburn is much in the same situation as Cornriggs. All I can say with respect to those four Veins is that the low Sills are of a much more kindly nature on the South side of the Back Bone than on the Northside, and as those Sills which at Nenthead are low Sills, are on the South side of the Backbone top Sills, the Scar Limestone there answering as it were to the Great Limestone at Nenthead, I must be allowed the liberty of saying that I do think it not an unlikely piece of Ground for trial, but hitherto the Workmen have laboured under great difficulty for want of proper conveniences which occasions extravagant Wages being paid for the work, and if a further trial was begun, the first thing should be to build several Cottages for the Miners who should be indulged with every one a piece of Common adjoining. The most effectual way of trying that Ground would be by a Level begun in Stanners Gill and driven directly to Crossgillhead and carried forward true Level.

Josh. Hilton

**1821** Since Mr. Hilton made his Report some trials have been made in Crossgill Head Vein, by sinking into the Scar Limestone at the North end: the Vein had some Ore in it but not so much as would pay for working, and as they were much troubled with Water the trials were soon dropped. Mr. Hilton seems to have been under some mistake respecting Dowke Burn, as before the time of his Report of that Vein the Governor and Company had got a considerable quantity of Ore in the four Fathoms Limestone, and about that time George Atkinson and Company raised a good few Bings of Ore in the same Stratum. The Vein was also tried by John Bradwell and Co. in the Scar Limestone but did not answer to raise Ore; and since that time John Walton and Sons have tried the Vein in Nattras Gill Hazel and raised part Ore in it. Wm. Gill and Partners are now working the Vein in it but only make poor wages. Since Mr. Hilton's time Cornriggs Vein has been almost constantly worked for Ore and principally towards the East end, but has seldom raised as much as would pay Wages for working, and the Lessees upon the whole, have lost a good deal of Money by it. There has been little done at Cashburn Vein since Mr. Hilton's time except the raising of a few Bings of Ore out of the old Workings. As to the method of trying those Veins which Mr. Hilton points out by taking a Level out of Stanner's Gill, it is a trial, which in our opinion will never be begun, as it would be at quite too deep a random for the Veins bearing Lead Ore, and would be more likely to answer for Copper Ore, which seems to prevail in the Veins underneath the Lead Ore in this part of the Manor.

By what Mr. Hilton says in respect to this trial and in other parts of his report, he seems to have entertained the opinion, that Veins would carry Lead Ore to a very great depth where good thick Strata could be met with, which opinion he might have formed from the workings that had been made in Rampgill, Scale Burn Moss, and the Middle Cleugh Veins and some other strong Veins which had then been opened out; but the different workings that have been made in other parts of the Country since that time shew, that Veins are pretty much limited with respect to the depth they [sic] they carry Ore, which in general bears a proportion to the strength of the different Veins.

John Dickinson

Thos. Dickinson

### **Broad Mea.**

**1821** This is only a weak Vein and was discovered by George Atkinson and Joseph Watson above Twenty Years ago, and they raised upwards of Fifty Bings of Ore in the Four Fathoms Limestone with a little Cover of Clay and Moss: and when more cover put on that Stratum it ceased to carry Ore. There have been some small quantities of Ore got in the old Workings since that time but nothing of consequence.

John Dickinson

Thos. Dickinson

**Leehouse Well Cross Vein.**

**1821** This is considered to be a continuation of Dryburn Copper Vein and Scar Ends, and has also been worked further South in Priorsdale, under the name of Stow Crag and Sir John's Vein. There has been some little trial made in this Vein formerly, on each side of Leehouse Well Runner (the Boundary of the Manor) the old workings of which were nearly all grown over with grass when Messrs. Lowry and Little sunk down on the Priorsdale side and got a few Bings of Ore very near the Surface which induced them to bring up a Level under Arthur's Pits Hazel, commonly called the Six Fathoms Hazel after which they raised about Seventy or Eighty Bings of Ore in that Stratum in a very little compass of Ground, there being nothing upon it but Moss and Clay; but the Mine becoming poorer and the Vein having haded very much being nearer horizontal than Vertical, and their workings not being properly supported they fell together to the Surface, and they abandoned the working. The present Lessees John Slack and Partners have opened out the workings in this Vein, and raised upwards of Two Hundred Bings of Ore last Year.

John Dickinson

Thos. Dickinson

**Crossgill Vein.**

**1821** This is a continuation of Wellop Knott Vein, after having come through a part of Eshgill Liberty, it enters the Manor of Alstonmoor at the River Tyne, near which the Governor and Company for Smelting down Lead have got part Ore in the Flatts in Tynebottom Limestone, where some other small Veins intersected it, but in working it Westward where more Strata put on, it turned quite poor, and was given up working, after that they began a Level which has cut the Vein, and tried it in the Scar Limestone where they have also got some Ore in a Flatt in that Stratum; they are yet continuing the trial but the prospect is not encouraging.

John Dickinson

Thos. Dickinson

**Tynebottom Veins.**

**1821** The Tynebottom Veins have been discoverable in the Tyne Bottom Limestone where they Cross the River Tyne for time immemorial, but there had been no trial made into them into that Stratum, until about the Year 1778, when Lord Carlisle and Company began the trial of the Veins, and got a very considerable quantity of Ore in them, by sinking an Engine Shaft on the East side of Tyne; but by pursuing their workings Eastward until a considerable quantity of more Strata put on, the workings in the Tynebottom Limestone became poor and have long remained unworked. They have also raised a considerable quantity of Ore on the West side of Tyne, which they worked open cast, there being nothing upon the Limestone but Gravel and Soil. Since

then the Governor and Company for Smelting down Lead who purchased these Mines of the former Lessees have raised a good deal of Ore by two Levels they have driven further west, in which they discovered pretty good Flatts; but in working them Eastward they have dipped under their Level, which has occasioned them to sink and put in a Water Engine, and by which they also intend to try the Veins in the Whin Sill. The Ore on both sides of Tyne has principally been got in Flatts; they are at present raising Ore pretty well on the West side of Tyne, but we are apprehensive that in pursuing them Westward to where the Tynebottom Limestone gets more cover upon it, the Flatts will get poorer as they have done on the Eastside.

The Governor and Company's Agents have lately had it under consideration to try the Tynebottom Veins further West in the Scar Limestone, but the Limestone appears to be much broken through the range the Veins will go, and on that Account we do not deem it a good prospect.

The Engine Shaft which Lord Carlisle and Company sunk for the Tynebottom Veins was sunk about ten Fathoms into the Whin Sill on the East side of Tyne, and it is a very singular circumstance that although the Shaft was within a few Yards of one of the Veins yet they did not try the Vein in that Stratum. Their object in sinking so deep was to make trial of a Vein which is discoverable very strong near Lowhouses, and to which from the Engine Shaft the Strata dipped very much, so that they expected to cut it about the bottom of Tynebottom Limestone: but though they drove the Crosscut a great part of the way, and at a very great Cost, yet they gave up before they came at the point of the Vein.

Messrs. Robert Jopling and Alexander Whaley have a few Years ago made an attempt to try this Vein near Tyne River in Lowhouses Ground but the Engine they put in wanted more power as the quantity of Water they met with in sinking was so great that they could make little or no trial.

John Dickinson

Thos. Dickinson

### **Dryburn, Dryburn Washpool, and Dryburn Peatfell Veins.**

1778 As to the Veins to the North of the Backbone and between it and Black Burn, I think Dryburn and Dryburn Washpool the two most likely but there is no way of trying those Veins effectually otherwise than by an Engine, for there is nothing to be expected except in the Scar Limestone; and it has the appearance of a hard burnt Sill in that place, however as those Veins are strong they may carry Ore in it. The Great Limestone to be sure is on at Greencastle, but it is so very much broke, that I think nothing can be expected in it, and besides when the Veins get so much to the West, they are so very much mixed with Copper and Sulphur that I do not like the appearance of any of them near Cashburn Rivulet.

Josh. Hilton

**1821** Since Mr. Hilton made his Report a few Bings of Ore have been got out of the old Workings in the Scar Limestone in Dryburn Vein and also in Dryburn Peatfell Vein on the East side of Dryburn Runner but nothing has been done at Dryburn Washpool Vein.

John Dickinson

Thos. Dickinson

### **Rodderup Fell.**

**1821** A very considerable quantity of Ground has been explored in this part of the Manor by driving good Horse Levels, but hitherto without success. Mr. John Brumwell of Rodderup and the late Dr. Brumwell of Newcastle upon Tyne and other Partners began Stoneshaw Currick Level upon the Great Limestone which they drove about Two Hundred Fathoms Southward for the discovery of Veins of Lead Ore; they cut two weak veins but did not find them productive of Ore, and on Account of the difficulty of getting a Shaft sunk for Air by the rise of the Ground, they began another Level at a higher random about their other Level forehead and drove the higher Level Sixty Fathoms. They then began a third Level at a still higher random and more to the East and drove it one Hundred and Fifty Fathoms. They also sunk several Shafts and drove Drifts from them for the discovery of Veins: but a few years ago they abandoned the pursuit after about Twenty Years unsuccessful and expensive trials.

Mr. Charlton of Redheugh in North Tyne and Mr. Graham Clark of Newcastle upon Tyne began a Level lower down upon Rodderup Fell which goes by the name of Charlton's Level, which they drove in Nattras Gill Hazel above three Hundred Fathoms in length, in which they cut some Veins but did not find them productive of Ore and they abandoned the trial several Years ago, after expending a very considerable Sum of Money: and we would beg leave to mention a circumstance which shows how very ignorant Mr. Graham Clark was of the nature of Lead Mines. He was informed by Letter that they had cut a Vein in the Level they were driving; he soon came up to this Country in great Spirits and went up to the Level Mouth and gave the Miners orders to bring him out some of the Ore; but his disappointment was very great when he was told that the Vein where it was cut had no Ore in it, and he could not conceive how that could be the case, supposing that cutting a Vein was synonymous with cutting Ore, having no doubt formed his ideas from the Coal Mines in his own neighbourhood.

About two or three Years ago Messrs. John and Jacob Wilson and Company began to make trial in this Ground, by driving forward Charlton's Level which they have already done to the extent of about Eighty Fathoms; the Strata have dipped so that they have the forehead in the Four Fathoms Limestone. They have cut one Vein and made considerable trial in it but without success. They have also lately made some trial in a Vein which Messrs. Charlton and Clark cut in the Level, by rising into the Till bed, which lies upon the Four Fathoms Limestone and have got a little Ore. We think it very probable that several Veins will be found in the Ground between

Messrs. Wilson and Company's Level forehead and Stoneshaw Currick Level and we should have considered the trial a very good one, if it had not been for the little success which has attended the trials that have been made in that neighbourhood: but notwithstanding, this trial may be successful.

John Dickinson  
Thos. Dickinson

### **Rodderup Cleugh.**

**1778** Rodderup Cleugh raised a good deal of Ore both in the two Fathom Limestone and Arthurs Pits Quarry Hazel, as also in the Scar Limestone, and I should hope would do well, was she driven further West, but when Parmely begun the trial, a Level was pointed out to them and begun which has it been driven true Level would have landed at the bottom of the Scar Limestone Tumblers, but instead of that it landed at the top of the two Fathom Limestone, and as the Scar Limestone does not take the Water produced in Arthur's Pits Quarry Hazel, they cannot work it without either another Level or an Engine, and I am afraid the prospect will not be looked upon to be adequate to the Expence; as to all the other Veins in that Ground, I have no good opinion of any of them, for from the appearance of the trials which have been made at the Birchy Banks, Smittergillhills, and Greencastle Farm, I cannot think well of any of them, and as to all the other Veins which lye between Black Burn and Gilderdale Burn, I cannot entertain any favorable idea of any of them, they all get either filled with Sulphur, Copper, or a sparry kind of Caulk, as they get upon our West Fells and in my opinion are not worth laying out Money upon, and besides there are several strong Cross Veins which cross that part of the Country that break all the Hazel Sills, besides which they are all turned into a kind of Slaty substance without any firmness or solidity, and the rise of Strata is so very quick there, that a Level could not properly be carried in any direction except Water Level. The Scar Limestone is at the foot of Gilderdale Burn, and rises with the Bed of the Rivulet almost as far as the foot of the Grain below Hartside Colliery House.

Josh. Hilton

### **Rodderup Cleugh and Slaggy Burn Veins.**

**1821** Some Years ago a trial was made of Rodderup Cleugh Vein at the West forehead in Arthur's Pits Hazel, where they got a small quantity of Ore but there was not as much as would pay for working. The Ore that has been got of late has been in the old Workings in Arthur's Pits Hazel.

Slaggy Burn is a continuation of Rodderup Cleugh Vein Eastward in which Thomas Hall raised near Twenty Bings of Ore in the Scar Limestone about Seventeen Years ago.

John Dickinson

Thos. Dickinson

**Birchy Bank Veins.**

1821 The Birchy Bank Veins have all produced part Ore in the Scar Limestone where it puts on near Black Burn, but after any great quantity of more cover puts on, the Veins have left off raising Ore. Low Birchy Bank has been the most productive, which seems to be from the Scar Limestone not getting the Cover upon it so rapidly, indeed it gets little upon it for several Hundred Yards. About Thirty Years ago John and Ralph Murton got about eight Hundred Bings of Ore in this Vein.

John Dickinson

Thos. Dickinson

**Smittergill Hills Vein and Smittergill Hills Sun Vein.**

1821 Smittergill Hills Vein has been worked in the Scar Limestone and the Hazel above it, in which two Strata the Vein bore Ore and has been worked for near half a Mile Eastward from Black Burn Runner, and towards the East forehead the Vein broke very much into Strings and became unproductive. A Level has been driven at the top of Tynebottom Plate to a considerable extent and the Vein was tried in the Strata between it and the Scar Limestone but which produced very little Ore. Near to the East forehead in this Vein, a Cross cut was driven about ten Fathoms Southward in the Black bed in the Scar Limestone in which a Vein was discovered and a few Fathoms drove in it but the Vein was only weak and had a little Ore in it but not as much as would pay for working and upon the whole had not a promising appearance.

Smittergill Hills Sun Vein was discovered by Christopher Stout about Eighteen Years ago, and he had liberty to work the Vein by hushing, he got 13 Bings of Ore about the putting on of the Six Fathoms Hazel near to Black Burn Runner and then gave up working. About two Years after, this Vein was let to Jonathan Pattinson and John Ramsay who sunk a Shaft into the Six Fathoms Hazel further Eastward than the former workings and where that Stratum had more cover upon it, and in two Years they raised upwards of 80 Bings of Ore in about five Fathoms in Length at the end of which the Vein became poor and although they continued to work it for several Years and got a little Ore, yet it was carried on to a considerable loss. After the Vein was abandoned by them it was let to John Smith and Joseph Bowman who sunk into the Limestone next under the Six fathoms Hazel in which they raised near 20 Bings of Ore underneath where Pattinson and Ramsay had the best Ore in this Vein and after making some more trial they gave up working the Vein and it has remained unworked to this time.

John Dickinson

Thos. Dickinson

**Greencastle and Greencastle North Veins.**

**1821** The Great Limestone is on for a short length in the range of these Veins in which they have both raised Ore pretty well, but they have not got much in the Strata below.

John Dickinson  
Thos. Dickinson

**Park Grove and Park Grove Sun Veins.**

**1821** It appears that these Veins long since raised a considerable quantity of Ore near the putting on of the Great Limestone, especially Park Grove Sun Vein, as about Twenty seven Years ago John Wilson got about Forty Bings of Ore out of the old Wastes belonging to that Mine which were quite grown over with herbage, so that they must have laid a long time; the getting of so much Ore out of the old Wastes induced Jeffrey Milburn and Partners to open out and make trial of the Vein, and in a few Years they got upwards of three Hundred Bings of Ore, but as the Great Limestone got cover the Vein became poorer until it would not pay for working, John Walton has been getting Ore at this Mine lately, but it has been principally from the old Wastes.

At Park Grove Vein there has been more than one Hundred Bings of Ore raised near the putting on of the Great Limestone within the last Twenty Years amongst and near the old Workings but like the Sun Vein the more cover comes on the worse the Vein has been. Joseph and Robert Walton and Partners have lately made a trial of this Vein in the four Fathoms Limestone and Nattras Gill Hazel, but found it dead in both these Strata.

John Dickinson

Thos. Dickinson

**Nunstones Great Copper Vein.**

**1821** This Vein generally goes by the name of the Back Bone of the earth, and was formerly let under Lease by that name, in Priorsdale, and is by far the strongest Vein in the Manor of Alstonmoor. Where it crosses Crossgill Burn it is apparently about fifty Fathoms in width, and has twenty Fathoms or upwards of throw, it generally contains a great quantity of Quartz, and in the bottom of Crossgill Burn there are also strong ribs of Sulphur to be seen in the Vein.

According to tradition this Vein was first worked in Crossgill about One Hundred Years ago, by a Company of Mining Adventurers either from Wales or Derbyshire who sent an Agent into this Country: they made considerable workings in the Vein near the Surface and got a great quantity of Sulphur which it would appear they had mistaken for Copper Ore, as they erected a Building for Smelting it a little lower down Crossgill Burn, near the foot of Duffergill, but of course were disappointed of getting Copper.

About twenty three Years ago Messrs. Easterby Hall and Company engaged the trial of this Vein, and their Workings also were principally near the Surface; they sunk a Shaft between eight and nine Fathoms in depth, near the North side of the Vein, and drove a Cross cut a little to the South, and cut a small rib of Copper Ore, but not of sufficient quantity to pay for working, and on Account of the great quantity of Water they met with in sinking the Shaft, and the hardness of the Cross cut but they gave up the trial without seeing much into the Vein, so that the principal part of the Vein is not yet tried more than a few Yards in depth from the Surface.

Between two and three Years ago, a representation was made to Messrs. Forster and Wailes of the probability there was of this Vein being valuable for Copper Ore by Thomas Dickinson who was Agent for Messrs. Easterby, Hall and Company and had occasionally to view their workings in the time they made trial of the Vein; accordingly they gave Orders to clear out the Shaft and ascertain what discovery had been made of Copper Ore, and to know its quality having done that, and seeing that the great body of the Vein had not yet been explored, deep enough to where there was a likelihood of its bearing Copper Ore, they gave Orders for the bringing up of a Level under the Scar Limestone which has been already driven about One Hundred and forty Fathoms; it is about Thirty Fathoms short of the Vein, is at present driving at the rate of one and a half Fathoms a Week, and will just about bottom Messrs. Easterby, Hall and Company's Shaft.

In driving up the abovementioned Level, a Vein was cut in it Sixty five Fathoms to the North of the great Vein in which a Shaft has been sunk into the Level for Air; about the bottom of the Level the Vein had some pieces of Copper Ore in it, which induced us to cut out of the side of the Level and sink into it, to try for Copper Ore, and in sinking the first four feet in strong Grey beds, we had a nice rib of Copper Ore, of which we have sent you specimens; underneath that we had a Hazel Sill which is now sunk one Fathom into; about the top of it the Vein nipped or got narrower, but is now getting wider again, and continues to bear Copper Ore, but not so much as we had in the Grey Beds and is now more mixed with Sulphur. We would recommend that this Sump should be sunk down to the Tynebottom Limestone, which would give an opportunity of trying the Vein in the Tynebottom Plate which in different situations varies from four to eight Fathoms in thickness, and is very similar to the Stratum we have had the fine Copper Ore in, in sinking. Another object we have in view in sinking to the Tynebottom Limestone is, to try if it will take the Water, of which there is a possibility as the Strata dip considerably to the North down Crossgill Burn; and if that should be the case it might save us the Expence of an Engine for the great Vein. This Vein is only weak and the Specimens of Copper Ore which have been got in it have exceeded the most sanguine expectations, and certainly encourage the hope that the great Vein may be found very valuable.

John Dickinson

Thos. Dickinson

Lowbyer 12th. May 1821.