

THE EARLY HISTORY OF STOKE SOUGH AND MAGCLOUGH SOUGH, 1724 TO 1738.

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Abstract: Stoke Sough and Magclough Sough were both begun in the year 1724 with the object of draining the concealed eastern extension of the great vein known as the Hucklow Edge Vein. Curiously, Stoke Sough was constructed without the benefit of a composition agreement with the owners of the Edgeside mines. The resultant disputes led to the damming-up of the sough in 1738, but it was re-opened in 1747. Magclough Sough afforded partial drainage relief to the mines during the period that Stoke Sough was not functional and the owners of the sough contemplated beginning a deeper level. This plan did not reach fruition, because Stoke Sough was re-opened. The Edgeside mines were able to mine vast quantities of lead ore, which without the benefit of the soughs would have lain waterlogged and unobtainable. Men were killed during the driving of Stoke Sough and so much rock-oil was encountered a myth arose that a burning spring had been found.

INTRODUCTION

Stoke Sough was begun sometime in the year 1724, with the dual intention of discovering the deeply buried eastern extension of the great Hucklow Edge Vein and also to provide drainage for that major vein down to the contour of the River Derwent.

The Hucklow Edge Vein was also variously known as Middleton Engine Vein, Brookhead Vein, the Old Great Vein and after about 1745 as the result of a great lawsuit, as Old Edge Vein. Thereafter, a major northern branch vein, commencing at Miners Engine or Twelve Meers Grove, became known as the Hucklow Edge Vein. For purposes of clarity, unless specifically stated otherwise, it is proposed to refer to the vein ranging from Haycliffe Founder to Brookhead Founder and Stoke Sough Vein as the Old Edge Vein.

The gritstone arched entrance to the sough (SK 240 766) is still open and the water flowing from it is slightly thermal. Part of the flow is diverted into an ornamental bath house; the remainder formerly flowed through a series of artificial pools and small waterfalls into the river. The site is now owned by the Peak Park Joint Planning Board, but the land was formerly part of the ornamental gardens belonging to Stoke Hall.

The sough is accessible for several hundred feet, before bad air prevents further progress without the aid of breathing apparatus. A little beyond this point the sough walls have almost closed together in the shale and no further progress is possible. Stoke Sough Old Engine Shaft (SK 229 767) is blocked at considerable depth and there is no present communication with the sough (pers. comm. D. Nash). The sough was seen along part of Old Edge Vein and also at the intersection with Stoke Sough Vein during the 1960s when Glebe Mines Ltd were clearing that part of the Ladywash-Glebe mine system. The sough was about 5 feet high and 2 feet wide (Kirkham, 1966).

Magclough Sough was begun in January 1724, but, inexplicably, not from the river side, but from the northern side of Goatscliffe Brook (SK 238 774), about 108 feet higher in contour than Stoke Sough. The major shareholder in the venture was Richard Bagshawe who was also a major partner at Brookhead Mine and Sough, the most eastwardly title on the Hucklow Edge Vein. There is some evidence to suggest that Magclough Sough was originally planned to discover and drain the Ladywash North East Vein, in addition to the Old Edge Vein (DRO, BSA LM/D/7). The Ladywash North East Vein, another major branch from the northern side of the main vein,

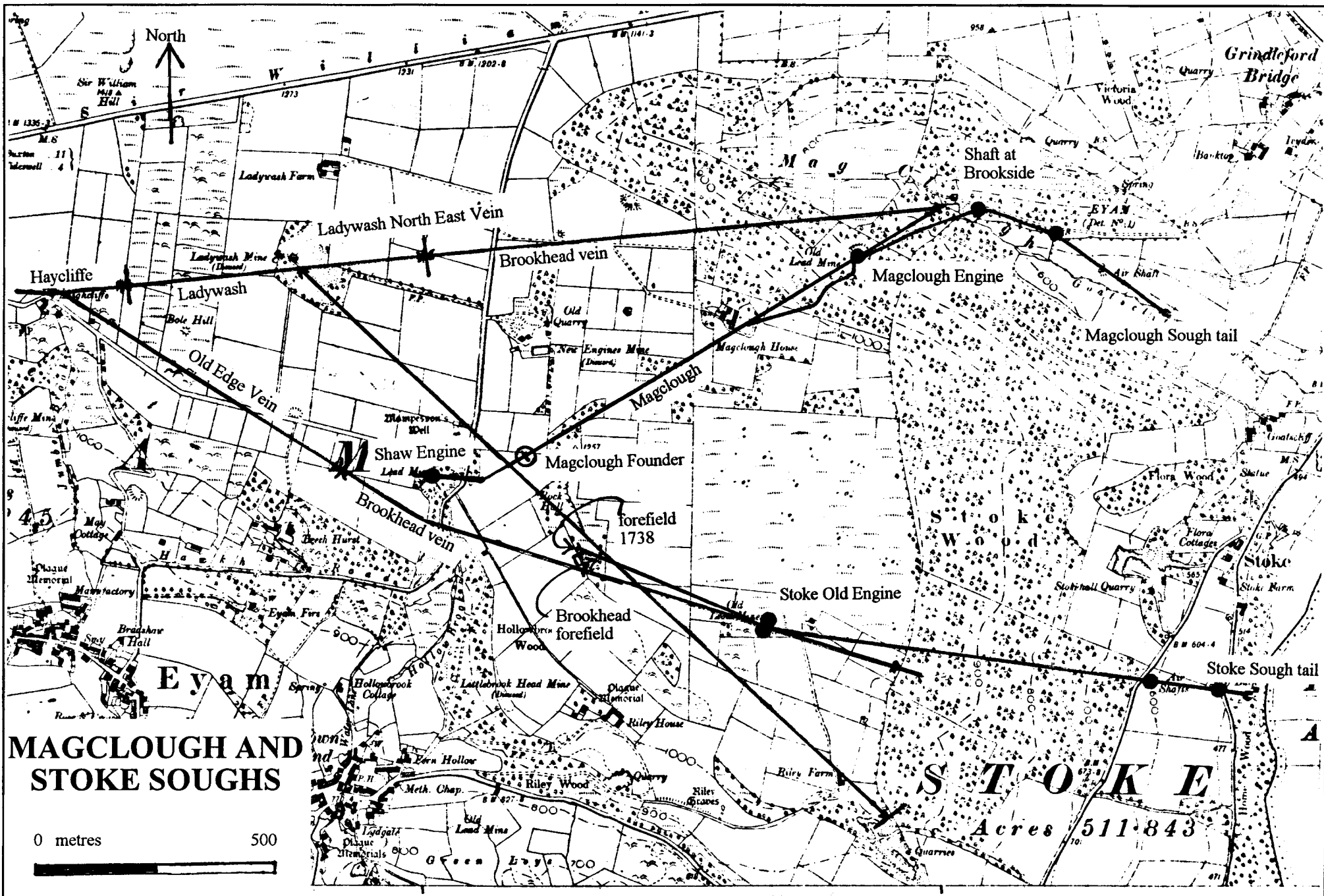
commenced at Haycliffe Mine where it was known originally as Haycliffe North Vein; it was freed in December 1719. Eventually Haycliffe owned 4 meers from the Old Edge Vein rither point and after a lengthy dispute Haycliffe and Ladywash each shared the next 14 meers, thereafter known as the 'Alternating Meers', Ladywash partners had 10 meers and finally Richard Bagshawe and partners at Brookhead Mine and Sough took 38 meers, these latter meers terminating in Magclough, very close to a drawing shaft on the sough, by the Brookside.

Probably, having failed to locate the North East Vein at the drawing shaft by the side of Goatscliffe Brook (SK 233 776), the vein being deeply buried at that point over 500 feet beneath the contour of the sough, the level was then turned south westwardly toward Brookhead Mine, Shaw Engine and the Hucklow Edge Vein (Old Edge Vein) the same target area as Stoke Sough. The former intention, ie. to drive the sough along the North East Vein may have been resurrected in 1736 (SCL, Bag 587/58). Water still flows from the low bolt entrance, but several closely spaced, shallow air shafts have all collapsed, so too the drawing shaft by the brookside and also Magclough Engine Shaft (SK 231 775). The sough is therefore completely inaccessible.

THE EASTWARDLY DEVELOPMENT OF THE HUCKLOW EDGE VEIN OR OLD EDGE VEIN

During the 1740s the Hucklow Edge Vein (or Great Old Vein, or earlier as Middleton Engine Vein) was found to split into two previously unsuspected major branches at Miners Engine (or Twelve Meers Mine). A great lawsuit ensued, to determine which of the two was the old vein and hence the title owned by Miners Engine and Little Pasture Mine in each vein. Finally, a decision was reached whereby the northern branch, ranging through Broadlow Mine (originally known as Little Pasture Shaft on the Common) to Ladywash Mine, was the Hucklow Edge Vein, whilst the southern one, already worked through to Brookhead Mine under the title of Hucklow Edge Vein, was to be known as the Old Edge Vein.

In 1724, (ie. well before the discovery of the major branch vein) the 'original' Hucklow Edge Vein or Middleton Engine Vein or Great Old Vein had been proved beneath Eyam Edge at least as far east as Old Ladywash Mine. Ore obtained from the vein began to be measured at Ladywash in December 1721 (SCL, Bag 587/15). At Brookhead Mine, north of Eyam village, the symptom of a vein was freed in 1718, but in all probability the



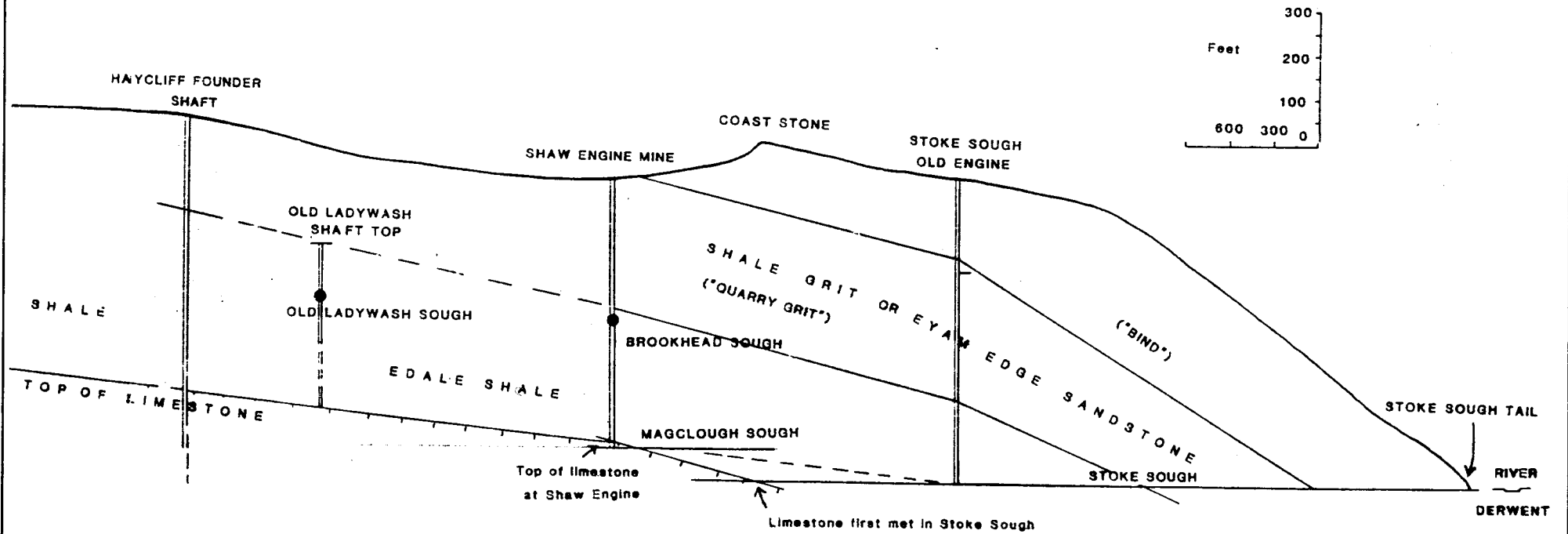
**MAGCLOUGH AND
STOKE SOUGHS**



West

East

45



Generalised section from Stoke Sough tail to Haycliff Founder

vein was too deeply buried to be readily accessible for getting ore. Richard Bagshawe and partners at Brookhead Mine owned title to 40 taker meers ranging east, these meers terminated at Stoke Moor Wall which parted Eyam Liberty and Stoke. Bagshawe and his partners were given these meers in March 1714 as takers at Middleton Engine Vein. They were thus realistically the most eastwardly taker meers ever likely to be worked on the Old Edge Vein. The mines beneath the Edge were worked in limestone, concealed beneath an increasing thickness of shale and sandstone cover as the vein was progressively proved eastwardly.

From Grindlow Liberty, a little to the east of Great Hucklow, to Brookhead Title north of Eyam, the mines were partly drained by a series of short, high contour shale gates driven northwards until they discovered thin strings and leadings of spar in the shale. Within this small part of the Derbyshire orefield these leadings were known as 'mudds', though the more usual term was 'symptom' (Rieuwerts, Glossary, in preparation). At this point the miners knew they were vertically above the range of the vein in the underlying limestone and, usually, engine shafts were then sunk by the respecting owners of each mining title, through the cover of newer rocks into the limestone. However at Ladywash Grove and at Brookhead the ore was lifted some 250 feet or more from the workings, then taken along their shale gates and wound from shafts lower down the Edge. Nellie Kirkham (1952) recorded this technique at Old Ladywash Shaft, stating that the miners' term was 'hopping-it'. This term has not been traced elsewhere. The Brookhead Shaft on their shale gate was only 120 feet in depth (SCL, Bag 191). Though the shale gates were referred to as soughs in mining documents, they were primarily exploration levels and offered only minimal drainage relief, water being lifted into them from lower workings by means of hand pumps.

The most eastern of these shale gates was Brookhead Sough, begun in the summer of 1714, a significantly early date, because at that time the continuity of the Old Edge Vein had not been proven. In fact Brookhead partners took their title to the 40 meers at the same time that the vein was proved at Middleton Engine, over a mile and a quarter to the west. Owners of the mines along the Edge were each allocated a number of taker meers along the presumed range of the vein, delineated by a line of possession stows beginning at their founder stake and set on the surface along the presumed range. There was no founder meer, all the meers were designated as takers at the original founder laid out when the vein was originally worked into Eyam liberty - even though there was no certainty of the continuity of the vein between the titles until workmanship had established it. The Brookhead partners asked the Barmaster to check and verify their holdings on three occasions in 1717 and 1718 when the vein was in the process of being proved eastwardly from Haycliffe and then from Ladywash Grove.

Brookhead Sough eventually discovered 'symptoms' of the Old Edge Vein in September 1718 (Rieuwerts, 1987) and they immediately took title to 16 meers ranging eastwardly, but as previously stated, due to the depth of the limestone, it is unlikely that any significant amount of ore production ensued.

Most of the mine plans dating from the period 1734-1735 show Brookhead forefield to be situated on the presumed range of Hucklow Edge Vein, but 418 yards east from their founder stake, very close to the Coast Stone.

The vertical section demonstrates that any development from Brookhead Mine or Brookhead Sough at this period must have been in shale at a contour well above Stoke Sough.

DEEP DRAINAGE; STOKE SOUGH AND MAGCLOUGH SOUGH

The deeper workings soon began to suffer drainage problems and to alleviate the situation two long soughs were planned, Stoke Sough and Magclough Sough. An undated plan, circa 1734-35 (Chats, Dev Coll), states

ffrancis Drabble - Incouraged Some Gentlemen to begin a Sough Levil which the[y] accordingly did - he always concluded that Hucklow old vein would range verry near that Stone at top of the Coast

Drabble was a well esteemed practical miner who was involved with mining at Hucklow, Grindlow and later at Little Pasture Mine and Haycliffe Mine. He was the overseer at Stoke Sough.

The Coast Stone is a very large, isolated gritstone boulder at the south eastern end of the prominent gritstone outcrop known as Rock Hall, some 1430 feet north west of the Stoke Old Engine shafts.

Stoke Sough was begun in 1724 (SCL, Spencer Stanhope 60050) and in the same year timber was sent to it from Haddon Park. An undated paper lists the adventurers in the sough, who included such well known names as Henry Thornhill of Stanton Hall, Francis Sitwell, James Mower, James and William Milnes (SCL, OD 1504). By 1726, at least, a 32nd share was owned by Richard Marples, Auditor to the Dean and Chapter of St.Pauls Cathedral (Guildhall, Marples papers).

Most of the following references, particularly the information contained in letters from Henry Thornhill, William Soresby and John Botham, are from the Marples papers.

A financial account dated 1726 referred to the level as "the Sough in ye Peak". The potential of the level was enormous, reflected in a valuation of £100 for a 1/48th share in 1729. Slightly more conservative was the 1/96th part sold for £27-10-6 during 1732. Little is known about progress in the level until the latter part of 1732. From that date until January, 1735, a long series of letters written to Marples from Henry Thornhill, William Soresby and the sough overseer, John Botham of Wensley, enable a detailed picture to be formed.

In October, 1732 Henry Thornhill wrote to Marples informing him:

the shafts will be through as ye overseers compute by Candlemas, when in my opinion the greatest hazard of the tryal will be over.

The shafts, at Stoke Sough Old Engine, were completed in early January 1733. Henry Thornhill was jubilant

we shall be able to make an effective tryal - which carries of all others in ye minerall county the richest prospect - our bitterest enemies only objected the impossibility of getting these shafts through and consequently of carrying forward ye Leavill. (3rd January, 1733)

The 'bitterest enemies' were Richard Bagshawe and partners at Magclough Sough, by that time also driving with the object of discovering the Hucklow Edge Old Vein.

Sinking Stoke Engine had not been without tragedy for in June 1732 Richard Turner of Foolow "was Drown'd at Stoke Engine by accidentally falling into the Lodge". The main shaft was sunk vertically from the surface to about 350 feet and then connected to the sough by a series of sumps, each one slightly off-set from the one above, down to a total depth of 693 feet (DRO, BSA LM/D/44C).

Thornhill was full of optimism for the future

They cannot, from ye Symptoms they have, in the Forefield of ye Levill, be a great way from ye Limestone and as soon as it is discovered, they cannot miss finding the vein a short time after

A month later he wrote

Stoke Sough goes on well - they have wind enough and drive very fast forward (7th February, 1733).

Henry Thornhill wrote again to Marples in March, 1733

They have lately met with in the Leavill stronger symptoms of a vein than ever, for before we had only loose lumps of what they call Keavills and mudd but now we have a pritty strong continued leading of sparr

A new vein was found crossing the sough about one hundred yards west of the Engine Shaft and during April, 1733, 62 meers were taken along it. There is no further reference and it must be presumed that they had found a leading or mudd. Some twenty years later the overseer at Stoke Sough claimed that they held ground on four veins, one ranging as far west as Bretton, but these claims were controversial and can be discussed more conveniently in the following section.

Henry Thornhill communicated to Richard Marples that:

Botham tells me he is dayley in expectations of ye Limestone (17th October, 1733).

The immediate optimism of the soughers turned out to be disappointing, although it was well founded and is a good illustration of their ability to forecast the sequence and position of strata deep beneath a hill, in an area where no previous mining had taken place. Taking the contour of the shale/limestone interface at Black Engine, Middleton Engine and Ladywash mines and by projecting it eastwardly, they must have anticipated that they would encounter limestone in the forefield of Stoke Sough only a little beyond Stoke Sough Old Engine Shaft. Francis Drabble, who died before the sough reached its original destination, had believed that the Hucklow Edge Vein would be found somewhat further to the west, at a point beneath the Coast Stone, in the event a more accurate forecast. Unfortunately for the sough masters, between Shaw Engine and Stoke Engine, the shale/limestone interface becomes steeper than might have been anticipated and the sough was driven over 1200 feet to the west before limestone was eventually found in the forefield, very close to where Drabble had predicted. But Old Edge Vein ranged more to the south east and the sough forefield missed it, finding instead Fair Dealing Vein, known later as Stoke Sough Vein.

Well before that position was reached the signs in the sough forefield continued to be promising. Nicholas Twigg, a close associate of Henry Thornhill, wrote to Marples

John Botham tells me he believes We are now in ye Strong boulder that caps the lime Stone in our Sough Levell at Stoke And have a leading in it near 8 inch's wide with Kevell and some Small Sparks of Oar blended with it which makes us hope we shall soon find ye Vein (19th March, 1734).

The 'boulder' or 'boulder' can be equated to the 'Boulder Stones' discussed by Short (1734) in his account of the Eyam Edge mines.

About two Fathoms above the Lead Ore was a Bed of Boulder Stones any one of which being broken contains from half a Pint to a Gallon of soft Bitumen

A much later entry in the Stoke Sough reckoning book appears to substantiate Short's statement that the boulder stones occurred very near the base of the shale

Shooting (blasting) the Boulder at the top of ye vein (April, 1763: SCL. Bag 391).

On breaking, the boulders were found to contain inflammable bitumen and were used initially for illumination purposes. Rock-oil was also found floating on the water

there were also several Springs in the Mines that took Fire with a Candle and would burn a Week or a Fortnight (Short, 1734).

These circumstances gave rise to a rumour that a burning spring had been found (Farey, 1811). The bitumen was collected by the miners and used for greasing boots, but it was found that the leather was quickly shrivelled and the practice discontinued! On several occasions the soughers thought they had at long last discovered the limestone and after one such false alarm in June 1734 it was reported that

We have Lost ye Lime Stone . . . it proving but a thin Bed, we have a very strong Leading of Sparr and other good Simptoms of a vein being near us

About six weeks later John Botham, the agent, again reported that limestone and a vein had been found in the sough forefield, but yet again it was merely a thin bed within the shale. During early August the sough struck a great spring of water which, although it achieved the partial objective of the sough in draining the Edgeside mines, nevertheless was to prove extremely troublesome.

the[y] are struck to A greate Spring of Watter at Stoak Sough that hath taken all ye watter from Ladywash and Haycliff so that they may work their sole (3rd August, 1734).

Before considering the breakthrough and its effects on the technology and construction of the sough, it is first necessary to consider what is revealed by modern exploration and also the geology encountered along the line of the sough.

STOKE SOUGH; EXPLORATION AND PRESENT CONDITION

From the tail at the River Derwent the sough was driven almost due west beneath Stoke Moor, passing first through alternating beds of sandstone and shale, before entering the massive, hard sandstone representing the Shale Grit or Eyam Edge Sandstone. Two air shafts were sunk within a short distance of the tail known as 'the shaft in Youle Close' and 'the shaft on Stoke Moor' respectively (DRO, BSA LP32). Both are open and a considerable volume of water falls down the second shaft. There are abundant gunpowder shot holes where the level passes through the Eyam Edge Sandstone. The beds dip at about 10 degrees towards the east. The sough, being driven against the dip, has resulted in the roof rising with the underside of the bedding planes, until in places it is perhaps fifteen feet or so above the sole. Here, to avoid excavation of unnecessary excess rock, the soughers were obliged to seek a lower bedding plane and the process repeated, so that the roof resembles the underside of a horizontally exaggerated, but slightly inclined stairway. The walls are scored with innumerable 'egg and eye' sockets and various other notches and scratching, seemingly at random levels and intervals. The sough then enters shale and shortly beyond, further progress is halted by accumulations of bad air.

Before Stoke Old Engine was reached the sough passed into Edale Shale and although at that point there was an increase in

ventilation problems, there is every possibility, though not proven, that the entire section between the second air shaft and Stoke Old Engines was ventilated by means of a fire house, or at least a fire-bucket suspended in the shaft.

A few yards before the second air shaft is reached, a neat doorway has been carefully cut in the shale, though nothing remains of the door itself. A small passage, about creeping height, but now filled with waste shale, bypasses this doorway. During the period that this portion of the sough was being driven, there would have been little or no flowing water in the level. A fang would have been constructed along the sole of the sough from this air shaft up to the forefield, the foul air being drawn back and up the shaft by the up draught created by the furnace or fire bucket. The shaft would have been bratticed or partitioned, one section acting as the downcast to the fang, the other communicating with the fire-bucket. Presumably, the door was securely closed and sealed to prevent a short circuit of the fresh air down the sough towards the tail and the by-pass bratticed so that access could be obtained if necessary. After Stoke Engine Shaft was reached the second air shaft and the door would both have been rendered obsolete.

No doubt some of the notch holes visible in the walls of the sough were cut to hold cross joists onto which the ventilation fang was constructed. Others represent the position of high level working platforms as the sough roof rose with the bedding planes in the sandstone.

VENTILATION PROBLEMS

Farey (1811) refers to men killed by explosions of fire-damp in Stoke Sough and at a much earlier date, Short (1734) noted explosions in the Eyam Edge mines, but he did not name Stoke Sough. No contemporary manuscript sources have yet been traced that refer to fire-damp explosions in the sough. However, four men were killed by 'damp' in September 1734 as a direct result of an accumulation of bad air, due to the extensive damage and roof-falls in the sough, caused by the vast in-rush of water into the forefield.

In June 1760 the materials belonging to the fire-house at Stoke Sough Engine were sold (SCL, Bag 389), so apparently throughout that portion of the sough between the Engine Shaft and the eventual point of communication with workings and stopes in the Edgeside mines, was ventilated by means of a furnace located in a small building constructed over the top of the shaft. The disaster, which occurred in September, 1738, killed four miners at the sough.

The incident was described by John Botham of Wensley, the sough overseer, in a long letter to Richard Marples.

We have not perfected the roof of ye Sough it being difficult to performe for want of Winde . . . when we lett of the watter . . . Its Violence . . . pulled down A Great deal of Shale . . . from the roof and Sides of the Sough . . . our men went Bouldly on . . . But there was unfortunately Lodged the damp . . . it is death to any that Comes Near it, which was the fate of four of Our Workemen on tuesday Last

The names of three of these men are recorded; Joseph Marsden and Richard Holmes, both of Grindleford Bridge and John Taylor. By October the sough masters appear to have been driving a ventilation drift above the sough, thus creating a better circulation of air, in the same way that the miners at Cromford Sough coped with similar problems when their sough first intersected Godbehere Vein.

We . . . cant get Wind up to ye Breach till this over drift from ye Engine Shaft is perfected

However, the position where the water was first breached was some 900 feet west of the Engine Shaft and it seems very unlikely that a drift of this length could have been driven within such a short space of time. The implication must be that the extensive fall of shale responsible for the accumulation of bad air, occurred some considerable distance behind the forefield and quite near to the Engine Shaft. This problem is not yet fully resolved.

The ventilation problem still had not been completely solved in December, 1734 at which time it was stated that

We are got past ye boother in Stoak Sough that at first stopt ye Water and have let off about one half of ye Water and find theres another place before us thats run-in and stops ye Water from falling so as to give us an opportunity of getting to ye forefield, but hope a few days will relieve us, this obstruction is betwixt ye boother and ye Engine Shaft.

TRIUMPH AT LAST

Several sources state that in 1734 the sough let off the water from the Eyam Edge mines and evidently there were two separate incidents when this occurred, the first in August, as described in Botham's letter above and then a second breach in January, 1735, after the destruction caused by the initial breakthrough had eventually been cleared.

we have every day expected to Lett of the watter which we did on Monday last to our great Joy.

This letter, also written by John Botham, states that although there was no further damage to the sough, it would take a week of clearance before the forefield could be regained.

A poor vein was discovered in March 1735

wee seven of the Twenty-four being required by the Barmaster to goe down at Stoke Engine to view the work and to observe whether the oar they had at the Day were likely to be got in their work - it is our opinion it is some part of it got their for wee have seen both some oar and Limestone but no sound side therefore wee cannot properly call it a vein till further workmanship be made

Three months later the jury again viewed the place. They travelled 26 feet along a drift

and there wee find vein and oar put up above the watter and from thence to the Forefield is 19½ yards

Immediately the water was breached, levels in the Edgeside mines began to fall, enabling lead ore to be mined which had until then been below the water table. The question arose about payment of composition ore to the soughmasters by the proprietors of the Edgeside mines. Strangely, no legal agreements had been drawn between the various mine owners and the soughmasters regarding the payment of composition, so there began a series of disputes which eventually led to the blocking up of the sough in June 1738.

A new article was introduced into the Eyam Barmote in October, 1733 in which it was stated that when any mine was unwatered by a sough, the owners of that sough were to have 1/4th part of the ore laid dry by virtue of the sough. A footnote observes

Query, whether the Jury have a Power to make a Law for Soughs near finished, when no Complaint was made to them (Steer, 1734).

Clearly the Jury had in mind the potential situation at Stoke Sough.

There are a large number of plans depicting the eastern range of the Hucklow Edge Vein, the positions of the mines and also the courses of both Stoke Sough and Magclough Sough. Few of them are dated, but many were drawn about 1735-1738 during the period of the composition disputes and before Stoke Sough was blocked-up. A particularly useful plan was drawn over a century later when both Stoke Sough and Magclough Sough were surveyed in great detail for the Eyam Mining Company (Nash Collection). Forty yards beyond the limestone interface, the overseers at the sough called the Barmaster, Anthony Eaton to view

Seventeen pair of possessions set for a Mudd which crossed their sough near the top of the Coast, ranging north and south (27th June, 1735).

The Nash Plan indicates a gate crossing the sough at the correct position although at the time of the survey, late last century, the gate was blocked in each direction only a few yards beyond the sough level. The reference to a mudd suggests that although the sough had found limestone, the forefield was driving in a sequence of interbedded shale and limestone and that the top of the main limestone was found a few yards further west, beneath the Coast Stone. Some plans state that limestone was found at the Coast Stone.

At the Coast Stone the sough turned south west and on the 20th January 1736 they freed their founder at Fair Dealing Vein (later called Stoke Vein). On the same day the Jury again viewed the place they had first seen in March 1735, but

wee find it covered with watter as it was before and from that place we have measured on a drift 8 yards and 2 foot and there wee find vein and oar and from thence to the Forefield is 19½ yards

There is no known record relating to the purchase of the Lord's Meer at Fair Dealing Vein, the soughers ultimately freed six taker meers along it. The first taker was freed on 28th January, 1737, the second taker in March, then somewhat oddly, their 3rd, 4th, 5th and 6th takers all on the 15th June 1738.

The dispute with the mine owners at the Edgeside mines had, by that date, reached fever pitch and in the first days of June, 1738 the sough was dammed-up at a point on a north-west cross cut lying between Fair Dealing Vein and the later discovered Simon Vein (SCL, Spencer Stanhope 60506/66). It was claimed that by that date the Stoke Sough masters had received about £3000 to £4000 in the value of composition ore and from ore mined in their own vein, but the sough had cost £12000.

Magclough Sough gave some relief to the Edgeside mines and the dispute raged for nine years before agreement was reached. Stoke Sough was re-opened in April 1747 and the second stage of its history began.

MAGCLOUGH SOUGH; THE BEGINNINGS

Magclough Sough was begun in January, 1724, but unlike Stoke Sough, little is known about its progress until 1735. Conversely, a complete financial breakdown is available from the beginning until 1736. The line of the sough from the tail, north west to the drawing shaft at the side of Goatscliffe Brook, suggests that originally it was not intended to directly drain the Hucklow Edge Vein, but was aimed at the Ladywash North East Vein. An undated plan, circa 1735 shows the anticipated line of the North East Vein ranging as far as this shaft. If this was the assumption, then the soughers were incorrect in their estimation,

because the vein is here deeply buried beneath some 520 feet of shale.

The principal proprietors of the sough were; Richard Bagshawe, Sir Archibald Grant and Thomas Gell. Other shareholders were Robert Middleton, Thomas Middleton, John and Isaac Nodder (after February 1733) and some members of the Ashton family. The will of John Nodder, dated 5th February 1733 refers to the Magclough Sough being intended to be driven into the eastern end of the Twelve Meers Grove on Eyam Edge (Shearstone, 1985). The cost of driving the sough from the start until the end of December 1734 was £4859-8-5 (SCL, OD 1505). Expenses rose sharply, from about £200 to £300 per annum up to 1730, to £600 to £1000 per annum thereafter. The reckonings were made up at about monthly, or slightly longer intervals throughout this period. By the end of March 1736 the charge had risen to £6447-13-6, plus £1000 paid for the liberty of driving through unmineralised ground (SCL, OD 1505).

The sough is completely inaccessible, but it was driven through the same sequence of rocks as Stoke Sough. From the drawing shaft at the Brookside the sough was turned toward the south west and Brookhead Mine. Magclough Engine Shaft was probably reached about 1730 and Magclough Founder nearly 2700 feet to the south west in July 1735. This is consistent with a drivage rate of eighteen inches per day through shale between the two points and also with the sharp increase in costs from early 1730. There is an inexplicable deviation in the line of the level from Magclough Engine Shaft until it reached a point a little to the south west of Magclough Farm. Thereafter it resumes a straight line drive, parallel to, but slightly to the south of Magclough Vein. Magclough Engine Shaft was 157 feet in depth, which together with three sumps gave a total depth of 293 feet to sough level (SCL, Bag 517).

EARLY OPTIMISM

On the 17th June 1735 the Barmote jury were called

By Richard Bagshawe and partners at Maggcluff Sough to go Down there and to View whether there be a Vein or Veins

The Jury went down and inspected and reported

wee have been down the Little Sump below the Levell of the Sough and have gone on the Little Drift at the Sump foot Northwardly and then wee go to the forefield and there wee find a Vein and Oar and a Cross Leading but we say that there is but One Vein till further workmanship be made (SCL, OD 1505).

Simultaneously the owners of Stoke Sough requested the Barmaster to arrest a 1/4th part of the ore got in the sump sunk below Magclough Sough for the proprietors refusing to pay that proportion to the Stoke soughers as composition ore. Another reference states that on the same day the agents at Stoke Sough, John Botham and Edward Wheeldon asked Anthony Eaton, the Deputy Barmaster, to arrest a cross vein with 60 pairs of possessions

set for the vein - ranging westwardly from Stoke Moor wall to near the founder at Ladywash

The founder at Ladywash referred to above was that set in the North East Vein, not as Miss Kirkham supposed, the founder in Old Edge Vein. An undated plan (DRO, BSA LMD/33), but pre-June 1735 shows that it was intended to drive a cross cut north westwardly along this vein to the founder at Ladywash Northeast Vein. A portion was definitely driven because Masland Vein (or Marsden Vein) was discovered during construction of the sough (DRO, BSA LMD/14).

The Magclough Vein was freed and the Magclough partners took 58 meers of ground south-west and 35 meers north east, the latter ending at Goatscliffe Brook side.

Ore began to be measured in January, 1736 and within six months 466 loads and 6 dishes had been measured (SCL, Bag 539).

Sometime in 1736 the partners at Magclough Grove made an agreement with the owners of Brookhead Grove to extend the Magclough Sough through Brookhead title as far as the east end of the Ladywash title (SCL, Bag 587/58). This document is difficult to explain: the initial impression is that the sough was to be extended along Magclough Vein to a division stake between the Brookhead Grove and the Ladywash title in Old Edge Vein. However, the projected line of Magclough Vein southwestwardly to its intersection with Old Edge Vein is nowhere near the division of ground between Brookhead title and Ladywash title in that vein. There is no reference to continuing the sough along Old Edge Vein from the projected intersection. If however the intention was to drive the sough along the conjectured line of the Ladywash North East Vein, as perhaps originally intended back in 1724, then the agreement makes far more sense. Brookhead title on the Northeast Vein consisted of 38 taker meers and was to be equally divided between themselves and the Magclough proprietors as far west as Ladywash ground. Brookhead were to take the western portion and Magclough the eastern part. The sough was to be driven westwardly by the Magclough partnership through their portion of the ground, then continued to Ladywash by the Brookhead partners. If the latter did not do so, they were to allow the Magclough proprietors to continue their sough through Brookhead ground. There were the usual provisions for access for both parties and taking the ore found in driving the sough forward. Despite Magclough purchasing a Lord's Meer in the vein (whichever it was), there is no evidence that any of the proposed work was started.

THE DISPUTE WITH THE STOKE SOUGHERS

Certainly by December 1736 the Magclough soughers were having trouble with the owners of Stoke Sough regarding the payment of composition ore. The water marks at Ladywash Mine and Haycliffe Mine were 78 feet above the level of Magclough Sough, but those mines were already reaching very close to standing water level. The Stoke Sough masters claimed that the Magclough Vein, worked 84 feet beneath the sough, was possible only because of the drainage offered by the deeper Stoke Sough. Due to their own difficulties with the Edgeside mine owners, as described previously, the Stoke Sough was dammed-up in July 1738. Gravity drainage therefore settled at the contour of Magclough Sough and a stream of water 18 inches broad and 8 inches deep flowed from the sough. The sough masters claimed that because the level of their sough came under the water marks set by the Grand Jury, by 13 fathoms and 18 fathoms at Ladywash Mine and Middleton Engine respectively, then much of the composition ore claimed by Stoke Sough masters could in fact have been earned by their sough. An undated section (SCL, Bag 191) shows the workings at Shaw Engine Mine sunk 100 fathoms and connecting with Magclough Sough at that contour. The sough if continued, would drain Middleton Engine Mine 12 fathoms below their soles. The soughers speculated that Magclough Sough would intersect the toadstone at or near Middleton Engine, an interesting statement proving their ability to assess anticipated geology. The Magclough Sough masters therefore began to consider the possibility of driving a deeper level. The problem they faced, like the Stoke Sough masters before them, was the very long drivage mainly through shale and beneath high ground, necessary for them to obtain deeper drainage. One writer viewed the venture rather more optimistically

The Magclough partners have an Opportunity of bringing up another Levell 16 fathoms or more under their present Levell, by means of which severall rich Veins might be discovered and would very well pay the proprietors the expence of such an undertaking [SCL, Spencer Stanhope 60050]

In July 1742 they surveyed the ground from Magclough Engine Shaft, down Goatscliffe Brook and to the side of the river Derwent, a distance of 1462 yards (SCL, Bag 587/58). Nothing came of these proposals and the Magclough partners at this time were said to be

out of pockett by Workmanship, Law charges and other Expenses about £12,000

AGREEMENT REACHED WITH STOKE SOUGH PARTNERS

Eventually an agreement was reached between both parties of soughers. Stoke Sough was to be re-opened; for every 29 dishes of ore got beneath the watermarks, 24 dishes were to be divided proportionably among the proprietors, 2 dishes taken as lot, and the remaining three dishes divided in the ratio 2:1 to Stoke Sough and Magclough Sough respectively as Composition ore. Because Stoke Sough was the deeper level by 98 feet, it was to be continued with all speed to unwater the Edgeside mines.

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REFERENCES

- Maples Documents. St. Paul's Cathedral, Dean and Chapter Archive at Guildhall Library, London.
SCL, Bag Coll. Sheffield Records Office, Bagshawe Coll.
SCL, OD. Sheffield Records Office, Oakes Deeds.
SCL, Spencer Stan. Sheffield Records Office, Spencer Stanhope Manuscripts.
DRO. BSA. Derbyshire Record Office, 1154G, Records of former British Speleological Assoc.
Chats, Dev Coll. Chatsworth House, Devonshire Collections.
- Farey, J. 1811. *The Agriculture and Minerals of Derbyshire*, volume 1. London.
- Kirkham, N. 1952. Lead Mine Soughs of Eyam, Stoney Middleton and Calver. *The British Caver*, vol 23.
- Kirkham, N. 1966. Eyam Edge Mines and Soughs. *Bull. Peak Dist. Mines Hist. Soc.* Vol 3, Nos 1 and 2.
- Rieuwerts, J.H. 1987. *History and Gazetteer of the Lead Mine Soughs of Derbyshire*. Sheffield.
- Rieuwerts, J.H. *Technological Dictionary and Glossary of Mining Terms*. [in preparation].
- Shearstone, P. 1985. *Gleadless; from Village to Suburb*. Published by the Author.
- Short, T. 1734. *The History of the Mineral Waters of Derbyshire* etc. London.
- Steer, G. 1734. *The Compleat Mineral Laws of Derbyshire*. London.

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