

THE HISTORY, PRODUCTIVITY AND MINERALOGY OF SNELSTON MINE, ASHBOURNE, DERBYSHIRE

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Abstract: Copper and lead ores were intermittently produced from cavernisation in Carboniferous limestone and from the unconformity between the limestone and overlying Triassic sediments. The site was worked for at least 120 years until the 1920s associated with limestone operations at two adjacent quarries. There is conjectural evidence for production back into the 17th century but this is tentative. This paper draws together various unpublished and published sources and discusses the geology, mineralogy, productivity and history of Snelston Mine.

INTRODUCTION

Snelston Mine was located 3 miles (5 km) south-south-west of Snelston, Derbyshire, between Ashbourne and Uttoxeter, at National Grid reference SK154414, Figure 1. Copper and lead minerals were recovered possibly over a long period but principally in the third quarter of the 19th century (1869-73) and again from 1909 to about 1921.

Snelston Mine is the recorded name although it has become commonly known today as "Isolation Mine". No authentic record or verifiable personal recollection of this latter name has been found.

Associated with the mine, both physically and historically, are two limestone quarries separated by a road running approximately east to west. No name has been found recorded for the more northerly quarry and for convenience it is called "North quarry" in this paper. The quarry to the south of the road, for convenience here "South quarry", has been variously known as "Birchwoodpark Quarry", "Birchwoodpark Stone Quarries" and "Birchwoodpark Lime Works" and is currently called "Birchwood Quarry" by

Derbyshire County Council. It is being backfilled with refuse while the North quarry was filled some time ago with coffee slurry from a nearby factory. Although apparently now solid, the coffee infill has only a thin crust over existing slurry and extreme caution should be taken when visiting the site.

In this paper the geology and mineralisation of Snelston Mine and the adjacent quarries are explained, the mine's ownership, history and productivity are discussed by reference to available records and the present remains of the mine are briefly described. The geology, mineralisation and minerals that have been found and recorded at the site have been described in more detail elsewhere (Jackman, *Journal of the Russell Society* 1996 in press).

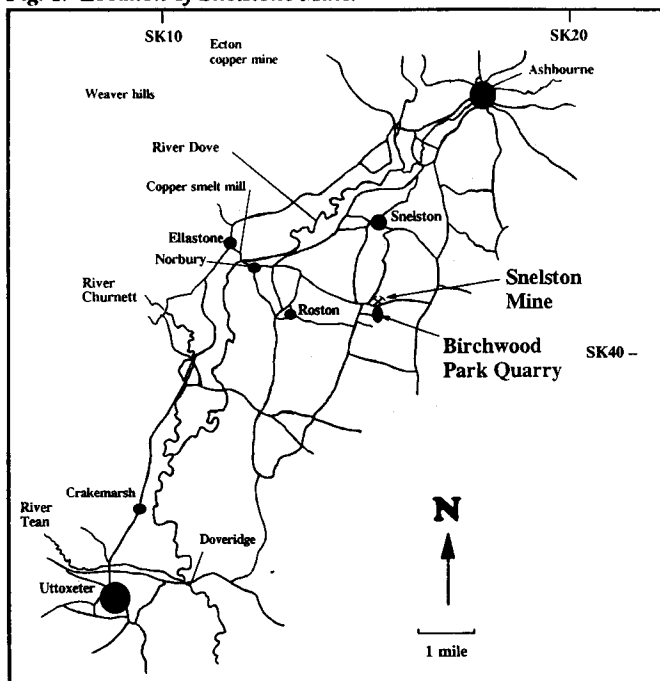
TOPOGRAPHY, GEOLOGY AND MINERALISATION

Snelston Mine and the associated quarries occupy a Lower Carboniferous (Dinantian) Limestone periclinal inlier 3.75 miles (6 km) south of, but continuous at depth with, the Derbyshire Carboniferous Limestone dome (Chisholm *et al*, 1988), Figure 2. The surrounding area is gently rolling pasture lying at about 600 feet (185 metres) above sea level. The pericline is about 880 yards (805 metres) long and up to 220 yards (200 metres) wide and is roughly elliptical in shape and trending NNE-SSW, Figure 3. The limestone can still be seen to dip steeply to both the east and west from a central high point in an exposed face at the southern end of South quarry. The inlier is surrounded and abutted by Triassic sandstones and marls, Figures 4a & 4b, that are largely covered by glacial drift.

The limestone has been subject to intense cavernisation, before the Triassic period, and this cavernisation was in turn filled by Triassic sands and clays, some of which subsequently became mineralised. A number of pipes can still (1995) be found in the South quarry and carry red-stained baryte in nodular and cockscomb forms together with limited colourless fluorite. There are reports of lumps of galena being found in clay-filled holes in the floors and sides of the quarry (Dewey and Eastwood, 1925). Farey, 1811 records "Birchwood-park" quarry in a list of lead mines although no other early record of lead production has been found.

The metalliferous mineralisation, apart from the galena noted above, is restricted to the unconformity between the Triassic and the Carboniferous. The limestone became dolomitised by downward percolating solutions when beneath the Permo-Triassic

Fig. 1. Location of Snelstone Mine.



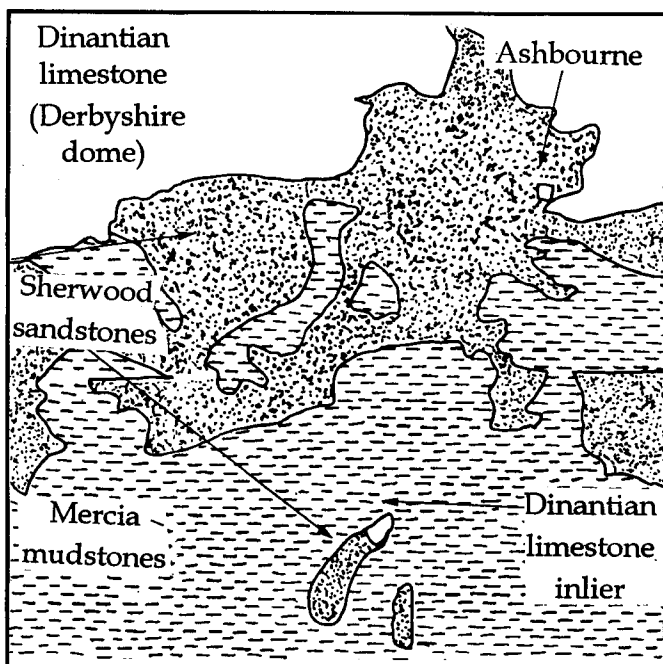


Fig. 2. Sketch map of geology showing Triassic outcrops and the Snelston inlier (after BGS Mem. Sheet 124).

Zechstein Sea. The dolomitised limestone was impermeable and acted as an effective dam concentrating copper minerals together with some galena. The minerals deposited principally in the Triassic sandstones and marls but also to a more limited extent in the limestone.

The origin of the mineralising fluids could have been the adjacent Coal Measures to the east and west but more probably they came with the erosion products from the Hercynian mountain range to the south which was the source of the Triassic sediments.

Table 1: Mineral species list for Snelston Copper Mine and Birchwood Quarry

Lead:	Copper:
Galena PbS	Aurichalcite $(Zn,Cu)_3(CO_3)_2(OH)_6$
Cerussite $PbCO_3$	Azurite $Cu_3(CO_3)_2(OH)_2$
Anglesite $PbSO_4$	Malachite $Cu_2CO_3(OH)_2$
Linarite $PbCuSO_4(OH)_2$	Rosasite $(CuZn)_2CO_3(OH)_2$
Wulfenite $PbMoO_4$	Brochantite $Cu_4SO_4(OH)_6$
	Langite $Cu_3SO_4(OH)_4 \cdot H_2O$
	Chalcocite Cu_2S
	Chalcopyrite $CuFeS_2$
	Chrysocolla
Zinc:	$CuAl)_2H_2Si_2O_3(OH)_4 \cdot nH_2O$
Sphalerite ZnS	Copper Cu
	Cuprite Cu_2O
	Tenorite CuO
Others:	Goethite $FeOOH$
Baryte $BaSO_4$	Limonite
Gypsum $CaSO_4 \cdot 2H_2O$	Manganese oxides
Calcite $CaCO_3$	
Dolomite $CaMg(CO_3)_2$	
Fluorite CaF_2	
Pyrite FeS_2	
Quartz SiO_2	

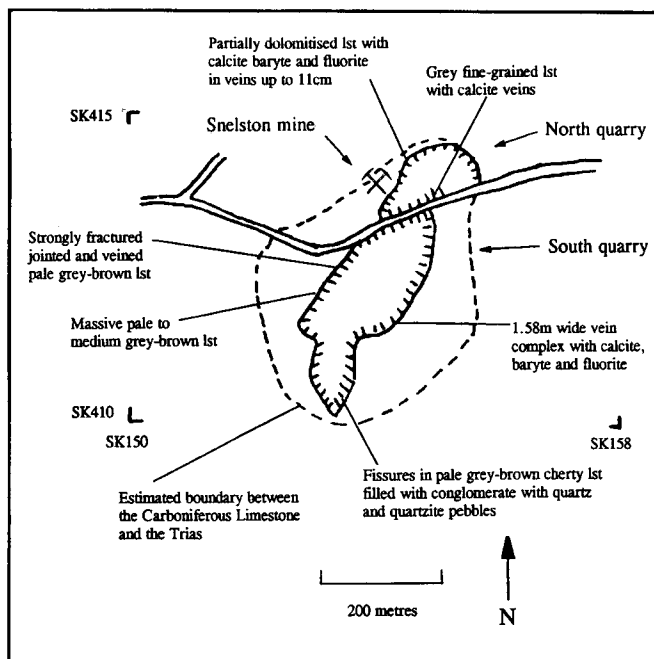


Fig. 3. Sketch map of location of Snelston Mine and associated quarries relative to the boundary of the inlier. (after BGS Sheet SK14 SE 1955).

THE HISTORY OF SNELSTON MINE

Circumstantial evidence

In her diary of "The Northern Journey" which she made in 1697 (Morris, 1947) Celia Fiennes recorded seeing copper mines at Ashburn (sic), "here they dig them like a well but secure the side with wood and turffe bound with the wood like laths or frames across and lengthways". Later on her way from Ashbourne to Uchater (sic), that is to say to Uttoxeter, she reported crossing a "deep and long water" which "supply's severall mills which are used for their preparing the metal they take out of the mines, I had a piece of Copper given me by one of the Managers of them".

Recent evidence has come to light in the form of an early map which locates a copper mill adjacent to the River Dove at Ellastone less than 2 miles (3 km) west of Snelston Mine (Robey, 1994; J.A. Robey, private communication) but this mill should have been closed down 10 years before Fiennes' visit. Assumptions were made by Morris, 1947 that the site referred to by Fiennes was not at Ellastone but further south and Robey, 1994 suggests that it could have been at Crakemarsh just north of Uttoxeter.

Robert Plot, 1686 reported that the Ecton copper ores were smelted at Ellastone but that "all was out of order before I came thither". Plot also referred to "famous wooden bellows that had no leather about them, carried away to Snelston in Darby-shire" but at the time of his record they were lying in an outhouse with "other cumbersom matters upon them". Plot included a diagram of the bellows (Tab. X). It seems probable that these bellows were simply acquired in case they could be of some use in the future.

It is of course not certain that the copper mine referred to by Celia Fiennes was the Snelston Mine. However the only other records of copper from the neighbourhood are at and near Ecton, Staffordshire 8 miles (13 km) north-west of Ashbourne and in the Weaver Hills 4-5 miles (6-8 km) west of Ashbourne. It is however possible that Celia Fiennes did visit Snelston Mine, only 3 miles (5 km) from Ashbourne and in the general direction of

Uttoxeter. Snelston Mine could have been operating from the late 1600s.

As an aside it is unfortunate that Daniel Defoe did not display more fortitude on a journey similar to Celia Fiennes' that he made in the 1720s or further evidence might have been available. Defoe halted a journey at Dove-Bridge (sic), now Doveridge, and returned to Derby "the river drowning the low-grounds by a sudden shower . . . and travelling being not very safe in a rainy season . . . we omitted seeing Ashbourn and Uttoxeter" (Defoe, 1724).

HISTORY OF THE OWNERSHIP OF SNELSTON MINE

Some details of ownership were recorded by Burt *et al*, 1981 who analysed official records. During the first recorded period of activity, 1869-73, the owner was reported to be T. Harrison and the Chief Agent to be Peter Pugh. In 1913 during the second period of activity, 1909-19, the mine ownership was attributed to Snelston Copper Mines Ltd.

The population census records for 1861, 1871 and 1891 (Local Studies Department, Derbyshire County Council) (later records are not yet available to the general public) show the name Harrison to be frequently occurring in Snelston but not in nearby villages. During this period the only T.(Thomas) Harrison recorded in the area was listed as an "Ag. (agricultural) Labourer" and it is reasonable to assume that he was not the person noted by Burt *et al*, 1981.

One other entry from the 1871 census records that may be of significance, but probably is not, is the note of Job Hall (widower aged 68) who boarded with John and Maria Gadsby of Brook Houses, Snelston and was described as a "Miner" from Middleton, Derbyshire. There was no other reference to miners, quarry workers or lime burners in any of the census records examined.

Reference at the Derbyshire Records Office (DRO) to trade directories for the area and the periods of interest has shed only a little further light. Those directories researched were the Post Office (1855, 1864), Harrison, Harrod & Co (1860), C.N. Wright (1874) and Kelly (1908, 1912, 1916, 1922, 1925).

In 1855 and 1864 the Lord of the Manor was recorded as "John

Harrison, Snelston Hall, Acting Magistrate". In 1874 Mrs Elizabeth Harrison was Lady of the Manor but Jno (John) Harrison Esq, Justice of the Peace was also resident. In fact this was John, son of John, as John the father had died in 1871 being survived by his wife Elizabeth until 1875 (Snelston Hall Archives, DRO). John Harrison was Sheriff of Derbyshire in 1883/84.

No record of the T. Harrison reported by Burt *et al*, 1981 has been found. It seems probable that either an error in reading the original manuscript (not impossible with the florid script used by many at the time) or a typographical error changed "J" to "T". Similarly no record could be found of Peter Pugh.

For the first mining period, 1869-1873, there is no record in the directories of any mining activities although limestone quarries are referenced. In 1855 Messrs Oakden and Burton were listed as "lime-burners" while in 1860 Luke Sampson was recorded to be a "lime-burner & farmer" at "Birchwood Park old lime works". In Wright, 1874 a note was made that "There are limestone quarries in the parish, which is (sic) equally adaptable for manure and for building purposes". In the directories referenced there is no further mention of limestone while Kelly (1912) records "The soil is mixed; sub-soil chiefly gravel and clay".

The limestone quarries have a very long history being recorded in Farey, 1811 and already extensive by 1828 as evidenced by the Inclosure Award and accompanying plan (Derbyshire Record Office), Figure 5. North quarry was described in the Inclosure Award itself as a "Limestone Quarry" and owned by John Harrison Esq (but "late Langley"). The fields around North quarry were described as "Limekiln Ground". South quarry was "Birchwood Park Limestone Quarry" in the written record but "Birchwood Park Lime Works" on the accompanying plan. It was owned by Thomas Fitzherbert Esq. Drunkard's Lane led into South quarry at its south-west corner, possibly a reflection on the quarry workers' way of life but there is also reference in Cameron, 1959 to "Dumkard's Piece", which need not be related.

On the Inclosure Award plan the road dividing the two quarries was recorded as Cockshoot Lane but later this was to change to Cockshut or Cockshutt Lane (Snelston Hall Archives, Derbyshire Record Office) and then to Cockshead Lane (Ordnance Survey 2nd edition, 1892; Bemrose, 1904) the name still in use today. Cameron, 1959 records the use of the name "Cockyhut lane" in 1623. In 1904 the road ran "over a high wall of limestone beds . . . left intact between the two quarry floors" and the quarries on

Fig 4a. Generalised north-south section through the Snelston inlier to the main Derbyshire Dome and showing the outcropping Triass. (after BGS Sheet 124).

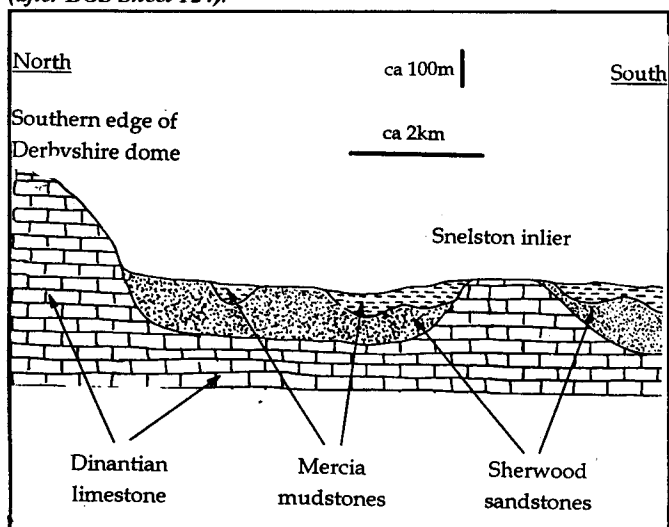
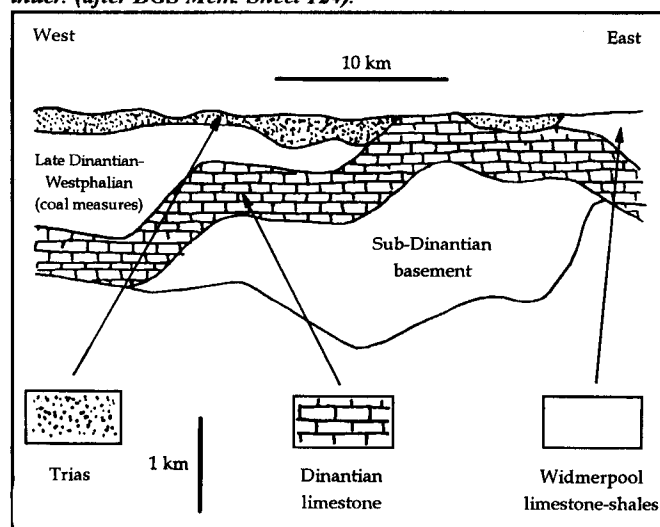


Fig 4b. Supposed east-west section through the Snelston Dinantian inlier. (after BGS Mem. Sheet 124).



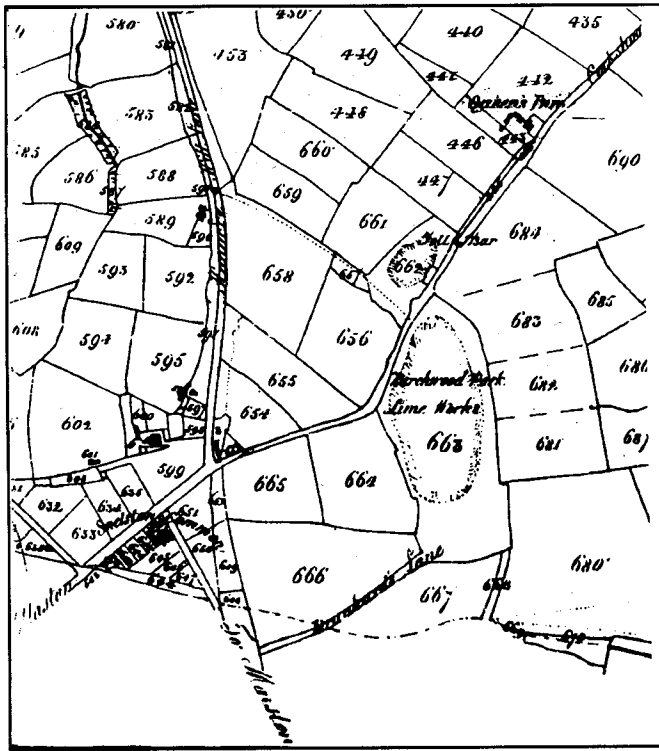


Fig. 5. Part of Inclosure Award plan, 1828 showing north and south quarries. (By permission of the Derbyshire Record Office).

either side were 40 feet (12 metres) deep. The North quarry had ceased operation by 1904 but the South quarry was then being worked for road metallurgy (Bemrose, 1904). Extraction finally ceased in 1957 owing to water ingress.

The first mention of Snelston Copper Mines Ltd in the Trade Directories came in Kelly, 1912 and was repeated in Kelly, 1916, 1922 but not in Kelly, 1925. No further information was given except in Kelly, 1912 where Chas (Charles) Pattinson was reported to be the manager of Snelston Copper Mines Ltd. In the Natural History Museum, London there are specimens in the Russell Collection from Snelston Mine originally obtained by Arthur Russell from a C. Pattinson who is reasonably assumed to have been the above manager.

In the Ordnance Survey 25in map of 1922, revised in 1920 from an original survey of 1878, the mine is called "Snelston Lead and Copper Mine".

Today, 1996, the land where Snelston Mine and the North quarry were sited is owned by Mr G.J. Grinley of Anacre Hill Farm, Snelston having been purchased from the Stanton Estate in the 1970s. The mineral rights are retained by the Stanton Estate. Permission for access to the site should be obtained from both owners. The South quarry is now owned by Derbyshire County Council and permission should be obtained from the Council offices, Matlock Bath, Derbyshire.

SNELSTON COPPER MINE LIMITED

Company Records relating to Snelston Copper Mine Limited are lodged at the Public Record Office, Kew. Extracts from the available documents are given in the Appendix. They provide an interesting partial history but give no information about the operation of the mine and leave many questions unanswered about the financial and legal status, particularly towards the end of the

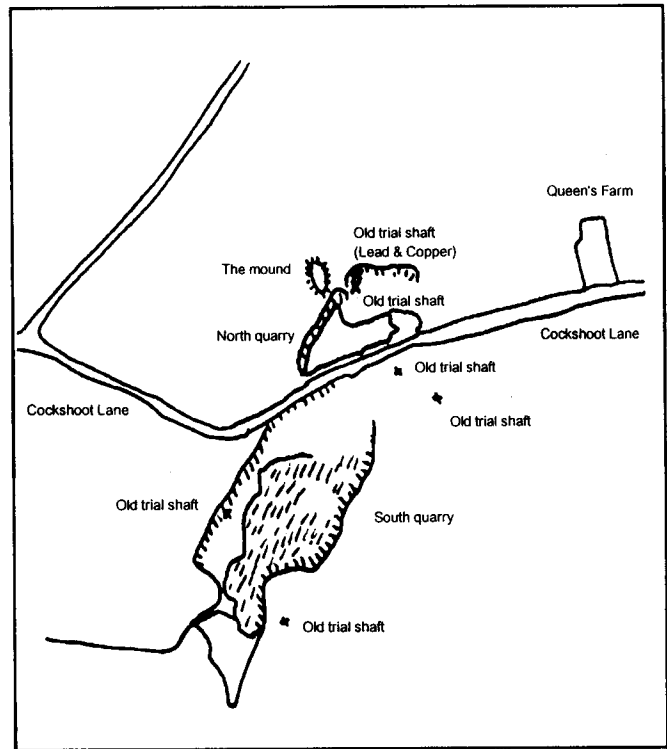


Fig. 6. The development of the quarries and Snelston Mine at the end of the 19th century (After OS 25 inch, 2nd edition 1900).

company's life when a liquidator was appointed.

Snelston Copper Mine Limited, the "Company", was established by Edwin Marshall Fox who was an American who lived in Stoke-on-Trent and later London but who also had a home in Shoreham-on-Sea (B. Richards, personal communication). The Company itself had no connection with the Harrison or Stanton families.

A lease to search and mine for lead and copper had been granted in 1907 by Juliana Bowyer Stanton (who was Lady of the Manor at Snelston Hall and née Harrison) to one William Noake and he subsequently sold the lease to Edwin Marshall Fox.

No company accounts have been found at the Public Record Office so it is not possible at this stage to determine the financial dealings nor the profitability of the venture. It is evident however that a substantial mortgage (£3000) had been raised by the Company from Marshall Fox but not apparently discharged and that the Company later had to be wound up and a receiver appointed. This particular part of the history of the Company is unclear and needs clarification, in particular the true identity of the liquidator. After his death had been reported in the records Edwin Marshall Fox was appointed liquidator but his signature on the later documents bears not the least resemblance to that on the earlier company records. While this could have been a relative of Marshall Fox his sons reportedly lived in the United States and had no interest in his ventures in the United Kingdom (B. Richards, personal communication).

On the surface it would appear from the evasiveness of the Company's solicitors at the time of the liquidation and the apparent lack of recollection of Marshall Fox's previous existence there had been some malpractice or avoidance of liabilities at the end of the Company's life.

MINERAL PRODUCTION HISTORY

Four sets of production data are readily available and are summarised in Tables 2 and 3:

- i) Dewey and Eastwood, 1925 reported in one of the *Special Reports on the Mineral Resources of Great Britain*.
- ii) Burt *et al*, 1981 have analysed official returns and published them in *The Derbyshire Mineral Statistics 1845-1913*. Burt *et al* reported for both "Snelston, Ashbourne" and "Snelston Mine".
- iii) Records are available in the *Annual Reports* of HM Inspector of Mines (Public Record Office, Kew: file numbers POWE 7, 6-75, 36-62) and in a Ministry of Munitions report on copper production for the years 1913-16 (Public Record Office, Kew: file number POWE 16, 502 part 2). Although lead ore production is also recorded in these reports it is for Derbyshire as a whole and it has not been possible to differentiate the Snelston Mine production.
- iv) A manuscript notebook of Henry Dewey, kept at the British Geological Survey Keyworth Library (Dewey notebook no 8, pages 101-106), which contains abstracts from a report on Snelston Mine dated June 1918. This was made by Arthur Russell when he was working for the Ministry of Munitions. An account of the notes made by Dewey is given below. The figures quoted in Tables 2 & 3 were reported by Dewey to have been furnished by Mr Tailyour, F.S.I. of Clifton Croft, Ashborne.

Although the *Annual Reports* of HM Inspector of Mines quote total productions for the whole of Derbyshire, cross reference to the Ministry of Munitions report where Snelston is specifically cited shows that there was no other copper production recorded for Derbyshire during the period of the latter report. It is therefore reasonably assumed that the copper ore totals quoted for Derbyshire in all the *Annual Reports* refer to the production of Snelston Mine. Only in the period 1913-1919 were there records of copper production in these *Annual Reports*.

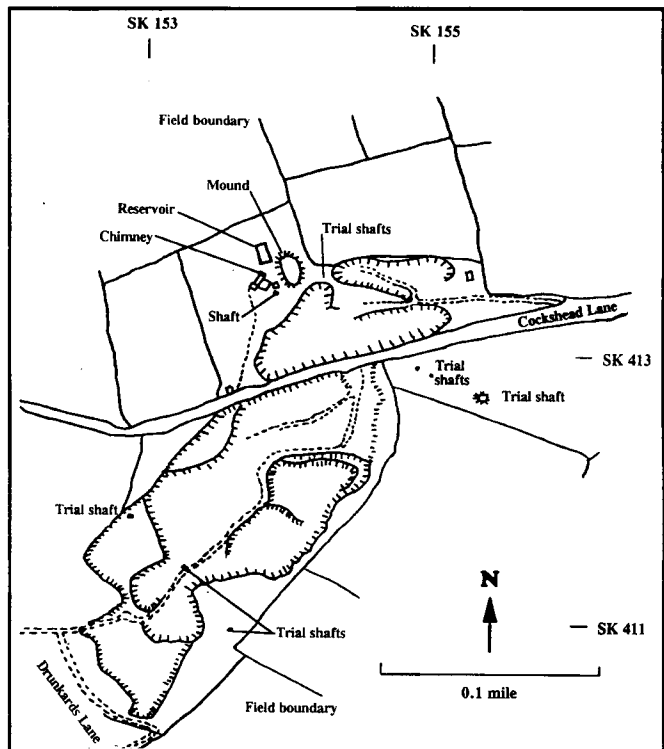


Fig. 7. Sketch plan of Snelston Copper Mine and the North and South quarries. (After OS. 25 inch 3rd edition, 1922)

Table 2: Snelston Mine Copper Ore Production

	Dewey and Eastwood	Dewey's notebook	Burt <i>et al</i>	PRO *
Prior to 1869(?)	450 tons		None reported	No records #1
1867-72				No records #1
1869-73	£1436		None reported	
1871		£267		
1872		£841		
1873		£67		None reported
1874		£261		None reported
1875				None reported
1900-8				None reported
1909-12				None reported
1909-18	632 tons **	632 tons, £642 15s 10d		None reported
1913			57 tons (£62) #	57 tons (£62) #2
1914				48 tons (£78) #3
1915				4 tons (£49) #4
1916				30 tons (£104)
1917				8 tons (£42)
1918				13 tons (£90) #5
1919				5 tons
1920-28				None reported

Reports at the Public Record Office, Kew described in the text

**	Copper and lead ores combined sold for £1 355 (Table 2)	#2	4.7% copper by "dry assay" and 3 tons copper by smelting
#	Producing 3 tons of copper metal (yield 5.3%)????	#3	3.68% copper by "dry assay" and 2 tons copper by smelting
#1	Records in the Annual Report of HM Inspector of Mines did not include metalliferous mines until 1872	#4	16.92% copper by "dry assay" and 1 ton copper by smelting
		#5	1 ton copper by smelting

Table 3: Snelston Mine Lead Ore Production

	Dewey & Eastwood	Dewey's notebook	Burt <i>et al</i>
1869-73	£4703		
1869		£1757	
1870		£2080	235 tons **
1871		£801	12 tons ***
1873		£65	
1909-18:	257 tons *	257 tons £712 3s 2d	

* Copper and lead ores combined sold for £1355 (see Table 1)
 ** Yielding 137 tons of lead metal.
 *** Yielding 7 tons of lead metal.

Dewey and Eastwood, 1925 reported that 450 tons of copper ore were produced during limestone quarrying operations and they imply that this was before the formation of Snelston Copper Mine Limited ("Formerly during quarrying operations for limestone 450 tons of copper ore are said to have been collected"). Bemrose, 1904 also noted that the North quarry contained lead and copper ores that were worked about 30 years previously, i.e. about 1870. He did not mention a mine at this time even though he described the immediate area in some detail. He further noted that "the present owner does not allow the lead-ore to be worked".

Anomalies exist between the documents referenced above concerning copper ore production. While Dewey and Eastwood, 1925 record a considerable production of copper ore for both of the main production periods (more or less confirmed by Bemrose, 1904 for the earlier period), Burt *et al* quote: "Copper ore was noticed in Derbyshire but its total recorded output over the whole period of records from 1854 to 1913 amounted to just the 57 tons produced by Snelston mine at Ashbourne in 1913". Even Mello, 1866 noted "small nuggets of copper ore" and so the operative word in the quotation from Burt *et al* is presumably "recorded". The *Annual Reports* of HM Inspector of Mines only reported on the returns from metalliferous mines from 1873, after the *Metalliferous Mines Regulation Act*, 1872, but even so there was no record of copper production in Derbyshire in the period 1873-75 and of course Burt *et al* only covered the first year of copper production for Snelston Copper Mine Limited.

The quantities of copper ore reported by Dewey and Eastwood, 1925 were undoubtedly taken from Dewey's notebook. The Russell report was made after he had visited Snelston and he may have been given information that the mine's owners did not officially report. That a precise value was assigned to the 675 tons of copper ore lends credence to this assumption.

The 57 tons of copper ore were reported to have been smelted to 3 tons of copper metal. Dewey and Eastwood, 1925 recorded a "very variable" ore content with the "percentage of copper" up to 8% in hand-picked sandstone and 15% in the rare circumstances when the malachite and azurite formed "crystalline aggregates lining cavities". Whether this percentage refers to mineral content or the copper smelted from the ore is uncertain. The figures compare with a typical ore mineral content of 0.5-1.0% from a modern day mine working a copper carbonate deposit and a yield of 50-70% using leaching for extraction (M. Southwood, personal communication).

Dewey and Eastwood, 1925 also reported that "Lumps of galena were *formerly* (author's italics) obtained by sinking shallow pits from the floor of the quarry along crevices lined with clay in which the galena was found". It is not certain whether these totals were included in the published data referred to above.

The last point of interest refers to records of men employed, summarised in Table 4 (Brown, 1966 and Burt *et al*, 1981)

Table 4: Snelston Mine men employed.

Year	Brown, 1966		Burt <i>et al</i> , 1981	
	surface	underground	surface	underground
1913:			11	10
1921:	4	5		
1922-24:	No records			
1925:	Prospecting			
1926:	0	5		
1927:	0	2		
1928:	Abandoned			

The numbers of men in Table 4 are derived from official returns made by the mine managers and need not be accurate. The original documents have not been referenced by this author. It is interesting that official returns were still being made after Snelston Copper Mines Limited was voluntarily wound up in September 1922 (Appendix) but these operations are presumably those referred to in the section below "Unrecorded History" when Charles Pattinson tried to continue to run the mine.

There is no mention of mining in the Snelston area in the *Special Report on Mineral Resources for Lead and Zinc in Derbyshire* by Strahan and Carruthers, 1923.

SURFACE REMAINS

The most obvious feature on the mine site today is a raised earth mound ("the mound") approximately 130 feet (40m) long, up to 30 feet (9m) wide and up to 15-20 feet (4.5-6m) high. By rough measurement and calculation the mound contains 3 000-3 500 tonnes of earth and rock. Samples were recently taken (1995) at various places on the top and sides of the mound using a soil auger 24 inches (0.6 metres) long which showed only relatively loose mixes of soil, red and yellow clays and fragments of mineralised sandstone. No large blocks were encountered to prevent the auger entering the ground except at one place on the "incline" noted below. In the early 1970s a trench was cut into the mound by members of the Russell Society but this again only showed the same clays and fragments of sandstone.

The mound supports an established flora fairly typical of local open woodland with large and small trees (ash, hazel, elder and hawthorns), brambles, nettles, sparse grass and ground elder. Several trees have obviously been cut to the ground at some stage in the past and have subsequently re-grown with a coppice-like effect. A hazel close to the base of the mound has a very large stump about 3 feet (1 metre) across with multiple new growths. Discussion with the Forestry Commission suggests that the cut-back and new trees are no older than 50 years which indicates that the ash may have been taken for firewood during the Second World War. There is no obvious poisoning of the ground either here or elsewhere nearby (ignoring the in-fill material dumped later).

From the southern end of the mound there is an incline leading down southwards. It would seem that the mound is simply a dump of overburden or perhaps rubbish from early trial shafts. Reference to Ordnance Survey maps (Ordnance Survey, 1900, 1901), Figure 6, shows that the mound was present during the 19th century and it is therefore assumed that it originates from overburden and rubbish removed during quarrying or mining operations but may have been added to during the last mining period. On the eastern side of the mound there is a significant "cutting" into the mound that could be a collapsed adit or shaft but there is no present day evidence for either assumption. Interestingly the Ordnance Survey 1900 25in map records an "Old shaft" in the North quarry just to the east of the mound with the addition "(Lead & Copper)".

A concrete base and studs for a small winding or pump engine can be seen adjacent to the west side of the mound. To the south there is a large concrete slab 14 feet 6 inches by 8 feet 3 inches by 7 inches thick (4.4 metres by 2.5 metres by 18 cm) shallowly covered by earth, mineralised material and vegetation. It has no studs and no central manhole. It is most probable that this is a shaft capping and appears to correlate with a feature marked "shaft" on the Ordnance Survey 25in map, 1922, Figure 7.

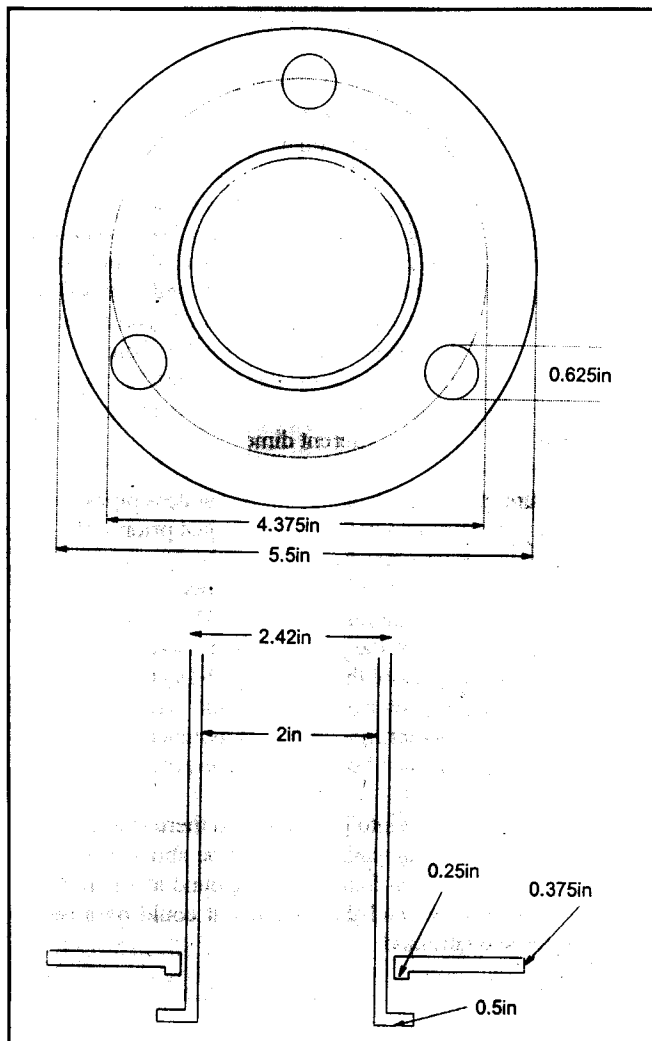


Fig. 8. Sketch of the flanged pipe at Snelston Mine.

To the north-west of the mound there is a brick-lined and rendered reservoir about 30 feet (9m) square that still contains water to a depth of 1 foot (30 cm) at the edge but which is overgrown and more or less choked with vegetation and debris.

Between the mound and the large concrete slab there is protruding from the surface of the ground a flanged seamless iron or steel pipe (very rusted) with a bore diameter of about 2 inches (50mm) and a present outside diameter of 2.42 inches (61.4 mm). Although the outside diameter is not accurate because of the rusting which has occurred and although it is slightly larger than would be expected it is indicative of the fact that the pipe is made of wrought iron or steel rather than cast which would be expected to have a much larger diameter (2.72 inches [69.1 mm]) and a much thicker wall. The pipe enters the ground at its southern end but points in the rough directions of both the mound and the large concrete slab. There is a clear run of pipe of at least 24 feet (7.3 metres) without any change in direction but it rapidly levels out to run just below the present day surface. Owing to the rusted surface of the pipe and flange no trade markings can be seen. The flange is loose and the end of the pipe has been flared over to retain the flange and to provide the mating surface for the jointed pipe when it was made up. The flange has three bolt holes, Fig. 8.

An attempt has been made to date the pipe from trade brochures and standardisation documents but it is evident from the design of the flange that its manufacture precedes the age of standardisation. In the trade literature of Lloyd and Lloyd of 1902 and of Stewarts and Lloyds Limited of 1911 (V.R. Sismey, personal

communication) and in The Engineering Standards Committee (ESC) (forerunner of the British Standards Institute) Report No. 10-1904 the flanges for this size of pipe had different dimensions a *British Standard Tables of Pipe Flanges* and all had four bolt holes as they did for some time later (British Standard BS10-1962, now obsolete). Reference was made in the ESC report to a change in practice resulting from the adoption of four bolts and from this it could be inferred that three bolts could have been in common usage previously on this size of pipe. In the catalogue of Lloyd and Lloyd for 1892 ("Tubes and Fittings") the number of bolt holes was left to the option of the purchaser and holes were drilled to order. The style of the flange closely resembles the design of one side of the "Stewarts' No 1 Loose Flange Joint" shown in the *Stewarts and Lloyds Limited Catalogue* of 1911 but has different dimensions.

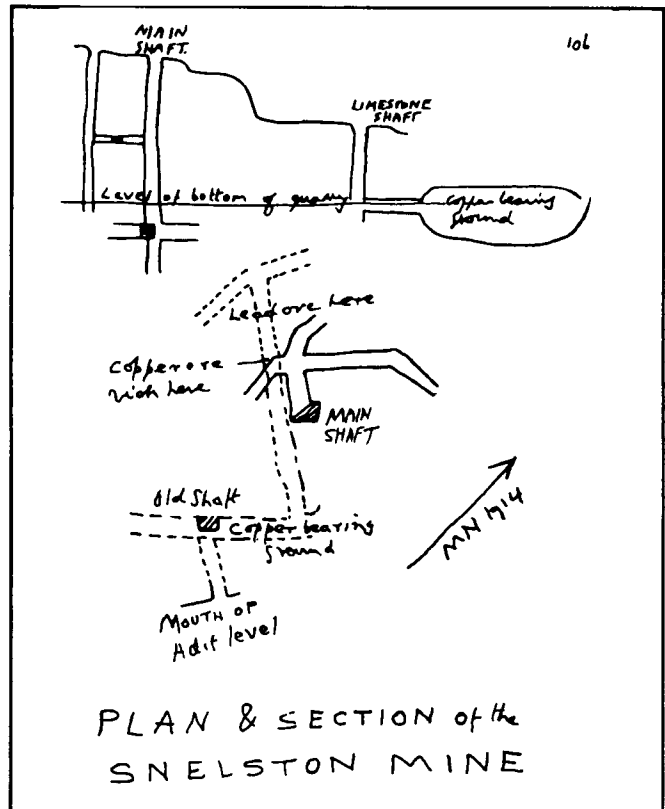
The manufacture of wrought steel and iron seamless pipes was in its early infancy, or even in a pre-natal stage, just prior to the first recorded period of ore production (1869-73) and wrought seamless pipe would certainly not have been commercially available for such an application (Boore, 1951). While it is quite evident that the design of the joint was not current during the second period of operation of the mine (1909-19) the pipe could still have been installed then from an old stock. The exact use of the pipe has not been determined but it is assumed that it was a steam pipe running between boilers and underground pumps.

At the road close to the gate into the mine area there is a relatively new water stopcock. A galvanised water pipe about 1½ inches (45mm) diameter has been found below ground at a number of places between the gate and the mound but could be a recent addition to service farmland.

PLANS AND LAYOUT

The North and South quarries were recorded on the plan accompanying the Inclosure Award of 1828, Figure 5, with the South quarry being called "Birchwood Park Lime Works". There was a toll bar on Cockshoot Lane adjacent and to the east of both quarries. Just to the north-east the "Queen's Inn" was marked. In the first edition of the Ordnance Survey map (Ordnance Survey: 1892), surveyed in the period 1817-37 with later minor revisions, lime kilns are marked both north (4 or 5) and south (6) of the road (named as "Cockshead Lane"). In the second edition map (Ordnance Survey 6 in, 1901), revised in 1898-99, Figure 6, the North quarry was well developed and the mound mentioned above was marked perhaps giving credence to the assumption that it was derived from overburden. More significantly "Old Shafts" is marked in the north-west corner of the quarry while "Old Trial Shafts" is marked in two places south of the road, two being in the South quarry and two in the field between the north-east corner of the quarry and the road. The Queen's Inn marked on the Inclosure Award map had by then become Queen's Farm.

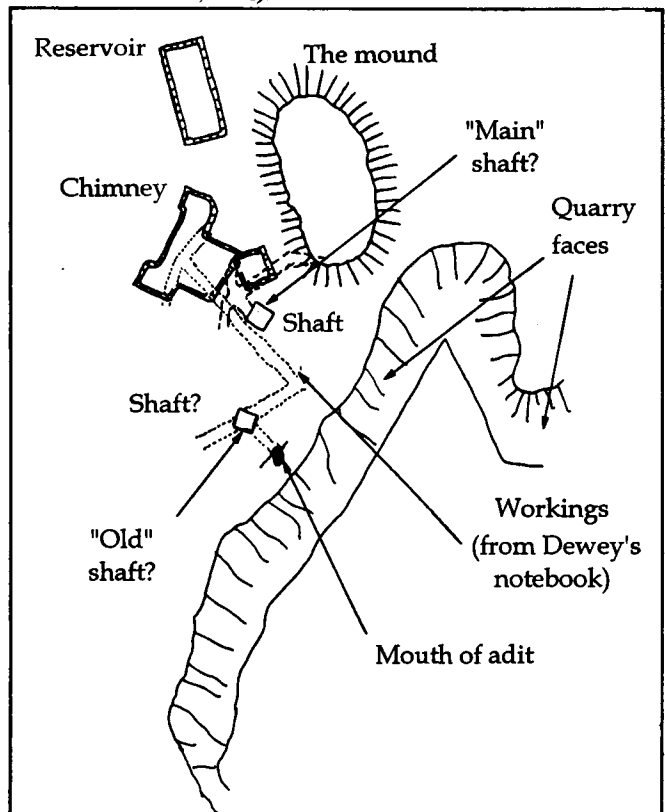
The third edition map (Ordnance Survey 25 in, 1922), revised in 1920, Figure 7, gives much more detail and for the first time formally records the presence of the mine. A "Shaft" is marked near the south-west corner of the mound while a similar symbol to that described as "Shaft" was used just to the south of this but not described. One of these is most probably related to the concrete slab noted above. "Old Shafts" is marked to the east of the mound in the area now infilled. In the field to the south of the road two small "Old Trial Shafts" are marked together with a similarly described large excavation. Three others are marked within the South quarry or its immediate environs. Near and to the west of the mound there are a number of shaded rectangular



Facsimile of page 106 of H. Dewey's Notebook No. 8. (By courtesy of BGS, Keyworth, Notts.).

marks presumed to be buildings. The largest of these has the notation "Chy" (chimney) at one end. No trace of buildings has been recently found on site. The reservoir is marked to the north-west of the mound but without comment. Queen's Farm had become "Old Queen's Farm", the name being retained today.

Fig. 10. Dewy's mine plan superimposed over an extract from the OS 25 inch 3rd. edition, 1922).



The North quarry was shown on the Ordnance Survey map sheet 119, 1:50,000 First Series, in the area revised in 1959, as a water filled area and while it was shown in sheet 128, 1:50,000 Second Series (revised 1989) as a tiny area, slightly displaced, in the 1989 revision of sheet 119 it is not shown at all. The South quarry continues to be marked but there is no record of the mine.

In the *Catalogue of Plans of Abandoned Mines* (Mines Department, 1929) there is an entry for a plan for Snelston Mine but no indication as to where the plan was kept. The plan was not held by the Mines Department. The entry indicated where entrances to Snelston Mine were located by means of grid squares referenced back to the 6in Ordnance Survey map but these squares simply covered the whole area of Snelston Mine and the adjacent quarry sites. No mine plans have been located to date and none are lodged with the Derbyshire Record Office in the file on abandoned mines.

DEWEY'S NOTEBOOK

In Chisholm *et al* (1988), page 129 reference is made to Dewey's notebook which quoted from an unpublished report by Arthur Russell. Dewey's notebooks are held at the British Geological Survey Keyworth Library and the item relating to Snelston Mine is in Dewey's notebook no 8, pp101-106. Two diagrams, plan and section, are included and reproduced here in Figure 9. The Russell report referred to was made for the Ministry of Munitions after Russell visited Snelston in 1918. There is a note that the Russell report was lent to Dewey by G.J. Williams of Bangor. It is not clear to the author which parts of Dewey's account were abstracted from Russell's report and which, if any, were original observations. Despite diligent search at the Public Record Office, Kew where Ministry of Munitions papers are held and where other reports by Russell have been found, this particular report could not be found. The account given here is restricted to information that has not already been given above.

The mine workings were confirmed to be on the western side of a "large abandoned quarry". An adit opened onto the side of the quarry. The quarry wall here appeared, from the plan, to trend NE-SW showing that the adit was in the west face of the North quarry. The adit ran through about 30 feet (9 metres) of limestone before entering Keuper red marls and shales with interbedded sandstones. The Triassic ground was noted to be "heavy & dangerous". The limestone appeared as a distinct wall, in places slickensided, which at first dipped steeply north-west but then "apparently" rapidly flattened out. An adit drained the mine to a depth of about 50 feet (15 metres), most of the shallow workings being approximately at this level. (There are reports of an adit opening into the north face of the South quarry which could have been this drainage adit [R. J. King: personal communication]).

There appear to have been three shafts: the Old, the Limestone and the Main Shaft. There is some confusion between the Old and Limestone shafts in Dewey's notes that is in fact perpetuated in Dewey and Eastwood, 1925 which describes the "Limestone or Old Shaft". However careful reading of the notes together with reference to the plan and section make it clear that there were at least three shafts.

The Old Shaft appears to have been to the north-west of the mouth of the adit and due (magnetic) south of the Main Shaft. This undoubtedly corresponds to the extra symbol on the Ordnance Survey, 1922 25 in map, Figure 7, south of the symbol marked "Shaft" and indicates that the Old Shaft was sunk from the normal surface level. It also means that the approach to the site

today passes over a concealed shaft. To try and clarify this point the plan of the mine from Dewey's notebook (Figure 9) has been sized, oriented and placed over an extract from the Ordnance Survey, 1922 map of the mine and North quarry, Figure 10.

The Limestone Shaft was sunk to a depth of 50 feet (15 metres), 200 feet (61 metres) east of the Main Shaft. From the section given by Dewey it would appear that the Limestone Shaft was in fact sunk from a bench in the quarry, below the general level of the surrounding land but above the bottom of the quarry, while the adit was driven from the bottom of the quarry. From the Limestone Shaft a cross-cut was driven northwards and then a level driven eastwards for 100 feet (30 metres) to exploit the copper mineralisation at the unconformity at the north end of the inlier. Here the limestone wall trended about 50 degrees east of north and dipped at 65-70 degrees to the north. The copper was present as malachite impregnating the "Keuper" sandstone to a width of about 5 feet (1.5 metres), the copper content being richest closest to the unconformity.

The Main Shaft was 125 feet (38 metres) deep sunk in limestone with the principal workings, consisting of "various short and tortuous drives", being 90 feet (27 metres) below surface. Below this the shaft was, in 1918, flooded. In June 1918 the only productive ground was 8 yards (7 metres) south-west of the Main Shaft and 70 feet (21 metres) below surface where 3-4 tons of fine-grained galena and cerussite per fathom (1.8 metres) of drive were being mined from a width of 3.5 feet (1 metre) of brownish calcareous sandstone with clay.

Copper production from the Main Shaft was very sporadic. In terms of the copper content Dewey reported 6-8% copper, together with lead, in hand-picked malachite ore. Rarely malachite was found lining cavities in the rock and here the copper content was 15%. There was no washing or dressing of ore at Snelston Mine, only hand-picking.

Finally the winter water ingress was reported to be 25,000 gallons (113,500 litres) per hour. There was an Evans sinking pump capable of dealing with 33,000 gallons (150,000 litres) per hour.

DEWEY AND EASTWOOD, 1925

Along with the account in Dewey's notebook, Dewey and Eastwood, 1925 also described Snelston Mine. A little information extra to that already given can be found and this is summarised here. As most of the information corresponds directly with Dewey's notebook it is strange that the entry for "Snelston Copper and Lead Mine" has the qualification "From notes by R.G. Carruthers and G.J. Williams" without any reference to Arthur Russell. The Russell report had been lent to Dewey by Williams. It is perplexing however that Snelston Mine is not included in the memoir on lead ores in Derbyshire by Carruthers and Strahan (Carruthers and Strahan, 1923).

The Main Shaft was quoted to be 15 fathoms (90 feet, 27 metres) deep and the "Limestone or Old Shaft" 8 fathoms (48 feet, 15 metres). The adit drained the mine to a depth of 50 feet (15 metres) while the principal workings were 40 feet (12 metres) below adit level and "very wet". The winter drainage was quoted as 25,000 gallons (113,500 litres) per hour and the summer drainage 21,000 gallons (95,000 litres) per hour. In 1919 the pumps could only cope with the summer drainage.

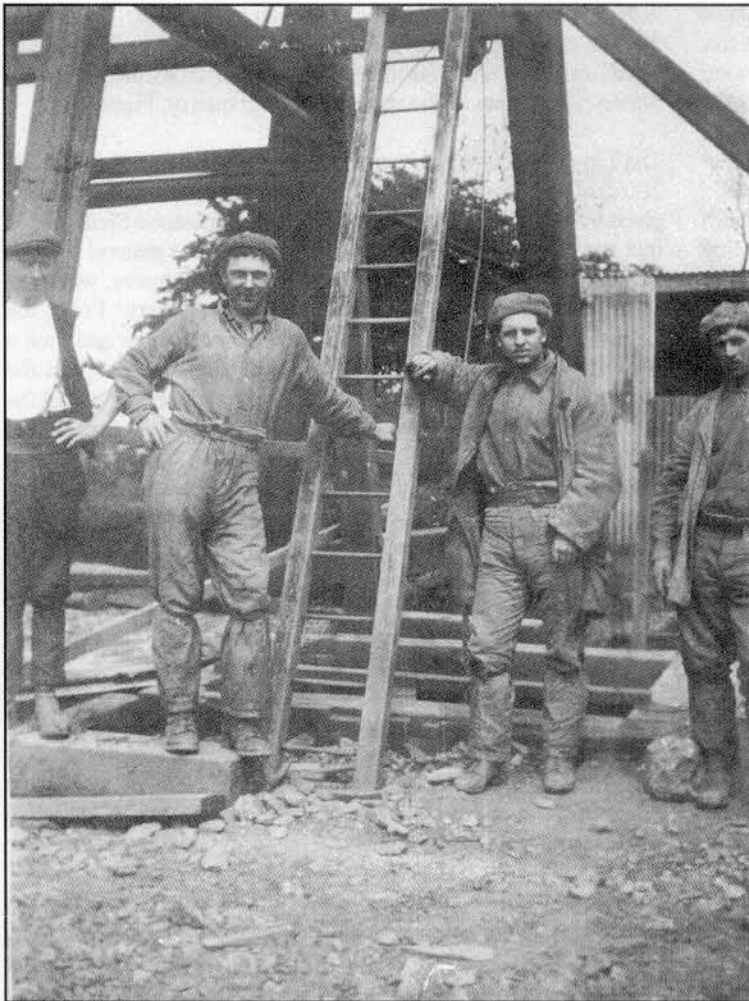


Fig. 11. Cornish miners in the early 1920s with Mr Charles Davies of Mayfield (extreme left) at the shaft and headframe of Snelston Copper Mines Ltd.

UNRECORDED HISTORY

An attempt was made in 1994 to fill in the missing history of Snelston Mine by reference to local residents. Interesting information included notes on the mine made just before his death by the son, Mr H. Pattinson, of the mine manager Charles Pattinson. Two sets of notes were made which are similar but different in the information they contained (J. Peel: personal communications; B. Richards: personal communication).

According to the notes the owner, Edwin Marshall Fox, was an American with interests in coal and steel in this country and is reported to have been a co-founder of John Brown & Co Ltd, Atlas Works, Sheffield (this has not been verified and is probably not correct). He lived in London at 6 Berkeley Square, one of the addresses recorded in the company records (see Appendix), but had a country house in Sussex as well as a mansion in Long Island, New York. He spent about 3 months of the year in the USA. When he died in 1922 or 1923 his two sons, who lived in the USA, declined to become involved or to invest the money required for further development at the mine. Charles Pattinson and some business friends attempted at this time to raise extra capital but were unable to and in fact sustained financial loss themselves.

Regarding the mine itself H. Pattinson recorded a single shaft about 70-80 feet (21-24 metres) deep, or perhaps "somewhat deeper", which was rectangular in shape, about 10 feet by 6 feet (3.0 by 1.8 metres), and lined with "a special kind of timber".

Above the shaft was a headgear, 50-60 feet (15-18 metres) high, with a single pulley operated by a steam winding engine. A cage held 4-6 men but was replaced by a steel bucket capable of holding about 1 ton of ore once the men were down the shaft. The shaft was also equipped with a series of steel ladders each 15-20 feet (4.6-6.1 metres) long and each secured to steel platforms about 4 feet (1.2 metres) square to ensure compliance with mine regulations which required, in a mine with only one shaft, a secondary means of reaching the surface should the winding gear fail. (This implies that each of the shafts reported by Russell was connected to independent workings). The shaft gave access to "several levels". A short distance from the shaft ("100 yards" [92 metres]) was the adit to a horizontal level from which lead ore was extracted. The level did not extend far and working conditions were poor because of "damp and poor atmosphere". This level was lighted using candles but there were two steam driven dynamos, one being belt driven the other direct coupled, providing a 110 volts direct current for lighting purposes presumably for the main mine workings.

On the surface there were a boiler house, a general office, the manager's office and a weighbridge. The manager's office had a bathroom and sleeping accommodation to allow him to stay overnight if required. In the boiler house were two large vertical boilers and one small one together with four large Lancashire boilers to provide the required steam power. Three steam pumps were recorded, two of which were operated 24 hours per day to try and cope with the water ingress. The pumps each delivered 100 gallons (450 litres) of water per minute. There was a 100 feet (30 metres) high steel chimney that was demolished in 1928 when the mine closed. The machinery and equipment "a lot of which was almost new" was also then sold to Thomas Ward, Sheffield, the scrap metal dealers, "at a great loss".

Concluding Mr Pattinson's information, he recorded little about the workforce at the mine but did note that there were "several Welshman".

Other correspondence (C. Davies: personal communication) revealed the existence of two photographs of miners at the headgear of the mine. One of these is reproduced in Figure 11. The photographs show part of a substantial wooden headgear together with a corrugated iron "coe" but unfortunately little else. They show Mr Davies, father of the correspondent, then in his early twenties, together with three Cornishmen in 1922 or 23 when Mr Davies was lowered down the shaft, for the wage of one shilling, until he met water. This period coincides with a blank in the official records from the mine as reported by Brown, 1966. The four were proposing to attempt some mining but abandoned the idea when it was realised that the mine would have to be drained. The Cornishmen departed for South Africa from where they wrote attempting, unsuccessfully, to persuade Mr Davies to join them.

Mr Alfred Bott has reported (A. Bott: personal communication) that his father worked at the mine in about 1912 but left because the "job was not to his liking". Alfred Bott worked in the South quarry ("Birchwood quarry") in about 1927 (at the age of 14) when he used to cart water from the reservoir at the mine. He provided a sketch of the area showing an adit and level going west into the mine area from the base of the North quarry. He described this as "herring bone style" with one main tunnel and others running from it on both sides but all rising from the adit to

prevent flooding. This may be the adit referred to by H. Pattinson. A final anecdote provided by Mr Bott was that Mr T. Winson, farmer at Old Queens Farm, was killed in the North quarry in about 1940 when the ground caved in and buried him while he was rabbiting. This incident was confirmed by Mr G.R. Bridgett (personal communication) who recorded that Mr Winson was accompanied by his game keeper Joseph Fern and was digging in one of the tunnels when the accident occurred.

DISCUSSION

Circumstantial evidence exists for very early workings at Snelston for copper ores. Several records dating from the mid to late 1600s could suggest mining activity but firm evidence has not been forthcoming.

Farey, 1811 made the first positive reference to Snelston as a lead mine in 1811 while Mello, 1866 referenced the limestone inlier and copper nuggets and large masses of galena. Mello did not increase his record in Mello, 1891.

There is no doubt that access to the underground workings at Snelston mine is now impossible except for those with a perverse personality, skilled in the use of sub-aqua equipment to negotiate the flooded passages, jack hammers to break through the shaft cappings and a great liking for stale coffee which is presumably now penetrating all the old workings.

The accounts of Snelston Mine have been interesting in their diversity. No two have given more than the odd item of corresponding information particularly during the lifetime of Snelston Copper Mine Limited. From some accounts (official returns) information appears to have been deliberately withheld. From others (company records) there appears to have been a deliberate attempt to deceive. But perhaps there were two people called Edwin Marshall Fox with an interest in Snelston Mine (?).

This author's opinion is that Marshall Fox was an entrepreneurial engineer, as honest as any business man, who saw an opportunity and went for it with a group of local people to manage the mine. A substantial operating company was put into place perhaps hoping for deposits similar to those at Ecton, only a few miles away. The business soon started to founder with very difficult operating conditions because of the ground and the water ingress and only limited potential in the quantities of ore. It can be questioned whether in fact the copper and lead deposits might continue laterally at depth as the limestone levelled out but the conditions were already proving too difficult at the relatively shallow horizons being worked.

The questions above all that remain to be answered as far as this researcher is concerned are:

why was it necessary to appoint someone who had died, by the records of the company, to be the official receiver to Snelston Copper Mine Limited when it went into voluntary liquidation? was the mortgage for £3000 ever discharged or was that the reason for the company going into voluntary liquidation? Why were documents from the registrar of companies returned from the company's solicitors and from the last address of Edwin Marshall Fox as if he and the company had never existed? Why did the solicitors not behave in a more professional manner?

If anybody has any answers please let me know.

SUMMARY

period	Record
Before 1811	Farey, 1811: lead mine
Before 1866	Mello, 1866: copper and lead
1869-73	Burt <i>et al</i> , 1981: lead (no copper)
	Dewey & Eastwood, 1925: copper and lead
Before 1904	Bemrose, 1904: lead ore not being worked
1907	Lease to mine for lead and copper to W. Noake
1909	Lease transferred to E. Marshall Fox
1909-18	Dewey & Eastwood, 1925: copper and lead
1910-29	Company Records: Snelston Copper Mine Ltd
1913	Burt <i>et al</i> , 1981: copper (no lead)
	Burt <i>et al</i> , 1981: working with 21 men
	Company Records: mortgage of £3 000
1918	Report by Ministry of Munitions
1920 (about)	Company Records: E. Marshall Fox died
1921	Brown, 1966: working with 9 men
1921 or 22	Visit by C. Davies and three Cornishmen (not working?), mine flooded.
1922	Company Records: company voluntarily wound up and E. Marshall Fox appointed as liquidator!
1922 or 23	Unsuccessful attempts to raise finance by mine manager
1925	Brown, 1966: prospecting
1926	Brown, 1966: working with 5 men
1927	Brown, 1966: working with 2 men
1928	Brown, 1966: mine abandoned
	B. Richards (personal communication): chimney demolished
1929	Company Records: company officially dissolved

ACKNOWLEDGEMENTS

As a beginner at researching the history of mines I have received help from a vast number of people. My memory will probably not allow me to record thanks to all who have helped and I apologise if I have not recorded my thanks here:

The inexhaustible and eternally patient staffs of the Public Records Office, Kew, the Derbyshire Records Office, Matlock and the Derbyshire Local Studies Departments, Derby and Matlock. The staff of Kettering Library have often been bemused by the unlikely titles I have requested but have rarely failed to provide. Eileen Brunton at the Natural History Museum, London and Graham McKenna at the BGS Keyworth Library have also produced invaluable historical documents. The management of the *Ashbourne News Telegraph* for publishing my appeal for information and the people, recorded in this paper, who took the trouble to respond with information. Colleagues who have helped with advice and information include Trevor Ford, Bob King, John Robey, Malcolm Southwood and Brian Young. For access to the Snelston site, Messrs Grindey and Stanton, both of Snelston, and for access to Birchwood Quarry, Derbyshire County Council.

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Norbury....granted by Juliana Bowyer Stanton to William Noake on 27 June 1907 and by the said William Noake sold assigned and transferred to the Vendor on 15 November 1909." Number 1 500 shares were transferred to Edwin Marshall Fox. Signed by Edwin Marshall Fox separately for the Vendor and Snelston Copper Mine Limited. Witnessed by Vincent H. Jackson, Solicitor, Hanley.

Document 9: Summary of Share Capital and Shares, dated 1 June 1911. Director Edwin Marshall Fox, 6 Charles Street, Berkeley Square, London, 1501 shares. Edwin Hawley, one share. Signed by E. Hawley, Secretary.

Document 10: Particulars.... of a mortgage or charge created by Snelston Copper Mine Limited a floating charge on the undertaking or property. Registered 22 January 1913. A mortgage debenture of £3 000, the property mortgaged being "The Company's undertaking and all its property present & future including uncalled capital." Mortgagee: Edwin Marshall Fox, 66 Victoria Street, Westminster. Signed: Sugden & Hexhall, 36 King Street, London EC, Solicitors for the Company.

Document 11: Certificate of the Registration of a Mortgage or Charge, 21 January 1913, created by Snelston Copper Mine Limited for securing the sum of £3 000.

Document 12: Summary of Share Capital and Shares, 15 December 1916. Director Edwin Marshall Fox, 66 Victoria Street, London, SW. Shareholders: Edwin Marshall Fox, Engineer, 1501 shares. Edwin Hawley, Solicitor's Clerk, one share. Herbert Stanley Sugden, 36 King Street, London, EC. Solicitor. One share. Signed Thomas F. Gardner, General Manager.

Document 13: Notice of Change in the Situation of the Registered Office. "...to Bush Lane House, Cannon Street in the City of London." Presented by A.J. Greenop & Co, Bush Lane House, Cannon Street, EC4. Signed Geo Robinson, Secretary, 9 March 1920.

Document 14: Return of Allotment, 8 March 1920 by A.J. Greenop & Co. Allottees: Greenop, Arthur James. Solicitor. One share. Neville, Ernest Herbert. Director of Companies. One share. Newbery, Robert Edwin. Solicitor. One share. Robinson, George Barling. Company Secretary. All of Bush Lane House, Cannon Street, London EC4. Signed: George Robinson, Secretary.

Document 15: Copy of the Register of Directors, 6 April 1920. Arthur James Greenop, The New Hermitage, 125 Central Hill, Upper Norwood. Solicitor (N.B. also director of a number of insurance companies). "In place of Edwin Marshall Fox (deceased)." Ernest Herbert Neville, 19 Broxholm Road, West Norwood. Solicitors Managing Clerk. Signed George Robinson, Secretary.

Document 16: Summary of Share Capital and Shares, 31 December 1921. Directors given as in Document 15. Shareholders given as in Documents 12 and 14. Signed George Robinson, Secretary, 27 April 1922.

Document 17: Special Resolution of Snelston Copper Mine Limited. "At an Extraordinary General Meeting...at Bush Lane House on 23 August 1922...and at a subsequent...Meeting at the same place on 7 September 1922... the following Resolution was duly confirmed as a Special Resolution. "That the Company be wound up voluntarily and that Mr Edwin Marshall Fox of 66 Victoria Street in the City of Westminster, be and is hereby appointed the Liquidator of the Company for the purpose of such winding up." Signed Ernest H. Neville, Chairman. Filed by A.J. Greenop & Co.

Document 18: Notice of the Appointment of Liquidator. "I, the undersigned, Edwin Marshall fox of 66 Victoria Street in the City of Westminster hereby give notice that by Special Resolution of the Company I have been appointed Liquidator of Snelston Copper Mine Limited. Signed: E. Marshall Fox, 18 September 1922.* Prepared for filing A.J. Greenop & Co.

*This signature bears positively no resemblance to the signatures of Edwin Marshall Fox which appeared on earlier documents.

Document 19: Request from the Registrar of Joint Stock Companies to E.M. Fox, Esq., The Liquidator, for a statement of receipts and payments. Signed H. Birtles, dated 25 October 1923. Sent to "The Liquidator of Snelston Copper Mine Limited, Bush Lane House." Marked "Not known Bush Lane House CS" and returned.

Document 20: As Document 19 but addressed to E.M. Fox, Esq., 66 Victoria Street, SW1, dated 25 September 1923. Marked "Gone Away" and returned.

Document 21: From the Registrar of Joint Stock Companies to Snelston Copper Mine Limited and to the Liquidator thereof at Bush Lane House: "...at the expiration of three months the name of your Company will be struck off the register and the Company will be dissolved. ...this Dissolution is subject to the proviso that the liability (if any) of every Director, Managing Officer and Member of the Company shall continue and may be enforced as if the company had not been dissolved." Signed C.C. Gallagher, 4 December 1928. Letter marked "Not known by Housekeeper" and returned.

Document 22: As Document 21 but sent to Snelston Copper Mine Limited and to E.M. Fox, Esq. the Liquidator thereof, 66 Victoria Street, SW1, dated 4 December 1928. Returned. **Document 23:** Snelston Copper Mine Limited: "This Company was dissolved... by notice in the London Gazette dated 23 March 1929." Signed C.C. Gallagher.

Document 24: Register of the Particulars of Mortgages and Charges &c of the Snelston Copper Mine Limited. More or less as Document 10 but unsigned and undated.

APPENDIX

Snelston Copper Mine Limited:- Company Records

Brief notes from the Company Records of Snelston Copper Mine Limited held in the Public Record Office, Kew (reference PRO BT31/19272/107913).

The document numbers recorded here are purely arbitrary and for the purposes of this paper.

Document 1: Memorandum and Articles of Association of Snelston Copper Mine, Limited. Incorporated 3 March 1910. A company limited by shares. Subscribers were listed as:

Edwin Marshall Fox, Westwood Manor, Wesley Rocks, Staffs. Mine Owner, (one share).

Edwin Hawley, 46 West Brampton, Newcastle, Staffs. Solicitor's Clerk (one share).

In the Articles: "The Company shall not offer any of its Shares or Debentures to the public for subscription."

Document 2: Declaration of Compliance with the Requirements of the Companies (Consolidation) Act, 1908. Made out by Vincent Hamilton Jackson of Hanley, Staffs, solicitor of the High Court. Signed: 2 March 1910. Registered: 3 March 1910.

Document 3: Statement of the Nominal Capital. Nominal Capital £10 000 divided into 10 000 ordinary shares of £1 each. Signed by E.Marshall Fox, Governing Director, 18 February 1910.

Document 4: Certificate of Incorporation.

Document 5: Notice of the Situation of the Registered Office of Snelston Copper Mine, Limited. "...is situated at the Snelston Copper Mine, Snelston in the county of Derby." Signed by E. Marshall Fox, Governing Director, 18 February 1910. Registered: 7 March 1910.

Document 6: Copy of the Register of Directors or Managers. Edwin Marshall Fox, Westwood Manor, Wesley Rocks, Stoke-on-Trent, Staffordshire. Esquire. Edward Stanley Weston, 53 Oakley Road, Islington, London. Accountant. Signed: Edward Stanley Weston, Secretary, 19 September 1910.

Document 7: Return of Allotments of Snelston Copper Mine, Limited. Allotments made 6 September 1910. "The consideration for which such Shares have been allotted is as follows:- For the purchase by the Company from Edwin Marshall Fox of all his right title and interest of and in a Take Note or Agreement for a lease of a copper and lead mine at Snelston in the county of Derby and all stock-in-trade, tools, plant and effects in and about the mine and premises. Fox, Edwin Marshall, Westwood Manor, Wesley Rocks, Stoke-on-Trent, Staffordshire. Esquire. 1501 ordinary shares allotted. Hawley, Edwin, 46 West Brampton, Newcastle-under-Lyme, Staffordshire. Solicitor's Clerk. 1 ordinary share allotted." Signed: Edward Stanley Weston, Secretary, 19 October 1910.

Document 8: Agreement of 6 September 1910. Between Edwin Marshall Fox and Snelston Copper Mine Limited. "...one of the principal objects of the company is to purchase all the right, title and interest of the Vendor in a certain license to search and mine for lead and copper in lands situate at Snelston and

Philip S. Jackman.