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ACCIDENTS IN THE FLINTSHIRE AND DENBIGHSHIRE LEAD MINES 1873–1914

by Christopher J. Williams

SYNOPSIS

Inspectors of mines provided detailed accounts of accidents in metalliferous mines between 1873 and 1914. This study considers the accidents reported in the mines of Flintshire and Denbighshire, where the biggest causes of accidental death were falls in shafts and falls of ground, and the Minera mines were the most accident-prone. The reports also provide useful information on the state of the mining industry.

INSPECTORS OF MINES

The Parliamentary papers published by the government in the 19th century supply a great wealth of data for the historian on contemporary life and industry. The historian of mining will find much material in a series of reports on the industry, perhaps the best known being the report of the Children's Employment Commission, 1842 — familiar on account of its illustrations of the terrible conditions suffered by children underground in coal mines — and that of the Kinnaird Commission, which reported on conditions in metal mines in 1864. These reports have been quarried as sources by writers for many years; extensive use was made of them for instance by A.K. Hamilton Jenkin in his classic study, *The Cornish Miner*, in 1927. Best known of all are the printed mineral statistics, from 1845, which have been published, area by area, by the University of Exeter Press.

It is a paradox that the Victorian age of *laissez-faire* capitalism, and minimal government involvement in industry, produced such a number of reports on working conditions. The 20th century, an age of nationalized industries and close involvement of government in industry and industrial relations (until the 1980s, at least), has produced no general reports on mining which compare with the immense detail given by the Kinnaird Commission. The same decline in detailed information can be seen in another official source, which has been little used in recent studies of metal mining — the annual reports of the inspectors of mines.

Inspectors were first appointed for coal mines by the Act for the Inspection of Coal Mines in Great Britain 1850, and their duties were extended to include ironstone mines by the Mines Regulation and Inspection Act 1860. Gladstone's first government made metalliferous mines liable to inspection under the Metalliferous Mines Regulation Act 1872, and slate mines were also brought into the fold by Gladstone's second government under the Slate Mines (Gunpowder) Act 1882. The inspectors produced printed annual reports on their areas (published as Command papers until 1919), frequently illustrated by plans, sections and drawings, and these individual reports were later preceded each year by a general report with statistical tables, etc. From

1873, the year of the first report, until 1914 the inspectors described the circumstances of each accident resulting in death or injury in their area in some detail, giving the names of all miners involved, and it is these descriptions which form the basis of this account of fatal accidents in Flintshire and Denbighshire. After the First World War, the reports describe accidents in a way which does not usually identify the mine concerned. Complete runs of the reports are rare, but are becoming more widely available on microfiche.¹

The mine inspectors were often men of wide education, experience and interests. A.H. Stokes, an inspector of coal mines, produced a well-known study, *Lead and Lead Mining in Derbyshire*, in 1880–2.² The Liverpool and North Wales district had as its inspector for twenty-one years an exceptionally able man, Clement Le Neve Foster (1841–1904). After a brilliant record in mining schools in Britain, France and Germany, he worked for five years for the Geological Survey before becoming lecturer to the Miners' Association of Cornwall and Devon, and Secretary of the Royal Cornwall Polytechnic Society. He reported on mines in Egypt, Venezuela and Italy before being appointed one of the first inspectors of metalliferous mines in 1872, and worked in Cornwall until he was transferred in 1880 to north Wales, where he remained, living in Llandudno, until 1901. As well as acting as an inspector, he was also, from 1890, professor of mining at the Royal School of Mines, and from 1894 he edited the mineral statistics and the inspectors' annual reports, in addition to writing a number of works on mining and quarrying. In his later years he was incapacitated by cardiac injuries he had received in 1897 when he investigated the cause of an underground fire at the Snaefell Mine on the Isle of Man, which formed part of his district. The cage became trapped in the shaft, and Foster and those with him were subjected to slow poisoning by carbon monoxide produced by the fire. Contemporary accounts attested to the courage with which, in the face of what seemed certain death, he noted his sensations for the benefit of science.³

The district Foster covered included not only north Wales and mid-Wales, with the addition for a time of Shropshire and the Isle of Man, but also mineral workings in Kent, Middlesex, Surrey and Sussex, presumably because he could reach these counties easily from London. This large area meant much travelling and a great deal of correspondence. In 1885 Foster noted that he had made 225 visits to mines in the year, and had travelled 9,570 miles, mostly by rail. His report for 1895 recorded that he had received 4,587 letters, telegrams, etc. during the year, and despatched 5,146, and these figures excluded the correspondence of his assistants.

The account of Foster's career in the *Dictionary of National Biography* records that '*though at the beginning of his inspectorship his energy in imposing novel restrictions and in insisting on the reform and improvement of existing methods was little appreciated by the mining community, he ultimately won in both his districts the esteem alike of miners and mine-owners.*' His reports are full of comments on the conditions in his district,

and attempts to improve matters. In 1889 he noted caustically that among persons giving him trouble were ‘*petty speculators who buy a small mine, and put a few men to work, with the sole object of selling the property to a “London company” at a great profit.*’ They wanted him to countenance breaches of the law, but he ‘*invariably refuse[d] to make the slightest concession to these gentlemen*’. But in the same year he protested against a resolution of the National Miners’ Conference that female labour at all mines should be prohibited. He pointed to the neat and tidy bal maidens on the dressing floors in Cornwall and said he would prefer his daughter to work on the floors rather than become a factory hand or seamstress. He made constant references to lack of investment in mining machinery, because of the unprofitable condition of the mines. In 1889 he noted that scarcely a mine in his district employed electricity, except for the Foxdale Mine on the Isle of Man. A few mines had telephones, and a Pelton wheel (the first, or one of the first, in the country) was being erected and giving great satisfaction at the Snowdon Mine. The report for 1898 gave a complete list of compressed air rockdrills in his district. There were 63 at work — 15 in Denbighshire, at Minera, 6 in Flintshire (2 each at Halkyn, North Hendre and South Halkyn), 2 in Caernarfonshire, 28 in Merioneth (mostly at the Oakeley slate quarry), and 12 on the Isle of Man.

In the period from 1845, when the mineral statistics begin, until 1938, Flintshire and Denbighshire together comprised the most productive orefield in Wales. During these years the area produced nearly a million tons of lead and zinc concentrates, more than any other orefield, apart from the northern Pennines, and equivalent to 13 per cent of the total British production of lead ore, and 27 per cent of that of zinc. The highest output of the 19th century came in the 1850s and 1860s, followed by a decline, then increased production in the last two decades of the century, and another steeper decline after 1910.⁴ The statistics of the number of men employed follow much the same pattern. In 1873, the first year of the inspectors’ reports, 1436 men were employed in the Flintshire and Denbighshire metalliferous mines, 999 of them underground and 437 at surface. (This represents a decline from earlier in the century: the census shows 2786 men at work in 1851.) After 1873, the numbers rose fairly steadily to a peak of 2201 in 1881, fell to 1150 in 1885, recovered to over 1500 in 1889–92, fell again to 1173 in 1894, and rose again to 2134 in 1899. They never again exceeded 2000, declining slowly to 1131 in 1909, and to 623 in 1914. That year is a convenient one to which to date the end of the traditional mining industry. By then, all the big mines had closed. Mining was at a very low ebb during the First World War, and ceased for all practical purposes in the early 1920s. It was to be revived in 1928 when the Halkyn District United Mines was formed to extend the Milwr Tunnel, driven at sea level from the Dee estuary at Bagillt. Over 600 were employed in the 1930s, but only 17 of these had worked previously at lead mines in the area, and of these, only 12 were fit for underground work.⁴

Few of the mines were major employers. For the years in which figures are available, only four employed over 100 men, and the number of mines doubled within a decade. Most of these mines were very small undertakings, employing only a handful of men.

Table 1. Mines and employment in Flintshire and Denbighshire 1873–82.

Year	Number of miners		Employing over 100 men			Great Holway
	Denbs.	Flints.	Minera	North Hendre	Talargoch	
1873	9	37				
1874	10	34				
1875	8	45				
1876	14	41				
1877	10	41	290	103	263	
1878	10	42	200	100	319	
1879	11	43	239	135	248	
1880	17	55	293	127	235	
1881	23	68	245	130	263	
1882	24	69	263	110	241	114

Source: Inspectors' Reports.

There are constant references in the inspectors' reports to the unprofitable nature of mining, and the lack of investment. In 1892, Foster reported that the lead-mining industry was passing through a severe crisis, for the price of lead was so low that few mines could pay their way, and still fewer make a profit. He feared that the number of mines would dwindle considerably. This situation he contrasted with that of the slate industry, where prices were rising and trade was more prosperous than for many years. There is some evidence that this had its effect on the accident statistics. In the first years for which figures are available, 1874–80, the average number of deaths per thousand in the Flintshire and Denbighshire lead mines, at 1.36, was slightly lower than the national figure of 1.61. But comparison of the death rates of the metal mines in north Wales with that in slate quarries shows a tendency for the figure to rise in the lead industry, while it declined in the slate.

Table 2. Death rate per thousand of metal miners and slate quarrymen in Liverpool and North Wales district 1875–1904.

Years	Denbighshire and Flintshire			Liverpool and North Wales	
	Underground	Surface	Total	Metals	Slate
1875-1884	1.55	0.15	1.11	1.24	2.07
1885-1894	2.55	Nil	1.51	1.00	1.77
1895-1904	2.44	0.23	1.32	1.71	1.07

Source: area figures from reports for 1901, p.52, and 1907, p.26; Flintshire and Denbighshire figures abstracted from annual reports.

ACCIDENTS 1873–1914

The reports for the years 1873–1914 detail 58 fatal accidents in the mines of Flintshire and Denbighshire, in which 69 men were killed. The account of each accident is reproduced below. Rarely do the reports give more detail than appears here, although local newspapers usually describe accidents at much greater length.

The accidents can be classified according to a table, used throughout the reports with only minor variations, and which is reproduced below. For ease of reference, a code for each type of accident has been added to the table by the writer, and quoted at the end of each entry.

Table 3. Causes of death in Flintshire and Denbighshire metal mines 1873–1914.

<i>Code</i>	<i>Cause of death</i>	<i>Men killed</i>
	Explosion of firedamp	—
FG	Falls of ground	12
<i>In shafts</i>		
S1	Overwinding	—
S2	Ropes and chains breaking	2
S3	While ascending or descending by machinery	8
S4	Falling into shaft from surface	—
S5	Things falling from surface	1
S6	Falling from part way down	13
S7	Things falling from part way down	6
S8	Miscellaneous in shafts	—
		[Total in shafts:30]
<i>Underground</i>		
U1	Explosion of gunpowder, etc	8
U2	Suffocation by gases	—
U3	Irruption of water	4
U4	Falling into water	1
U5	On inclined planes	—
U6	By trams and tubs	1
U7	By machinery underground	—
U8	Miscellaneous underground	9
		[Total underground: 23]
<i>On surface</i>		
T1	By machinery on surface	2
T2	Boilers bursting	—
T3	Miscellaneous on surface	2
		[Total on surface: 4]
		Total: 69

THE ACCIDENTS DESCRIBED

- 1 1873 Oct 20 MINERA, Denbs. *Edward Hughes*, aged 56. A small quantity of stuff fell down upon his back while he was sitting down in a level. [FG]
- 2 1874 May 27 MINERA, Denbs. *John Griffith*, labourer, aged 17. Fell into an ore crusher which tore away one of his legs. [T1]
- 3 1874 Sept 14 TALARGOCH, [Meliden], Flints. *Robert Roberts*, miner, aged 40. Fell down the shaft while attempting to move from one part of the cage into another. [S3]
- 4 1874 Dec 15 NANT UCHA, Abergele, Denbs, Ditton Brook Iron ore Co. *Robert Roberts*, miner, aged 40. Killed by the falling down the shaft upon the deceased of the signal hammer, which had not been securely fixed. [S5]
- 5 1875 Feb 5 PARK, Minera, Denbs, Park Mining Co. *John Oldfield*, miner, aged 58. Fell 4–5 yards. Probably lost his light leaving work and made a false step in the dark. [U8]
- 6 1875 Sept 1 MINERA, Denbs, Minera Mining Co. *Edward Bluett*, miner, aged 22. Breaking of a piece of timber which the deceased and his fellow workmen had recently set. [U8]
- 7 1875 Sept 15 MINERA, Denbs, Union Lead Mining Co. *Thomas Carrington*, aged 48. Was re-opening with several other miners on their own account a shaft abandoned for many years. While timbering, he trusted his weight to a piece of timber formerly used in securing the side. It was however so rotten that it broke and he fell to the bottom of the shaft. [S6]
- 8 1876 Sept 14 MINERA, Denbs, Minera Mining Co. *Evan Williams*, miner, aged 41. Falling on him of a large quantity of rubbish which he and his partners were picking over in the 170-yard level. It was supposed that timbering was neglected, but as the place could not be seen after the accident, no evidence could be obtained. [FG]
- 9 1877 Sept 5 HALKYN, Halkyn Deep Level Co, Flints. *Thomas Harris*, miner, aged 54. The stone lining of a shaft which the deceased and others were sinking came down on him. (The Duke of Westminster sent the man's widow £10.)[S7]
- 10 1878 Jan 5 DYFFRYN ALED, [Llansannan], Denbs, Dyffryn Aled Lead Mining Co. *Joseph Roberts*, miner, aged 21. Fell down a shaft; supposed to have tried to seize the rope employed in drawing stuff and missed it. He had been warned not to ride the rope when the cage was not attached. Fell 50 yards. [S3]
- 11 1878 April 1 HALKYN, Flints, Halkyn Deep Level. *W. M. Thornton*, mechanical engineer, aged 45. Suffocated in the fumes produced by firing of several charges of guncotton. He was experimenting, making a comparison of guncotton and dynamite, and returned too soon after the explosion. [U8]
- 12 1878 Dec 21 TALARGOCH, [Meliden], Flints, Talargoch Mining Co. *Evan Williams*, miner, aged 39. Explosion of a charge of dynamite. With his son [David], aged 15, he was boring a hole and preparing to use dynamite. It needed thawing, and the father proposed that while he did this by putting the stuff into a tin over a candle they should eat some bread and butter. They sat down on a barrow, and while doing so, the dynamite exploded with great violence. The father was hurled against the side of the level and killed. The son was thrown a considerable distance, but his only injury was that his existing deafness was increased. [U1] See Plate 1.

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- 13 1879 Jan 4 MINERA, Denbs. *Griffith Roberts*, shaftman, aged 42. Fell down a shaft from the 220-yard level to the bottom, a distance of 20 yards. [S6]
- 14 1879 Mar 22 TALARGOCH, [Meliden], Flints. *Edwin Jones*, miner, aged 23. Fell about 20 yards in Walker's Shaft. [S6]
- 15 1879 Oct 17 TRUE BLUE, [Holywell], Flints, True Blue Mining Co. *William Rees*, miner, aged 35. Fell from a chain ladder to the bottom of the shaft, a distance of about 5 yards. [S6]
- 16 1880 July 24 FRON FAWNOG, [Mold, Flints], Gwernymynydd Mining Co Ltd. *John Williams*, shaftman, aged 25. Fell through a hole in the platform in the engine shaft while screwing up a nut on the gland of a plunger. [S6]
- 17 1881 Mar 23 MINERA, Denbs. *Samuel Fairhurst*, fitter, aged 27, *William Roberts*, miner, aged 46, *Edward Benjamin*, miner, aged 34. Explosion of dynamite and blasting gelatine while preparing to make a large blast in an experimental drivage carried on with Captain Penrice's new boring machine. [U1]
- 18 1882 Jan 5 PANT-Y-RHES, Halkyn, Flints. *Joseph Goddard*, working a fan, aged 14. Fell from a perpendicular ladder while descending a shaft. (A little mine on Halkyn Mountain employing two men and a boy. Prosecuted, and £5 fine paid to the parents.) [S6]
- 19 1882 Sept 23 TALARGOCH, [Meliden], Flints. *Edward Jones*, shaftman, aged 30. Slipped while climbing round the main rod of the pumps with no other support than the staples of the plunger connexion, and fell down the shaft. [S6]
- 20 1882 Aug 25 PARRY'S [MINE], Halkyn, Flints. *John Lloyd*, shaftman, aged 44. Fall of a jog or struddle from 8 feet above him while sinking a shaft in loose ground. [S7]
- 21 1883 Mar 24 MINERA, Denbs. *William Evans*, ore dresser, aged 16. Neck broken while loading wheels with axles onto a railway waggon. [T3]
- 22 1884 Apr 18 TALARGOCH, [Meliden], Flints. *William Humphreys*, miner, aged 62. He was walking across some planks over some underhand stopes; slipped through a man-hole by which men went down into the stopes. [U8]
- 23 1885 Aug 18 MINERA, Denbs. *Robert Ellis*, miner, aged 47, *Edward Hughes*, miner, aged 24. Premature fall of ground which they were removing after a blast in an old abandoned pitch or working place. They were searching for zinc ore without the knowledge of the agents of the mine. [FG]
- 24 1885 June 12 MINERA. *Edward Jones*, miner, aged 56. Fall of 15 feet in some stopes from breaking of the planks of the temporary stage upon which he was standing. [U8]
- 25 1886 Sept 13 HALKYN, Flints. *William Jones*, blacksmith, aged 26. Drowned by the upsetting of a boat in a large underground cavern:-

A large underground cavern had been discovered at Halkyn Mine, and the agent made use of a small boat to explore it. After he went away a blacksmith, who, I am told, had never been in a boat before, jumped in out of pure curiosity, and when a little way from the shore of the underground pond foolishly stood up in his frail craft, which capsized and he was drowned. [U4]
- 26 1887 Jan 8 TALACRE, [Llanasa, Flints]. *John Griffiths*, miner, aged 29. Fell from a ladder while descending a shaft to his work. [S6]

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- 27 1888 Mar 28 RHOSMOR, Flints. *John Rogers*, miner, aged 34. While searching for a pitch he pulled down an old bunning or timber platform supporting rubbish. Stones fell on him and killed him. [U8]
- 1889 None.
- 28 1890 May 8 TALACRE, Flints. *Elias Jones*, aged 44, *William Morris*, aged 32, miner. They were standing on a wooden stage in a shaft hanging by four chains from a hempen rope when it broke and the men fell to the bottom of the shaft. The rope had two strands cut through, possibly due to injury from a blow. [S2]
- 29 1890 April 3 NORTH HENDRE, [Halkyn, Flints]. *Richard Edwards*, shaftman, aged 26. He and his partners prepared four shots in a crosscut and he set light to them. He got into the bucket with his partners, but jumped out for some unknown reason and said he would get under some timber. His companions had to ascend, and heard him fall into the water at the bottom of the shaft after the last shot had gone off. [S6]
- 30 1890 Aug 9 TALACRE, Flints. *Thomas Williams*, aged 45, *Robert Williams*, aged 47, and *Ishmael McDonald*, aged 56, miners. The first two were putting up a rise to drain some workings full of water, but had no advance boreholes. The water broke through and drowned them and McDonald, who was working in the level below. Another man was washed up the shaft 26 yards to the 120-yard level, and survived. [U3]
- 31 1891 April 25 HALKYN, Flints. *Joseph Jones*, aged 32, miner. Uncovered a hole in a level to tip a waggon into it, and fell through the hole while walking backwards. He fell 45 yards and fractured his skull. [U8]
- 32 1892 Jan 28 MINERA, Denbs. *Robert Davies*, miner, aged 23. Fall of part of the vein from the side of a stope about half to three-quarters of an hour after firing several shots. [FG]
- 33 1892 Dec 17 MILWR, [Holywell, Flints]. *Edward Williams*, shaftman, aged 42, *Edward Ellis*, shaftman, aged 40. Fall of a bucket-rod while changing a drop-clack. The men, although thoroughly experienced, were not doing their work in a careful manner. [S7]
- 34 1893 Apr 28 MINERA, Denbs. *Elias Jones*, miner, aged 49. Fall of a stage or bunning, from the rock under the head of one of the pieces of timber giving way. Jones was the taker of the bargain, and had himself put in the bunning a week before the accident. [FG]
- 35 1893 Jan 17 MINERA, Denbs. *David Hughes*, foreman timberman, aged 55. Although Hughes was one of the most experienced men in the mine, he fell into the shaft from the lodge or plat where he was standing. He had removed the fence in order to unload some timber which he was expecting immediately. [S6]
- 36 1893 Jan 19 HALKYN, Flints. *Henry Jones*, miner, aged 50. Set fire to the fuses of two holes charged with gelatine dynamite. He went back after a short time, but one hole had hung fire and exploded, killing Jones and injuring his companion. [U1]
- 37 1893 Apr 14 LLANFAIR TALHAEARN, Denbs. *Robert Lloyd*, miner, aged 33. Had charged two holes in an end. The candle fell off one, but he saw the fuse of the other spit. He retired and came back to relight the second fuse, but it had taken fire and inflicted terrible injuries on his head and body. [U1]

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- 38 1894 May 21 TALACRE, Flints. *John Pritchard*, miner, aged 29. Fall of a rider or guiding frame for a bucket in a shaft being sunk. [S7]
- 39 1895 Jan 10 SOUTH LLYNYPANDY, Mold, Flints, Thomas Smith and James Dixon, owners. *Robert Jones*, miner, aged 55. Fall of part of the roof of the level he was driving. He fired two shots with a partner, and just as they returned a large stone fell from the roof, killing him instantly. [FG]
- 40 1895 Dec 3 HALKYN, Flints, Halkyn Mining Co. *Thomas Salisbury*, miner, aged 57. Fall of a piece of stone from the footwall of a rise. The stone fell 16 yards. [FG]
- 41 1895 Feb 22 MINERA, Denbs, Minera Mining Co. *Jonathan Jones*, aged 19, kibble filler. While sending a waggon slung in a chain down a shaft from one level to another he fell 45 yards. It was supposed that he intended to descend in the waggon, and slipped getting in. [S6]
- 42 1896 Aug 1 HALKYN, Flints, Halkyn Mining Co. *John Stealey*, aged 61, miner. Unexpected fall of the side of his working place, while he was throwing lead ore into a shoot for filling waggons. Killed on the spot. [FG]
- 43 1896 Jun 2 EAST HALKYN, East Halkyn Mining Co. *Isaac Stealey*, aged 24, labourer. His head struck against the roof of an inclined shaft, while he was being drawn up seated upon a waggon. He was riding in contravention of orders. Killed on the spot. [S3]
- 44 1896 Aug 21 PENYBRYN, Halkyn, Flints. *David Hodgkinson*, aged 31, miner. Drowned by an irruption of water from old abandoned workings. The agent was to blame. Four men were driving a level from a new shaft, and hit a flooded level from an old abandoned shaft, not investigated by the agent. They watched the water for some time, then got into the kibble and rang violently to have it wound up. One fell from the kibble and was drowned. [U3]
- 45 1896 Nov 27 FREEHOLD AND EAST HOLWAY, Holywell, Flints, H. Hotchkiss, owner. *David Thomas*, aged 60, miner. Fell a distance of about 4 feet while descending some stopes by means of the cross-timbers (stemples), and struck against the side of the excavation, fracturing a rib. He walked home but pneumonia set in and he died on 7 December. [U8]
- 46 1896 Jan 29 MINERA, Denbs, Minera Mining Co. *William Smith*, aged 17, labourer. Stepped backwards and put his foot between the projecting bars across the hopper above some crushing rolls. His foot and leg were badly crushed. He died the same day. [T1]
- 47 1897 Jan 29 SOUTH HALKYN, Flints, South Halkyn and Rydymwyn Mining Co. *Benjamin Davies*, aged 30, miner. A stone fell on him while he was at the bottom of a shaft 100 yards deep, which was being sunk, and inflicted injuries from which he died three days later. The stone was probably from a bucket just sent up full. [S7]
- 48 1897 March 24 NORTH HENDRE, [Halkyn], Flints, North Hendre Lead Mining Co. *Abel Williams*, aged 63, miner. Was at the side of a level when a tram-waggon going down a steep gradient at a great speed went off the rails and struck him, killing him instantly. [U6]
- 49 1898 Feb 11 NEW PANT Y NE, Holywell, Flints, W. H. Arnott, owner. *Thomas Jones*, aged 62, miner. Unexpected fall of a stone weighing 3–4 cwt from the roof of a level where he was commencing an overhand stope. He died in a few hours. It took 3½ hours to get him out by winding him with a rope round his shoulders up two shafts. Only a leg was broken, but he died in a carriage on the way to Chester Infirmary. [FG]

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- 50 1898 Aug 11 MINERA, Denbs, United Minera Mining Co. *John Williams*, aged 60, *Simon Hughes*, aged 58, both timbermen. Killed by 30 tons of loose stuff when driving through loose ground. [FG]
- 51 1899 April 15 MINERA, Denbs, United Minera Mining Co. *Isaac Douglas*, aged 44, miner. Contrary to regulations, rode up a short intermediate shaft in a cage, the use of which was forbidden for raising and lowering persons. An unauthorised person attended to the engine; he became confused and moved the wrong lever, so that the cage, with its occupant, was dashed to the bottom, a distance of 25 yards. [S3]
- 52 1899 Mar 30 EAST HALKYN, Flints, East Halkyn Mining Co. *Richard Edwards*, aged 50, timberman. While he was repairing an inclined shaft, he somehow fell to the bottom, a distance of 25 yards. Killed on the spot. [S6]
- 1900 None.
- 53 1901 Feb 6 MINERA, Denbs, United Minera Mining Co. *John Foulkes*, aged 30, miner, *David Davies*, 28, miner, *Donald Douglas*, 22, miner, *Enoch Jones*, 36, miner. While they were descending one of the main shafts in a cage, the bar by which it was suspended from the rope broke; they were precipitated to the bottom of the shaft and killed instantly. [S3]⁵
- 54 1901 Jul 3 GREAT HOLWAY, Holywell, Flints, Henry Hotchkiss, owner. *Robert Williams*, aged 66, miner. While he and another miner were descending the shaft by the ladderway, one of the platforms gave way and fell to the bottom of the shaft, carrying deceased and his mate with it a distance of 28 yards. Williams was killed on the spot, but his mate escaped with comparatively slight injuries. [S6]
- 55 1901 Jun 4 MINERA, Denbs, United Minera Mining Co. *William James Jones*, aged 17, labourer. He fell from the top of a wall and was run over by a truck drawn by a locomotive. He died two hours later. [T3]
- 1902 None.
1903 None.
1904 None.
- 56 1905 Jan 9 MILWR, Holywell, Flints, Holywell-Halkyn Mining Co. *Edwin Thomas*, aged 55, miner. While he was unramming a misfired shot of gelatine dynamite it exploded. Killed on the spot. Another person was injured. [U1]
- 1906 None.
1907 None.
- 57 1908 Jun 1 MINERA, Denbs, United Minera Mining Co. *William Davies*, aged 56, miner. The timber bunning in an old disused level gave way as he walked along it. He fell a depth of 18 yards. Killed instantaneously. [U8]
- 1909 None.
1910 None.
- 58 1911 Apr 10 BRYNCELYN, [Mold], Flints, South Halkyn and Rhydymwyn Mining Co. *George Jones*, aged 41, shot-lighter. Returned repeatedly to the working face after firing charges of blasting gelatine, some of which were not completely detonated. Died on the morrow of injury to the heart and lungs from breathing noxious gases. [U1]
- 1912 None.
1913 None.
1914 None.

DISCUSSION

Most of the accidents described above involved a single fatality. In lead-mining, one does not find the major disasters caused by explosions which occurred so frequently in collieries, well within living memory. At Gresford Colliery in Denbighshire the disastrous explosion in 1934 killed 264 men — nearly four times as many men as perished in lead mines in the forty-year period under review. The worst accident in a 19th-century lead mine in Flintshire and Denbighshire before the mine inspectors' reports begin was at Bryngwiog, Halkyn, in 1862, in which 16 miners were killed when they accidentally broke into old flooded workings.⁶ The men killed in the accidents varied in age from 14 (no.18) to 66 (no.54). Miners aged under 16 were very rare underground, and it is significant that the accident which killed the 14-year-old happened at one of the small mines on Halkyn Mountain.

The causes of the accidents can be divided into four main groups: falls of ground, accidents in shafts, accidents underground, and accidents on surface. The biggest single cause of fatalities was falling in shafts (13 deaths), followed closely by falls of ground (12). Two detailed studies of such accidents in other areas have appeared, both by Ivor Brown, and drawing on data up to 1939.⁷ Comparison of the Flintshire and Denbighshire accidents with those in the other two areas studied, Shropshire and Derbyshire, is revealing. The causes of accidents in the neighbouring Shropshire mines were broadly similar to those in Flintshire and Denbighshire, but those in Derbyshire were quite different. Here, the largest cause of death was falls of ground (17 out of 47 accidents), but this was closely followed by explosion of firedamp (13 deaths). Deaths from explosives were similar in number, but shaft accidents (7) were fewer than in the Welsh mines. Comparison with other areas might reveal other local variations.

Falls of ground, which caused nearly one fifth of the Flintshire and Denbighshire fatalities, can in some cases (Accidents nos 8, 23, 34) be attributed to neglect of timbering, or to looking for ore in abandoned workings. Three accidents (nos 23, 32, 39) occurred shortly after explosives had been used. One man did not die from the immediate effects of the accident, which only broke his leg (no.49), but from the 3½ hours which it took to get him from the workings. He was wound up two shafts with a rope round his shoulders, and died in a carriage on his way to hospital in Chester.

Accidents in shafts included the one to cause the greatest loss of life in the area during the period under review. This was at Minera, in 1901 (no.53), when the bar suspending the cage broke, and four men were killed. The only other mine where men were raised and lowered to their work in cages, Talargoch, suffered one fatality when a miner fell down the shaft while attempting to move from one part of the cage to another (no.3). At Minera, rules expressly forbade miners to ride in kibles, or on top of the cage.⁸ In four other cases (nos 10, 41, 43, 51) men were killed by such practices. The temptation to avoid climbing ladders, particularly at the end of a shift, must



Scene of fatal accident at the Talargoch Mine, Flintshire, involving explosion of dynamite, 1878 (Accident No.12). (Public Record Office, Power 7/14).

have been strong. Two men were killed in one accident (no.28) when a rope broke. Thirteen men were killed by falls in shafts, either from ladders or while working (nos 7, 13–16, 18, 19, 26, 35, 41, 52, 54). The most remarkable was at North Hendre, in 1890 (no.29), when a man jumped from a bucket after shotfiring, and was killed in the explosion. Things falling in shafts killed six men (nos 9, 20, 33, 38, 47), mostly in cases where the shaft was being sunk at the time. Most remarkable of all of the shaft accidents was the case of the miner killed at the Nant Ucha iron mine in 1874 (no.4), when the signal hammer fell on him!

The greatest single cause of accidents underground was the careless handling of explosives. Two bad accidents, in 1878 and 1881, happened when miners used the newly-introduced high explosives, to which they had not become accustomed. In the first, at Talargoch (no.12), a miner was killed trying to thaw out dynamite over a candle. (A miner at Minera lost a hand doing the same thing in the previous year.) For some reason, the inspector, T. Fanning Evans, saw fit to include a drawing of the scene of the Talargoch accident in his report (Plate 1). This is probably the earliest authentic depiction of miners at work underground in north Wales. Four other accidents (nos 36, 37, 56, 58) occurred through errors in shotfiring. Four men were killed by irruption of water, the cause of a much greater disaster at Bryngwiog in 1862, when 16 men were killed. In the first, at Talacre in 1890 (no.30), one man had an incredibly lucky escape when he was washed 26

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yards up a shaft to a higher level. Both accidents were caused by failure to take precautions in areas where flooded workings could be expected. Another extraordinary accident, at Halkyn in 1886 (no.25), happened when the mine blacksmith explored a recently-discovered underground lake — perhaps the first caving fatality in north Wales! Miscellaneous causes resulted in nine deaths underground, four of them (nos 6, 22, 24, 57) when timbers gave way.

Work at the surface was always much less dangerous than underground. Four fatalities were reported. Two particularly horrifying accidents happened at Minera, over twenty years apart (nos 2, 46), when labourers fell into crushing rolls and were fatally injured.

In the years 1890–5, the reports gave the hour of the man's shift in which the accident occurred, and, for most of these years, the time of day also. These details show that most accidents happened later in the shift (the great majority in the fifth, sixth and seventh hours), when the miner was likely to be tired, and as a result careless.

One revealing statistic is that of the number of accidents at individual mines, especially the larger ones.

Table 4. Accidents at individual mines 1873–1914

Mine	Deaths	Mine	Deaths
Minera	26	Milwr	3
[1873–84:	9]	North Hendre	2
Talacre	7	East Halkyn	2
Halkyn	7	Holway	2
Talargoch	5	Others	15

As can be seen from the table, over one third of the accidents recorded happened in the Minera mines, managed by John Taylor and Sons. Minera was, of course, a big mine, which worked right through the period under review. Even so, if comparison is made between Minera and Talargoch, another deep mine of broadly comparable size, which closed in 1884, the accident rate at Minera was more than double. It is significant that the largest mine in Derbyshire, Mill Close, suffered only seven fatalities in the years 1873–1914 (five of them in one accident in 1887), and none at all in 1873–84.⁹ This must be indicative of more dangerous working conditions at Minera.

Lastly the point should be made that fatal accidents inevitably attract attention, in any age, because of their spectacular nature. However, the major threat to the health of the miner was not fatal accidents, but the less obvious dust diseases, or pneumoconioses. Although Agricola, in *De Re Metallica* (1556), had noted that dust in dry workings gave the miners breathing difficulties and caused consumption, it was only in the very early years of this century that the British mining industry recognized this as a fact. The

introduction of rockdrills in increasing numbers caused a marked increase in lung diseases among the miners. C. Le Neve Foster, when inspector of mines for Cornwall, played a significant part in recognizing the dangers of dusty working conditions. Rocks rich in free silica, such as chert, were most dangerous to health, and the Flintshire miners, who frequently worked in chert, were especially at risk.¹⁰

The study of the accidents recorded by the inspectors of mines provides interesting details of working conditions in individual areas, and further studies of other mining regions, and of the statistics for the country as a whole, would be very welcome. One drawback is that the inspectors' districts usually covered a much larger area than an individual orefield such as Flintshire and Denbighshire. This makes it necessary to identify the accidents for these orefields by working systematically through the reports, as has been done in this study — a very time-consuming process. Nevertheless, the reports are an important and informative source, and deserve further research.

REFERENCES

- 1 In preparing this article I have used copies of the reports in the Public Record Office, Ministry of Power records (Power 7), British Library (Official Publications Library), and the microfiche copies of the latter set in the National Library of Wales.
- 2 Originally published in instalments by the Chesterfield and Derbyshire Institute of Mining, Civil and Mechanical Engineers. Reprinted by the Peak District Mines Historical Society, 1964, 1973.
- 3 For Foster's career see the Dictionary of National Biography and sources cited therein.
- 4 C.J. Williams, "The Lead Miners of Flintshire and Denbighshire", *Llafur* (Journal of the Society for the Study of Welsh Labour History), Vol.3 No.1 (1980), p.87.
- 5 For a description of this accident and the inquest, see Glyn Davies, *Minera* (1964), pp.29-35.
- 6 Kinnaird Commission report, PP 1864 (3389) XXIV Pt.II, p.479.
- 7 Ivor J. Brown, "Mine Fatalities in the Derbyshire Metalliferous Mining Area 1874-1939 inclusive", *Bulletin of the Peak District Mines Historical Society*, Vol.4 Pt.1 (1969), pp.59-66; "Mine Accidents in the South Shropshire Metalliferous Mining Area, 1875-present", *Shropshire Caving and Mining Club Journal* (1971-2), pp.43-51.
- 8 Inspector's report for 1876, p.360.
- 9 Brown, "Mine Fatalities in the Derbyshire Metalliferous Mining Area ...", pp.62-3.
- 10 R.A. Williams, "The High Mortality of British Metal and Slate Miners and Beliefs about the Causes (1556 to 1904)", *British Mining*, No.34 (1987), pp.18-33.

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