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THE "OHIO" ("GREAT EAST BALDWYN", OR "MANX") MINE, THE WEST BALDWYN MINE, AND THE ABBEYLANDS MINE, ISLE OF MAN

A Case Study in Small Scale Nineteenth Century Speculative Mining

D.B. Hollis

SYNOPSIS

Three small mines in the slate hills of the Isle of Man were prospected intermittently from about 1855 *to about* 1883. *The apparent similarities between the veins seen in them and those noticed in such rich mines as Laxey and Foxdale led to prolonged and expensive trials with little or no financial return. The geology and history of these mines, together with agents' reports and prospectuses for share issues are discussed. The geological reasons for the failure of these mines are considered.*

Visits by present day mining history research groups are reported.

Introduction

The Isle of man was in the past a major mining area, mainly on the strength of two mines - Great Laxey lead mine, and Foxdale mine. The former survived into the twentieth century on account of its zinc, the latter because of zinc and silver. During their heyday, almost every other vein which was discovered in the Isle of Man was dug in the hope of finding similar riches. As a result, the hills and valleys of the island are full of about a hundred small trials and mines. Most of these turned out to be a waste of money based on false optimism generated by the success of Laxey and Foxdale.

Such mines existed in the Baldwyn valleys to the north and west of Douglas in slate hills. Here, north-south running veins had been seen in the stream beds. The glowing reports on behalf of the mining companies stand in contrast to the reports of impartial observers. They were never large mines, but were typical of many small investigations in the Island, northern England, and elsewhere, in the period 1850 - 1880, when metal mining had its heyday. The largest of the three was known as "Ohio" or "Great East Baldwyn", the names being chosen because of their connotations with famous mines or mining areas of that period in history. The two others were small scale speculative ventures by companies which had larger mines elsewhere on the Island.

The geology and geography of the area

Four or five miles north west of Douglas lies a system of three valleys running approximately NNE-SSW. The rivers from these flow into the river Glass which flows in an approximately NNW-SSE direction towards Douglas. The three valleys dissect a plateau of original height about 300 metres. Although there is a deep cover of glacial drift, outcrops here and there, and the deep cut

of the valleys (about 150 metres) reveal the underlying Ordovician or Silurian slates (11a, b also 1). The dip of these is steep (often over 60°) and the strike is irregular - anywhere from NW-SE to NNW-SSE.

The three mines are located as shown in Figure 1. In the most easterly valley a stream - the Sulby river - flows to the village of Abbeylands. About 1000 metres north of the village lies the Abbeylands mine. The middle valley – East Baldwyn - contains the largest mine - the Ohio mine. The river joins the river Glass, like the Sulby river. The Ohio mine lies about 1500 metres further north than the village of Baldwyn, but is in the East Baldwyn Valley. The most westerly valley - the West Baldwyn valley - is known by most people these days for its large reservoir which acts as the water supply to Douglas. The river Glass flows down this valley to Baldwyn Village before turning towards

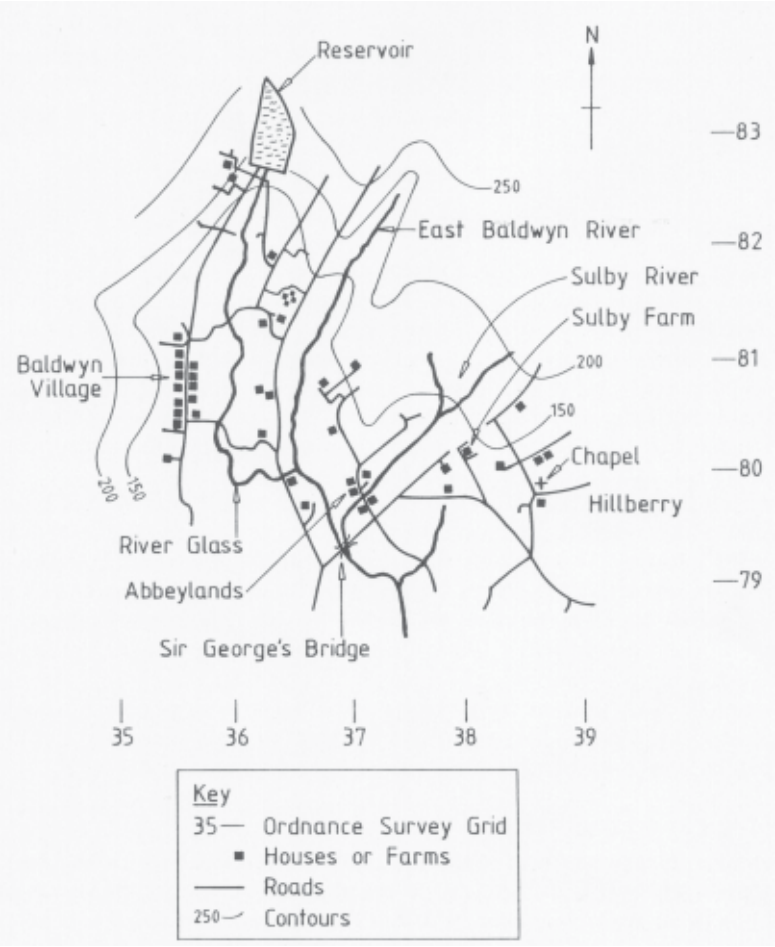


Fig. 1. *Map of the Baldwyn-Abbeylands area*

Douglas, and joining the rivers Sulby and Baldwyn. The (West) Baldwyn mine lies close to and just north of Baldwyn village.

The geology and mineralogy of the veins have been described by Lamplugh.[1] In the Isle of Man there are two sets of veins. The north-south veins, and their accompanying east-west shear zones are well-known from such mines as Bradda (near Port Erin), which contained copper, lead, and silver, with some zinc. Unfortunately the veins investigated in two of the three mines studied here were aligned parallel to or perpendicular to the main NE-SW caledonide mountain axis of the Island. Few if any of these ferruginous quartz veins have yielded anything of value. Many more failed trials of these veins exist all over the Island. The reason for this differing degree of mineralisation between the two sets of veins is not clear, even with over a hundred years of hindsight and experience. The NE-SW axis is a result of tectonic folding in Devonian times.[11a,b] The veins seem not to have been examined for lenticular distortion of the quartz intrusions, so their date of emplacement - Devonian or later – is still a matter of speculation.[17] However, the lower Carboniferous basement rocks of the Castletown area of the Isle of Man do contain quartz boulders and iron staining.[12] The irregular nature of the boulders and the highly reduced state of the iron oxide (hematite?) suggest short distance of transport, and therefore a possible origin in the Manx hills in Devonian times. It would appear, from work done in the North of England, Ireland and elsewhere[13-17] that the north-south geofractures and their east-west shears appeared during Carboniferous-Permian times. Whether or not their quartz-calcite mineralisation, with copper, lead, and zinc originate from the underlying Devonian (Caledonide) granites is still a debated subject.[17] Thus, of the three mines, only "Ohio" stood a good chance of producing ore. The other two mines were on veins of the NW-SE system, which appear to be weakly mineralised in sulphides,[1,17] and rich in iron and "dowk" (soft, iron-rich clay which goes blue and decomposes on exposure to the atmosphere) which probably originate from tertiary 0Iivine-diorite[1,17] filling of cracks of Caledonide origin.

It is worth noting that the veins which generally lie NW-SE, or at right angles to that, seem to be compression faults, and that the N-S fissures look like tension cracks, the E-W ones being shear zones.

Crushed and disturbed ground, and narrow veins filled with "dowk" or fluccan - both probably derived from the country rock - are common in the NW-SE veins. By contrast, the north-south, or east-west veins, although sometimes dowky, almost always contain quartz, calcite, and metal minerals. Slickensides are present at faults, but crush zones are fewer. Therefore these would appear to be tension cracks which one is tempted (because of their Permian age) to associate with the opening of the Atlantic ocean. The fissures would thus be larger and give a better escape for the mineralised fluids. Some idea of the width and depth of these can be gained not only from the extent of the Foxdale and Laxey workings, but also from the up to three metre wide and several hundred metre deep cracks at the chasms, near Port St. Mary (SC 200668).

The "Ohio" (East Baldwyn) mine is described by Lamplugh[1] as being in the "East Baldwyn Valley on the east bank of the (Baldwyn) river, 50 yards north of the (now disused and ruined) mill at Ballawyllin". (OS grid reference SC 368821). "It seems to have been commenced [by the Foxdale Mining Company] in 1866, and furnishes another example among Manx mines of long and costly working with the most insignificant result". [Actually, a previous company had done some work in about 1850-1855.]

In 1866 a small shaft was sunk on an indistinct vein by the new company. In 1867 a surface discovery at the mine caused unwarranted excitement in Douglas in 1868, a very confused lode barren of ore had been exposed 10 fathoms (about 20 metres) down the shaft. In 1869, the mine was down to 35 fathoms, but only a little good ore had been met with at the 25 fathom level. The disturbed ground continued to 35 fathoms where a puzzling junction of veins existed. In 1870 the lode was being cut in the 50 fathom level, but ore was only being obtained from a sump in the 35 fathom level. Later, the shaft was sunk to 60 fathoms. Then a level was driven on the 50 fathoms depth, 25 fathoms long, where, at the end some zinc ore was found. In 1872, with the shaft at 72 fathoms, much driving of levels had revealed nothing on either the east-west or the north-south running veins. In 1873, the 70 fathom level had been driven east and west in black clay, and revealed nothing. In 1874 the mine had stopped.

However, a third company, the "Manx Silver-Lead Mining Company Limited" was then formed, and by 1876 a little ore had been scraped off the original bunch, in the 36 fathom level. In 1878, the shaft was at 92 fathoms, but the intention to go to 104 fathoms seems to have never been fulfilled.

Burt *et al.*[2] have collated the mineral statistics for this and other Manx mines. The change in ownership from Baldwyn Mining Company Limited (agent Edward Bawden, later Thomas Bawden of Foxdale [Isle of Man] connection) to that of the Manx Silver Lead Mining Company Limited (agent Thomas Ollis) around 1874 is clearly evident. So are the small returns for the mine:

	Lead Ore	**Lead Metal**	**Silver**	**Value**
Year	**ton**	**ton**	**oz**	£
1872	9.50	7.10		?
1873	No detailed returns, until 1877			
1877	9.00	6.70	34.00	137.20
1878	6.00	4.50	97.00	90.00

	Zinc Ore	**Metal**	**Value**
Year	**ton**	**ton**	£
1877	29.40		111.90
1878	10.00		37.50

Towards the end of its life, the mine had as agent John Crowe. The Crowe family were a prosperous farming family in East Baldwyn and were involved also with the Maughold iron mines in the north east of the Isle of Man. They

and their descendants were regular attendees of East Baldwyn Methodist Church until its closure during the 1960s.

However, the mine could not have remained profitable, because the mineral statistics show no entries for it beyond 1883, when work was suspended.

The mine had offices in Liverpool during its third ownership. The reports of the Mines Inspectorate[3] by T.F. Evans, later Dr. Le Neve Foster, give, for 1877

> "Manx Silver Lead Co.
> 4 Cable Street, Liverpool.
> Ohio Mine, East Baldwyn,
> Agent Thomas Ollis."
> and, in contrast to the "mineral statistics" quote the output for that year as:
> lead ore 5 tons, zinc ore 7 tons.

For 1878, the Reports give

> "Manx Silver Lead Co.
> Manx Mine, East Baldwyn
> Agent John Crowe"

and again quote output different from the "mineral statistics" for 1878:

> lead ore 3.5 tons, zinc ore 6.0 tons.

For 1879, up to 1883, when it appears for the last time, it is listed as:

> Manx Silver Lead Mining Co. Ltd."
> Manx Mine, East Baldwyn
> 40 North John Street, Liverpool
> Agent, John Crowe"

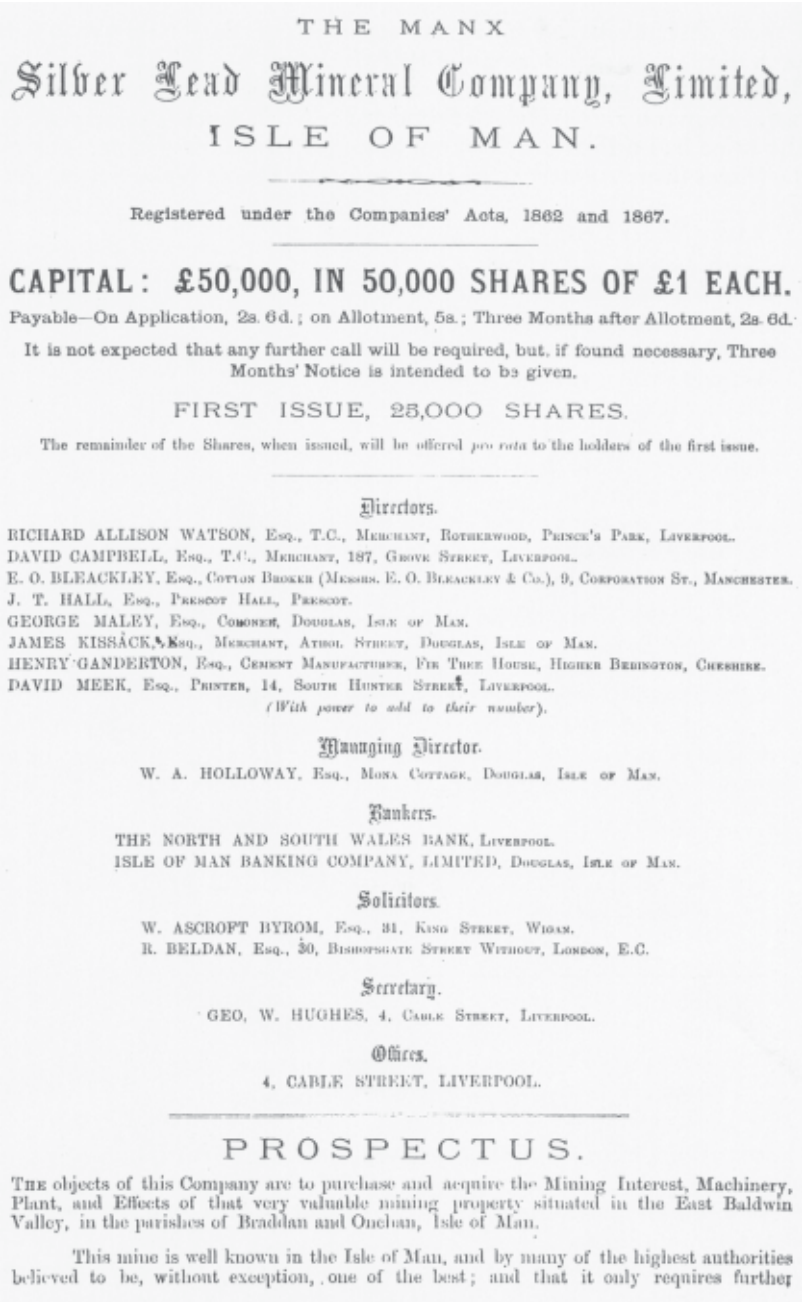
In 1883, the output, and number of persons employed, are both zero.

Some idea of the scale of the working and the type of operation can be gained from employment figures given in the Mines Inspectors' reports.[3] Thus, we have

Year	Below Ground	Above Ground
1877	12 persons	2 persons
1878	12 persons	2 persons
1879	0 persons	0 persons
1880	Not listed	
1881	Not listed	
1882	0 persons	1 person
1883	0 persons	0 persons

Almost all the effort was underground, indicating that the mine never left the exploration and prospecting stage of its existence. Surface plant, and ore processing would appear, both from the output returns, and the employment figures, to be minimal.

To be fair to the prospectors of those times, less was known then than is now about veins and their likelihood of mineralisation. Why many mines in the central northern area of the island (Montpellier, Kirk Michael, Abbeylands, Baldwyn Village, to name a few) produced so little is a geological phenomenon



THE MANX

Silver Lead Mineral Company, Limited,

ISLE OF MAN.

Registered under the Companies' Acts, 1862 and 1867.

CAPITAL: £50,000, IN 50,000 SHARES OF £1 EACH.

Payable—On Application, 2s. 6d.; on Allotment, 5s.; Three Months after Allotment, 2s. 6d.

It is not expected that any further call will be required, but, if found necessary, Three Months' Notice is intended to be given.

FIRST ISSUE, 25,000 SHARES.

The remainder of the Shares, when issued, will be offered *pro rata* to the holders of the first issue.

Directors.

RICHARD ALLISON WATSON, Esq., T.C., Merchant, Rotherwood, Prince's Park, Liverpool.
DAVID CAMPBELL, Esq., T.C., Merchant, 187, Grove Street, Liverpool.
E. O. BLEACKLEY, Esq., Cotton Broker (Messrs. E. O. Bleackley & Co.), 9, Corporation St., Manchester.
J. T. HALL, Esq., Prescot Hall, Prescot.
GEORGE MALEY, Esq., Colonel, Douglas, Isle of Man.
JAMES KISSACK, Esq., Merchant, Athol Street, Douglas, Isle of Man.
HENRY GANDERTON, Esq., Cement Manufacturer, Fir Tree House, Higher Bebington, Cheshire.
DAVID MEEK, Esq., Printer, 14, South Hunter Street, Liverpool.
(With power to add to their number).

Managing Director.

W. A. HOLLOWAY, Esq., Mona Cottage, Douglas, Isle of Man.

Bankers.

THE NORTH AND SOUTH WALES BANK, Liverpool.
ISLE OF MAN BANKING COMPANY, LIMITED, Douglas, Isle of Man.

Solicitors.

W. ASCROFT BYROM, Esq., 31, King Street, Wigan.
R. BELDAN, Esq., 30, Bishopsgate Street Without, London, E.C.

Secretary.

GEO. W. HUGHES, 4, Cable Street, Liverpool.

Offices.

4, CABLE STREET, LIVERPOOL.

PROSPECTUS.

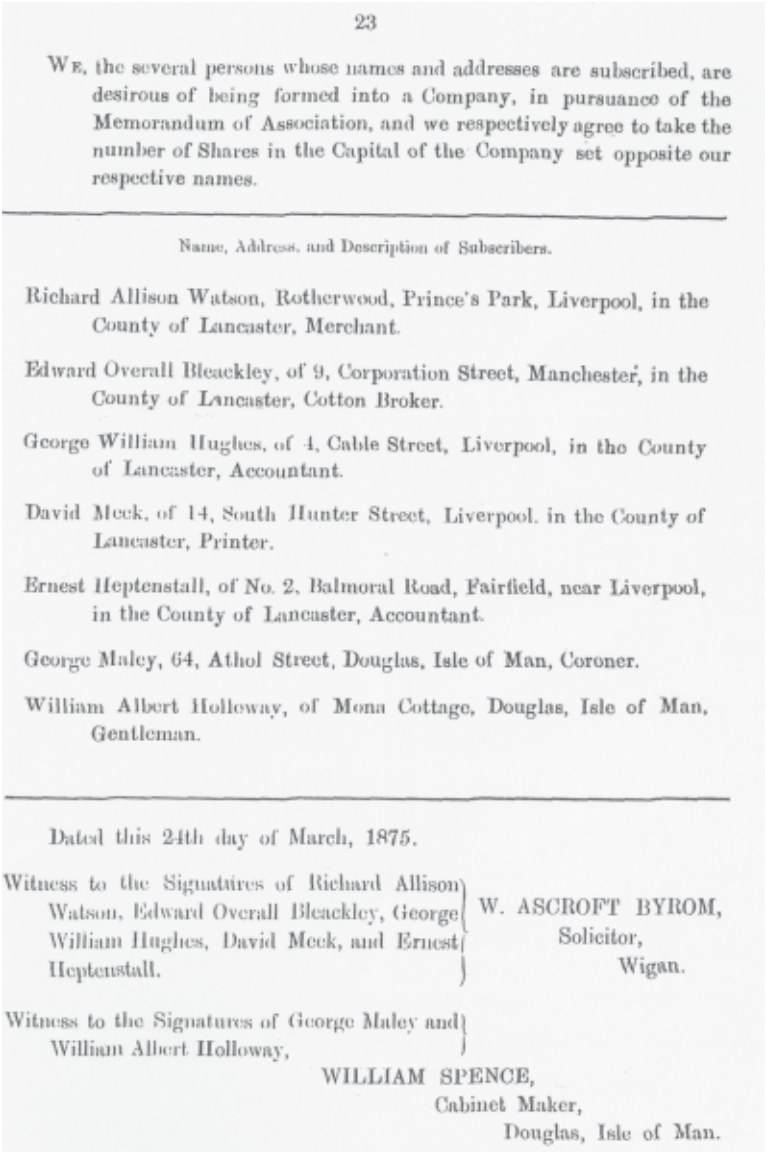
The objects of this Company are to purchase and acquire the Mining Interest, Machinery, Plant, and Effects of that very valuable mining property situated in the East Baldwin Valley, in the parishes of Braddan and Onchan, Isle of Man.

This mine is well known in the Isle of Man, and by many of the highest authorities believed to be, without exception, one of the best; and that it only requires further

Fig. 2. *Prospectus for the Manx Silver Lead Company 1875.*

not explained fully, even in our own time. The consultants insistence on going ever deeper is not without precedent. For example, some of the best ore at Great Laxey was found at depth in the Engine and Dumbbell's shafts,[4] and Bishop's Barony (Ellerslie) was found to increase silver content with depth.[1]

Despite the foregoing, one is still left with prospectuses and consulting



23

We, the several persons whose names and addresses are subscribed, are desirous of being formed into a Company, in pursuance of the Memorandum of Association, and we respectively agree to take the number of Shares in the Capital of the Company set opposite our respective names.

Name, Address, and Description of Subscribers.

Richard Allison Watson, Rotherwood, Prince's Park, Liverpool, in the County of Lancaster, Merchant.

Edward Overall Bleackley, of 9, Corporation Street, Manchester, in the County of Lancaster, Cotton Broker.

George William Hughes, of 4, Cable Street, Liverpool, in the County of Lancaster, Accountant.

David Meek, of 14, South Hunter Street, Liverpool, in the County of Lancaster, Printer.

Ernest Heptenstall, of No. 2, Balmoral Road, Fairfield, near Liverpool, in the County of Lancaster, Accountant.

George Maley, 64, Athol Street, Douglas, Isle of Man, Coroner.

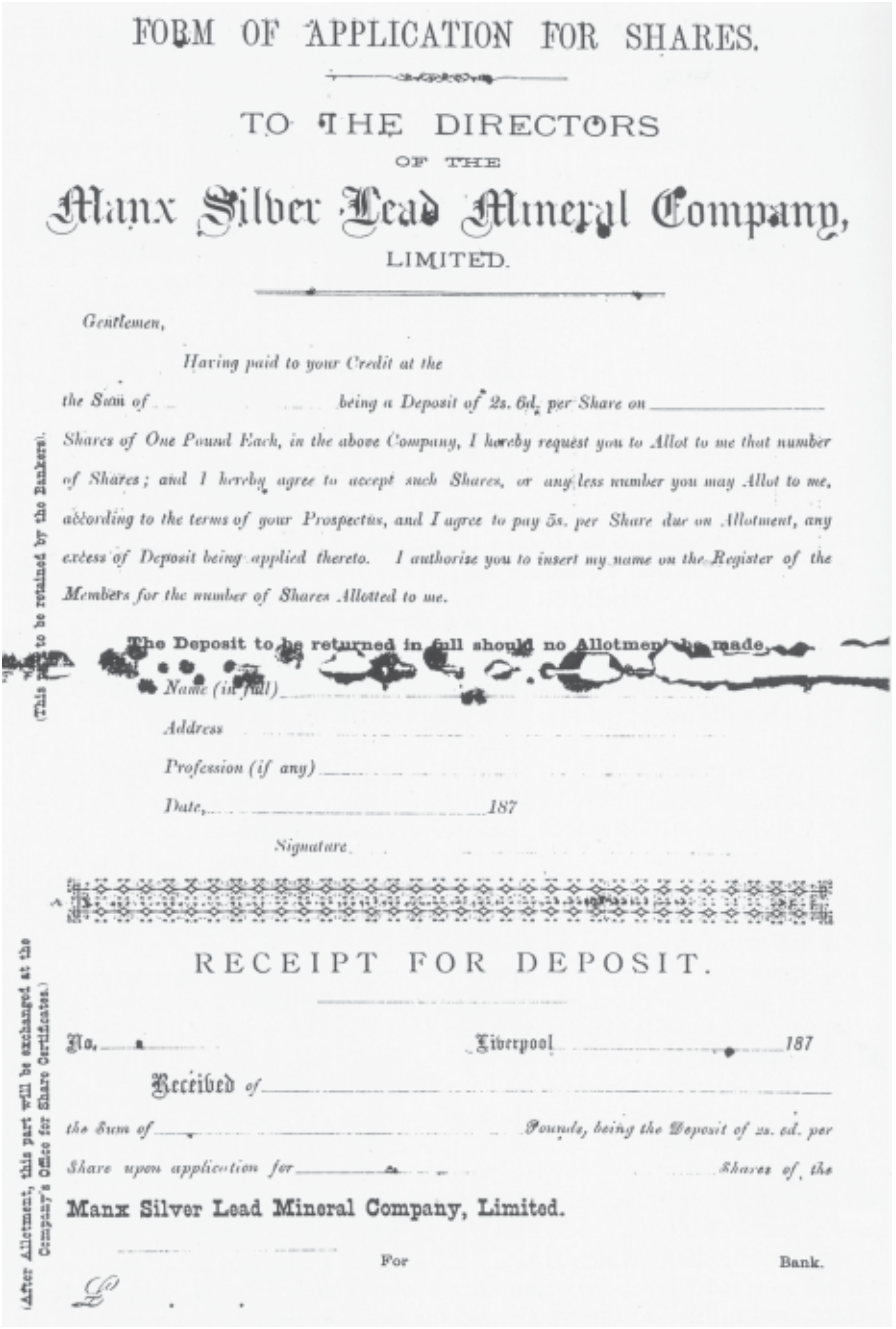
William Albert Holloway, of Mona Cottage, Douglas, Isle of Man, Gentleman.

Dated this 24th day of March, 1875.

Witness to the Signatures of Richard Allison Watson, Edward Overall Bleackley, George William Hughes, David Meek, and Ernest Heptenstall. } W. ASCROFT BYROM, Solicitor, Wigan.

Witness to the Signatures of George Maley and William Albert Holloway, } WILLIAM SPENCE, Cabinet Maker, Douglas, Isle of Man.

Fig. 3. *List of the founder members of the Manx Silver Lead Company 1875.*



FORM OF APPLICATION FOR SHARES.

TO THE DIRECTORS
OF THE
Manx Silver Lead Mineral Company,
LIMITED.

Gentlemen,

Having paid to your Credit at the
the Sum of ____ *being a Deposit of 2s. 6d. per Share on* ____
Shares of One Pound Each, in the above Company, I hereby request you to Allot to me that number of Shares; and I hereby agree to accept such Shares, or any less number you may Allot to me, according to the terms of your Prospectus, and I agree to pay 5s. per Share due on Allotment, any excess of Deposit being applied thereto. I authorise you to insert my name on the Register of the Members for the number of Shares Allotted to me.

(This ... to be retained by the Bankers).

The Deposit to be returned in full should no Allotment be made.

Name (in full) ____

Address ____

Profession (if any) ____

Date ____ *187*

Signature ____

RECEIPT FOR DEPOSIT.

No. ____ Liverpool ____ *187*

Received of ____

the Sum of ____ *Pounds, being the Deposit of 2s. 6d. per Share upon application for* ____ *Shares of the*

Manx Silver Lead Mineral Company, Limited.

For ____ Bank.

(After Allotment, this part will be exchanged at the Company's Office for Share Certificates.)

Fig. 4. *Application form for shares in the Manx Silver Lead Mining Company.* 1875.

engineers' reports on behalf of the mine company which are totally at variance with those quoted by Lamplugh[1] from Sir W.W. Smyth. Smyth realised the barren nature of the ground, and suggested that little would be found. Despite that, a prospectus for 1867, copied from a document in the Manx Museum, Douglas, Isle of Man, by the Manx Mines Research Group[5] tells that the then company would never have given up the sett for re-sale had the capital not been recalled in 1866. Captains Nuncarrow and Bawden gave reports appended to the new prospectus, which was issued in 1867 in order to recapitalise the mine with at least 1000 or more shares of £1 each. Nuncarrow writes "the lode is 3 to 4 ft wide (about 1.5 metres), composed of fluccan (crushed clay and rock) quartz, and clay slate with lead and zinc blende interspersed, but not so rich as it has been nearer the shaft." Without any justification, he adds "This level will no doubt improve again as you proceed with driving." Nuncarrow (on the basis of experience at Foxdale?) did suggest that they dug towards the intersection of the E-W and N-S trending veins, and (because of findings at Laxey, and at Bishop's Barony?) encouraged them to go deeper.

Bawden's report, also transcribed by the Manx Mines Research Group[5] also suggested that they go deeper. By 1874, the capital had been exhausted, and the mine had to pass to its third, and final ownership.

Von Arx[6] rescued a number of prospectuses some years ago when they came to light in Portobello Road, London: The frontispiece of the prospectus for East Baldwyn mine appears in Figure 2. The list of founding shareholders is in Figure 3. It repeats remarks already quoted, and then continues: "Upwards of £10,000 has hitherto been judiciously expended in the mine with results that are considered highly satisfactory, as a quantity of rich silver lead ore has already been disposed of, and at the present time there are several tons of ore stuff on the surface that merely requires crushing to make ready for the market."

Reports for 1872-1874 by John Grose of Colby, who worked at Balla Corkish Mine, and John Crowe of Baldwyn indicated the continued sporadic mineralisation of the ore lode but failed to indicate any large and continuous body of ore. They write of the "congeniality" of the lode and of imminent discovery of immense bodies of ore, "particularly under the hills on either side of the valley, towards which future explorations should be driven". The mine was worked after raising money from shares by forms of the kind shown in Figure 4. However, the history already related showed the failure of the explorers to locate any large ore bodies. The mine closed in 1883.

The Manx Mines Research Group explored the area during 1986.[7] Few surface remains are to be found. They write: "The top of the shaft, the water wheel casing, and the powder house were eventually located in amongst heavy overgrowths of trees and bushes. All this was on the left bank of the Baldwyn river. On the right bank, and almost opposite the mine workings was a gorse crushing mill the remains of which are still very evident." [Crushed gorse was fed to cattle. This could have been a wool mill.[8]] "No trace of any adit was found, and the shaft, which at one time reached a depth of some 552 feet (165 metres) and had 7 levels, was found to be completely filled in" [capped below surface, and infilled to the top?] "and the usual Rowan trees growing on it." [planted by miners to mark the sites of shafts].

"The ground around this area is extremely soft and boggy, and it was decided that if any adit was eventually found, the chances are that it will have completely collapsed."

[In this description, "right bank" is the west bank, and "left bank" is the east bank of the (East) Baldwyn river - a tributary of the river Glass.]

Baldwyn mine (West Baldwyn) is situated at grid reference SC 353 812 in a valley west of, but parallel to that containing the Ohio mine. The West Baldwyn mine was close to the village of Baldwyn, and worked somewhat earlier than Ohio mine. Lamplugh[1] writes "This old mine, the site of a long and obstinate trial, with the most meagre results, is located on the east bank of the river Glass, opposite the hamlet of Baldwyn". Lodes No.2 and 3 ran parallel, striking approximately N.N.W., intersected by two other lodes – No.1 and "wheelcase" lode, striking E-W. Again, the Isle of Man (Foxdale) company seems to have been the first to investigate, but soon abandoned it. In 1850 – 1855 another company sank a shaft. In 1862, a lease was granted to the Baldwyn Mining Company Limited and work commenced in earnest. By 1873, £20,000 had been expended, and ore to value of only £168 had been sold, with some 5 or 6 tons at surface unwashed. Sir W. W. Smyth visited the mine and reports for 1863 a driving from the bottom (17 fathom) level of the shaft a cross-cut driving north and south to intersect three veins seen at surface.

Smyth noted that the southern one was without promise, but the northern one looked more favourable. In 1867 the shaft was 66 fathoms deep with drivings. The 42 fathoms south level gave some ore on the hanging wall of the lode. In 1868, the 42 fathom level had driven no less than 140 fathoms from the shaft, and was "yielding lead and blende ores in hundredweights rather than tons, and hardly worth the timbering". In 1870, the 66 fathom level on No.2 lode yielded for about 14 fathoms a fair amount of ore, but improvement was still needed. In 1871, a winze had been sunk 11 fathoms, and about 12 fathoms of a 77 fathom level driven, "unfortunately finding only poverty beneath". The following year the capital of the company was exhausted.

Burt *et a/.*[2] quote the mineral statistics:

Baldwyn (West) Baldwyn SC 354812			
Production in 1874			
Lead 1.90 tons ore	1.40 tons metal	£30.60 value	
Zinc 5.00 tons ore	? tons metal	£15.00 value	
Ownership in	1866-1871 Baldwyn Mining Co.		
Management in	1869-1871 Chief agent John Crowe		

The mines inspectors' reports[3] make no mention of it.

The inference is that this was a short-lived mining venture whose major work was over before the mineral statistics and Inspector's reports become regular annual publications.

No-one seems to have visited West Baldwyn mine in recent years, so present remains are unknown. The predecessors of the present Manx Mines Research Group, led by W. Skatchard[9] paid a visit, on 15th March 1968. Their notes indicate two shafts on the East bank of the river, with spoil heaps between, and unidentified masonry which looked like two wheel troughs.

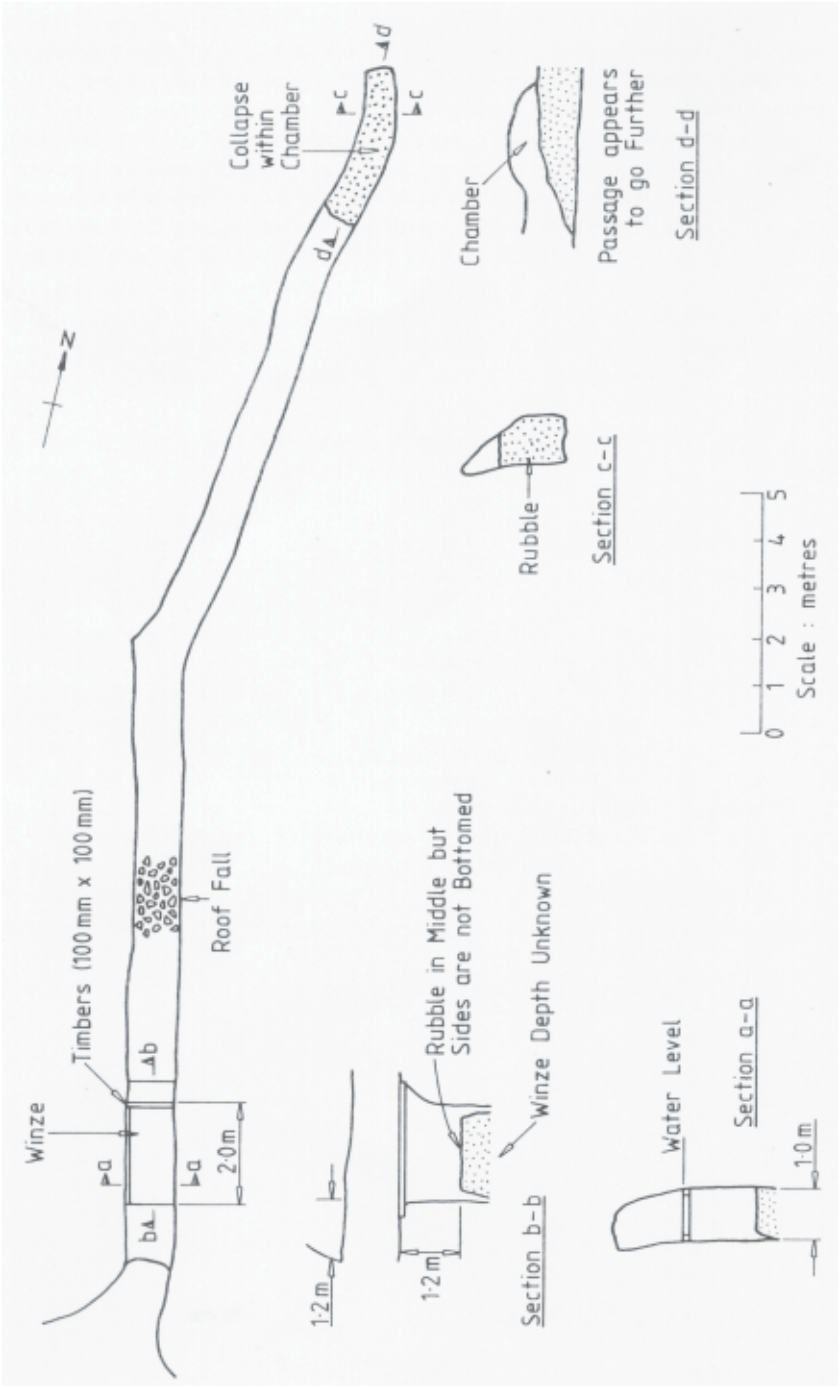


Fig. 5. Plan of the adit at Abbeylands Mine, after the Manx Mines Research Group 1987.

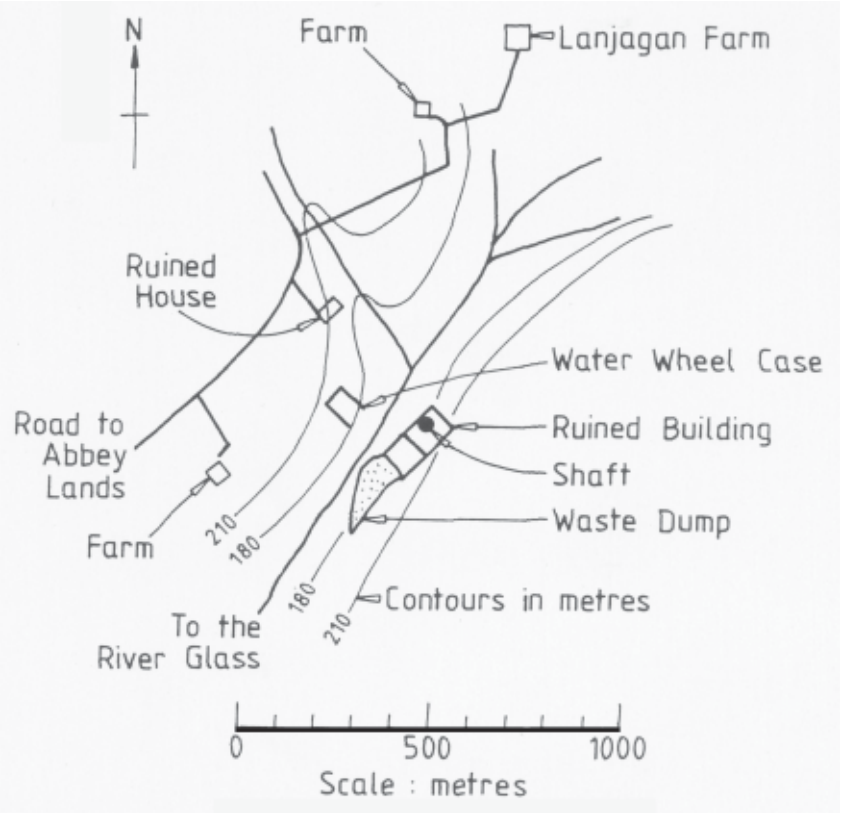


Fig. 6a. Plan of surface workings, Abbeylands. After visit by Hollis in 1966.

A resident of Baldwyn informed them of a la de (water conduit) running behind the village hall parallel with the main road from Baldwyn to Mount Rule (Se 352 812 to se 355 792). This could have been part of the Baldwyn Mill race, but they did not check the 1876 63 O.s. map. The sluice for it is located by the bridge over the river (O.S. grid reference se 352 812). Spoil samples inspected showed specks of copper pyrites and zinc blende, but not lead. However, lead was evident in the colour of the washings.

The resident also informed them of two adits on the west side of the same valley, but that he knew of none on the east side. The first, just north of Baldwyn village in a bank beneath the main road, was flooded. The second, in the south bank of Awin Ny Darragh, about a quarter of a mile (400 metres) above the bridge at Baldwyn (SC 355815) was also flooded. Neither of these two localities was verified.

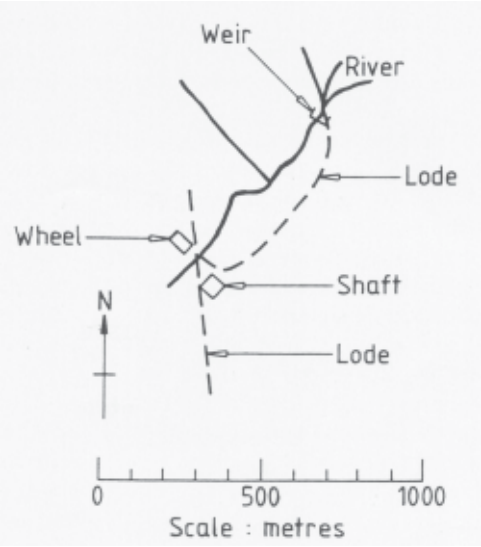


Fig. 6b.
Plan of Abbeylands surface workings after the 1870 6" Ordnance Survey Map.

The Abbeylands Mine is described by Lamplugh[1] as a trial between 1865 and 1872 on the banks of the tributary to the river Glass known as the Sulby river (which runs from SC 370798 to SC 380809), at 1150 yards (1035 metres) NNE of the bridge at Abbeylands, at approximately SC 376805. There was a shaft with drivings on the east bank of the stream, and an adit on the west bank. The lode strikes NE-SW, and is of ferruginous slate which can be seen in the stream bed. The single driving east at 28 fathoms in 1867 contained calc-spar and copper pyrites. In 1868 the shaft was idle, but an adit 100 fathoms (about 190 metres) further south showed another lode of better character, but no metallic substances. Up to 1872, further levels down to the 28 fathoms were dug, but even a drive on a north-west-south-east running lode at 28 fathoms failed to produce results. The "Mineral Statistics" and mines inspectors' reports do not mention this trial. No more is known of it after 1872, so presumably it closed then.

The mine was visited by the Manx Mines research group in summer 1986[7] but no record of surface or underground remains was given. They returned in winter 1987, and investigated the adit on the west bank of the river,[10] and give the O.S. grid reference as 3764 8053. Their plan of it appears in Figure 5.

A visit by the author in summer 1966 was concentrated on the remaining surface workings. Sketches show the remains as seen (Figure 6a) and as recorded on the 18706" O.S. map of the area (Figure 6b). The leat to the wheel came on troughing over the river to the wheelcase. The wheel was overshot or pitch-backshot.

Examination of the geology of the area revealed slate dipping 60°-70° and striking nearly east-west. At the Abbeylands bridge some 1000 metres down stream, the dip was even steeper - about 80°, and the strike was WNW-ESE. Rock samples from the dumps and the shaft top as well as the locality were inspected. The rock in the vicinity of the mine contains much quartz – mainly in the form of boulders and pebbles in the stream. Further up or down the stream of the mine, there was far less quartz. Pieces from the shaft and dumps showed contorted slates which were "rotten" - i.e., hydrothermally or weather decomposed. Iron ore and clay were both present in these samples. Some samples showed irregular quartz veining along cracks in the slate. Two specimens of white quartz showed specks of galena at the contact with the slate. One other specimen was found, of quartz in a slate matrix. On the outside the quartz was heavily iron stained, and on fracture, its inside was pink – possibly hematite or titanium staining. No copper or calcite was noted. These findings contrast with specimens of good zinc and lead ores recovered from Great Laxey and Balla Corkish, and copper ore from Langness and Bradda head mines. The lack of good ore samples in the dumps at Abbeylands mine indicates that it was barren.

Conclusions

These mines are three examples of the poor returns on investment caused by over-optimism, and lack of knowledge of the geology of the veins being worked. There is no real explanation of the persistence with which any of these three mines was dug, over a period of about thirty years, with so little return. Possibly the mines were encouraged not only in the hope of striking riches such as those of Laxey, but also for reasons less clear to us a hundred years later – for tax reasons, or as a means of giving employment in rural areas, or, more possibly, a way of reducing the losses made on a previous venture by persuading the next venture to buy the workings as a going concern. No-one seems to have noted the existence of two essentially distinct and separate sets of veins, and their resulting rather different mineralogies. Of the three mines, Ohio was the largest, because its mineralisation showed the greatest promise.

Why Ohio was poorly mineralised in spite of strong east-west veins is still unknown. The other two mines would never have yielded a profit, because their vein systems were not mineralised.

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