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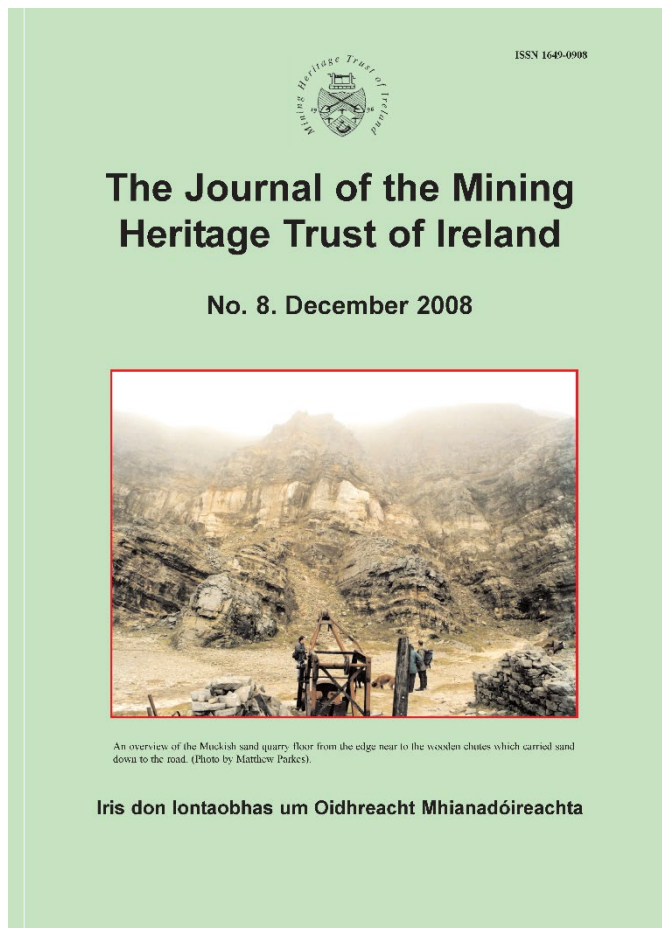
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MCI'S LEASES, TRIALS AND DEVELOPMENTS

by Des Cowman

Abstract: The Mining Company of Ireland (MCI) was founded in 1824 and in little over a year had acquired a large number of leases. Either through skill, luck or both, three of the most significant mineralised areas fell quickly within their control - copper at Knockmahon (Cowman 2006), coal at Slieveardagh (Cowman 2007) and lead at Luganure as well as the Ballycorus smelter. This article looks at some of the other locations they leased then or later, but they never discovered any other major mining areas. *Journal of the Mining Heritage Trust of Ireland*, 8, 2008, 3-12.

LEASING STRATEGIES

Four Irish mining companies were established in the boom years 1824-'25 (see Cowman 200a) which led to a competitive rush to get leases on potential mining sites. Within a year of commencement MCI were reported to have investigated and taken leases on 16 potential mineral sites; within a further eight weeks that number had reportedly gone up to 35. By mid 1825 they reported that they had leases on 47 locations in all, only 28 of which they named and these are listed in Figure 2 (MCI 1st 1825, collated).

In all they spent a massive £47,988 on these sites including travel, legal costs, etc. investigating 18 of the 28 sites listed (MCI 1st 1825). The reason for getting so many sites, according to their own admission, was to stymie the rival companies and to give themselves choice into the future (MCI 1st 1826). Thus, inevitably, some of the sites came to nothing and their exact locations are no longer known. The only major oversight was not to test Arigna further and Audley was to prove a near disaster for them. What follows is largely drawn from the company's own reports to shareholders who were kept informed about major developments up to the 1840s but with progressively less detail thereafter.

TRIALS AND GAMBLES, 1825-35

The full story of what happened on **Lord Audley's estate** in west Cork has been told elsewhere (Cowman and Reilly 1988, p 25-38) but may be summarised here. The Mining Company of Ireland were enthusiastic about the mineral potential of west Cork which they anticipated would "form one of the most important (mining) districts in Ireland". Attention had already been drawn to the area by the mineralogical activities of Col. Hall some dozen years previously and a headline had been set by the successful development of Allihies mine by John Puxley. In the summer of 1824 the Mining Company of Ireland did a



Figure 1. Minor workings of MCI as per Figure 2, plus Lisnacro, Cork (L) and Glenpatrick, Waterford (G).

Location	Produce	Acreege	Lease	£ spent in	Tested or
Munster	Lead/Copper		(years)	16 months	worked
Audley	C	10,000	31	2725	1824-'30
Ballydehob	C	100	31	100	?:1854-'60
Kilbranogue	C	1000	31		
Hollyford/ Ballysinode	C	750	31	87	1837-'40
Gortdrum	C	250	21	8	
Glengall est.	L	5760	21		
Knockmahon, etc.	C	3,125	31+	2633	1825-'50
Ballymacarbery	C	1000	31	108	
Ardmore	L		31		
Slievardagh	coal	1340	41	292	
Killaloe	slate	townland	21+2 lives	50	1826-'40
Leinster					
Ballycorus	L	130	26	865	sporadic
Tic Nic	L		31		1825
Dalkey	L		31	26	1825
Kilmainham	L		21		
Hill of Rath	C	500	31		
Brownstown	C			168	
Cusackstown	C				
Luganure	L	30,000	31	6161	1826-'90
Caime	L		76	300	1836-'43
Connaught & Ulster					
Arigna (Tullynaha)	coal	>2500	41	1159	
Gortinamona/Tully	L		31	23	
Cloon	L			7	
Derrynoose /Clea	L	>28twnlDs	31	133	1825/'26; 1837-'42
Keeldrum	L			150	1835-'31; 1860-'62
Bangor	L				
Tullynaha, etc.	coal	>6 twnlDs	41	751	1826-'30
Castleshane	antimony		31		1825-'26

Figure 2: The Mining Company of Ireland leases taken by mid-1825.

deal on a lease on a particularly rich showing of copper owned by the improvident Lord Audley loaning him £10,000 to pay his debts. In return they got the deeds and would keep his royalties on ore sales until the £10,000 had been repaid. This seemed to be quite a good bargain, particularly in view of the rich surface indications and the value of £250,000 put on the ore body. From 1825 onwards the Mining Company of Ireland began implementing a five-year development plan.

An engine was installed there, beginning to pump in 1827 over which year 448 tons of rich ore were raised and sold. Yet there is a strange lack of enthusiasm about this mine in the company's reports in comparison to their other successful operations. That they were right to have reservations took over five years to emerge. There were two veins of copper there that it was hoped would converge in depth into one wide rich vein. By mid 1829 the miners there had reached a depth of 70 fathoms and reported that they had only four more to go to test the mine fully. At the end of the year they had reached 75 fathoms and said they had still a few more to go. Six months later shareholders were told that the mine had been abandoned and the only thing they were offered by way of explanation was, "The Board (of Directors) considers it unnecessary to make any remark".

Presumably there were plenty of rumours in circulation about the Audley mine.

The five-year operation raised £13,065 worth of ore. The cost was double that, £26,727. Then there was the £10,000 lent to Lord Audley on the security of his deeds. However, the Lord had already borrowed heavily from other sources on the same security and it was not possible to disentangle that, and a host of other legal problems, until the passing of the Encumbered Estates Act in 1849. Not until 1852 did the Mining Company of Ireland get any compensation, amounting to only approximately half its loan money after paying legal fees. Had they not been so generously funded the company could not have sustained that loss in 1830.

Substantial investment was also made in **Keeldrum lead mine**, Co. Donegal: Trials here in 1825 seemed to offer immediate prospect of good return and initial workings made a profit of £194 by the end of the year. Work proceeded speedily and by June 1826 they had reached a depth of 162' with 500' of levels (MCI 1st 1826). "Tolerably good success" was how one visitor put it, observing that the galena was in bunches or nodules but of good quality (Giesecke 1826). By the end of the year the company again reported profit despite investment in a 14' waterwheel that began pumping just before Christmas 1826.

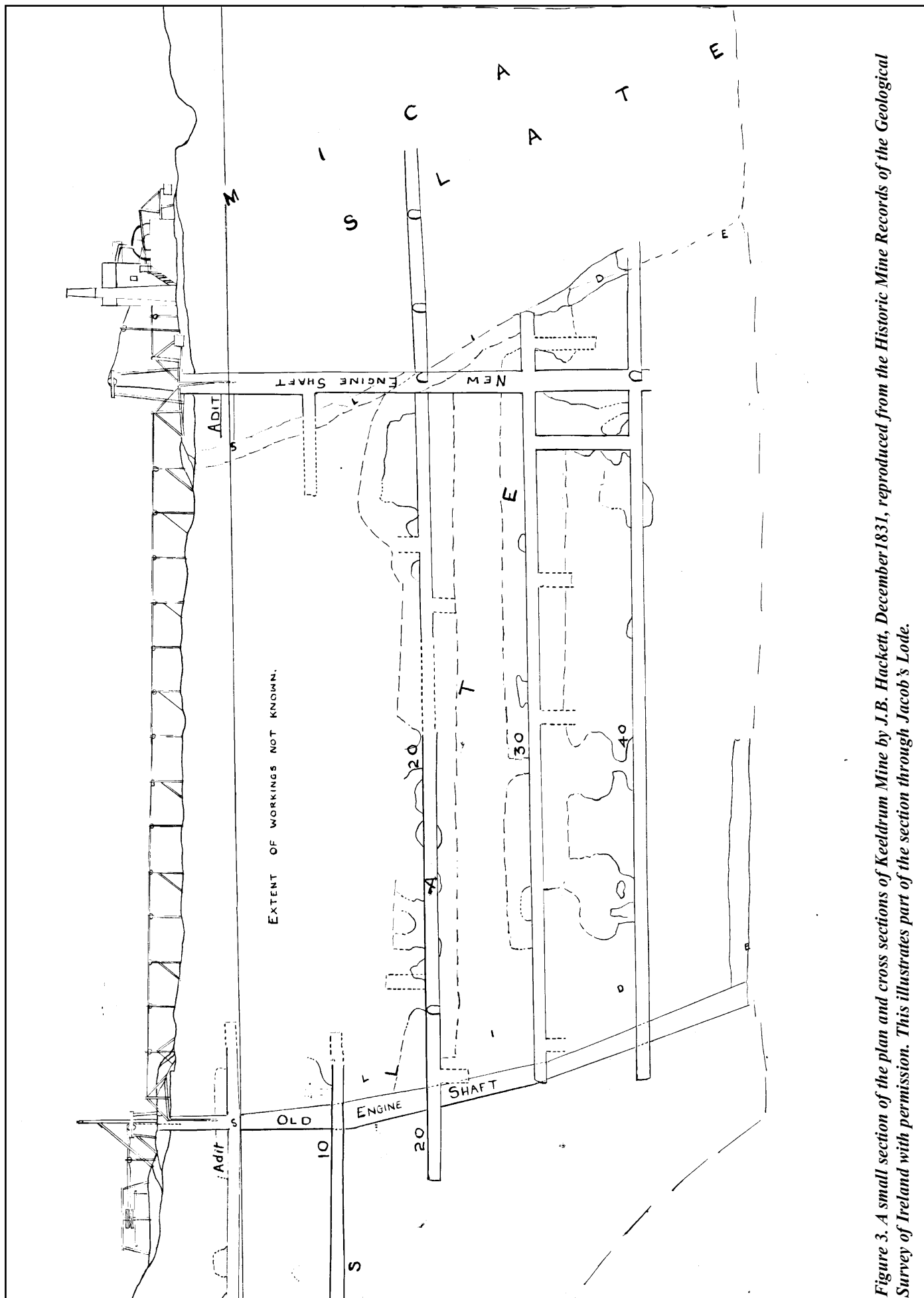


Figure 3. A small section of the plan and cross sections of Keeldrum Mine by J.B. Hackett, December 1831, reproduced from the Historic Mine Records of the Geological Survey of Ireland with permission. This illustrates part of the section through Jacob's Lode.

This allowed more rich ore to be extracted which was sent to the company's smelter at Ballycorus and yielded a profit of £720 over the next six months. While a drop in the price of lead over the following half year produced a small loss in the operation, nevertheless a steady 60 tons of good ore per month left this a very viable operation (MCI 1827 & '28).

Thus by 1828, despite continuing pricing problems for lead, it was decided to invest further in Keeldrum and a huge 50 foot diameter (by 5 foot wide) wheel was commissioned to allow deep pumping. Almost two years passed before this finally came into operation in June 1830 (MCI 1828-'30). Perhaps had the price of lead recovered, Keeldrum could have had a longer life span but continuing losses there as well as other difficulties for the company meant that financially and geographically marginal mines like this could not be sustained. The decision to abandon it was taken, probably in late 1831, when a plan of the mine was drawn up, dated 13th Dec. 1831 (Figure 3). It shows two water leats, a reservoir, the water wheel and workings down to 50 fathoms (Hackett 1831). The final expenditure on it in late 1832 related to the removal of the machinery to Luganure in Wicklow.

A mistaken optimism seems to have imbued the company in relation to its lease on **Tullynaha colliery** (part of Arigna), County Roscommon; While the coal here had been previously worked, the comparative isolation of the mine meant that transport costs to urban markets would make it uncompetitive with Welsh coals shipped into the east coast ports. The Mining Company of Ireland seem to have placed their reliance on transporting it by canal onto the Shannon and thence by the Royal Canal to Dublin. During 1826 the directors assured shareholders that the link with the Shannon had been completed, that a harbour at Tullynaha was built along with ancillary works (including a steam engine, presumably for pumping), that coal had already been got to Dublin and that experiments were taking place at the mine for the manufacture of coke (MCI 1826 & 1st 1827).

All this optimism was diffused by the next report stating that that the mine had closed down, vaguely blaming a drop in the price of coal. It remained closed for most of 1827 and well into 1828, reopening ostensibly to service local orders, primarily a contract with the military barracks. That the company had to refute an allegation about the low quality of the coal from Tullynaha, and had to divert attention from a failure on the Dublin market by referring to the difficulties in distributing coals along the non-existent roads of Connaught, indicates that there may have been other problems. There were good reports of the coal prospects at adjoining Longaboy in 1826 and the operation was continued through 1827 despite a reported drop in the price of coal. The reason given for its abandonment in 1828 was failure to get a lease on the right terms but presumably the issues above applied to both workings (MCI 1826-'28) Reports on Tullynaha for 1829 and '30 show the same mixture of optimism and disappointment. Expected road-building in Connaught had not taken place but the introduction of steamships on the Shannon opened up possibilities of supplying them and of enhanced distribution, with further opportunities being offered by repairs to the lock on the Lanesborough canal. By the

end of 1830, however, it was announced that the colliery was to be closed and the workmen transferred elsewhere. The rather tame reason given was floods in winter and droughts in summer. The next summer, however, it was back in production with a good demand for coal along the Shannon and was reportedly expected to make a profit in the second half of 1831. It did not, and as part of a general cost-cutting exercised by the company, the mine was finally closed early in 1832 at the same time as Keeldrum. It had obviously been a very small-scale operation and after a single initial profit it continuously lost money. Whether this was due to infrastructural problems or due to the poor quality of the coal from there remains unexplained (MCI 1829-'32).

A number of tests took place on various leaseholds and were quickly seen as negative prospects. In **Castleshane** (Monaghan) trials for antimony were started in late 1825 but by the end of the following year they were abandoned. (MCI 2nd 1825 & 1826). In **Derrynoose/Clea** (Armagh) a shaft was sunk in late 1825 and some lead extracted which was reported to have been sold to local potters. By the end of 1826, however, it was abandoned (MCI 1826). It was tested again in 1837-37 (qv).

Having leased three lead showings in south County Dublin (**Dalkey, Tic Nic and Ballycorus**) it made sense to pay £875 for a smelter which a Mr. Brady was selling, convenient for all three (GSI). The first two quickly proved blank but the third was more promising and the smelter stood on the same townland. Ballycorus lead mine was tested in 1825-'26 (MCI 2nd 1825 & 1826), in 1827 it was objectively assessed and a report on it drawn-up in 1828. This stresses the difficulty of smelting the lead from there. Part of the difficulty may have been that it was too rich in silver, which made the sheet lead too brittle (Griffith 1828) and the mine remained idle. Improving prices lead to the decision in late 1834 to reopen Ballycorus mine and the company started to extract the silver from the ore apparently solving the brittleness problem of the lead. Once again it proved disappointing and was allowed to flood at the end of the following year (MCI 1834 & '35).

TWO SLATE-QUARRY LEASES PRE 1840

Killaloe slate quarry seems to have been first tested by the company in 1826 with £886 being invested in it in the second half of the year. All sorts of difficulties beset operations there up to 1840 and from the incomplete statistics available it seems that the company lost money there. In early 1827 they hit their first difficulty - a strike. They responded by dismissing the workforce. Some sort of settlement was made later in the year (MCI 2nd 1826 - 1827). Further difficulties confronted the quarries in 1828-'9 when local landowners prevented the company from getting direct access to the Shannon. Instead their slates had to be brought six miles by road to gain access to riverine transport (MCI 1828 - 1829). They therefore reduced output, presumably dismissing some of the more radical work-

Figure 4. Right: Historic plan of Ballycorus Mine, copied by Warrington Smyth in July 1846 from plan drawn for MCI by [Mr Brokenshar ?]. Reproduced from the Historic Mine Records of the Geological Survey of Ireland by permission.



THE

—	Work executed in the metalliferous veins.
—	— in the "country" or unproductive rock.

CRANVILLE

MICACEOUS SLATE

Old Shafts

Opencast

Magnetic Meridian

Here was discovered, below the level of the deep Adit,
a rib of capillary native Silver

Adit Mouth

Lode cut

Tail of Addit

Ladder Shaft

Whim Shaft

W

Deep Adit

Fathoms below the 8th level

*Copied from the Survey made by Mr Brothersbar for
the Mining Company of Ireland. -*

Marington, Wm. Wm. Wm.
July 1846.

force. When the matter of access to the river was still not resolved in early 1830 the company tried reducing workers' wages leading to further unrest and violence there (see Cowman 2001b).

Very little would seem to have been done there in 1831-'32 but there was the hope that the Grand Jury, in association with the Commissioners for Public Works, would provide a road from quarry to river as well as building a pier (MCI 1831-1832). The road was not built until early 1834, but they must have had definite commitment the previous year as they began to prepare for major expansion, including the erection of a thirty-foot water-wheel for pumping, winding and sawing. Progress on the pier however was held up due to "the interference of parties --- aggrieved by the Presentments" - presumably local landowners who did not see why they had to pay for a facility to benefit the Mining Company of Ireland (MCI 1833-1834). That seemed to have been resolved as arrangements were made to sell the slates in Dublin. However, waste from a previous working crashed into the quarry early in 1835 and clearing that out impeded progress (MCI 1st 1835).

Nevertheless they continued to invest, laying down a tunnel, a rail system and two waterwheels in late 1835 (MCI 2nd 1835 & MJ 1836, p. 23) and planning a new inclined plane in early 1836. However a second fall of waste material again impeded progress that year, complicated by exceptionally wet weather. However, the main problem seemed to be marketing their slates. They were available at the company's sheds at Grand Canal Basin but don't seem to have been selling particularly well to judge from the continuous search for new markets (MCI 1836 - 1837). Indeed in early 1838 they claimed to have £10,000 worth of unsold slate. That they continued to operate at a loss over the next two years may have been because they hoped to sell their lease on Killaloe as a working quarry. If so, they succeeded in late 1840, the purchaser being the Imperial Slate Company of London. At that stage the Mining Company of Ireland had £4882 worth of slates to dispose of (their accuracy in this goes unexplained) and they got £4000 for the working quarry including the two water-wheels (MCI 1838 - 1840). Their financial statements show profit from Killaloe in the three years 1835-1837 as £1908 but losses over the next three years as £2175 (MCI 1835 - 1840, collated).

The Mining Company of Ireland bought a new slate quarry at **Glenpatrick**, Co. Waterford in 1828, telling their shareholders on the one hand that it had "been previously wrought to some extent", but on the other hand that £32,542 worth of slates had been quarried from there the previous year (MCI 1828). That the former was more likely to be true is indicated by the fact that it had to be unwatered, which took two years to achieve. Once the quarry came into full production by 1831, problems of marketing are mentioned and indeed a loss of £202 was made that year. However, the following two years showed modest profitability totalling nearly £700 (MCI 1830 - 1833).

Very little is reported about the operation thereafter except a watercourse was vandalised in 1834 and that in 1835 investment was made in a new water-wheel, pumps, winding machinery and inclined plane. That accounted for the losses made that year and bad weather in late 1836 causing problems for the

machinery is the reason given for the loss that year (MCI 1834 - 1836). However a year later the word "disappointing" is used about the quarry and it is obvious that from 1839 the operation was being scaled down. No seller was found for it and in late 1840 the machinery was moved away and the quarry abandoned (MCI 1838 - 1840). Between 1835 and 1840 the company accounts show a sales profit of £805 for Glenpatrick but a loss at a cost of almost twice that (MCI 1835 - 1840 collated).

LATER LEASES, 1835 -'45

Despite such losses MCI had turned the corner into profitability from 1835, thanks to their major mines, and invested in new exploration on three of their original leaseholds in 1825 (Table 1), beginning with Caime in Wexford in 1836 and following with Derrynoose and Hollyford in 1837. In 1837 also they explored two new locations with a further four being added in 1840 although those do not appear to have been worked.

Following testing in early 1836 the decision was made to start working their leasehold at **Caime**, though further investigation indicated the wet nature of the terrain and the necessity of purchasing a pumping engine (MCI 1836). On the other hand, ore had only to be drawn less than five miles along the flat road to Enniscorthy whence it could be river-borne on the Slaney to Wexford for shipment to Ballycorus (MCI 1837). However, what the Mining Company of Ireland might not have anticipated was the extremely fragmented nature of the lead deposit nor the porous nature of the rock around, so that conditions underground were described in 1841 as "more like going into a river than a mine" (Roper 1840).

At what stage these difficulties became apparent was not reported to the company's shareholders who instead were proffered a series of excuses for the continuous losses at the mine up to 1842, e.g. - work was progressing in clearing out the old shafts (MCI 1837-1838); the required machinery was slow in coming (MCI 1838-1839); cut-backs were necessary in the interest of the shareholders (MCI 1840); it was heaved at the 47 fathom level (MCI 1st 1841); they were searching for the "great lode" but there was difficulty with their immediate landlord (MCI 1842); the price of lead had fallen (MCI 1843). All these were probably true. At the end of 1843 shareholders were told that the "great lode" was found, but, "after a very long and expensive search has again been cut off, and from the loss sustained by previous searches, the unproductiveness of the lode, the difficulty and consequently great expense in dressing the ore, the extreme low price obtained for it when dressed, your board have decided on the suspension of the workings and the removal of the machinery to other concerns if not sold at the mine" (MCI 2nd 1843).

This did not prove as easy as anticipated because earlier difficulties with their immediate landlord, John Howlin, resurfaced. He claimed that the Mining Company of Ireland were obliged to compensate him for damage done to his land and a local jury awarded him £325 compensation at the end of 1844. The company however claimed that the jury had no right to make such an award and Howlin brought the matter to the court of Queen's bench the following April. The matter hinged on the wording of an Act going back to 1724, the tenth of George First. The out-

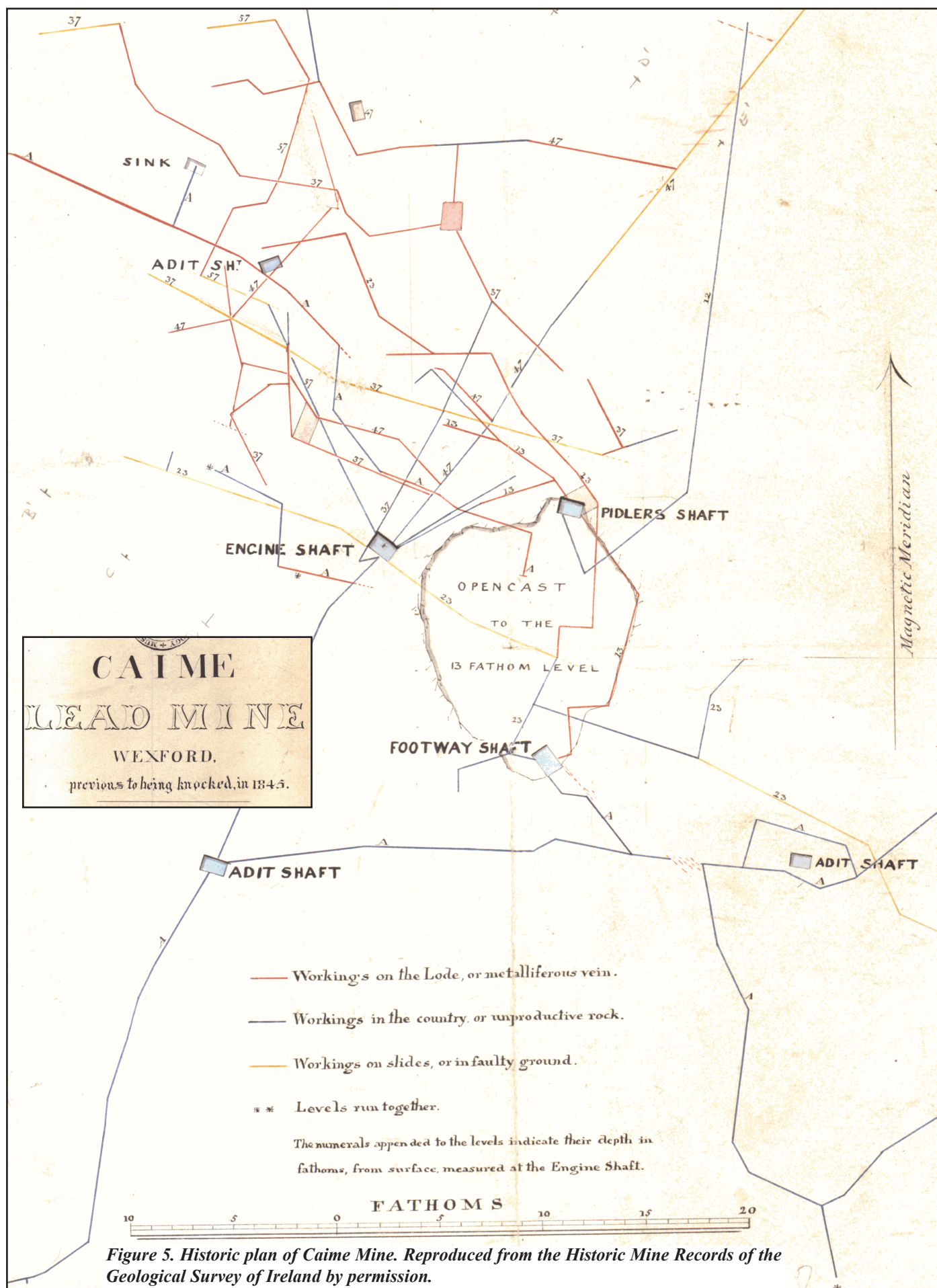


Figure 5. Historic plan of Caimé Mine. Reproduced from the Historic Mine Records of the Geological Survey of Ireland by permission.

come was that Howlin was granted his compensation but without costs (MCI 1st 1845). It would seem that the Mining Company of Ireland immediately stripped the mine of anything worthwhile and demolished the buildings (MCI 2nd 1845). Nevertheless they continued to hold the lease and may well have kept a caretaker there over the next 16 years until 1861 when they *"deemed it expedient to surrender the premises at Caime by which they are relieved from all further responsibility in connection with that concern."* (MCI passim accounts up to 1st 1861). It was not worked again.

The **Derrynoose** lease was taken up again in 1837 when a substantial £3461 was spent on exploration and development work. A further £1832 the following year when it yielded its first lead ore - £33 worth (MCI 1837 - 1838). In 1839 it came into fuller production yielding £1757 worth of ore. The cost, however, was £1808. Likewise in 1840 £2522 worth of ore cost £2945 to raise, but most of the loss was incurred at the start of the year and a slight nominal profit of £123 was made in the second half of the year. Testing done in adjoining Clea in 1840 offered no salvation (MCI 1839 - 1840). There is reference in 1841 to *"Lawless conduct by on the part of occupiers of the land"* (MCI 1st '41) but in the meanwhile an engine had been built there. This was dismantled and set to Knockmahon (cost for this £687) when it was decided to abandon Derrynoose in 1842 (MCI 1st '42).

In 1837 the company decided to test their **Hollyford** lease and conducted a fairly superficial survey to judge from the paltry sums spent there - a mere £483 in the two years from mid 1837 (MCI 2nd 1837 to 1st 1838, accounts). Nevertheless they were reported as having 40 men working there on three locations and to have shipped some ore via Clonmel and Waterford. However, there is no record of such sales and while they may have given it a more substantial trial in the second half of 1839 (spending £198 in the six months) they then decided to abandon it, for the time being at least since payment of £22 over the following year may have been for a watchman (MCI 1839 - 1840). They possibly also surrendered their lease as another company was able to move in there in a few years later and start producing ore from 1845 and over the next 15 years raised about 4,000 tons of copper, some of it 20% rich (Min. Stats.) - clearly MCI had lost an opportunity.

Testing resumed at **Ballycorus** mine during 1838 with words like "favourable" and "encouraging" being used about it (MCI 1838). A deep adit was commenced early in 1839 to un-water the flooded old workings. While once again the result was disappointing, trials continued into 1841 and a rib of silver found (MCI 1839 - 1841). That seems to have encouraged four more years of activity at Ballycorus but it was decided in 1845 to abandon mining there (MCI 1st 1846).

There were other short-lived tests on new ground starting in 1840. Surface tests were done at Camphire in west Waterford and Kilcassel near Avoca, Co. Wicklow. They also leased part of Silvermines in search of iron pyrite. This policy was strongly opposed in 1840 by some of the shareholders (MJ 1840, p. 222 detailed report on MCI 1st 1840). Nevertheless they persisted in Silvermines for another two years before abandoning

it and moving a steam engine from there to Knockmahon (MCI 2nd 1842).

FURTHER LEASES, 1845-'85

One of the most inexplicable and indeed arcane operations of MCI arose from their leasing of a coal showing at **Lisnacon** in Duhallow Co. Cork in 1845 (1st 1845) and was worked by the company for well over 30 years without apparently ever making a profit. A report on it was drawn up in 1854 that gives some context to this operation. There were apparently four collieries working over this coalfield that comprised five unevenly distributed beds of coal. Lisnacon did not have the best seams, but the others were being so badly worked that they provided no competition. They all had water problems and at one colliery (Dysert?) a pumping engine had been erected but was in ruins. A similar engine had been erected at another colliery, Dromagh, but had been too small to cope with the water. MCI were driving an adit to drain Lisnacon (Lisnacon Report 1854).

An adjoining colliery in Drumskeha was bought in 1859 (MCI 2nd '59). In 1863 they acquired a steam engine suggesting they were now working below the drainage adit (MCI 2nd 1863). A new boiler was bought for this in 1869 (MCI 2nd 1869). Flooding was reported there in 1873 and, while there were ambivalent reports in the years thereafter, it was blamed for closure in 1877 (MCI 1st 1873 & 1st 1877). Presumably the colliery remained derelict over the next six years when the company decided to sell off engines, boilers, etc. for scrap which was done in 1884 (MCI 2nd 1883 & 2nd 1884).

MCI had just tested their lease at **Ballydehob** in the 1820s but let another company work there in 1853. This was the highly dubious South Cork (Argentiferous Copper) Mining Company who also purported to work other mines in that area (see Cowman and Reilly 1988, p. 80). What the relationship was between that and MCI's decision to work there themselves beginning in 1854 goes unrecorded (MCI 1st '54). Investigation there must have created enough optimism for a steam engine to be bought in 1857 (MCI 1857) but apparently unwatering at depth proved its limitation and in 1860 it was abandoned (MCI 1860).

Other wide ranging tests on new ground, probably based on short leases, were done and most abandoned after less than six months but they did represent a certain dynamic on behalf of MCI despite the criticism of shareholders who saw this as a waste of money. Tests were reported at an unspecified location in the Burren in 1845 (MCI 2nd 1845) but the exigencies of famine probably made it difficult to continue this process. They resumed again in the 1850s, starting with Dhurode, Co. Cork for copper (MCI 1st 1850). There were tests then at Castlegrove, Co. Donegal for lead (2nd 1851); Killogram, Wexford, and Ballyglannan Kerry, both lead (MCI 2nd 1852); slightly longer tests were done in Tullydonnel, Co. Armagh for copper and Leagort in Limerick for an unspecified mineral (MCI, 1st 1853 and 1st 1854) along with tests for copper at Dooras in Galway (MCI 1st 1854 and 1855); in Maghermina (the last two syllables indicate an older working), Co. Fermanagh probably for iron (MCI 1857) and then Imail, Co.

Wicklow, also probably for iron (MCI 1st 1859). The perennial Ballycorus mine was leased anew and worked again from 1857. It is not clear what optimism there led to the erection of a steam engine and stamps but by 1860 it was closed, never to be reopened (MCI 1857- 1860).

Almost 30 years had passed before the company decided to revive their interest in **Keeldrum**, Co. Donegal, because of a "more advantageous lease", they told their shareholders (MCI 1st 1860). They spent about £6,000 on it in 1860-'62 (MCI 2nd 1860 - 1st 1862) which must have included an engine (Figure 2) although the entire enterprise was abandoned in 1862 (MCI, 2nd 1862). New possible locations around traditional mining areas were also checked. The fact that such tests east of Knockmahon had yielded Tankardstown in 1850 provided a false analogy. Understandably this led to the company periodically pursuing other local chimeras (as transpired) - at both Kilmurrin and Seafield in 1850 (MCI 1st 1850 and 1st 1851), at Stradbally (MCI 2nd 1858 & 1st 1859) and later at Annestown (2nd 1869).

This last may have been a measure of desperation as from 1865 Tankardstown was in difficulty and over the next 10 years prices for copper declined due mainly to cheaper imports. Lead followed and the resources were no longer available for further exploration. The company's main hope seemed to lie in coal and they continued to buy new leases and invest in Slievardagh into the 1870s (Cowman 2007, p 42). Likewise they continued their strange coal mine in Lisnagon when there seemed little hope for it. Of all their sites, only Gortdrum could have prolonged their life had they the technology to find the ore body there.

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- Min. Stats.. The Mineral Statistics were published annually by HMSO and give returns of all public sales of ore. Private sales are sporadically recorded.
- MJ (Mining Journal) with pages numbered annually. Their reports on MCI meetings supplement the company's Report. The 1842 refs. comprise letters re backgrounds of Cornish Captains - e.g. p. 164 "A Shareholder", Waterford; p. 181 "A Cornish Adventurer".
- Roper, Frederick 1840, in *PP Reports from the commissioners 1842*, Vol. XVI I Children's Employment (mines) 1, p. 860.