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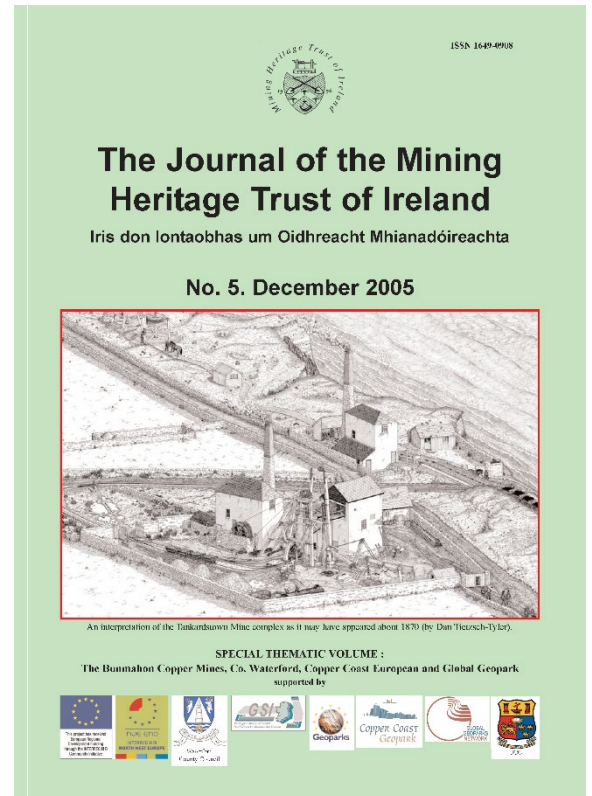
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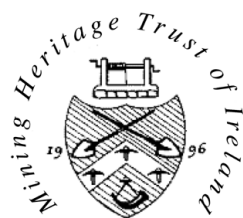
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A HISTORY OF TANKARDSTOWN MINE,

1850-c.1875

By Des Cowman

Abstract: The story of the mining communities that lived around Bunmahon is told elsewhere as is the development of the mines at Knockmahon 1825-c.1850. (Cowman forthcoming 2006) When these were worked out, the mining operation was rescued by the discovery of the ore-body at Tankardstown. The company who operated these mines was the Mining Company of Ireland. *Journal of the Mining Heritage Trust of Ireland*, 5, 2005, 3-10.

THE DEVELOPMENT OF TANKARDSTOWN

Mine manager John Petherick had predicted back in 1835 that Tankardstown held the greatest potential (MCI reports, 2nd 1835). With the ore running out and water running in at Knockmahon, desperate attempts were made to find another lode, particularly as copper prices recovered after 1850 following a depression in the late 1840s. Sinkings were made on various surface showings. In late 1850 shareholders of the Mining Company of Ireland were told that "a decidedly valuable course of ore" was found in Tankardstown at a depth of 300 feet (MCI reports, 2nd 1850). This was pursued vigorously and at a depth of six hundred feet it was reportedly up to 60 feet wide (Memoirs GSI, 1865). That it was to quickly disappear thereafter was not to become relevant for another quarter of a century. However it seems to have been Company policy to feed their shareholders minimum information, even withholding the good news from them.

Silence therefore enshrouds what must have been a period of hectic development and excitement for the local community. For instance in early 1851 there is reference to the Kilduane engine being transferred to something called North Mine but that they were still working Knockmahon at depth (MCI reports 1st 1851). This may be the engine which currently stands in Tankardstown North. It is possible that this is where operations began and the finding of the rich lode near the cliffs further south followed later. At some stage the big 56-inch engine house at Knockmahon was demolished and that mine abandoned as the whole operation moved east to Tankardstown. Which engine was restarted here on Christmas Eve 1852 is not stated but if it was the one from Knockmahon (MCI Repts. 1st '51 and 2nd '52) the reticence may have been because the engine was placed too far east so that it struck the lode too high up and had to be rebuilt a second time. This is suggested by the existence of an "Old engine shaft" on later plans (Compilation plan). Gratuitously confusing the picture even further were continuous references to quite irrelevant trials at Kilmurrin and Seafield at a time when the company had started making profits again which could only have come from that scarcely mentioned location, Tankardstown (MCI Repts. 2nd '51).

Possibly the reason these distracters were introduced was justified among the directors by the enormous cost of developing a mine like Tankardstown at depth, the continuing expense that would be involved in pumping it and the fact that some system would have to be developed to get the ore from there down to

TABLE 1; EXPENDITURE, OUTPUT AND INCOME, TANKARDSTOWN

Year	Spent £	Tons MS	Sold for -	Tons MCI	Profit MCI
1850		3,314	£19,703		
1851		3,624	£21,573		
1852	£3,020	3,471	£29,286		£8,069
1853	£3,835	3,373	£38,560		£13,361
1854	£4,964	4,421	£53,023		£16,584
1855	£5,560	4,343	£49,153		£11,299
1856		3,987	£39,736		
1857		3,289	£38,726	5,205	
1858		4,712	£42,511	5,175	
1859		6,090	£61,042	5,528	
1860		7,765	£71,208	5,753	
1861		6,670	£61,438		
1862		5,176	£46,578	6,387	
1863		5,259	47,438	6,663	
1864		5,004	47,415	6,798	
1865		3,596	30,827	6,045	

their existing dressing floors at Ballynasissala over a mile away, developed originally because of proximity to the Knockmahon lode. Even if all of this were done, there was no guarantee that Tankardstown vein continued rich for any great distance inland nor at greater depths. It would seem that with collective fingers crossed, the directors took the gamble and quietly began to invest in laying open the wide vein. Table 1 shows that they had little to be wary of. From the information they themselves provided to their shareholders, sporadic though it was, and the figures annually available as Mineral Statistics, output was high: they were making profits from the very beginning of Tankardstown. Up to 1865, the Mineral Statistics only gave tonnages publicly auctioned in Swansea, whereas MCI were selling a portion of their ore to other buyers.

Only twice do they mention what the expenditure was for. £2146 went on sinking the engine shaft at Tankardstown in late 1853 and £2918 on constructing a railway to the dressing floors. This latter, much of it still visible including the incline ramp to carry it by gravity over a flat section of land, was announced to shareholders as beginning in late 1854 and being tested a year later (MCI Repts. 2nd 1853, 2nd 1854 and 2nd 1855; see Morris *et al.* in this issue).

Shareholders presumably were not too worried about what was actually happening at Tankardstown as dividend payments had restarted in 1852 (MCI Reports - accounts 2nd 1852; 2nd 1853 & 1st 1854). Moreover, as Figure 1 shows, with the exception of a decline in 1858-59 (attributed to lowered copper prices),

profits and production soared, peaking in the early 1860s. All this transformed the area into a major industrial zone by 1865 with seven engine houses (only three can now be located) and two new water-wheels being added to the existing four on the dressing floor (Memoirs GSI, 1865).

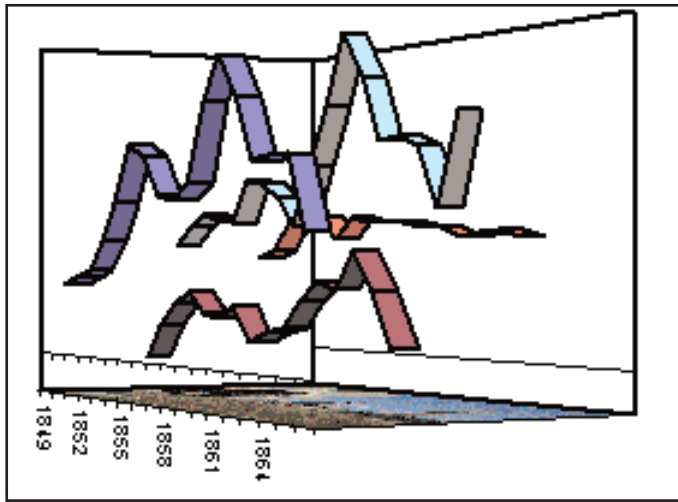


Figure 1. Tankardstown 1848-1866 - ore sales and values (comparitive only). Small changes in ore price (right) affected price received (left) and therefore profit (second left). Ore sales (second right) also reflect this with the additional factor of stockpiling and opportunistic selling.

Meanwhile the Mining Company of Ireland had decided on diversification. Much of the investment went into their smelting plant at Ballycorus but near Ballylanean they bought Carrick Castle corn mill in 1857 (MCI accounts, 2nd 52, 2nd 53 and 1st '54). By the early 1860s Tankardstown was the company's leading profit-maker. In 1863, for instance it contributed two thirds of the Mining Company of Ireland's overall profit of £15,000 approximately from all its operations. This of course made the decline that followed in 1865 even more dramatic.

ASPECTS OF MINING SOCIETY

While the mining operation had move nearly a mine east to Tankardstown, the majority of the miners continued to live in Bunmahon. Most of them were locals but there was a considerable coterie of those whose names would suggest that they had come from the Allihies mining area in west Cork. (For listings of names see www.coppercoastgeopark.com).

Their English supervisors (their names are not particularly Cornish) lived across the Mahon river in Knockmahon. Up to 1858 their non-working lives were dominated by the dynamically intransigent Rev. D.A. Doudney. For their sons he set up a print school which turned out great quantities of biblical commentary; for their daughters he established an embroidery school. His agricultural school was probably intended to have wider scope as his was an evangelising mission. What really brought him into conflict with the local Catholic clergy was his infant school targeting their flock. He wrote at length with righteous indignation about the ensuing battles (Doudney) but in the end he left in 1858 after ten years there.

The Mining Company of Ireland had changed over the decades since their origin from being a Quaker inspired, philanthropic enterprise (Cowman 2001) to being mainly profit driven. The issuing of tokens and decision to establish a monopoly company shop was probably the last straw for the increasingly harassed miners and their wives. In mid July 1860 they went on strike. The company responded by closing down Tankardstown mine and over the next two weeks turned down any attempts at mediation. The starving miners were left with little option but to trickle back to work on the company's terms (NA Outrage papers). For many, conditions had become intolerable and what had been a trickle of local people heading for the USA became a flow which greatly increased after the crises of 1865 (Cowman 2006, forthcoming).

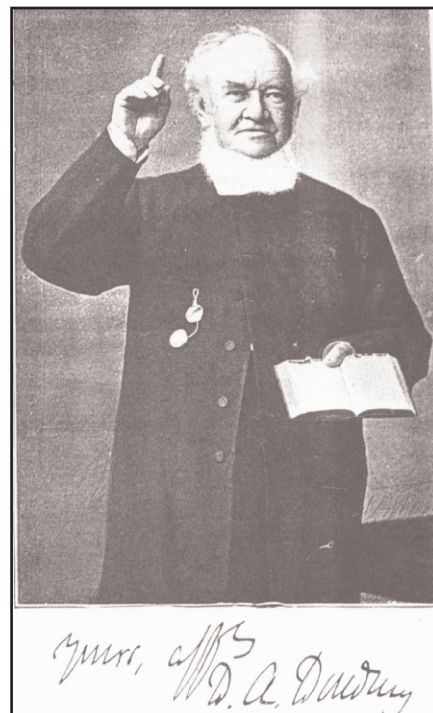


Figure 2. Rev. D.A. Doudney in his later years from a Memoir of him published by his son and daughter. He administered to the Church of Ireland community from 1847-1858. His daughter says he went grey during the famine.

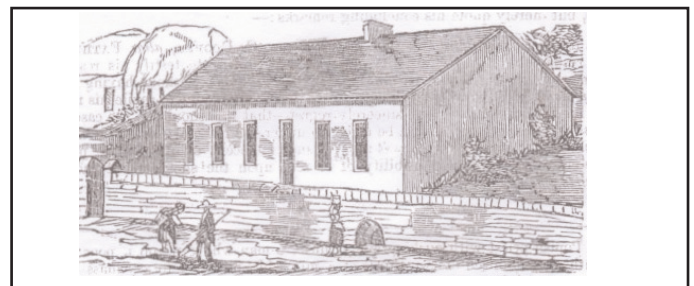


Figure 4. The reroofed cottage where Doudney established his Infants School, the cause of great controversy. (Gospel Magazine, 1852, p. 301)

Figure 5. Bonmahon token.



THE CRISES OF 1865

The first half of 1865 showed Tankardstown producing the greatest profit ever - over £12,000 in six months lifting company profits to a record £16,455. For the second year in succession a dividend of 11½% was paid. However, in the next half of 1865 Tankardstown's profit margin was more than halved to under £6,000 reducing the dividend to 6½% (MCI Reports 1865). Fig. 5 shows (left) the peak and dramatic plunge in profits, into loss, brief revival and failure. Its apparent inevitability is obscured, however, by ore production (right) which gave rise to sustained, though unsustainable, optimism.

What was happening? Shareholders and even the directors were confused. Their perceptions and projections are intermixed with what actually happened.

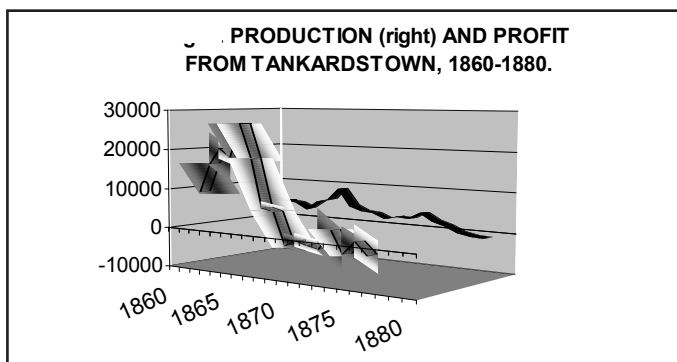


Figure 5. Production (right) and profit from Tankardstown, 1860-1880.

The chairman let slip in mid-1865 that the quality of the ore had declined and the rock at depth was harder. This caused selling of shares (MJ 1865, p. 465, IMSM), so the Directors apparently decided that from now on there would be minimal comment. This led to further rumours and panic selling so the directors had to call an EGM in August 1865 (MJ 1865, p. 577 "Mining Notes"). This EGM was a tour de force for the chairman, Francis Codd. Amid plaudits and applause at the end of the meeting he modestly said that he had done nothing but "*tell the truth, the whole truth and nothing but the truth (hear, hear)*". He had started by saying that two groups were responsible for the fall of the share price - the over timorous and the greedy. In "proof" he read three letters from Captain Clemes but put his own spin on them. The letters said, circumspectly certainly, that the new one hundred and ten fathom level (660 feet) was proving much less productive than the hundred fathom. "*But gentlemen,*" Codd said, "*an experienced reader of these things will perceive one material point here*". He then drew the analogy between the present situation and the crisis around 1850 when Knockmahon failed and the price of ore was depressed but the company went on to make great profits.

Returning to the present drop in share price he referred to "*some persons in the garb of gentlemen*" who went to Knockmahon (obviously shareholders who wanted to find out for themselves what was going on) and went drinking with the miners to get inside information which they could use to depress the price of shares in order that they might buy them cheaply for themselves!

Questions were put from the floor the most significant of which was whether MCI would publish monthly reports of progress at Tankardstown as many English mines did. Codd's dismissal of this though clumsy, went unchallenged: "*that some might feel somewhat flattered in giving their opinion. On the other hand, why might it not happen that in some future time they might meet with some captain who might not be so unscrupulous but that he might wish to advance the interest of some speculator for gain and if so it might be very disadvantageous to the company*".



Figure 6. Shareholders were told nothing about the difficulties at Tankardstown.

Thus, on the pretext of conspiracy, the prospect of any openness about what was really happening at Tankardstown was banished. Codd ended by asking all who had the good of the company at heart not to sell their shares (FJ, 26th August 1865, two column report of EGM). This sleight of word stopped the decline though without bringing much recovery; the prices of shares had dropped to £15-10/- from £34-10/- earlier in the year but came up to about £20 after the meeting (passim in the MJ - e.g. 1865, p. 588 IMSM.).

At the second half-AGM in 1865 shareholders were just given a bland account of Captain Thomas' report on an inspection of Tankardstown, but for those who could read between the lines, the mine was being dismissed. Obviously the mine had thinned below the 600 foot level "not so good" at 660 feet (FJ 5th January 1866). However, investment did continue with new stamp heads being ordered, for instance in 1866 and 1867 (Harvey's accounts DDH 3/7). It seemed as though the directors were in denial. While they did admit in 1866 to a "great depression in copper" they reported that unnamed "gentlemen from England" were optimistic about the future (MCI reports 1st 1866).

The directors also seem to have resorted to spreading optimistic rumours though they could not hide the fact that there were still doubts and complaints (MJ 1865, p. 711). For anyone prepared to interpret the statistics, however, there was little room for optimism. By early 1866 Tankardstown was producing the poorest quality ore of any Irish mines, averaging £6-3/6d per ton as against Bolivian ore at more than twice that and South African at £22 per ton (MJ 1866, p. 465 Grylls Annual Mining Sheet).

HOPES PROVEN FALSE 1867-'77

Shareholders continued to be given bland assurances into 1867 - "*There is nothing in the general features of the mine to lead us to think that it will not be a great mine for some years to come*" (MJ 1868, p. 28, Report 2nd half AGM of MCI of 1867). After

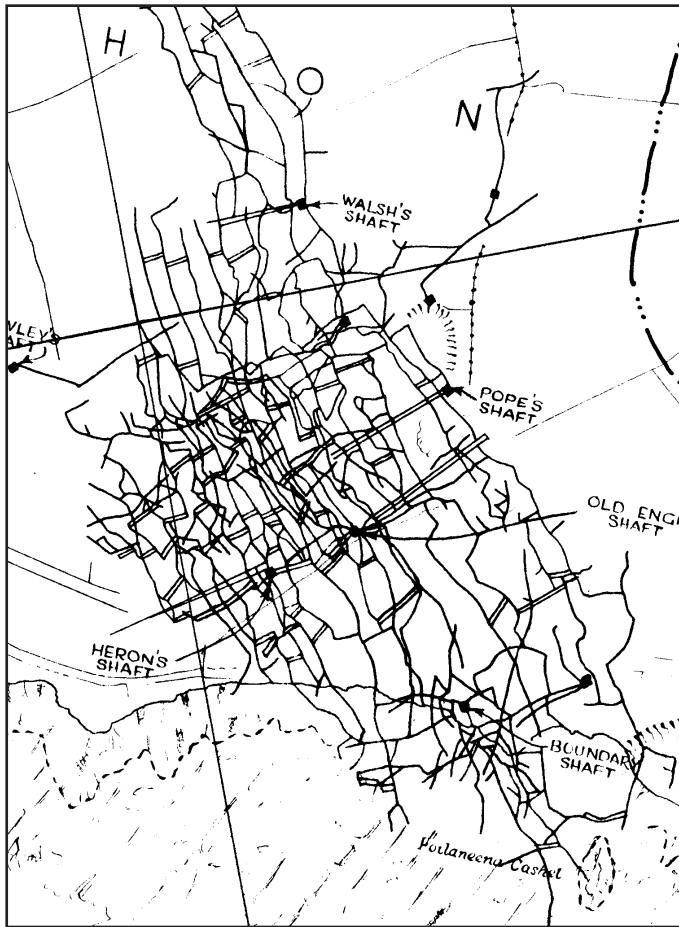


Figure 7. The lines represent the levels getting progressively deeper from right to left at Tankardstown following the dip of the vein. The most intense series of levels indicate the richest areas of the patchy ore deposit. (Compiled plan)

that there is silence about what is going on leading to renewed complaints about lack of information (MJ 1869, p. 64 IMSM).. During 1869 the directors themselves were riven with other dissensions by some of them buying Allihies mine, apparently for the company but in fact for themselves (MJ 1869, p. 208-9; 225 and 387, IMSM reports: for context see Williams 1981). However, the same reassuring sounds were still being made about Tankardstown - there was "every possibility that Knockmahon mines would become as profitable, productive and prosperous as they ever were". This was despite a report from a Mr. Phillips which said, in effect, that everything that could possibly be done at the mine was being done (MCI Reports, 1st 1869).

Consistent with policy, shareholders were told very little about what was happening at Tankardstown up to late 1875 when they were given a report by an investigating committee of three. A further insight into the platitudes that the directors considered acceptable to themselves and to their shareholders is contained in the triumvirates report. They had first compiled a listing of the profits and losses of Knockmahon and Tankardstown over fifty years of operation and calculated the gain to have been over a quarter of a million pounds (£287, 368-11/-!). Apparently overawed by this they went on (MJ 1876, p. 127, Report half-AGM): "--- it is often exceedingly difficult and

might be very perilous to decide upon the stoppage of mines on the occurrences of adverse changes, particularly if a mine abandoned by one company should turn out over profitable in the hands of new adventurers --- [The company could have been sensitive to this because of the current success of T.S. Cave in running the Audley mines in West Cork which MCI had abandoned in the 1830s] " --- *Recommend that all needed information be laid before the proprietors --- with a view to obtaining the expression of their wishes as to the course to be pursued with regard to these mines"*

However, shareholders were also told that "abandonment --- of the mine would be calamitous" as there were "probably large deposits" still there. However, the "needed information" was not apparently laid before the proprietors nor was any attempt made to identify or quantify the probable "large deposits".

That the directors could still express such optimism on the eve of closure is understandable when one looks at the statistics (Table 2). While tonnages were declining there did seem to be a substantial recovery in 1875. Likewise an improvement in the price of copper in 1872 was maintained over the next few years: It must therefore have come as a shock to many shareholders when the mine closed as there were various things they did not know.

The vein at Tankardstown in section was like an elongated pear at an angle of about sixty degrees. The stalk was all that was visible above sea-level.. At a depth of six hundred feet the "pear" was at its widest, 60 feet, but quickly diminished thereafter. Rich ore within the "pear" was patchily interspersed with poorer quality and seemingly with barren rock (Abandonment Plan). Most of this was concentrated in the area immediately north of the engine shaft as is apparent from figure 7. Presumably by 1865 the richest pockets had been worked out, although nobody could have been certain of that at the time. Testing was done under the sea floor (Fig 10) as well as on the landward side but mainly only poorer quality ore was found. Only sustained high prices of ore would have sustained Tankardstown for a few years longer; it was in fact, economically worked out.

While the optimistic front was maintained up to 1876, the directors seem to have accepted that nothing was going to save the mines and began selling off its assets, beginning with the corn mill at Carrick Castle. Signalling the beginning of the end was the removal of the railway line from Tankardstown in late 1876 (MJ 1876, p. 127, report half-AGM)..

The mining community itself was as capable of being in denial as the directors. The removal of the railway may have provoked some form of industrial action by the miners to keep the mines open to judge from some surviving conventionalised doggerel (Walsh, Michael 1978):

*"Oh 'tis well that I do remember now, that year of seventy six #,
When the mines of Knockmahon put themselves in a fix,
The very night they had the strike, the women were all cryin'.
For they drew a crowd of sorrows down upon Knockmahon mine!.*

Walsh's printed version said 1886 - well after the mines had closed. Another oral version said '66 (the late Andy Kirwan, Bunmahon) for which there is no evidence while Patsy Fleming (late of Knockmahon) had the more likely '76.

Year	Produced			Price Index		
	Tons ore	tons Cu	% rich	Total value	per ton	Price
1865	3596	385	10.71	£30,827.30	£8.57	94
1866	5710	672	11.77			92
1867	6592	654.9	9.93	£46,939.20	£7.12	82
1868	9433	872.5	9.25	£61,471.90	£6.52	79
1869	5299	466.3	8.8	£29,929.10	£5.65	78
1870	4208	343	8.15			63
1871	3873	332.1	8.57	£21,300.30	£5.50	78
1872	2667	229.4	8.6	£20,403.10	£7.65	104
1873	3314	295.1	8.9	£20,513.90	£6.19	96
1874	3080	263	8.54	£18,629.60	£6.05	90
1875	4766.6		8			90
1876	3106.7		7	£16,144.00	£5.20	84
1877	2139.7	161.3	7.54	£11,502.30	£5.38	76
1878	819.9	55.5	6.77	£3,084.30	£3.76	69
1879	118.2	5.5	4.65	£282.70	£2.39	54

TABLE 2: Production and value of Tankardstown ore collated from (Mineral Statistics and from MCI's own Reports).



Figure 9. Damage was done to the front door in pulling out the cylinder and beam which were sold for scrap. Only the conserved shells of Tankardstown engine houses now remain.

During 1877 the company got legal advice about closure but attempted to sell the mines as a going concern. Meanwhile a last desperate attempt was made to find a new ore-body (MCI reports 1st and 2nd 1877). The final stroke however was the removal of the pumps at the end of 1877. This allowed the mines to flood and ensured that there was little likelihood that they could ever be worked again (MJ 1878, p. 104 and 788, Reports half-AGMs). All that was left for such miners as remained was to salvage whatever ore was left in the mine above water-level and pick over the old waste tips. The company had rejected a proposal to pay them direct relief but did agree to pay them one pound per ton for whatever ore they salvaged (WN, 20th & 27th July and 3rd August 1876.). In fact they did quite well. Eight hundred and twenty tons of fairly reasonable copper were sold (see table 6.1) though this must be have been exhausted by 1879 since the 118 tons sold that year were of very inferior quality and probably represented scavenging the waste tips.

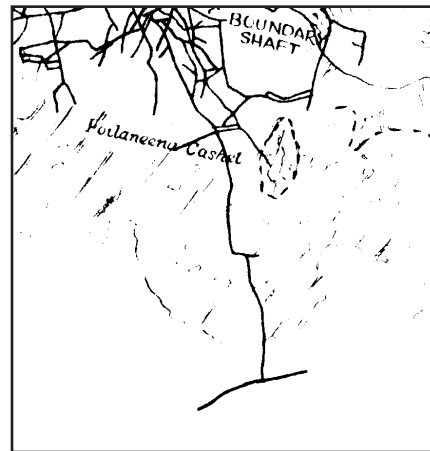


Figure 10. Mine plan of Tankardstown showing sub-sea floor search level and then lateral searches (Compiled plan).

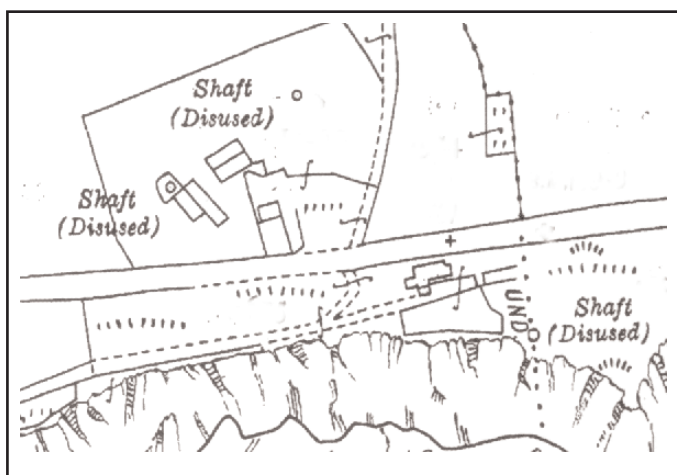


Figure 8. Tankardstown in 1905. The collar was still around the main shaft and the boiler houses were still in place beside the engine houses.

While that ended local ore sales, an air of dismal finality had already taken place with the knocking down of the miners' cot-

tages in 1878 (WN 6th September 1878). Probably this had to do with the company not having to pay rates. The lease of Tankardstown expired in the Summer of 1879. It was not renewed (WN, 8th August 1879). The last sad ritual late in 1879 was the selling off of "various portions of old machinery, stores", etc.. Engines, kibbles, whims and everything that represented livelihoods for thousands of families over fifty years fetched only £330 and seven pennies. (MCI reports, 2nd '79)

To comply with their legal obligations, balks of timber were wedged across the rock below soil level at each of the shafts and then backfilled in order to make them safe for the foreseeable future. This future did not include a century later by which time most of them had collapsed. However, their positions were also marked on a series of maps and lodged as "Abandoned Mine Plans" in The Geological Survey Office where they remain (Files 125/2/2).

DREAMS OF REOPENING

The MCI went into final liquidation in 1891 when they sold their last remaining property, Slievardagh colliery near Ballingarry in county Tipperary. They offered the Bunmahon mines for sale along with, even more strangely, Ardmore mine (there is no evidence that they ever owned this). The sale notice

by Battersby auctioneers in Dublin is also remarkable in that it managed to get nearly every factual statement wrong. Those interested would probably have discounted most of the assertion that the Knockmahon/Tankardstown area contained "mines of coal, culm, lead, copper, etc., etc." but they possibly accepted that "the mines were partially worked for some years with some success" (MJ, 1891, p.978 ad). That innocent "partial" resurfaced in variant forms over the next ninety years and indeed reflected a view published in a trade directory a few years earlier "that ore is still abundant in the district" and blaming only the reduced price of copper for closure (Guys' Directory 1886), p. 159).

The mineral rights around Knockmahon were then purchased by the Liverpool-based firm of international mining consultant, E. Spargo and Sons (GSI File 004MPBWA, letter signed Edmund Spargo to RDS 9th April 1908). There were immediate rumours that they intended reopening the mines (WN 9th Jan and 2nd April 1892). In fact they seem to have done little with the disused working over the next ten years, their only reported activity being to send a mining expert to examine Knockmahon and Tankardstown in 1896 (WN 23rd May 1896). Presumably, the Spargos were behind the anonymous consortium calling itself grandly the (Great) Knockmahon and Tankardstown United Copper Mines that was set up following this examination (MJ 1897, p. 94 and WN 1st May 1897). They launched a splendid prospectus in 1898 with maps and sketches and a fine plan to reopen Stage Lode, Knockmahon and Tankardstown. Fig 11. shows the grand design. (GSI, Waterford File M25 29 Prospectus).

All sorts of feasible inferences are on this plan as to how both mines could be worked at depths of over half a mile (over 800 yards) using analogies from Cornwall and America, that being the supposed point of junction underground of Tankardstown and Knockmahon lodes. It behoved any new mining company to read the reports and study the plans of their predecessors. Had they done so they would realise the shattered nature of the Knockmahon lode and that the sea had broken in there; Tankardstown, of course was worked out and no more had been found at depth. However, this was at a time of sustained depression in the copper market so there were not enough rich dreamers about and the company quietly folded up, dissipating whatever expectations had been generated locally

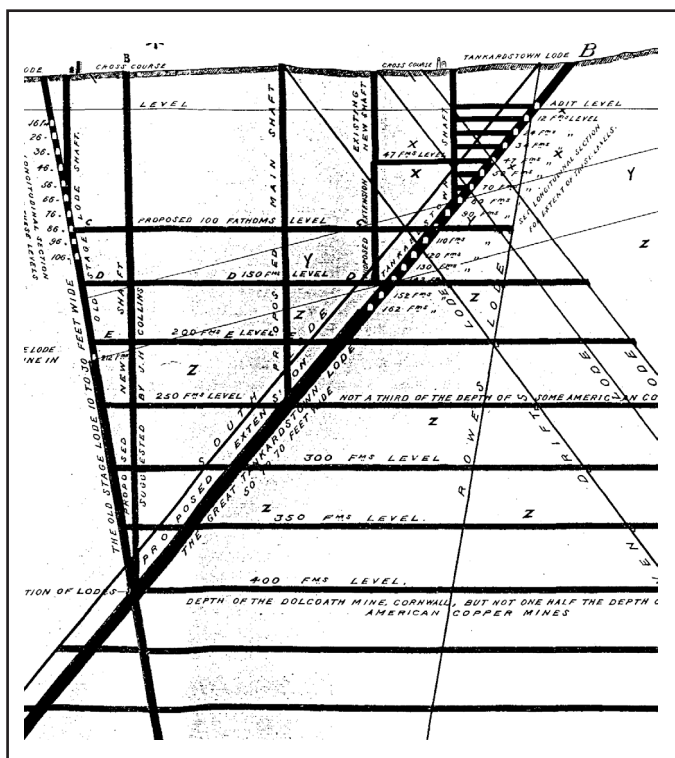


Figure 11. The supposed "great junction" of Knockmahon (left) and Tankardstown lodes with levels proposed in 1898. This was based on pure fantasy.

THE 1905-'06 "SCAM"

An improvement in the price of copper in 1905-'06 led to a renewed interest in the Bunmahon area led to the setting up of four companies - one to work Stage, one Tankardstown, one Kilduane and the fourth had registered offices in Bunmahon but no other details of it survive (MJ 1906 I, p.712 letter; II, p. 221 notice). The Tankardstown company, however, was the most committed - not least about publicising themselves. They were set up in 1905 under the name *Bonmahon Copper Mine Development Syndicate*, and they took a lease of 190 acres around the old Tankardstown mine.

There is ample evidence from what the directors of Bonmahon Copper Mine Development Syndicate said and wrote that the entire operation was a scam to defraud those who had a genuine concern to resuscitate Tankardstown. However, a different selection from the same evidence could be used to support an

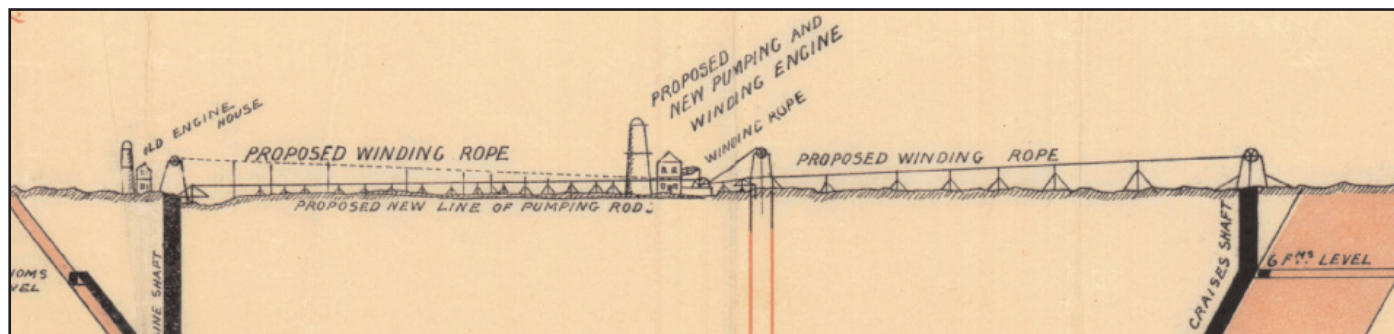


Figure 12. Fanciful 1898 plan of what would appear on the surface between Knockmahon (left) and Tankardstown to work the two lodes. (GSI)

argument that the directors actually believed the rhetoric they themselves generated. There is a narrow boundary between wilful self-delusion and skilful misrepresentation. Details of this are given elsewhere but of relevance is the report of a visit there by a party of invited Journalists as part of the company's policy of disguising failure.

The journalists were collected from the train in Kilmacthomas and brought by horse and cart in a raging storm winding up being brought down a gully in the cliff below Tankardstown and in along the adit which was described as wet (cutting from *Cork Holly Bough*). Most probably the copper staining there was pointed out as real ore (see cover Journal MHTI, no 2, Dec. 2002 and Moreton, this issue). It also indicated that Tankardstown engine shaft had not been cleared for pumping by December 1906, or had collapsed since they were not given this option.

The company wasted much of its limited resources on publicity including plastering the two sides of the engine house most visible to the public. Winding up procedures began on 13th April 1907, though the actual liquidation did not happen until 22nd July 1910 and the final formality, being struck off the register of companies, eventually took place in June 1913 (BT31/11305/86495).



Figure 13. Figure 3. A promotional post-card issued by the company in 1906. It is carefully posed and does not look like the main shaft at Tankardstown as the caption infers. (card courtesy Dr. John Morris)

SEQUELS

There matters rested until the postman to Stradbally disappeared while doing his rounds on Christmas Day 1929. The search centred around the mines on the assumption that his body had been dumped down a shaft. A searchlight was directed down the engine shaft at Tankardstown and revealed the collapse of the mine (CE 31st January and 13th Feb 1930) While this was a *cause celebre* in its day, the fate of Larry Griffin remains unknown.

The publicity attending the search of the shafts reportedly intrigued Lord Waterford's guest, the Duke of St. Albans. On his return he persuaded a fancifully named geologist, Broughton Broughton-Edge, to investigate the area. He was said to have

spent three years conducting an electronic survey on which basis he interested Nils Eric Lenander of Orkla Lappenverg, the largest mining consortium in Norway (IT, 27th Sept 1935). Whatever local expectations this created were disappointed.

There is no record of any further testing during the 1940s. However, in 1953 two Avoca miners were employed by Mianraí Teoranta to do some underground sampling at Tankardstown. (GSI Box File 120.2 and .5, report M.A. Cunningham). Possibly as a result, in 1956 Explorers' Alliance of Toronto set up Bunmahon Copper Mines Ltd.. They were joined by various partners over the next twenty years but the 19th century miners had effectively cleared out all commercial copper. The final indignity for the engine shaft in Tankardstown took place in the late 1960s when in the making of the film *The Mackenzie Break* a lorry was crashed into the rubbish filled shaft and its burned-out remains presumably still lie buried beneath the further rubbish that has since filled it to surface level.

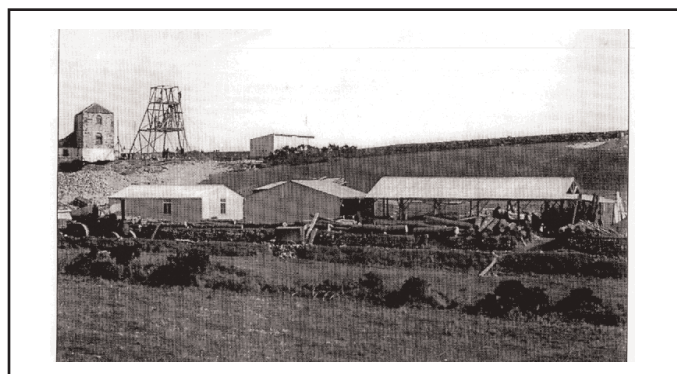


Figure 14. This seems to be Bonivvy mine with Tankardstown north engine house being re-utilised, possibly with a diesel engine being used for raising the ore.

REFERENCES

- Abandonment plan, Tankardstown GSI., File 125/2/2 by Joseph Dick, 26th April 1879. This very large plan shows unworked areas at various levels indicating uneven distribution of the ore.
- BT31/11305/86495 Board of Trade Return of Allotments in PRO Kew Ms . First allotment of shares 7th December 1905; Second allotment 11th July 1906; Summary of Capital and Shares 31st December 1906 and winding-up documentation at back of folder.
- CE: *Cork Examiner* 31st January and 13th Feb 1930.
- Compiled Plan 1956. This is a collation of mine plans for the area east and west of Bunmahon by Wilson and Powell. It is not known what source they used for Tankardstown. Copy in GSI but writer's own copy used here.
- Cowman 2001 "The Mining Boom of 1824-'25, Part 1", *MHTI Journal*, 1, p. 49-54.
- Cowman, forthcoming. *The Making and Breaking of a Mining Community The Copper Coast, Co. Waterford 1825-1875+* (MHTI 2006).
- Cutting, undated 'Bunmahon Mines' from *Cork Holly Bough* courtesy of Jim Cullinan. The author seems to have been quoting from a published account.

- Doudney, D.A. Of his numerous published writings most useful is his *A pictorial outline of the rise and progress of the Bonmahon industrial, infant and agricultural schools, County Waterford* (Bonmahon 1856)
- Harvey (of Hayle) DDH 3/7. accounts showing 24 stamps invoiced for unspecified date in 1866, 37 that September and an unspecified number in April 1867. (I thank Roz Cundick for this reference)
- FJ: *Freeman's Journal* 5th January 1866
- GSI BF: GSI Box File 20, no. 3. Herbert F. Collins report on Glen, August 1917. Daly, May 1917 main report and addendum. 120-1-19. J. Hinchey's report dated 1/5/1929, quoting Fitzgerald. Files 125/2/2. 120.2 and .5, report M.A. Cunningham. 120.2 and .6, unattributed. 195/2/2, Report by Dr. Alastair A. Brown of Tara Prospecting and other notes.
- GSI File 004MPBWA, letter signed Edmund Spargo to RDS 9th April 1890 GSI, Waterford File M2529 contains the prospectus.
- Guys' *Directory of Munster* (Cork 1886), p. 159.
- IT: *Irish Times*, 27th Sept 1935
- MCI Reps: Mining Company of Ireland, half-annual reports to their shareholders, usually July (1st Report) and January (2nd Report for previous half year).
- Min. Stats.: *Mineral Statistics* published annually by HMSO.
- MJ: *Mining Journal*. IMSM : Irish Mining Share Market. (share prices)
- Mems GSI, 1865:Memoirs of the Geological Survey of Ireland, Volume 6, Explanation to accompany sheets 167, 168, 178 & 179 (HMSO 1865), p. 81, quoting mine cashier James Hore. and note by G. du Noyer.
- NA Outrage Papers (CSORP) 1860, Nos. 17348-17392.
- NLI ms 10,064, Downey Papers containing Prospectus for Bonmahon Copper Mine Development Syndicate along with extract from reports on mine. Reports from Collins, Mitchell and Gregory.
- Walsh, Michael "Bonmahon Mines --- The strike and aftermath" in the *Munster Express, Christmas Supplement*", Dec. 1978, p. 21. This highly inaccurate article gives the date of the "strike" as an impossible 1886. Pat O'Brien of Dunhill gave me a slightly more plausible version of this with the date 1866. However, I accept Andy Kirwan of Bunmahon's version as most likely, with a date of 1876.
- WN: *Waterford News* later *Waterford News and Star*.
- Williams, Alan *The Berehaven Copper Mines* (Sheffield 1981), pp 159-162