

## **A challenging ore deposit geometry: history of the Mount Claude-Round Hill silver mine, northwest Tasmania**

By KEN MCQUEEN  
*University of Canberra*

**Key Words:** Cethana, silver, lead, gold, tramway, waterpower, geology.

**T**he history of a mine is fundamentally influenced by the features of the ore deposit worked. Key amongst these features are the deposit size, grade and geometry. This article describes the history of a mine where deposit geometry was a particular challenge.

Prior to 1927, the Mount Claude or Round Hill silver-lead mine near Cethana in northwest Tasmania was a significant silver mine producing at least 10,810 kg (347,550 oz) of silver, as well as 4,723 t of lead and 31.46 kg (11,012 oz) of gold from about 60,000 t of ore.<sup>1</sup>

The geology of the Round Hill area is structurally complex, consisting of a folded and faulted sequence of quartzites and interbedded shales, which contain the silver ore, passing up into limestone. There are two distinct types of silver-bearing galena lodes: narrow (generally <10 cm) bedding-parallel veins; and much larger shoots (up to 7.5 m thick) developed within the axial crest of a major anticlinal fold.<sup>2</sup> Early attempts at mining failed, largely due to the inability of the miners to recognise the structural control on these two different types of lodes. As a result, capital was wasted on fruitless underground prospecting with only minor production. Later mining was much more successful due to a better understanding of the ore deposit geometry and its control on the two different styles of mineralisation.

### **Location and discovery**

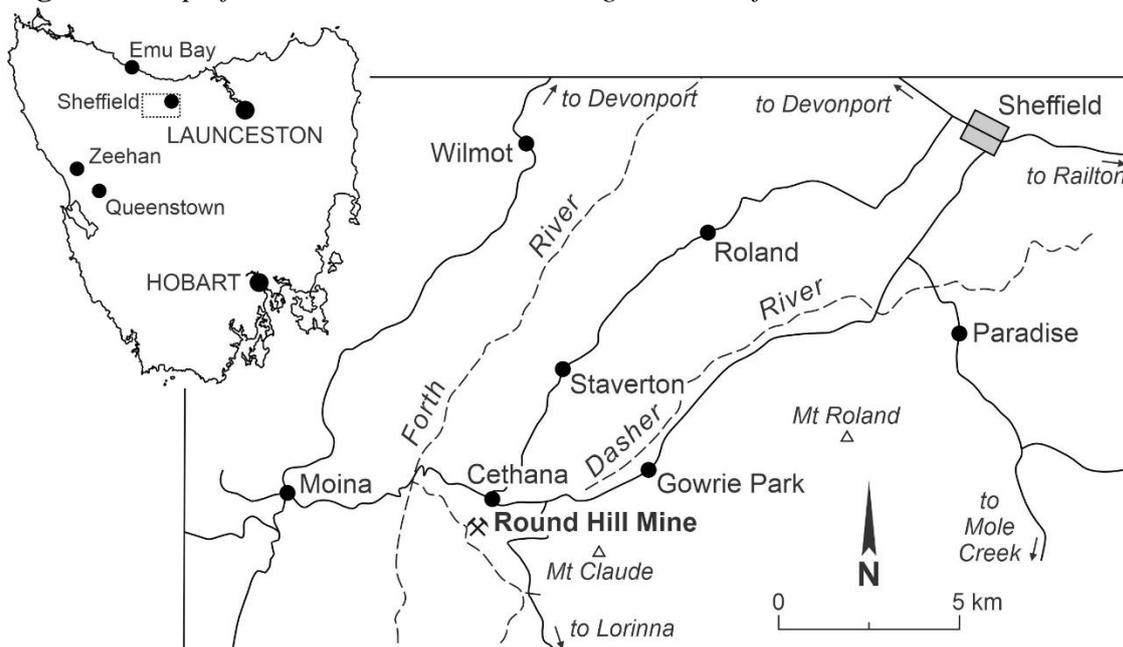
The Round Hill mine is located just south of Cethana in northwest Tasmania, near Mount Claude and along the rugged gorge of Claude Creek (later renamed Machinery Creek), a tributary of the Forth River (Fig. 1). The first European access to this region was in the late 1820s when the Van Diemen's Land Company built a track from the Western Marshes near Deloraine, via Mole Creek across the Middlesex Plains and Surrey Hills, to Emu Bay.<sup>3</sup>

The earliest prospecting in the region was for gold, with the legendary prospector James 'Philosopher' Smith mounting three expeditions in 1859 to the Wilmot River and upper Forth River areas.<sup>4</sup> Smith and companions found alluvial gold at several locations including on the Forth River near the present site of Lorinna, however difficulties with the rugged terrain, thick vegetation and water inflow made it impossible to fully prospect the discoveries. Smith also found signs of silver-lead ore at the mouth of Claude Creek, an eastern tributary of the Forth River.<sup>5</sup>

It is recorded that around 1878 two prospectors, Henry Weeks and Thomas Shepherd, found outcropping galena (silver-bearing lead sulfide) in the bed of Claude

Creek, just northwest of Round Mount.<sup>6</sup> This was before Frank Long and John Healy discovered the famous Zeehan silver field, further down the west coast, in December 1882. Nothing was done with the Claude Creek discovery until June 1881 when the Mount Claude Silver-Lead Prospecting Company was formed to fully prospect the site. The outcrops in the creek were followed up into a 'lode zone' about 4 m wide and traceable for 400 m. Samples sent to Launceston for analysis indicated 55 oz/t silver and 59.5% lead.<sup>7</sup> The results ignited a prospecting frenzy in the area.<sup>8</sup> At the nearest town of Sheffield, it was reported that everyone had 'silver-lead on the brain'.<sup>9</sup>

**Figure 1:** Map of northwest Tasmania showing location of the Round Hill Silver mine.



Source: Map by the author using Google Maps as a base.

### Early Mining Phase (1881-1893)

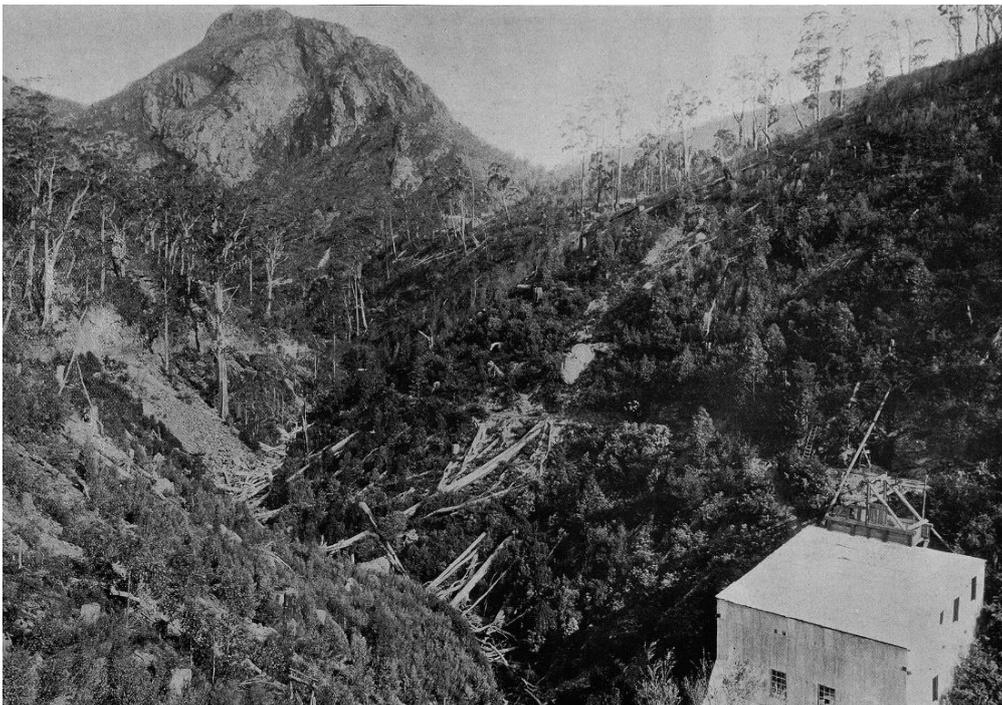
#### *Mount Claude Silver-Lead Mining Company*

In early July 1881, a meeting of the Mount Claude Silver-Lead Prospecting Company was held at John Sampson's Retreat Inn in Latrobe, to float the Mount Claude Silver-Lead Mining Company. It was proposed the company would have nominal capital of £30,000 in £1 shares with 20,000 paid up to 10s and 10,000 shares to be retained by the proprietors. A total of 100 'promoters shares' were to be offered for sale at £50 each, with £2,000 of the proceeds going to the prospectors and the remaining £3,000 to working capital. Daniel Burke was appointed provisional manager and R. Bauld secretary. Thomas Hainsworth was appointed treasurer and the provisional directors were John Sampson, A. Mitchell, A. Cherry and H. Weeks.<sup>10</sup> The prospectus for the new company was released on 4 July, and shortly after, Mr W.J. Johnston of the Mount Bischoff Silver-Lead Mining Company and James 'Philosopher' Smith were invited to accompany Thomas Hainsworth on an inspection of the Mount Claude deposit. The resulting report was rather vague but suggested that the prospects of the site were promising.<sup>11</sup>

The Mount Claude Silver-Lead Mining Company was formed on 8 August 1881 with election of officers and a full board of directors. Many of the shareholders were influential identities and businessmen of northern Tasmania, including from Latrobe, Deloraine, Launceston, Westbury, Hagley, Exton, Kentishbury and Sassafras.<sup>12</sup> The company held an 80-acre claim along the southern side of Claude Creek, and numerous other claims, many speculative, were quickly taken out. An adjoining claim of 40 acres had already been offered to the Mount Claude company.

The first task for the company was to establish access to allow transport of equipment to the mine site and later shipment of ore to the nearest rail terminal or port. Access to the site within a heavily timbered gorge was quite a challenge. Thomas Hainsworth suggested the possible construction of a tramway over the steep ridge on the western side of Mount Claude and down into the valley of Claude Creek. With a cable connecting cars on either side of the ridge, gravity could be used to pull the cars across. A track or tramway could also be built around the western end of the steep ridge from near present-day Cethana and up the northern side of Claude Creek to the mine site (Fig. 2).<sup>13</sup> The latter option was selected, probably because it would allow simpler and sooner access for construction of the mine. James Hancock, who had wide experience in various mines in the United Kingdom, at Bendigo, Moonta, Mount Bischoff and Penguin, was appointed mine manager.<sup>14</sup> Hancock commenced work in late September organising a track to the mine to bring in tools, as well as building huts for the miners and starting some adits into the sides of Claude Creek valley to develop the mine.<sup>15</sup>

**Figure 2:** *View east along Claude Creek gorge December 1914. Round Hill (Mount) in background with mine road (tramway) visible at right, above the creek. Mill with ropeway to the western workings is at the lower right. Mullock from adit of the central workings visible near centre of photo. Main eastern workings are hidden behind spur at right.*



Source: *Weekly Courier*, 31 December 1914.

In October 1881 some of the other claims in the Mount Claude area were amalgamated and floated as the Tasmanian Silver-Lead Mining Company. with nominal capital of £60,000, including 40,000 £1 shares offered to the public on payment of 1s per share.<sup>16</sup> The claims included lodes discovered by Robert Manley and partner Young about 800 m to the northwest of the Mount Claude Company property. These lodes comprised thin and irregular veins of galena with crystalline pyrite. An adit was commenced 45 m below the top of the ridge on the southwest side of Claude Creek, but only minor amounts of ore were produced by this company, which vanished from the scene during 1882.<sup>17</sup>

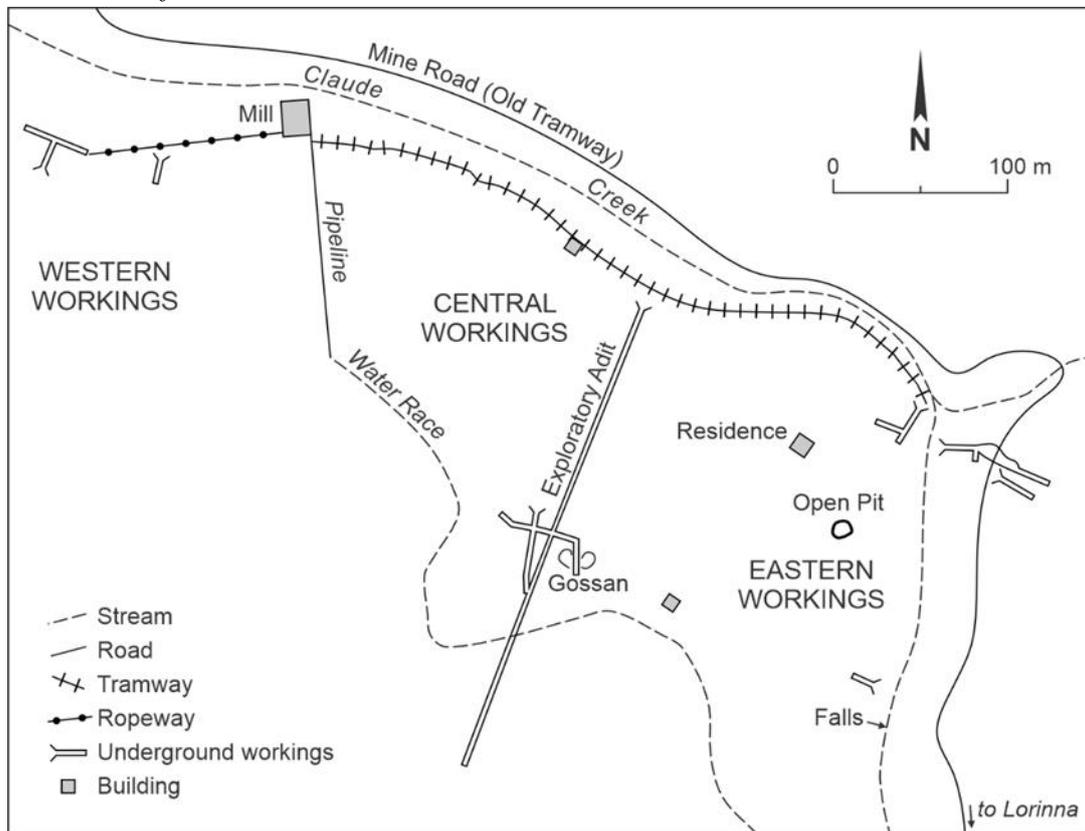
In December 1881 Gustav Thureau, consulting geologist to the Tasmanian Department of Mines, inspected the Mount Claude Company mine and other claims at Claude Creek. In a detailed report Thureau described the nature of the deposits and the early mining activity, noting that the ore bodies appeared to be a 'stockwork' of generally thin and irregular veins developed along the bedding planes of the quartzite-rich host rocks.<sup>18</sup> He suggested that open cut mining would be the most suitable method of working such ores. As the ore veins were galena-rich with sharp boundaries, he recommended hand picking the ore after mining, rather than employing grinding and gravity concentration. Thureau also pointed out that as there was no locally available coal or iron flux, a smelting works should not be erected, at least until these materials might be more readily obtained, and that it would be more economical to ship clean-picked galena to smelting works elsewhere. Thureau gave the first detailed description of the geology and mineralogy of the ores, identifying argentiferous galena, sphalerite and silver sulfide as the main ore minerals, with quartz, calcite and siderite as the main gangue minerals.

Work at the Mount Claude mine progressed slowly during the early part of 1882. Up to 12 men were employed conducting exploratory mining on four separate 'lodes' by trenching and working small open cuts and adits. A quantity of ore was gradually accumulated, mainly from the workings on the east side of Claude Creek. The mine manager, James Hancock, was dismissed in March 1882 for being absent from the mine over Christmas while he visited his family, for not keeping correct accounts and for abusive language to the directors.<sup>19</sup> Stephen Hocking, who had previously worked for the company was appointed as the new manager. Sixteen samples of ore from different lodes were sent for assay to the Ballarat School of Mines and one sample to Professor James Cosmo Newberry in Melbourne, and the results indicated between 16-70 oz/t silver and 44-70% lead. The company commenced building a wooden tramway from the mine, around the spur of Mount Claude to join a proposed line of road at the north side of Mount Claude. Arrangements had been made with the Tasmanian Government for the Department of Public Works to construct this road from Sheffield, via the Don Trading Company's agricultural sections, using grants totalling £700 from the Waste Lands Fund. It was decided to install dressing equipment, including a 'hand breakstaff' to crush the ore and a Hancock gravity concentrating jig, and to send 10 tons of dressed ore (probably hand-picked) to England for test smelting.<sup>20</sup>

At the second half-yearly meeting of the Mount Claude company held in January 1883, it was reported that the 2.1 km tramway from the mine had been completed at a cost of £800, and that 5 acres of land had been procured at the terminus for future

construction of stores, stabling and cottages. The government road had not yet reached the terminus and took some time to arrive, later prompting one shareholder to note that the tramway constructed was ‘a railway from nowhere to nowhere’ and a waste of money.<sup>21</sup> A 7.8-ton ore parcel had been shipped to England from the wharf at Latrobe via Melbourne, and the results from smelting indicated the value of the ore as landed in England at around £6 per ton. The freight cost from Melbourne to England was 12s 6d per ton.<sup>22</sup> Given the additional costs of mining, dressing, transport to Melbourne and smelting charges this method of operation would probably produce slim profits.<sup>23</sup> It was decided by the directors to change the focus of work from mining the exposed lodes to excavating a long north-south oriented exploratory adit from a low level across the stratigraphy to try and intersect the assumed extensions of the four main lodes (Exploratory Adit on Fig. 3). At this point no ore dressing machinery had been procured.

**Figure 3:** Map of the Claude Creek area showing the location of the workings and surface installations of the Round Hill mine in 1912



Source: Modified from sketch map of Twelvetrees 1913.

By the end of July 1883, the exploratory adit had reached 65 m through extremely hard ground. Several small veins of ore between 1.3 and 5 cm thick had been cut, but there were no significant lodes as predicted. Nevertheless, it was decided to continue this work to an area below a large surface gossan containing veins of galena. Ventilation in the adit had become a problem and a water-powered fan had to be installed. As work had essentially ceased on the four known lodes there was no ore production. Over the previous two years there had been numerous calls on shareholders to fund development of the

mine, which in terms of mining ore had scarcely progressed any further than when the company had been floated. There was much grumbling among the shareholders, and many had already forfeited their shares rather than meet the calls. At this stage the total calls on contributing shares had reached 7s 6d. The share price for £1 shares had fallen to 3d. Jonathan Best, a major shareholder, proposed that the company management be changed to include directors who were contributing shareholders, rather than those with fully paid-up shares exempt from calls for ongoing work.<sup>24</sup> This suggestion does not appear to have been implemented.

Work on the adit continued until the end of July 1884 when ‘ore-bearing rock’ was struck just before the fifth half-yearly meeting of the company. This rock was interpreted as the No. 2 lode and the directors suggested that the adit be continued for another 18-24 m to reach the predicted location of the No. 1 lode.<sup>25</sup> Contributing shareholders faced the classic dilemma of deciding to pay another hopeful call and risk throwing good money after bad or forfeiting their shares. Of the 20,000 contributing shares 6,000 had already been relinquished through non-payment of previous calls. By the next half-yearly meeting, the adit had reached 181 m without intersecting payable ore. The company directors now faced their own dilemma of whether to continue in some new way or abandon the mine and wind up the company. It was decided to ask the Minister for Lands to send Mines Inspector Thureau to make another inspection of the mine site.<sup>26</sup>

Thureau completed his second inspection in March 1885 and his report, received in early April, was sufficiently encouraging to suggest that the company should keep working the mine.<sup>27</sup> Thureau pointed out the company’s error in assuming that the narrow and irregular galena veins pursued in the exploratory adit were true lodes and suggested a refocus on mining the larger bodies of exposed ore on the east side of Claude Creek (eastern workings Fig. 2). The company’s capital was now so depleted that this new strategy was not achievable, and at the seventh half-yearly meeting in July the directors recommended that the company be wound up as soon as possible. It was considered that an arrangement could be made for a few shareholders to continue working the mine in a limited way.<sup>28</sup> At a subsequent extraordinary meeting called to wind up the Mount Claude Silver-Lead Mining Company only 11 shareholders, representing 785 shares, turned up. As it was necessary for two-thirds of the company shares to be represented nothing could be done. A second meeting produced a similar result.<sup>29</sup> Most shareholders had clearly lost interest as well as their funds. Finally, a meeting held on 21 October attracted sufficient shareholders and proxy votes to liquidate the company. The property and assets, including two tons of ore still on the wharf at Latrobe, were put up for auction on 29 October 1885.<sup>30</sup> Over its five-year life span the Mount Claude Company had expended more than £5,000, produced less than 20 t of ore and sold 7.9 t for £42.<sup>31</sup> Most of the shareholders’ funds had gone into building a tramway, subsequently pulled up for the timber, and excavating a 181 m long prospecting adit.

### ***Southern Cross Proprietary Silver Mining Company***

Following the discovery of the Zeehan and Dundas silver fields, a west coast silver boom developed in the late 1880s, further stimulated by an Australia-wide stock market frenzy

in silver stocks.<sup>32</sup> There was renewed interest in the Mount Claude silver mine and surrounds. In June 1887, a syndicate entitled the Latrobe Prospecting Association, was formed, and acquired the leases over the old Mount Claude mine as part of its property portfolio. Some investors in this group, including A.W. Cherry, had been prominent shareholders of the Mount Claude company. The initial plan of the syndicate was to float the Mount Claude mine on the London market. Mr Roger Rockcliffe, a prominent shareholder, was given the task of promoting the property during a return trip to England. Rockcliffe left in August, accompanied by the two tons of previously mined ore and a collection of attractive galena specimens. By the end of the year he had acquired an offer from an English investment syndicate to purchase and float the mine, however it appears the terms were not sufficiently favourable and it was decided instead to try the Adelaide market.<sup>33</sup> The latter attempt was also unsuccessful and the group then resorted to floating the mine locally.

Numerous other silver leases were taken out in the Mount Claude area during this period. These were mostly over surface showings and thin veins of galena in the area south of Claude Creek and on 'Tin Spur', where small amounts of cassiterite (tin oxide) had also been discovered. Several companies were formed to work these, including the Māori Queen Silver Mining Company NL and the United Claude Proprietary Silver Mining Company NL.<sup>34</sup> Some shallow testing was conducted, but little if any ore was produced by these groups.

In August 1887, a gold-bearing formation was found near the Mount Claude mine and confirmed by Gustave Thureau during a third visit to the area.<sup>35</sup> Subsequently the Mount Claude silver-lead ores were assayed for gold, indicating up to 13 dwt/ton.<sup>36</sup> The following month a large ironstone outcrop, previously unsuccessfully prospected for silver, was found to contain gold.<sup>37</sup> This led to a pegging spree in the area about 3 km southwest of the Mount Claude mine.<sup>38</sup> Much of this activity was speculative with little work on the ground. In December 1890, a Melbourne-based association including Broken Hill mining magnates Bowes Kelly, William Jamieson and W.R. Wilson reportedly took an interest in several claims in this area, particularly leases taken out by prospectors David Gillespie and John McLeod.<sup>39</sup> These leases contained ironstone with features similar to the iron 'blow' discovered at Mount Lyell by William and Michael McDonough and Steve Karlson in November 1883.<sup>40</sup> An expert was sent to inspect the properties, but the resulting report was not sufficiently encouraging for the group to pursue the prospects further. However, in July 1891 a group of local investors under the management of Robert James Sadler formed the Boston Prospecting Association in Launceston to further investigate these leases.<sup>41</sup> Nothing of significance was discovered, the gold in the iron 'blow' probably being a minor surficial enrichment.

In early 1891 the Southern Cross Proprietary Silver Mining Company NL was floated in Melbourne to work the leases of the old Mount Claude Company.<sup>42</sup> The plan was to extend the long exploration adit to intersect a major lode projected to be somehow connected to the nearby surface gossan. In June, consulting mining expert W. Luplau visited and reported on the mine. He recommended that the company suspend working the adit and instead put their effort into prospecting the surface areas around the site, as he considered it likely that fresh discoveries would be made by this approach.<sup>43</sup> This

advice was ignored, and the company began refurbishing the adit with new air pipes and timbering. Extension of the adit commenced in December 1891, and it was driven to 198 m, where the miners struck a strong flow of water and the boundary between the quartzite host rocks and an overlying limestone unit. No lode of ore was found.<sup>44</sup> By July 1892 the Southern Cross Proprietary company was in financial difficulty and their mining efforts were abandoned. The company assets were seized and put up for auction.<sup>45</sup>

### ***Kentish Proprietary Silver-Mining Company***

In September 1892 the Kentish Proprietary Silver-Mining Company, NL was formed to take over the leases of the Southern Cross Proprietary.<sup>46</sup> The company was registered in December, with 25,000 shares of 1s each. George Hartrick, who was the party that had seized the assets of the former company, was the manager. The shareholders were a mixture of miners, businessmen, farmers and other personalities, including a police magistrate and three women, all from the Sheffield and Latrobe areas.<sup>47</sup> Hartrick's plan was to continue the exploratory adit in quest of the mythical lode. By the end of 1893 the adit had advanced 46 m, mostly through limestone, to reach a total distance of 244 m. Again, no major lode was discovered. This group then abandoned the mine and the Mount Claude field languished. The silver price crash of August 1893 put a dampener on silver mine investment and this situation persisted until 1896, when there was a brief revival in ground pegging and some small-scale mining in the area.<sup>48</sup> In October 1901 two miners obtained six tons of ore from a lode at the eastern workings, which they sent to the custom smelting works at Dapto, New South Wales.<sup>49</sup>

### **Second Mining Phase (1907-1927)**

#### ***Round Hill Silver and Lead Mining Company***

By the early 1900s there was better access to the Mount Claude area and the surrounding transport facilities had improved. A group, styled as the Round Hill Silver Mining Company, named for the Round Hill or Round Mount on the eastern side of Claude Creek, acquired leases totalling 200 acres over the old Mount Claude Company ground.<sup>50</sup> In April 1907, this syndicate publicly floated the Round Hill Silver and Lead Mining Company NL with 60,000 shares of 3s each. Hector H. McFie was the acting company manager. Most of the shareholders were from Devonport and Launceston in northern Tasmania.<sup>51</sup>

Over the next twelve months the company prospected the site extensively and produced two test parcels of ore from several workings. The parcels were sent to the Sulphide Corporation Smelting Works at Cackle Creek in New South Wales for test smelting. These included a parcel of hand-picked 'firsts' which returned a total value of £13 per ton and a parcel of mine 'seconds' which returned £5 18s per ton. As the price of lead at the time was £15 per ton and of silver 2s 1.5d per oz, these results were deemed highly payable. The directors recommended the erection of a water-powered concentrating plant to be manufactured by Finlayson Bros, at their engineering works in Devonport.<sup>52</sup> Transport problems due to the condition of the roads to the mine over the following winter delayed construction of the plant, which consisted of a rock-breaker, set

of rolls, trommels, two gravity jigs, and a Card table, all powered by a 25-hp Pelton wheel. By February 1909 the plant, located near the western workings, was completed, together with a water race to supply the waterpower and processing water.<sup>53</sup> Subsequently a horse-drawn tramway from the eastern workings to the mill and an aerial ropeway to bring ore from the western workings were completed (Figs 2 and 3).<sup>54</sup> The first 25-ton batch of hand-picked ore was sent to Devonport in late March for shipment to Cockle Creek, and by May, ore to the value of £1,200 had been disposed of.<sup>55</sup>

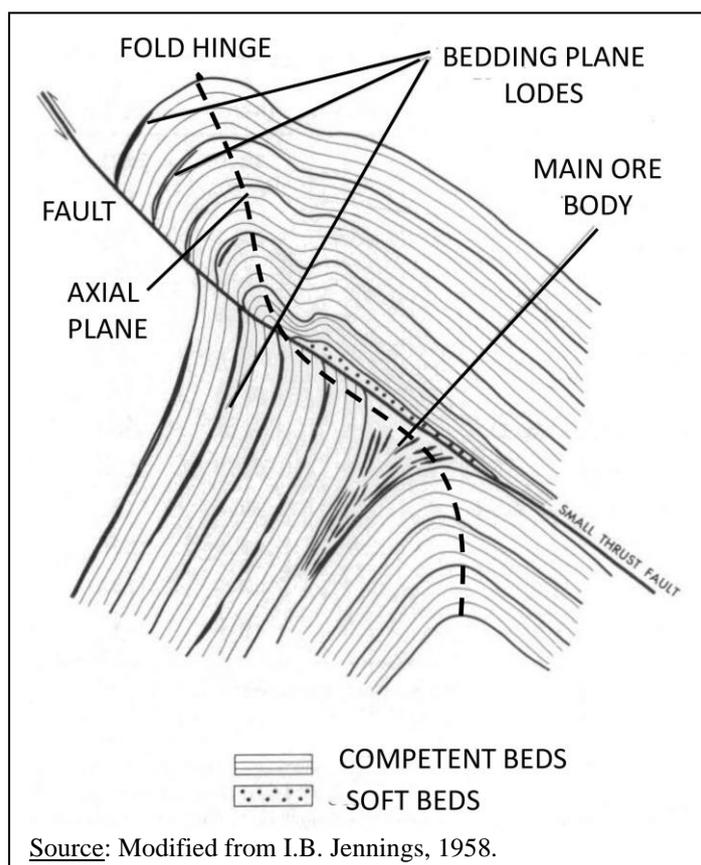
Up to June 1909 the Round Hill Silver and Lead Mining Company had spent £1,746 to equip the mine and significant additional funds on developing the workings. The company was now short of capital to make required improvements to the plant and expand mining to a sufficient scale to be profitable, particularly given the prevailing low metal prices and cost of ore transport by road.<sup>56</sup> In August the directors offered 5,000 reserve shares in the company *pro rata* to existing shareholders and also began negotiations to obtain additional capital either through debentures or sale of the company on the London market.<sup>57</sup> In the meantime, mining continued apace at both the western and eastern underground workings, as well as from small open pits. At the eastern workings mining on two levels detected a wide zone of ore, suitable for hand picking of the richest galena veins, and mill concentration of the surrounding ore. However, the silver grades in this material were unexpectedly low. Following the addition of an extra gravity jig and other improvements, the mill was working well and about 20 tons of ore were being despatched weekly to Devonport.<sup>58</sup> Despite this the company was barely covering costs and shareholders were becoming nervous about ever receiving a dividend.

During October 1909, mining engineers E.A. Weinberg and Godfrey Crisp, representing an 'influential' London syndicate, visited the Round Hill mine to report on its operation and potential. It was hoped that an option for sale of the mine could be secured, and the company re-floated with a larger capital base.<sup>59</sup> Weinberg reported favourably on the mine as an investment, but negotiations with the London syndicate were slow. On 10 November the Round Hill company was forced to make its first call on shareholders of 3d per share.<sup>60</sup> Twelve days later the directors closed the mine.<sup>61</sup> At a subsequent informal meeting of shareholders held on 9 March 1910 the Chairman of Directors, William Innes, explained that this closure was part of the negotiations with the London syndicate, requiring that no ore be taken from the mine during the period of their consideration of the option offer. As it turned out the syndicate did not take up the offer and other parties that subsequently expressed interest did not follow through either.<sup>62</sup> In the meantime a second call of 3d per share was made by the company to cover the costs of maintaining the mine.<sup>63</sup>

Unsure of whether to sell the mine and cut their losses or continue mining, the directors commissioned an assessment report by J.B. Dean, a mining geologist from Victoria with extensive experience at Bendigo. Dean inspected the mine in March 1910, was favourably impressed by the extent of the various 'lodes' and proposed a mode of reconstruction of the operation. He further advised that after some redevelopment, steps should be taken to provide for a steam tramway to transport the ore to Devonport.<sup>64</sup> Dean also recognised the geological complexity of the field and the relationship of the more promising orebodies with anticlines (Fig. 4). On 19 March it was decided to recommence

operations at the mine under Dean's supervision. This is possibly one of the earliest instances in Australia of a geologist being put in charge of a mine, although his tenure appears to have been short. Dean certainly had faith in the mine, further demonstrated by

**Figure 4:** *Cross-section of anticline with the two different lode types at Round Hill. The main ore body at the eastern workings is in the anticline axis. Bedding parallel ore veins represent the numerous narrow lodes detected during prospecting.*



his purchase of a large parcel of shares forfeited for the non-payment of the second call.<sup>65</sup>

Reopening of the mine was delayed until August when a mine manager was appointed, The new manager, John Duncanson, was an old West Coast tributer with wide experience in silver mining and he decided to focus on the narrow but high-grade zones of ore, particularly in the western workings.<sup>66</sup> Over the next nine months work appears to have been restricted to opening up narrow lodes in these western workings with little production, apart from hand-picked test samples of ore. The concentrating mill lay idle.

Yet another inspection and report on the mine was made at the end of September 1910 by Hyman Herman, a

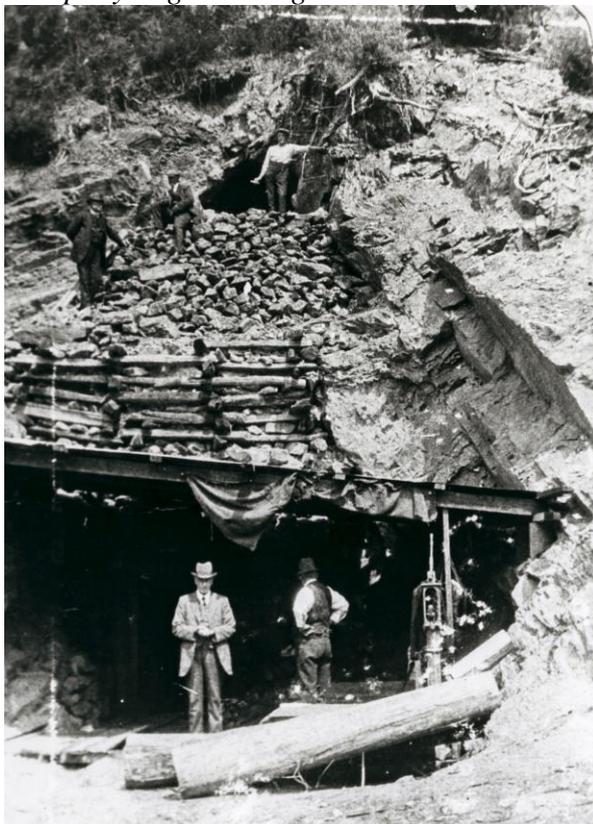
consulting engineer. Herman recommended that the company develop the wide ore lode in the anticline at the eastern workings by extending the main drive 100 m in a southeast direction. Although the ore previously mined here was low in silver, he considered that such a large 'shattered' zone of mineralised country could show an increase in silver grades as mining extended away from the weathered zone. This advice was followed by the company and a contract was let to extend the drive as soon as possible.<sup>67</sup> This was a return to the previous advice of Dean who had noted the largest bodies of ore were in the anticlinal axial zones. By December, the contractors had extended the drive by 10 m and encountered a large body of 'seconds' or milling ore with bands of massive galena. This development ore was stockpiled, and some hand-picked material bagged for sale.<sup>68</sup>

In May 1911, mining operations at the Round Hill mine were let out to tributers.<sup>69</sup> This was partly to meet the labour conditions at the mine and to avoid making further calls on the shareholders. The timing was fortuitous for the tributers, led by George Gabbedy, as metal prices immediately began to rise.<sup>70</sup> By June, the ore being discovered

in the upper drive (along No. 2 adit) at the eastern workings had also improved in grade to 38 oz/t silver.<sup>71</sup> Another party of six miners took up a tribute on the western workings in October, discovering a 0.3 m wide vein of rich ore. About 150 tons of good quality crude ore was now available and the mill was restarted.<sup>72</sup> Production progressively increased over the next seven months as the tributers in the eastern workings encountered shoots of ore up to 10 m wide in the main lode.<sup>73</sup> The tributers were well satisfied, and the company was now operating profitably and about to pay off all its debt.<sup>74</sup> The bagged ore was carted to Railton by contract carriers to go by rail to Devonport for sea shipment. The cost of transport to Devonport was 24s per ton and there were still difficulties with the roads in wet weather. However, the government was now considering building a tramway from Railton via Sheffield to Wilmot, with a branch line to Staverton. The terminus at Staverton would be only 13 km from the mine (Fig. 1).<sup>75</sup>

Government Geologist, William Twelvetrees, made a detailed inspection of the Round Hill mine from 4-8 March 1912.<sup>76</sup> His initial report and subsequent description in a major bulletin on all the ore deposits of the Middlesex and Mount Claude mining field, featured the most geologically accurate interpretation up to that date.<sup>77</sup> Twelvetrees confirmed that the lodes were a compound system, with narrow irregular galena veins along the bedding planes of the folded host rocks and larger mineralised lodes developed

**Figure 5:** *The Round Hill Mine in 1914, possibly No 2 Adit at the eastern workings. Man at left in grey suite is W.B. Cocker, Company Legal Manager.*



Source: Tasmanian Archives (PH30/1/8319).

in the axial zones and hinges of the folds, particularly the anticlines (Fig. 4). He recognised that the larger shoots would be located along the plunge direction of the main anticline and be best mined by driving along the anticlinal axes and sinking in the 'centre' country. He noted a wide variation in silver grades (30-225 oz/t) and ascribed this to the silver being present in a combination of the galena and in the case of higher values in *fahl* ore (ore containing silver-bearing tetrahedrite).<sup>78</sup>

Successful, small-scale mining by tributers continued in the eastern workings (Fig. 5) up to August 1915 with some wide (up to 12 m) and high-grade (up to 500g/t silver) bodies of ore worked.<sup>79</sup> This ore also contained minor amounts of copper as chalcopyrite. Royalties to the company had covered costs, but there was still no profit for a dividend. Following the discovery of

large quantities of high-grade ore, the company considered the possibility of working the

entire mine on a larger scale and perhaps even erecting a smelter.<sup>80</sup> For this, significant capital would be required. Fortuitously, the Hon. Frank Bond, Hobart-based MLC, had taken an interest in developments at Round Hill and at a meeting of the company on the 5 August, Bond offered to purchase 20,000 shares at 8s per share. This £10,000 of injection capital together with another £3,000 held by the company from other sales, was seen as the boost needed to finally develop the mine on a large scale and upgrade the mill and other equipment.<sup>81</sup> The company decided to buy out the tribute rights and work the mine itself. John Craze who had wide management experience at the Zeehan Montana, Zeehan Western and numerous other mines, was appointed as the new general manager in August 1915 (Fig. 6).<sup>82</sup>

**Figure 6:** *Entrance to the Mani (No. 1) Adit at the eastern workings in 1915. Man in the centre with cap and light coat is mine manager John Craze.*



Source: Kentish Museum Collection, Tasmania.

In late August 1915, Frank Bond organised a grand three-day tour to the Round Hill mine for a party of ‘mining men’ and investors from Hobart. During a luncheon on site there were several self-congratulatory speeches from some of the visiting dignitaries. Chairman of the directors, Hector McFie, responded, noting that ‘the company now had secured capital from the South, and had the best brain from the West [John Craze the manager] and he believed with the combination of these two forces prosperity was ahead of the Round Hill Company’.<sup>83</sup> The attention and excitement focussed on the area prompted speculators to take renewed interest and at the end of August another company, named the Round Hill Extended Mining Company NL, was floated on an adjoining 80-acre block. Twenty thousand shares were offered for 2s 6d with 10,000 taken up almost

instantly, including by many Hobart investors.<sup>84</sup> This company appears to have quickly faded after some prospecting and minor production.<sup>85</sup>

The new operations at the Round Hill mine commenced in an atmosphere of

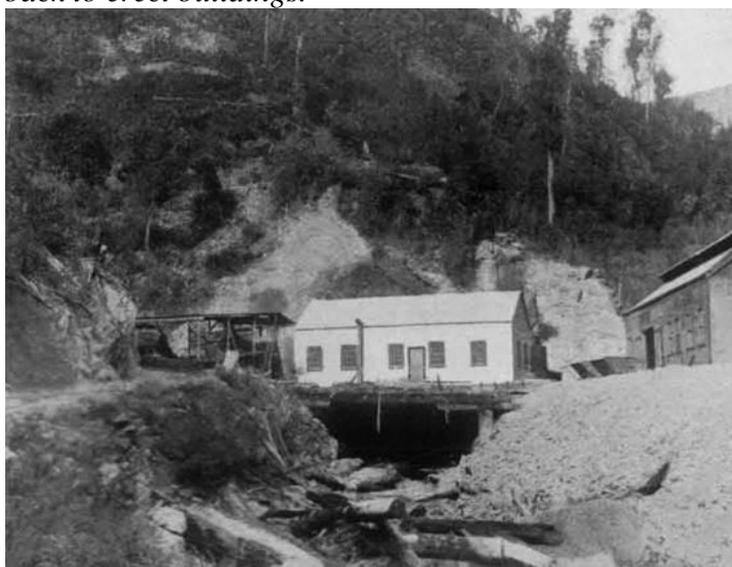
**Figure 7:** *View west of the expanded mill at the Round Hill mine, ca. 1915.*



Source: Photo R.E. Smith.

Wilfley tables all powered by a 70-hp suction gas engine. This plant would be capable of processing 150 tons of ore per day compared with 25 tons by the old plant. The upgrade was to be built around the existing plant as an extension, allowing milling to continue during construction (Figs 7 and 8). The additional machinery components were purchased from the closed Zeehan Western mine. A complete machine shop was also set up using tools and equipment obtained from the Zeehan Montana mine.<sup>87</sup> The manager estimated

**Figure 8:** *Entrance to No. 1 Adit at eastern workings, Round Hill mine in 1918, after the portal had been cut back to erect buildings.*



Source: A.M. Reid, 1919.

optimistic expectancy. During 1915 the mine workings were refurbished with new timbering, the entrance to No. 1 Adit was cut back to make space to erect additional buildings at the portal and a new steel tramline was laid to the milling plant.<sup>86</sup> There were plans for a greatly upgraded mill consisting of two rock-breakers, two sets of rolls, 11 jigs, and four

it would take about a year to complete the upgrade.<sup>88</sup> Due to a plethora of unexpected events, including the advent of WWI, his estimate would prove to be over optimistic.

In September 1915, in expectation of an influx of miners, government surveyors laid out a new township at the end of the mine road and near the junction of the Claude and Staverton roads, referred to as Round Hill.<sup>89</sup> This was also the site chosen by

the company for stores and a residence for the new assistant mine manager, Jack

Andrew.<sup>90</sup> The town would later take the postal name Cethana. It was slow to grow, but by 1919 there were sufficient residents with children for the Minister for Education to approve the establishment of a provisional public school.<sup>91</sup>

Up to June 1917, work at the mine was greatly retarded due to difficulties in obtaining vital equipment under war time conditions. A compressor plant was installed to drive the first rock drills to be used at the mine, but there were delays in obtaining the 'National' suction gas engine from England to power the plant. To top this off there was a disastrous flood in December 2016 which severely damaged the mill and other equipment, including washing away a partly installed engine. Fortunately, most of the engine was retrieved from the creek, but despite dredging efforts some of the smaller parts were not recovered and spares had to be sought.<sup>92</sup> This event could have been the catalyst to change the name of the creek to Machinery Creek. The mill still relied on waterpower and during a dry period in the first quarter of 1917 could only produce about 28 tons of concentrate per month.<sup>93</sup> Things improved over the next year with completion of the extended mill and other surface works. At the annual general meeting held in June 1918 the directors were able to report a profit of £1,790, which was used to pay off all debt and purchase additional equipment for the mill and surface works. Production of concentrates for the year was 816.5 tons, yielding 30,017 oz of silver, 81.6 oz gold and 441 tons of lead.<sup>94</sup>

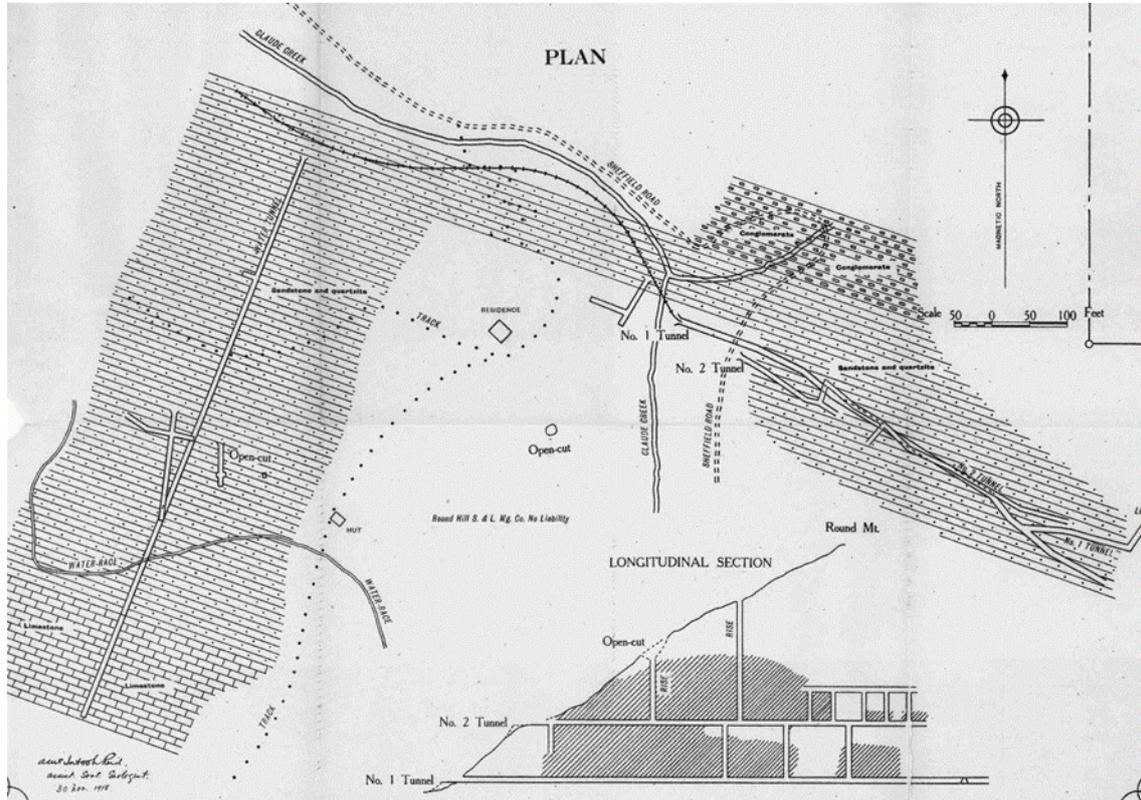
The period through 1918 to 1920 proved very satisfactory for the company. The masterful management by John Craze, increased output from the expanded concentrating plant and a sharp rise in the silver price all pointed to success at last. The plant could now process 60 tons of ore per shift and consisted of two rock breakers, two sets of rolls, four gravity jigs, and two Wilfley and two Card tables to process the slimes. Two water-powered Pelton wheels were used to run the mill during the wetter months and over the drier summer months a suction gas engine was employed. Additional processing water was obtained from the old exploratory adit, which had been boarded up at the entrance thus finally proving to be of some utility.<sup>95</sup> The use of adits in the steep terrain had the benefit of reduced mining costs as winding equipment and pumps were not required. Investor interest, which had waned, was reawakened by these positive developments. An increasing number of shareholders from the 'South' prompted the company to move its headquarters from Launceston to Hobart in 1919.

A visit from Assistant Government Geologist Alexander M. Reid in mid-1918 coincided with the improved performance of the mine. In his subsequent report Reid updated and extended the knowledge and interpretation of the deposit from the earlier work of Twelvetrees (Fig 9).<sup>96</sup> He reiterated the importance of following the anticlinal folds to find the largest ore shoots, and predicted these could extend beyond the boundaries of the property further towards the southeast. In conclusion he noted:

It is possible that the richest and most extensive ore-bodies are yet to be found and these may be sought near the main fault-line [intersecting the main anticline] to the east. The outlook has never appeared so bright, and although the element of uncertainty is never absent from any mining enterprise, the company may look forward with assurance to a more prosperous future.

Reid's geological guidance proved prophetic as during 1919 extension of the No. 2 Adit in the eastern workings disclosed a large body of good milling ore in the main anticline, as well as an extension of the main lode being worked in the No. 1 Adit (Figs 8 and 9).<sup>97</sup>

**Figure 9:** Plan showing the extent of the central and eastern workings at the Round Hill mine in 1918. Also shown is a longitudinal section of the eastern workings.



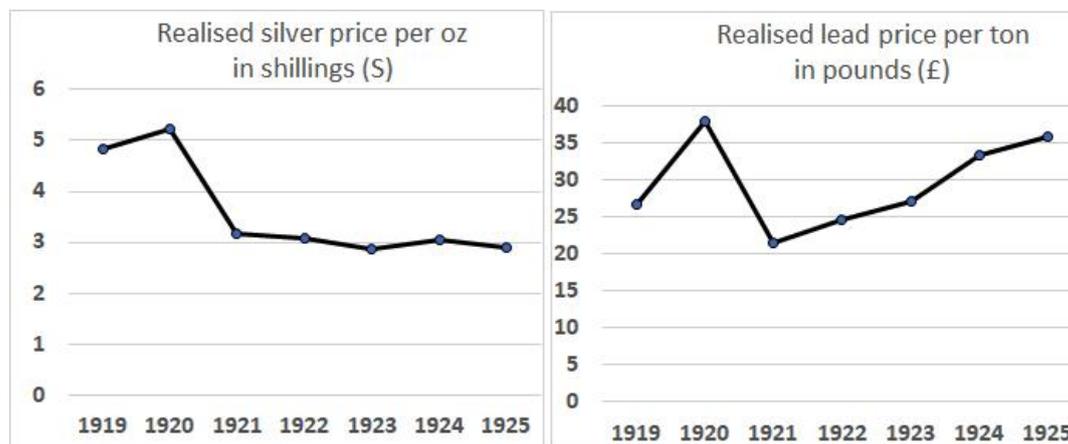
Source: From A.M. Reid, 1919.

Over the year ending March 1920, mining produced 7,223 tons of ore yielding 886 tons of concentrates containing 49,637 oz of silver, 133 oz gold and 451 tons of lead, with a total value of £13,369.<sup>98</sup> Later in 1920 various external events began to impact the good fortune of the company. A miners' strike at Broken Hill led to the temporary closure of the Cockle Creek smelting works and production costs had started to rise. In October 1920, a fire at the mine destroyed the crib house, men's changing rooms and compressor building, adding to the woes. Prior to the annual general meeting in May 1921 the directors had considered paying a maiden dividend. However, a sharp drop in metal prices in early 1921 persuaded them to hold off, and also to suspend operations until prices improved (Fig. 10).<sup>99</sup> Opportunity was taken during the closure to make significant improvements to the mine. Mining recommenced in October 1921 under the management of Jack Andrew, following the retirement of John Craze.<sup>100</sup>

From 1922 the Round Hill Silver and Lead Mining Company made annual losses totalling £20,058, despite significant production (Table 1).<sup>101</sup> This was a prolonged period of low silver prices and high costs due to economic inflation. The lead price did recover, but it was not sufficient to stem the losses (Fig. 10). The directors of the company decided

to close the mine in early 1927, but subsequently allowed the employees to take over the mine on tribute. Initially the tributers did well by quickly mining the reserves in sight, however by neglecting further prospecting and development they eventually ran out of payable ore.

**Figure 10:** Average annual prices for silver and lead received by the Round Hill Silver and Lead Mining Company from 1919 to 1925



Source: Reports of the Secretary for Mines for 1919-1925, Tasmanian Parliamentary Papers.

Following an inspection in August 1927, Alexander Reid, now Director of Mines, reported that the tributers were barely making wages and that some promising indications of new ore had proved disappointing.<sup>102</sup> In early November a deputation from the mine approached the Minister for Mines, James Belton, with a request for government assistance to the tributers to continue working the mine. It was pointed out that up to 20 tributers were employed and supporting a total of 60 dependants.<sup>103</sup> A decision on this request to refuse assistance, was finally made by the Tasmanian House of Assembly in December 1928.<sup>104</sup> By then the equipment at the mine had already been sold and the miners were long departed. The onset of the great economic depression from 1929 sounded the death knell for any immediate revival. The site was largely abandoned, although there was some prospecting and exploration drilling in 1948 by the West Mount Claude Mining Syndicate. This group erected a small mill which operated until 1951 and processed about 20 tons of ore.<sup>105</sup>

Most production from the Round Hill mine had come from the eastern workings with mining from two southeast trending adits 21 m apart vertically, the No 1 (main) Adit and No. 2 (upper) Adit. (Figs 8 and 9). At the end of mining in 1927 the No. 1 Adit extended a total of 475 m and the No. 2 Adit 238 m. These two levels were connected by rises and stopes. In 1922 a third level had been developed, 24 m below the No. 1 Adit level via an internal shaft and this level was worked for a distance of 396 m.<sup>106</sup>

### Discussion and conclusions

Discovery of silver-lead at Claude Creek predated the discovery of the better-known Zeehan silver-lead field, but due to the long delay in locating the larger orebodies the main period of production from the discovery post-dated that of Zeehan. Total production

from the Round Hill mine is similar to that of the Silver King mine at Zeehan.<sup>107</sup> There are also some geological similarities between the two areas. Subsequent discoveries in the Moina-Cethana area revealed that the Round Hill silver-lead deposit is part of a larger mineralised system developed around and above the Dolcoath Granite. This system shows a zoned arrangement of different metals, with tin-tungsten-bismuth within and closely adjacent to the granite, and silver-lead and associated gold in the more distant country rocks. This is a similar pattern to that developed around the Hemskirk Granite in the Zeehan mineral field.<sup>108</sup> Early geological interpretations by Twelvetrees and Reid ascribed the origin of the mineralisation at the Round Hill mine to deposition from hydrothermal fluids emanating from the Dolcoath Granite during and following its intrusion into the older country rocks. These fluids entered fractures and bedding parallel fissures formed during folding and faulting of the bedded host rocks, possibly at about the same time as intrusion of the granite.<sup>109</sup> Deposition of the ores within different structures in the deformed rocks, including along the bedding fissures and in the fold-hinge zones, resulted in the two distinctly different lode types, a complexity not understood by the early miners.

**Table 1:** *Production of silver, lead and gold from the Round Hill mine for 1919 to 1925.*

<b>Year</b>	<b>Silver Oz</b>	<b>Silver Value £</b>	<b>Lead Tons</b>	<b>Lead Value £</b>	<b>Gold Oz</b>
1919	51,994	12,554	365.1	9,750	99
1920	53,661	14,015	664.8	25,293	209
1921	11,346	1,803	165	3,534	85.4
1922	14,240	2,186	180.2	4,453	125.4
1923	26,875	3,853	297	8,060	160
1924	24,169	3,672	368	12,284	121
1925	23,980	3,468	360.4	12,939	142

Source of data: Reports of the Secretary for Mines for 1919-1925, Tasmanian Parliamentary Papers.

The floating and operations of the Mount Claude Silver-Lead Mining Company in the early phase of mining at Claude Creek could be considered as bordering on fraudulent speculation. However, there were genuine factors that worked against success of the company, including the poor understanding of the ore distribution, lack of sufficient capital, difficulties with access and transport and until the late 1880s lack of local custom smelting facilities. The early prospecting had revealed signs of silver-lead mineralisation over a 250 m wide, NW-SE trending belt south of Claude Creek. The idea of driving an exploratory adit at a deep level through this area at right angles to the apparent lodes was a good one, assuming that the bedding parallel lodes were in a simple, dipping ‘layer cake’ stratigraphy. Unfortunately, the rocks were tightly folded and the geometry far from simple.

Later mining by the Round Hill Silver and Lead Mining Company was more successful due to the benefits of a better understanding of the ore distribution, a larger capital base, improved transport and processing facilities, as well as ready access to custom smelting. The main orebodies were eventually discovered by tributers in the eastern workings along the axial plane of a major anticline, as predicted by geologists J.P. Dean, William Twelvetrees and Alexander Reid. Fortuitously, areas of higher silver grade and gold content were also discovered. The company was able to achieve significant production, although other circumstances and numerous vicissitudes including inopportune fluctuations in metal prices, equipment problems, water shortages, fire and flood, meant returns to shareholders were non-existent (Table 1). The mine workers, carriers, suppliers and the custom smelters fared better. It is interesting to ponder what might have happened if the main orebodies had been discovered earlier, during the period of higher silver prices prior to 1893.

The key influence on the history of the Mount Claude-Round Hill silver mine and other deposits at Claude Creek was succinctly described by geologist Alexander Reid in 1919 when he noted ‘Those responsible for the early development of many of the mines have failed to appreciate the peculiar structure of the geological formations encountered here, consequently many mining companies have little to show for the heavy expenditure incurred’.<sup>110</sup>

#### **Acknowledgements**

The author thanks the National Library of Australia and the Geological Survey of Tasmania for access to information, particularly through their online services (including ‘Trove’). Greg Dickens and Kylie Lau (Geoscience Library, Mineral Resources Tasmania) assisted in obtaining some reports and photographic images. Tasmanian Archives are acknowledged for permission and provision of the photograph in Figure 5. Nic Haygarth kindly provided the photographs for Figures 6 and 7. Travis assisted in Naughton drafted two of the maps. The article was improved by the very helpful comments and suggestions of two anonymous reviewers.

#### **Glossary of some terms used in the text**

Adit – a horizontal opening into a mine, similar to a tunnel but not open at both ends.

Anticline – an arch-like fold or buckle in layered or bedded rocks. The hinge is the point of maximum curvature at the top of the anticline, the axis is a line parallel to the hinge in two dimensions.

Card table – a shaking table used to concentrate fine grained heavy minerals, similar to a Wilfley table.

Chalcopyrite – copper iron sulfide ( $\text{CuFeS}_2$ ).

Galena – lead sulfide ( $\text{PbS}$ ). Galena commonly contains silver in solid solution or as inclusions of silver-rich minerals.

Lode – lens or veinlike zone containing metallic ore. Its boundaries may be diffuse, as distinct from a reef.

Quartzite – quartz rich sedimentary rock or sandstone, commonly also recrystallised by metamorphism.

Sphalerite – zinc sulfide ( $\text{ZnS}$ ).

Suction gas engine – an internal combustion engine powered by gas (carbon monoxide and hydrogen) generated by passing restricted air and steam over high temperature carbon (commonly from wood). The engine draws in the required gas on each intake stroke.

Syncline – a trough-like fold in layered or bedded rocks.

Tetrahedrite – a complex sulfosalt mineral containing antimony copper, iron, zinc, and in some cases silver and other trace elements.

Thrust fault – a fracture where compressive force has pushed older rocks over younger rocks. Also called a reverse fault.

#### **Units**

1 inch = 25.4 mm, 1 foot = 0.3048 m, 1 mile = 1.609 km, 1 acre = 0.4047 hectares.

1 troy oz (the standard measure of gold and silver) = 20 dwt = 31.10348 g; 1 dwt = 1.555 g.

1 pound (lb) = 0.454 kg, 1 ton (long) = 2,240 pounds (lbs) = 1.01604 tonnes (t).  
1 (imperial) gallon = 4.4561 litres.

#### **Pre-decimal currency**

£1 (pound) = 20s (shillings) and 1 shilling = 12d (pence).

---

#### **Endnotes**

- <sup>1</sup> I. B. Jennings, *Geological atlas 1 mile series, Sheet 37 (8115S)*, Sheffield, Geological Survey Explanatory Report, Department of Mines Tasmania, 1979, p. 54.
- <sup>2</sup> I.B. Jennings, The Round Mount District, *Geological Survey Bulletin No. 45*, Department of Mines Tasmania, 1958, pp. 48-52.
- <sup>3</sup> W.H. Twelvetrees, The Middlesex and Mount Claude Mining Field, *Geological Survey Bulletin No. 14*, Department of Mines Tasmania, 1913, pp. 1-5.
- <sup>4</sup> 'Gold at the Forth – Letter to Editor of the Launceston Examiner from James Smith', *Launceston Examiner*, 12 May 1859, p. 2; 'Forth River – Letter to Editor of the Launceston Examiner from James Smith' *Launceston Examiner*, 10 December 1859, p. 3; Nic Haygarth, *Baron Bischoff: Philosopher Smith and the birth of Tasmanian mining*, Nic Haygarth, 2004, pp. 56-61.
- <sup>5</sup> A.M. Reid, The Mining Fields of Moina, Mt Claude and Lorinna, *Geological Survey Bulletin No. 29*, Department of Mines Tasmania, 1919, p. 6.
- <sup>6</sup> 'Silver and Lead', *Tasmania*, 2 July 1881, p. 614; A. M. Reid, The Mining Fields of Moina, Mt Claude and Lorinna, *Geological Survey Bulletin No. 29*, Department of Mines, Tasmania, 1919, p. 127.
- <sup>7</sup> 'Mining', *Mercury*, 15 June 1881, p. 3; 'Silver and Lead', *Launceston Examiner*, 16 June 1881, p. 3.
- <sup>8</sup> Nic Haygarth, *A View to Cradle: A History of Tasmania's Forth River High Country*, N. Haygarth, Canberra, 1998, p. 55.
- <sup>9</sup> 'Kentishbury and the Road to Bischoff via Mount Claude', *Launceston Examiner*, 6 July 1881, p. 3.
- <sup>10</sup> 'Silver and Lead', *Tasmanian*, 2 July 1881, p. 614.
- <sup>11</sup> 'Prospectus of the Mount Claude Silver-Lead Mining Company' *Mercury*, 4 July 1881, p. 1; 'Mount Claude', *Launceston Examiner*, 6 July 1881, p. 2; 'Mount Claude Silver-Lead Co', *Devon Herald*, 10 August 1881, p. 2.
- <sup>12</sup> *Ibid.*
- <sup>13</sup> 'The Road to Mount Claude', *Devon Herald*, 10 September 1881, p. 3.
- <sup>14</sup> 'Mine Managers of the West Coast – Mr James Hancock', *Mount Lyell Standard & Strahan Gazette*, 6 October 1897, p. 4.
- <sup>15</sup> 'Mining News – Mount Claude Silver-Lead Company', *Devon Herald*, 1 October 1881, p. 2.
- <sup>16</sup> 'Prospectus – The Tasmanian Silver-Lead Company' *Launceston Examiner*, 18 October 1881, p. 4.
- <sup>17</sup> 'Mr Thureau's Report', *Mercury*, 6 January 1882, p. 2.
- <sup>18</sup> 'Tasmania', *Tasmanian*, 3 December 1881, p. 1146; 'Mr Thureau's Report', *Mercury*, 6 January 1882, p. 2. In 1882 Thureau was appointed Inspector of mines and later Government Mining Geologist, G.L. Mullen, 'Gustav Thureau, first Tasmanian Inspector of Mines and Government Mining Geologist', *Papers & Proceedings of the Royal Society of Tasmania*, 2016, Vol. 150(1), pp. 39-43. See also J.A. Lerk, 'Gustav Adolphus Hugo Thureau (1831-1901) and the Bendigo School of Mines', *Journal of Australasian Mining History*, vol. 19, 2021, pp. 133-142.
- <sup>19</sup> 'Court of General Sessions, Latrobe', *Devon Herald*, 27 May 1882, p. 2.
- <sup>20</sup> 'Mount Claude Silver-Lead Mining Co.', *Devon Herald*, 22 July 1882, p. 2.
- <sup>21</sup> 'Half-Yearly Meeting Mount Claude Silver Lead Mining Company', *Devon Herald*, 25 January 1884, p. 2.
- <sup>22</sup> 'Mount Claude Silver-Lead Mining Company', *Devon Herald*, 27 January 1883, p. 2.
- <sup>23</sup> 'Mount Claude Silver-Lead Company', *Tasmanian*, 3 February 1883, p. 125.
- <sup>24</sup> 'Mount Claude Silver Lead Mining Company', *Devon Herald*, 28 July 1883, p. 3.
- <sup>25</sup> 'Mount Claude Company', *Devon Herald*, 1 August 1884, p. 2.
- <sup>26</sup> 'Mount Claude Silver-Lead Mining Company', *Devon Herald*, 16 January 1885, p. 2.
- <sup>27</sup> G. Thureau, Report on the Mount Claude Silver-Lead Mining Company's (Registered) Mines, County Devon, *Parliament of Tasmania, Parliamentary Papers*, 1885, 3 pp.; 'Mining Meeting', *Tasmanian*, 11 April 1885, p. 20; 'Mining', *North Western Chronicle*, 23 May 1885, p. 3.
- <sup>28</sup> 'Mount Claude Silver Lead Mining Co. Registered', *Devon Herald*, 31 July 1885 p. 2.
- <sup>29</sup> 'Meetings – Mount Claude Silver Lead Co.', *Mercury*, 17 September 1885, p. 2; 'Mining Meetings – Mount Claude Silver Lead Company', *Launceston Examiner*, 15 October 1885, p. 3.
- <sup>30</sup> Mining Meetings – Mount Claude Silver Lead Co.', *Ibid.*, 22 October 1885, p. 3; 'Advertisement – Auction Sale', *Ibid.*, 28 October 1885, p. 4.

- 
- <sup>31</sup> 'Mount Claude Silver-Lead Company', *Tasmanian*, 21 July 1883, p. 826; 'Mount Claude Silver-Lead Company', *Tasmanian*, 3 February 1883, p. 125.
- <sup>32</sup> Geoffrey Blainey, *The Rush that Never Ended*, 2<sup>nd</sup> ed., Melbourne University Press, Carlton, 1969, pp. 217-218.
- <sup>33</sup> 'Mount Claude', *Launceston Examiner*, 2 February 1888, p. 3; 'Latrobe', *Tasmanian*, 28 April 1888, p. 23.
- <sup>34</sup> 'A Trip to Claude Silver Mines', *North Coast Standard*, 29 August 1891, p. 3; 'Advertisement – The United Claude Proprietary Silver-Mining Company', *Mercury*, 4 September 1891, p. 1.
- <sup>35</sup> 'Mr Thureau's Report on Mount Claude', *Daily Telegraph*, 22 August 1887, p. 3.
- <sup>36</sup> 'Round Hill S. and L. Co.', *Examiner*, 5 August 1910, p. 2; W.H. Twelvetrees, The Middlesex and Mount Claude Mining Field, *Geological Survey Bulletin No. 14*, 1913, Tasmanian Department of Mines, p. 38.
- <sup>37</sup> 'The Reported Discovery Near Mount Claude', *North Western Chronicle*, 30 September 1887, p. 3; 'Mining – The Mount Claude Discovery', *Ibid.*, 3 October 1887, p. 3.
- <sup>38</sup> 'Mining News – Mining Intelligence', *Tasmanian*, 8 October 1887, p. 19; 'A Trip to Claude Silver Mines', *North Coast Standard*, 29 August 1891, p. 3.
- <sup>39</sup> 'Silver', *Launceston Examiner*, 2 January 1891, p. 2.
- <sup>40</sup> Geoffrey Blainey, *The Peaks of Lyell*, 1967, Melbourne University Press, Carlton, pp. 24-30.
- <sup>41</sup> 'Prospectus of Gillespie and McLeod's', *Launceston Examiner*, 11 July 1891, p. 4; 'Mining', *Mercury*, 6 August 1891, p. 3; 'Mining Notices – The Boston Prospecting Association (No Liability)', *Mercury*, 4 September 1891, p. 1.
- <sup>42</sup> 'Local and General – Mount Claude Silver Mines', *North Coast Standard*, 3 January 1891, p. 2; 'Advertising – Southern Cross Proprietary Silver Mining Company', *Mercury*, 12 March 1891, p. 1.
- <sup>43</sup> 'Mining Notes – To the Chairman and Directors of the Southern Cross Proprietary Silver Mining Company', *North Coast Standard*, 18 July 1891, p. 2.
- <sup>44</sup> W.H. Twelvetrees, The Middlesex and Mount Claude Mining Field, *Geological Survey Bulletin No. 14*, 1913, Tasmanian Department of Mines, pp. 114-125.
- <sup>45</sup> 'Notices – Hartrick vs Southern Cross S.M. Company No Liability', *Launceston Examiner*, 22 August 1892, p. 1.
- <sup>46</sup> 'Managers' Reports – Mount Claude', *Mercury*, 1 October 1892, p. 1.
- <sup>47</sup> 'Mining Notices – The Kentish Proprietary Silver-Mining Company', *Mercury*, 16 January 1893, p. 1.
- <sup>48</sup> 'The Mount Claude Mineral and Goldfields', *Mercury*, 3 July 1896, p. 3; Geoffrey Blainey, *The Rise of Broken Hill*, 1968, Macmillan, Melbourne, pp. 49-51.
- <sup>49</sup> 'Middlesex Mining', *Examiner*, 22 October 1901, p. 2.
- <sup>50</sup> The name Round Hill may also have been chosen as an implied association with the Round Hill mine at Broken Hill. Certainly it has led to some confusion in newspaper articles of the time.
- <sup>51</sup> 'Notes', *Daily Telegraph*, 12 March 1907, p. 2; 'Round Hill Company', *Ibid.*, 1 April 1907, p. 2.
- <sup>52</sup> 'Round Hill Mine', *Examiner*, 23 October 1907, p. 2; 'Round Hill', *Daily Telegraph*, 9 April 1908, p. 2.
- <sup>53</sup> 'Round Hill', *Daily Telegraph*, 14 January 1909, p. 2; 'Round Hill Mine', *North Western Advocate & Emu Bay Times*, 15 February 1909, p. 3; 'The Round Hill Mine', *Mercury*, 30 August 1915, p. 3.
- <sup>54</sup> 'Round Hill', *Daily Telegraph*, 19 January 1909, p. 2; 'Round Hill', *North Western Advocate & Emu Bay Times*, 26 February 1909, p. 2; 'Mining – Round Hill Mine', *Northwest Post*, 20 August 1909, p. 3; Nic Haygarth, *A View to Cradle* N. Haygarth, 1998, pp. 114-123.
- <sup>55</sup> 'Mining – Round Hill', *North West Post*, 8 April 1909, p. 3; 'Round Hill Mine', *Examiner*, 14 May 1909, p. 2.
- <sup>56</sup> 'Round Hill Silver and Lead Mining Company', *Daily Post*, 1 June 1909, p. 6.
- <sup>57</sup> 'Round Hill', *Daily Telegraph*, 4 August 1909, p. 2.
- <sup>58</sup> 'Round Hill', *Daily Telegraph*, 21 August 1909, p. 4; 'A Round Hill Sampling', *Daily Post*, 3 September 1909, p. 6; 'Mining – Round Hill', *North West Post*, 21 September 1909, p. 3; 'Round Hill', *North West Advocate & Emu Bay Times*, 4 October 1909, p. 3.
- <sup>59</sup> 'Mining – Round Hill Mine', *North West Post*, 18 October 1909, p. 5.
- <sup>60</sup> 'Mining – Round Hill Mining Co', *North Western Advocate & Emu Bay Times*, 2 November 1909, p. 2.
- <sup>61</sup> 'Mining – Round Hill Mine', *North West Post*, 22 November 1909, p. 3.
- <sup>62</sup> 'Round Hill Company – Special Meeting', *North West Post*, 10 March 1910, p. 3.
- <sup>63</sup> 'Round Hill S. and L. Co', *North Advocate & Emu Bay Times*, 3 February 1910, p. 3.
- <sup>64</sup> 'Round Hill Co.', *Examiner*, 17 March 1910, p. 6.
- <sup>65</sup> *Ibid.*; 'Round Hill Co.', *North West Advocate & Emu Bay Times*, 22 March 1910, p. 3.
- <sup>66</sup> 'The Round Hill Mine', *Examiner*, 11 August 1910, p. 2; 'Round Hill S. and L. Co.', *North West Advocate & Emu Bay Times*, 3 September 1910, p. 34

- <sup>67</sup> 'Round Hill Mine – Mr Herman's Report', *North West Post*, 14 November 1910, p. 3.
- <sup>68</sup> 'Mining News – Round Hill', *North West Post*, 1 December 1910, p. 3.
- <sup>69</sup> 'Round Hill', *North Western Advocate & Emu Bay Times*, 3 May 1911, p. 2; 'Round Hill', *Ibid.*, 21 May 1911, p. 2.
- <sup>70</sup> 'Round Hill Mine – Review by the Chairman', *Examiner*, 27 June 1916, p. 2.
- <sup>71</sup> 'Mining News – Round Hill', *North West Post*, 26 June 1911, p. 2.
- <sup>72</sup> 'Round Hill', *North Western Advocate & Emu Bay Times*, 28 October 1911, p. 4.
- <sup>73</sup> 'Round Hill Mine', *Daily Post*, 20 January 1912, p. 6.
- <sup>74</sup> 'The Round Hill', *Examiner*, 7 June 1912, p. 2.
- <sup>75</sup> 'Round Hill', *Daily Telegraph*, 7 September 1911, p. 2; 'The Round Hill', *Examiner*, 31 July 1912, p. 2.
- <sup>76</sup> 'Mining News – Round Hill', *North West Post*, 16 March 1912, p. 2. Construction of the Railton to Staverton branch line (through Sheffield) began in 1913.
- <sup>77</sup> 'Mount Claude and Round Hill – Mr Twelvetrees' Report', *Examiner*, 25 April 1912, p. 7; W.H. Twelvetrees, The Middlesex and Mount Claude Mining Field, *Geological Survey Bulletin No. 14*, 1913, Tasmanian Department of Mines, pp. 114-125.
- <sup>78</sup> *Ibid.*
- <sup>79</sup> 'Round Hill Mine – Important Developments', *Examiner*, 22 May 1915, p. 4.
- <sup>80</sup> 'Mining News- Round Hill Silver and Lead Mining Company', *North West Post*, 2 June 1915, p. 3.
- <sup>81</sup> 'Round Hill Silver and Lead Mining Company NL', *North West Post*, 10 August 1915, p. 3. Frank Bond was a member of the Legislative Council of the Tasmanian Parliament from 1909 to 1921. He was one of the representatives for the electoral division of Hobart.
- <sup>82</sup> 'The Round Hill Mine', *Mercury*, 30 August 1915, p. 3; Patrick Howard, *The Zeehan El Dorado*, 2006, pp. 23-24, 45, 58; Report of the Secretary for Mines for 1915, *Tasmanian Parliamentary Papers*, 1916, p. 20.
- <sup>83</sup> 'The Round Hill Mine', *Mercury*, 30 August 1915, p. 3.
- <sup>84</sup> 'Round Hill District – New Company Floated', *North West Post*, 31 August 1915 p. 3.
- <sup>85</sup> Report of the Secretary for Mines for 1916, *Tasmanian Parliamentary Papers*, 1917, pp. 21; *Ibid.* for 1917, p. 19.
- <sup>86</sup> Report of the Secretary for Mines for 1915, *Tasmanian Parliamentary Papers*, 1916, p. 20.
- <sup>87</sup> 'The Round Hill Mine', *Mercury*, 30 August 1915, p. 3.
- <sup>88</sup> *Ibid.*
- <sup>89</sup> 'Round Hill Mine', *Examiner*, 8 September 1915, p. 2.
- <sup>90</sup> 'The Round Hill Mine', *Mercury*, 30 August 1915, p. 3.
- <sup>91</sup> 'Sheffield', *Advocate*, 3 June 1919, p. 2.
- <sup>92</sup> 'Round Hill Mine', *Examiner*, 21 December 1916, p. 5; Report of the Secretary for Mines for 1915, *Tasmanian Parliamentary Papers*, 1916, pp. 20.
- <sup>93</sup> 'Round Hill Mine – Annual Report', *Examiner*, 1 June 1917, p. 2.
- <sup>94</sup> 'Round Hill Mine – Annual Meeting of Shareholders', *North Western Advocate & Emu Bay Times*, 1 June 1918, p. 3.
- <sup>95</sup> A.M. Reid, The Mining Fields of Moina, Mt. Claude and Lorinna, *Tasmanian Geological Survey Bulletin No. 29*, 1919, Tasmanian Department of Mines, pp. 126-143.
- <sup>96</sup> *Ibid.*
- <sup>97</sup> 'Round Hill Mine – Meeting of the Shareholders', *Mercury*, 28 May 1920, p. 2.
- <sup>98</sup> *Ibid.*
- <sup>99</sup> 'Round Hill Mine – Works Temporarily Closed', *Zeehan & Dundas Herald*, 3 June 1921, p. 1; 'The Round Hill Mine – Annual Report', *Examiner*, 27 May 1921, p. 2.
- <sup>100</sup> 'Round Hill Mine – Further Developmental Work', *Mercury*, 21 October 1920, p. 2. Jack Andrew was the nephew of John Craze (N. Haygarth pers. com.).
- <sup>101</sup> 'Trade and Finance – Round Hill Silver and Lead Mining Co.' *Mercury*, 23 May 1927, p. 4.
- <sup>102</sup> 'Round Hill Prospects', *Examiner*, 9 August 1927, p. 2.
- <sup>103</sup> 'Round Hill Mine – Request for Assistance', *Advocate*, 3 November 1927, p. 6.
- <sup>104</sup> 'House of Assembly' *Examiner*, 6 December 1828, p. 8.
- <sup>105</sup> I.B. Jennings, The Round Mount District, *Geological Survey Bulletin No. 45*, Department of Mines Tasmania, 1958, p. 61.
- <sup>106</sup> *Ibid.*, pp. 48-52.
- <sup>107</sup> Patrick Howard, *The Zeehan El Dorado*, 2006, p. 46.
- <sup>108</sup> R.A. Both and K.L. Williams, 'Mineral zoning in the lead-zinc ores of the Zeehan Field, Tasmania Part 1 Introduction and Review', *Journal of the Geological Society of Australia*, vol 15, 1968, pp. 121-137.

---

<sup>109</sup> W.H. Twelvetrees, The Middlesex and Mount Claude Mining Field, *Geological Survey Bulletin No. 14*, 1913, Tasmanian Department of Mines, pp. 39-43, 114-120; A.M. Reid, The Mining Fields of Moina, Mt. Claude and Lorinna, *Tasmanian Geological Survey Bulletin No. 29*, 1919, Tasmanian Department of Mines, pp. 44-62, 142-144.

<sup>110</sup> A.M. Reid, The Mining Fields of Moina, Mt. Claude and Lorinna, *Tasmanian Geological Survey Bulletin No. 29*, 1919, Tasmanian Department of Mines, p. 66.