

Aerial Cableways and Inclines

Also known as self-acting aerial tramways, aerial trams, wire tramways; and self-acting ground tramways, or self-acting inclines. At Karangahake they were all self-acting, i.e. gravity did the work.

How did self-acting aerial cableways work?

This description of the Woodstock No. 2 Level cableway, from 24 September 1886:-

It [the ore] comes out of the mine in small trucks, which hold half a ton each, and is tipped out of them into twin hoppers, or, as some people would call them, binns. Each of these holds about 20 tons. These hoppers are on a hill, about 400 feet above the horse tram, at the end of which is a large single hopper of 50 tons capacity, and this large hopper is connected with the two small ones above, by means of two wire ropes, each 700 feet long, and 1¼ inches diameter, fixed at an angle of about 30 degrees, on which travel two box trucks, each of which holds one third of a ton. These trucks are worked by a wire hauling line three-eighths of an inch in diameter, and are self-emptying into the bottom hopper, so that the brakeman at the top fills them and works them himself, and he can send down about 25 tons a day.¹

G. E. Alderton in the "Northern Advocate." 1 May 1897

The sides of the mountain rise up perpendicularly forming what in America is commonly called a canon [canyon]. Overhead are stretched innumerable wire ropes, these cross the gorge or canon and carry the ore from one side to the other. The ingenuity of the miner is here displayed to great advantage. The manner in which these aerial trams, looking like spider webs across the sky, are managed reflects great credit on the mine managers in this region.²

Self-acting inclines worked in a similar way to self-acting cableways, with rails instead of cables.

¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>

New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

² <https://paperspast.natlib.govt.nz/newspapers/OG18970501.2.34>

Ohinemuri Gazette, Volume VII, Issue 388, 1 May 1897, Page 6

Overview

The early mines at Karangahake were high above the rivers. The early batteries were low, just above river level. This maximized their water power. Ore from the mines could be lowered to the batteries by self-acting inclines, and many were used, or self-acting aerial cableways, which was generally the preferred choice. Once erected, these gave fast and cheap transport of ore across the challenging landscape.

Aerial cableways were a significant feature of mining at Karangahake, and along with several self-acting inclines and numerous bridges, many suspension type, set Karangahake apart from other goldmining regions of New Zealand.

This document is my best shot at making sense of the cableways, inclines and tramways at Karangahake. It is limited by insufficient data.

We can perhaps usefully group them by location.

Taukani Ridge; had three cableways; Ivanhoe, Sir Walter Scott/Woodstock, and Monastery (opposite Railey's).

Woodstock Blow had several; Hauraki, Woodstock, and Talisman last.

Karangahake mountain had Talisman cableways, and Crown, with a major cableway in 1912.

There were two firewood cableways; for the Woodstock and Talisman kilns (only photographic evidence for the Talisman wire).

And in the 1930s, two more aerial cableways, for the Talisman-Dubbo Company, and Cherry.

Self-acting inclines were used also. For the Woodstock furnace, the Crown battery at the old Railey's site, the Talisman on the mountain (two, and possibly one on the Woodstock Blow), and the Earl of Glasgow, high around the eastern side of the mountain.

Some of these cableways appear on old maps; well, only three. Some appear in the early photographs. Some are mentioned in contemporary texts, though seldom detailed, and often confusingly. Inclines never appeared in the contemporary maps. Most show on LiDAR.

With my GIS mapping I can often only provide approximations/guesses. Additionally, ground tramways are roughly level, so quoted lengths correspond to on-the-ground length. When lengths are given for cableways, is it the length of the actual cable, or the horizontal distance covered by the cableway?

And I may have missed stuff. There are three cableways I can't locate geographically.

Further:-

At first I thought that the cableway from the north/east of the Woodstock Blow was the first, and that it became the Woodstock No. 2 level tramway and cable. But the cableway on the western side (the Hauraki cableway) seems to match the (inadequate) evidence better, and that is my current position.

Just how many different cableways there were on the western side, and how they connected to which workings, has been a challenge to sort out. Some were probably reused over time. The evidence around the Talisman No. 8 level (1901) is a little clearer.

Aerial cableways

Cableways	
Also called aerial ropeways, aerial trams, self-acting aerial trams...	
1883	Hauraki Company. First section of tramway beside Waitawheta River, and first cable way, from western side of what will be called the Woodstock Blow.
1885	Woodstock Company connects to the Hauraki cableway, connecting with their workings on the western? side of the Woodstock Blow. ³ Ivanhoe Company erect cableway on northern side of Taukani.
1886	Woodstock Company erect second cableway, to eastern side Woodstock Blow, No. 2 level. ⁴
1887	Monastery Gold-mining Co. complete installation of cableway early in the year. ⁵ The cable across the river (that we see today) was for hauling ore trucks across the river, and up to the battery hoppers. It was not a self-acting cableway.
1893	Woodstock create No. 3 level aerial cableway, from eastern side of Woodstock Blow to the Crown tramway beside the Waitawheta River.
1894	Woodstock install firewood wire tram to bring fuel for their kilns. Talisman do likewise.
1896	Talisman construct first aerial cableway from their No. 4 level. It presumably included a section of ground tram, and another aerial section from the flank of the Woodstock Blow to the battery. Woodstock modify their aerial cables to deliver to kilns level.
1897	Talisman aerial cableway from Level 5 to Level 6.
1901	Talisman No. 8 level, with aerial cableway, created. Talisman No. 7 Level cableway to No.8 Level.
1912	Crown No. 7 Level aerial cableway constructed from the County Road to hoppers on the Crown tramway. Possible cableway from level 4a? by their River Level mine entrance.
1915	Talisman construct new aerial cableway to the battery from Woodstock No. 2 crosscut on the side of the Waitawheta River.
1933	Talisman-Dubbo Talisman No. 1 level aerial cableway. Cherry Crown 5a level aerial cableway.

17? Cableways identified.

³ <https://paperspast.natlib.govt.nz/newspapers/THA18850519.2.6>

Thames Advertiser, Volume XXIII, Issue 5173, 19 May 1885, Page 3

⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>

New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

⁵ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

Aerial cableways

Self-acting inclines	
Sometimes called self-acting ground tramways, or just inclines	
1885	La Monte Furnace
1887	Railey's/Crown batteries
1894-5	Earl of Glasgow
1897	Talisman No. 6 to 7 level
1898	Talisman No. 2 to 4 level
c. 1886-7?	Woodstock Company, Woodstock Blow ⁶



Looking up the Earl of Glasgow incline. Note the wooden rails, and the passing loop at the half-way point. Date: late 1896?

Staples collection (and interpretation).

⁶ From several contemporary photographs and LiDAR. No documentary evidence for this incline has yet been found.

1882

14 June

Arrangements have been completed [though the 7 August report below suggests not yet completed] to connect the Hauraki mine with the battery by means of a wire tram, as it has been found difficult to get a site for a ground tramway, there being 400 feet to rise in 30 chains.⁷

Karangahake Battery becomes Hauraki Battery

7 August

These various claims are situated almost immediately behind the old battery, but are from 500 to 1000 feet above it, if not more. A tramway is in course of erection from the battery to the foot of the range, a distance of some 330 yards [302m]. This will be connected with the Hauraki mine by a wire tramway.⁸

The tramway to the foot of the range sounds like the first version of the tramway along the Waitawheta, true left bank (the lowest section of what we now call the Crown track). This is the same tramway we encounter with Woodstock and furnace 1885.

302m from the battery along the tramway (current walkway) takes us to just beyond the first bend in the river. This matches one or two early photographs.

Then a cableway. Does this cableway connect to the area to the north/north east of the Plum Pudding, or the western flank? Where is the Hauraki mine? The tramway from the top of the Hauraki cable is not mentioned in the literature, nor mapped.

The contemporary reports and maps fail us in determining the sequence and location of the early aerial tramway/s. The Hauraki Level is well back from the Woodstock Blow, and upslope from the County Road. I suggest the cableway must have come from the western flank of the Blow. We don't get to see this in a photograph until 1889.

Several maps show a tramway and cableway on the eastern side of the Blow, the Woodstock No. 2 level. Photographs show these cableways and tramways, but the dateable images are later than this period.

First section of tramway beside Waitawheta River, and first cable way

19 September

Upon the northern side of the Hauraki, and extending right away down to the Waitawheta river, is the Maria claim, 65 men's ground. In this claim two tunnels are in operation. One of these is being driven along the strike of a reef about 4 feet in thickness. This reef is very similar in character and appearance to that known as No. 3, in the Hauraki mine, and it undoubtedly is the northern continuation of the same lode...⁹

The Maria claim is at the northern tip of the Blow. This is where the north eastern hopper and cableway are installed. Is it from these tunnels that the ore is transported?

⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18820614.2.45>

New Zealand Herald, Volume XIX, Issue 6419, 14 June 1882, Page 6

⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18820807.2.37>

New Zealand Herald, Volume XIX, Issue 6465, 7 August 1882, Page 6

⁹ <https://paperspast.natlib.govt.nz/newspapers/THA18820919.2.9>

Thames Advertiser, Volume XIV, Issue 4420, 19 September 1882, Page 2

Aerial cableways

The Woodstock Company will take over the Maria claim.¹⁰

20 September

Hauraki (Karangahake). —The manager reports:...

The hopper built near the entrance to the low level and the shoot connecting the hopper with the intermediate level were completed last week. This hopper is capable of holding 300 tons of quartz, and in future all crushing dirt broken out from the intermediate level will be shot into it, awaiting completion of tramway and repairs to battery. —John McCombie¹¹

1883

23 May

KARANGAHAKE. The battery works are now under the supervision of Mr Corbett, who has five or six hands employed. He reckons he will be finished in a month's time. The water-race is almost completed, and only the wire tramway has now got to be put up. The ground-sections of the tramway, connecting it with the mines at one end and the battery at the other, are finished. I do not know who is to blame in the matter of the long delayed repairing of the battery, but the way in which 12 months has been taken to do work which should not have occupied more than a quarter of the time, is a disgrace to all concerned, and more especially so as during that time the companies have been prevented from crushing, though they had quartz ready to put through...¹²

“The ground-sections of the tramway” suggests ground tramway at each end of the cableway. Establishing the location of the tramway to the cableway head has proved elusive.

Hauraki cableway

28 July

Karangahake. The long expected start of the Hauraki G.M. Co.'s. battery has not yet taken place, as it was found that the wire tramway constructed for bringing the quartz to the battery would not work. The weight and sag of the break line [control line?] was so much that it caused the truck when emptied into the hopper to run back about 100 ft on the main line. Mr E. M. Corbett, the engineer-in charge, is now correcting the defect by stretching telegraph wires underneath and at right angles to the tram in order to support the weight of the wire, and expects to have everything to rights early next week. In the meantime the Hauraki Cos. mine is full of quartz ready for conveyance to the battery. Most of the other mines on the Karangahake Spur are at work prospecting and opening up their ground, and are anxiously awaiting the result of the first crushing from the “Hauraki.”¹³

¹⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

¹¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18820920.2.40>

New Zealand Herald, Issue 6503, 20 September 1882, Page 6

¹² <https://paperspast.natlib.govt.nz/newspapers/THS18830523.2.11>

Thames Star, Volume XIV, Issue 4487, 23 May 1883, Page 2

¹³ <https://paperspast.natlib.govt.nz/newspapers/TAN18830728.2.12>

Aerial cableways

The Hauraki Co must have some way of getting their ore to the cableway.

If the cableway is on the west, they must put in their own tramway, 310m to the Hauraki level, as per map/GIS. This connection is not explained in the literature, so is indicated on the GIS as representational.

6 August

Hauraki G.M.Co,— Upon the wire section of this company's tramway the travelling wire was found to be by far too cumbrous for the work required of it, and a smaller and lighter wire is now being substituted, and a few other defects remedied which will render the tramway fit for service in a few days time.¹⁴

29 August

The construction of the Hauraki G.M.Co.'s tramway was completed yesterday, and a start was made this morning to forward quartz from the mine to the battery, which will start crushing as soon as there is a sufficiency of stuff available. The wire section, which is twelve hundred feet in length [366 m], was found to work admirably, and ought, to be capable of transmitting from fifteen to twenty tons per day, which will be quite sufficient to keep the battery fully employed.¹⁵

“twelve hundred feet in length [366 m]” is too long (3D GIS) for any cableway that could have been constructed to the Woodstock Blow. Is this figure an error? 250 m horizontal distance is about all that the geography would allow.

31 August

A preliminary trial of the Hauraki Company's battery, Karangahake, was made yesterday; everything worked smoothly, and the speed attained was 60 strokes per minute.¹⁶

It has taken 15 months for these works to be completed.

8 November

Ivanhoe G. M. Co.-- The horse grade and self acting sections of tramway connecting this mine with the Hauraki battery are complete in every particular, and the manager is now engaged in preparing material for construction of break, &c. The mishap to the Hauraki company's tramway will not interfere with the continuance of operations in this mine, because the manager completed yesterday a wire suspension foot bridge over the Waitawheta river, which will meet all present requirements...¹⁷

Te Aroha News, Volume I, Issue 8, 28 July 1883, Page 3

¹⁴ <https://paperspast.natlib.govt.nz/newspapers/THS18830806.2.14>

Thames Star, Volume XIV, Issue 4551, 6 August 1883, Page 2

¹⁵ <https://paperspast.natlib.govt.nz/newspapers/THS18830829.2.20>

Thames Star, Volume XIV, Issue 4571, 29 August 1883, Page 3

¹⁶ <https://paperspast.natlib.govt.nz/newspapers/THS18830831.2.14>

Thames Star, Volume XIV, Issue 4573, 31 August 1883, Page 2

¹⁷ <https://paperspast.natlib.govt.nz/newspapers/THS18831108.2.15>

Thames Star, Volume XIV, Issue 4632, 8 November 1883, Page 2

Aerial cableways

1884

5 July

Ivanhoe G.M.Co. The rope for the aerial tramway reached the mine yesterday...¹⁸

Ivanhoe, on the Ohinemuri side of Taukani, intend to erect a cableway.

21 July

The Ivanhoe wire tramway connecting the top of the Taukane hill with the Hauraki battery is fast approaching completion, and ought to be in working order early in the ensuing month.¹⁹

Is this a cableway from mine atop Taukani to the head of the new tramway²⁰ on true left bank of the Ohinemuri? There are remains of the head of a cableway on this north side of Taukani.

Was this cableway installed at this time? It appears to be mentioned 4 September 1885: "The manager is at present engaged constructing an aerial wire tramway 800 feet [244m] in length, to come north of the hoppers; thence to the battery is a ground tramway."²¹

Summary 1884

In August 1882 work starts to construct a ground tramway on the true left bank of the Waitawheta River from the Hauraki Battery, and from the end of this a cableway up to the Hauraki workings. This ground tramway is the start of the Crown walking track of today. By end August 1883 this is operational.

By early May 1884 Sir Walter Scott have a chute and tramway on the Waitawheta side of Taukani Ridge. July 1884 the Ivanhoe Company intend erecting a cableway, but may already have a chute and ground tramway, on the Ohinemuri side of Taukani.

The Woodstock Company are operating on, or to the east of, the Woodstock Blow (Plum Pudding). In 1885 they will construct connections with the Hauraki wire tram, and hence to Battery Flat where they will commence construction of the La Monte furnace (opening in late 1885).

¹⁸ <https://paperspast.natlib.govt.nz/newspapers/THS18840705.2.25>

Thames Star, Volume XV, Issue 4833, 5 July 1884, Page 2

¹⁹ <https://paperspast.natlib.govt.nz/newspapers/THS18840721.2.12>

Thames Star, Volume XV, Issue 4845, 21 July 1884, Page 2

²⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18851224.2.77.2>

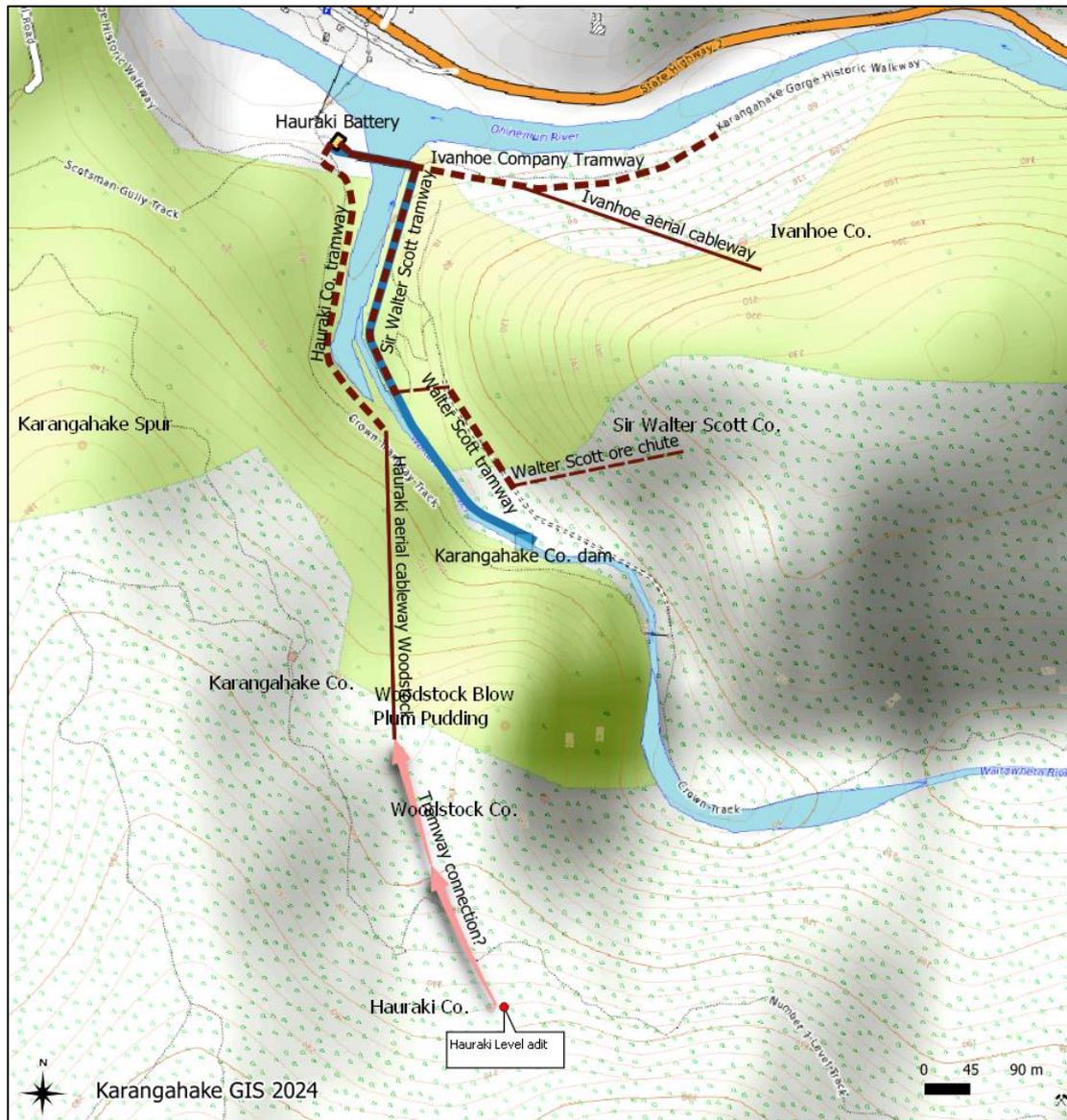
New Zealand Herald, Volume XXII, Issue 7519, 24 December 1885, Page 13 (Supplement)

"Down the face of the cliff on the Ohinemuri side of the river is seen the Ivanhoe Mine tramway"

²¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>

New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

Aerial cableways



This map attempts to show the infrastructure described so far (roughly end 1884).

Hauraki Battery (was Karangahake battery, same building) showing Hauraki Co. tramway (303m) and aerial cableway on true left bank of Waitawheta River, the Sir Walter Scott tramways and chutes on the true right bank, and the Ivanhoe tramway and cableway on the true left bank of the Ohinemuri River.

The Sir Walter Scott tramway is shown here, as it appears to be shown in the 1885 lithograph image, on top of the water race. Or maybe it is beside the flume?

The positioning of the Ivanhoe aerial cableway (244m), the Sir Walter Scott infrastructure and Hauraki aerial cable and tramway connection are uncertain.

1885

21 February

The next claim visited was the Woodstock, which is one of the few mines in the field where anything like permanent work is being done. The low level, affording 75 feet of backs on the reef, has now reached the point where it will be intersected by the winze, which will attain the required depth in about ten days' time. A new tramway, connecting the present face of the low level with the Hauraki company's wire tram, is now in course of construction, so that when stoping operations are in progress, there will be no difficulty attending the transmission of crushing dirt to the battery.²²

9 March

Woodstock.- The tramway and hopper connecting this mine with the Hauraki battery company's wire tramway will be complete in every particular about Wednesday next.²³

19 May

Woodstock — The excavations for the tramway to connect the new low level with the Hauraki wire tram will be complete in a few days.²⁴

This up near the top of the Plum Pudding, presumably on the western side. Where is their Low Level? They intend to use the Hauraki wire tram. It is not clear whether they ever do, or make a new wire.

31 July

Tenders advertised for 15 chains (302m) of rock siding for tramway, and for 600 sleepers; RK Davis c/o McCombie²⁵.

This for the Woodstock furnace. Is this for the connection to the top of the Hauraki aerial tramway, or beside the river? The 4 September entry below would suggest it is for the tramway beside the river.

17 August

Ivanhoe. —The manager expects to have the new tramway completed and connection made with the low level in the course of a week or ten days. The low level will then be pushed ahead on the reef. At present he has only two men on, and the reef looks very well... The manager has also men at work upon the company's additional lease, the Victoria. This came into their hands through the purchase of the Hauraki plant, the ground being held for the Hauraki by Messrs. Hansen and Wick.²⁶

²² <https://paperspast.natlib.govt.nz/newspapers/THA18850221.2.6>
Thames Advertiser, Volume XVI, Issue 5099, 21 February 1885, Page 3

²³ <https://paperspast.natlib.govt.nz/newspapers/THA18850309.2.5>
Thames Advertiser, Volume XVI, Issue 5112, 9 March 1885, Page 2

²⁴ <https://paperspast.natlib.govt.nz/newspapers/THA18850519.2.6>
Thames Advertiser, Volume XXIII, Issue 5173, 19 May 1885, Page 3

²⁵ <https://paperspast.natlib.govt.nz/newspapers/THA18850731.2.4.5>
Thames Advertiser, Volume XVI, Issue 5234, 31 July 1885, Page 2

²⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18850817.2.36>
New Zealand Herald, Volume XXII, Issue 7408, 17 August 1885, Page 6

31 August

Kenilworth (Karangahake).—This claim is bounded on the north by the Woodstock, and is located on the same line of reef. A portion of the ground was held originally by the Hauraki Company, who expended a large sum of money in opening up what is known as the southern continuation of the Maria reef, and the new company will now get the benefit of that expenditure.²⁷

4 September

Woodstock. —The furnace is being erected...

At the other side is a tramway 24½ chains [493m] long, running from the furnace to the hopper of the mine, the trucks of which carry a ton each. This tramway has been carried along a steep siding, and the cutting has just been completed. It skirts the southern side of the Waitawheta Creek. The hopper is connected with the mine by an aerial wire tramway 970 feet [296m] in length...

I have already stated that the country is precipitous, and of this no better illustration could be found than the Woodstock mine. Let one stand at the site of the proposed hoppers, and look upward at the seemingly almost perpendicular cliff, and the idea conveyed is that of a prodigious sugarloaf towering heavenward hundreds of feet overhead [the Woodstock Blow or Plum Pudding]. Upon leaving the furnace the workings of the mine are reached after an hour's stiff climbing. En route the camping ground of the employees of several mines is passed. Here about a dozen whares were clustered.²⁸

The 24½ chain [493m] tramway on the “southern side of the Waitawheta Creek” must be a recycling/extension of the Hauraki tramway; the start of what we now call the Crown tramway walk. The hopper is a little downstream of the flat area between the walkway and the river. This area is composed of fill material, and shows on several photographs. More cableways will terminate here in the future.

The aerial wire of 970 feet [296m. This is the longer of the two cableways mentioned below] is to the hopper on the western flank of the Blow (GIS)? Is this a reuse of the Hauraki cableway, a new one, or the one on the north-eastern side?

Hauraki/Woodstock Tramways, cableways			
	Date	From reports	Measured by GIS
Hauraki ground tramway beside Waitawheta River	08.1882	some 330 yards [302m] ²⁹	
Tramway beside Waitawheta River	4.09.1885 12.09.1885	24½ chain [493m] ³⁰ some 30 chains [604m] ³¹	414m

²⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18850831.2.43>
New Zealand Herald, Volume XXII, Issue 7420, 31 August 1885, Page 6

²⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>
New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

²⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18820807.2.37>
New Zealand Herald, Volume XIX, Issue 6465, 7 August 1882, Page 6

³⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>
New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

Aerial cableways

	07.11.1885 09.1886	27 chains [543m] ³² 29½ chains [593m] ³³	
Woodstock low level ground tram	07.1885	15 chains (302m) of rock siding ³⁴	Beside Waitawheta river?
Woodstock cableway, west of Blow. Old Hauraki wire?	4.09.1885 07.11.1885 09.1886 1887	970 feet [296m] ³⁵ 1000 ft [305m] ³⁶ 1050 [320m] feet long. ³⁷ two wire-tramways, which are 700 ft. and 1000ft. ³⁸	
Aerial wire tramway, northeast of Blow	09.1886	700 feet long [213m] ³⁹	No. 2 level Woodstock
Intermediate level tramway, or No. 2 level tramway?	1887	One ground-tramway 2,800 ft. [853m] long is constructed round the contour of the hill to the hoppers at the head of one of the wire-tramways ⁴⁰	2,800 ft. [853m] error. 280 [256m] yards perhaps? No. 2 level tramway?
No. 2 level tramway		From maps	253m
Water race fluming	12.09.1885 07.11.1885	Forty chains [805m] ⁴¹ 42 chains [845m] ⁴²	823m
Ivanhoe cableway	4.09.1885	800 feet [244m] ⁴³	

Map, two cableways, below.

³¹ <https://paperspast.natlib.govt.nz/newspapers/TAN18850912.2.46>

Te Aroha News, Volume III, Issue 119, 12 September 1885, Page 6

³² <https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35>

New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6

³³ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>

New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

³⁴ <https://paperspast.natlib.govt.nz/newspapers/THA18850731.2.4.5>

Thames Advertiser, Volume XVI, Issue 5234, 31 July 1885, Page 2

³⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>

New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

³⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35>

New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6

³⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>

New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

³⁸ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

³⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>

New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

⁴⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

⁴¹ <https://paperspast.natlib.govt.nz/newspapers/TAN18850912.2.46>

Te Aroha News, Volume III, Issue 119, 12 September 1885, Page 6

⁴² <https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35>

New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6

⁴³ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>

New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

Ivanhoe cableway

The September 4 article continues:

Ivanhoe.—

The manager is at present engaged constructing an aerial wire tramway 800 feet [244m] in length, to come north of the hoppers; thence to the battery is a ground tramway.⁴⁴

This cableway is taking a wee while. Today, a short tunnel, and anchoring bolts are remnants of the top of this cableway. The ground tramway is what we can see in the lithograph 3? It runs along the side of the Ohinemuri River, a little above the present walking track. See previous map.

Thames Star:

Ivanhoe:

The manager is at present engaged constructing an aerial wire tramway, 800 ft. in length, to connect with the hoppers; thence to the battery is a ground tramway. At present there is no paddock room at No 3 level, there being about 25 tons of quartz to grass awaiting the completion of the tramway. Towards the northern boundary of the mine is a lode known as Liddel's reef. It is about three feet wide, and the quartz is apparently very kindly. A considerable amount of driving has been done on it.⁴⁵

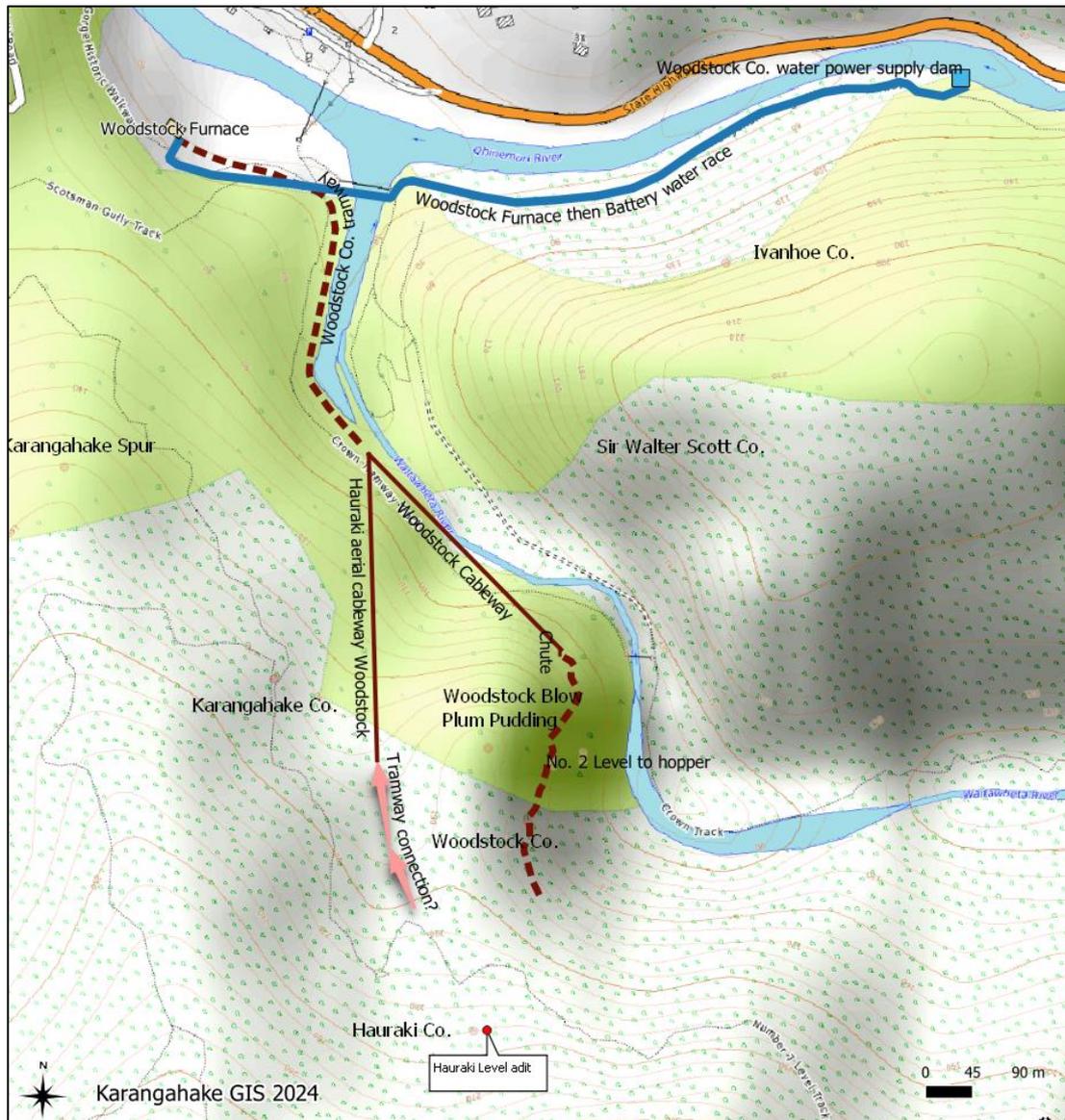
⁴⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>

New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

⁴⁵ <https://paperspast.natlib.govt.nz/newspapers/THS18850904.2.21>

Thames Star, Volume XVII, Issue 5190, 4 September 1885, Page 3

Aerial cableways



Woodstock Furnace and infrastructure only map.

The cableway and tramway beside the Waitawheta River follow roughly the Hauraki versions.
The Woodstock No. 2 level tramway on eastern side of Woodstock Blow, as shown on several old maps. It is 253m long.

8 September

Ivanhoe - The wire tramway has been lowered, and all the connections between it and the low level are now complete.⁴⁶

This makes it clear that the cableway was at a higher level when first installed. It has been lowered, and required a short tunnel to be dug to allow it to align with the new low level. This tunnel exists today.

⁴⁶ <https://paperspast.natlib.govt.nz/newspapers/THA18850908.2.10>

Thames Advertiser, Volume XVI, Issue 5266, 8 September 1885, Page 3

12 September

The erection of the furnace for the Woodstock mine is progressing rapidly, and on the various works in connection some 40 to 45 men are steadily employed. The furnace house is up, and measures about 45ft x 30ft x 21 ft stud, having a lean to attached about 20ft long. The foundation for the furnace is laid, the water-jacket put together, ready to place in position, and the furnace itself also in a forward state. A self-acting tramway of about 400ft [122m] for the conveyance of coke, stores, etc., from where unloaded direct to the furnace house is completed; whilst some 30 chains [604m] of horse grade has yet to be laid towards the mine, from the termination of which it is intended to construct a self-acting tram line [aerial cableway. Is this a new cableway (No. 2 level), or reuse of the Hauraki cable?] to connect with the mine. Forty chains of fluming will be required in forming the water race from the Ohinemuri river, the timber for which is now nearly all ready.⁴⁷

See below for another very good description from 24 September 1886.

The “self-acting tramway of about 400ft [122m] for the conveyance of coke, stores, etc” might be the first incline to be constructed at Karangahake. Maybe the possible incline on the Woodstock Blow was earlier?



The Furnace self-acting incline.

Hogg's store on left, Tramway Hotel on right, La Monte furnace smoking in background. The incline behind. Note the passing loop at the half-way point, and also what appears to be an earlier sled(?) track down the slope to the left of the incline.

The furnace appears to be in action, it operated for a short period in August 1886.

This version from Staples collection via Waihi Arts Centre and Museum. Also at Ohinemuri Regional History Journal 44⁴⁸

⁴⁷ <https://paperspast.natlib.govt.nz/newspapers/TAN18850912.2.46>

Te Aroha News, Volume III, Issue 119, 12 September 1885, Page 6

⁴⁸ <https://www.ohinemuri.org.nz/journals/journal-44-september-2000/karangahake-township>

22 September

Kenilworth.—Surface trenching on a reef about three feet wide, supposed by the manager to be the Woodstock lode, is proceeding. The quartz resembles the Woodstock considerably. It is proposed to put in a tunnel on the same level as the Woodstock, so as to connect with that company's tramway. They also intend to pick up the Hauraki level, and get it in working order.⁴⁹

10 October

Sutro.—Driving south, a reef 2 feet thick shows in the face of the level of fair quality, looking better underfoot. The manager is connecting the mine with the county track by wire tram, preparatory to sending 20 tons of quartz to the smelting furnace.⁵⁰

“Is connecting?”. But does he?

The article continues:-

Rose.— There are 20 tons in the hopper ready for smelter.⁵¹

“hopper”. Cableway hopper? Rose and Sutro are close together, in the Earl of Glasgow area.

Sutro wire tram.

Where was this? No further mention found. The Sutro was south of the Crown claim⁵², with the same reef? and presumably above the County Road.

14 October

Antiquary. —This lode can be better worked from the level now going in, as it is cut in the face of the cliff, and the mullock from it falls on the Woodstock low-level tramway.⁵³

7 November

As the Woodstock claim is a considerable height above the creek and from the furnace, a wire tramway, 1000 ft [305m] in length, conveys the ore to a horse tramway, 27 chains [543m] long, laid to the battery [This is an update of the Hauraki wooden tramway?].⁵⁴

This wire tramway, 1000 ft [305m], is to the western flank of the Blow. Ore from the Hauraki or Intermediate level?

⁴⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18850922.2.44>

New Zealand Herald, Volume XXII, Issue 7439, 22 September 1885, Page 6

⁵⁰ <https://paperspast.natlib.govt.nz/newspapers/AS18851010.2.72>

Auckland Star, Volume XXVI, Issue 235, 10 October 1885, Page 8

⁵¹ <https://paperspast.natlib.govt.nz/newspapers/AS18851010.2.72>

Auckland Star, Volume XXVI, Issue 235, 10 October 1885, Page 8

⁵² <https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49>

New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6

⁵³ <https://paperspast.natlib.govt.nz/newspapers/NZH18851014.2.36>

New Zealand Herald, Volume XXII, Issue 7458, 14 October 1885, Page 6

⁵⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35>

New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6

9 November

This mine [Adeline] is now under the supervision of Mr E. P. Hall, who contemplates erecting a wire tramway, which will be used as a mode of transporting quartz from the mine to a point on the track near to the Rose claim, from whence it can be taken by dray to Paeroa and thence on by steamer for treatment on the LaMonte principle.⁵⁵

Was this cableway ever erected? The same(?) cableway was proposed in October 10. The NZGS No16_1913_Karangahake mines map (see GIS) shows a hopper on the County Road near the Rose crosscut. This is the area of the Sutro, Adeline and Earl of Glasgow workings. Is the hopper the terminus of this aerial cableway?

13 November

Ivanhoe. There are several large reefs in the mine yet to be prospected. A wire tramway 80 [800?] feet [244m] long connected with a ground tramway considered about 1200 feet [366m] in length connecting with the battery.⁵⁶

These dimensions closely match the GIS.

The article continues:-

Adeline.—... With respect to conveyance of quartz to county road, I would recommend the making of a sleigh-track as the most economical. The distance is about eight or nine chains [161 – 181 m], which is too long to run a single wire, and it would be too expensive for the company at present to put up a double line although eventually it will be the most efficient mode of working the ground and will have to be erected.⁵⁷

Cableway or sled track? Maybe sled.

21 November

Adeline.— All hands are now engaged in cutting a track to connect the workings with the county road, so as to make the line practicable for sleigh, and trolly traffic.

Scott. — Operations in this mine are at present confined to breaking out quartz from the main lode, which is fully ten feet in thickness, and the whole of the stone looks well for silver. This work is going on at a point 180 feet beneath the old workings, and in order to take this stone away for treatment a new line of tramway will have to be constructed.

Woodstock - ...and then the only work remaining to be done would be the erection of the hoppers at either end of the Aerial tramway, which was placed in its position yesterday.⁵⁸

27 November

Woodstock.—Working in the low level has been suspended, and the manager has started the men employed therein to cut a line for the tramway to connect

⁵⁵ <https://paperspast.natlib.govt.nz/newspapers/THA18851109.2.9>

Thames Advertiser, Volume XVI, Issue 5319, 9 November 1885, Page 3

⁵⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18851113.2.50>

New Zealand Herald, Volume XXII, Issue 7484, 13 November 1885, Page 6

⁵⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18851113.2.50>

New Zealand Herald, Volume XXII, Issue 7484, 13 November 1885, Page 6

⁵⁸ <https://paperspast.natlib.govt.nz/newspapers/TAN18851121.2.27>

Te Aroha News, Volume III, Issue 129, 21 November 1885, Page 7

Aerial cableways

the workings on the Maria reef with the Ariel section of the tramway, which is now in position.⁵⁹

28 November

Woodstock.—The water race, horse grade, and aerial sections of the tramway are now complete, and all hands are engaged in the work of constructing the hoppers, which will be made capable of holding a large tonnage of quartz...

The stopes are still yielding a large amount of fair smelting ore, and the manager has started to cut a tram line from the Maria reef, so as to connect the workings on that lode with the horse grade section of the tramway.

Scott.— A track is now in progress to connect the workings with the shoot, and when this is completed the manager will break out a sample for testing purposes.⁶⁰

Is this the No. 2 level tramway, and cableway on the north-eastern side of the Woodstock Blow? IE, this is the construction of the second cableway, late 1885 early 1886, from northeast of the Blow. The earlier Hauraki (late 1882) on the western flank and reused by the Woodstock Company.

The Sir Walter Scott ore chute is still in operation.

1886

13 January

Woodstock. Mr Littlejohn reports that the tram to connect the Maria reef with the bottom level is nearly complete. The tunnel is now in a distance of 68ft, and about 22ft more will reach the reef. The drive for the Woodstock reef is in 55ft, and is about 5ft from the reef.⁶¹

23 January

Woodstock. —The tramway from the Maria tunnel to connect with the hopper is practically completed, being 14 chains in length [282 m]. A wire tramway with a hopper at each end is now in course of construction from the Maria tramway to the main line furnace tramway, and will probably be completed in about a fortnight.⁶²

26 January

Woodstock.— In the low level the Maria reef was met with, after a distance of 105 feet had been driven... The No. 2 level has now reached the hangingwall side of the Woodstock reef... Good headway is being made, and the work of connecting the low level with the Horse Grade section of tramway, which is being done by means of an aerial section of tramway, and the whole line should be in complete working order about the 10th of the ensuing month.⁶³

⁵⁹ <https://paperspast.natlib.govt.nz/newspapers/AS18851127.2.33>

Bibliographic details Auckland Star, Volume XXVI, Issue 270, 27 November 1885, Page 2

⁶⁰ <https://paperspast.natlib.govt.nz/newspapers/THA18851128.2.7>

Thames Advertiser, Volume XVI, Issue 5336, 28 November 1885, Page 3

⁶¹ <https://paperspast.natlib.govt.nz/newspapers/THS18860113.2.12>

Thames Star, Volume XVIII, Issue 5298, 13 January 1886, Page 2

⁶² <https://paperspast.natlib.govt.nz/newspapers/TAN18860123.2.11>

Te Aroha News, Volume III, Issue 138, 23 January 1886, Page 2

⁶³ <https://paperspast.natlib.govt.nz/newspapers/THA18860126.2.9>

Thames Advertiser, Volume XVII, Issue 5316, 26 January 1886, Page 3

Aerial cableways

This must be the Woodstock No. 2 level tramway, on the eastern side of the Blow. A cableway delivers to the tramway beside the Waitawheta River.

Woodstock No. 2 Level cableway

22 March

Woodstock Mine.— ...At present what is known as the tramway level [indeed, just above the No. 2 level tramway] has been driven in a distance of eighty-five feet, and it is intended to start stoping... The intermediate level has been driven some 90 feet, and stoping operations were commenced last week...⁶⁴

The Tramway level, as shown on maps, suggests that the No.2 level tramway already exists. The Intermediate level is on the western side of the Blow, roughly level with the No. 2 level?

24 September

The quartz is brought down from the mine by a wire tramway and a horse tramway. It comes out of the mine in small trucks, which hold half a ton each, and is tipped out of them into twin hoppers, or, as some people would call them, binns. Each of these holds about 20 tons. These hoppers are on a hill, about 400 feet above the horse tram, at the end of which is a large single hopper of 50 tons capacity, and this large hopper is connected with the two small ones above, by means of two wire ropes, each 700 feet long, and 1¼ inches diameter, fixed at an angle of about 30 degrees, on which travel two box trucks, each of which holds one third of a ton. These trucks are worked by a wire hauling line three-eighths of an inch in diameter, and are self-emptying into the bottom hopper, so that the brakeman at the top fills them and works them himself, and he can send down about 25 tons a day.

700 feet long [213m]. This suggests the cableway on the eastern side. The double bin shows in the 495 photograph. Strangely, it starts with a double bin, but reverts to a single chute and bin later. When?

The horse tram for taking the quartz from this large hopper to the furnace is 29½ chains [593m, this places the large hopper at about the small bridge on the present Crown tramway track] long, and is laid with iron rails to a 2 feet 9 inches gauge. For the greater part of this length it is cut out of the side of a very steep hill, most of it through hard solid rock. About three chains of it is supported on trestlework [as it arrives at the furnace building] averaging about eight feet high, and the whole of it has just sufficient fall to allow the full trucks to run down of their own accord, requiring only a slight touch on the brake now and then to regulate their speed. These trucks hold 1¼ tons each, and are hauled back empty by horses...

Besides the aerial or wire tramway already described, there is another one of the same sort connecting another part of the mine with the horse tram, and having similar hoppers, trucks, etc., as the first one, with this difference, that the wires on it are 1050 [320m] feet long. The quartz at this part of the mine

⁶⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18860322.2.28>
New Zealand Herald, Volume XXIII, Issue 7591, 22 March 1886, Page 5

Aerial cableways

not having proved so suitable for the furnace as was expected, this tram has scarcely been used yet.⁶⁵

1050 [320m] feet long. This, the first cableway, a possible reuse of the Hauraki cableway, is from the western side of Woodstock Blow?

Is this sorted now? Maybe.



7307 Karangahake Gorge 495, Auckland Library. JD Richardson.

⁶⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48>
New Zealand Herald, Volume XXIII, Issue 7751, 24 September 1886, Page 6

Aerial cableways

Looking upstream Waitawheta River, Woodstock Blow top right. At the horizon, on the shoulder of the Woodstock Blow, can be seen a double ore chute above twin wooden ore hoppers. Ore would have been transported here by tramway behind the hill, the Woodstock No. 2 level.

The aerial tramway terminates above the river, at the end of the tramway from Battery Flat. The left of the photograph may show the ore chute from the Sir Walter Scott on the side of Taukani, completed mid 1884.

Photograph taken from a flume across the Waitawheta near the confluence? The date of this photograph is unknown, but after mid 1886.

There are two similar photographs by JD Richardson, this one, 495, and another 358. I believe this is the earlier one. The double chute and hopper configuration is not seen again on any of the subsequent images of this cableway. The scrub on the steep slopes appears thicker on the other image (358).

At the cableway terminus structure and hopper can be seen what appear to be two cables coming from top right. The Hauraki or equivalent Woodstock cableway?

Monastery workings

6 November

Monastery.—Satisfactory progress is being made with the formation of the line for the tramway to connect this mine with Mr Railey's plant, which is located just 7 chains distant from the main level, where there is now a trial parcel of quartz ready for transit and treatment.

Ivanhoe.—The formation of the line for the tramway from Liddell's reef to connect with the wire section at the old workings is being rapidly advanced towards completion. When this line is open for traffic the manager will start permanent work on the reef, from which, he expects to obtain sufficient good stone to keep the battery moving for some time to come.⁶⁶

9 December

Monastery. —The machinery for the continuous wire tramway connecting with Railey's plant arrived to-day, and will be immediately put into place.⁶⁷

31 December

Monastery. — The ground tram is finished, and the aerial tram across the Waitawheta almost completed. A parcel of quartz is ready for transit to Railey's new Quartz deduction Works.⁶⁸

Monastery aerial cableway

AJHR 1887⁶⁹

Warden's Report, Mr Warden Stratford. Page 4, May 1887:

Monastery Mine.—This mine is situated nearly opposite Railey's Battery, and across the Waitawheta River. Eight chains of a tramway connects with the battery...

⁶⁶ <https://paperspast.natlib.govt.nz/newspapers/THA18861106.2.16>

Thames Advertiser, Volume XVII, Issue 5629, 6 November 1886, Page 2

⁶⁷ <https://paperspast.natlib.govt.nz/newspapers/WT18861209.2.9>

Waikato Times, Volume XXVII, Issue 2250, 9 December 1886, Page 2

⁶⁸ <https://paperspast.natlib.govt.nz/newspapers/THS18861231.2.17>

Thames Star, Volume XVIII, Issue 5593, 31 December 1886, Page 2

⁶⁹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

Page 16. Ohinemuri Goldfield. Karangahake District. Mining Inspector Mr G. Wilson:

Monastery Gold-mining License. —...The present owners saw an opportunity of profitably working the mine when they learned of the position that Mr. Railey had fixed on for the erection of his reduction-plant, which is situated about 7 chains [141m] higher up on the opposite side of the gorge, and at once started vigorously to work to make the necessary connections between their workings and the battery by the construction of tramways, of which there are three sections, the first being a self-acting wire-tram-way. This leads into a hopper at the head of the ground-tramway, which is 200 ft. below the working-level. The second section is a ground-tramway, which winds round the face of a rocky cliff for a distance of 8 chains to a platform constructed opposite the battery. From this point another wire tramway is connected with the battery-machinery to haul the trucks across the river. The whole of these connections are now completed, and working satisfactorily...⁷⁰

This was for the Monastery Gold-mining Company. This infrastructure is above and slightly upstream from the “Crown Stope” (true right bank of the Waitawheta River), and includes a levelled platform (the terminus of the self acting wire, and hopper site), remains of the ground tramway cut into the cliff, and the anchor point of the last remaining cable crossing the river to Railey’s battery.

The description makes clear that there is a self-acting wire tramway, from the workings (adit), and a second wire tramway to haul trucks across the river to the battery i.e. not a self-acting cableway). It doesn’t mention a swing bridge, as we see in photographs, so it may or may not have been there at this time. It seems that this crossing was a combination of wire and bridge.

Later, the Crown Company connect to the above infrastructure by cutting a tramway into the cliff, with bridge, hauling their ore trucks by cable to the levelled platform. The current walkway follows this cutting in the cliff.

AJHR cont.:

Woodstock Mine. —In connection with this mine there is a very complete smelting-furnace on the La Monte principle. This furnace has been connected with the mine by a very extensive system of ground- and wire-tramways and hoppers. There are two wire-tramways, which are 700 ft. and 1000ft. in length respectively. One ground-tramway 2,800 ft. [853m; error?] long is constructed round the contour of the hill to the hoppers at the head of one of the wire-tramways, and from the foot of the wire-tramway a long horse-grade tramway is constructed to the furnace.⁷¹

Indeed, two cableways.

The ground tramway distance must be an error. It would reach all the way to the trig! 280 yards [256m] perhaps? This would then match the No. 2 level tramway.

1887

The Monastery mine was high above what we now call the Crown Stope. The same reef, even? This company put in the infrastructure that we still see today; the tramway

⁷⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

⁷¹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1887-I.2.1.4.6>

GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1887 Session I, C-06

Aerial cableways

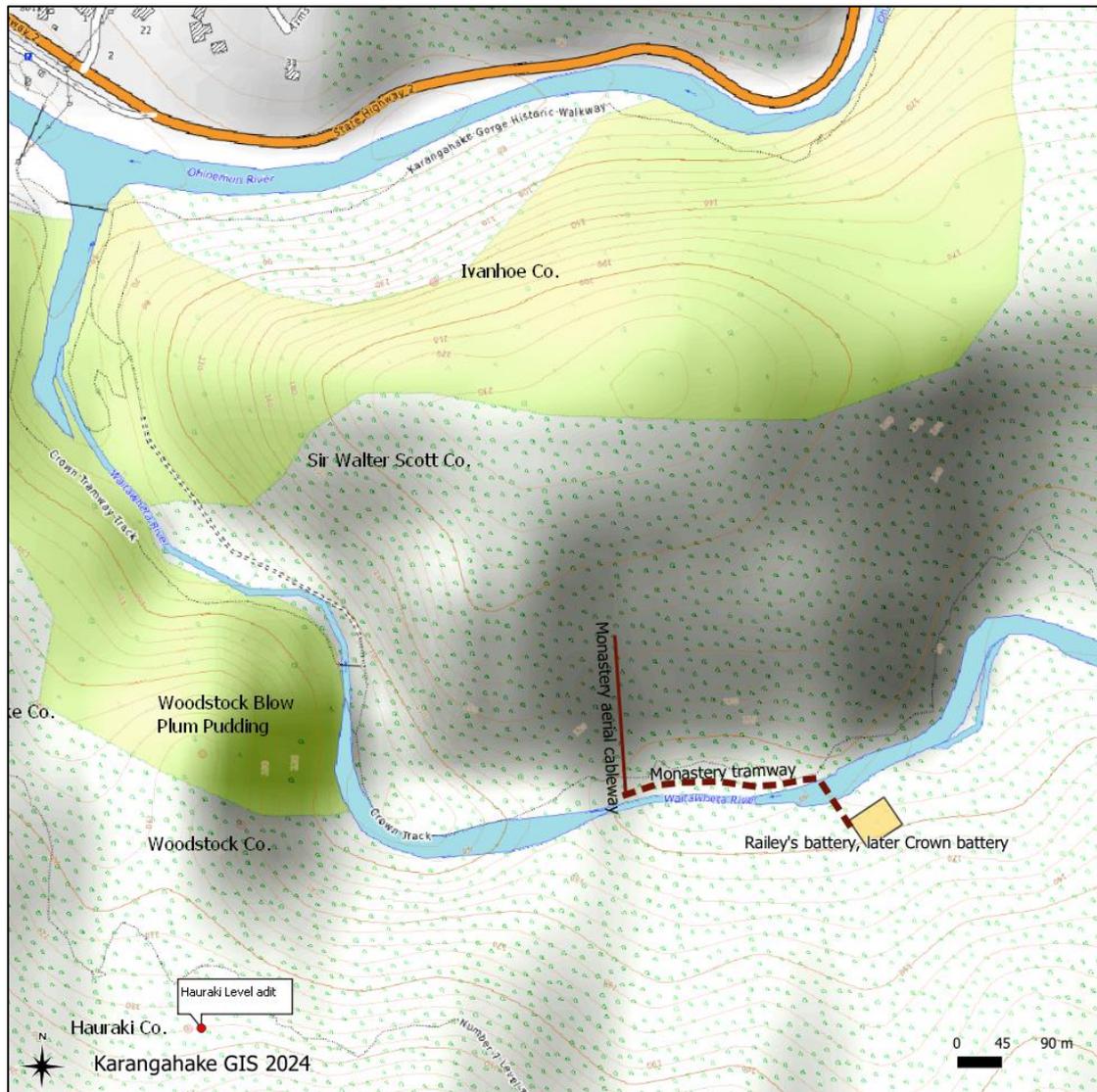
bench on the true right bank of the Ohinemuri running upstream from an excavated platform, and cable across the river. This cable was the haulage cable. A swing bridge was constructed beneath it, now well gone. The excavated platform is below the steeper, rougher section of the walkway upstream of the Crown Stope. When the Crown Company opened up their No.6 Level (River Level adit, 1890), they carved a steep tramway into the cliff, plus bridge, to connect to the Monastery tramway. This is now part of the walking track.

This is the entry for 24 November 1890, which describes how the Crown Co. transported their ore:

After I had visited all the workings inside the mine, I had a look at the mode of forwarding the quartz to the battery, which, is situated twelve chains [241m] higher up the river. The ore, on leaving the mine, is conveyed along a short ground tramway (which had to be hewn out of the solid rock), and dumped on to a platform, where it is filled into the boxes of the aerial tram, and passed over the river, dumped into the trucks, and run along a ground tramway 10 [201m] chains long, from whence it is hoisted into the hoppers on the level of the stonebreaker.⁷²

⁷² <https://paperspast.natlib.govt.nz/newspapers/THS18901124.2.21>
Thames Star, Volume XXII, Issue 6739, 24 November 1890, Page 4

Aerial cableways



Monastery mine infrastructure. The map is representational only.

A steep aerial cableway delivered ore to a platform cut into the side of the river; it is still there. Then a tramway that is glued to the cliff beside the Waitawheta River, and a cable (with swing bridge) to the battery site.

The Crown Company modify this route by cutting a tramway into the cliff from the river level entrance to the platform.

1 August

Woodstock. — Heiteman and party, tributers, have finished the tramway connecting their working with the self acting aerial line [Woodstock aerial line, probably the one on the western side of the Blow?] which places them in direct communication with the Ivanhoe battery...⁷³

22 November

County incline to Railey's battery:-

The county tramway to Railey's battery is now complete, and was last week handed over to the county engineer, Mr. F. Pavitt, by Messrs. Haslett and

⁷³ <https://paperspast.natlib.govt.nz/newspapers/THA18870801.2.5>

Thames Advertiser, Volume XVII, Issue 5849, 1 August 1887, Page 2

Aerial cableways

Meredith, the contractors. The tramway is 17 chains [342 m] long, 12 [241 m] on the incline and five [101 m] on the level. There is a grade of 1 in 2, and there are three rails with a passing loop in the centre. The level part has two rails, and connects the incline with the Crown mine. The rails are heart of kauri, 5x3, fixed to a 2-feet 8-inch gauge, and 7x5 sleepers; 2 feet 6 inches apart. The rope used on the incline is of black Bessemer steel, $\frac{1}{8}$ inch [some fraction of inch] in diameter, and is worked by a brake wheel 5 feet 6 inches in diameter. The trucks have a capacity of one ton. Messrs. Haslett and Meredith have executed the contract in a most workmanlike manner.⁷⁴

HA Gordon, in the 1888 AJHR:

Railey's crushing-battery, from which so much was expected, and to which a tramway was constructed to connect it with the mines on the field, has turned out a failure; the whole plant was recently sold, being purchased by the mortgagees for £70. The tramway, when completed, was never used for the conveyance of quartz, as the battery since then has been standing idle.⁷⁵

The County incline tramway came too late to serve the Railey battery, and would have served only the Crown mine.

The incline does get used when the Crown Company purchase the battery site and establish their own battery.

1889

1 June

Woodstock: Mr Heitman, Manager of this Company's mine, is having a parcel of ore broken out for shipment to London at an early date; he is also having the tramway connecting the mine with the hoppers put into working order.⁷⁶

⁷⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18871122.2.43>

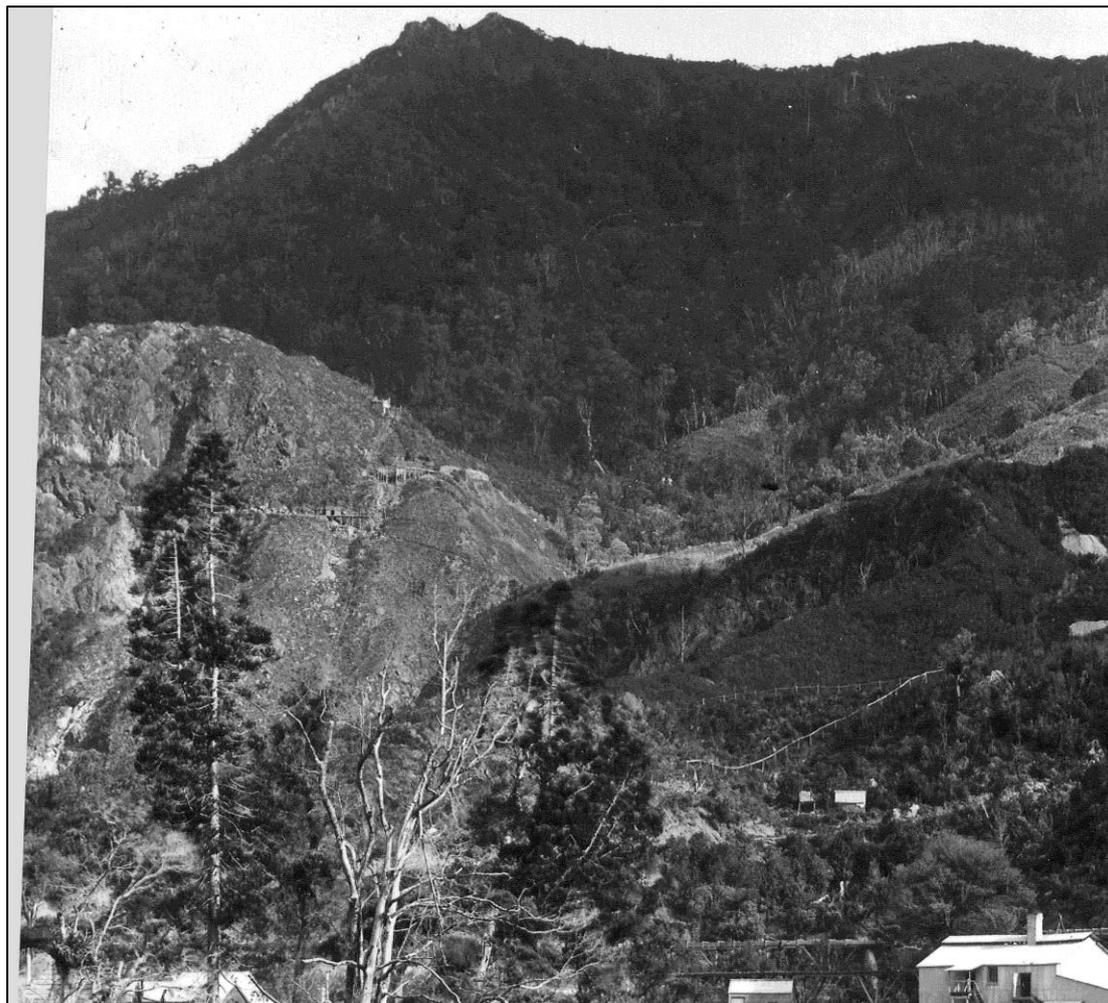
New Zealand Herald, Volume XXIV, Issue 8906, 22 November 1887, Page 6

⁷⁵ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1889-I.2.1.4.3/1>

THE MINING INDUSTRY., Appendix to the Journals of the House of Representatives, 1889 Session I, C-02

⁷⁶ <https://paperspast.natlib.govt.nz/newspapers/TAN18890601.2.12.1>

Te Aroha News, Volume VI, Issue 373, 1 June 1889, Page 2



The photographer (JD Richardson, J Martin) has identified this as the Parkes Furnace (484), Auckland Public Library. Date: 1889+? Photograph taken from below the road, across the river. This is a crop from that image.

This shows the infrastructure on the western flank of the Woodstock Blow, c. 1889.

There is the main cableway (mid left of image), with double hoppers, and the hint of a tramway leading to it from the right. Below it, a tramway with a small building and trestled platform. Could this be the Heitman workings? Does the platform allow them to make use of the aerial cableway?

Above the cableway head is another structure; the terminus of a cableway? Where from? The Hauraki level? Or from the area that later becomes the Talisman No. 7 area? Or is it just a hopper from the Woodstock No. 1 level adit a little behind this structure?

Below this a strong hint of a self-acting incline to deliver ore to the double hoppers of the cableway.

This higher level can also be seen in later images of the Talisman No. 8 level.

Note there is no evidence of Talisman mining higher up on the mountain. Compare with later photographs.

There is no Crown Company water race visible; late 1892.

1891

17 January

An important discovery has just been made in a 30-acre area recently taken up by Mr. Shepherd on the steep range or spur on which the Kenilworth and Woodstock are situated, but it is higher up the range, just under the trig, station—a point nearly 1800 feet above the level of the Ohinemuri river... (which, I omitted to state, has been named the **Talisman**) ... The ore could

readily be got down by means of a wire tramway to the main road leading along the side of the range from the Crown mine to the flat [County Road]. ...
⁷⁷

17 March

The Woodstock United Company's mine is situated west of and next to the Crown mine, and on the left hand side of the Waitawheta river...

The No. 1 lode, averaging 8ft in thickness, has been worked upon in one section of the mine to a depth of 120 ft below its outcrop... West of and running almost parallel with the No. 1 lode is the one known as No. 2, averaging 4ft in thickness, and out-cropping in many places throughout the whole length of the mine. In the early days of this field a large tonnage of ore was broken out from this lode and treated by the battery process for very poor returns. As time went on a new level was started 200 ft under the surface workings; and about 400 ft above the level of the Waitawheta river, which flows round the northern boundary of the mine.... The No 3 lode, which is about 12ft wide, when taken all through the workings, is situated about midway between the No 1 and 2 lodes., and so far the bullion returns prove it to be the richest lode in the district...

During the past month this lode has been met with in a crosscut, which is 120ft lower down the hill than the lowest point in the tributers' workings. Here it is fully 2ft wide ... Although it is a well-known fact that the lodes traversing this property carry both gold and silver right down to the water level—400ft beneath the present workings-no effort has ever been made to develop them at that point, and therefore the value of the mine in this respect is still an unknown quantity...⁷⁸

1 July

MINE MANAGER S REPORT. Woodstock United Mine, Karangahake, 22nd June, 1891, To the Directors Woodstock G.M. Co., Auckland.

The work of repairing the horse grade section of tramway [the original tramway beside the Waitawheta River?], as well as the large hopper, is almost complete, and the end of this week should see the aerial line of tramway in thorough working order. Should the iron rails come to hand quickly, the tram line throughout will be ready for ore transit early in the ensuing month, by which time there will be a fair-sized tonnage of ore ready for treatment. Mr. Jackson is now here making a survey of the lode out-cropping on the tram line [No. 2 level?], in order to ascertain whether it is likely to be identical with the one known as No. 3, and his plan will be forwarded in a few days time. In any case the tramway lode contains a very fair percentage of high grade ore, which could very easily be turned to account when the hoppers are ready for its reception.⁷⁹

⁷⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18910117.2.49>

New Zealand Herald, Volume XXVIII, Issue 8466, 17 January 1891, Page 6

⁷⁸ <https://paperspast.natlib.govt.nz/newspapers/THA18910317.2.15>

Thames Advertiser, Volume XXIV, Issue 6868, 17 March 1891, Page 2

⁷⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18910701.2.63>

New Zealand Herald, Volume XXVIII, Issue 8607, 1 July 1891, Page 6

10 August

Woodstock United (Karangahake). — Operations in this mine are at present confined to stoping north and south upon the No. 3 lode north and south of the main crosscut at the low level.

...The tramway which is being made to connect the low level with the aerial line [the original cableway on the west of the Blow?] will be completed about Wednesday next, after which the ore on hand will be sent down to the furnace buildings, where it will be put through the stonebreaker and sampled for assay purposes...⁸⁰

Not clear where this is. This is 1891, the No. 3 level tramway and cableway not established until late 1893 (see below).

Is “The tramway which is being made to connect the low level with the aerial line” the short incline visible in the above photograph?

1892

13 July

THE WOODSTOCK. Operations at the present time, however, are confined to what is termed the low level, but which in reality is several hundred feet up the face of the southern cliff of the Waitawheta River. The first body of quartz intersected at this level is the Maria or No. 2 lode...

Nothing is at present being done in the upper parts of the mine, but the company's future operations will no doubt tend to the development of a still deeper level upon the reefs that have yielded so remuneratively in the past in the upper workings, and this will be easily accomplished by commencing the same from the Crown Company's new tramway, which runs along the Woodstock boundary on the south bank of the Waitawheta river, and from which point backs of several hundred feet in height will be available. From this point an extent of country would be opened up that would provide for future operations for many years to come, and that, too, at a comparatively small outlay of capital.⁸¹

This suggestion will come into being as the Woodstock No.5 Level, at what we now think of as the underground pumphouse area, in the future (1895/96).

1893

I am reminded here to note that the lode numbers are not the same as the level numbers!

2 September

Woodstock United (Karangahake).—Manager's report. A start was made this morning to carry out the various preliminaries necessary to the extension of the new low level on the No. 2, or Maria lode. Here I expect to break out payable ore from the very outset, and as the conformation of the country adjacent thereto is not suitable for making storage paddocks, it will be necessary to complete all the hoppers and tramway connections in the first

⁸⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18910810.2.24>

New Zealand Herald, Volume XXVIII, Issue 8641, 10 August 1891, Page 5

⁸¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18920713.2.51>

New Zealand Herald, Volume XXIX, Issue 8929, 13 July 1892, Page 6

Aerial cableways

instance. Having that object in view, and taking the present spell of fine weather into consideration, I have stopped work in the mine, and all hands are now engaged as above stated... when I also put in the level pegs for the ground tramway, which connects the low level with the aerial line, and which will be about 200 feet [61m] in length.⁸²

This is the No. 3 level tramway shown on maps (and GIS).

It will span the Waitawheta River from the eastern side of the Blow, terminating at the Crown tramway beside the river. Hoppers and a tramway siding will be constructed here.

12 September

Woodstock United (Karangahake).—Good headway is being made with the excavations for the hopper and "siding" on the horse grade section of tramway, and a start has been made to prepare the anchorage for the aerial line. The ground tramway commencing at the head of the aerial section is now ready for the sleepers and rails right to the outcrop of the No. 2 lode, upon which an open cutting will be continued until we save enough solid country overhead for tunnelling purposes...⁸³

The tramway and cableway are underway before the adit has been started. The horse grade tramway is beside the river, part of the Crown tramway.

18 September

Woodstock United (Karangahake)— anchorage, at the head of the proposed aerial tram line, has been all cut out of the solid rock, and it will be ready for the ropes tomorrow night. The open cutting, being a continuation of the low level tramline, has now been extended for a distance of 12 feet along the footwall side of the No. 2 lode, where it outcrops, and there still is another five feet to go southwards, before we shall have enough ground overhead to start driving. This work should be completed early next week, when there will be about 17 feet of the lode stripped ready for breaking down, and then I expect to grass some good ore. We are now cutting out of the solid rock, near the starting point of the low level, a place 20 by 20 and 10 feet high, for a smithy, and this will be ready for the roof about Saturday next. The excavations for the siding and large hopper, at the horse grade tramline, will be sufficiently advanced to admit of a start being made with the timber work in a few days' time.⁸⁴

The "siding and hopper at the horse grade tramline" are beside the Crown tramway, a little upstream from the crown tramway bridge across the Waitawheta (the recently renewed modern suspension bridge).

9 October

Woodstock United (Karangahake).— Manager's report... and there are now to grass about 27 tons of ore. The large hopper at the horse grade section of the

⁸² <https://paperspast.natlib.govt.nz/newspapers/NZH18930902.2.8>

New Zealand Herald, Volume XXX, Issue 9295, 2 September 1893, Page 3

⁸³ <https://paperspast.natlib.govt.nz/newspapers/NZH18930912.2.75>

New Zealand Herald, Volume XXX, Issue 9303, 12 September 1893, Page 6

⁸⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18930918.2.70>

New Zealand Herald, Volume XXX, Issue 9308, 18 September 1893, Page 6

Aerial cableways

tramway will be finished on Saturday next, and then a start will be made to strain the aerial line and secure the lower anchorage. The trucks required for the different sections of the tramway are now in course of construction, and I expect to have everything in complete working order in about ten days' time.⁸⁵

17 October

Woodstock United (Karangahake).— Manager's report... The aerial line of tramway is now in position, and a start has been made with the erection of the break frame. The tramway siding is also under way, and by the end of next week we should be ready to forward ore to the mill for treatment.⁸⁶

3 November

The Woodstock Company ... A tramway has been erected for connecting this level with the battery, and on the 23rd ult. [October] permanent crushing operations were commenced upon the ore that is coming to hand, which is shaping for a good return.⁸⁷

⁸⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18931009.2.56>

New Zealand Herald, Volume XXX, Issue 9326, 9 October 1893, Page 6

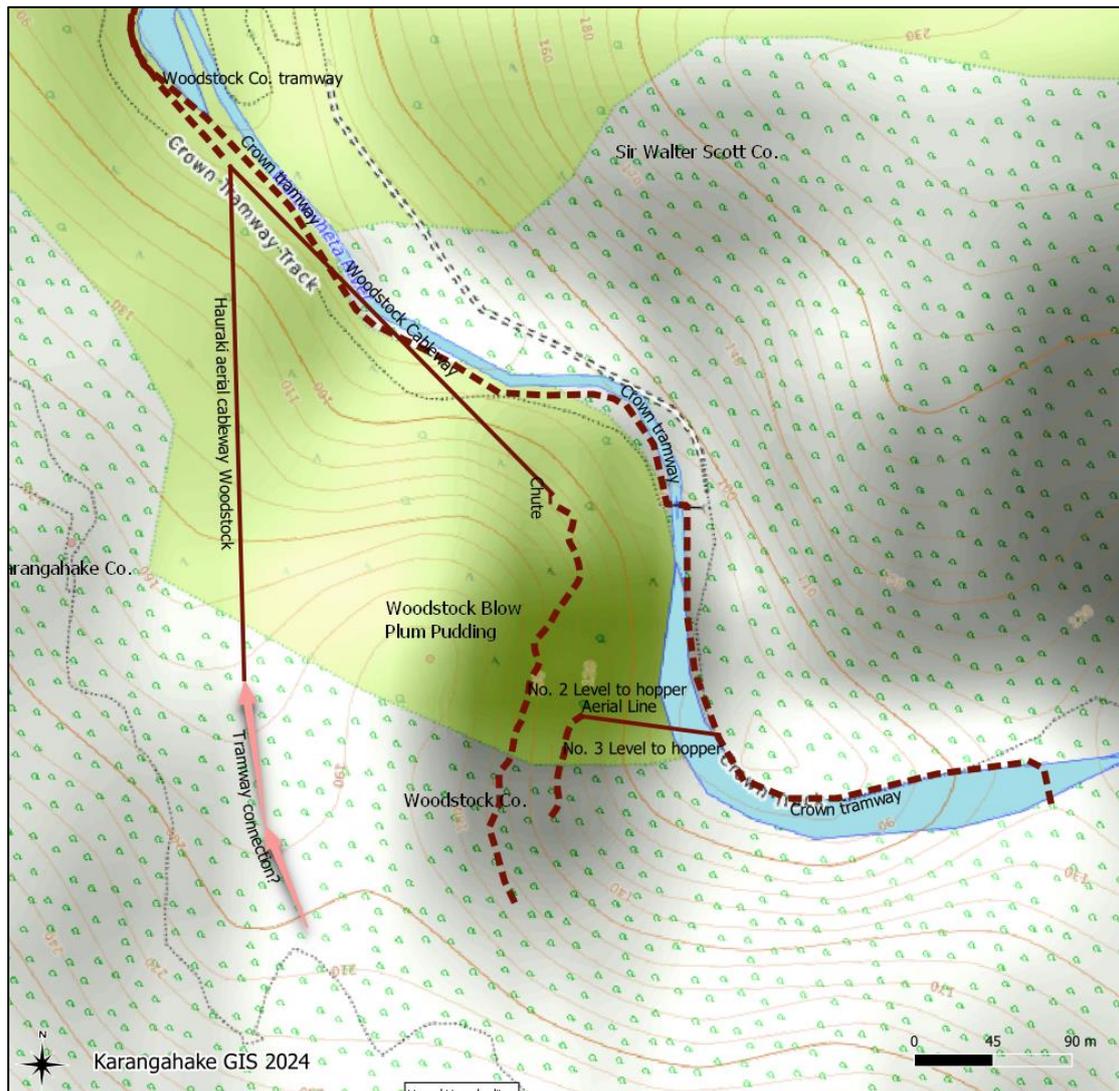
⁸⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18931017.2.62>

New Zealand Herald, Volume XXX, Issue 9333, 17 October 1893, Page 6

⁸⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18931103.2.66.22>

New Zealand Herald, Volume XXX, Issue 9348, 3 November 1893, Page 4 (Supplement)

Woodstock No. 3 Level Aerial Cableway



Woodstock No. 3 level tramway and aerial cableway to the Crown Co. tramway.
To the left are the earlier tramways and cables.

13 November

Woodstock United (Karangahake).— Manager's report... A start has been made to excavate a tram-line from the No. 3 level paddock to a point on the eastern slope of the spur, where I purpose commencing a tunnel, which will have to be driven about 50 feet in order to reach the No. 3, or tramway lode. This lode, you will remember, was cut on the No. 2 level tramline, where it carried a high percentage of the precious metal, and where the best of the ore was left under foot. To connect with the paddock at the head of the aerial line, about 100 feet of tramway will be required, and as the country here is favourable for driving, it should not take very long to push the level on to the lode, upon which it will afford about 180 feet of backs. The mill is still running full time...⁸⁸

I have not seen any photographic evidence of this extension to the tramway.

⁸⁸⁸⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18931113.2.30>
New Zealand Herald, Volume XXX, Issue 9356, 13 November 1893, Page 5

AJHR 1894

Woodstock Company. —The company have been carrying on the operations on their own behalf on No. 2 lode, which averages about 4ft. in thickness. This lode has been opened out at the No. 3 level, which is 150 ft. below the ore above it, and about 250 ft. above the bed of the Waitawheta Creek...⁸⁹

Note that the lode numbers are not the same as the level numbers!

Woodstock United Mine, (Woodstock Gold-mining Company, owners).—This mine, which now includes the Ivanhoe and Truro, has been steadily worked during the year. Mr John McCombie, the manager, gives the following account of what has been done: "Operations on the company's account have been confined during the past year to the No. 2 lode, which averages 4ft. in thickness wherever work has been carried out upon it. Since last annual report this lode has been opened out at the No. 3 level, which is located about 150ft. below the No. 2 level, and about 250ft. above the bed of the Waitawheta River, vertical measurement. The necessary connections between this level and the horse section of tram-line have also been effected by the construction of a complete system of hoppers and an aerial tramway."⁹⁰

⁸⁹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1894-I.2.1.4.3>

THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1894 Session I, C-03

⁹⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1894-I.2.1.4.4>

REPORT ON GOLDFIELDS: WARDENS' REPORTS., Appendix to the Journals of the House of Representatives, 1894 Session I, C-03a

Aerial cableways



Auckland Institute Museum. After 1896.

This appears to be the earliest photograph of the Woodstock No. 5 level infrastructure. There is not yet a concrete retaining wall at river level beyond the mullock tip.

The buildings are probably a change-house for the miners (the larger building?), perhaps a smithy and workshop (or an earlier change-house). This is probably during Woodstock Company tenure, excavating the drive, and/or chamber and shaft.

Tracks and steps up the cliff give perilous access to higher workings. At the very top of the photograph a cableway can be seen, from the Woodstock No.3 level, which connects to the Crown tramway across the river. A mullock chute delivers rubble on to the barren “slip” area.

At the ladder on the pathway is a structure that also appears to have a cableway. It could be Woodstock No. 4 level.⁹¹

⁹¹ 40_32_19_Woodstock_Levels_Old_300ppi

Aerial cableways

The No. 3 cableway shows two cables, one thicker than the other. The thinner cable facilitates the return of the ore skip? The lower No. 4 cableway shows only one cable. How did it work? These cables may already be derelict by this time.



Kevin Jones collection. After 1913.

The truss traffic bridge visible in distance. The Woodstock No. 2 level tramway⁹² on cliff to left. It delivered ore to a cableway out of sight around the cliff in the distance.

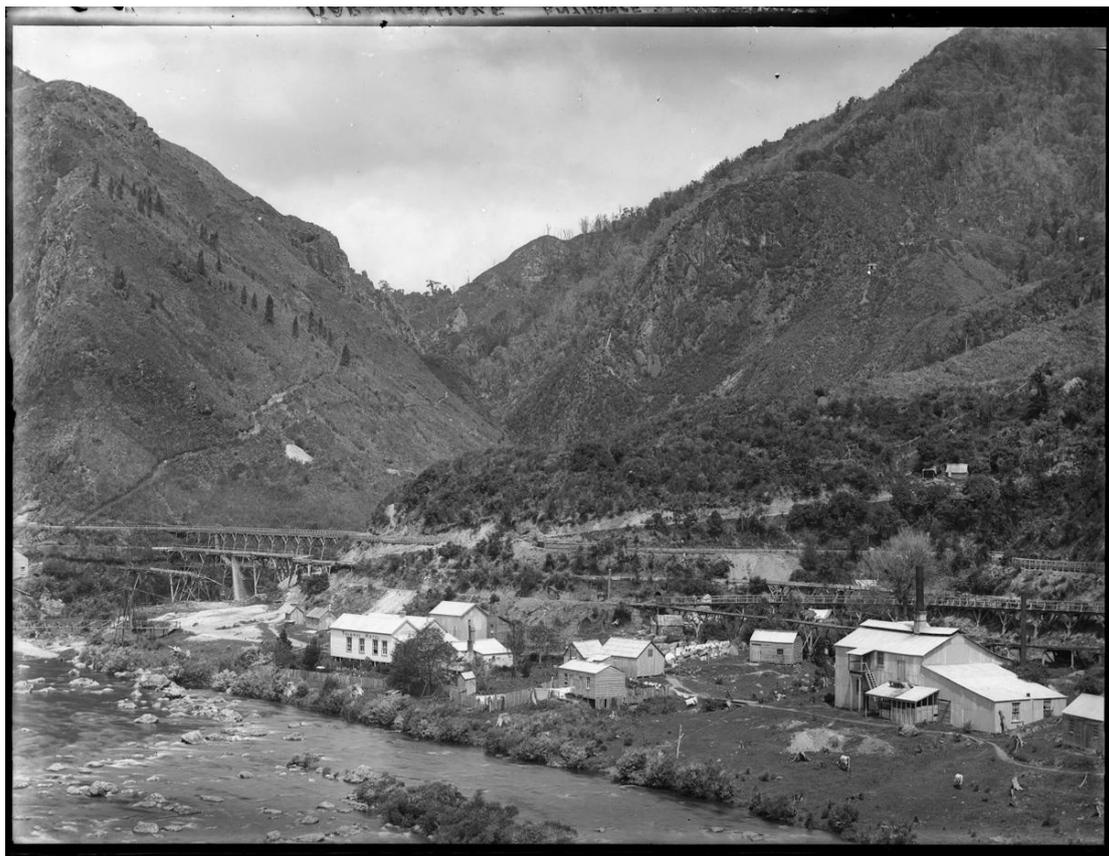
No. 3 level, with the shorter section of tramway, lower down. The roof at extreme left of image is the Timber House (maybe an explosives magazine) at the entrance to the No. 3 level. The building just to the left of the No. 3 level cable-head is the Smithy.

No. 4 level entrance is directly below the smithy⁹³, accessed by the track up from the river.

The tramways and cables are likely abandoned by this time.

⁹² 40_32_19_Woodstock_Levels_Old_300ppi

⁹³ 40_32_19_Woodstock_Levels_Old_300ppi



Title: Karangahake Township. Auckland Library; photographer JD Richardson.

This is the earliest photograph (1892+) I have showing the two early cableways on the Woodstock Blow. Visible are the Crown Company tramway and water race flume, completed towards the end of 1892, with Parke's Furnace at right.

There is a cableway high up on the western flank of the Blow (top right of image), with double hoppers, and the hint of a tramway leading to it from the right. Above the hoppers is the suggestion of an incline. The small building to the left of the cable is associated with the tramway and trestle platform seen earlier.

The cableway at the north-eastern extent of the Blow has been simplified to a single chute and hopper (see earlier photo 495). This is the lower of the two cableways, so the 700 ft cableway? Why is a robust double hopper/double ore chute installation replaced by a much more basic one? And when? The double chute and hopper configuration is not seen again on any of the subsequent images of this cableway.

Photograph taken from well above the road, c. 1892+?

1894

12 February

THE WOODSTOCK.

I may say that both levels are connected with the present battery, one by means of a wire tramway connecting with an iron tramway running from No. 2 level, the other by a wire tramway stretching from a hopper close to the mouth of the No. 3 level and extending across the Waitawheta River to a hopper, from which it is loaded into trucks and conveyed along the Crown Company's tramway, the Woodstock Company having secured the right of conveying their quartz along this line of rails.⁹⁴

⁹⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18940212.2.61>

Aerial cableways

These two levels are both on the east of the Woodstock Blow. Is the old Hauraki cable no longer used?

26 February

In the Woodstock Mr McCombie has finished the connection of the tram with the mill, which will effect a saving of 2s 6d per ton in transit.⁹⁵

30 June

Woodstock G.M. Co...

The mine manager's report was as follows :— Karangahake, June 22, 1894— During the year just past in your mine attention has been devoted chiefly to opening up the No. 3 level, on the No. 2 lode, at a depth of 145 feet beneath the No. 2 level, as well as effecting the necessary connections with the main line of tramway. These connections consist of a ground tram-line, about two chains in length, leading away from the entrance to the No. 3 level and terminating at the paddock, which is capable of holding about 70 tons of ore. Starting from this paddock there is a double aerial line of tramway, which spans the Waitawheta river, in order to reach a large hopper located near the horsegrade section of tram-line, and 250 feet below the point of present operations. This hopper will accommodate about 100 tons of ore, and it is made easy of access by means of a "siding," where the trucks can be filled without interfering with ordinary traffic. A saving of 2s 6d per ton on the cost of transit on ore has been arrived at by adding to and improving the old Hauraki bridge, over which ore intended for treatment at the mill is now conveyed instead of being hoisted up to and across the water-race bridge, as heretofore. Dating from the month of October last year, when work at the No. 3 level was first commenced, a new smithy and magazine have been erected...⁹⁶

19 November

MINE MANAGERS' REPORTS. Woodstock United (Karangahake, November 15). —

... The wire ropes are now being strained for the firewood tram line, and the contractors have got about 150 tons ready for transit.⁹⁷

Woodstock firewood wire tram, kiln

Photographs suggest that this cableway connects to the County Road, where it climbs the Karangahake Spur (310m). It was reported as 1000ft, or 304m⁹⁸. See entry for 5 February 1895.

New Zealand Herald, Volume XXXI, Issue 9432, 12 February 1894, Page 6

⁹⁵ <https://paperspast.natlib.govt.nz/newspapers/THS18940226.2.24>

Thames Star, Volume XXV, Issue 4670, 26 February 1894, Page 2

⁹⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18940630.2.5>

New Zealand Herald, Volume XXXI, Issue 9551, 30 June 1894, Page 3

⁹⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18941119.2.40>

New Zealand Herald, Volume XXXI, Issue 9672, 19 November 1894, Page 5

⁹⁸ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1895-I.2.1.4.4>

REPORT ON GOLDFIELDS: WARDENS' REPORTS., Appendix to the Journals of the House of Representatives, 1895 Session I, C-03a

AJHR 1895

Woodstock Mine. —This mine has always been a valuable one, although part of the ground was originally held by the Maria Company, who gave it up as being worthless...

The No. 3 level is connected with hoppers, which are placed a little above the level of the Waitawheta Creek. On the opposite or north side of the creek a drive is in course of construction in what is known as the Truro Section, which will come under the rich shoot of ore formerly worked by the Sir Walter Scott Company.

The ore is brought from the hoppers on a ground tramway, leading from the Crown Company's mine ...

Talisman Mine. —This mine adjoins the Woodstock and Crown Mines, being on the upper side of the range going towards the trig. station...

A large supply of ore is on hand, ready to send to the crushing plant as soon as it is completed; but the company will have yet to get an economical means of transit of the ore from the mine to their reduction plant, which is to be erected at nearly 1,500 ft. lower level than the mine-workings. An aerial tramway will probably be the most convenient means of accomplishing this; but the steep character of the ground will necessitate a powerful brake being applied if a large quantity of ore has to be delivered.⁹⁹

Woodstock United Mine. ...the erection of an additional ten head of stampers, together with an increase of the capacity of the cyanide plant, is likely to be carried out very shortly. A self-acting wire tram-line, 1,000ft. in length, has been erected for the conveyance of firewood from the bush to the kiln...

Earl of Glasgow Mine. —This mine was steadily worked. In the month of June last year they started to erect their battery of five stamps and a berdan. It is situated on a branch of the Waitawheta Stream, and driven by water-power. The battery is connected with the mine by two ground tramways, 13 chains [262 m], and a self-acting grade 11 chains [221 m] in length. This work was completed about the end of October, when crushing operations were started.¹⁰⁰

Earl of Glasgow install incline. It shows on LiDAR. The Earl of Glasgow is around the eastern side of Karangahake mountain. The 13 chain ground tramway has not been located.

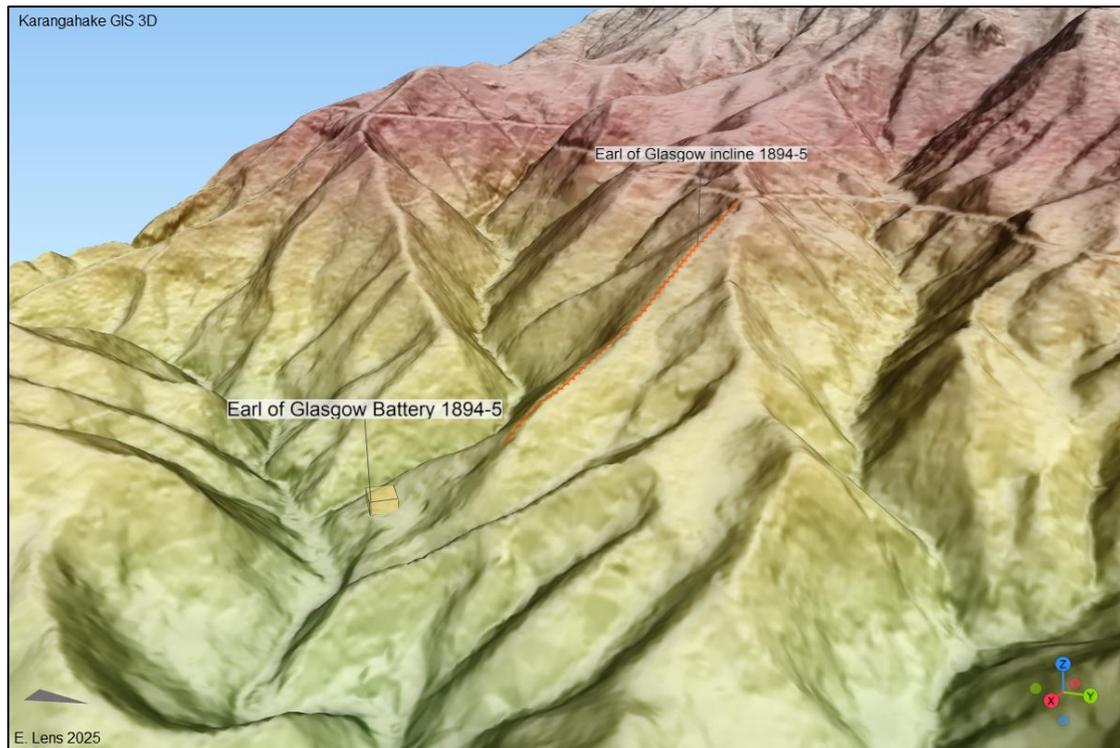
⁹⁹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1895-I.2.1.4.3>

REPORT OF THE DEPARTMENT OF MINES ON THE GOLDFIELDS OF NEW ZEALAND FOR THE YEAR 1894-95. BY H.A. GORDON, Esq., F.G.S., INSPECTING ENGINEER., Appendix to the Journals of the House of Representatives, 1895 Session I, C-03

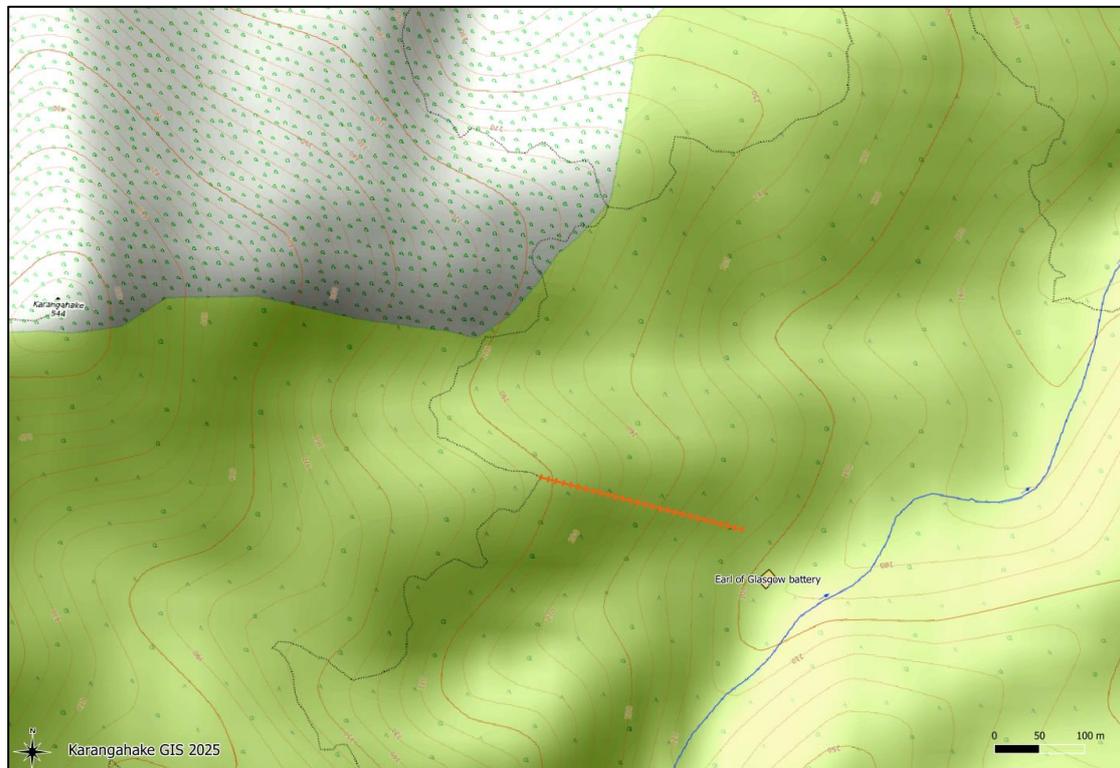
¹⁰⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1895-I.2.1.4.4>

REPORT ON GOLDFIELDS: WARDENS' REPORTS., Appendix to the Journals of the House of Representatives, 1895 Session I, C-03a

Aerial cableways

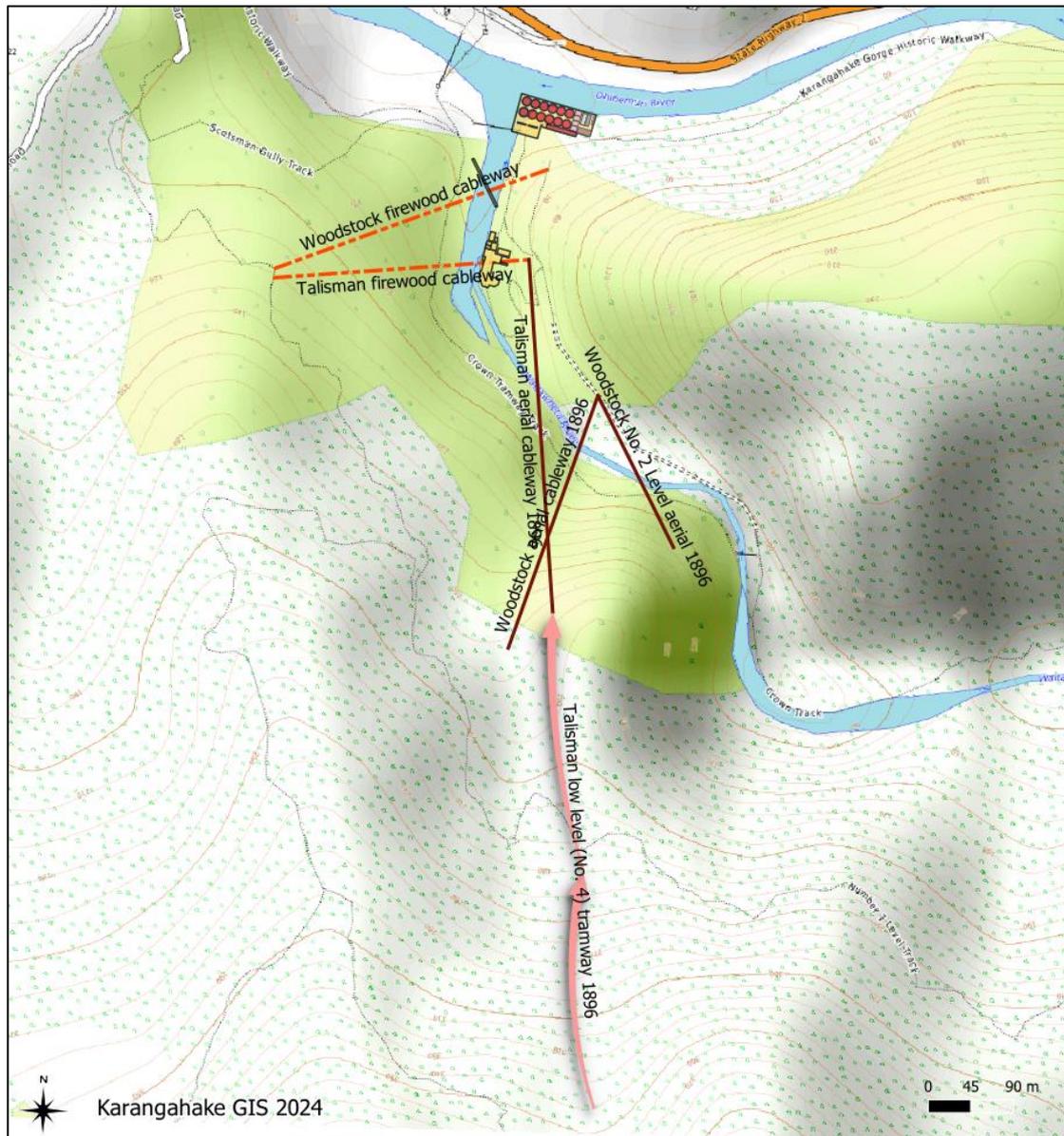


A 3D map showing the location of the Earl of Glasgow incline, and a representation of the battery building. The County Road can be seen at the top of the incline. The incline location is strongly hinted at on the LiDAR image, and is largely discernible on the ground. The battery appears to have occupied a flattish area close to the Dubbo Stream. Little remains.



The Earl of Glasgow incline, and a representation of the battery building.

Aerial cableways



Between 1894 and 1896 the Woodstock Company installed a firewood aerial cable for fuelling their kilns, and shifted two cableways to terminate on the newly formed Kiln level.

The Talisman Company also installed a firewood cableway, and created a connection between their No. 4 level adit and the battery. The route this took is not clear. In fact, the features shown in this image are representational only. The 3D model (GIS) has attempted to explain this better.

1895

5 February

THE WOODSTOCK. Of course, a good deal of firewood will be required for the kilns, and the conveyance of this by the cheapest means has engaged the attention of the manager. To effect this an aerial tramway, 1000 feet span, has been extended from the high hill on the right-hand side of the Waitawheta to the side of the kiln, and along this the wood is delivered over the long span automatically, thus effecting a saving of at least 2s per ton, which is a very material item of saving in a necessary article.

3 July

Talisman. All the works necessary for carrying on operations on a large and systematic scale are being vigorously pushed ahead, and Mr. Low [Law], the contractor for connecting the low level of the mine with the Hauraki level by means of an aerial tramway is making good progress with the work entrusted to him, though the bad weather experienced lately has militated considerably against the speedy construction of the line...¹⁰¹

Is this a cableway from a Talisman adit (No. 4 level) to the Hauraki adit/tramway, or direct to the shoulder of the Plum Pudding, where there is a cableway to the Crown tramway (the old Hauraki cableway)? Later reports make it clear that a new aerial cableway is constructed from the flank of the Plum Pudding/Woodstock Blow to the battery. How the ore got to the top of this cableway from the new No. 4 level cableway is not made clear here.

22 August

Talisman. —Mr. Law, contractor for the construction of the aerial tram, is now making good headway with his work, and if the present weather continues, another fortnight ought to see the connections effected in the mine. The lode is looking very promising, and is yielding fully two feet of good crushing dirt.¹⁰²

Sounds like a dedicated connection of the low level (No. 4 level) with the battery.

AJHR 1896

Talisman Mine. —Area, 60 acres; owners, Talisman Gold-mining Company.—... A wire tramway has been constructed to convey quartz from the hopper at the low-level to the mill, but, from some occult cause, this mill has not been completed. The water-race has been finished, and the 10-stamp mill can soon be ready if it is wanted.¹⁰³

¹⁰¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18950703.2.58>

New Zealand Herald, Volume XXXII, Issue 9862, 3 July 1895, Page 6

¹⁰² <https://paperspast.natlib.govt.nz/newspapers/NZH18950822.2.60>

New Zealand Herald, Volume XXXII, Issue 9905, 22 August 1895, Page 6

¹⁰³ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1896-I.2.1.4.3>

THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1896 Session I, C-03

Talisman first cableway

1896

22 January

WATER RACES, MACHINE SITES, ETC. The following applications for water races, machine, and special sites, were granted: -Ivanhoe Gold Mining Company, water race, two miles on the Ohinemuri River, Karangahake; ditto, machine site, 6 acres, Karangahake... Woodstock Gold Mining Company, tunnel 250 feet at Karangahake; ditto, two special sites for hoppers, and also one aerial tramway, Karangahake.¹⁰⁴

Is this for Woodstock No. 4 level; a similar arrangement to No. 3 level?

15 February

TALISMAN G.M. CO., LIMITED
MINE MANAGER'S REPORT.

Tramway: A self-acting aerial tramway and hoppers has been erected, connecting the No. 4 level with the battery, a distance of fully 3000 feet [914m; this doesn't seem credible! It must include a ground tramway or more? See 26 March below, and 13 June], this will enable the ore to be delivered at the mill at a cost of 1s 9d per ton.¹⁰⁵

The distance from my GIS position for the No.4 adit is c.870m. So, yes, could be. See later for discussion.

26 February

Talisman.-The manager, Mr. Goldsworthy, is doing his utmost in pushing ahead the works of this mine with a view to commencing crushing operations as expeditiously as possible. The outside shoot for the conveyance of ore from the No. 3 level to No. 4 paddock is now completed, and now the lower section of the tramway as well as the finishing details to the battery are receiving attention and are well under way, so that it should not be long before the Talisman company supplements the list of local bullion producers.¹⁰⁶

Ore from No. 3 level (adit) conveyed by chute to No. 4 level. The ground here is very steep; would suit a chute. From No. 4 level by cableway.

It later comes clear that there are two cableways with a connecting section of ground tramway.

26 March

Talisman (Karangahake, March 21).— Stopping operations have been carried on in the No. 3 and 4 levels, from which some good payable ore has been broken out. This will be forwarded to the mill as soon as the excavation is finished on the tramway.¹⁰⁷

¹⁰⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18960122.2.62>

New Zealand Herald, Volume XXXIII, Issue 10034, 22 January 1896, Page 6

¹⁰⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18960215.2.40>

New Zealand Herald, Volume XXXIII, Issue 10055, 15 February 1896, Page 5

¹⁰⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18960226.2.71>

New Zealand Herald, Volume XXXIII, Issue 10064, 26 February 1896, Page 6

¹⁰⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18960326.2.59>

Aerial cableways

Excavation. So either for a ground tramway, or trenching to allow clearance for a cableway?

30 April

Talisman battery starts¹⁰⁸

Woodstock. — The following tenders have been accepted ... Construction of tram line, about seven chains [141m]...¹⁰⁹

9 May

WOODSTOCK G.M. COY., Ltd. TO CONTRACTORS AND MINERS.

Tenders will be received by the undersigned till noon of FRIDAY, the 15th inst, for carrying out the under- noted works by contract:

Providing Material and erecting No. 1 Aerial Tramline.

Removing and re-erecting No. 2 Aerial Tramline.

Providing Material and building three Ore Hoppers and one Ore Paddock.

Cutting out sideline for ground Tramway...

JNO. McCOMBIE, Manager.¹¹⁰

14 May

WOODSTOCK.

The first I visited was the No. 1 level, or Hauraki. This is an old cross drive which cut the reef...

As I mentioned above, the distance from No. 1 to No. 2 level is 260 ft, and an intermediate crosscut has just been started below the Hauraki level to split this block in two, so that it can be more easily worked. It is the intention to construct a tramway from No. 1 level round to where this intermediate level is being put in, then a line will be run along the side of the hill to a hopper, and the ore from both levels will be thence conveyed by aerial tramway to a hopper above the level of the kiln site, and on the same side of the river [same side as the kilns?]. This tramline is now being constructed.

A crosscut is also being driven in the Ivanhoe section on the right bank of the river to cut the main reef, and is in 460 feet.¹¹¹

A new tramway from the No. 1 (Hauraki) Level via the Intermediate Level to a cableway that crosses the Waitawheta to a hopper above the level of the kilns. Ore can then be delivered to the kilns by ground tramway. Do we learn more? Image maybe?

New Zealand Herald, Volume XXXIII, Issue 10089, 26 March 1896, Page 6

¹⁰⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18960430.2.55>

New Zealand Herald, Volume XXXIII, Issue 10119, 30 April 1896, Page 6

¹⁰⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18960430.2.55>

New Zealand Herald, Volume XXXIII, Issue 10119, 30 April 1896, Page 6

¹¹⁰ <https://paperspast.natlib.govt.nz/newspapers/OG18960509.2.18.3>

Ohinemuri Gazette, Volume VII, Issue 238, 9 May 1896, Page 4

¹¹¹ <https://paperspast.natlib.govt.nz/newspapers/AS18960514.2.36.12>

Auckland Star, Volume XXVII, Issue 112, 14 May 1896, Page 6

Woodstock connect No. 5 level tramway with Crown tramway

20 May

WARDEN'S COURT. TUESDAY, 19th MAY, 1896

The following applications were granted or recommended...

Woodstock G.M. Co., tramway, 600ft [183m] at Karangahake, granted on condition that a shoot be erected over the tramway to enable the Talisman Extended Company to shoot their stuff from the kiln to the battery;

Woodstock G.M. Co., aerial, tram way, 660 ft [201m] at Karangahake...¹¹²

The 600ft [183m] tramway is presumably at the bottom of the new cableway (from No. 1 and Intermediate Levels), and goes behind the Talisman battery. Ore can then be taken to the Woodstock kiln(s). This tramway must be part of the bench we walk on today to the Windows. An earlier length figure was about seven chains [141m]¹¹³

The condition stipulated above appears to indicate that the Talisman (Talisman Extended?) wish to be able to shoot ore over the top of the tramway if they wish. This chute appears in a photograph of the first Talisman battery.

12 June

Woodstock.

With regard to other works, a contract has been let for constructing an aerial tramline in addition to altering No. 2 aerial tramline, and erecting three ore hoppers and forming one paddock. When this work is completed all the ore obtainable from the different blocks being opened up above the No, 2 level will be delivered at the top of the kilns, thus obviating the necessity for ore elevation so far as that section of the mine is concerned...¹¹⁴

Woodstock altering No.2 aerial tramline (north east of Blow), from delivering ore to the Crown tramway to delivering directly to just above kiln level? And constructing an additional one (as mentioned above, 14 May?). Where? From the west of the Blow to above the kiln level?

Woodstock aerial cables now deliver to kiln level

¹¹² <https://paperspast.natlib.govt.nz/newspapers/OG18960520.2.6>

Ohinemuri Gazette, Volume VII, Issue 241, 20 May 1896, Page 2

¹¹³ <https://paperspast.natlib.govt.nz/newspapers/NZH18960430.2.55>

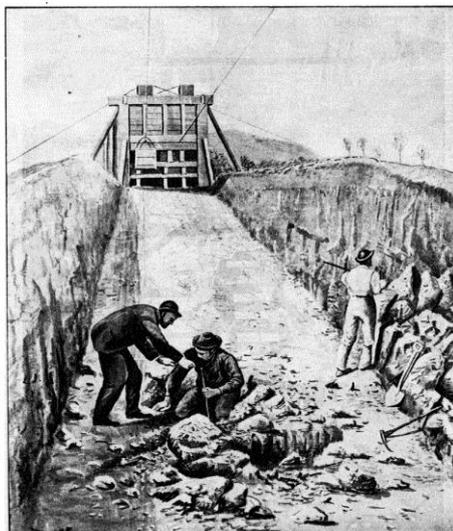
New Zealand Herald, Volume XXXIII, Issue 10119, 30 April 1896, Page 6

¹¹⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18960612.2.62.4>

New Zealand Herald, Volume XXXIII, Issue 10156, 12 June 1896, Page 1 (Supplement)

13 June

THE STANLEY MINE. HOW THE REEF WAS FOUND. NZ Graphic.



Our illustration this week This is the track cut for the wire tramway from the Talisman mine to the battery of that Company, which is situated on the Stanley ground. At the top of the picture may be seen the Talisman hopper and the bucket which runs along the wire to carry the quartz to the battery. It was a fortunate thing for the Stanley shareholders that this bucket caught on the side of the hill, because it was the cutting away of four or five feet of ground to let it run clear that led up to this discovery. Our illustration shows these gentlemen testing the reef...

The present Stanley low level is 200 feet to the westward working on another parallel reef. In order to cut the new find at a lower level a tunnel will require to be put in from behind the Woodstock hopper above the Crown tramway.¹¹⁵

The graphic shows the Talisman hopper and cableway that takes the ore across to the battery, so no continuous cableway from No.4 to the battery. In an attempt to make sense of the Talisman tramway/cableway, without the benefit of a map:-

An outside shoot for the conveyance of ore from the No. 3 level to No, 4 paddock. Then an aerial cableway from Talisman No.4 adit down to old Hauraki adit, then make use of, or reconstruct, (Hauraki?) tramway to their old cableway hopper, or new replacement of, then new cableway across the Waitawheta to the Talisman battery. It may be this complicated route that the reporter was alluding to in his comment of 7 August 1895 ("with reference to the tramline I feel certain that a less costly line might have been provided if the line had been laid down on another course to the one it now occupies. By a careful examination of the locality this defect could be easily remedied. The handling of ore is sometimes very costly and no doubt this defect will be looked to before the line is completed."¹¹⁶)

25 July

Mine Manager Talisman Extended Gold Mining Company (Limited). R. Stackpole, Jun.

...When No. 7 and No. 8 are cut, there will be 700 feet of backs over this tunnel. From this point a ground tramway, about six chains in length, can be made on the Woodstock spur by erecting an endless wire aerial tramway; the quartz could be conveyed to the Talisman Intended machine site at a cost of

¹¹⁵ <https://paperspast.natlib.govt.nz/periodicals/NZGRAP18960613.2.40>
New Zealand Graphic, Volume XVI, Issue XXIV, 13 June 1896, Page 695
Image:

<https://paperspast.natlib.govt.nz/periodicals/NZGRAP18960613.2.38>
New Zealand Graphic, Volume XVI, Issue XXIV, 13 June 1896, Page 694

¹¹⁶ <https://paperspast.natlib.govt.nz/newspapers/THS18950807.2.9>
Thames Star, Volume XXVI, Issue 8115, 7 August 1895, Page 2

Aerial cableways

about 2d per ton, and the company having the right to 30 sluice-heads of water, all that is wanting is a fair working capital to open up the different reefs that have already been found, and I have no hesitation in saying that the Talisman Extended will turn out to be a dividend-paying mine. I have the honour to be, Gentlemen, Your obedient servant, (Signed) R...¹¹⁷

This is the Talisman Extended Gold Mining Company, to the west of the Talisman property. They are considering a tramway and cableway, and have a machine site. Do they ever do this? They amalgamate with the Talisman Company (1900), who use the Extended Company's machine site to extend their battery up stream, therefore no longer needing their vat house on Battery Flat.

To sum up:- there are two hoppers and cableways on the western side of the Woodstock blow, both terminating a little above the kilns level; Woodstock from the No. 1 Level, Talisman from the No. 4 Level.

Additionally, there are two on the eastern side of the blow. No. 2 cableway has been redirected to a hopper above the kiln level. No. 3 Level Woodstock continues to deliver ore to the Crown tramway as before.

Talisman No. 8 Level cableway will arrive in 1901.

4 September

WOODSTOCK. A contract has been let in the Ivanhoe section for continuing the kiln tram line through on the right hand bank of the Waitawheta, and this will intersect all known lodes on route....¹¹⁸

“Continuing the kiln tram line through on the right hand bank of the Waitawheta” sounds like the “Windows” as we know them.

Windows tunnel to be started

12 October

This is a description of the Crown air compressor site at the old Railey's/Crown battery.

Being curious on this matter we proceeded up stream along a rather unsafe path, until we reached another suspension bridge, which is thrown across at a rather acute angle. The bridge is made of wood supported by two steel ropes, with another loose above as a guide line. We were informed that the wire ropes for this bridge alone cost close upon £1000. On a level with the upper end of the bridge is the building containing the air compressor, a No. 3 Hirnant made by Larmuth and Co., of Manchester. To provide power for this another water-race had to be constructed, and the water turns a turbine below the building. Although there is here apparently nothing to generate heat we were unpleasantly surprised on putting our hands on the pipe that leads the air to the chamber, to find it much too hot for comfort.¹¹⁹

¹¹⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18960725.2.6>

New Zealand Herald, Volume XXXIII, Issue 10193, 25 July 1896, Page 3

¹¹⁸ <https://paperspast.natlib.govt.nz/newspapers/THA18960904.2.24>

Thames Advertiser, Volume XXVIII, Issue 8524, 4 September 1896, Page 3

¹¹⁹ <https://paperspast.natlib.govt.nz/newspapers/BOPT18961012.2.7>

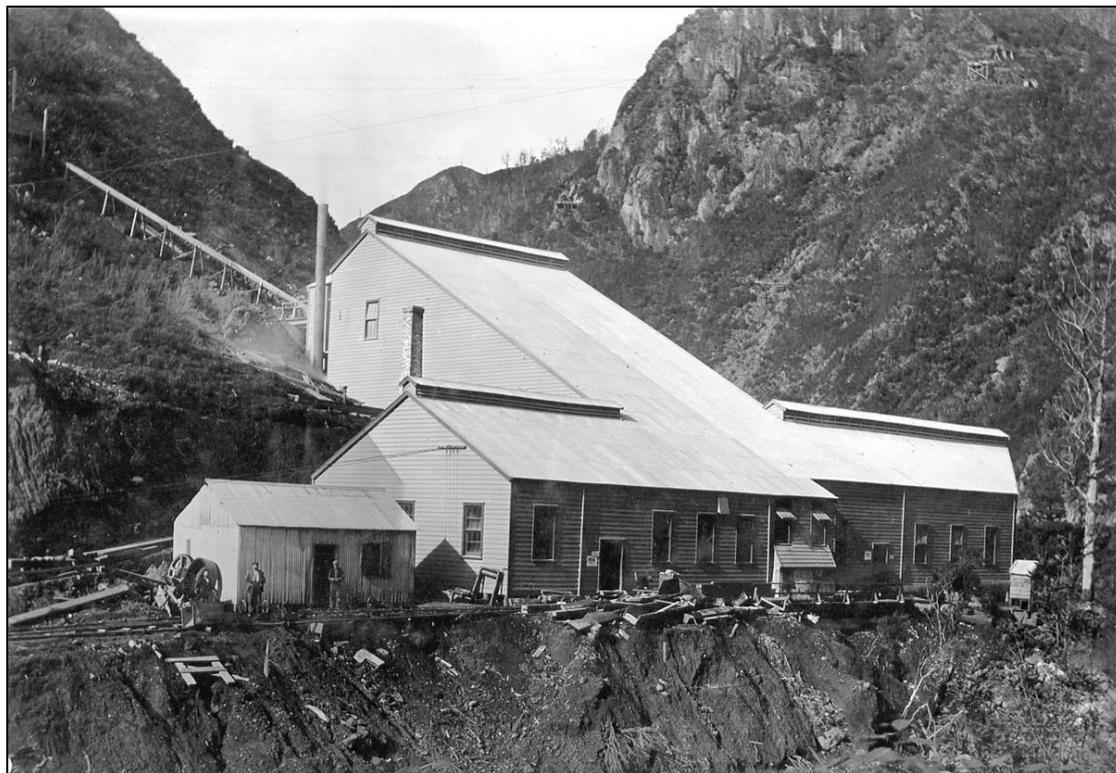
Bay of Plenty Times, Volume XXII, Issue 3461, 12 October 1896, Page 2

27 November

In the Ivanhoe section the Gorge tramline is being advanced speedily, 228 feet of the work having now been done; half this distance is tunnelling, and the other-half scarfing. Another 25 feet of driving should bring the level up to the Woodstock lode.¹²⁰

The “gorge tramline” would appear to be the “Windows” that we are familiar with.

Windows tunnel created



The earliest image of the smaller Talisman battery. Photograph taken from across the Waitawheta River, on the Crown tramway. Staples Collection.

The two tone roof suggests that this is already the larger 20 stamp battery, with the right hand portion recently added? The pipe chimney, top left, must be from the ore dryer, and is discharging smoke. The additional ten stamps, and ore dryer, were erected **late 1896**, so the image is at least this.

A 19 May 1896 Warden’s Court entry talks of the need to construct a chute over the proposed Woodstock tramway, to facilitate ore into the battery.¹²¹ This could be the wooden chute we see on the slope above the battery.

For a short time the kiln was used. Ore was delivered to the kiln by cable (a separate Talisman cable, or the Woodstock one?), and brought into the battery via a tunnel under the kiln. We can see this just to the left of the round chimney. The kiln, replaced by an ore dryer within the building, is now a storage hopper. The wooden chute allows ore to bypass the kiln entirely.

It may also facilitate sending firewood to the ore dryer. 2000 tons was ordered for the kiln, delivered to the “kiln tram line” level, but now must be being used for the dryer.

There are three cableways visible above the battery, two tandem sets and a single wire. For ore or timber is not clear. Notice also the ore hoppers either side Pudding Hill/Woodstock Blow. These are probably Talisman and Woodstock aerial tramway heads, the one to the left of the Blow being the Woodstock No.2 Level.

¹²⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18961127.2.55.4>

New Zealand Herald, Volume XXXIII, Issue 10300, 27 November 1896, Page 1 (Supplement)

¹²¹ <https://paperspast.natlib.govt.nz/newspapers/OG18960520.2.6>

Ohinemuri Gazette, Volume VII, Issue 241, 20 May 1896, Page 2

1897

19 March

At the New Zealand Talisman Gold Mining Company's mine good progress is being made with the development of the new reef recently intersected at No. 6 level...

...while in view of the fact that a rotary ore dryer is to be utilised, the quartz from the mine is now being despatched to the old kiln, which is being used as a paddock. Excavations are also in progress for the construction of a tram line to connect with the Hauraki hopper...¹²²

Is this still the work from last year?

1 May

The Talisman and Woodstock batteries are within a stone's throw of Bunyard's hotel, and five minutes' walk around the corner brings you into one of the wildest and most picturesque gorges imaginable. The sides of the mountain rise up perpendicularly forming what in America is commonly called a canon [canyon]. Overhead are stretched innumerable wire ropes, these cross the gorge or canon and carry the ore from one side to the other. The ingenuity of the miner is here displayed to great advantage. The manner in which these aerial trams, looking like spider webs across the sky, are managed reflects great credit on the mine managers in this region.¹²³

6 May

Warden's Court. - Paeroa.

Miscellaneous Applications. The following were granted:— N.Z. Crown Mines, Limited, bridge site at Karangahake, subject to notice being given to the County Council; N.Z. Talisman G.M. Co., tramway and aerial tramway, Karangahake.¹²⁴

7 May

At the sitting of the Warden's Court today the following applications were granted by Mr. R. S. Bush, Warden :—

N.Z. Talisman Gold Mining Company, ground tramway, 650 feet [198m], and aerial tram, Karangahake.¹²⁵

14 May

New Zealand Talisman property...

...of ore already proved in No. 5 level will shortly be intercepted in No. 6 level. A new aerial tramway, to carry the ore from No. 5 level to No. 3 hopper,

¹²² <https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4>

New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)

¹²³ <https://paperspast.natlib.govt.nz/newspapers/OG18970501.2.34>

Ohinemuri Gazette, Volume VII, Issue 388, 1 May 1897, Page 6

¹²⁴ <https://paperspast.natlib.govt.nz/newspapers/THS18970506.2.17>

Thames Star, Volume XXIX, Issue 8653, 6 May 1897, Page 2

¹²⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18970507.2.61>

New Zealand Herald, Volume XXXIV, Issue 10436, 7 May 1897, Page 6

Aerial cableways

on the hillside, has been erected, and a surface tramway, to convey the ore from No. 6 level to No. 2 hopper, is in course of erection.¹²⁶

11 June

New Zealand Talisman...

the principal workings consisting of six adits driven at intervals of about 100 feet below each other...

ore sent to the mill by aerial tramway...

The ore will be delivered at the machine site by means of the aerial tramway already referred to...¹²⁷

8 July

THE BATTERY STARTED.

The Talisman battery commenced running at 12 o'clock noon on June 16...

Considerable improvement is being effected in the mode of transporting the ore from the mine to the mill and when the present works are completed a great saving in labour will be effected. A short ground tramway from No. 6 level will convey the ore from this and No. 5 level to a hopper, whence it will be carried by a short incline tram to another hopper, and thence by aerial tram to the battery. The ore from No. 4 level will be conveyed as at present. The hoppers are being enlarged, as the old ones were much too small. When these necessary improvements are effected it is the manager's intention to develop other parts of the Talisman property...¹²⁸

Two different routes:

- From No. 4 by cableway, including ore from No. 3 level by chute¹²⁹. No. 2 level is not connected until late 1898 by incline (2 to 4 level).¹³⁰
- No. 5 level to No. 6 by cableway, then combined by ground tramway to short incline to No. 7 level. Then cableway.

Both these routes terminate on Woodstock Blow. There is presumably a short length of ground tramway and even incline and then the ore is cabled across to the battery. See the image at end of document.

Getting the ore off the mountain is quite a performance.

9 July

New Zealand Talisman Gold Mining Company...

The new section of tramway from the No. 5 level to the Hauraki level is completed and is working well. The same applies to the aerial tramlines, and a

¹²⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH18970514.2.67.4>

New Zealand Herald, Volume XXXIV, Issue 10442, 14 May 1897, Page 1 (Supplement)

¹²⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18970611.2.62.3>

New Zealand Herald, Volume XXXIV, Issue 10466, 11 June 1897, Page 1 (Supplement)

¹²⁸ <https://paperspast.natlib.govt.nz/newspapers/AS18970708.2.33.2>

Auckland Star, Volume XXVIII, Issue 157, 8 July 1897, Page 6

¹²⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18960226.2.71>

New Zealand Herald, Volume XXXIII, Issue 10064, 26 February 1896, Page 6

¹³⁰ <https://paperspast.natlib.govt.nz/newspapers/AS18981122.2.4.2>

Auckland Star, Volume XXIX, Issue 276, 22 November 1898, Page 2

Aerial cableways

contract has been let to Hilton and party for the conveyance of ore, firewood, etc., to the mill...¹³¹

2 August

The WOODSTOCK MINE...adjoins the Crown, lying to the west of that property, and is bounded on the south-east side by the Talisman and Talisman Extended, and west by the Waverley, Stanley, the Stirling again lying to the west of the properties mentioned. The Woodstock was at one time known as the old Hauraki, and was owned in 1884 by Messrs. McCombie (the present mine superintendent), Shepherd, Liddel, Davidson, Lemon, and Colonel Fraser. The reef which had been discovered on the ground was opened up at two levels, and a quantity of ore taken out.¹³²

3 August

THE TALISMAN

A ten-stamper battery was erected, an aerial tramway placed in position... and substantial additions made to the aerial tramways, which are now 2400 feet [732m] long, the longest stage from hopper to hopper being 1250 feet [381m].¹³³

Longest stage from No. 4 level?

28 October

New Zealand Talisman.

...The hopper at the end of the tramway from No.6 level is completed [No. 2 hopper], and also a short incline tramway from this hopper to another hopper below. A most ingenious self-acting tipper for the trucks has been constructed at this last hopper at the foot of the tramway, after a plan devised by the manager's brother, Mr John Goldsworthy, of Kuaotunu. This arrangement consists in the last couple of feet of the rails being bent into a semicircle and doubled sharply back at the ends, the result being that the truck runs down this depression, stands up on end, and in doing so the catch holding the door strikes against a block of wood placed in position, thus opening the door and discharging the truck. The wire rope is made the right length allowing the truck to rise the proper distance. The whole arrangement is very simple, cheap and neat, and also most successful in its application, being undoubtedly a vast improvement on the usual method of discharging.¹³⁴

¹³¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18970709.2.60.5>

New Zealand Herald, Volume XXXIV, Issue 10490, 9 July 1897, Page 1 (Supplement)

¹³² <https://paperspast.natlib.govt.nz/newspapers/NZH18970802.2.8>

New Zealand Herald, Volume XXXIV, Issue 10510, 2 August 1897, Page 3

¹³³ <https://paperspast.natlib.govt.nz/newspapers/NZH18970803.2.64>

New Zealand Herald, Volume XXXIV, Issue 10511, 3 August 1897, Page 6

¹³⁴ <https://paperspast.natlib.govt.nz/newspapers/AS18971028.2.18.7>

Auckland Star, Volume XXVIII, Issue 259, 28 October 1897, Page 3

Aerial cableways



This image before 2nd suspension bridge, the Traffic Bridge, of August 1898 (ie between c. June 1897 (completion of Vat House) and August 1898). Photograph taken from above the road in the township. The Talisman battery, and the Howe Truss bridge, are hidden behind the ridge with the boarding house on it, at right. However, some infrastructure above the kiln site can be made out. The battery would still be the original 20 stamper.

The full image shows at least two cableways. Are either of them supplying ore to the Talisman battery hopper? They may be both Woodstock cableways. There is a hint of a closer cableway just to the right of the top house. It would be at an angle that could reach the Talisman battery. Firewood cableway/s?

The Woodstock kilns are in action; note the stacked firewood.

Staples Collection.

1898

This is the full image of the photograph above.



Late 1897 or early 1898

The new forty stamp battery, completed March 1897.

Only one suspension bridge, second built during 1898. The Talisman vat house, on their special site, completed June 1897.

The single kiln, and the three kilns are firing. The tunnel from the latter is visible below the kilns, tramway with ground tram taking roasted ore to the battery. This tramway crosses over the water balance which is below the single kiln.

The battery converts to wet crushing in March 1898¹³⁵, kilns no longer used.

The Crown water race flume and tramway complete with horses and ore trucks at middle right.

Note the new two storey building on the ridge above Battery Flat. It is not present in the 1896 photograph. A boarding house?¹³⁶ The proprietor stands at the front door ;).

Staples collection.

29 October

N.Z. TALISMAN. At No. 7 level the crosscut has intersected the lode, and driving south on its course has commenced, the lode being at present 2 feet wide. This is the company's lowest level, and from this to the top of the ridge in the Bonanza section is 900 feet, whilst downwards to the river level is 600 feet.¹³⁷

¹³⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18980318.2.69.3>

New Zealand Herald, Volume XXXV, Issue 10704, 18 March 1898, Page 1 (Supplement)

¹³⁶ <https://paperspast.natlib.govt.nz/newspapers/THA18970424.2.9>

Thames Advertiser, Volume XXIX, Issue 8718, 24 April 1897, Page 2

¹³⁷ <https://paperspast.natlib.govt.nz/periodicals/NZGRAP18981029.2.20>

New Zealand Graphic, Volume XXI, Issue XVIII, 29 October 1898, Page 561

Aerial cableways

No No. 8 Level yet (1900). The ore is coming from the No. 7, 6, 5, 4, 3?

22 November

N.Z. TALISMAN

At No. 2 level the hopper is being built and a self-acting ground tramway is being laid to connect it with hopper at No. 4 level, which is the top point of the aerial tramway. When this work is completed the ore from all points of the mine will be delivered at the battery at a minimum of cost.¹³⁸

NZ Herald

The main work at No. 2 level is the continuance of the crosscut in the Bonanza, and as the locality of the lode has been reached, it should now be met at any time. Altogether, the underground works are progressing very satisfactorily. Outside a self-acting ground tramway is being laid, and when completed it will connect the No. 2 level with the No. 4, which is the top point of the present aerial tramway. This will give greater facilities for getting away the ore from the No. 2 level.¹³⁹

25 November

The prospects of the Talisman Gold Mining Company appear to be getting brighter each month...

With a view to connecting this [No.5, though this appears to be an error] level with the No. 4 level, and expediting the transference of ore to the mill, a self-acting ground tramway is being constructed. This tram will connect with the No. 4 level, the top point of the present aerial tramway...¹⁴⁰

17 December

Talisman

In all of these six levels it will thus be seen that the mine is steadily advancing, and it will continue to do so, I believe. A splendid self-acting incline tramway has been formed from No. 2 level to No. 4 level for the haulage of quartz, and the work, which is just completed, reflects great credit on the contractor, Mr. John Law. The Company have also had a fine blacksmith's shop erected at No. 4 level, and an office for the manager will shortly follow.¹⁴¹

This incline is approximately 180 m long, and clearly visible on LiDAR.

1899

13 April

TALISMAN G.M. CO... During this month also the No. 7 level has been connected with the large hopper at the head of the aerial tramway by means of

¹³⁸ <https://paperspast.natlib.govt.nz/newspapers/AS18981122.2.4.2>
Auckland Star, Volume XXIX, Issue 276, 22 November 1898, Page 2

¹³⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH18981122.2.88>
New Zealand Herald, Volume XXXV, Issue 10916, 22 November 1898, Page 6

¹⁴⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18981125.2.83>
New Zealand Herald, Volume XXXV, Issue 10919, 25 November 1898, Page 1 (Supplement)

¹⁴¹ <https://paperspast.natlib.govt.nz/newspapers/AS18981217.2.43>
Auckland Star, Volume XXIX, Issue 298, 17 December 1898, Page 6

Aerial cableways

a ground tramway, supported on large trestles, some of which stand 26 feet from the ground...¹⁴²

The No. 7 level is connected to the bottom of the short incline/top of a cableway to the Woodstock Blow.

AJHR 1900

Published 1900, but largely reporting on 1899.

In view of an amalgamation that will shortly take place with the Talisman Extended, an additional fifty head of stamps are about to be erected. Also another important work is to be started in the opening-up of the low level from the level of the horse-tramway that leads into the battery.¹⁴³

Horse tramway? Is this low level going to be the No. 8 level. Was the tramway to the edge of the cliff, hopper and cableway to the battery, already there much earlier? Yes.

1900

31 August

Talisman No.8 Level to be constructed

KARANGAHAKE. The Talisman Consolidated Company...

Another very important work is to be commenced shortly, namely, the driving of No. 8 level, at a point about 200 ft below the No. 7. This level, when driven, will be the main outlet for the mine, as all the ore from the upper workings will be concentrated there, and sent on to the battery, one length of aerial tramline being sufficient to land the ore at the battery [from the adit portal by ground tram to hoppers overlooking the river and battery, then cableway to the battery].¹⁴⁴

24 October

TALISMAN CONSOLIDATED (LIMITED.)

...The crosscut for No. 8 level has now reached a total length of 104 ft. The country has become more favourable for driving. A tramway from this level has been laid down for a distance of 650 ft [198m] to the site selected for the upper hopper of the proposed line of aerial tramway to the new mill.¹⁴⁵

10 November

Warden's Court. The following business was dealt with:

Talisman G. M. Coy. Limited, site for an aerial tramway.

Talisman G.M. Coy. Ltd. special site for a hopper site.

¹⁴² <https://paperspast.natlib.govt.nz/newspapers/AS18990413.2.131.3>

Auckland Star, Volume XXX, Issue 86, 13 April 1899, Page 9

¹⁴³ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1900-I.2.1.4.3>

THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1900 Session I, C-03

¹⁴⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH19000831.2.70.4>

New Zealand Herald, Volume XXXVII, Issue 11465, 31 August 1900, Page 1 (Supplement)

¹⁴⁵ <https://paperspast.natlib.govt.nz/newspapers/AS19001024.2.6>

Auckland Star, Volume XXXI, Issue 153, 24 October 1900, Page 2

Aerial cableways

Talisman G.M. Coy. Ltd Ground tramway at Karangahake.¹⁴⁶

The above suggests that the tramway and cable are new features, not reuse of existing. Once the No. 8 crosscut and aerial cableway are completed, all ore from the mine will be transported to the battery by this route. The No. 8 level is the lowest level in the Talisman mine to date. All lower levels as they are created will raise ore to No. 8 level to reach the battery.

1901

28 February

Recommended to Minister for grant: Talisman Consolidated Company, one special site and one aerial tramway, Karangahake...¹⁴⁷

12 April

In the Talisman Consolidated G.M. Co.'s mine at Karangahake, ...

The hoppers at the mill site and at No. 8 level are nearing completion. The No. 1 section of the aerial tramway has been taken down and re-erected, so as to deliver ore to the new mill...

This to move the cableway from the old battery across to the new? And/or from the old hopper on the hill to the new?

Crushing operations in the old mill were stopped on February 16.¹⁴⁸

10 May

The Talisman Consolidated Gold Mining Company is responsible for a large amount of work...

Surface works: The large receiving hopper at the mill site has been completed, and the No. 1 section of the aerial tramway erected. The new hopper at No.7 level is in course of erection, and will be finished early next month, and No. 2 section of the aerial tramway will be erected, also the self-acting ground tramway from No. 6 to this level...¹⁴⁹

The new hopper at No.7 level is the No. 4 hopper. No. 2 section of the aerial tramway is between No. 7 and No. 8 level. The self-acting ground tramway is from No. 6 to No.7 level, and 100m long.

¹⁴⁶ <https://paperspast.natlib.govt.nz/newspapers/OG19001110.2.14>

Ohinemuri Gazette, Volume IX, Issue 747, 10 November 1900, Page 3

¹⁴⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH19010228.2.43>

New Zealand Herald, Volume XXXVIII, Issue 11588, 28 February 1901, Page 5

¹⁴⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77>

New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

¹⁴⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH19010510.2.80.4>

New Zealand Herald, Volume XXXVIII, Issue 11649, 10 May 1901, Page 1 (Supplement)

Aerial cableways

Talisman tramways/cables			
Date	Text	Interpretation?	Source
07.1895	connecting the low level of the mine with the Hauraki level by means of an aerial tramway	Earliest? Same as below?	¹⁵⁰
1896 02.1896	A self-acting aerial tramway and hoppers has been erected, connecting the No. 4 level with the battery, a distance of fully 3000 feet [914m]	No. 4 level battery, 3000 feet [914m]	¹⁵¹
02.1896	Outside shoot for ore from No. 3 level to No. 4 paddock is now completed, and lower section of tramway as well as the finishing details to the battery are receiving attention	Chute from No. 3 level to No. 4 level paddock	¹⁵²
1897 03.1897	Excavations are also in progress for the construction of a tram line to connect with the Hauraki hopper		¹⁵³
05.1897	A new aerial tramway, from No. 5 level to No. 3 hopper, on the hillside, erected, and a surface tramway (incline?), to convey the ore from No. 6 level to No. 2 hopper, is in course of erection.	Aerial: 5 level to No. 3 hopper Ground: 6 level to No. 2 hopper 198m	¹⁵⁴ surface tramway 650 ft [198m] ¹⁵⁵
07.1897	A short ground tramway from No. 6 level will convey the ore from this and No. 5 level to a hopper, whence it will be carried by a short incline tram to another hopper, and thence by aerial tram to the battery. The ore from No. 4 level will be conveyed as at present.	6 and 5 ore ground trammed to hopper (No. 2) by incline tram, then aerially to battery. No. 4 by aerial 3000ft	¹⁵⁶
07.1897	new section of tramway from the No. 5 level to the Hauraki level is completed	No.5 level tram complete	¹⁵⁷
08.1897	aerial tramways, now 2400 feet	?	¹⁵⁸

¹⁵⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH18950703.2.58>

New Zealand Herald, Volume XXXII, Issue 9862, 3 July 1895, Page 6

¹⁵¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18960215.2.40>

New Zealand Herald, Volume XXXIII, Issue 10055, 15 February 1896, Page 5

¹⁵² <https://paperspast.natlib.govt.nz/newspapers/NZH18960226.2.71>

New Zealand Herald, Volume XXXIII, Issue 10064, 26 February 1896, Page 6

¹⁵³ <https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4>

New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)

¹⁵⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH18970514.2.67.4>

New Zealand Herald, Volume XXXIV, Issue 10442, 14 May 1897, Page 1 (Supplement)

¹⁵⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH18970507.2.61>

New Zealand Herald, Volume XXXIV, Issue 10436, 7 May 1897, Page 6

¹⁵⁶ <https://paperspast.natlib.govt.nz/newspapers/AS18970708.2.33.2>

Auckland Star, Volume XXVIII, Issue 157, 8 July 1897, Page 6

¹⁵⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH18970709.2.60.5>

New Zealand Herald, Volume XXXIV, Issue 10490, 9 July 1897, Page 1 (Supplement)

¹⁵⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18970803.2.64>

New Zealand Herald, Volume XXXIV, Issue 10511, 3 August 1897, Page 6

Aerial cableways

	[732m] long, the longest stage from hopper to hopper being 1250 feet [381m].	Two cables	
10.1897	No. 6 level to No. 7? Semicircle bent rails	Short self-acting ground tramway	¹⁵⁹
1898 11.1898	No. 2 level to No. 4 level	Self-acting ground tramway	¹⁶⁰
11.1898	No. 4 level	top point present aerial tramway	¹⁶¹
1899 04.1899	No. 7 level has been connected with the large hopper at the head of the aerial tramway by means of a ground tramway, supported on large trestles, some of which stand 26 feet from the ground...	Ground tramway, with trestle, from No. 7 adit to cableway.	¹⁶²
1900-1 10.1900	No. 8 level	Ground tramway to hopper on flank of Woodstock Blow	650 ft [198m] ¹⁶³ 179m GIS
04.1901	The No. 1 section aerial moved to new battery hopper	Hopper to battery? Battery hopper moved to upstream side of battery	Re-erected ¹⁶⁴ 324m GIS
05.1901	No. 7 level	New hopper, No. 4	¹⁶⁵
05.1901	The No. 2 section aerial	No. 7 level to No. 8 level	¹⁶⁶
05.1901	No. 6 level to No. 7 level	Self-acting ground tramway	¹⁶⁷
1907?	ore cableway terminus moved to beside the battery building		Oliver & Walker AWNS 13.6.1907
09.1909	Two cables terminate at battery		AkLHeritage Collections AWNS-1909

¹⁵⁹ <https://paperspast.natlib.govt.nz/newspapers/AS18971028.2.18.7>

Auckland Star, Volume XXVIII, Issue 259, 28 October 1897, Page 3

¹⁶⁰ <https://paperspast.natlib.govt.nz/newspapers/AS18981122.2.4.2>

Auckland Star, Volume XXIX, Issue 276, 22 November 1898, Page 2

¹⁶¹ <https://paperspast.natlib.govt.nz/newspapers/NZH18981125.2.83>

New Zealand Herald, Volume XXXV, Issue 10919, 25 November 1898, Page 1 (Supplement)

¹⁶² <https://paperspast.natlib.govt.nz/newspapers/AS18990413.2.131.3>

Auckland Star, Volume XXX, Issue 86, 13 April 1899, Page 9

¹⁶³ <https://paperspast.natlib.govt.nz/newspapers/AS19001024.2.6>

Auckland Star, Volume XXXI, Issue 153, 24 October 1900, Page 2

¹⁶⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77>

New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

¹⁶⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH19010510.2.80.4>

New Zealand Herald, Volume XXXVIII, Issue 11649, 10 May 1901, Page 1 (Supplement)

¹⁶⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH19010510.2.80.4>

New Zealand Herald, Volume XXXVIII, Issue 11649, 10 May 1901, Page 1 (Supplement)

¹⁶⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH19010510.2.80.4>

New Zealand Herald, Volume XXXVIII, Issue 11649, 10 May 1901, Page 1 (Supplement)

So what does all this mean?

The short answer is that the various Talisman levels, 2 to 8, were connected to the battery by chute, self-acting ground and aerial tramways, and ground tramways, the arrangement of which changed over the years till 1901.

By early 1896 an aerial cableway of 914m connects the No. 4 level and the battery. This appears to comprise two cableways combined with ground tram (even incline on the Woodstock Blow?). In 1897 a separate route is established, No. 5 level to No. 6 by cableway, then combined by ground tramway to short incline to No. 7 level, then cableway to Woodstock Blow. Both routes cable to the battery from the Blow, maybe on the same cable. No. 8 level has a new horse tramway, hopper and cableway to the battery.

To connect to the No. 8 level (1901) and then with the battery:-

No. 3 to No. 4 level is connected by an outside chute.

No. 4 level to battery:-

A self-acting aerial tramway and hoppers has been erected, connecting the No. 4 level with the battery, a distance of fully 3000 feet [914m].¹⁶⁸ “The ore from No. 4 level will be conveyed as at present”¹⁶⁹ This was the early connection of the mine with the battery. It appears to have been a self-acting cableway from No. 4 level to the flank of Woodstock Blow. Then a section of ground tramway, and then by cableway across the river to the battery.

No. 4 to No. 5. There is no connection between the levels.¹⁷⁰

No. 5 level connected to No. 6 level (No. 3 hopper?) by aerial cableway (No. 3 section?).

No. 6 to No.7 level connected by a new short self-acting ground tramway.

A new hopper at No.7 level (No. 4 hopper) is connected to No. 8 level by aerial tramway (No. 2 section).

From the new No. 8 level a ground tramway is laid down “for a distance of 650 ft [198m] to the site selected for the upper hopper of the proposed line of aerial tramway to the new mill”.¹⁷¹ The cableway to the battery hoppers, No. 1 section¹⁷², is 324m by GIS. It appears that this hopper position is a new site, not a recycling of an old hopper.

This last combination is shown on a map by Jarmin.¹⁷³

Below is the best image I have showing this infrastructure, dated 1901. I hope I haven't imagined too much.

¹⁶⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH18960215.2.40>

New Zealand Herald, Volume XXXIII, Issue 10055, 15 February 1896, Page 5

¹⁶⁹ <https://paperspast.natlib.govt.nz/newspapers/AS18970708.2.33.2>

Auckland Star, Volume XXVIII, Issue 157, 8 July 1897, Page 6

¹⁷⁰ <https://paperspast.natlib.govt.nz/newspapers/AS18970708.2.33.2>

Auckland Star, Volume XXVIII, Issue 157, 8 July 1897, Page 6

¹⁷¹ <https://paperspast.natlib.govt.nz/newspapers/AS19001024.2.6>

Auckland Star, Volume XXXI, Issue 153, 24 October 1900, Page 2

¹⁷² <https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77>

New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

¹⁷³ Mining and Ore-Treatment at the Talisman Mine, Karangahake, New Zealand.

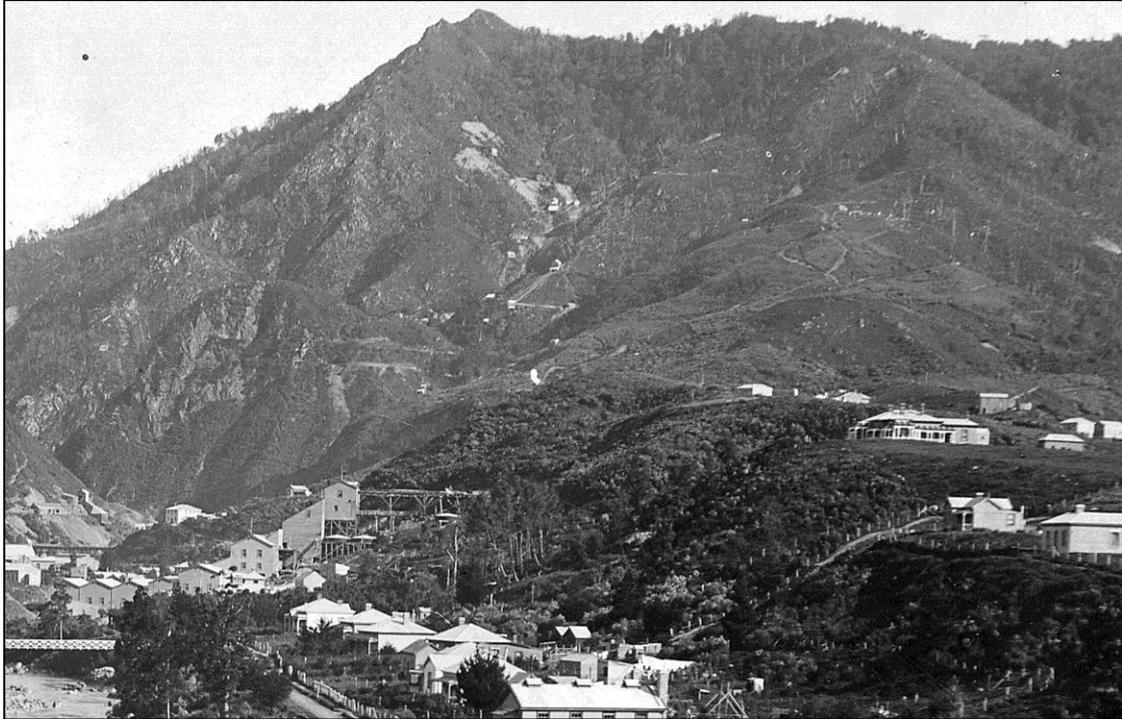
By: Arthur Jarman.

Presented at the Australasian Institute of Mining Engineers Thames 1911.

Aerial cableways

See also the image of 1908 below.

To add to the mix, it is not clear whether the Talisman Company continue to use the old Woodstock No. 2 level cableway. Or some other cableway. A 1909 photograph shows two cableways terminating at the battery, though images of the No. 2 hopper suggest it is derelict.



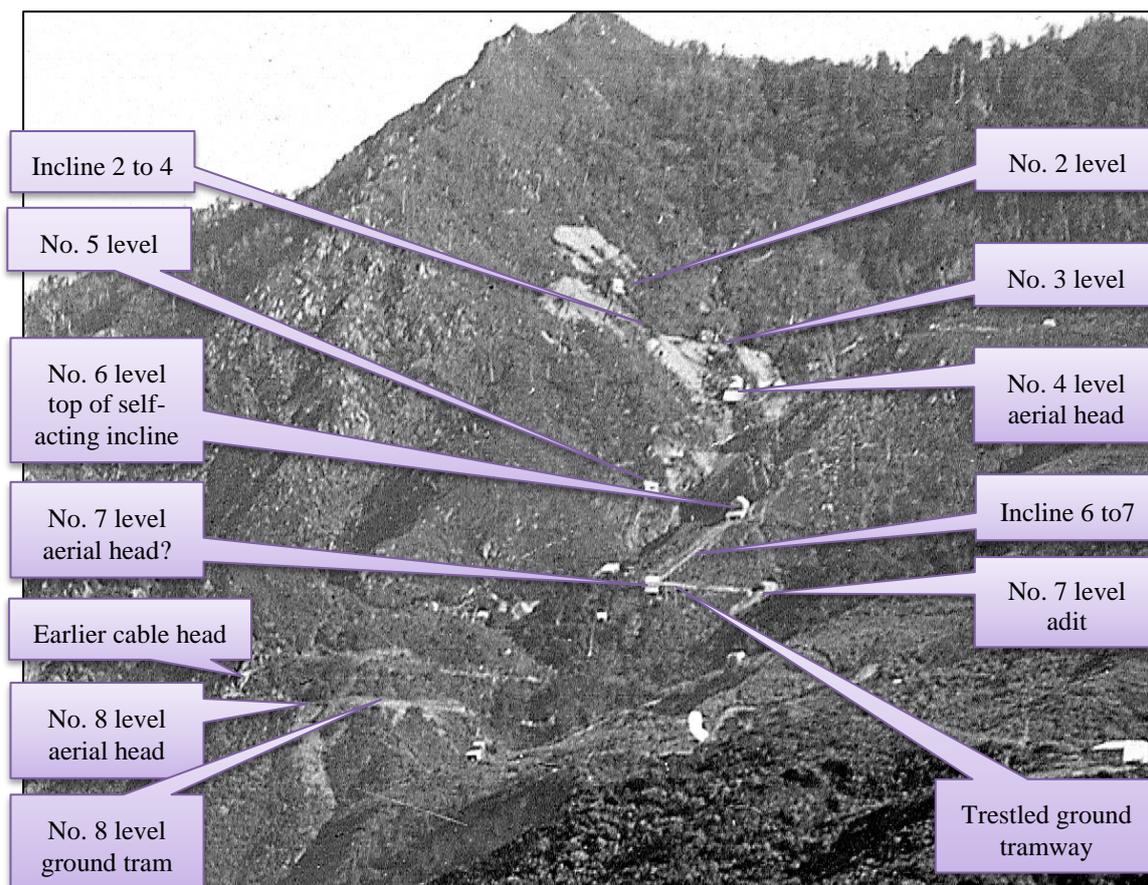
“View of Karangahake from Mackaytown (crop). 1901. Staples collection.

Below Karangahake trig are the Talisman workings, and lower to the left is the Woodstock Blow. On the left flank of the Blow we see the Woodstock No. 2 level ore chute and hopper, and below that a track across the steep face above the river. I have not seen that before.

The right (western) flank of the Blow shows the new No. 8 level tramway and cableway hopper, and above that another level with hopper and chute? This may be a left-over from an earlier cableway? Further up the valley to the higher Talisman levels we can see the aerial cableway head hopper (No. 4 Hopper) of No. 7 level. It delivers ore to the No. 8 Level. Ore from No. 7 level adit (to the right) is delivered by ground tramway which includes a trestled section. Above the No. 7 level hopper is the short self-acting incline from the No. 6 level (it has a pointy roofed building). Above this building is a cableway head, No. 5 level. It delivers to No. 6 level. Above and to the left of the No. 5 level is No. 4 level, with the self-acting incline from No. 2 level.

See enlargement below.

Aerial cableways



22 May

TALISMAN CONSOLIDATED G.M. CO. (LIMITED).

... The crosscutting adit for No. 8 level has been extended a further distance of 50ft, making a total of 590 ft. ... The erection of No. 4 hopper at No. 7 level is almost completed. The No. 2 section of the aerial tramway, which connects Nos. 7 and 8 levels, is in position. The new self-acting ground tramway between Nos. 6 .and 7 levels is in course of erection. ...¹⁷⁴

1 August

Talisman Consolidated. Description of the Battery.

... The ore is delivered by aerial tramway from a station at No. 8 level to a large storage hopper outside the mill, whence it is trucked a distance of about two chains [40 m] to the breaker house.¹⁷⁵

The two chains [40 m] are an elevated section of tramway between the cable terminus and the battery building (photographs after next show).

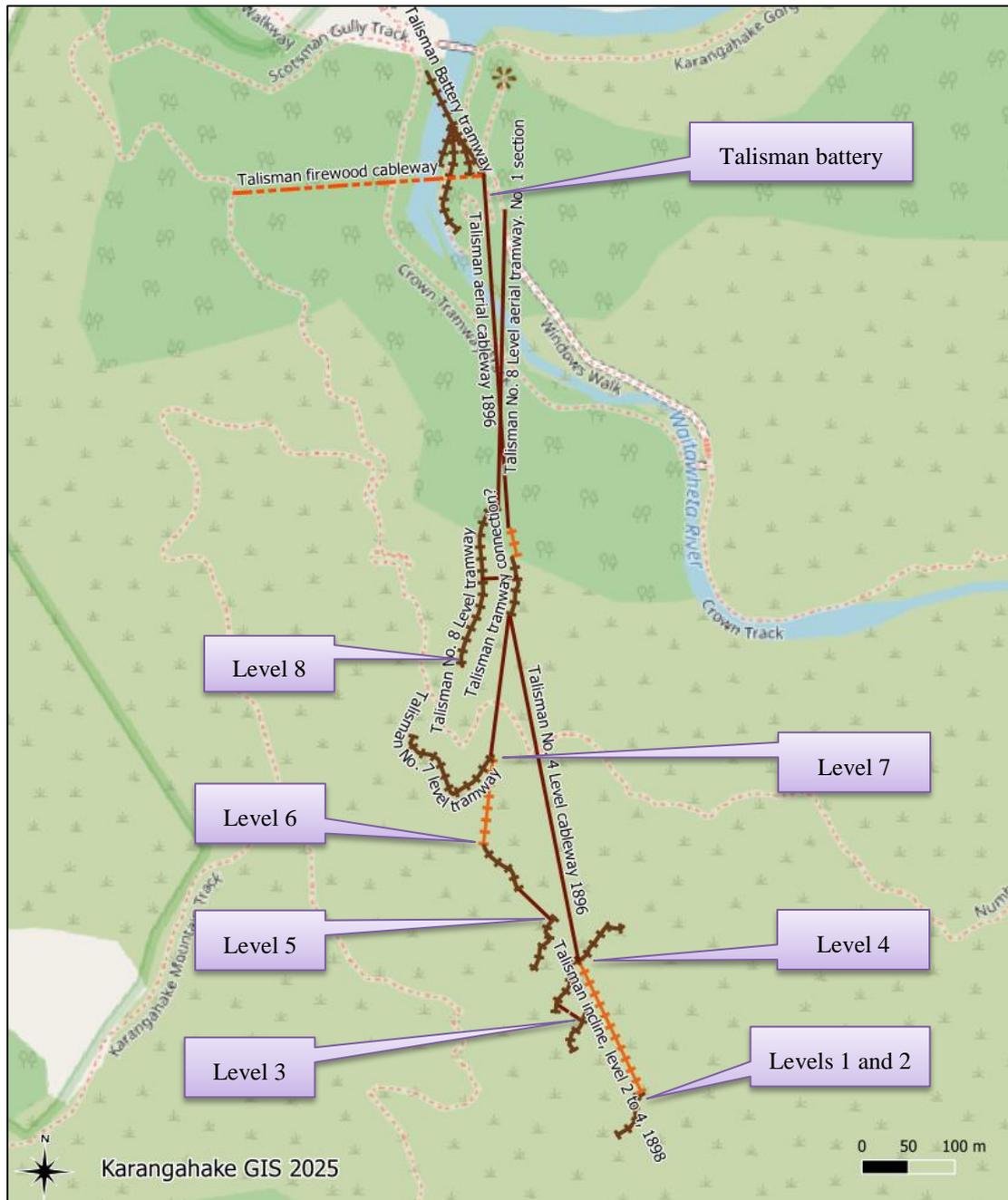
¹⁷⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH19010522.2.62>

New Zealand Herald, Volume XXXVIII, Issue 11659, 22 May 1901, Page 6

¹⁷⁵ <https://paperspast.natlib.govt.nz/newspapers/THS19010801.2.23>

Thames Star, Volume XXXIX, Issue 10017, 1 August 1901, Page 3

Aerial cableways



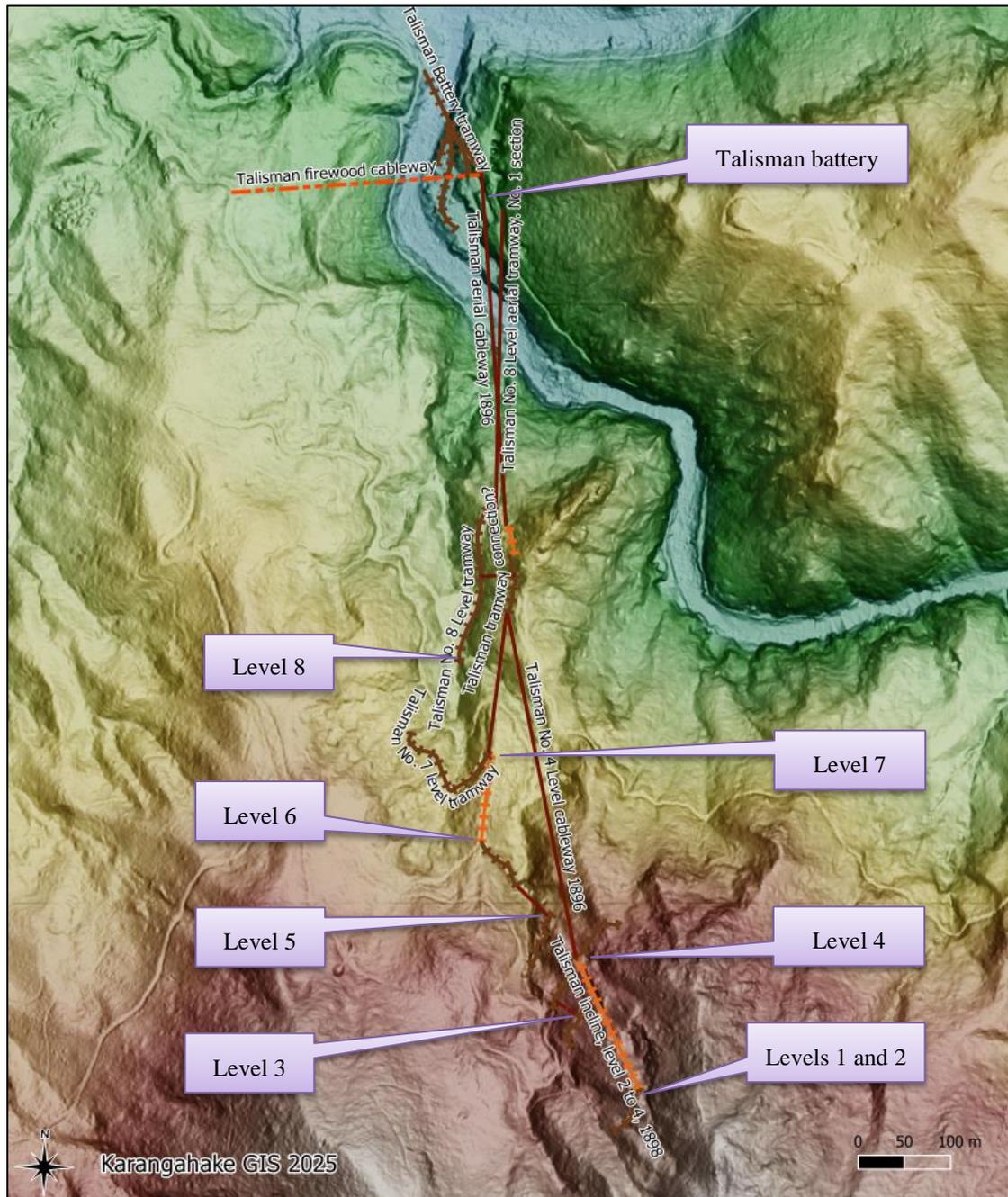
Talisman No. 8 level and surface connections 1901. Representational only, based on the above interpretation. The locations of the adit levels are based on an old map, Karangahake-June 87_006, kindly provided by Wayne Chowles. The connections stylized from the interpretation given above. The No. 8 level tramway and aerial cable are based on Jarman 1911, so show the cableway discharging at a hopper at the battery building.

Ore is taken directly from No. 8 adit. Ore off the mountain comes by two separate systems:

Levels 1, 2, 3 and 4,

Levels 5, 6 and 7.

Aerial cableways



As above, with LiDAR DEM background.

Aerial cableways



The new Talisman battery is complete, so late 1900 or 1901. There is no large chimney on the Woodstock battery; this was also erected late 1900, or 1901. So the larger Talisman battery is quite new in this image. The photograph is taken from the County Road.

The terminus of the early Talisman cableway can be seen to the left of the battery building. The covered chute and hopper are left-overs from the 20 stamp battery. From the terminus, the ore drops by covered way to a large ore bin. It appears that a short tramway (on trestle) allows the ore to be trucked into the (old) battery. It may still be operating dry. "Crushing operations in the old mill were stopped on February 16" [1901].¹⁷⁶

Further left is a building over the kiln.

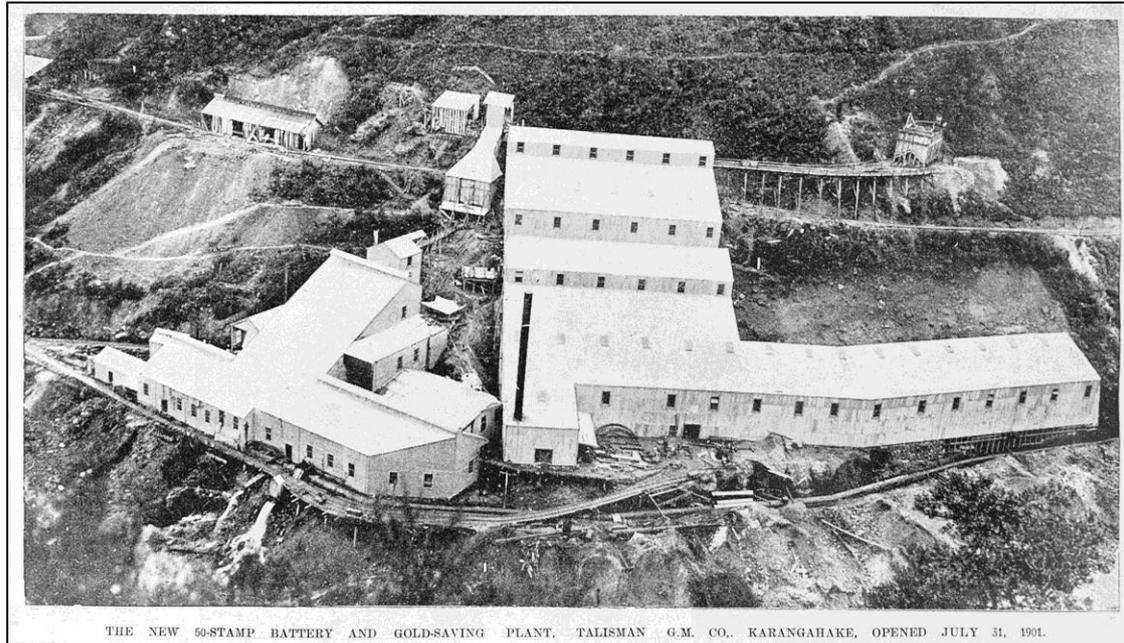
As the new battery gets underway, and presumably as the old stampers become redundant, the cableway terminus is repositioned to the other end of the battery. The new building may actually be in the way of the cableway.

To the right of the battery, above the house on the ridge, is the extension of the kilns tramway. Some structures appear there; terminus for the moved Woodstock cableways?

Staples Collection.

¹⁷⁶ <https://paperspast.natlib.govt.nz/newspapers/NZH19010412.2.77>
New Zealand Herald, Volume XXXVIII, Issue 11625, 12 April 1901, Page 1 (Supplement)

Aerial cableways



1901 08 09 Auckland Libraries Heritage Collections AWNS-1901 08 09-12-03

Not long after the new battery commenced crushing. Photograph taken from high across the river, the old and new batteries together.

To the top left of the new building are the covered ore chute/hopper for the old battery (crushing dry).

A short tramway connects to the battery. Crushing is no longer occurring in the old plant.

Why is the cableway terminus hopper some distance from the new battery building? Presumably to align with cableway/s. This gets changed by 1907.

Aerial cableways



The Talisman battery viewed from beside and below a hopper from the No. 8 level. The battery hopper is well away from the battery, connected by a trestle tramway. This hopper will be moved to the battery building at a later date. There are two sets of cables delivering to the hopper; less obvious are the cables coming from the top of the image. Are they the control cables for this cableway, or a different cableway altogether?

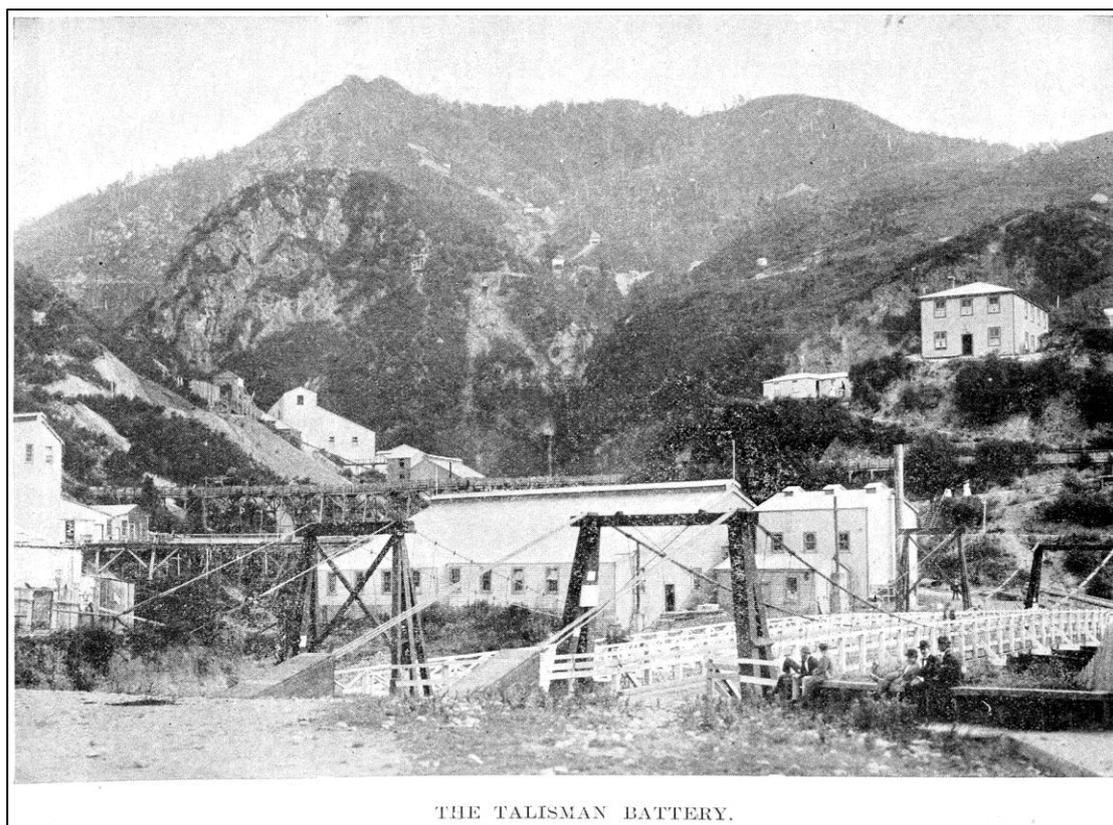
The cyaniding shed is the large structure in the foreground.

Two suspension bridges across the Ohinemuri, the second, the Traffic Bridge of August 1898.

Date 1901? Photographer unknown. DoC Thames.

The same image was published in the NZ Graphic, dated 10.08.1901. It was captioned: General view of the new mill buildings – Showing delivery of ore by aerial tramway from No. 8 Level to a hopper outside the breaker.¹⁷⁷

¹⁷⁷177 1901 08 10 Auckland Libraries Heritage Collections NZG-19010810-0266-01



1902 03 22 Auckland Libraries Heritage Collections NZG-1902 03 22-0553-04

A poor quality image, but useful as it shows that the hopper and chute of the old battery lingers on, and shows (well, hints at) the infrastructure of the Talisman mine behind and above the Woodstock Blow.

Two suspension bridges, six photo-bombers.

1904

3 June

The Talisman Mine

A 20 minutes' climb up the hillside from the township leads to the entrance to the main tunnel (No. 8 level). By means of this level all the ore is conveyed in horse trucks to the exterior hoppers, from whence it is carried down across a very deep gully by aerial tram to the battery, its transport costing but 1d per ton. No. 8 level is lit with electricity.¹⁷⁸

1908

9 January

MINE MANAGERS' REPORTS.

Karangahake: Mr. Ross has been appointed manager of the Karangahake mine and took charge on Monday. A contract has been let for an aerial tramway to take quartz from the upper workings to the low level, and this is expected to be completed in two weeks. Carpenters are at work erecting an office, and 12 men are working in the mine, while two men are excavating for a quartz

¹⁷⁸ <https://paperspast.natlib.govt.nz/newspapers/NZH19040603.2.64>
New Zealand Herald, Volume XLI, Issue 12590, 3 June 1904, Page 6

Aerial cableways

paddock. It will be fully a week before we will be in a position to break any more quartz, but then something good should be reported.¹⁷⁹

What happens to these guys? Their workings are “near the Comstock ground”.¹⁸⁰

31 January

KARANGAHAKE.

Mr Richard Ross, mine manager, reports:—...The aerial wire rope tramway will be completed in a few days when all quartz from the winze, will be forwarded direct to the quartz. hopper at the low level.¹⁸¹

If the cableway was completed, which battery did they take ore to? Does it show in any photographs? The quartz hopper? Well maybe. On the Crown tramway, a little upstream from the Talisman battery.

17 November

The manager of the Karangahake mine states that the Kaukani [Taukani] level is in excellent country. A quartz paddock to hold 400 tons is being prepared.

The manager is driving on the southern trend of the Dominion reef, which is 3ft wide and prospects well.¹⁸²

The Karangahake Company were erecting an aerial cableway. Did they finish it?

The report above is the last useful mention of Mr. Ross and the Karangahake Company.

¹⁷⁹ <https://paperspast.natlib.govt.nz/newspapers/NZH19080109.2.9>

New Zealand Herald, Volume XLV, Issue 13642, 9 January 1908, Page 3

¹⁸⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH19090511.2.8>

New Zealand Herald, Volume XLVI, Issue 14057, 11 May 1909, Page 3

¹⁸¹ <https://paperspast.natlib.govt.nz/newspapers/THS19080131.2.5.1>

Thames Star, Volume XLIV, Issue 10188, 31 January 1908, Page 1

¹⁸² <https://paperspast.natlib.govt.nz/newspapers/NZH19081117.2.11>

New Zealand Herald, Volume XLV, Issue 13909, 17 November 1908, Page 3

Aerial cableways



Photograph taken from the bank/headland above the Howe Truss bridge. 1907-8?

The bridge will be connected to an incline up to the top of the battery to transport the steam engine installed in 1909.

The No.8 Level aerial cableway top hopper is prominent, as it is in very many photographs for many years. The cableway can just be made out, in a graceful arc to the battery hopper. Intriguingly, there is a pair of cables stretched much more tightly, which go to two poles to the left of the hoppers on the hill. Are these the electrical cables from the battery to the electrically powered air compressor erected in the mine in 1902? Or they maybe cables from an earlier cableway? The latter, I think.

Additionally, a small pipe descends/ascends the hillside beneath the ore hoppers. Compressed air to No. 8 level?

Aerial cableways

On close inspection, to the right of the No. 8 level cableway hopper, can be seen a wooden hopper structure, and then above this a little to the left could be a cableway head (No. 4 hopper), No. 7 level. Imagining a self-acting incline to the left of and above this may be taking it too far?

Auckland Institute Museum.



GOLD MINING IN NEW ZEALAND: A VIEW OF THE TALISMAN BATTERY, KARANGAHAKE, AUCKLAND.
Oliver and Walker, Photo

Oliver & Walker AWNS 13.6.1907

Photograph taken from the bank/headland above the Crown tramway.

At the very top of the building is a new roof structure. This is the ore cableway terminus moved to beside the battery building.

Note also the structure across the river on the Crown tramway. A cableway terminus? A roof to protect the Crown tramway from debris falling from the No. 8 aerial cableway? It appears in other images also.

There are some bolts in the cliff, remnants of this structure.

1909

11 May

Karangahake

The body of quartz recently met with on the surface of the Karangahake. Company's property, Karangahake, near the Comstock ground (your

Aerial cableways

representative is informed) is to be followed down some distance by a winze, in order to ascertain the width and value of the lode with depth. On the surface the reef is said to be about 4ft wide, showing some rather good-looking ore, which gives nice prospects in the-dish.¹⁸³

AJHR 1910

Ascot Cinnabar-mine.

This mine is situated on the east side of Mackaytown, on the Rahu Road, about one mile north of the Talisman Mine. The property consists of 176 acres, a mill-site of 5 acres, and timber reserve of 20 acres, together with aerial tram and dam-site. The cinnabar-deposit outcrops on the face of a steep escarpment about 600 ft. above the Rahu Road.¹⁸⁴

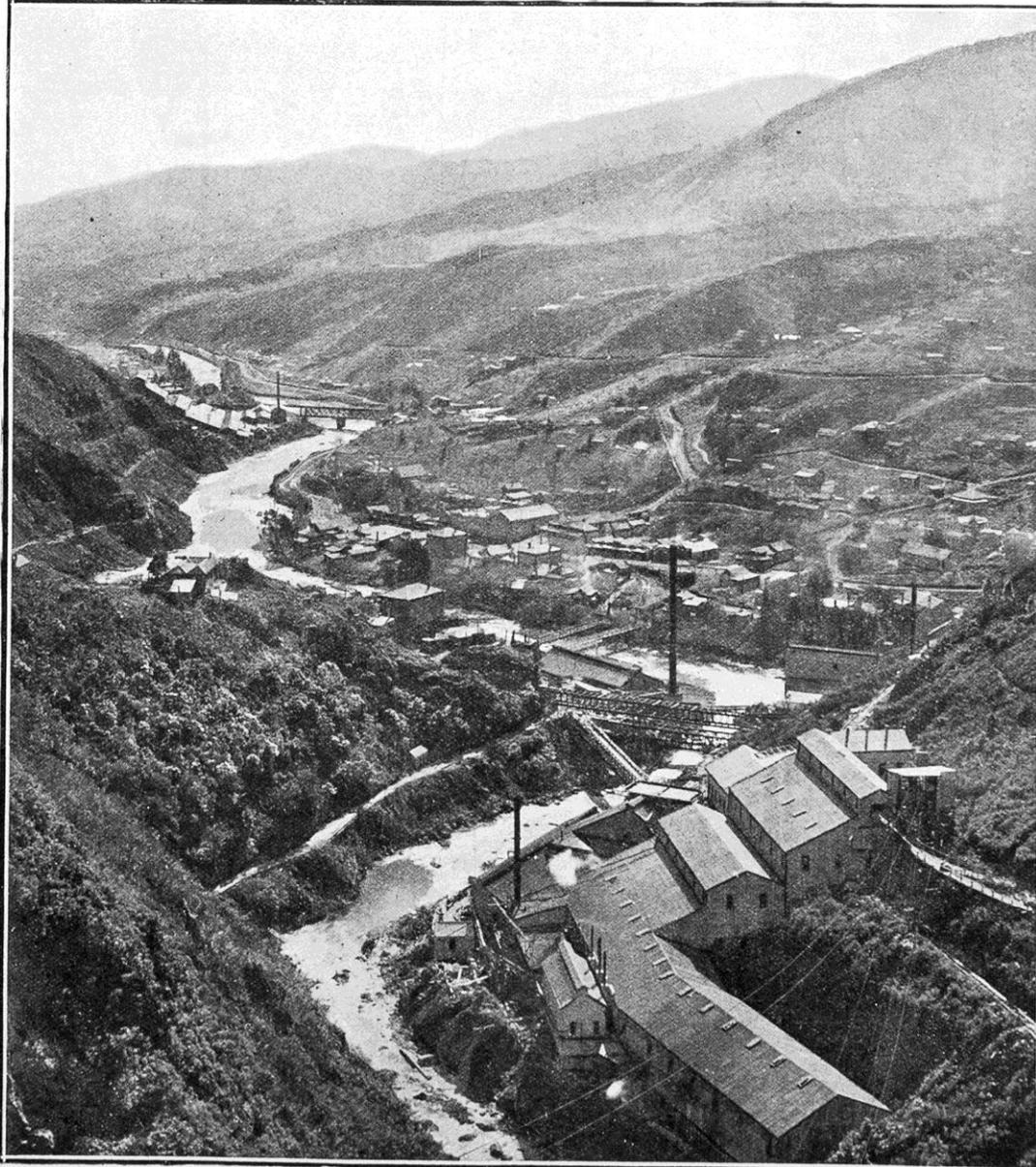
An area for exploration and research in the future ;).

¹⁸³ <https://paperspast.natlib.govt.nz/newspapers/NZH19090511.2.8>

New Zealand Herald, Volume XLVI, Issue 14057, 11 May 1909, Page 3

¹⁸⁴ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1910-I.2.1.4.9>

THE GOLDFIELDS OF NEW ZEALAND (REPORT ON)., Appendix to the Journals of the House of Representatives, 1910 Session I, C-03



THE GREAT GOLD MINING INDUSTRY OF THE AUCKLAND PROVINCE: THE TALISMAN BATTERY AT KARANGAHAKE, SHOWING THE CROWN BATTERY ON THE LEFT.

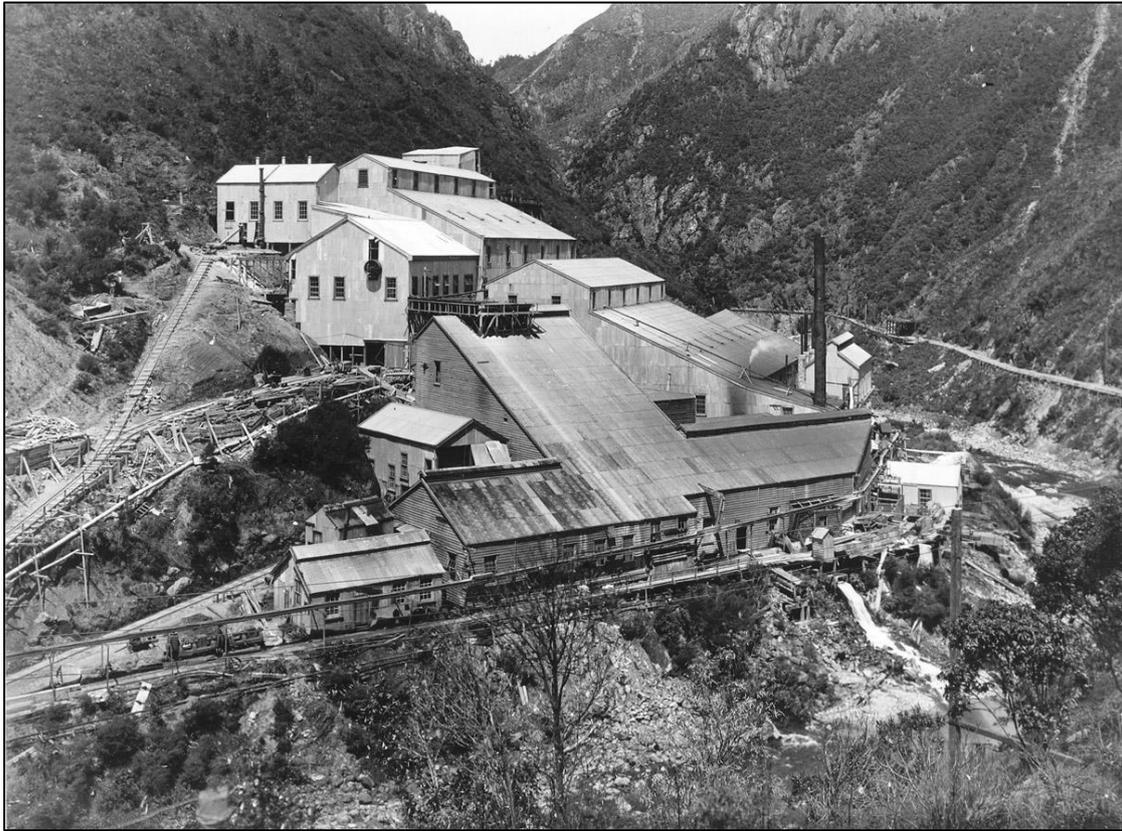
1909 09 02 Auckland Libraries Heritage Collections AWNS-1909 09 02-11-06

Photograph taken from Woodstock Blow area, No. 8 level?

Engine shed is in place at the top of the battery, with three ventilation chimneys, and the tubemill building has been added down-slope of it.

Two cableways terminate at the battery. Where are they from? No. 8 level and?

Aerial cableways



Talisman Battery and buildings, 1909 Winkelmann W8409.

Photograph taken from the bank/headland above the Crown tramway.

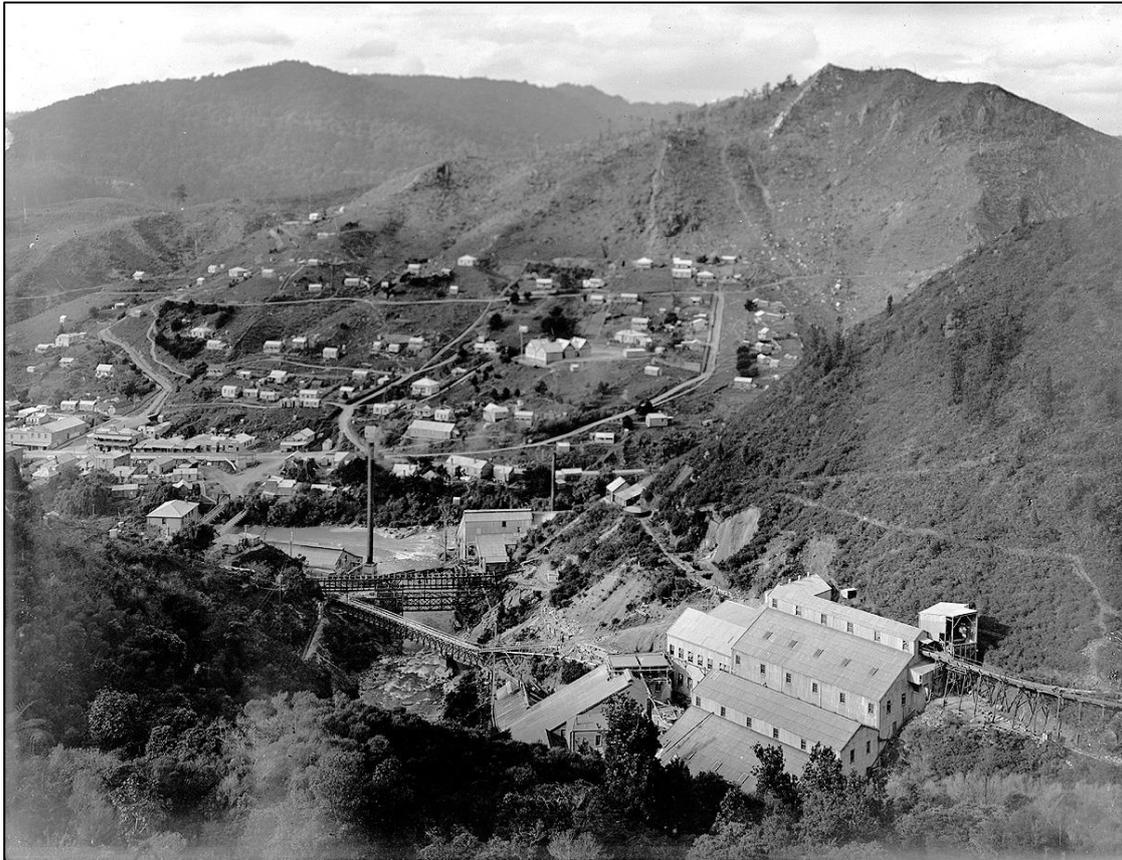
The new engine shed is top left. The new tubemill building is below, and slightly to the right. The newly constructed incline was used to bring the heavy machinery in to position. A new pipe comes from left of image, entering the battery beneath the tube mill building. Steam pipe for the new engine?

The cables are not visible in this image (why not?). The remains of the Woodstock No. 2 level cableway can be seen at the left of the Blow. Note again the structure on the Crown tramway.

In the distance, at the skyline, can be seen a scar, down from the County Road. This appears to be the Crown 5A and 6A workings.

Staples Collection.

Aerial cableways



Auckland Institute and Museum. Winkelmann 1341 (4798), 1909.

Circa 1909. Looking down on the battery from the cliff top/County Road area.

The new engine shed and tubemill buildings are complete, no sign of air agitation tanks which arrive 1910.

Band Rotunda erected late 1908. The Woodstock battery buildings are still intact. They will burn down in September 1910.

At the terminus of the aerial cableway can be seen an ore skip which has just discharged into the ore hopper, the bottom door hanging open. Also the cables extend through the shelter to anchoring points on the hillside. One control cable is attached to skip, but there appears to be two more cables, lower down.

Aerial cableways



Winkelmann photo, 1909 W1347. Staples collection.

Note the Talisman workings up the mountain, and the lack of trees compared to earlier photographs. All the earlier cables and tramways of the higher levels appear redundant/removed. However, above, and a little to the right of the prominent No. 8 level aerial hopper, is a dark scar of the incline from No. 6 to 7 level.

All ore is brought out the No. 8 level, and then by aerial cableway off the side of the Woodstock Blow.

A little to the right of the debris scar from the No. 8 level ore hopper is a line poles up the cliff.
Electricity lines? Also a pipe. Compressed air?

1911

4 February

Another striking feature of the Talisman Mine is the aerial tramway for conveying the ore from the levels on the left bank to the battery on the right bank. The cages swing over the intervening space automatically, and as there is a difference of over a hundred feet between the ore hoppers and the battery site, the effect is all the more striking. It is when you see such marvellous and costly surmountings of apparently insurmountable difficulties as these that face the miner at the Waitawheta that you realise the power of gold.¹⁸⁵

Jarman has this to say:

From the hopper at No. 8 level the ore is trucked by a contractor to the aerial tram terminus outside the mine. The trucks are 21 cubic feet capacity and the way is laid with 28lb. rails at 2 foot 5 inch gauge. The horse is loaned by the company and the contractor has to get out 160 tons per day. Another contractor despatches the ore to the battery by the aerial tram. A skip-load is 15 cubic foot or 12 cwt. of ore. The grade of the line is 18 degrees and the usual time taken for filling, is 16 seconds and, travelling, 31 seconds, total 47 seconds - say 40 tons per hour.¹⁸⁶

1912

27 January

THE CROWN MINES. OPENING UP OF FRESH BLOCKS.

The most interesting works now in progress in the Crown mine (Karangahake) are the exploitation of the Crown reef north on the Waitawheta level and the preparations for opening up two blocks of ore on the Maria lode...

The No. 1 north block, estimated to contain 23,000 tons of ore of an average value of £3 11s per ton, is on the Maria reef (the Talisman Company's, main ore body) and is to be picked up at the Crown mine No. 7 level, where a drive is now being pushed out to intersect the lode. This has been advanced about 390 ft, leaving some 230 ft to be driven.

The existence of the block in the Crown mine is due to the lode having changed its underlie from west to east for a length of 200 ft and a vertical depth of 720 ft, after which it again assumed its westerly underlie. At the mouth of the drive at a point near the County road a hopper is to be erected and an aerial tram will be constructed from the hopper to deliver the quartz into a hopper alongside the Company's horse tram so that the cost of transit of ore to the mill will be comparatively small.¹⁸⁷

“At the mouth of the drive at a point near the County road a hopper is to be erected and an aerial tram will be constructed from the hopper to deliver the quartz into a hopper alongside the Company's horse tram.” The entrance to this drive has three

¹⁸⁵ <https://paperspast.natlib.govt.nz/newspapers/NZH19110204.2.9>

New Zealand Herald, Volume XLVIII, Issue 14596, 4 February 1911, Page 4

¹⁸⁶ Mining and Ore-Treatment at the Talisman Mine, Karangahake, New Zealand.

By: Arthur Jarman.

Presented at the Australasian Institute of Mining Engineers Thames 1911.

¹⁸⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH19120127.2.12>

New Zealand Herald, Volume XLIX, Issue 14900, 27 January 1912, Page 5

Aerial cableways

large eye-bolts mounted to the rock, for the cableway. At the receiving end, near the river, a large diameter pipe ore chute remains above the walkway.

This is the first, and only, aerial cableway that the Crown Company construct. They created a complicated way of dragging their ore from their river level adit to their battery in the Waitawheta gorge (the old Railey's site), and used a self-acting incline from a higher level, but apparently no self-acting cableway.

8 March

COUNTY COUNCIL. MONTHLY MEETING.

Permission was given to the New Zealand Crown Mines Co. to put an aerial tramway under the Hill Track at Karangahake, subject to the requirements of the County engineer.¹⁸⁸

This is for the No.7 cableway. The County Road is being called the Hill Track.

Crown No. 7 Level aerial cableway

AJHR 1913

New Zealand Crown Mines (Limited). —... Maria reef, Hauraki section: This section, which is being worked from a drive on what is known as the Hill track, has been connected with the main tramline leading to the mill by an aerial tram-line 1,100 ft. long [335m], with requisite hopper accommodation erected at both ends.¹⁸⁹

¹⁸⁸ <https://paperspast.natlib.govt.nz/newspapers/OG19120308.2.18>

Ohinemuri Gazette, Volume XXIII, Issue 2914, 8 March 1912, Page 3

¹⁸⁹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1913-I.2.3.2.12/1>

MINES STATEMENT, BY THE HON. W. FRASER, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1913 Session I, C-02

Aerial cableways



Looking upstream at the terminus of the Crown No.7 Level aerial cable, delivering ore to the Crown tramway. The cable comes from the No.7 level adit high to the right of the photograph. The large pipe between the two hoppers remains on the hillside today. This arrangement was necessary, with the higher hopper, to keep the cable up and clear of the ground.

Crown mine entrance and boiler house in distance.

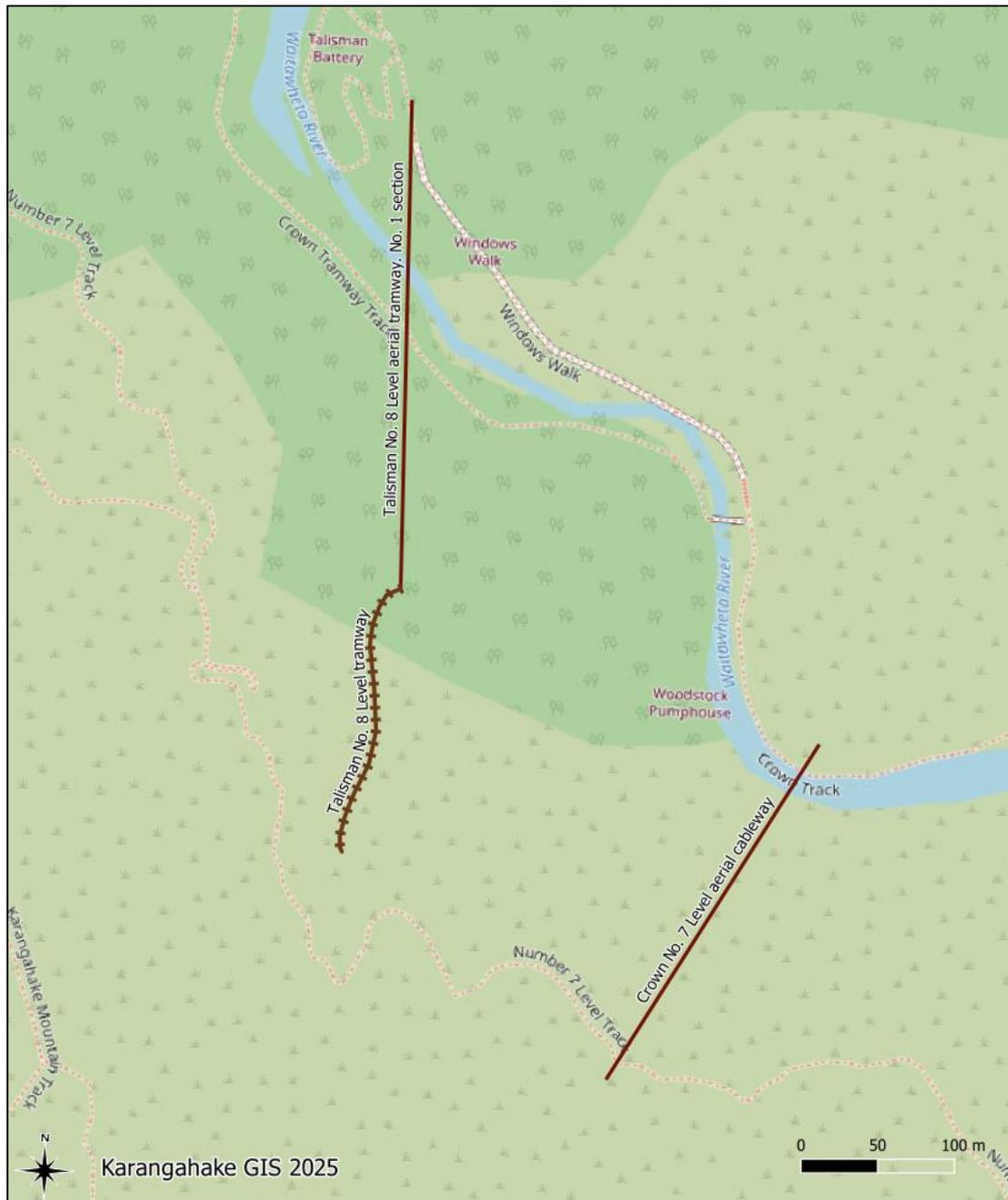
Date: 1912+ (mine closed 1915). Staples Collection.

Aerial cableways



Looking down from Taukani, near Pivot Rock. Half of a stereo pair by George Chappell.
At the top of the image is the County Road, and the top of the Crown No. 7 level aerial cableway.
Image centre has the Talisman/Woodstock No. 5 level change house and boiler.

Date 1912 or after.



Crown No. 7 level aerial cableway 1912.

1913

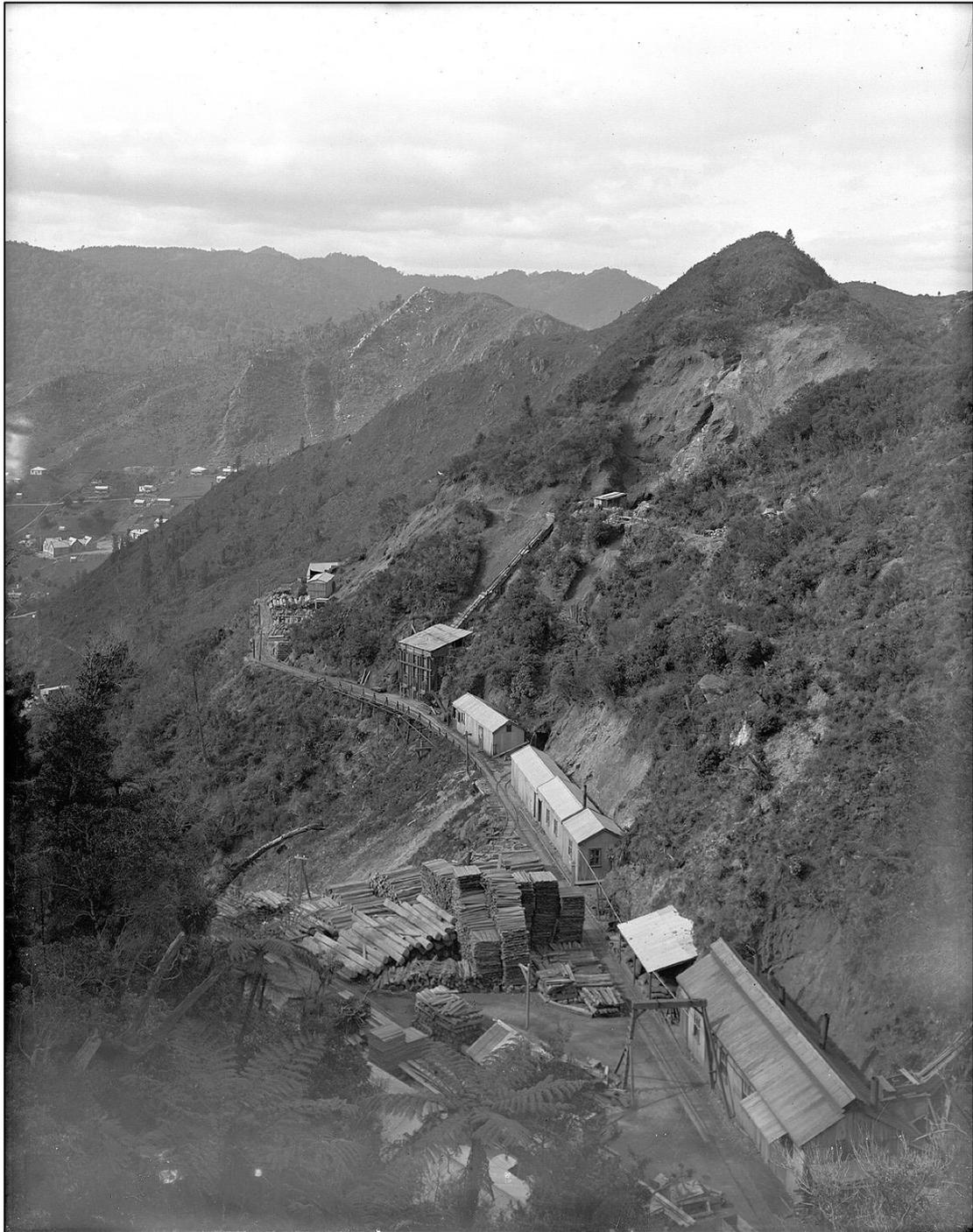
AJHR 1914

New Zealand Crown Mines (Limited). —... During the past year the following improvements have been carried out: Nos. 4 and 7 levels on the Maria lode have been connected by aerial tram-line, with hoppers erected at both ends.¹⁹⁰

¹⁹⁰ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1914-I.2.1.4.10>

MINES STATEMENT, BY THE HON. W. FRASER, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1914 Session I, C-02

1914



North Kaimai_photos_Akl Inst Museum 017

The same image from the Staples collection is dated 1914.

This shows the Talisman No. 8 level, with the tramway taking ore to the cableway head partly visible at the end of the tramway. Of interest here is the remnant of the higher tramway, and adit (Woodstock No. 1 level?), and the ore chute and hopper.

Two sets of cables terminate at the hoppers. I speculate that these are from the mountain, and that before the establishment of the No. 8 level, these cableways terminated at the old tramway higher up. Ore was then trammed to a cableway higher up the Blow, where a cableway delivered to the battery.

This cableway and hopper can be seen in earlier photographs, and this is discussed earlier in this document.

Aerial cableways

The hopper seen here, with its three loading doors, may no longer be in use at this time (it doesn't appear to have a siding any more).

Notice the pipe following the tramway; compressed air for running the winding engine at the No. 8 level?

To the left of the last building before the roof of the cableway head can be seen a large rock. It is still there today.

1915

Talisman construct new aerial cableway from Woodstock No. 2 crosscut.

7 May

TALISMAN...

In the Woodstock section (No. 2 crosscut), preparations are now being made to develop at points where payable ore has been found. A hopper is being constructed on the side of the Waitawheta Stream to receive this ore, and the foundations of an aerial tramway are being laid to carry the ore from the hopper to the mill.¹⁹¹

A new cableway to be constructed to the mill. Some photographs show an extra cableway at the battery, but not this late.

Where is No. 2 crosscut? An old map¹⁹² suggests it is a continuation of the Woodstock No. 2 level. Is this then a revival of the earlier cableway from the east of the Blow, this time direct to the Talisman battery?

A Crown cableway near their River Level adit?

A photograph of uncertain date shows a single heavy cable crossing the Ohinemuri River just upstream of the boiler house at the River Level adit. Is it a cableway from No. 4a level?

¹⁹¹ <https://paperspast.natlib.govt.nz/newspapers/NZH19150507.2.22>

New Zealand Herald, Volume LII, Issue 15911, 7 May 1915, Page 5

¹⁹² 26_111A_WoodstockRidge_Drill_Assay_NZGF_300ppi



This is an image of the auxiliary steam plant at the Crown River Level entrance.

The winding engine for the coal lift is in the shelter beside the wooden lattice structure of the lift. A cable extends over a wheel at the top.

An adit (No.5?) above the building shows an ore cart, and possible tramway to the right, with one more ore cart. It is a section of the cliff above the adit that topples on to the building years later, entirely destroying it.

The rectangular box on the roof, behind the chimney, may be boiler water storage. A small pipe is strung across the gorge, it shows in this and the previous photographs. What may be overflow water from this tank is piped to the edge of the building, and then runs over the cliff. This water stains concrete and cliff.

Aerial cableways

The light coloured debris in the river suggests an adit out of frame to the left.

A man reclines on a wooden platform, and his companion is to his left. The platform appears to be the terminus of a cableway from high across the river. From what? No. 4 Level? The mullock fan in the riverbed may have come from this level, indicating renewed activity. It is not clear how this cable operated. A ladder at extreme right above the platform, may have given access from the water race.

This same cable appears to show in another photograph also.

The photographer is on or near the water race flume. It was a windy day.

Auckland Museum. George Chappell? c.1910-1915?

1931

AJHR 1932

Karangahake (J. Caisley, Manager).—The drive in the Dubbo section of this company's property ... With a view to enabling this ore to be mined and transported economically, a start was then made to reopen the old Talisman No. 1 adit on the other side of Karangahake Peak. This adit is about 100 ft. below the adit on the Dubbo side, and it is the intention of the management to rise from it to the upper adit, and install an aerial tramway to take the ore from the mouth of the Talisman No. 1 to the County road, from which point it can be carted at reasonable cost to a treatment plant...¹⁹³

1932

26 September

TALISMAN DUBBO

The ore was won in the course of driving the No. 1 Talisman level on the Maria reef. ... From the mouth of the lower level it is intended to construct an aerial tram to deliver the ore by gravity at a minimum of cost to hoppers to be erected on the county road.¹⁹⁴

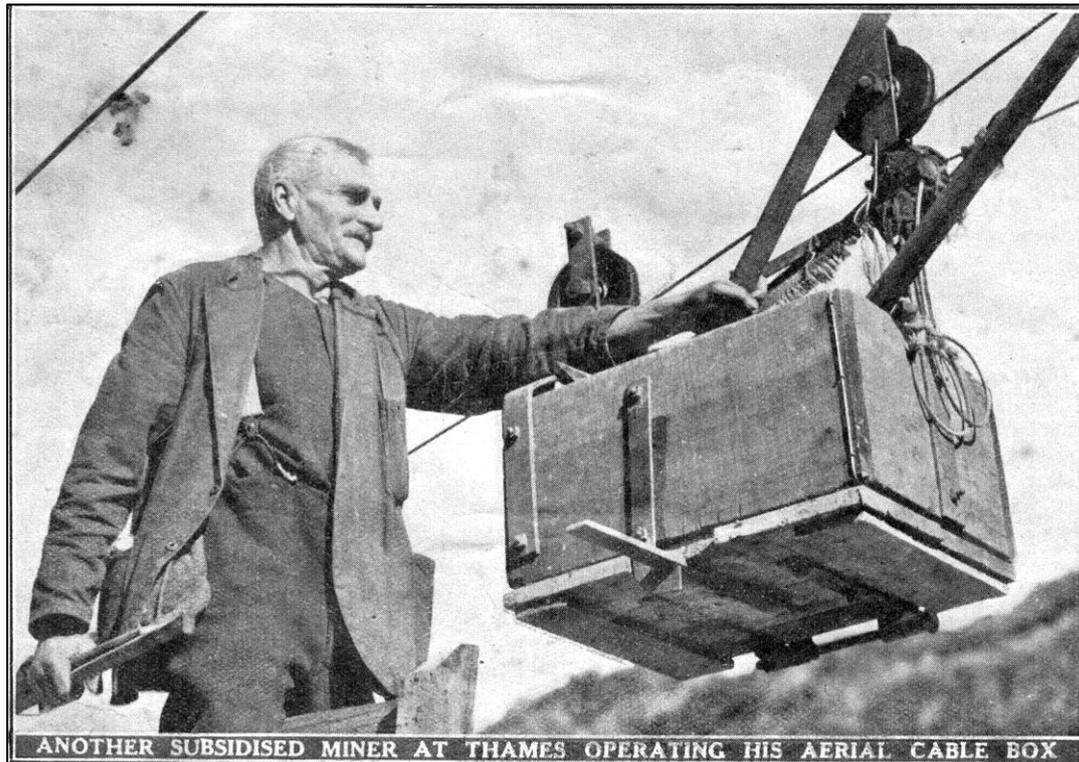
¹⁹³ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1932-I-II.2.2.2.3>

MINES STATEMENT, BY THE HON. C. E. MACMILLAN, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1932 Session I-II, C-02

¹⁹⁴ <https://paperspast.natlib.govt.nz/newspapers/NZH19320926.2.21>

New Zealand Herald, Volume LXIX, Issue 21297, 26 September 1932, Page 5

Aerial cableways

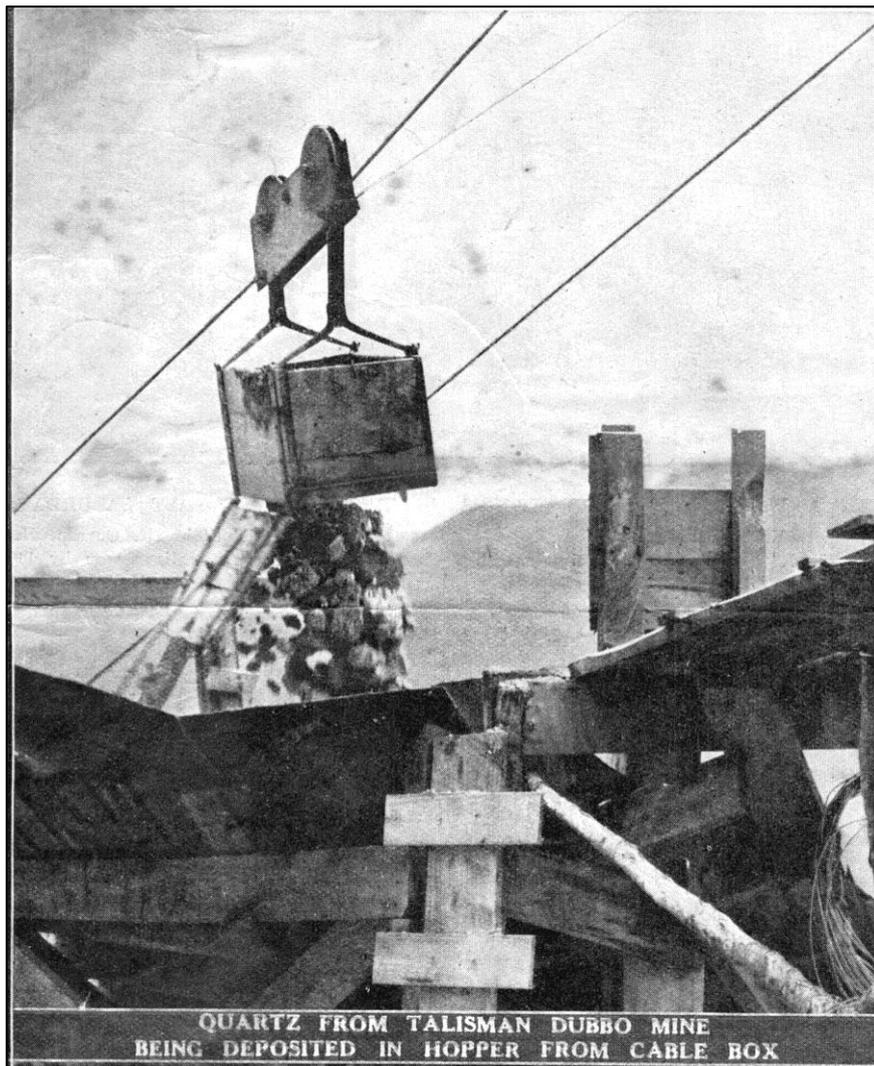


Auckland Weekly News 25.09.1935. Staples collection

Aerial cableway at the Talisman Dubbo workings.

The box runs on the main cable by the two wheels. The control wire can be seen a little below the top wheel. Note the lever protruding below the box. This latches the bottom of the box closed; when this strikes a post at the terminal hopper, the bottom falls open.

Aerial cableways



Auckland Weekly News 25.09.1935. Staples collection

Aerial cableway at the Talisman Dubbo workings.

The bottom of the box has swung open, delivering ore to the hopper. No operator required.

Aerial cableways



Terminal hopper of the Talisman Dubbo cableway. Staples collection. Jan. 19 1932.
The No. 8 road (or County Road) is to left, with three ore chutes for loading ore on to a light truck.



“Old coach Road” 1940s. Staples collection.

I suggest that this is an upgraded cable terminus and hopper. The upper road is the County Road, the lower the road to the Talisman No. 8 level. Ore is trucked down County Road, down Scotchman’s Gully, to the Dubbo battery on Battery Flat.

1933

Dubbo Talisman No. 1 aerial cableway



Talisman Dubbo aerial cableway.

The Talisman Dubbo mill is at the top of the map, Battery Flat.

Cherry Crown 5a level aerial cableway

AJHR 1934

Talisman—Dubbo Gold-mines, Ltd., Karangahake (C. F. Calvert, Manager).— Work was confined to the Talisman No. 1 level...An aerial tramway was installed for the transport of ore from the mouth of the level to a point on the county road near No. 8 Talisman level...

Aerial cableways

Crown Claim, Karangahake (J. N. Cherry, Owner). —The old 5a level of the mine was cleaned up and repaired for about 1,000 ft., and a light aerial was erected to transport quartz from it to the tramline in Waitawheta Gorge...¹⁹⁵

Although a recollection by Jack Milroy¹⁹⁶ has this cableway starting from the County Road, in which case it may have followed the route of the earlier (1912) Crown No. 7 level cable, the Crown 5a level is considerably lower on the mountain.



Looking upstream to the Crown River Level adit and boiler house, c.1933. Above the skyline can be seen an ore skip on a cableway. This must be Cherry's light cable from Crown No. 5a level. It will deliver ore to the old Monastery hopper area, and then by the early Crown connection to the main Crown tramway. The bottom of the skip hangs down, having discharged ore at the hopper. The skip is making its way back up the mountain.

An ore cart can be seen at left of bridge. This may be from the cableway, or from the Crown River Level adit. The bridge is supported by cables strung from cliff to cliff. The river is high.

Staples collection, c. 1933.

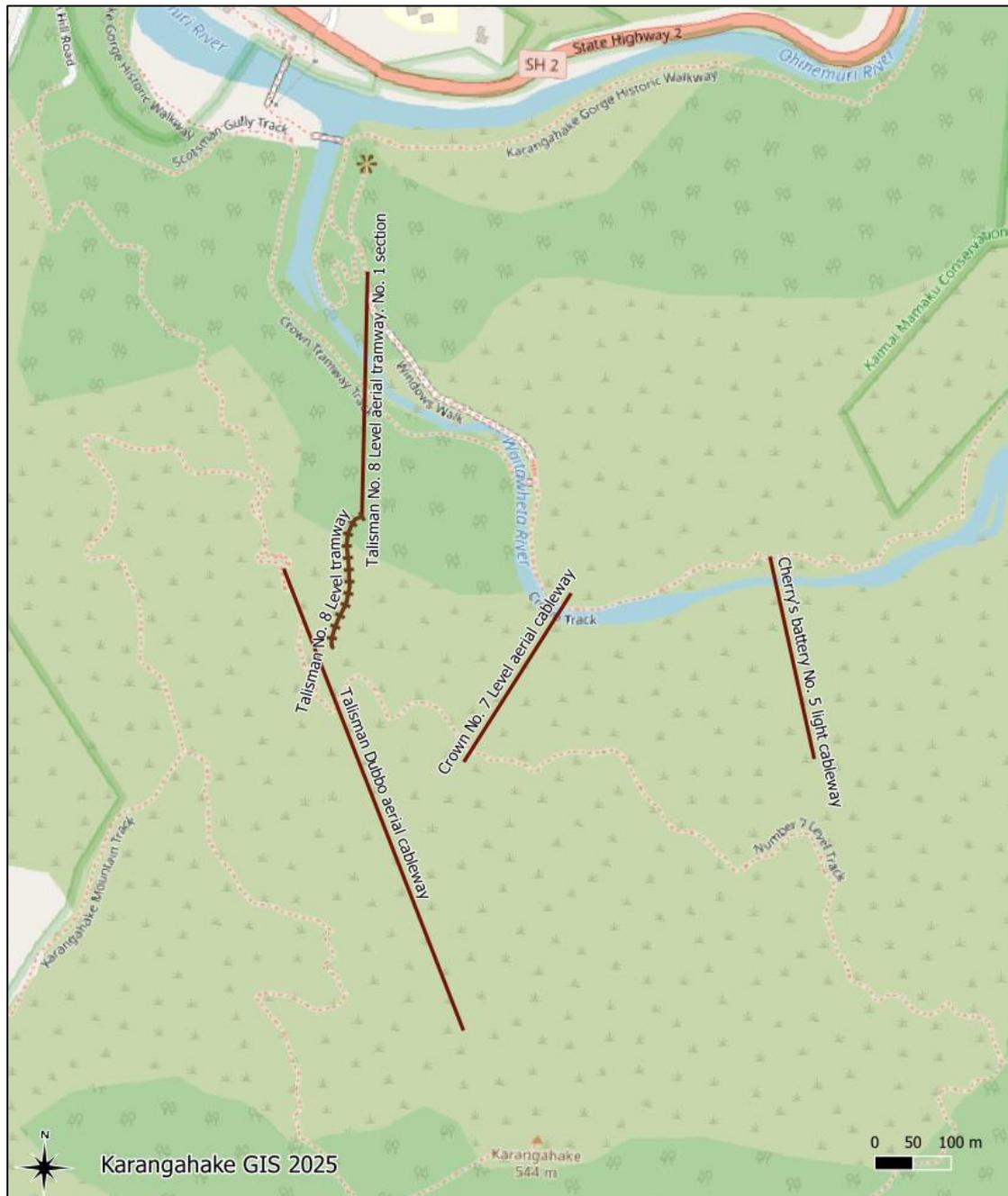
¹⁹⁵ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1934-I.2.2.2.3>

MINES STATEMENT, BY THE HON. C. E. MACMILLAN, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1934 Session I, C-02

¹⁹⁶ <https://www.ohinemuri.org.nz/journals/journal-27-september-1983/dolph-schultz>

Dolph Schultz. Ohinemuri Regional History Journal 27, September 1983

Aerial cableways



Cherry's light cable from Crown No. 5a level, right hand side of map.

1934

1 September

MINING REVIVAL. TALISMAN DUBBO OPERATIONS

...the No. 1 Talisman level on the northern face of the hill, nearly 1400 ft. above sea level.

Long Aerial Tram

A light aerial tram was then constructed from this point to convey the ore to the hoppers on the county road 800 ft. below, from where it was taken to the Golden Dawn battery for treatment. This aerial tram is one of the longest single span ropeways in New Zealand, having a length of 2160 feet [658m].

Aerial cableways

The first ore was sent down on October 1, 1933, and to date 1373 tons have been delivered and treated...¹⁹⁷

Addendum

These have not been mapped:-

- 1884. Sutro mine establish an aerial cableway to the County Road? ¹⁹⁸ and ¹⁹⁹
- 1895. When the first Talisman battery was being constructed, a cableway was erected across the Waitawheta to move heavy materials across. No double-decker bridge at this time.
- 1896. When the Woodstock battery of 10 stamps was being built, a cableway crossed the Ohinemuri to facilitate transport of heavy items. The building of the 40 stamper necessitated construction of a swing bridge.
- A cableway from Taukani to the Crown tramway beside the Waitawheta. This has not been confirmed.
- 1908. Karangahake mine intend to construct an aerial tramway²⁰⁰. They may have. There can be seen a construction/possible hopper on the Crown tramway in 1909 photograph.
- 1909. Ascot Cinnabar-mine have an “aerial tram and dam-site”.²⁰¹
- Possibly others.

¹⁹⁷ <https://paperspast.natlib.govt.nz/newspapers/NZH19340901.2.115>

New Zealand Herald, Volume LXXI, Issue 21894, 1 September 1934, Page 12

¹⁹⁸ <https://paperspast.natlib.govt.nz/newspapers/AS18851010.2.72>

Auckland Star, Volume XXVI, Issue 235, 10 October 1885, Page 8

¹⁹⁹ <https://paperspast.natlib.govt.nz/newspapers/THA18851109.2.9>

Thames Advertiser, Volume XVI, Issue 5319, 9 November 1885, Page 3

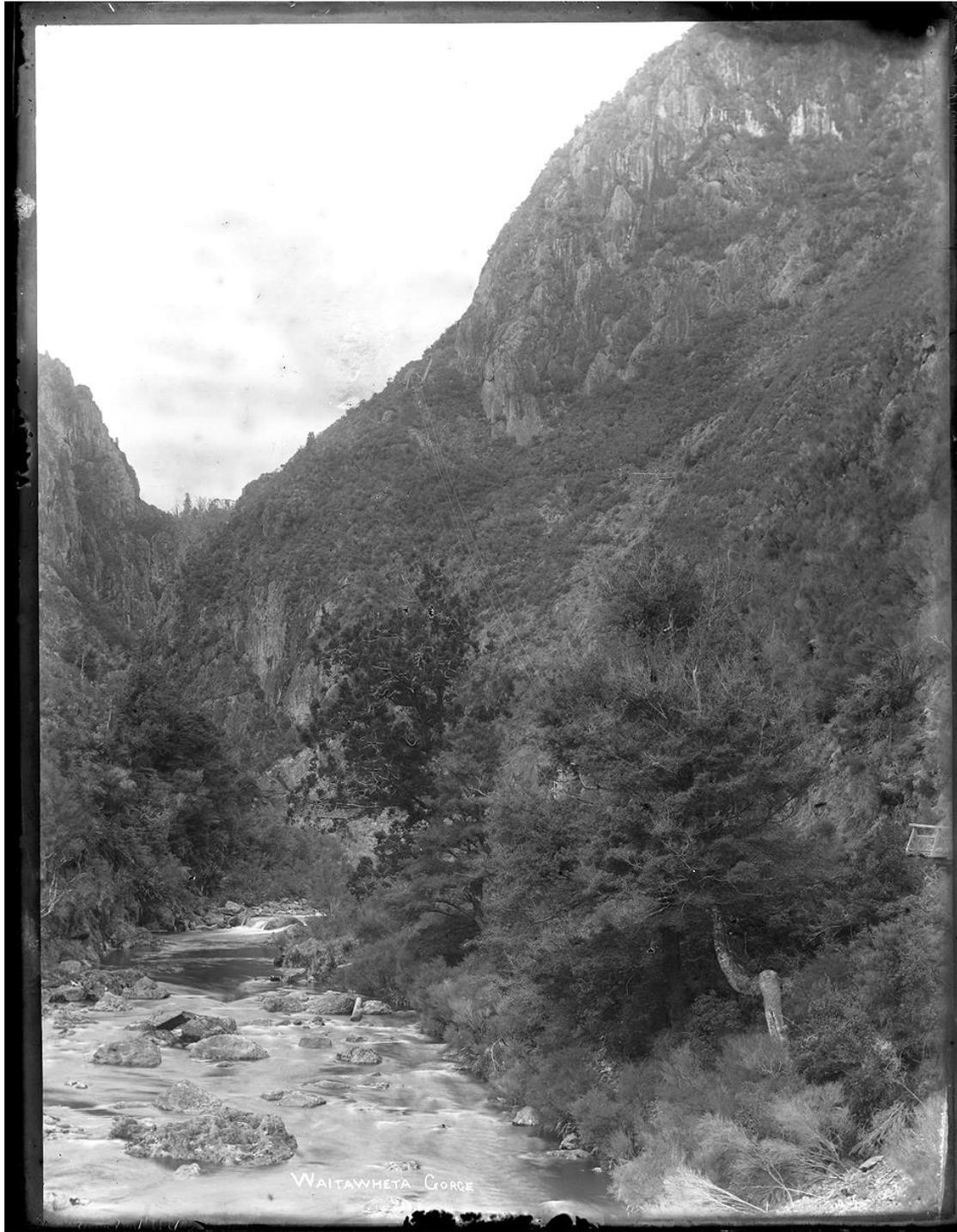
²⁰⁰ <https://paperspast.natlib.govt.nz/newspapers/NZH19080109.2.9>

New Zealand Herald, Volume XLV, Issue 13642, 9 January 1908, Page 3

²⁰¹ <https://paperspast.natlib.govt.nz/parliamentary/AJHR1910-I.2.1.4.9>

THE GOLDFIELDS OF NEW ZEALAND (REPORT ON)., Appendix to the Journals of the House of Representatives, 1910 Session I, C-03

Aerial cableways



358 RIC 358 Waitawheta Gorge cableway Ak Lib JD Richardson

There are two similar photographs by JD Richardson, this one, 358, and another 495. This writer believes this is the later one.

At the horizon, on the shoulder of the Woodstock Blow, can be seen an ore chute beside a wooden A-frame structure. Ore would have been dropped down the chute from the nearby mine.

The aerial tramway terminates above the river, at the end of the tramway from Battery Flat. Several cables can be seen, two main cables and two control lines?

Photograph taken from a flume across the Waitawheta near the confluence? Date ?