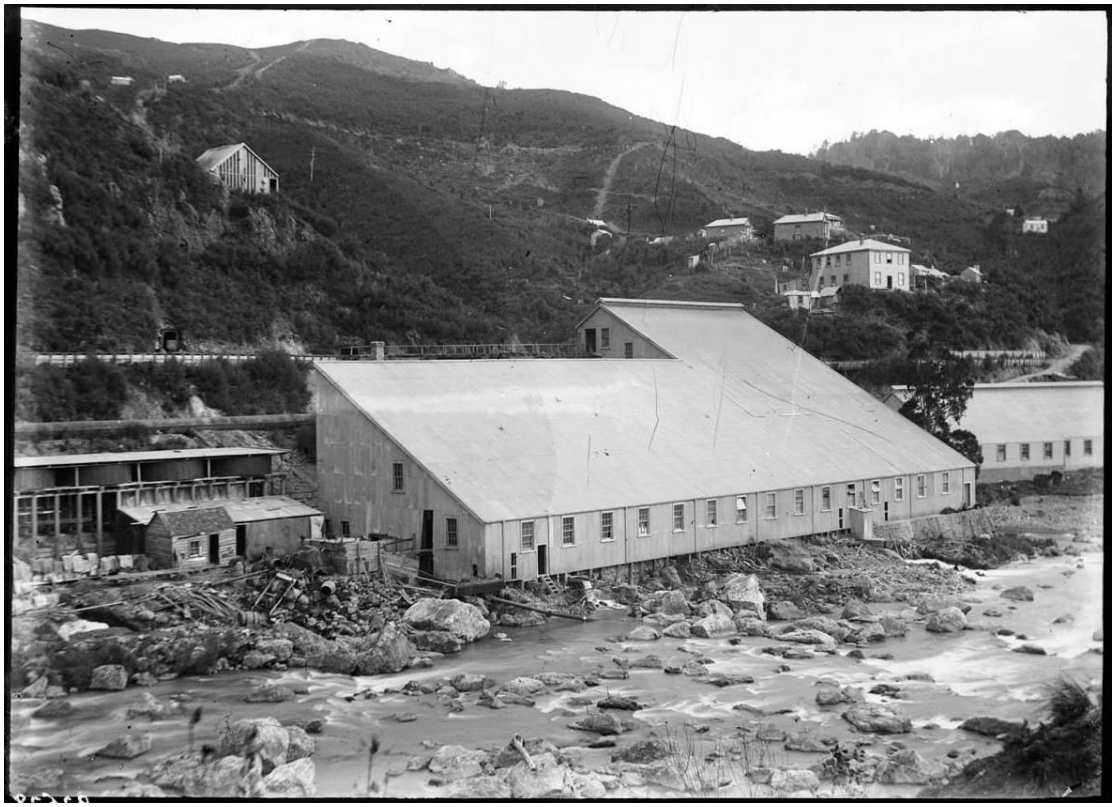
Woodstock battery site



MM White photograph, No B3578. Date: c.1899.

Eric Lens 2024

1884	Late April. Sir Walter Scott.—The shoot, tramway, &c, connecting this mine with the Hauraki Co.'s battery is rapidly approaching completion.[1] Before August. Ivanhoe G. M. C. construct a tramway at a cost of about £600, on true left bank of Ohinemuri River. [2]
1885	12 September. First (natural) dam on Ohinemuri for Woodstock/La Monte furnace, includes flume over Waitawheta.[3] The earliest images of Karangahake are published: Pictorial Christmas Supplement to the New Zealand Herald, December 1885.[4]
1889	13 February. Cox's 4 stamp battery and pan plant started, erected and managed by John McCombie, Ivanhoe and Truro Co.'s claims.[5] Water power taken from Woodstock Furnace race on the Ohinemuri.
1892	March. Fire near McCombie's battery. [6] May. Crown water race flume constructed. [7]
1893	June/July. Ivanhoe and Truro mines and plant is purchased by Woodstock Co. [8]
1894	August. Woodstock to erect 10 stamp mill. [9] November. Woodstock firewood wire tram, and kiln constructed. [10]
1895	February. Woodstock water balance and ore kiln installed. [11] 11 February. Woodstock ten stamp battery starts. [12] December. Preparations for 30 extra stampers for Woodstock. [13]
1896	February. Woodstock. Three kilns are in course of construction. These will each hold about 150 tons of ore, and they will all be placed on the hill-side above the mill, so that the ore will pass right down through the plant by gravitation. [14]

[1] https://paperspast.natlib.govt.nz/newspapers/THS18840415.2.18
Thames Star, Volume XV, Issue 4763, 15 April 1884, Page 2
[2] https://paperspast.natlib.govt.nz/newspapers/NZH18840801.2.38
New Zealand Herald, Volume XXI, Issue 7085, 1 August 1884, Page 6
[3] https://paperspast.natlib.govt.nz/newspapers/TAN18850912.2.46
Te Aroha News, Volume III, Issue 119, 12 September 1885, Page 6
And https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35
New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6
[4] https://paperspast.natlib.govt.nz/newspapers/new-zealand-herald/1885/12/24/19
New Zealand Herald, Supplement, 24 December 1885
[5] https://paperspast.natlib.govt.nz/newspapers/THS18890213.2.11
Thames Star, Volume xxi, Issue 6192, 13 February 1889, Page 2
[6] https://paperspast.natlib.govt.nz/newspapers/OG18920312.2.11
Ohinemuri Gazette, Volume 1, Issue 13, 12 March 1892, Page 5
[7] https://paperspast.natlib.govt.nz/newspapers/NZH18920504.2.47
New Zealand Herald, Volume XXIX, Issue 8869, 4 May 1892, Page 6
[8] https://paperspast.natlib.govt.nz/newspapers/NZH18930701.2.10
New Zealand Herald, Volume XXX, Issue 9241, 1 July 1893, Page 3
[9] https://paperspast.natlib.govt.nz/newspapers/NZH18940804.2.60
New Zealand Herald, Volume XXXI, Issue 9581, 4 August 1894, Page 6
[10] https://paperspast.natlib.govt.nz/newspapers/NZH18941119.2.40
New Zealand Herald, Volume XXXI, Issue 9672, 19 November 1894, Page 5
[11] https://paperspast.natlib.govt.nz/newspapers/NZH18950205.2.49
New Zealand Herald, Volume XXXII, Issue 9736, 5 February 1895, Page 6
[12] https://paperspast.natlib.govt.nz/newspapers/NZH18950214.2.64
New Zealand Herald, Volume XXXII, Issue 9744, 14 February 1895, Page 6
[13] https://paperspast.natlib.govt.nz/newspapers/NZH18951224.2.74
New Zealand Herald, Volume XXXII, Issue 10011, 24 December 1895, Page 6
[14] https://paperspast.natlib.govt.nz/newspapers/NZH18960221.2.71.12

	March. Woodstock erecting suspension bridge over Ohinemuri for machinery for battery. New 40 stamp battery to be erected. [15] May. Woodstock connect No. 5 level [river level, becomes underground pumphouse area] tramway with Crown tramway, and also intend to run an aerial tramway from No. 1 level to a hopper above the level of the kiln site. [16] Woodstock to test wet crushing. [17]
1897	January. Woodstock battery install Samson-Leffel turbine water-wheel (ie they do away with the pelton wheels. [18] March. Woodstock Gold Mining Company's battery started crushing with the new 40-head. [19]
1898	May. Mr. J. McCombie, leaves Woodstock Co., Mr. Rich replaces[20] August. Woodstock to install six Union vanners. [21] Woodstock retire water-balance. [22] Battery converted to wet crushing. [23]
1899	17 March. The Woodstock Company are pushing ahead with the alterations to the battery, so that when the new five 6ft vanners arrive from America, everything will be ready for their installation. These additional vanners will materially assist in the treatment of a larger tonnage of ore. [24] 9 May. All the new vanners have now been installed, so that in future the return of bullion should show an increase.[25]
1900	March. Woodstock constructing new dam on Ohinemuri River. This will be a wooden structure, a little upstream from the later eastern rail tunnel portal. [26] July. Woodstock battery are to add an air compressor and steam plant. [27] August. Woodstock new dam, 3ft 9in pipeline and Warren Truss bridge

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New Zealand Herald, Volume XXXIII, Issue 10060, 21 February 1896, Page 2 (Supplement)
[15] https://paperspast.natlib.govt.nz/newspapers/NZH18960314.2.32
New Zealand Herald, Volume XXXIII, Issue 10079, 14 March 1896, Page 5
[16] https://paperspast.natlib.govt.nz/newspapers/AS18960514.2.36.12
Auckland Star, Volume XXVII, Issue 112, 14 May 1896, Page 6
[17] https://paperspast.natlib.govt.nz/newspapers/NZH18971029.2.77.5
New Zealand Herald, Volume XXXIV, Issue 10586, 29 October 1897, Page 1 (Supplement)
[18] https://paperspast.natlib.govt.nz/newspapers/NZH18970122.2.59.3
New Zealand Herald, Volume XXXIV, Issue 10346, 22 January 1897, Page 1 (Supplement)
[19] https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4
New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)
[20] https://paperspast.natlib.govt.nz/newspapers/NZH18980513.2.67.4
New Zealand Herald, Volume XXXV, Issue 10752, 13 May 1898, Page 1 (Supplement)
[21] https://paperspast.natlib.govt.nz/newspapers/NZH18980805.2.73.4
New Zealand Herald, Volume XXXV, Issue 10824, 5 August 1898, Page 1 (Supplement)
[22] https://paperspast.natlib.govt.nz/newspapers/NZH18981125.2.83
New Zealand Herald, Volume XXXV, Issue 10919, 25 November 1898, Page 1 (Supplement)
[23] https://paperspast.natlib.govt.nz/newspapers/AS18981201.2.58.57
Auckland Star, Volume XXIX, Issue 284, 1 December 1898, Page 28 (Supplement)
[24] https://paperspast.natlib.govt.nz/newspapers/NZH18990317.2.94.3
New Zealand Herald, Volume XXXVI, Issue 11013, 17 March 1899, Page 1 (Supplement)
[25] https://paperspast.natlib.govt.nz/newspapers/NZH18990509.2.68
New Zealand Herald, Volume XXXVI, Issue 11058, 9 May 1899, Page 6
[26] https://paperspast.natlib.govt.nz/newspapers/NZH19000316.2.73.4
New Zealand Herald, Volume XXXVII, Issue 11321, 16 March 1900, Page 1 (Supplement)
[27] https://paperspast.natlib.govt.nz/newspapers/NZH19000706.2.65.3
New Zealand Herald, Volume XXXVII, Issue 11417, 6 July 1900, Page 1 (Supplement)

	across the Ohinemuri River completed. The Pelton wheel to be installed is 11 ft. 2 in. in diameter over all, and is to drive the air-compressors and battery during the greater part of the year. A new tail-race 69 ft. long under the mill, and below the old tail-race, has been driven and timbered so as to gain the utmost pressure-head. The old bridge across the Waitawheta Stream removed, a new and more substantial bridge built, going direct to the battery ore-hopper, 180ft long.[28]
1901	A new and more substantial bridge going direct to the battery ore-hopper has now been almost completed. This bridge is 180 ft. long over all. It is designed for the transmission of horse and train of trucks as they come from the mine, and will carry such a distributed load aggregating 10 tons. [29] Two compressors installed. one an Ingersoll-Sergeant compound, rope-driven, low-pressure cylinder 24 1/4 in. diameter, high-pressure cylinder 15 1/4 in. diameter, 18 in. stroke, ordinary capacity 1,170 cubic feet free air per minute; and the other a Schram single-compressor cylinder 14 in. diameter, 24 in. stroke. [30] Kauri tree beside battery dies
1902	A new steam plant has been installed as an auxiliary to the water-power during the dry season of the year. This plant consists of two 150-horse-power Elephant boilers and a 250--horse-power Corliss engine. These have been set up at the mill, and are so arranged that either the mill or compressors, or both, may be driven by either steam or water, or, if need be, both steam and water power can be coupled together. [31]
1904	June. Talisman buy Woodstock for £7000[32]
1906	Talisman: a new Ingersoll Sergeant compound air-compressor has been installed at the Woodstock Battery.[33]
1910	30 March. Flood! Biggest on record.[34] Water rushed through the railway tunnel.[35] Talisman water race pipe crumpled and twisted[36]. Old Woodstock battery damaged.[37]

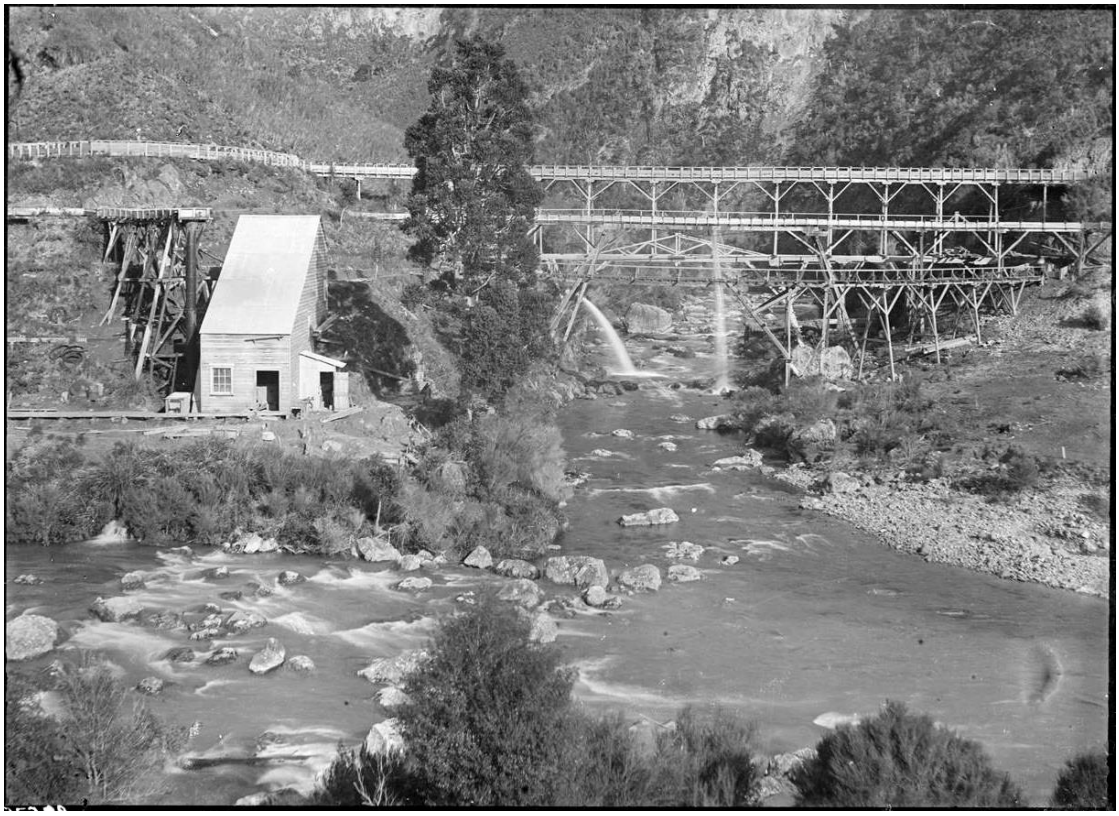
[28] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1901 Session I, C-03
[29] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
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, 1901 Session I, C-03
[30] https://paperspast.natlib.govt.nz/parliamentary/AJHR1902-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, 1902 Session I, C-03
[31] https://paperspast.natlib.govt.nz/parliamentary/AJHR1903-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, 1903 Session I, C-03
[32] https://paperspast.natlib.govt.nz/newspapers/NZH19040603.2.64
New Zealand Herald, Volume XLI, Issue 12590, 3 June 1904, Page 6
[33] https://paperspast.natlib.govt.nz/parliamentary/AJHR1907-I.2.2.2.6
MINES STATEMENT. BY THE HON. JAMES McGOWAN, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1907 Session I, C-02
[34] https://paperspast.natlib.govt.nz/newspapers/AS19100330.2.33
Auckland Star, Volume XLI, Issue 75, 30 March 1910, Page 5
[35] https://paperspast.natlib.govt.nz/newspapers/AS19100331.2.4

	15 September. Old Woodstock battery destroyed by fire. The plant destroyed included three air compressors and two steam engines.[38]
1911	2 February AT KARANGAHAKE. TALISMAN CONSOLIDATED. …The work of reinstating the plant lost in the Woodstock mill fire was completed some weeks ago. [39] September AWN image shows the main building housing the compressors has been rebuilt, but not the ancillary buildings.
1912	AWN image shows the ancillary buildings have been completed.
1915	27 January. TALISMAN CONSOLIDATED. Owing to shortage of water in the Ohinemuri River have had but little power from the Woodstock air compressor. This has stopped shaft sinking for the last fortnight.[40]

Auckland Star, Volume XLI, Issue 76, 31 March 1910, Page 2
[36] https://paperspast.natlib.govt.nz/newspapers/OG19100401.2.14
Ohinemuri Gazette, Volume XXI, Issue 2624, 1 April 1910, Page
[37] https://paperspast.natlib.govt.nz/newspapers/AS19100402.2.47
Auckland Star, Volume XLI, Issue 78, 2 April 1910, Page 8
[38] https://paperspast.natlib.govt.nz/newspapers/OG19100916.2.20
Ohinemuri Gazette, Volume XXI, Issue 2693, 16 September 1910, Page 2
[39] https://paperspast.natlib.govt.nz/newspapers/NZH19110202.2.9
New Zealand Herald, Volume XLVIII, Issue 14594, 2 February 1911, Page 4
[40] https://paperspast.natlib.govt.nz/newspapers/NZH19150127.2.21
New Zealand Herald, Volume LII, Issue 15828, 27 January 1915, Page 5

Images

1893?



This is a MM White photograph, No B3575.

This is the earliest photograph of this battery, Cox's 4 stamp battery and pan plant (so using mercury amalgamation, crushing wet 41). It was erected end 1888, early 1889. And was started on or before 13 February;

> The battery and pan plant erected by Mr Jno. McCombie for the proprietors of the Ivanhoe and Truro claims, Karangahake, has now started. At present it consists of 4 head of stamps, one pan, and one settler, but another pan will shortly be placed in position. It is a neat little plant, and shows some ingenuity in its construction. Nearly the whole of the loss by floatage is prevented by a contrivance which catches the overflow of the tanks, and brings it back by means of a Californian pump to the stamper boxes. The plant is driven by a powerful Pelton wheel, with a fall of 38 feet of water. Water is obtained from the Woodstock race.[42]

This image is probably showing the battery under the ownership of the Woodstock Company, who took it over in 1893. The Crown flume was constructed May 1892 [43]; a new 10 stamp battery was added August 1894 [44].

The photographer stood on the side of the new gorge road (completed 1890).

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[41] https://paperspast.natlib.govt.nz/newspapers/NZH18911207.2.55
New Zealand Herald, Volume XXVIII, Issue 8743, 7 December 1891, Page 6
[42] https://paperspast.natlib.govt.nz/newspapers/THS18890213.2.11
Thames Star, Volume xxi, Issue 6192, 13 February 1889, Page 2
[43] https://paperspast.natlib.govt.nz/newspapers/NZH18920504.2.47
New Zealand Herald, Volume XXIX, Issue 8869, 4 May 1892, Page 6
[44] https://paperspast.natlib.govt.nz/newspapers/NZH18940804.2.60
New Zealand Herald, Volume XXXI, Issue 9581, 4 August 1894, Page 6

In the foreground is the Ohinemuri River, flowing to the right; the Waitawheta joins from centre. To the left of the battery can be seen the trestle and pipe delivering water to the pelton wheel at the corner of the battery (housed in the wooden box; discharge water entering the river at extreme right). This is connected to the Woodstock Furnace water race flume, which continues to deliver water across the Waitawheta to the Furnace. It is discharging surplus water via a by-wash.

Above this race is the Crown water race flume, delivering water to the new Crown battery. It was constructed May 1892. Note the flume skirting the ridge in a beautifully constructed arc, at left of image. This will be removed, the flume put through a tunnel, at a later date (1894). This to avoid conflict with an enlarged Woodstock battery.

Below the Woodstock flume bridge we see a bridge structure incorporating an A frame; this is the lower section of the Crown flume bridge (a double decker). It is intended to provide tramway connection across the river. [45]

Below this again is a tramway bridge, which is sagging a little. It may still be the original Ivanhoe bridge, built 1884, to deliver ore to their battery. It will be upgraded in 1894 to bring ore to the Woodstock battery, high at the back of the building. Before this date ore was transported over the water race bridge. [46]

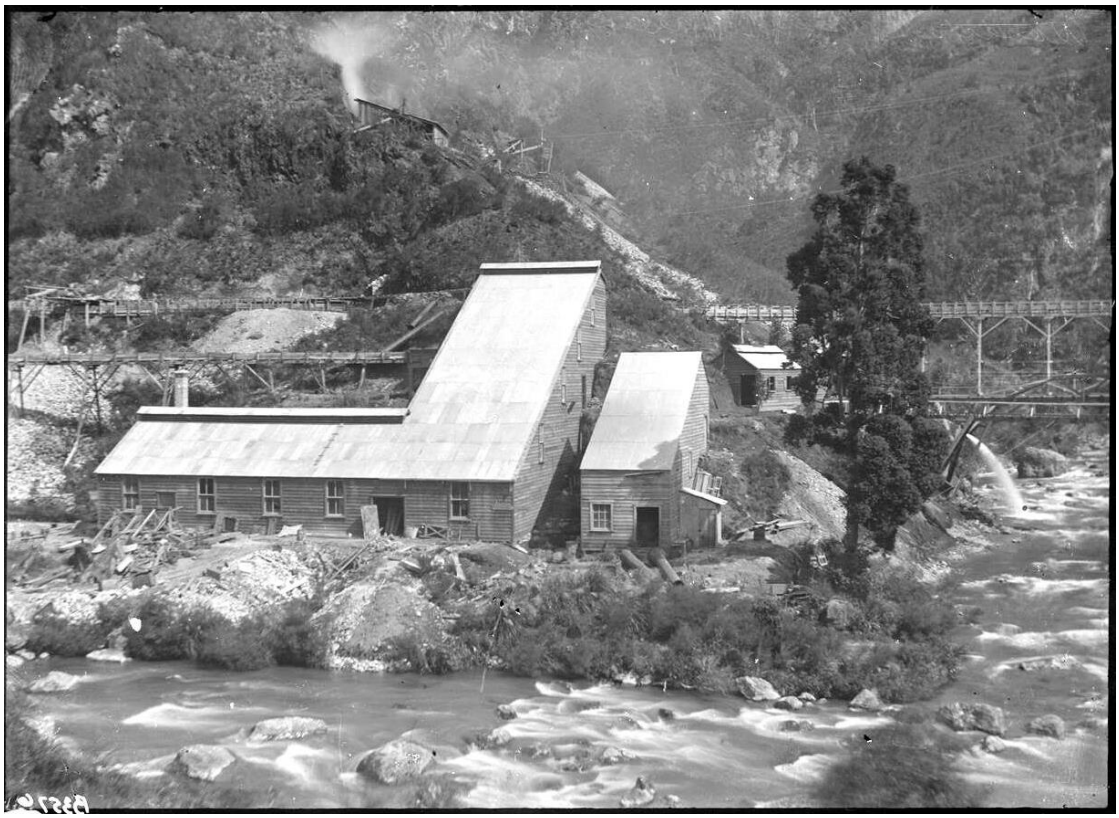
The water discharging from lower again may be from the old Karangahake/Hauraki/Ivanhoe battery water race flume, with water from the Waitawheta. This battery was removed 1890, but perhaps not yet the flume. The tree obscures valuable information ☺. Water flow may be maintained in even an unused wooden flume, as allowing the timbers to dry out would probably render the flume useless thereafter.

Immediately in front of the building, heading to the left, may be a wooden launder taking tailings to storage pits. McCombie talked of "pitting" tailings [47].

The kauri (?) tree to the right of the building remains for many years (it dies c.1901).

[45] https://paperspast.natlib.govt.nz/newspapers/NZH18920504.2.47
New Zealand Herald, Volume XXIX, Issue 8869, 4 May 1892, Page 6
[46] https://paperspast.natlib.govt.nz/newspapers/NZH18940630.2.5
New Zealand Herald, Volume XXXI, Issue 9551, 30 June 1894, Page 3
[47] https://paperspast.natlib.govt.nz/newspapers/NZH18940630.2.5
New Zealand Herald, Volume XXXI, Issue 9551, 30 June 1894, Page 3

1895?



MM White photograph, No B3576. 1895?

This photograph was taken from a very similar position to the first, from the road edge.

At the end of 1894 the Woodstock Company start to erect a10 stamp mill beside the old 4 stamp battery [48]. It starts to operate 11 February 1895 [49]. It is a percolation cyaniding plant, crushing dry. A firewood wire tram is installed, and an ore roasting kiln constructed in the hillside above the battery [50].

The old water race is reused, after an upgrading. Notice that this race no longer continues past the battery and across the Waitawheta. It went to the Woodstock Furnace house, which no longer requires it, or is gone.

The new building extends further up the hillside, and meets the tramway and tunnel from the bottom of the kiln. The kiln has a roof, and the smoke indicates that it is operating. Firewood is delivered to the kiln via aerial cableway from probably the County Road high above Battery Flat. Two sets of cables can be seen in the image, the upper most for the Woodstock kiln, the other for Talisman?

The tunnel servicing the bottom of the kiln is at the level of the top of the Crown water race flume and must cross it. The spoil from the tunnel has been trucked over the flume, and dumped on the hillside. The Crown water race flume no longer arcs around the spur, but is tunnelled through it.

A small building has been added, behind the kauri tree. Likely the smithy.

The tramway bridge across the Waitawheta has been upgraded, and connects to a water balance (operating at February 1895[51]) which lifts the ore carts to the level of the kiln.

This battery operates for only a year before being replaced by a forty stamp battery on the same site. Hence this image could be considered to date at 1895.

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[48] https://paperspast.natlib.govt.nz/newspapers/NZH18940804.2.60
New Zealand Herald, Volume XXXI, Issue 9581, 4 August 1894, Page 6
[49] https://paperspast.natlib.govt.nz/newspapers/NZH18950214.2.64
New Zealand Herald, Volume XXXII, Issue 9744, 14 February 1895, Page 6
[50] https://paperspast.natlib.govt.nz/newspapers/NZH18950205.2.49
New Zealand Herald, Volume XXXII, Issue 9736, 5 February 1895, Page 6
[51] https://paperspast.natlib.govt.nz/newspapers/NZH18950205.2.49
New Zealand Herald, Volume XXXII, Issue 9736, 5 February 1895, Page 6

> The position selected for the new plant is admirably adapted for the purpose, inasmuch as the ore intended for treatment will pass almost automatically from the kilns to the grissly through the stone breaker, then to the ore feeders, thence to the stamper boxes, from which it will gravitate to the percolating vats. The dissolving and stock solution vats will be located above the percolating vats, and after the solution will have done its work it will be drawn off by the vacuum boiler, passed through the zinc boxes into the sumps, which will be located under the lowest floor of the building, from whence it will be pumped up again to the percolating vats when required. Attached to the building it is arranged to have three distinct apartments for the oxidising and melting furnaces, assay and muffle furnaces, and assay balance. The machinery will comprise one stone-breaker, two challenge ore feeders, two. five-head batteries of 8cwt dry-crushing American stampers, driven by two six-feet Pelton wheels, governed by a deflector for starting and stopping the machinery instantaneously.[52]

AJHR 1895 [53]

> Woodstock
> Crushing Plant. —The plant consists of drying-kilns, similar in construction to those lately constructed by the Waihi Company, rock-breaker, ten-head stamp mill, and cyanide plant. This plant was purchased by Mr. H. Adams at Waiorongomai, being portion of the large battery erected by the Te Aroha Gold and Silver Company. The stamps are of the American pattern, 8cwt. each. It is intended to give these a drop of 5in., and run them at a speed of about ninety-five blows per minute. Dry-crushing is to be resorted to, and the fine pulverised ore treated in a cyanide solution. The ore is brought from the hoppers on a ground tramway, leading from the Crown Company's mine and over a bridge across the Waitawheta Creek, near its junction with the Ohinemuri River, where the loaded trucks are then raised on an inclined tramway by means of a water-balance to the level of the top of the drying-kiln, which is about 50ft. above the level where the ore has to be emptied for the rock-breaker. The kiln where the ore is dried is 40ft in depth and 17ft. in diameter on top, having an egg-shaped bottom, and is covered with a shed. The drying of the ore is continuous. When a certain quantity is taken out at the bottom, more raw ore and firewood is placed on the top, and by this means the kiln is always kept full and burning. The kiln being constructed on the side of a hill, a drive is put in from the face to its bottom, and by a tramway from this point the dried ore is delivered into two hoppers, which in turn deliver it automatically to the rock-breaker. The broken ore from the rock-breakers is delivered into automatic Challenge ore-feeders, which feed the stamps, and the pulverised ore from the latter is conveyed into the percolation-vats. The ore is conducted by gravitation through the whole of the different processes from the time it leaves the hoppers which feed the rock-breaker until the gangue is landed on the waste heap.

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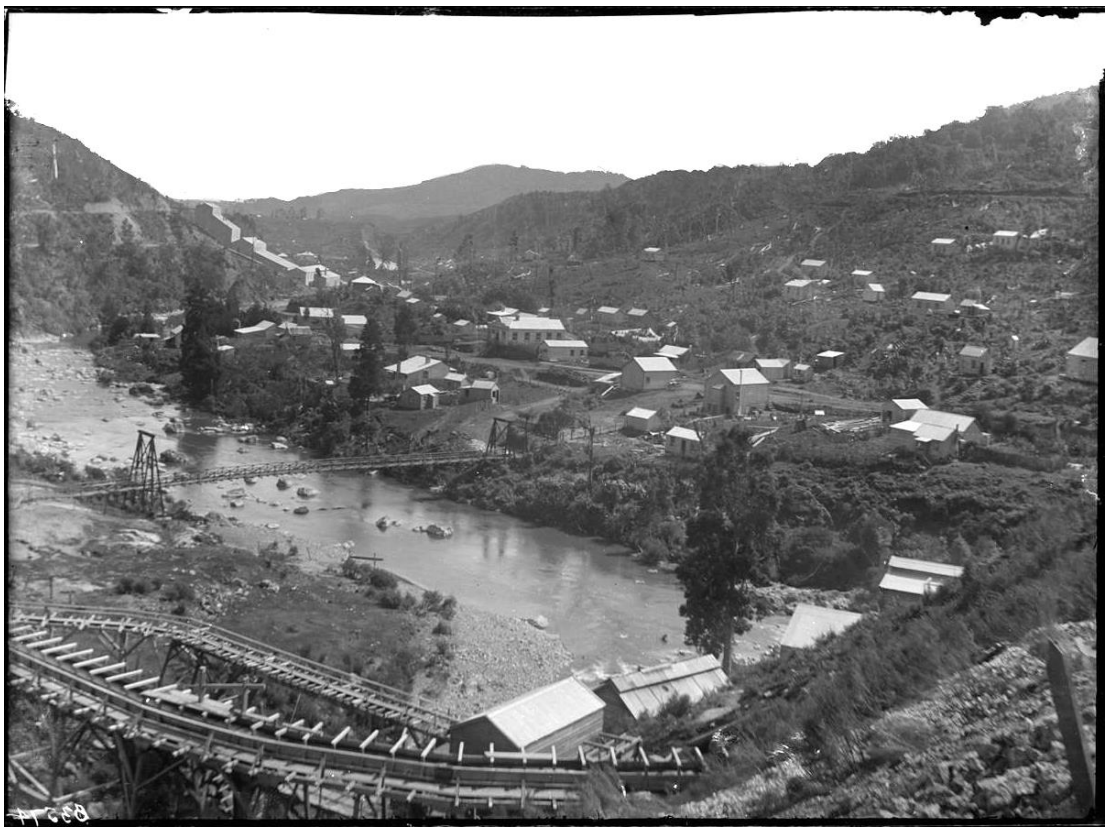
[52] https://paperspast.natlib.govt.nz/newspapers/NZH18940905.2.57
New Zealand Herald, Volume XXXI, Issue 9608, 5 September 1894, Page 6

[53] 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

> Cyanide Plant. —The cyanide plant consists of eight square percolation tanks, each capable of treating 7 tons of ore, a solution tank, and three sumps, 10ft. by 10ft. by 3ft. deep, made with brick walls and lined with concrete. Close alongside the cyanide plant is a laboratory fitted up with all necessary materials and appliances for testing and assaying ores; and adjoining this is the smelting room, with furnaces and all appliances. The whole of the plant, although small, is very complete; but if the quantity of payable ore in the mine justifies a larger plant being erected there is plenty of room for the erection of same.



MM White photograph, No B3574.

Photograph taken from the kiln top level, looking down the Ohinemuri River. It shows the top of the 10 stamp Woodstock battery, with roof ventilator, towering above the original four stamper (bottom right); so 1895. The smithy, with roof ventilator, and another building of unknown purpose are present, and the Crown water race flume is in the left foreground. The tramway bridge bringing ore from the Woodstock/Crown tramway beside the Waitawheta River is obscured beneath the water race. The more visible tramway bridge may be the original bridge for the Karangahake battery removed 1890.

There is no sign of the firewood cableway; is that behind the photographer? And is the water balance obscured in the scrub bottom right?

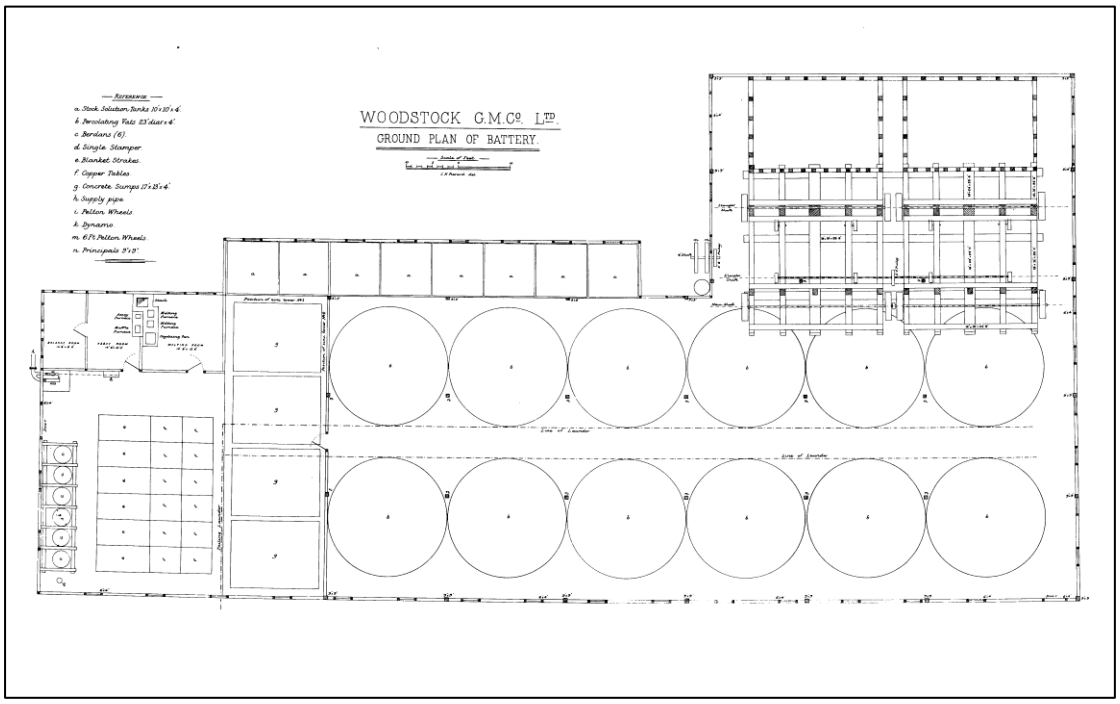
Middle left shows the suspension bridge (1885), and the closer flat area is where the Karangahake/Hauraki/Ivanhoe battery stood (removed 1890).

Top left has the Crown battery, completed 1893. Two furnace chimneys visible, two more are added in 1896 [54].

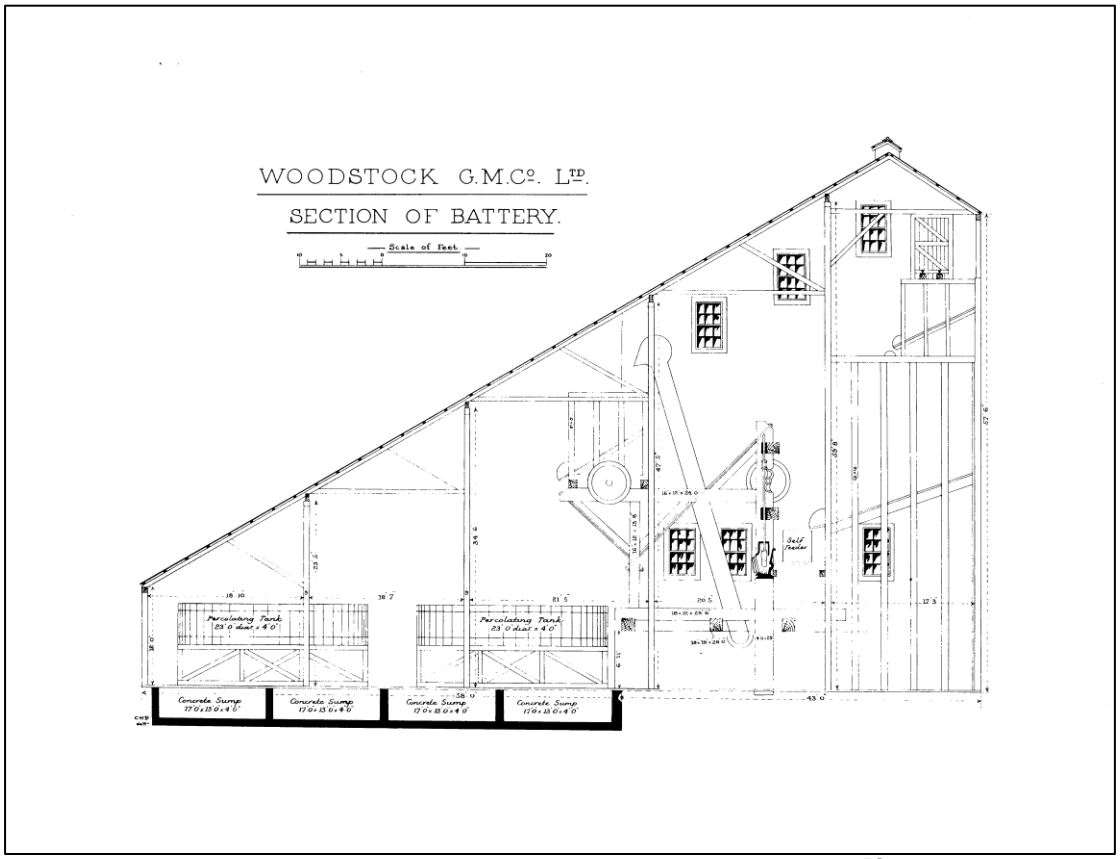
The Karangahake Hotel, image centre, appears to be still single storey; it is given a basement mid 1895 [55].

[54] https://paperspast.natlib.govt.nz/newspapers/NZH18960904.2.58.4
New Zealand Herald, Volume XXXIII, Issue 10228, 4 September 1896, Page 1 (Supplement)
[55] https://paperspast.natlib.govt.nz/newspapers/NZH18950128.2.58
New Zealand Herald, Volume XXXII, Issue 9729, 28 January 1895, Page 6

1896



WOODSTOCK G.M.Co. Ltd. GROUND PLAN OF BATTERY.



WOODSTOCK G.M.Co. Ltd. SECTION OF BATTERY. Page 72 [56]
AJHR 1896.

[56] 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

Plan and elevation of the new 40 stamper battery. The stampers are shown at top right of plan. This is the area where today the swing bridge delivers walkers on to the site. The rectangular apertures of the mortar blocks can just be made out in this area. An image of the battery after the fire of 1910 shows the charred stampers in this position. Some, or all, of the concrete sumps remain, as does the pelton wheel sump. The two wheels that remain today may be later versions, installed by the Talisman Company.

Photographer unknown, but could be MM White.

Mid 1896. Taken from the edge of the road, and maybe at the end of the swing bridge constructed across the river to facilitate supply of materials to the site.

Woodstock 40 stamp mill under construction. The stamps are erected beside the Waitawheta River, upstream end of the new building. It appears that the original 4 stamper building has not been demolished yet.

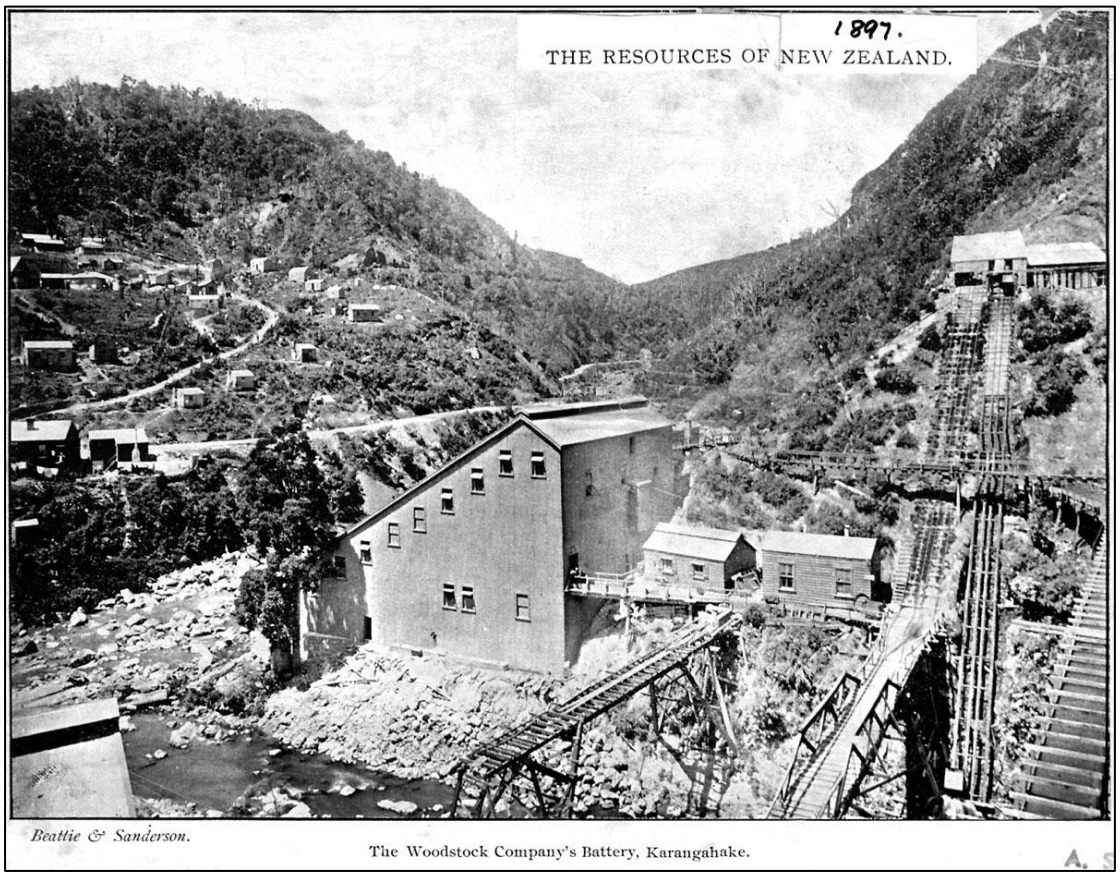
The Tramway Hotel has two storeys now (c. mid 1895). There is no Talisman vat house, constructed early in 1897. [57]

It appears that the Woodstock furnace house has been removed.

The kauri tree persists.

[57] https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4
New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)

1897



Someone has dated this image 1897. It is certainly before the boiler and engine were added. The bottom left corner of the image shows the Talisman vat house, completed June 1897.

The 40 stamps are housed in the tall section of building. Dry crushing, so many windows are open, and a white dust surrounds the building.

The water balance, and the bridge to it, is prominent at right. The water balance is in two parts. The right hand wooden railed portion accommodates the water tanks. One can be seen at the top, one at the bottom (showing water discharging from it?). When the top tank is filled with water it descends, dragging an ore cart up the left hand steel-railed incline. The empty tank at the bottom is simultaneously dragged up, to be filled with water for the next cycle.

To the left of the water balance bridge is the old bridge, originally for the Karangahake battery.

Crossing over the water balance is a tramway on trestles, bringing ore from the tunnel under the three new kilns.

The Crown water race flume is at extreme right of the image. It emerges from a tunnel beneath the water balance.

The image is from 'The Resources of New Zealand', Whangarei, December 1898, Vol.1 – No.4, published by Alderton & Wyatt, Art Printers & Publishers, Whangarei, NZ.

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 1898 [58], 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? [59] The proprietor stands at the front door ;).

Staples collection.

22 January

Woodstock Gold Mining Company

…The mill has certainly been under way a long time, and should have been finished a couple of months ago. However, all the machinery is now at the battery, the last piece, namely, the water-wheel, having arrived from home within the past few days. This wheel is what is known as a Samson-Leffel turbine water-wheel, and it affords a wonderful amount of power contracted in an exceedingly small space, and it is contended it will produce a far higher velocity than has ever been known for turbines of the same amount of power.

[58] https://paperspast.natlib.govt.nz/newspapers/NZH18980318.2.69.3
New Zealand Herald, Volume XXXV, Issue 10704, 18 March 1898, Page 1 (Supplement)
[59] https://paperspast.natlib.govt.nz/newspapers/THA18970424.2.9
Thames Advertiser, Volume XXIX, Issue 8718, 24 April 1897, Page 2

Although a very small wheel, it is capable of developing 100 horse power, or equal to driving 80 head of stampers...[60]

19 March

KARANGAHAKE. One of the main items of news connected with the past month's operations at Karangahake is the commencement of the Woodstock Gold Mining Company's battery. [61]

1898

21 January

At the Woodstock Company's plant…The contractors are pushing ahead with the works necessary to convert the mill from dry to wet-crushing, and last week Mr. Brown placed the elevator wheel in position…[62]

18 February

The battery has now been stopped during the conversion of the plant from dry to wet crushing, and it is expected that the mill will be in operation and crushing wet in about another week's time. The kilns are now filled with raw ore, so as to keep a constant supply for wet crushing, and all the dried ore has been milled.[63]

18 March

Woodstock Company wet crushing

The Woodstock Company have changed their plant from dry to wet crushing, and the next return from this Karangahake mine will be from quartz treated by the wet crushing process…

Several improvements to the battery are well under way, especially the extension of vat accommodation, which was found necessary in order to provide for the increased output of ore. [64]

25 November

a very large ore bin is being erected, and this, when finished, will do away with the hoisting of the ore to the kilns, and thence trucked to the mill, so that the charge will result in the ore being delivered direct into the mill. This will necessarily mean a great saving of labour in handling, etc. Good progress is also being made with the erection of the hydraulic sizers, which are being put in as concentration adjuncts to the vanners…[65]

AJHR 1899

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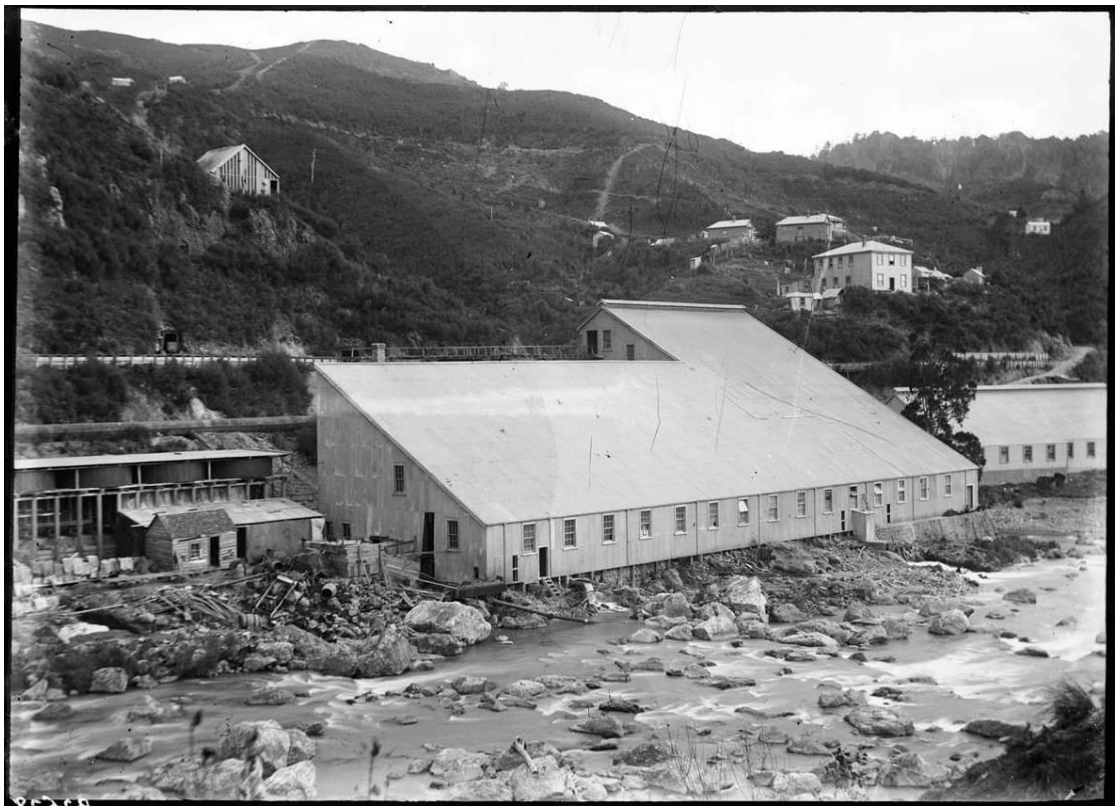
[60] https://paperspast.natlib.govt.nz/newspapers/NZH18970122.2.59.3
New Zealand Herald, Volume XXXIV, Issue 10346, 22 January 1897, Page 1 (Supplement)
[61] https://paperspast.natlib.govt.nz/newspapers/NZH18970319.2.78.4
New Zealand Herald, Volume XXXIV, Issue 10394, 19 March 1897, Page 1 (Supplement)
[62] https://paperspast.natlib.govt.nz/newspapers/NZH18980121.2.58.3
New Zealand Herald, Volume XXXV, Issue 10656, 21 January 1898, Page 1 (Supplement)
[63] https://paperspast.natlib.govt.nz/newspapers/NZH18980218.2.67.4
New Zealand Herald, Volume XXXV, Issue 10680, 18 February 1898, Page 1 (Supplement)
[64] https://paperspast.natlib.govt.nz/newspapers/NZH18980318.2.69.3
New Zealand Herald, Volume XXXV, Issue 10704, 18 March 1898, Page 1 (Supplement)
[65] https://paperspast.natlib.govt.nz/newspapers/NZH18981125.2.83
New Zealand Herald, Volume XXXV, Issue 10919, 25 November 1898, Page 1 (Supplement)

The process now adopted is a combination process which, after careful and exhaustive investigation, was found to be most suitable and adapted to our ore. It is as follows: The ore, after passing through two Blake crushers, is elevated by a 12 in. belt elevator to the mill ore-bins. It is then fed to the forty stamps, which weigh about 850 lb. each, and strike 104 blows per minute, with a 6 in. drop. After passing through 30-mesh wire screens the pulp flows over amalgam plates, being then delivered to the elevator wheel, 34 ft. in diameter, and thus raised to the top of the mill. It now passes through a hydraulic sizer of the Spitzlutte type. The slimes are here separated from the sands, and treated separately from this on. The pulp now passes over the concentrating plant, and thence by launders is delivered to the rotary distributers in the cyanide-vats, to be treated by leaching with cyanide solution. The coarser amalgamable gold has been extracted by the plates; the concentrates, consisting of the sulphide-values and any coarser non-amalgamable gold, has been extracted by the vanners; and there is only left for the cyanide the finest gold and the most finely comminuted sulphide-values, which latter in this condition are much more amenable to cyanide treatment. The vanner plant consists of fourteen 6 ft. Union vanners and two 4 ft. Frue's. The overflow from the general cyanide-vats, whilst being filled, passes on by launders to the slime-vats, where the contained slime is settled with that previously separated by Spitzlutte. These slimes are then treated with weak cyanide solution by agitation, and good extraction effected. The concentrates from the vanners are also treated by agitation with extra-strong cyanide solution, and an extraction of over 93 per cent, of the bullion-value is maintained, at a cost of less than £1 per ton of concentrates treated. By actual experiment it is found that 75 per cent. of the values of the concentrates are quite unaffected by ordinary cyanide treatment, and therefore under that treatment would be lost. The principal points of the treatment are—(l) That the amalgamable bullion is at once extracted from the ore by amalgamation, the cheapest method of recovery; (2) that the non-amalgamable bullion and valuable sulphides are removed from the ore by concentration for separate treatment; (3) that the slimes are separated from the ore, and separately and rapidly treated with cyanide by agitation and decantation, effecting a good recovery ; (4) that the remaining sands thus depleted of non-cyanidable values and obstructions to percolation are rapidly and perfectly treated by cyanide; (5) that the large quantity of water (from stamping, hydraulic-sizing, and concentration) which passes through the ore-pulp almost completely washes out the soluble cyanicides, thus reducing the loss of cyanide by chemical decomposition. [66]

[66] https://paperspast.natlib.govt.nz/parliamentary/AJHR1899-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, 1899 Session I, C-03

1899



This is MM White photograph, No B3578. Date: c.1899.

Battery now crushing wet.

Photograph taken from the edge of the road.

Just at the left hand roof line of the battery can be seen the Crown water race flume (to left), and the trestle tramway delivering ore to the top of the battery. The ore comes from the tunnel beneath the first kiln (today's look-out spot) visible to the left, with an ore cart in the portal. If the estimated date is correct, and ore roasting has ceased, then the kiln may be being used as a storage hopper for ore coming from the "Windows" tramway.

The Crown water race is tunnelled through the spur, the tunnel mouth visible immediately to the left of the brick chimney stack. The chimney is from the assay and smelting furnaces.

To the left of the battery building is the large diameter pipe bringing water to the Pelton wheel(s). A smaller pipe has been tapped into it, to supply water to two small pelton wheels at the end of the battery (not visible here). The battery plan shows these wheels, beside the balance room.

The new dam, upstream from the later rail tunnel and bridge, completed mid 1900[67] will be plumbed into the large pipe near the original dam.

At least four steel tanks are added to the left of the main building. They are covered by a flat roof. Percolation tanks?

Notice how close to river level the battery building is. Discharge water from the turbine enters the river via a wooden box flume. Is that a toilet above it?

More water, or tailings, are discharged at left end of building.

Some of the stone work with included wooden piles remain today.

[67] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
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, 1901 Session I, C-03

17 March.

The Woodstock Company are pushing ahead with the alterations to the battery, so that when the new five 6ft vanners arrive from America, everything will be ready for their installation. These additional vanners will materially assist in the treatment of a larger tonnage of ore. [68]

12 May

At the Woodstock Gold Mining Company's property the new vanners are now all installed. This company has been put to a considerable expense in altering the battery and mode of treatment. [69]

12 October

The Woodstock Battery. This too is being enlarged, and three cyanide vats are now being erected. The water race also being altered, and instead of the usual wooden fluming iron piping having a diameter of 3ft 6in is being put in its place. [70]

[68] https://paperspast.natlib.govt.nz/newspapers/NZH18990317.2.94.3
New Zealand Herald, Volume XXXVI, Issue 11013, 17 March 1899, Page 1 (Supplement)
[69] https://paperspast.natlib.govt.nz/newspapers/NZH18990512.2.73.4
New Zealand Herald, Volume XXXVI, Issue 11061, 12 May 1899, Page 1 (Supplement)
[70] https://paperspast.natlib.govt.nz/newspapers/BOPT18961012.2.7
Bay of Plenty Times, Volume XXII, Issue 3461, 12 October 1896, Page 2

1900

The new Talisman battery is complete, so late 1900 or 1901. There is no large chimney on the Woodstock battery; this was erected early 1901[71]. The photograph is taken from the County Road.

The Traffic Bridge, beside the original suspension bridge, constructed late 1898. [72]

Note the suspension bridge across the Ohinemuri River, upstream from the Woodstock battery (early 1896). A large pile of mullock? is piled on the river edge of the battery. Why? Is this from the excavations at the back of the battery required for the new compressors and boilers?

The new bridge can be seen directly behind the Talisman vat house. It angles across the Waitawheta River to the back of the Woodstock battery.

6 July

The Woodstock Gold Mining Company…

The battery is being fitted up with an ore-conveyor, and everything is being made ready for future work. At the back of the reduction works excavation for the air-compressor and steam plants are underway, whilst during the past month repairs to the new dam have been effected, and the latter, with 120 ft of an overflow, is now one of the finest dams to be found in any of the goldfields districts.[73]

AJHR 1901

Woodstock new dam, 3ft 9in pipeline and Warren Truss bridge across the Ohinemuri River completed. The Pelton wheel to be installed is 11 ft. 2 in. in

[71] https://paperspast.natlib.govt.nz/parliamentary/AJHR1903-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, 1903 Session I, C-03

[72] https://paperspast.natlib.govt.nz/newspapers/OG18980820.2.15
Ohinemuri Gazette, Volume VIII, Issue 520, 20 August 1898, Page 3

[73] https://paperspast.natlib.govt.nz/newspapers/NZH19000706.2.65.3
New Zealand Herald, Volume XXXVII, Issue 11417, 6 July 1900, Page 1 (Supplement)

diameter over all, and is to drive the air-compressors and battery during the greater part of the year. A new tail-race 69 ft. long under the mill, and below the old tail-race, has been driven and timbered so as to gain the utmost pressure-head. The old bridge across the Waitawheta Stream removed, a new and more substantial bridge built, going direct to the battery ore-hopper, 180ft long.[74]

AJHR 1901

Woodstock Mine. —Considerable development-work and improvements have been carried on during the past nine months. The dam and penstock to which the new pipe-line (extension of old line) is to be connected has been completed. The dam is 140 ft. long over all, has 120 ft. overflow, and in flood-time has carried a crest of 8 ft. of water. The grade-line for this new pipe-line of about 1,800 ft. has been completed, being built up of rubble-work, walling, and trestling. To carry the pipe-across the Ohinemuri Gorge a Warren truss-bridge of 80 ft. span has been built. This bridge has a 7 ft. wide decking in the clear between the trusses, and the bottom chord is 24 ft. above ordinary water-level, and 6 ft. above the highest known flood-level. The water-pipe which this bridge carries is 3 ft. 9 in. in diameter, and is now being connected up on the gradeline. This extension gives a head of 80 ft. at the Pelton wheel (which is to be erected under the battery building), more than doubling the old pressure-head. The old water-power main has been shifted to a lower level at the battery end in order to make room for the air-compressor and steam plants. Two air-compressors are to be erected—one of 1,000 and the other of 40 cubic feet free air per minute, the former an Ingersoll-Sergeant and the latter a Schram compressor. The Pelton wheel to be installed is 11 ft. 2 in. in diameter over all, and is to drive the air-compressors and battery during the greater part of the year. It is intended to install an auxiliary steam plant to give the necessary power when the water is deficient in the summer months. The large turbine by which the mill was recently driven has been removed, as it was quite unsuitable to the increased head of water. The excavation for the air-compressors and steam-engine and boilers is 63 ft. by 57½ft., the foundations being upon solid rock. The extreme height or depth of this excavation from surface at the back of battery to the bottom of the wheel-pit is 74 ft. of rock. The arrangement of machinery is so designed that the battery or air-compressing plant may be driven separately by either steam- or water-power, or both together may be driven by either of these powers, or the water and steam plants may be coupled together to drive the whole of the machinery. A new tail-race 69 ft. long under the mill, and below the old tail-race, has been driven and timbered so as to gain the utmost pressure-head. The old bridge across the Waitawheta Stream (connecting the battery with mine tram-line) has been taken down, as it was much decayed and too light for the economical ore-supply to the battery. A new and more substantial bridge going direct to the battery ore-hopper has now been almost completed. This bridge is 180 ft. long over all. It is designed for the transmission of horse and train of trucks as

[74] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
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, 1901 Session I, C-03

they come from the mine, and will carry such a distributed load aggregating 10 tons. [75]

1901

22 March

The 8in compressed-air pipe line is completed, excepting about 60ft of connections on to the receivers at each end, whilst the reheater has been set up and bricked in in the chamber. The small compressor in the power-house has also been lined up on its foundations, and the men are now engaged fitting in the large Pelton wheel. This is about 11ft 2in in diameter, and, with six buckets and shafting, it weighs five tons, and is capable of developing 450 horse-power. The nozzle connections have been made at the foot of the stand-pipe, so that it will be seen the work at this section is in a very forward state. The foundations for the large compressor, shortly expected, are also ready, and the manager intends to have the plant installed within 10 days of its arrival.[76]

The 8in compressed-air pipe line that the Woodstock Company have installed crosses the Waitawheta River on the distinctive wooden bridge, from cliff to cliff. It is seen in many photographs, at about the location of the modern "Windows".

14 June

The surface works in hand and finished during the past week are, the completion of the Pelton wheel and tail drain [tail race?], the connection between the Waitawheta Bridge, the ore bin, and the compressor room, and the completion of the buildings covering these; also the raising of the platform at the mill end of the bridge, ready for the completion of ore transit arrangements. The newly installed power plant is also giving great satisfaction. The trouble with the old water-power pipe line (of which the new pipe line is an extension) seems now to have been overcome. The pipe line bridge across the Ohinemuri River, of over 80ft span, has taken its load very well, the camber being affected only to the extent of 3/8th of an inch. The bridge across the Waitawheta, when a test of 13 tons was put upon it, also only gave about 3/8th of an inch deflection in the 74ft span, with no permanent set, the bridge resuming its original curvature when the load was removed. This speaks well for the design, material, and workmanship.[77]

3 July

Very satisfactory progress continues to be made with the sinking of the shaft, especially since the rock drills were put into the workings. Four of these machines are now being utilised in the shaft, and are being operated by compressed air, as are also the pump and hoist. The reheater in the shaft chamber for the compressed air is giving most satisfactory results, and, in consequence, there is no trouble from freezing at the pumps, etc. The air pipe

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[75] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
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, 1901 Session I, C-03

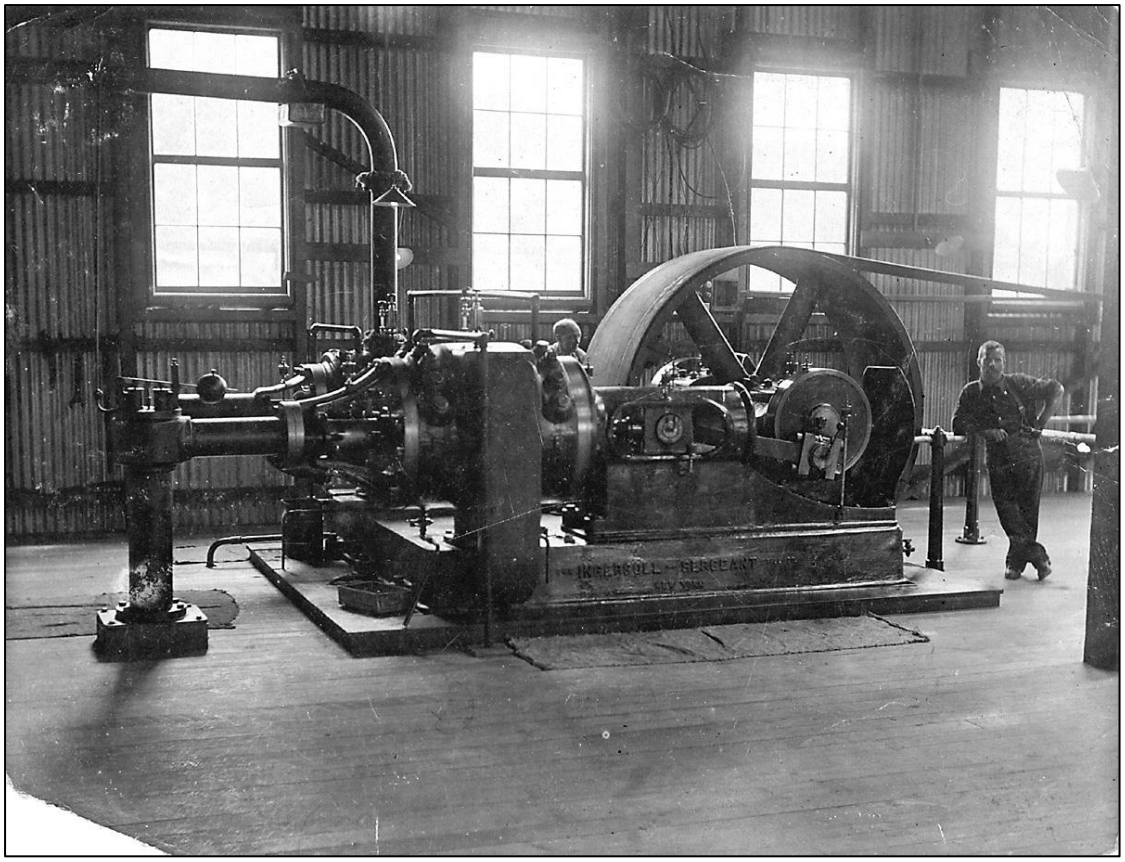
[76] https://paperspast.natlib.govt.nz/newspapers/NZH19010322.2.79.3
New Zealand Herald, Volume XXXVIII, Issue 11607, 22 March 1901, Page 1 (Supplement)

[77] https://paperspast.natlib.govt.nz/newspapers/NZH19010614.2.72.4
New Zealand Herald, Volume XXXVIII, Issue 11679, 14 June 1901, Page 1 (Supplement)

line between the mine and the mill acts well, a loss of only 1lb in pressure resulting in the transmission of the compressed air from the mill (generating station) to the mine. The mill office and smithy have been moved, to make more storage room, and a storeroom has been built for battery supplies, etc. These changes permit of a storage platform being built at the battery end of the Waitawheta bridge, a much-needed and most economical improvement. The air and power plant continues to work satisfactorily, and the mill machinery is now being connected up with it again.[78]

AJHR 1902
Woodstock Gold-mining Company (Limited), Karangahake.—A very large amount of work has been done by this company in improvements and development-work. The 4 ft. main water-power pipe-line extension has been completed, connecting the new dam with the old pipe-line, a distance of 1,800 ft. A new water-power plant has been installed, and consists of two Pelton type wheels—one 11 ft. 8in. diameter, and the other 11ft. 4 in. diameter—the main driving-pulley for the air-compressors being 12ft. 3in. in diameter and 38 in. face for a 36 in. (10-ply) Balata belt[79], and the mill is driven by a 32 in. face 7 ft. 6in. diameter pulley and a 30 in. (8-ply) Balata belt. Two air-compressors have also been installed—one an Ingersoll-Sergeant compound, rope-driven, low-pressure cylinder 24 1/4 in. diameter, high-pressure cylinder 15 1/4 in. diameter, 18 in. stroke, ordinary capacity 1,170 cubic feet free air per minute; and the other a Schram single-compressor cylinder 14 in. diameter, 24 in. stroke. The compressed-air pipe-line erected during the year is of 8 in. diameter wrought-iron welded pipes with loose flanges, and is about 2,300 ft. in length, connecting the compressors and the shaft-chamber. At each end of this pipe-line there is a receiver, and in the chamber a porcupine reheater. The reheater is enclosed in brickwork, requires very little fuel, and entirely prevents any trouble from freezing at the pumps. [80]

[78] https://paperspast.natlib.govt.nz/newspapers/NZH19010703.2.81.4
New Zealand Herald, Volume XXXVIII, Issue 11695, 3 July 1901, Page 1 (Supplement)
[79] Balata belting is a tough, robust belt that has a rubber friction surface on both sides. It is constructed from premium quality high tensile cotton and natural rubber.
https://www.par-group.co.uk/rubber-and-polyurethane/conveyor-belting/balata-conveyor-belting/
[80] https://paperspast.natlib.govt.nz/parliamentary/AJHR1902-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, 1902 Session I, C-03



Ingersoll Sergeant compressor. This machine has not an integrated steam engine. It is driven by a large (Balata) belt, so from a separate engine or by water power (as described above). It is a duplex machine. The inscription on the base of the machine is: The Ingersoll-Sergeant Drill Co. New York. [81]

The windows suggest that this machine is in the Talisman rebuild, the wall is unlined corrugated iron[82].

It is most likely that the shafting runs length-wise (that is parallel to the Ohinemuri River bank) in the Woodstock battery, and Talisman rebuild. The pelton wheels remaining on site, and the orientation of the various machine mounts support this. Therefore this image must show the side of the new Talisman rebuild, that is the side facing upstream.

So this may well be the compressor mentioned above, installed 1901-2, but repositioned after the fire of 1910 into the new building?

Another compressor was added in 1906.

Staples collection.

1902

> A new steam plant has been installed as an auxiliary to the water-power during the dry season of the year. This plant consists of two 150-horse-power Elephant boilers and a 250--horse-power Corliss engine. These have been set up at the mill, and are so arranged that either the mill or compressors, or both, may be driven by either steam or water, or, if need be, both steam and water power can be coupled together. [83]

[81] In 1905, Rand Drill Co. and Ingersoll-Sergeant Drill Co. were merged to form Ingersoll-Rand Co. http://vintagemachinery.org/mfgindex/detail.aspx?id=4159

[82] It seems likely that the rebuild might be more “no frills” than the original Woodstock batter build.

[83] https://paperspast.natlib.govt.nz/parliamentary/AJHR1903-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, 1903 Session I, C-03

The steam plant, engine and compressors are added to the Woodstock battery, the higher portion of the building is extended to the right (on the left when looking from the highway) to accommodate them. The engine mount is accessible today (upstream end of battery site) but boiler and chimney mounts, if they remain, are hidden in thick scrub.

More/larger buildings have progressively been added behind the stamper section of the battery. A tramway enters the lean-to building; is this the battery ore hopper mentioned below?

The mill office and smithy have been moved, to make more storage room, and a storeroom has been built for battery supplies, etc. These changes permit of a storage platform being built at the battery end of the Waitawheta bridge, a much-needed and most economical improvement.[84]

A new and more substantial bridge going direct to the battery ore-hopper has now been almost completed. This bridge is 180 ft. long over all. It is designed for the transmission of horse and train of trucks as they come from the mine, and will carry such a distributed load aggregating 10 tons. [85]

We can see this bridge under construction, bottom right of image.

A compressed air pipe is established between the battery compressor and the mine entrance at No.5 Level (river level) [86]. It will be visible in later images.

Suspension bridge across the Ohinemuri, used to bring material to the battery during construction.

Water balance in disrepair. Kauri tree failing or dead.

Traffic Bridge completed August 1898 (the downstream of the two in the image).

Note that the Ohinemuri River is not, or hardly, flowing, captured by two dams upstream. The water we see under the two bridges is likely from the Waitawheta.

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[84] https://paperspast.natlib.govt.nz/newspapers/NZH19010703.2.81.4
New Zealand Herald, Volume XXXVIII, Issue 11695, 3 July 1901, Page 1 (Supplement)

[85] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4
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, 1901 Session I, C-03

[86] https://paperspast.natlib.govt.nz/newspapers/NZH19010614.2.72.4
New Zealand Herald, Volume XXXVIII, Issue 11679, 14 June 1901, Page 1 (Supplement)

Also the dwellings either side of the highway, in an area that is now a bit of a layby/spoil dump. These dwellings are washed away in the 1910 flood.

Butler's Track is clearly visible above these dwellings and the township.

1906? Winkelmann photo, taken from the County Road? Staples collection.

AJHR 1903

The mode of treatment has been the same as heretofore— viz., crushing through breakers and stamps, amalgamation with Muntz-metal tables, concentration over vanners, and cyanidation of the sands, concentrates, and slimes, the former by percolation, the two latter by agitation. A new steam plant has been installed as an auxiliary to the water-power during the dry season of the year. This plant consists of two 150-horse-power Elephant boilers and a 250----horse-power Corliss engine. These have been set up at the mill, and are so arranged that either the mill or compressors, or both, may be driven by either steam or water, or, if need be, both steam and water power can be coupled together.[87]

1904

Woodstock Company have long struggled to make their mine pay. Either the ore is too poor, or the recovery too low. Or both.

June. Talisman buy Woodstock for £7000[88]

The Talisman Company use the battery only to provide compressed air. Two compressors can be run by water power and/or steam.

Little changes visually at the Woodstock battery site until the flood of 1910.

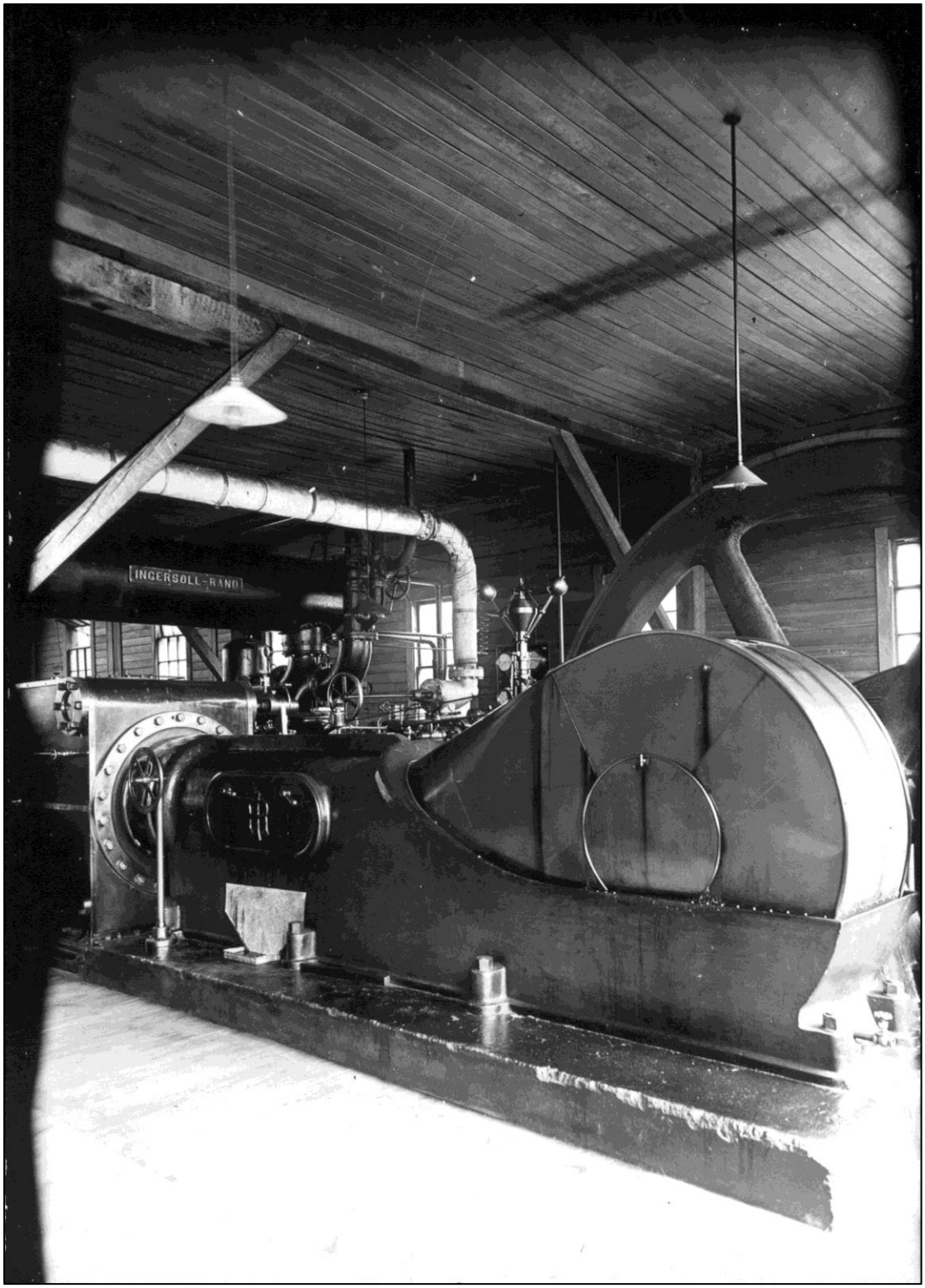
1906

Talisman: a new Ingersoll Sergeant compound air-compressor has been installed at the Woodstock Battery.[89]

[87] https://paperspast.natlib.govt.nz/parliamentary/AJHR1903-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, 1903 Session I, C-03

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

[89] https://paperspast.natlib.govt.nz/parliamentary/AJHR1907-I.2.2.2.6
MINES STATEMENT. BY THE HON. JAMES McGOWAN, MINISTER OF MINES., Appendix to the Journals of the House of Representatives, 1907 Session I, C-02



This compressor is steam powered, the wheel visible being a fly wheel, not designed for a driving belt. It is identified here as Ingersoll Rand, which identifies it as built after 1905[90]. It appears to be a duplex machine. The layout of the windows, facing the river and well spaced out, suggest that it is within the Woodstock battery building (before the fire). The wood panelling would support this. Being steam powered means the machine does not have to reflect shafting orientation. The Talisman rebuild did not reinstate steam power. This machine may not have been used again after the fire (destroyed?).

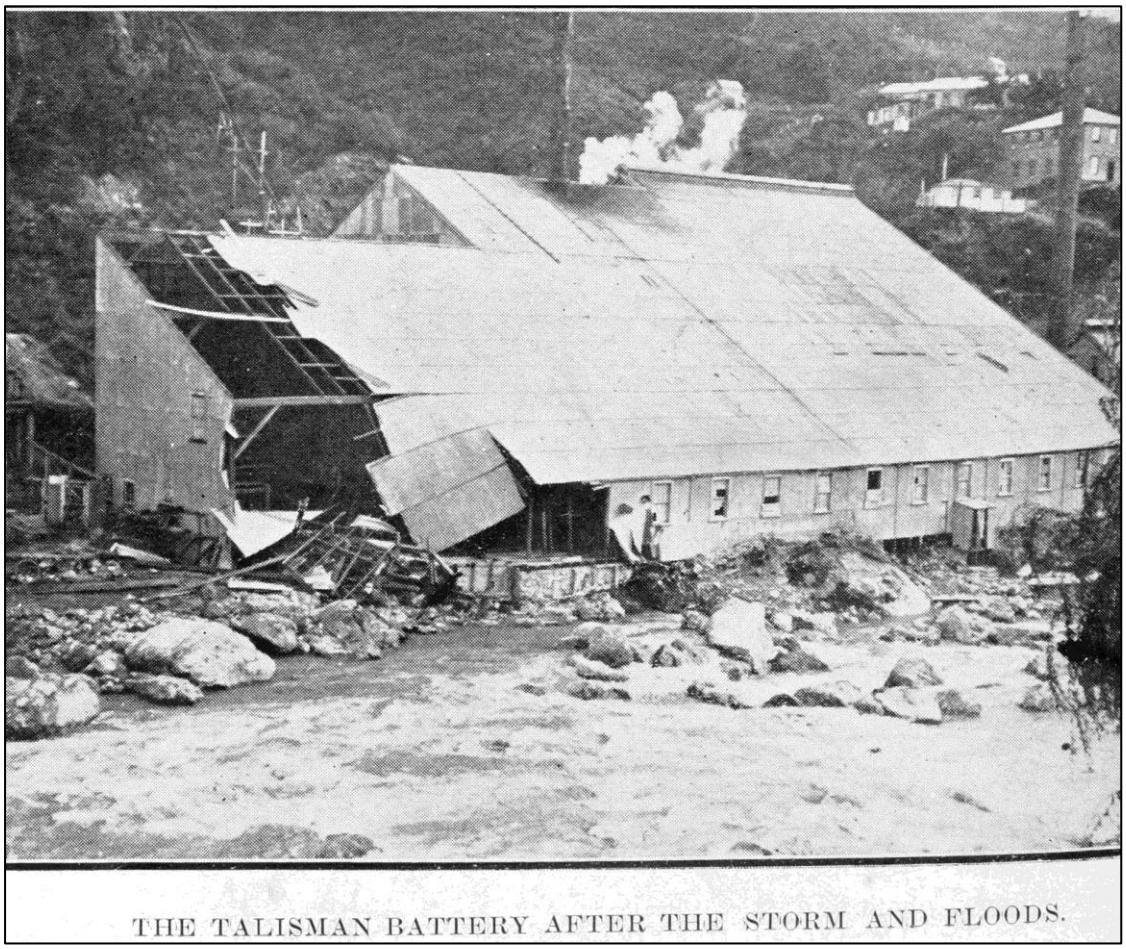
[90] In 1905, Rand Drill Co. and Ingersoll-Sergeant Drill Co. were merged to form Ingersoll-Rand Co. http://vintagemachinery.org/mfgindex/detail.aspx?id=4159

The wall is timber clad. The image of the belt driven compressor shows unlined corrugated iron.

The image is one of a stereo pair.

Chappell collection. George Chappell photographer.

1910



1910 04 06 Auckland Libraries Heritage Collections NZG-1910 04 06-0022-05

30 March. Flood! Biggest on record.[91] Water rushed through the railway tunnel.[92] Talisman water race pipe crumpled and twisted[93]. Old Woodstock battery damaged.[94]

In this image we can clearly see the additional roofed section of the battery building, to left of the original ventilated roof housing the stampers. The boiler chimney has deposited soot upon it.

The building burns down later in the year.

[91] https://paperspast.natlib.govt.nz/newspapers/AS19100330.2.33
Auckland Star, Volume XLI, Issue 75, 30 March 1910, Page 5
[92] https://paperspast.natlib.govt.nz/newspapers/AS19100331.2.4
Auckland Star, Volume XLI, Issue 76, 31 March 1910, Page 2
[93] https://paperspast.natlib.govt.nz/newspapers/OG19100401.2.14
Ohinemuri Gazette, Volume XXI, Issue 2624, 1 April 1910, Page
[94] https://paperspast.natlib.govt.nz/newspapers/AS19100402.2.47
Auckland Star, Volume XLI, Issue 78, 2 April 1910, Page 8

Woodstock battery on fire. A view from the hotel veranda?

15 September. Old Woodstock battery destroyed by fire. The plant destroyed included three air compressors and two steam engines.[95]

Except the compressors, the contents of the old Woodstock mill were, it is stated, mostly old machinery, not at present in use. The compressors were driven by a Pelton wheel, and there was in the building a steam engine, that served as an auxiliary power, in the event of the water supply breaking down.[96]

The property destroyed or damaged includes the mill, a building of wood and iron, containing two engines, three air compressors, vats, stamps, and the electric light plant. Approximate value is £8000.[97]

A preliminary examination made shows that the air compressors appear to have sustained no serious damage from the fire, but, of course, a thorough overhaul will be necessary to exactly determine the full extent of the injury. [98]

The Talisman power house partly obscures the Woodstock battery building.

Staples collection

[95] https://paperspast.natlib.govt.nz/newspapers/OG19100916.2.20
Ohinemuri Gazette, Volume XXI, Issue 2693, 16 September 1910, Page 2
[96] https://paperspast.natlib.govt.nz/newspapers/NZH19100916.2.23
New Zealand Herald, Volume XLVII, Issue 14476, 16 September 1910, Page 5
[97] https://paperspast.natlib.govt.nz/newspapers/AS19100917.2.49
Auckland Star, Volume XLI, Issue 221, 17 September 1910, Page 8
[98] https://paperspast.natlib.govt.nz/newspapers/AS19100917.2.49
Auckland Star, Volume XLI, Issue 221, 17 September 1910, Page 8

Woodstock battery on fire. All of the top of the building has collapsed.
Through the smoke can be seen the tops of the stampers (not used since 1904).
Talisman power house chimney at extreme right of image.
Much of the masonry foundation wall beneath the building remains today.
Staples collection

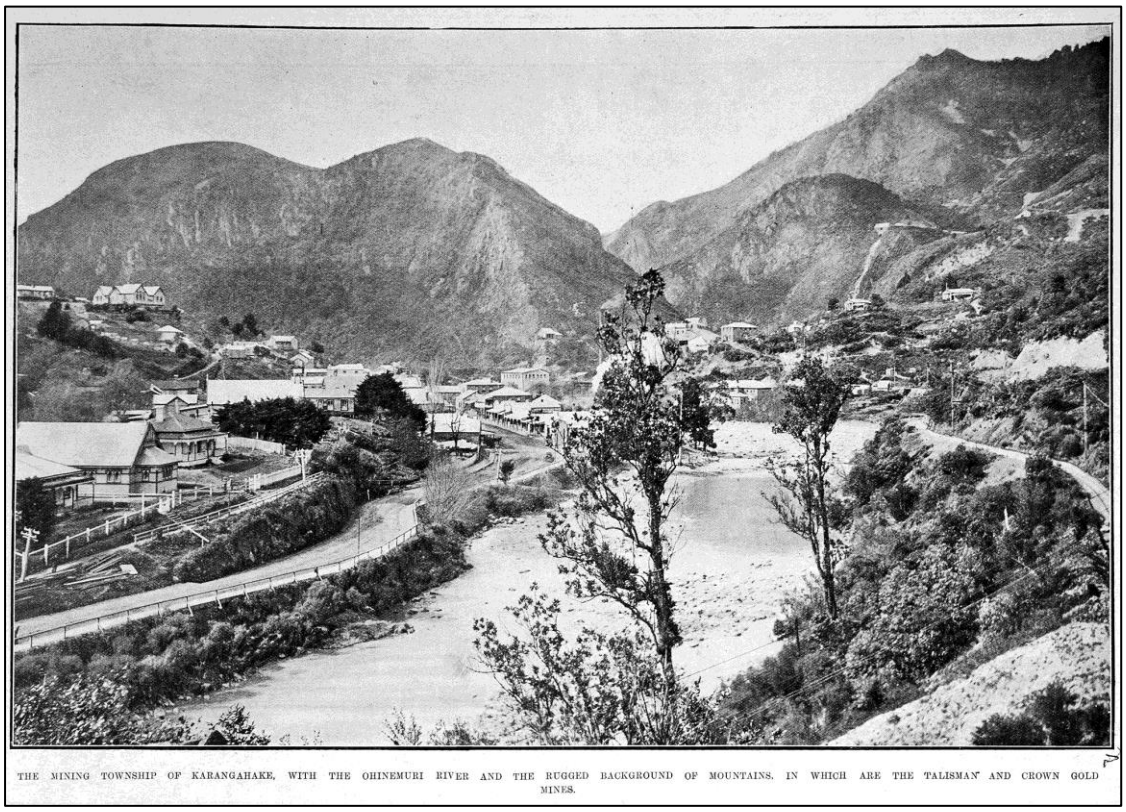
1911?

Transport of a heavy casting on the County Road. Ten? horses required. This may be part of the massive pump being installed underground at the No.5 Level Talisman mine (ex Woodstock) c. early 1911.

Of interest is that no Woodstock buildings can be seen. They have not been rebuilt yet. There is only one suspension bridge across the Ohinemuri, the original bridge having been removed preparatory to construction of the heavy truss bridge during late 1912.

Staples collection

1911



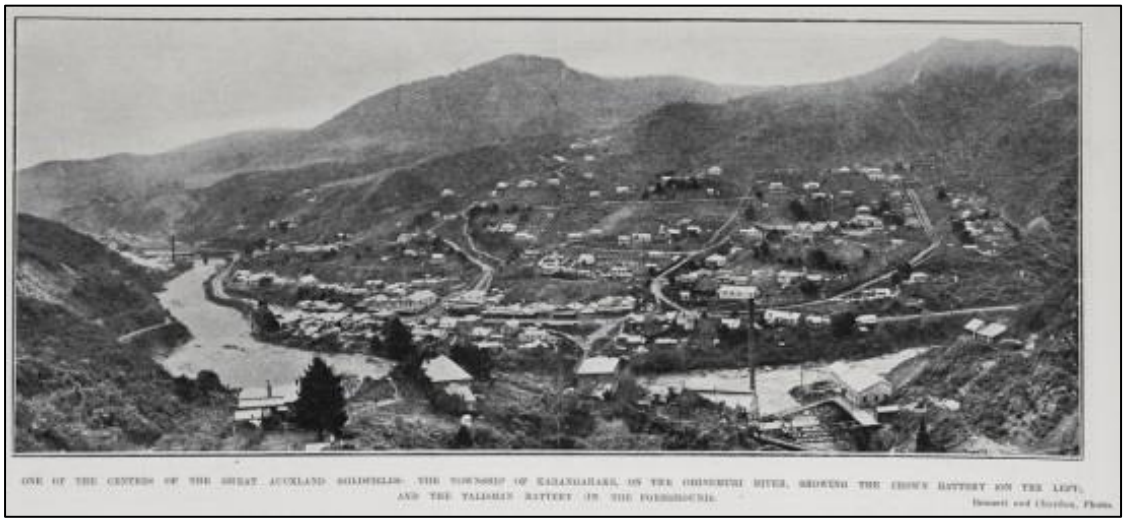
THE MINING TOWNSHIP OF KARANGAHAKE, WITH THE OHINEMURI RIVER AND THE RUGGED BACKGROUND OF MOUNTAINS, IN WHICH ARE THE TALISMAN AND CROWN GOLD MINES.

1911 09 28 Auckland Libraries Heritage Collections AWNS-19110928-03-01.

By September 1911 the main building housing the compressors has been rebuilt, but not the ancillary buildings we see in later photographs.

Auckland Weekly News.

1912

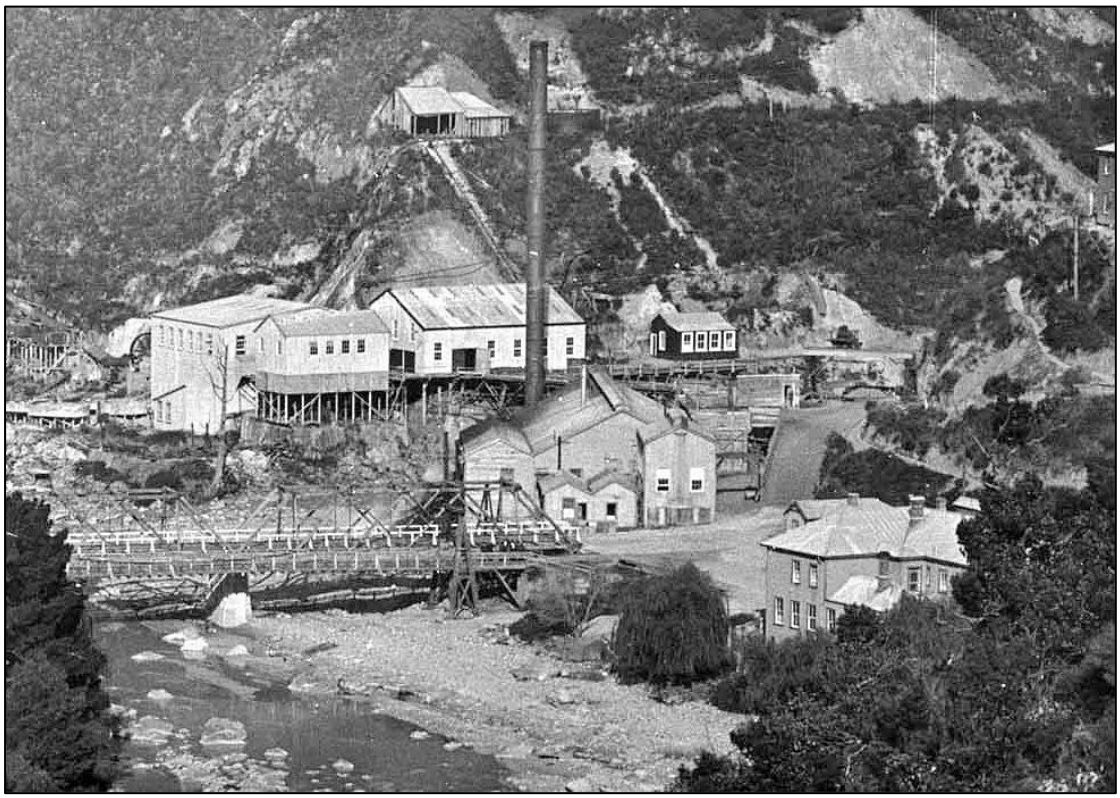


ONE OF THE CENTRES OF THE GREAT AUCKLAND GOLDFIELDS. THE TOWNSHIP OF KARANGAHAKE, ON THE OHINEMURI RIVER, SHOWING THE CROWN BATTERY ON THE LEFT, AND THE TALISMAN BATTERY IN THE FOREGROUND.

AWNS_19120801_p011_i001_b 1 August 1912 Aklib.

August 1912, Auckland Weekly News. The image shows the ancillary buildings have been completed.

1913



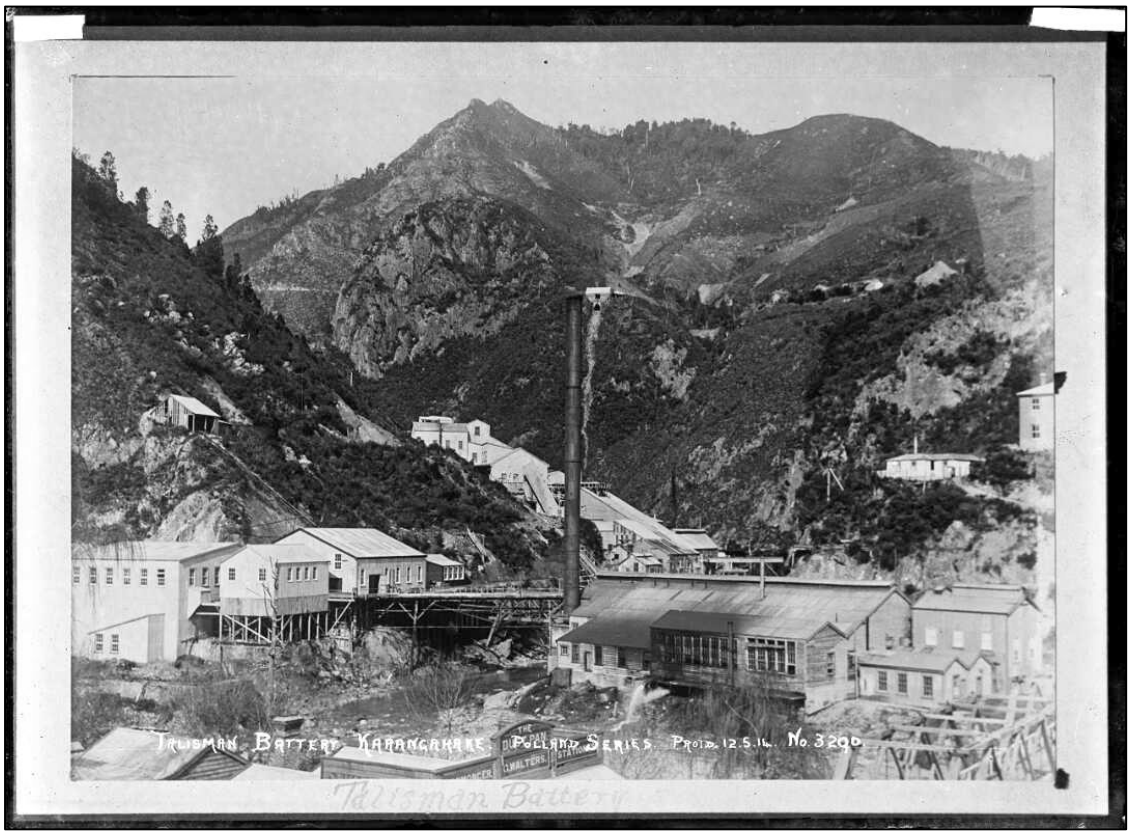
From a four image page, source lost.

The truss traffic bridge is complete, old suspension bridge remains, so 1913?

The compressor house at left, behind the still standing dead kauri tree, and two substantial buildings on piles. Storerooms?

A distinctive small building upstream of the larger buildings; office?

1914



Talisman Battery Karangahake. Polland Series No 3290, 12.5.14 ATL

May 1914

1915

Settlement of Karangahake ATL APG-1202-1-2-G. 1916. J Agnew

Photograph taken from Butler's track?

The hotel still there, so before Feb 1916. The two storey boarding house on the ridge above Scotchmen's Gully track has been demolished. Built 1897.

To the left of the Rotunda (built late 1908) are the charred remains of a fire. There were two fires reported in the press which may account for this; June 1914 and December 1915.[99] Fire bell to right of rotunda.

The compressor house and ancillary buildings clearly visible. Also the extensive platform and bridging suspended over the Waitawheta River.

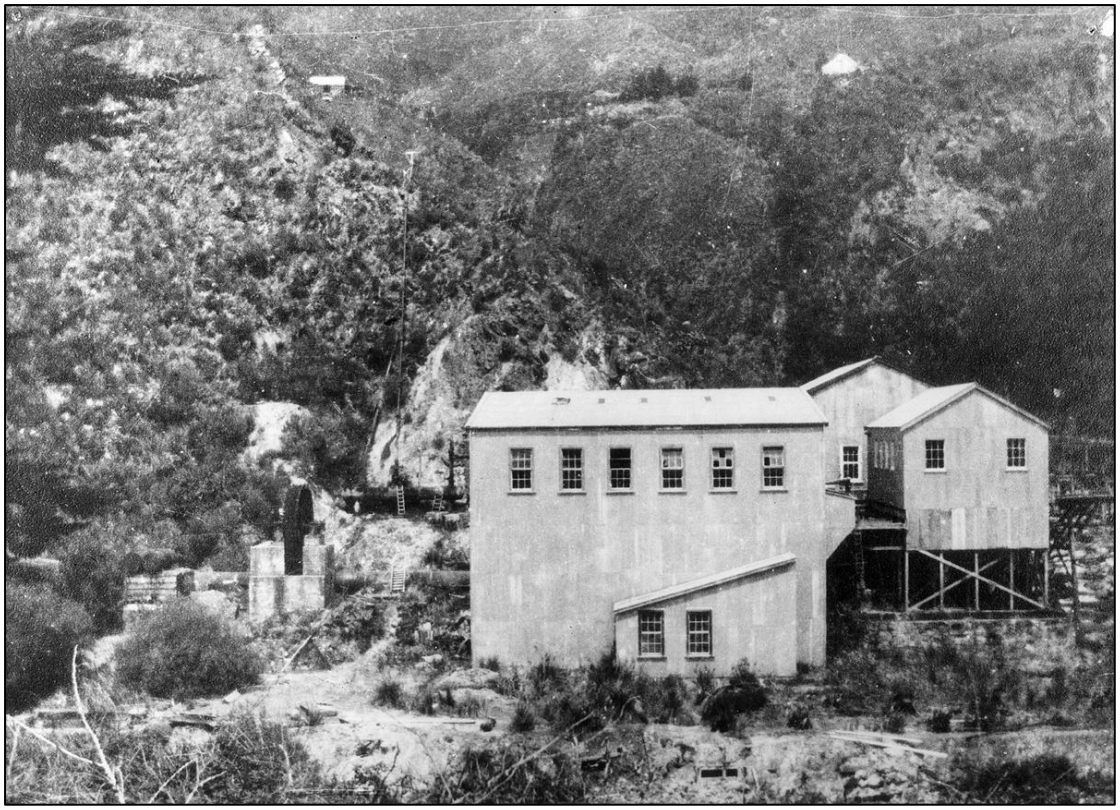
The smaller buildings are built on tall piles; the flood clearly remembered. The compressor building retains the configuration of the original building, possibly constrained by the machinery and their mounts. The small add-on with the sloping roof, on the river side of the main building, is where the pelton wheels are.

Of the many other features to be seen here, of note is the compressed air pipe scaling the cliff at the left hand end of the compressor building; some of it remains today; and the large fly wheel (or belt or rope wheel) from the old battery, now out in the open, unused. The massive mounts for this engine remain, with remnants of bearing support castings.

The two house-like buildings on Battery Flat to the right of the bridge are the Talisman general office and to the right again the office and behind it assay rooms.[100] The right hand building (office) is now a residence just off the highway, to the right, as we approach Paeroa on SH 2[101]. It is painted blue.

Date unknown. After closedown?

[99] https://paperspast.natlib.govt.nz/newspapers/OG19140617.2.16
Ohinemuri Gazette, Volume XXV, Issue 3255, 17 June 1914, Page 2
https://paperspast.natlib.govt.nz/newspapers/NZH19151204.2.45
New Zealand Herald, Volume LII, Issue 16092, 4 December 1915, Page 7
[100] Map in Jarman.
[101] Local folklaw.



Alexander Turnbull Library.

The massive foundations that support the large wheel to left of image remain. The wheel looks like a multi-rope wheel. Not visible behind the wheel are the distinctive mounts of a steam engine.

On the true right bank of the Waitawheta River, very close to the confluence, a bulldozed(?) roadway can be seen. This may be a remnant of access to the site for demolition/scavenging, by crossing the river from Battery Flat.