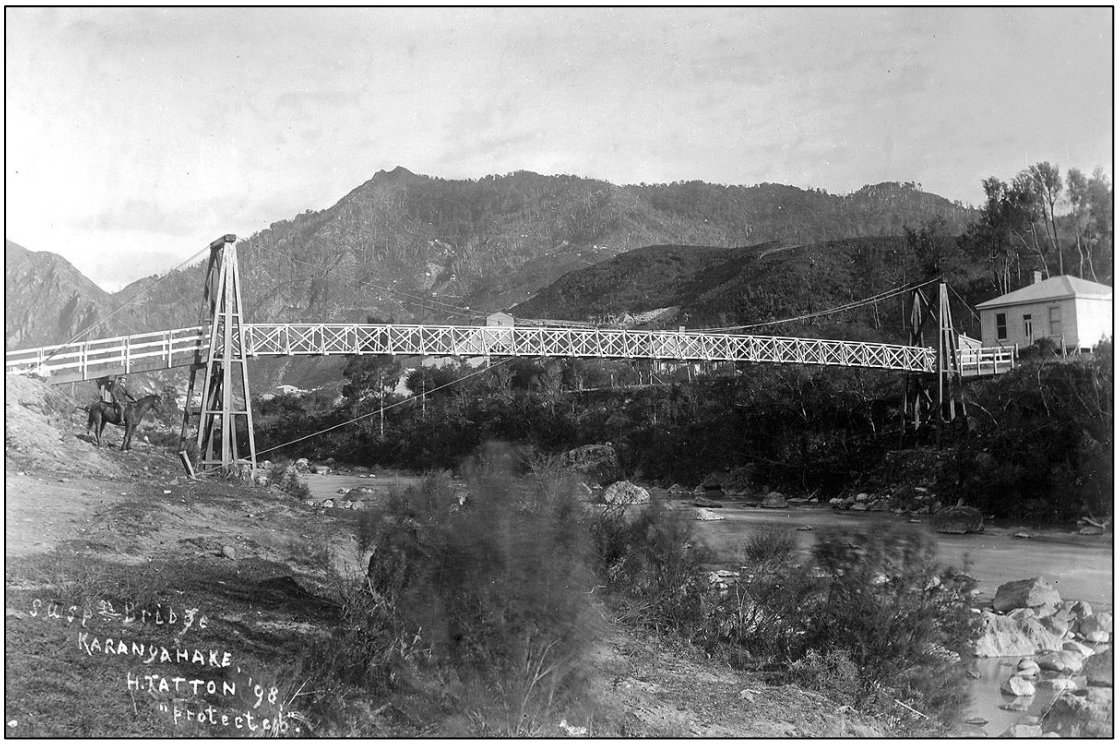
Bridges

Karangahake had many pedestrian bridges, but not until 1885, 10 years after the opening of the goldfield.

Other bridges provided for tramways, water races and vehicular traffic.

This document is a quick gallop over some of them.



Suspension Bridge Karangahake, H. Tatton 1898.

This is the bridge between Irishtown and River Road. Built late 1897, painted early 1898. [1]

Staples Collection.

[1] https://paperspast.natlib.govt.nz/newspapers/OG18980115.2.9

Ohinemuri Gazette, Volume VIII, Issue 459, 15 January 1898, Page 3

Eric Lens 2024

Bridges by approximate date	
1876	13 June. First fluming bridge over the Waitawheta River completed, for Karangahake battery. [2]
1884	10 May. Sir Walter Scott shoot, and tramway complete. A trestle bridge carrying their tramway now crosses the Waitawheta River beside the water race flume. [3] The Ivanhoe Company, on the Ohinemuri side of Taukani, also tram ore across this bridge. [4]
1885	First bridge across the Ohinemuri River to/from Battery Flat. June. Karangahake suspension bridge completed.[5] The bridge is for foot and horse traffic; no vehicles! Late in year the Woodstock furnace water race crosses the Waitawheta River. [6] [7]
1886	Railey's Battery swing bridge Railey's battery is operating towards the end of 1886. This bridge was constructed by the Monastery Gold-mining Company to transport their ore across the Waitawheta to the battery. This was completed by the end of the year. [8]
1890	Crown mine river level entrance bridge[9].
1892	Crown Company water race flume bridge across Waitawheta River. [10] [11] Crown battery workers' bridge. 22 October 1892. The gale of Wednesday and Thursday did a good deal of damage. Messrs Brown, of Karangahake, were the greatest sufferers, — the framework of the Crown G.M. Co.'s battery, for which they are the

[2] https://paperspast.natlib.govt.nz/newspapers/NZH18760613.2.17

New Zealand Herald, Volume XIII, Issue 4549, 13 June 1876, Page 2

[3] https://paperspast.natlib.govt.nz/newspapers/THA18840510.2.3

Thames Advertiser, Volume XV, Issue 4859, 10 May 1884, Page 2

[4] https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49

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

[5] https://paperspast.natlib.govt.nz/newspapers/THA18850604.2.10

Thames Advertiser, Volume XVI, Issue 5185, 4 June 1885, Page 3

[6] https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35

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

[7] https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48

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

[8] 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

[9] https://paperspast.natlib.govt.nz/newspapers/THS18900625.2.10.1

Thames Star, Volume XXII, Issue 6610, 25 June 1890, Page 2

[10] https://paperspast.natlib.govt.nz/newspapers/NZH18920812.2.7

New Zealand Herald, Volume XXIX, Issue 8955, 12 August 1892, Page 3

[11] https://paperspast.natlib.govt.nz/parliamentary/AJHR1893-I.2.1.4.5

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, 1893 Session I, C-03

	contractors, being blown down and their footbridge swept away. Damage £200.[12]
1894	Old Hauraki bridge upgraded by Woodstock Co. [13]
1895	Woodstock water race flume to furnace is removed. New bridge to water balance constructed. [14]
1896	Woodstock erect swing bridge over Ohinemuri to facilitate bringing machinery to the battery site. [15]
1897	River Road pedestrian suspension bridge. Built late 1897, painted early 1898. [16] 16 June. Talisman new 20 stamper underway, Howe Truss bridge connects to special site (vat house).[17]
1898	Second suspension bridge, known as the Traffic Bridge. It was more substantial than the original bridge, could accommodate wheeled traffic. It was built just downstream from the original which was left in place. 20 August. Officially opened [18]
1900	Woodstock. 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. [19]
1901	Air pipe line bridge crossing Waitawheta River. [At the Woodstock battery] 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

[12] https://paperspast.natlib.govt.nz/newspapers/OG18921022.2.12

Ohinemuri Gazette, Volume I, Issue 45, 22 October 1892, Page 6

[13] https://paperspast.natlib.govt.nz/newspapers/NZH18940630.2.5

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

[14] 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

[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/OG18980115.2.9

Ohinemuri Gazette, Volume VIII, Issue 459, 15 January 1898, Page 3

[17] https://paperspast.natlib.govt.nz/newspapers/THA18970617.2.33

Thames Advertiser, Volume XXIX, Issue 8763, 17 June 1897, Page 3

[18] https://paperspast.natlib.govt.nz/newspapers/OG18980820.2.15

Ohinemuri Gazette, Volume VIII, Issue 520, 20 August 1898, Page 3

[19] 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

	1,170 cubic feet free air per minute; and the other a Schram single-compressor cylinder 14 in. diameter, 24 in. stroke. [20] Railway tunnel temporary bridge. The temporary bridge over the Ohinemuri has been completed. This will admit of the spoil from the tunnel excavation being conveyed across the river and there utilised in the formation of the station-grounds, &c" [21]
1903	West portal rail bridge completed. [22]
1904	Eastern portal railway bridge. Completed end of 1904 or beginning 1905.
1906	Mackaytown to flag station pedestrian suspension bridge. Completed October 1906. [23] A large bridge to carry the new Crown Co. water race is erected, of the Platt type. [24]
1911	Dougherty's swing bridge (suspension bridge) is built early 1911? [25]
1913	Heavy truss bridge constructed connecting the township to Battery Flat. Completed January or February. [26]
1920	Doherty's (or Dougherty) Creek bridge. The concrete bridge that is being erected over Doherty's creek is almost completed, and will be available for traffic in a few days' time. This is a much needed bridge, and will be greatly appreciated by all and sundry.[27]
1959	Two suspension bridges for Paeroa municipal water supply pipe were installed. One pedestrian bridge also a little downstream from Dickey's Flat.
1985	New pedestrian bridge atop the rail/road bridge at Western portal. New suspension bridge over Waitawheta River, between Dubbo battery and Woodstock battery remains.
2020?	New suspension bridge at Karangahake Reserve installed by the

[20] 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

[21] https://paperspast.natlib.govt.nz/parliamentary/AJHR1900-I.2.2.2.1

PUBLIC WORKS STATEMENT BY THE HON. W. HALL-JONES, MINISTER FOR PUBLIC WORKS, 28th SEPTEMBER, 1900., Appendix to the Journals of the House of Representatives, 1900 Session I, D-01

[22] https://paperspast.natlib.govt.nz/newspapers/AS19031117.2.21

Auckland Star, Volume XXXIV, Issue 274, 17 November 1903, Page 3

[23] https://paperspast.natlib.govt.nz/newspapers/NZH19061005.2.77

New Zealand Herald, Volume XLIII, Issue 13300, 5 October 1906, Page 6

[24] https://paperspast.natlib.govt.nz/newspapers/NZH19060403.2.8

New Zealand Herald, Volume XLIII, Issue 13142, 3 April 1906, Page 3

[25] https://paperspast.natlib.govt.nz/newspapers/AS19101222.2.55

Auckland Star, Volume XLI, Issue 303, 22 December 1910, Page 7

[26] https://paperspast.natlib.govt.nz/newspapers/OG19130113.2.8

Ohinemuri Gazette, Volume XXIV, Issue 3038, 13 January 1913, Page 2

[27] https://paperspast.natlib.govt.nz/newspapers/THS19200707.2.5

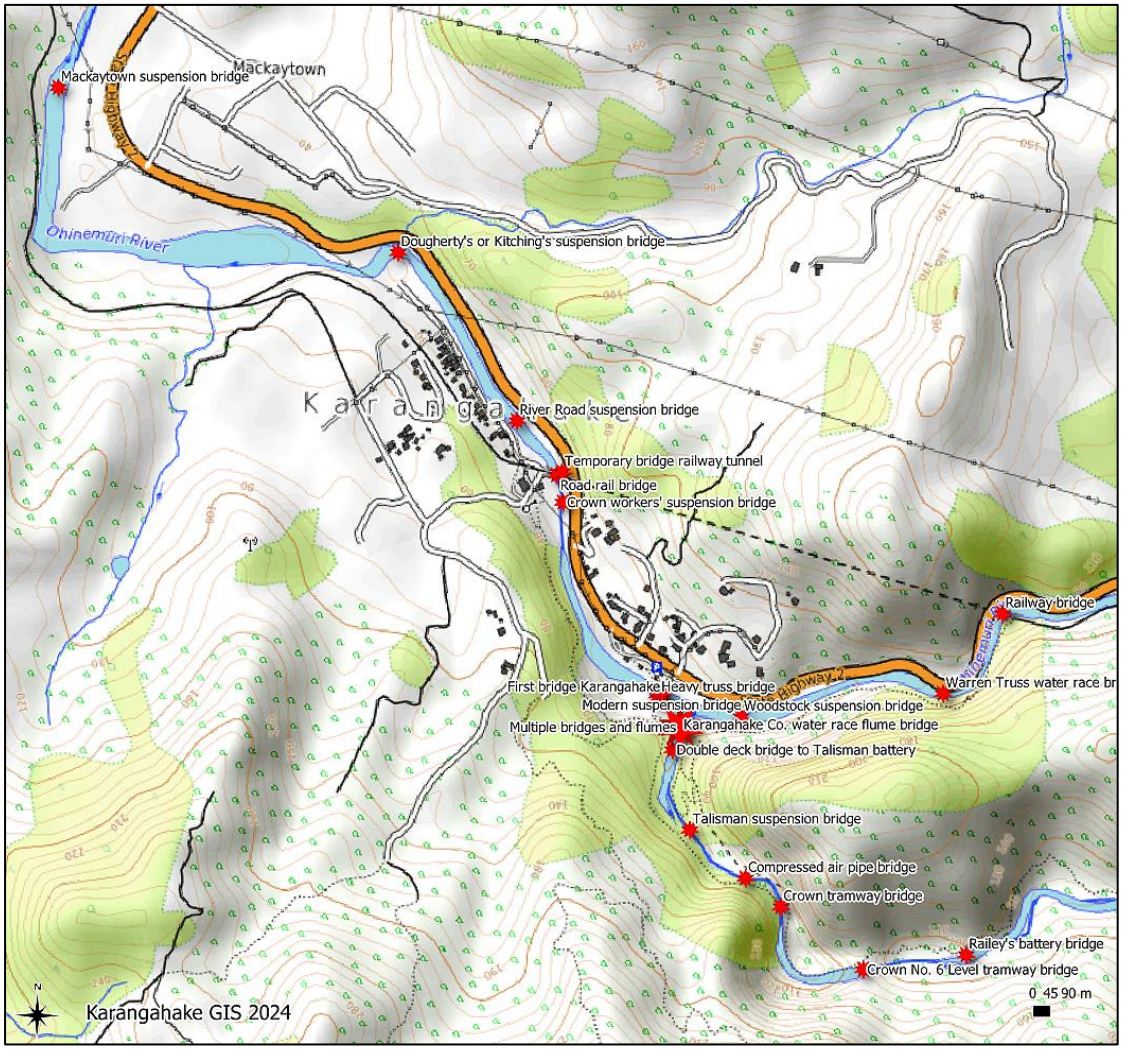
Thames Star, Volume LIII, Issue 14269, 7 July 1920, Page 1

	Department of Conservation.
2021	Replacement suspension bridge for Crown tramway walkway installed by the Department of Conservation. Replacement suspension bridge below Dickey's Flat.

Contents

Bridges

Map GIS

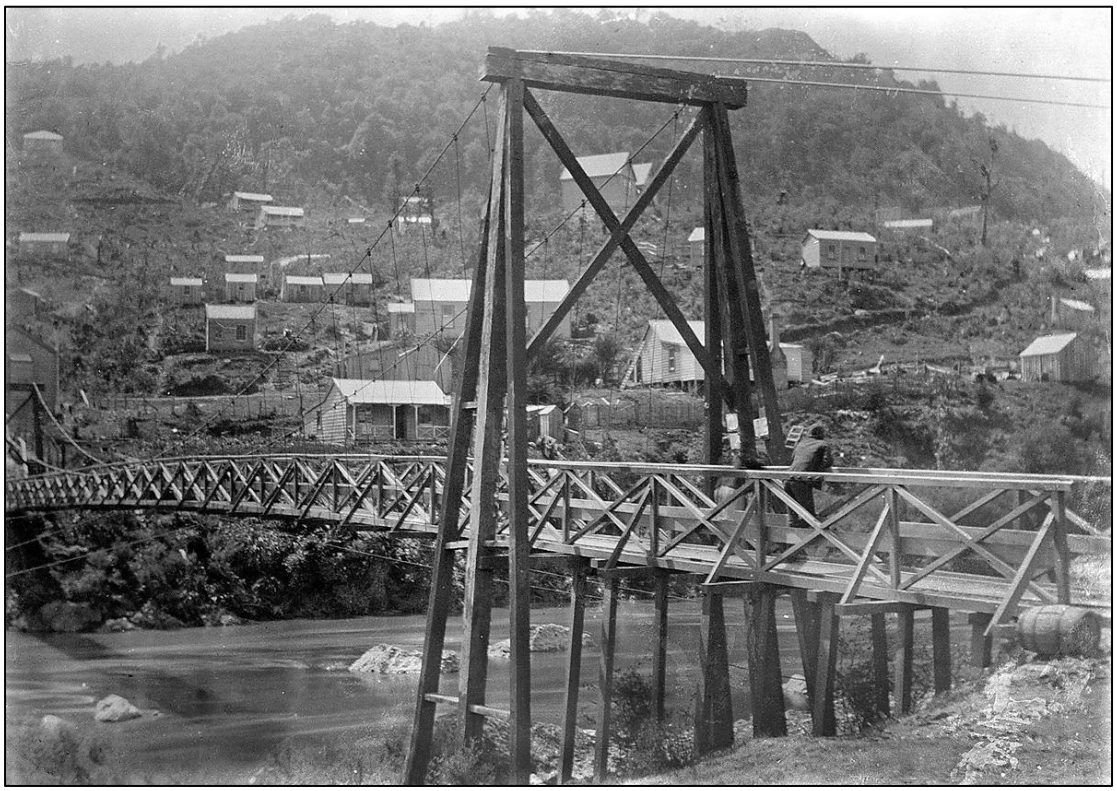


The bridges of Karangahake. Most of the modern bridges have been omitted.

1885

First bridge across the Ohinemuri River to/from Battery Flat.

June. Karangahake suspension bridge completed.[28] The bridge is for foot and horse traffic; no vehicles!



Staples collection. Date not determined.

Rails are installed on the deck.

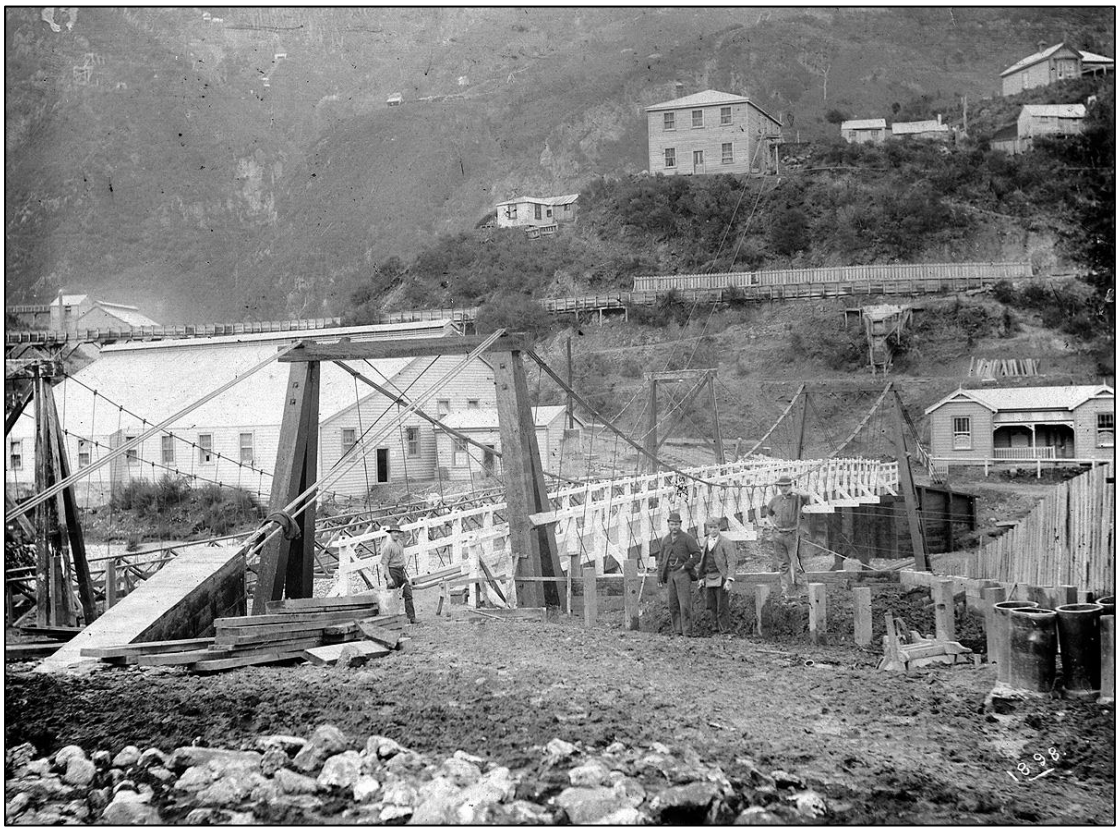
[28] https://paperspast.natlib.govt.nz/newspapers/THA18850604.2.10

Thames Advertiser, Volume XVI, Issue 5185, 4 June 1885, Page 3

1898

Second suspension bridge to Battery Flat, known as the Traffic Bridge.

It was more substantial than the original bridge, could accommodate wheeled traffic. It was built just downstream from the original which was left in place.



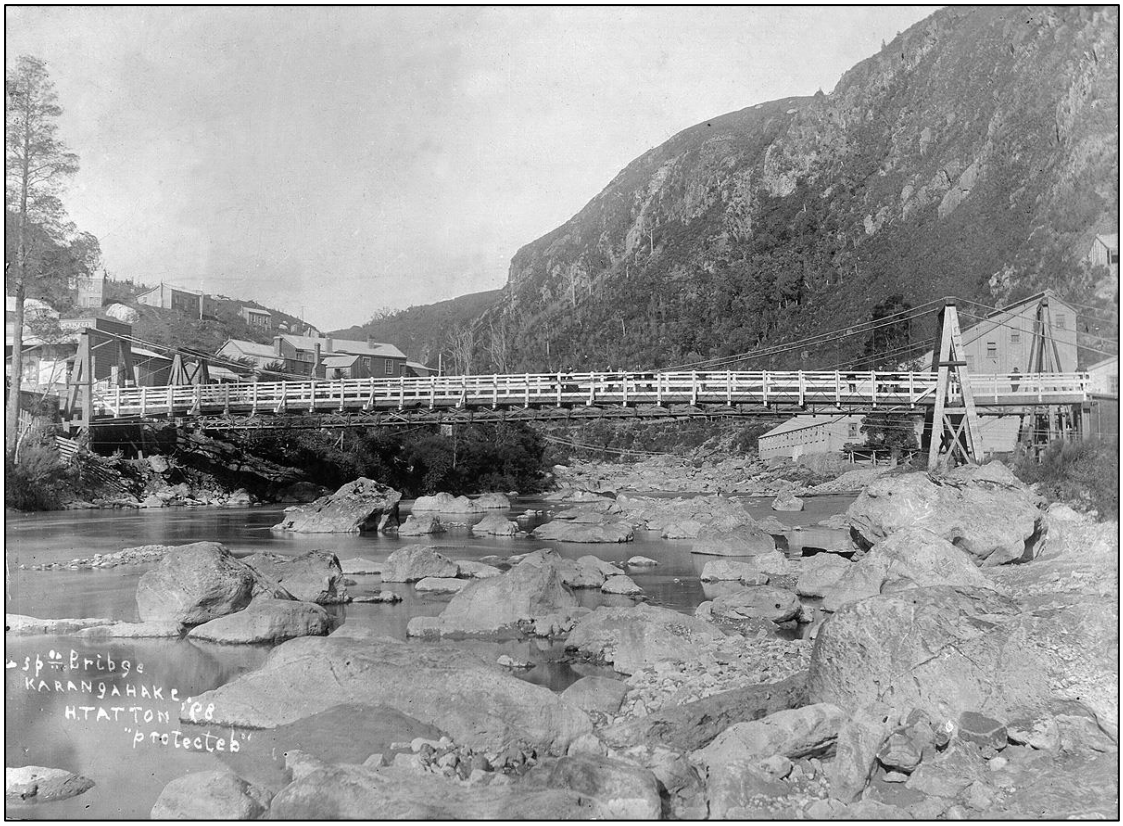
Karangahake Suspension (Traffic) Bridge under construction, 1898 (June?). Paeroa Historical Society, Staples Collection. Martin Coulson contractor on right (hardhat). Photographer unknown (MM White?). Photograph taken from the position of the present visitor shelter.

This more substantial bridge has been built a little downstream from the first bridge (1885). The substantial concrete footing for the opposite pylon is visible in the river today (below the new suspension bridge). Three cables each side.

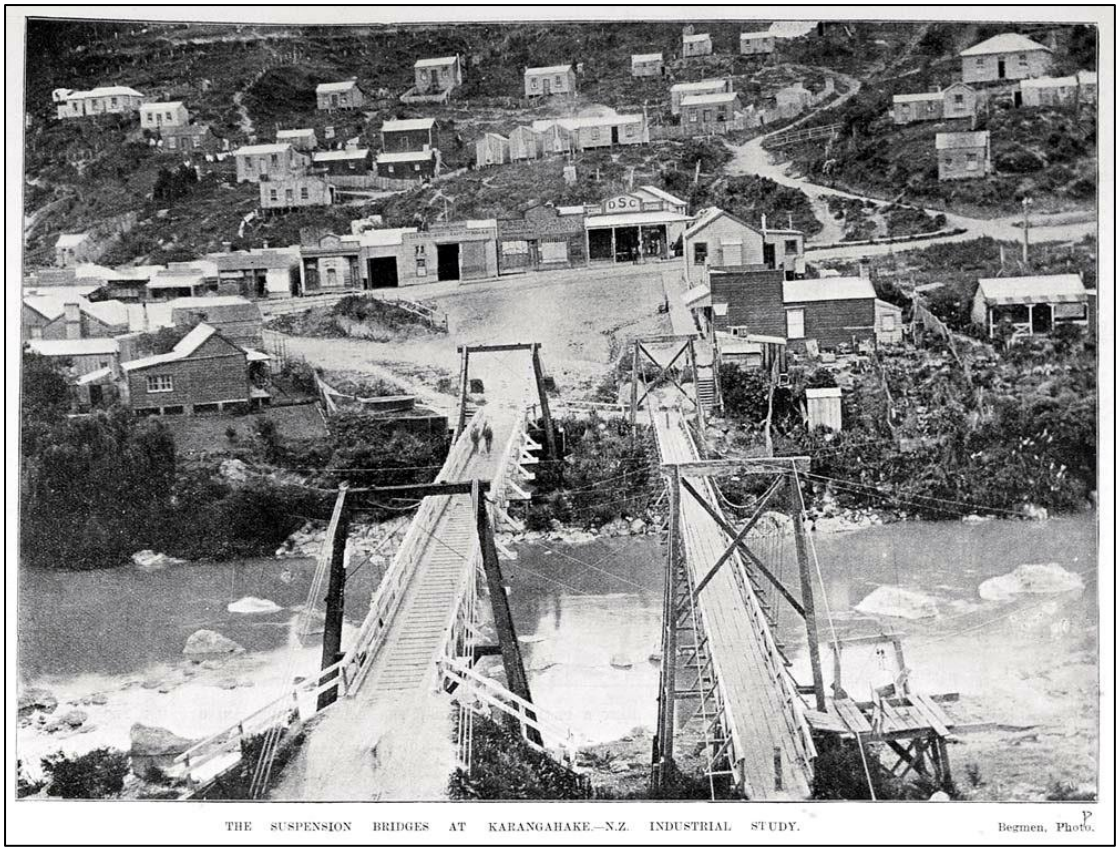
Seen through the bridge is the recently constructed Talisman Vat House, behind that, the top of the battery. The building middle right hand edge of image is the Talisman General Office building. Above this is an ore hopper on Scotchman's Gully road, allowing ore to be loaded on to the now Crown tramway. Above this again is the Crown water race flume, with a paling fence on the up-hill side to prevent debris entering it.

Top left of the image are blurry glimpses of ore hoppers/cableways, and the Talisman incline?

It appears that the two storey building (a boarding house?) has its own cableway for the transport of supplies.



Suspension Bridge, Karangahake. H. Tatton 1898.
Seven people on the bridge.



Karangahake 1910 bridges AWNS 3.5.1910. Begmen photo.

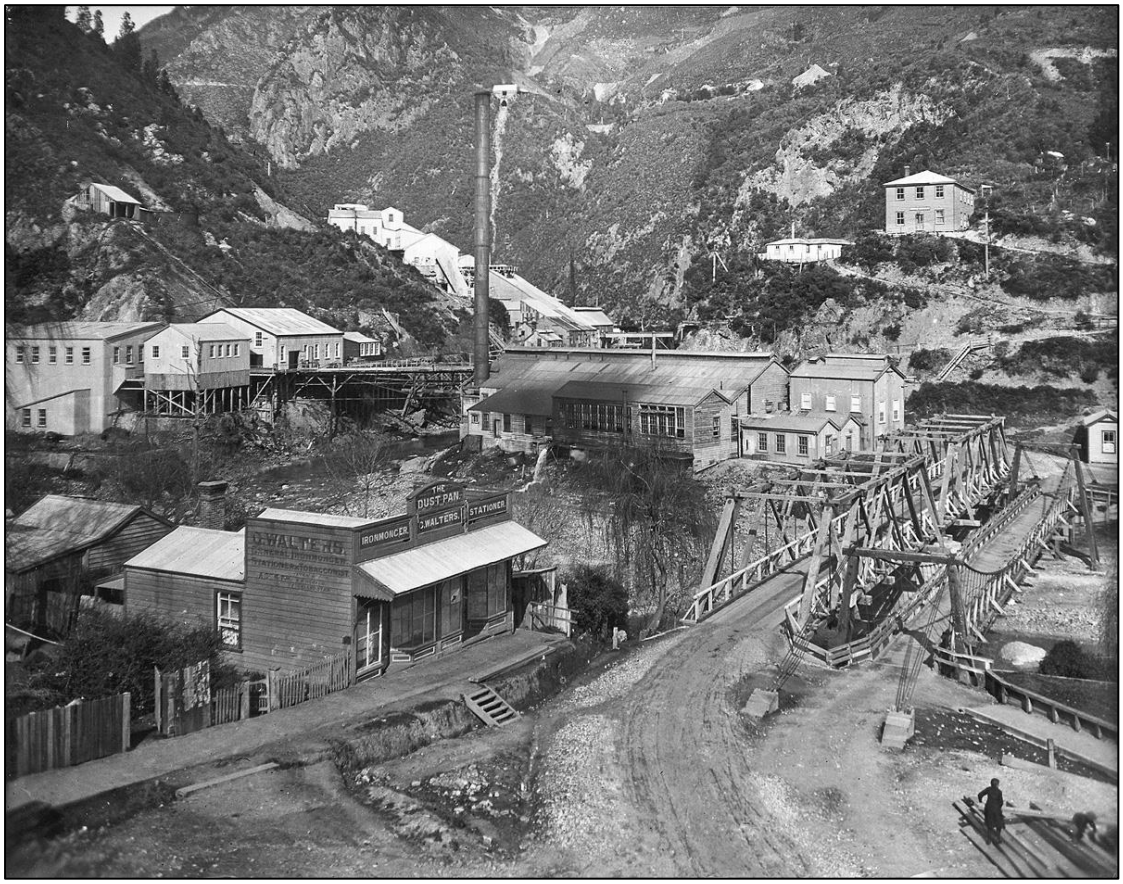
The first bridge, the right hand or upstream bridge, is replaced by a heavy truss bridge in early 1913.

1912

Heavy truss bridge constructed connecting the township to Battery Flat.

Built where the first suspension bridge was. Completed January or February 1913. [29]

The first bridge is removed before construction of the new truss bridge, but the second bridge is left as a foot bridge for some months.



New truss bridge, with concrete centre pier, completed early 1913. It is not clear how long the second suspension bridge remained beside the new truss bridge; months, a year? There was talk of removing it to the Waitekauri Stream on the Waihi-Waitekauri Road.[30] But never happened?

This image is one half of a stereo pair. George Chappell took many stereo photographs at Karangahake. This popular image is rich with detail, taken from the bell tower?

The Dust Pan, for last minute supplies on your way to work.

[29] https://paperspast.natlib.govt.nz/newspapers/OG19130113.2.8

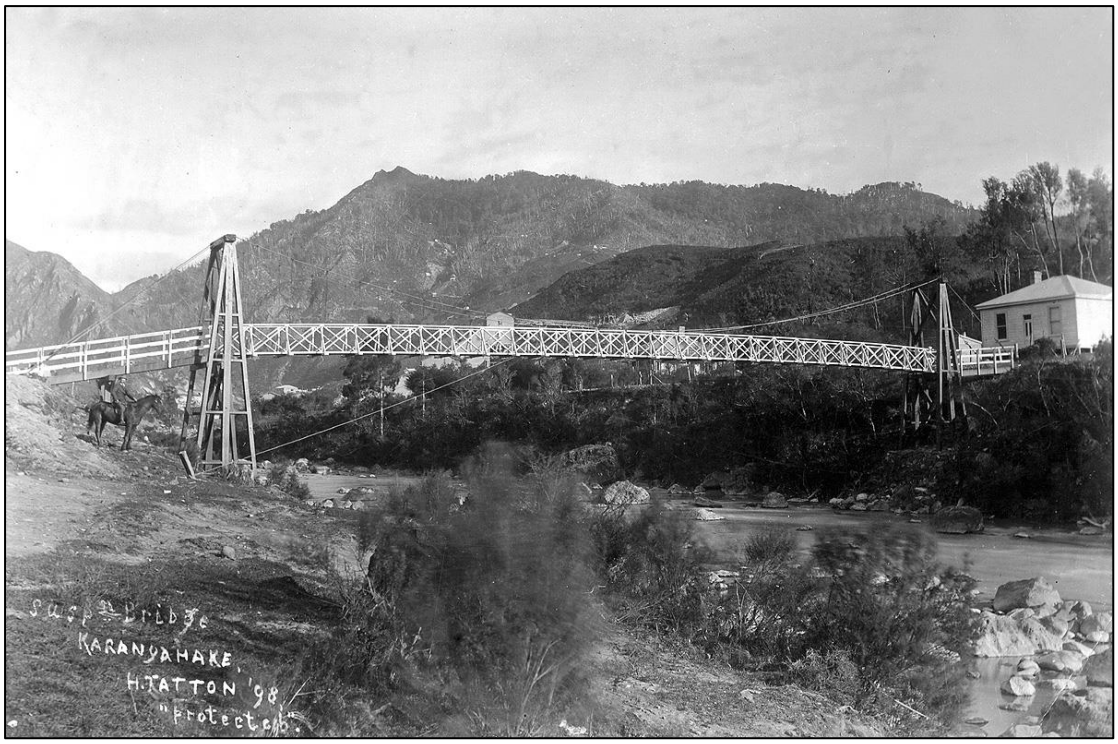
Ohinemuri Gazette, Volume XXIV, Issue 3038, 13 January 1913, Page 2

[30] https://paperspast.natlib.govt.nz/newspapers/OG19120202.2.15

Ohinemuri Gazette, Volume XXIII, Issue 2899, 2 February 1912, Page 2

1897

River Road pedestrian suspension bridge.



Suspension Bridge Karangahake, H. Tatton 1898.
This is the bridge between Irishtown and River Road. Built late 1897, painted early 1898. [31]
Staples Collection.

Swing Bridge Karangahake 4317. Copyright Wilson(s). Staples collection.

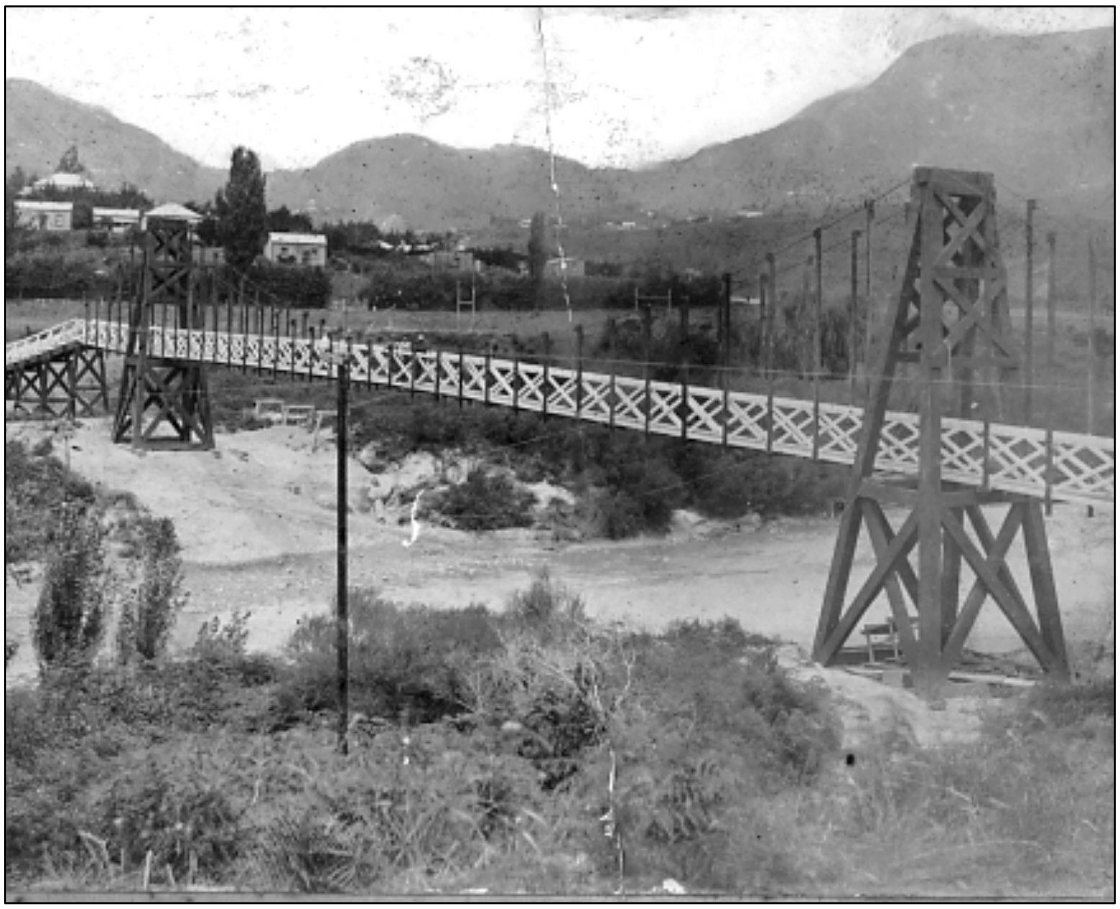
[31] https://paperspast.natlib.govt.nz/newspapers/OG18980115.2.9
Ohinemuri Gazette, Volume VIII, Issue 459, 15 January 1898, Page 3

1906

Mackaytown to flag station pedestrian suspension bridge.

Completed October 1906. [32]

> 5 October The bridge across the Ohinemuri River at Mackaytown, to give access to the flag station, is now completed.[33]



Mackaytown bridge ORHJ 50 p 34.

The pedestrian suspension bridge at Mackaytown was erected in 1906 to give access to the "flag station" on the Paeroa-Waihi railway line. In February, 1944, the Ohinemuri County Council was informed that the Public Works Department had no further use for the bridge and the council decided to demolish the structure.[34]

Notice the tailings on the river banks.

Maybe the concrete footings are still there?

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[32] https://paperspast.natlib.govt.nz/newspapers/NZH19061005.2.77

New Zealand Herald, Volume XLIII, Issue 13300, 5 October 1906, Page 6

[33] https://paperspast.natlib.govt.nz/newspapers/NZH19061005.2.77

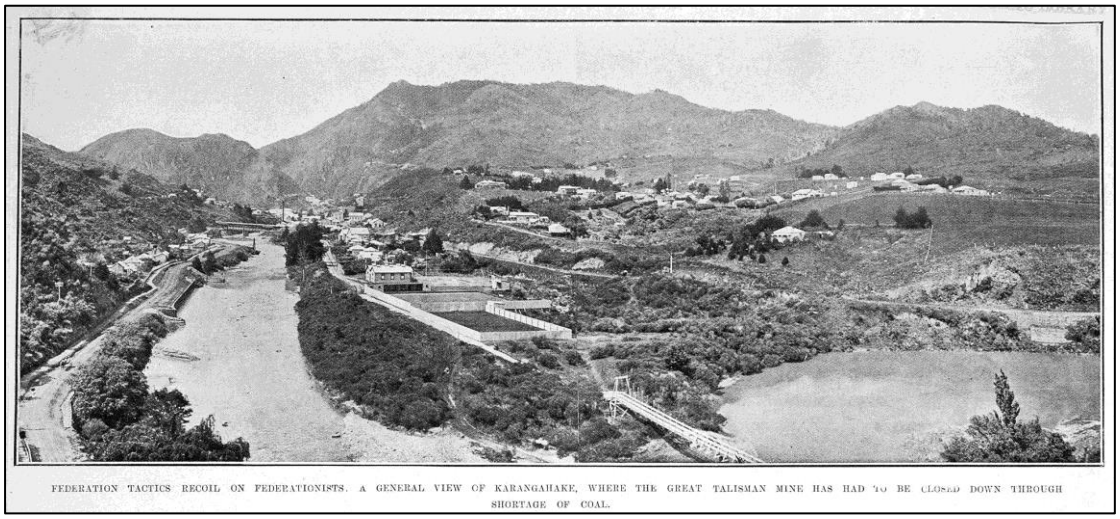
New Zealand Herald, Volume XLIII, Issue 13300, 5 October 1906, Page 6

[34] ORHJ No. 50, page 34

1911

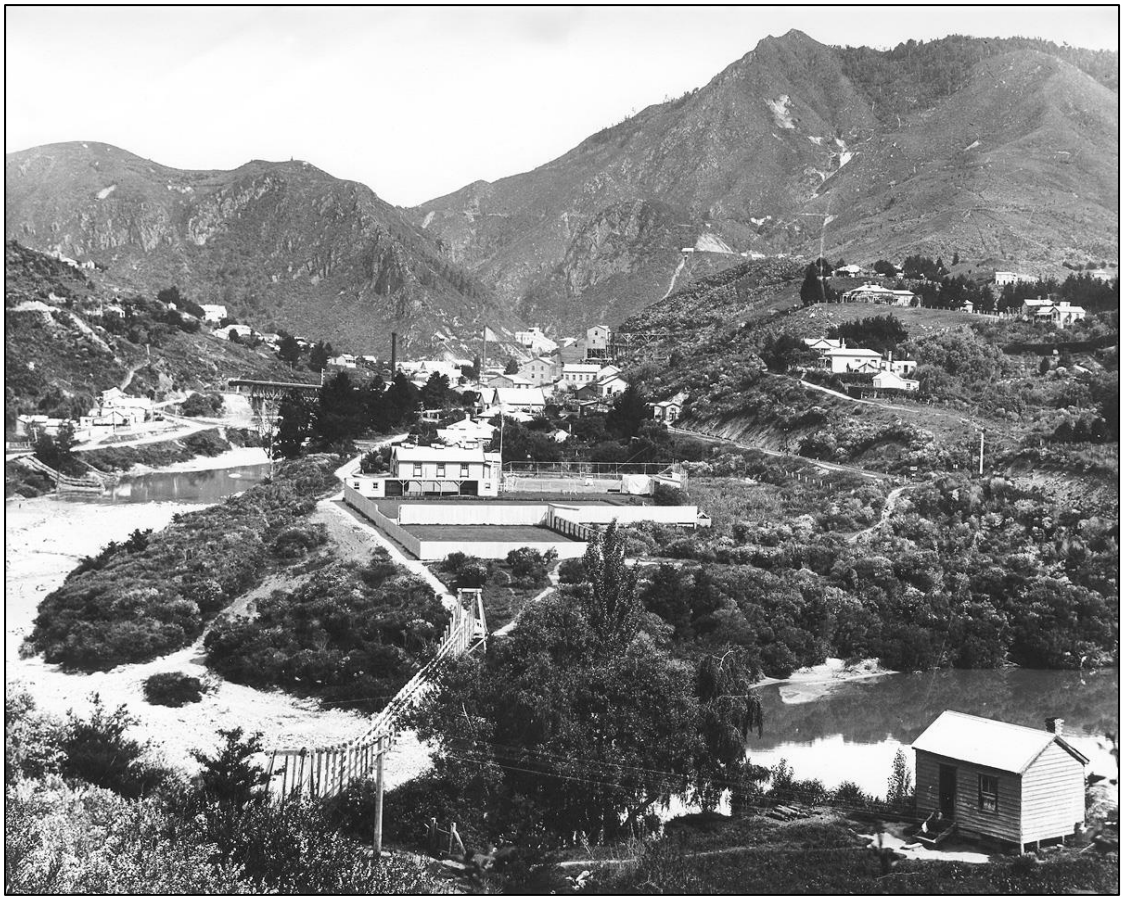
Dougherty's or Kitching's swing bridge (suspension bridge)

Built early 1911? [35]



Dougherty's suspension bridge installed early 1911. Croquet lawns established 1912.
Auckland Weekly News photograph published 24 October 1912.
Auckland Libraries Heritage Collections AWNS-19121024-01-01.

[35] https://paperspast.natlib.govt.nz/newspapers/AS19101222.2.55
Auckland Star, Volume XLI, Issue 303, 22 December 1910, Page 7



Same photograph as Karangahake from Kitching's Hill, 12.5.1914 Alexander Turnbull Library. Kitching was the fellow who asked for the bridge to be built.

Note that the droppers are made of timber, rather than wire rope. Is that for economy? When painted it certainly looks fetching.

George Chappell photo. Audrey Young/Alan Beck.

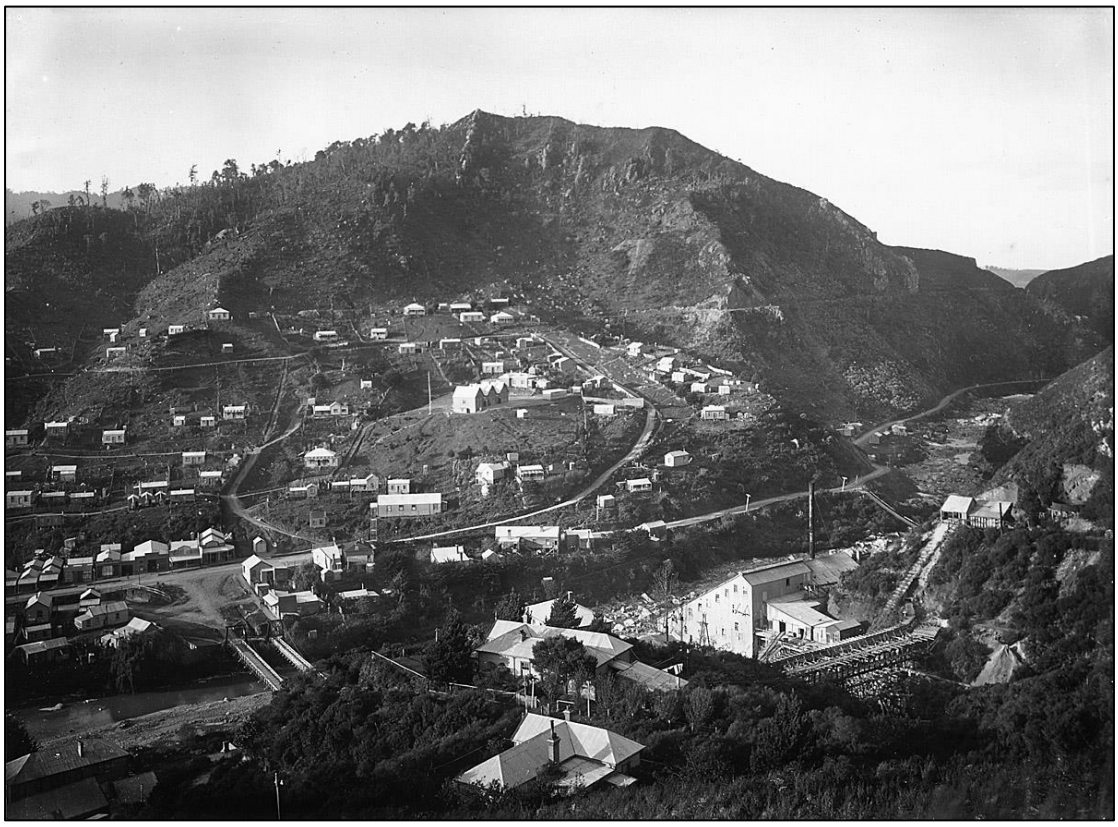
1896

Woodstock suspension bridge over Ohinemuri

14 March

> Paeroa, Friday. Woodstock… and good headway is also being made by the contractors with the erection of the suspension bridge over the Ohinemuri River connecting the county road with the mill site. This bridge, when completed, will expedite the conveyance of machinery for the construction of the battery.[36]

This bridge may actually be a swing bridge.



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

The bridge across the Ohinemuri, used to bring material to the battery during construction can be seen to the right of the Woodstock battery. It appears to be a swing bridge rather than a suspension bridge.

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

Note 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.

[36] https://paperspast.natlib.govt.nz/newspapers/NZH18960314.2.32

New Zealand Herald, Volume XXXIII, Issue 10079, 14 March 1896, Page 5

MA_I086006_TePapa_Karangahake-Gold-Fields

New Zealand Scenery Series 1901. A.K. Zimmerman.

A stereo photograph. Three men sit on the Crown (?) water race, with the swing bridge in the background.

A swing bridge makes use of the slung cables that cross the stream (or chasm) to support the bridge decking. A suspension bridge suspends the bridge decking from droppers from the cables. Thus the bridge deck surface can be level, or even bowed up.

1900

Woodstock's Warren Truss water race bridge.

Warren Truss bridge to carry the Woodstock's new water race pipe across the Ohinemuri River.

> AJHR. Woodstock. 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. [37]

18 January 1901

> At the Woodstock mine the work of extending the main pipe-line between the new dam and the mill is being actively carried on...[38]

TYPICAL NEW ZEALAND GOLDMINING COUNTRY: THE KARANGAHAKE GORGE.

Auckland Weekly News 1901. Looking upstream from the true left bank of the Ohinemuri. The pipeline takes water from the new dam a little upstream from the later to be constructed Eastern Portal rail bridge. At the right of the image is the Crown Company water race flume, taken from a dam just upstream out of the image.

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[37] 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

[38] https://paperspast.natlib.govt.nz/newspapers/NZH19010118.2.74.3

New Zealand Herald, Volume XXXVIII, Issue 11554, 18 January 1901, Page 1 (Supplement)

This Woodstock water race becomes the property of the Talisman Company in 1904.

Some mounts and bolts of the truss bridge remain today, on the loop walkway.

1891

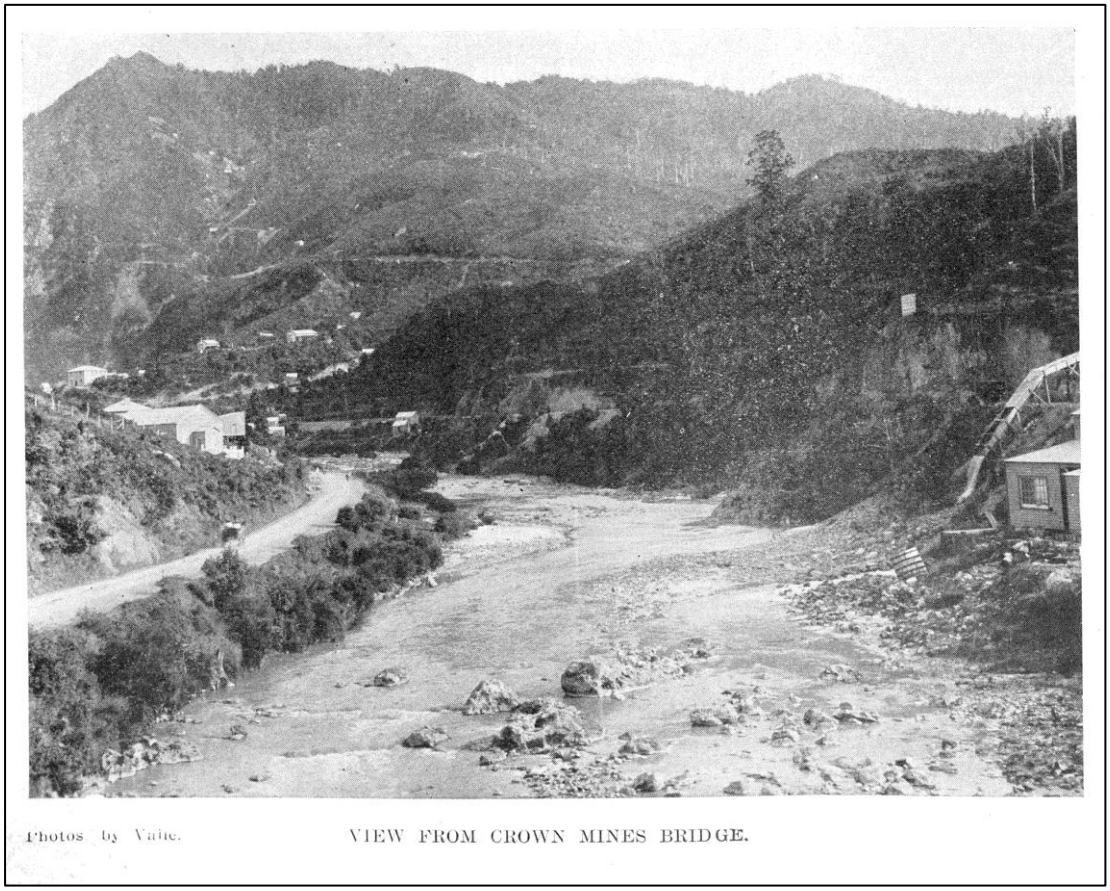
Crown battery workers' bridge

22 October 1892

> The gale of Wednesday and Thursday did a good deal of damage. Messrs Brown, of Karangahake, were the greatest sufferers, — the framework of the Crown G.M. Co.'s battery, for which they are the contractors, being blown down and their footbridge swept away. Damage £200.[39]

The workers have (well, had) a foot bridge across the Ohinemuri to the new battery site. Building commenced mid 1891, so bridge built then?

No photograph of this bridge has been found; the image below appears to have been taken <u>from</u> this bridge in March 1892. This bridge would have been roughly where the rail bridge was constructed much later.



1902 03 22 Auckland Libraries Heritage Collections NZG-1902 03 22-0552-02 SG Vaile

[39] https://paperspast.natlib.govt.nz/newspapers/OG18921022.2.12

Ohinemuri Gazette, Volume I, Issue 45, 22 October 1892, Page 6

1892

Crown tramway wooden bridge over Waitawheta River

Staples collection. Date of this image not known. George Chappell?

Looking downstream.

It is unclear just when this bridge was built; late 1892?

Evidence of the bridge is still to be seen here, with cut-outs in the rock for the timbers. This bridge was replaced by a suspension bridge when the Paeroa municipal water supply pipe was installed (c. 1959), and again May 2021 by the Department of Conservation.

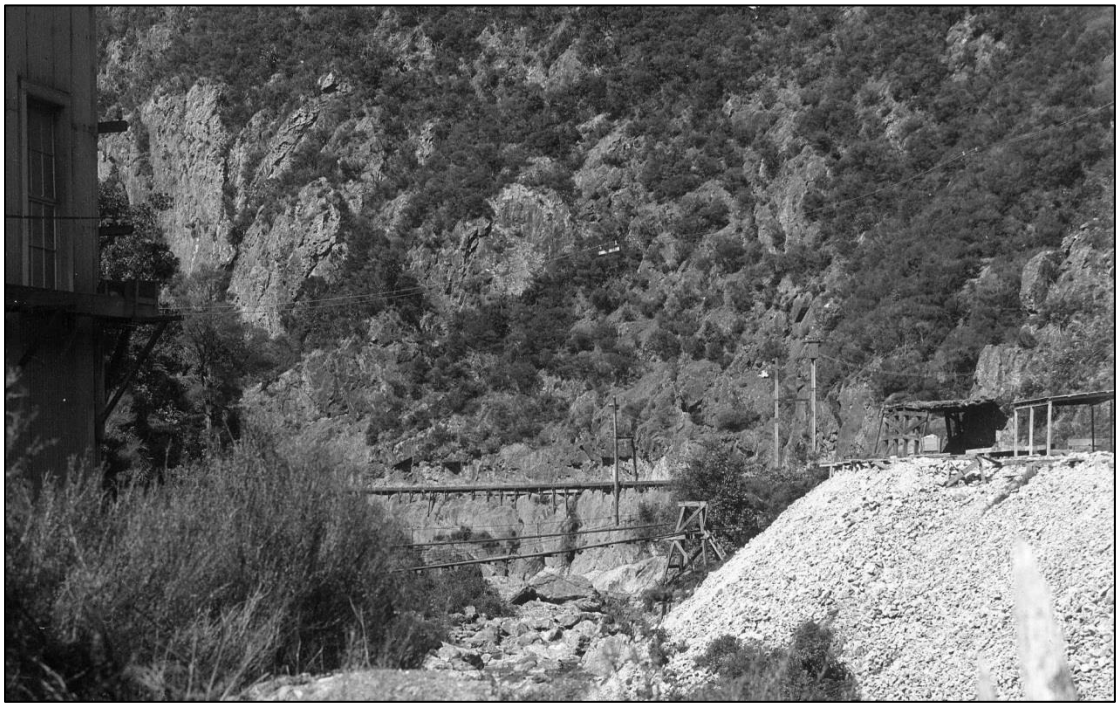
This bridge was replaced c.1958 by a suspension bridge to accommodate the Paeroa municipal water supply pipeline, continuing as the walkway bridge, until this was also replaced in 2021 by DoC.

George Chappell photograph. Looking downstream.

The wood between the rails to allows for the horses that transported the ore carts to the battery. The large pipe at right took water discharged from the large pelton wheel at the mine entrance to the battery where it was able to do more work.

The compressed air pipe is mounted on the cliff above the tramway. It comes from the Talisman/Woodstock compressors, via the “Windows” level tramway, and crosses the river on the wooden bridge spanning the gorge (in the distance). The pipe goes to the No. 5 level mine entrance, to the left of the photograph.

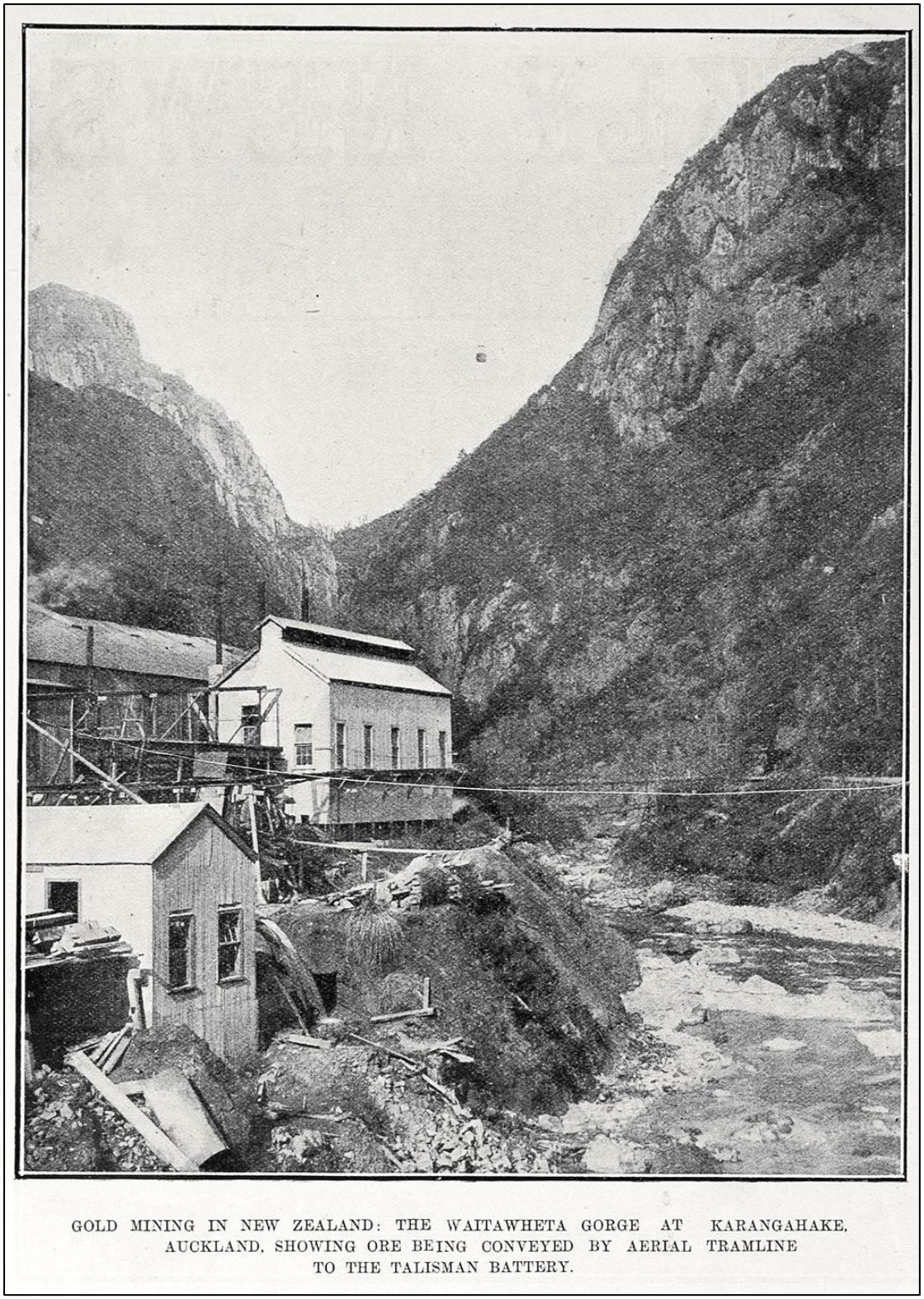
Suspension bridge at Talisman battery



Talisman Gold Mining Battery, Waitawheta Gorge, Karangahake Nat Lib. George Chappell.

We are looking upstream on the Waitawheta River, corner of the Talisman battery at left, Crown tramway with pipe on right and background. A suspension bridge crosses the river. Pipes and other cables cross also.

Date and purpose unclear.



GOLD MINING IN NEW ZEALAND: THE WAITAWHETA GORGE AT KARANGAHAKE, AUCKLAND, SHOWING ORE BEING CONVEYED BY AERIAL TRAMLINE TO THE TALISMAN BATTERY.

AWNS_19090826_p002_i001_b 26 AUGUST 1909 Auckland Library.

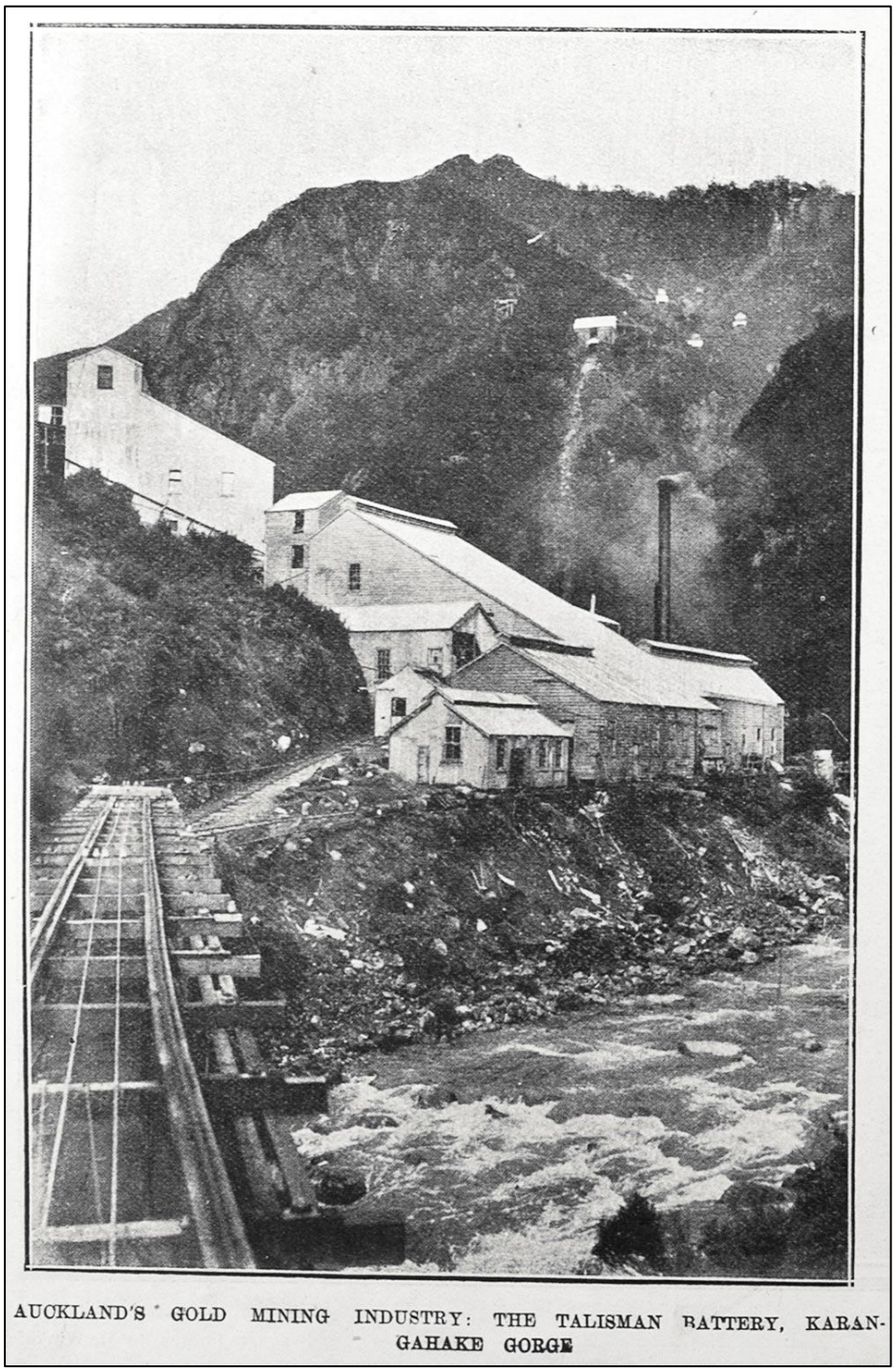
AWN 1909. Although hard to make out, this image also shows the bridge.

Double decker Howe Truss at Talisman battery

1897

16 June. Talisman new 20 stamper underway, Howe Truss bridge connects to special site (vat house).[40]

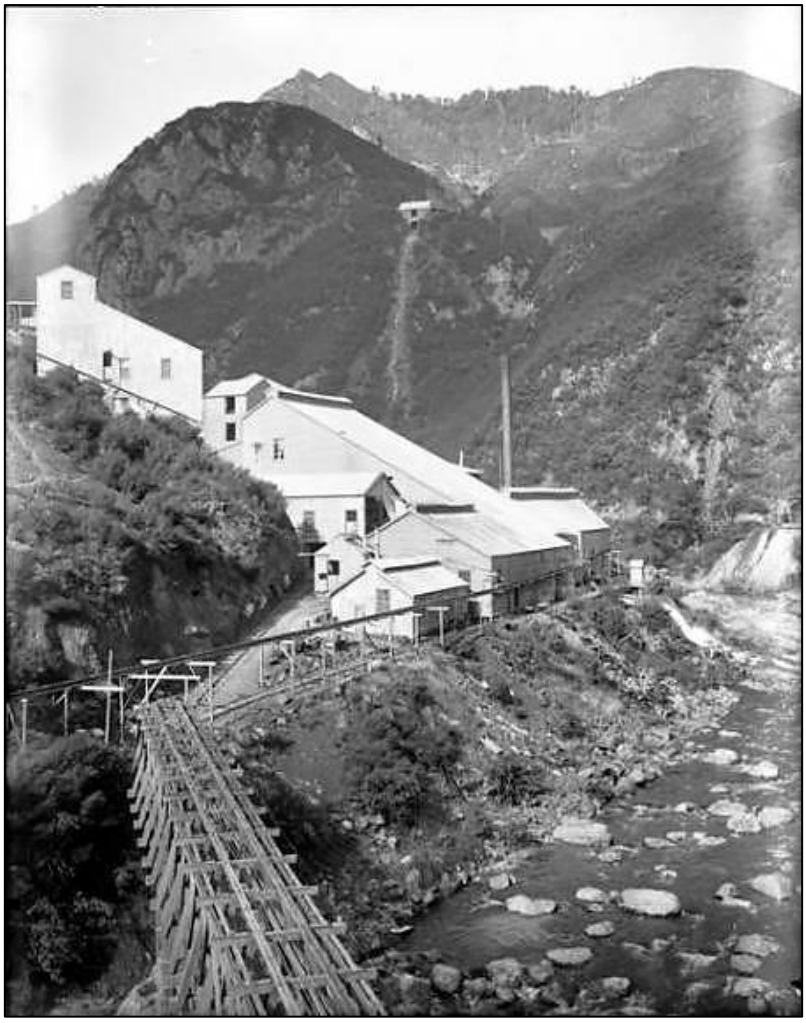
This is a double-decker bridge, installed at an angle across the Waitawheta River. The concrete mounts remain.



AUCKLAND'S GOLD MINING INDUSTRY: THE TALISMAN BATTERY, KARANGAHAKE GORGE

AWNS_19040707_p010_i004_b 07 JULY 1904 Auckland Library.

[40] https://paperspast.natlib.govt.nz/newspapers/THA18970617.2.33
Thames Advertiser, Volume XXIX, Issue 8763, 17 June 1897, Page 3

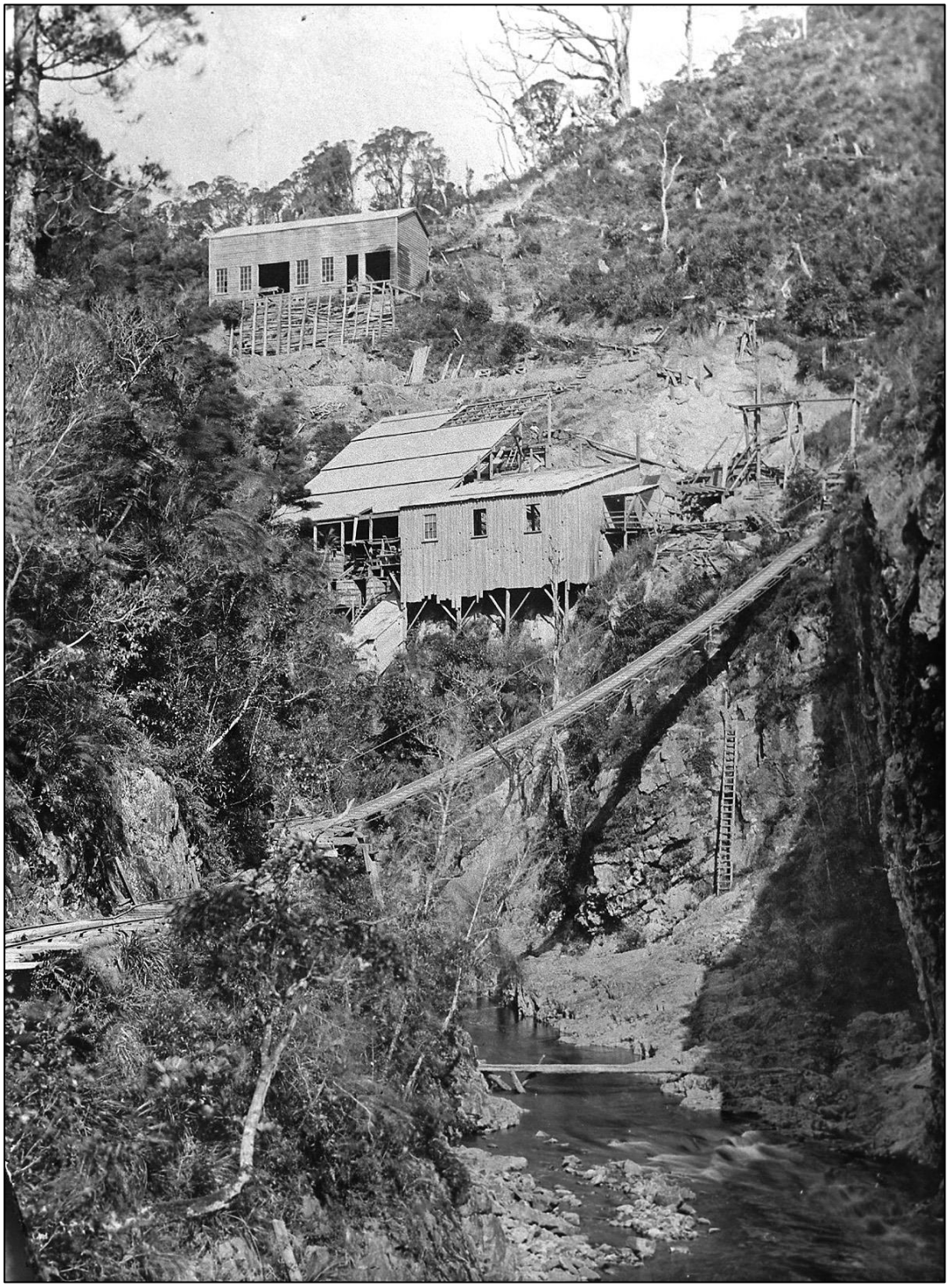


Karangahake 1907-9 Talisman Bty 62286-572295 H Winkelmann Auckland Museum

1896

Railey's Battery swing bridge

Railey's battery is operating towards the end of 1886. This bridge was constructed by the Monastery Gold-mining Company to transport their ore across the Waitawheta to the battery. This was completed by the end of the year. [41]



[41] 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

Earliest photograph, May 1889. Staples collection.

This image shows the construction of the Crown battery, and the Cassel plant further up the hill, replacing Railey's building/s. Date: May 1889[42].

There is no hand rail on the bridge, a luxury that was added later. Workmen, not prepared to risk a fall from the bridge, cross the river on a low log bridge, and scale the cliff by ladder. The wire used to haul ore across the river can be seen. This wire, or one of the bridge wires, is present today.

Compressor and swing bridge. Staples collection. The compressor was completed March 1894. [43]

[42] https://paperspast.natlib.govt.nz/newspapers/TAN18890511.2.12

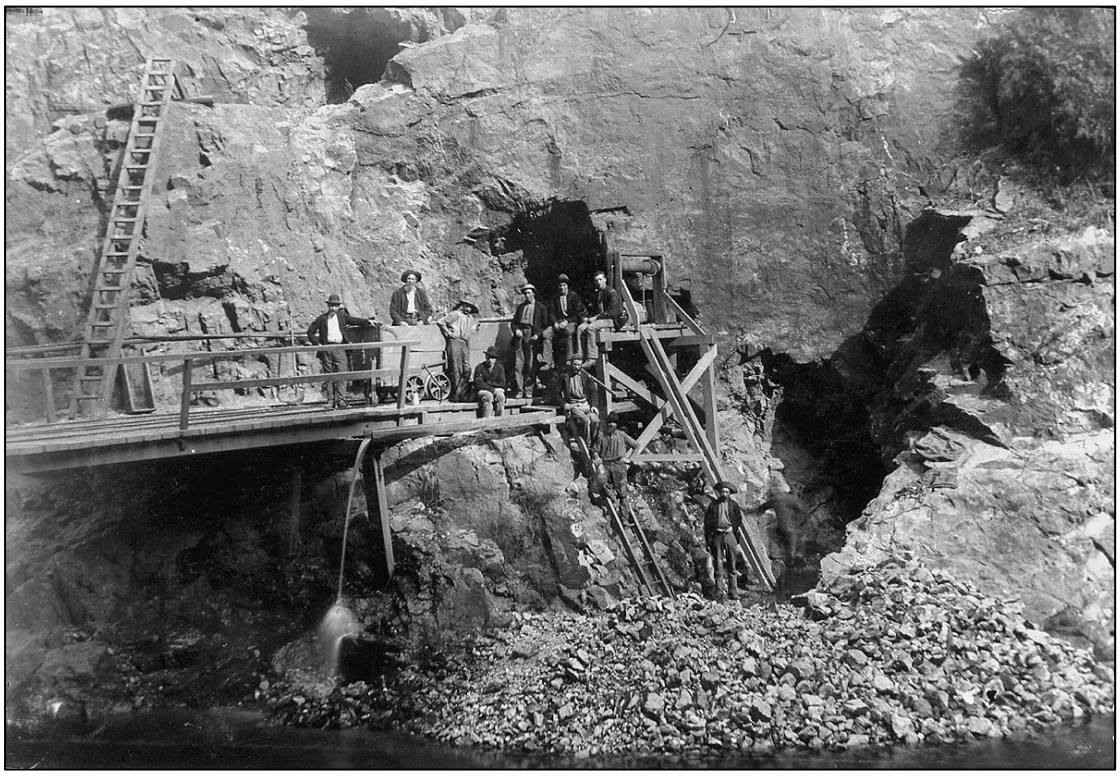
Te Aroha News, Volume VI, Issue 367, 11 May 1889, Page 2

1890

Crown mine river level entrance

May. Crown: A start has been made connect the new find with the reduction works. This will be done by means of a ground tramway of about 20 chains, utilising the old Monastry line (which property the Crown Company have recently purchased). The ore will then be sent on to the stone-breaker floor by means of a hoist similar to that now being used for hoisting the ground ore to the Cassel Company's works.[44]

25 June. In the Crown mine (Karangahake) Mr McGruer has finished a connection between the new Waitawheta reef and the mill.[45]



Margaret Matilda White (B3573) photograph, c.1893.

This photograph appears to be the earliest we have of the Crown River Level. It must post-date the work on this new reef, ie after 1890. 11 men can be seen.

The photographer is Margaret Matilda White (B3573), and was probably taken after access was provided by the Waitawheta Road (tramway) up the Waitawheta completed in mid 1892. Access before this time was difficult. It appears that a pipe enters the mine at handrail height on the bridge. This could be compressed air from the compressor building which replaced the Crown battery (early 1894), or maybe even from the battery during its operation. Compressed air was required to run the rock drills. If after 1897-8, a conspicuous compressed air pipe would be present top left of image.

The windlass device at centre appears to haul a bucket up the steep wooden rails from the low level (allowing ore to be then tipped into an ore truck?). It is not seen complete in subsequent photographs.

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[43] https://paperspast.natlib.govt.nz/newspapers/NZH18940323.2.70.13

New Zealand Herald, Volume XXXI, Issue 9466, 23 March 1894, Page 2 (Supplement)

[44] https://paperspast.natlib.govt.nz/newspapers/TAN18900503.2.11

Te Aroha News, Volume VII, Issue 468, 3 May 1890, Page 2

[45] https://paperspast.natlib.govt.nz/newspapers/THS18900625.2.10.1

Thames Star, Volume XXII, Issue 6610, 25 June 1890, Page 2

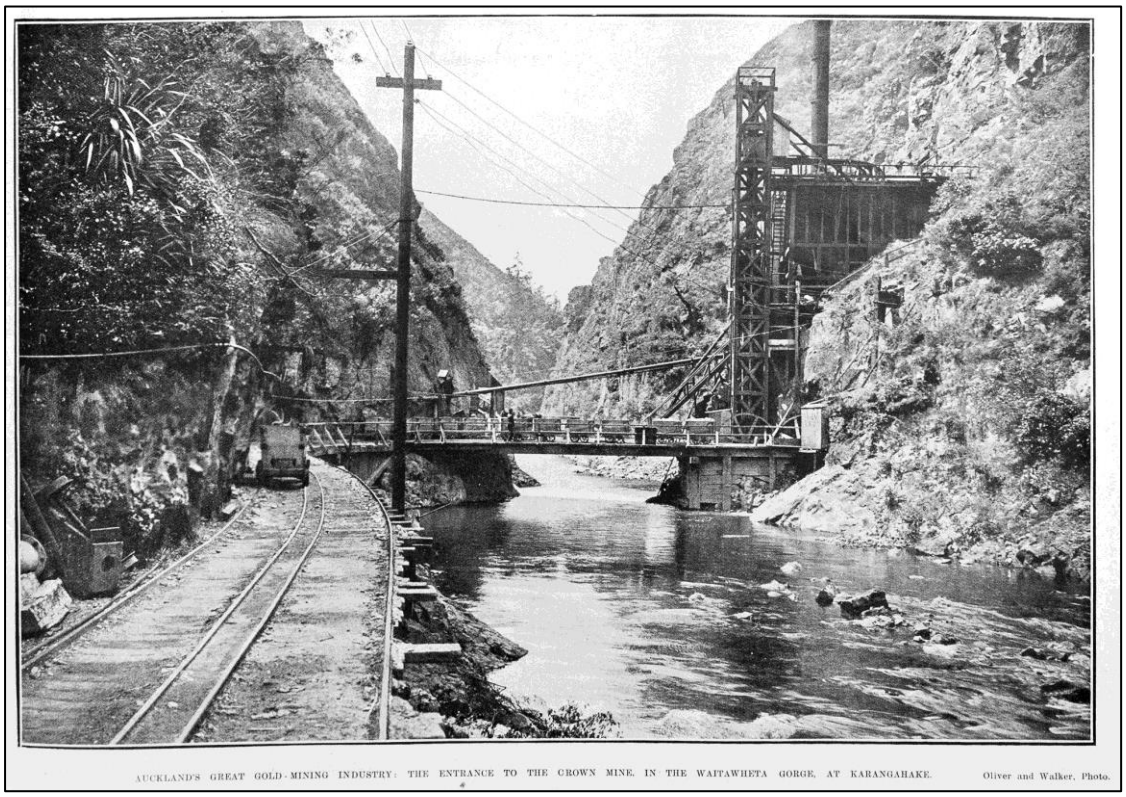
There appear to be three entrances here; No. 5, No. 6, and the level 18ft below? The ladder gives access to the No. 5? Level. This ladder lingers in many subsequent photographs.

It seems certain White made a visit to Karangahake no later than August 1894. She photographed the Cox/Woodstock battery before the new ten stamp mill was built. It is quite possible she travelled up to this mine, and to the compressor house.

We can stand where Margaret stood.

Staples Collection.[46]

This bridge is greatly modified over time, and repeatedly photographed.



1909 11 04 Auckland Libraries Heritage Collections AWNS-1909 11 04-11-02 Oliver and Walker.

Auckland's Great Gold-mining Industry: The Entrance To The Crown Mine In The Waitawheta Gorge, At Karangahake.

[46] Also Auckland Museum 27527-773708

1901

Compressed air pipeline crossing of Waitawheta

In 1901 the Woodstock battery installs air compressors to facilitate mining via the No. 5 level mine entrance. Compressed air is conveyed by a long pipe, along the "windows" tramway bench. The 8in compressed-air pipe line 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". It continues around the cliff to the mine entrance.

> [At the Woodstock battery] 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. [47]

The Talisman Company takes over the Woodstock in 1904, and add compressors in their powerhouse. That air is added in to this pipe.

[47] 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

Staples collection. Date undetermined.

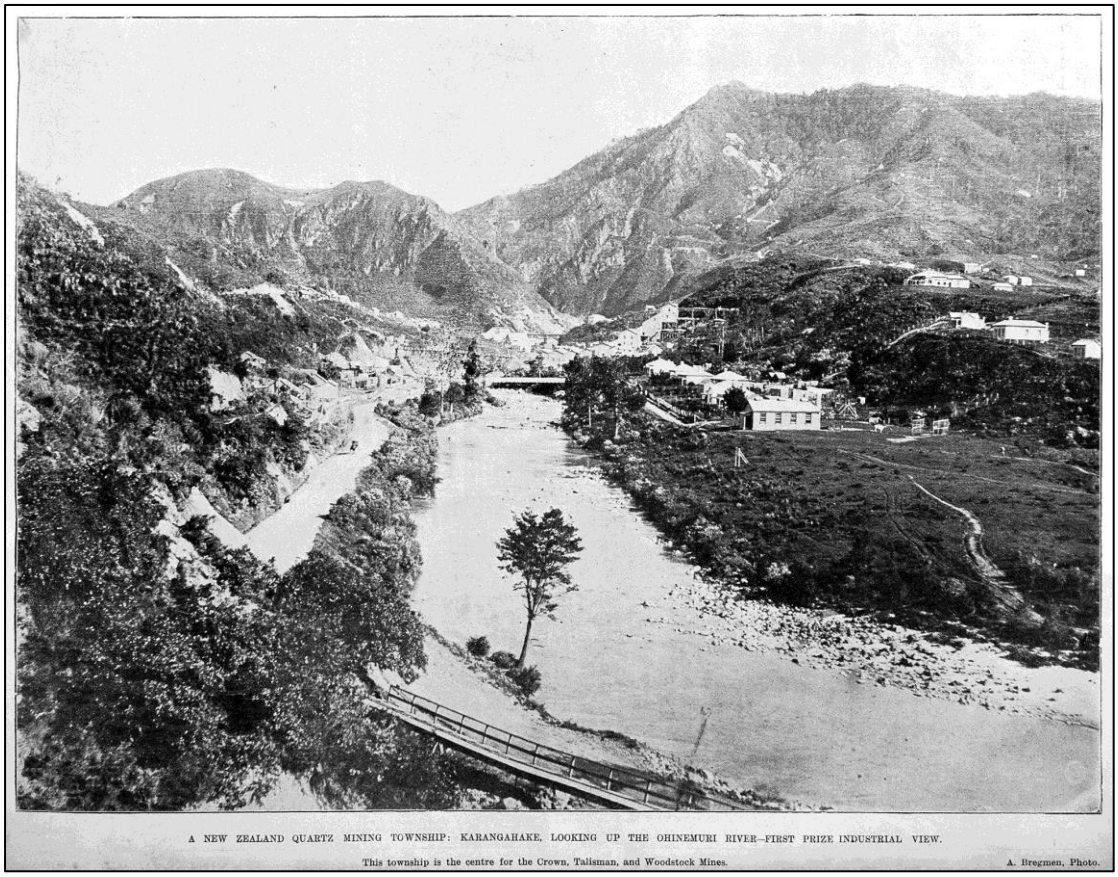
We are looking upstream, Waitawheta Gorge. In the foreground the compressed air pipe on its supporting bridge. The photograph is taken from one of the “windows”, a precarious undertaking, hence some camera shake is present in the image.

At right, below the bridge, is the Crown tramway, and in the distance the bridge that takes it across the river.

1901

Railway tunnel temporary bridge

The road/rail double-deck bridge gets built after the tunnel has been started, ie it is not used to get the tunneling underway, or to get the spoil into the river. A temporary bridge is used at first. “The temporary bridge over the Ohinemuri has been completed. This will admit of the spoil from the tunnel excavation being conveyed across the river and there utilised in the formation of the station-grounds, &c”[48]



1901 05 03 Auckland Libraries Heritage Collections AWNS-19010503-01-02 A Bregmen.

Although a poor quality image, beyond the River Road bridge, the temporary bridge can be seen, and the pile of mullock on the Crown battery side of the river.

In the foreground of this image is the Dougherty’s Creek footbridge. The road itself crosses the creek by ford. This ford is not replaced until 1920.

> [1920] The concrete bridge that is being erected over Doherty’s creek is almost completed, and will be available for traffic in a few days’ time. This is a much needed bridge, and will be greatly appreciated by all and sundry.[49]

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[48] https://paperspast.natlib.govt.nz/parliamentary/AJHR1900-I.2.2.2.1

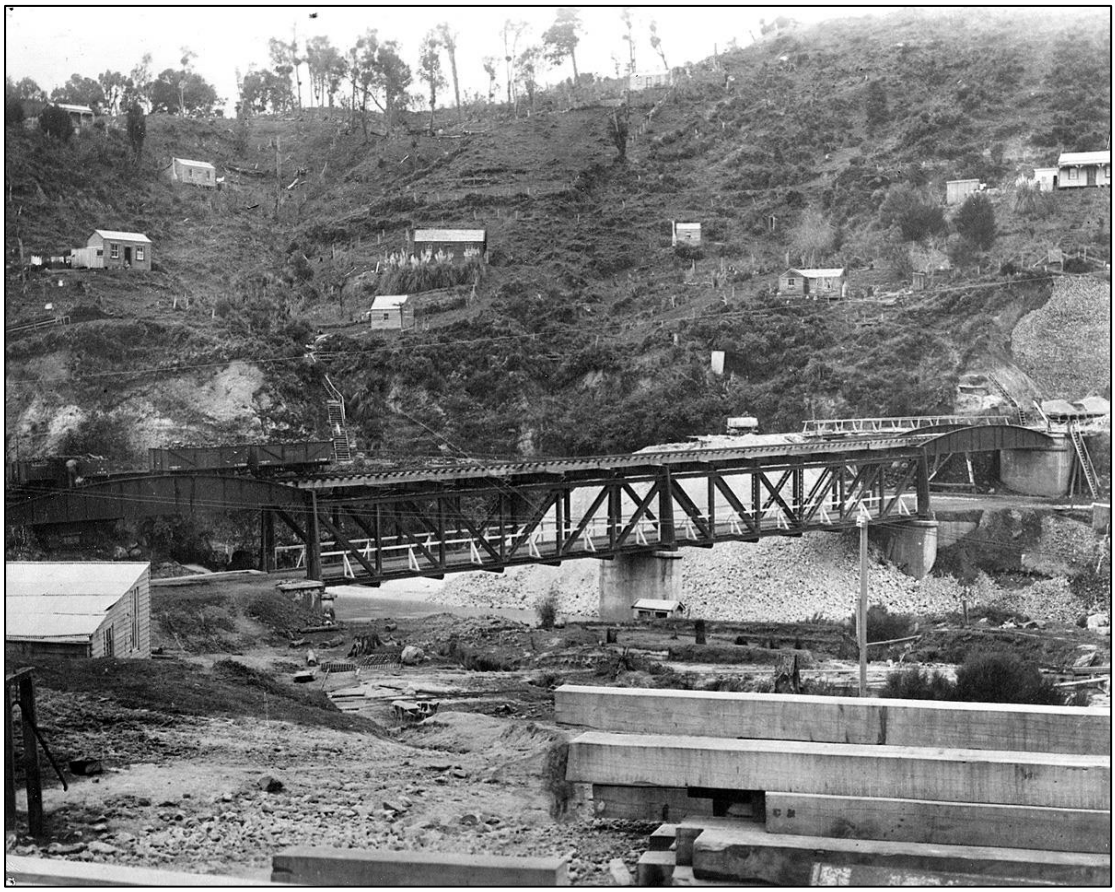
PUBLIC WORKS STATEMENT BY THE HON. W. HALL-JONES, MINISTER FOR PUBLIC WORKS, 28th SEPTEMBER, 1900., Appendix to the Journals of the House of Representatives, 1900 Session I, D-01

[49] https://paperspast.natlib.govt.nz/newspapers/THS19200707.2.5

Thames Star, Volume LIII, Issue 14269, 7 July 1920, Page 1

1903

Western portal railway bridge



West portal rail bridge under constr, c1903 ATL. DoC Thames.

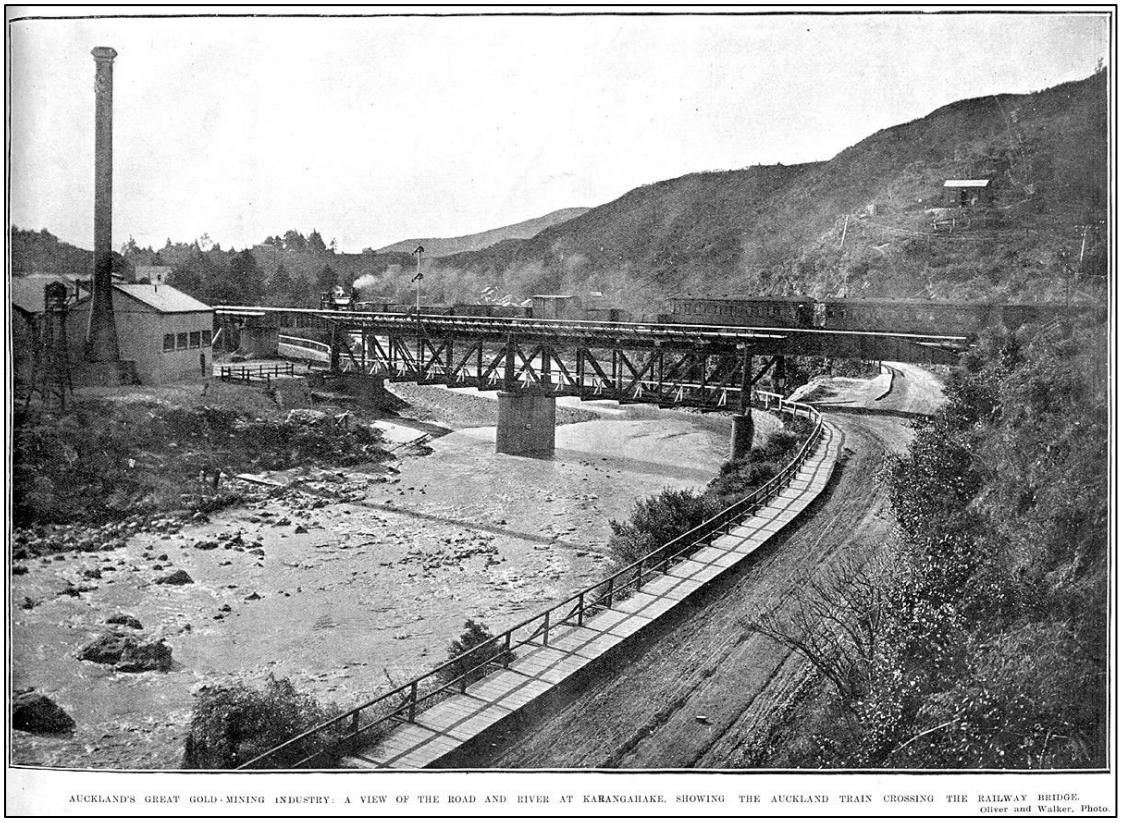
Photograph taken from the Crown battery.

The road/railway bridge is complete. The temporary bridge has been shortened, as spoil is no longer required for the station and embankment. Spoil is now accumulating on the tunnel side of the river. This material causes obstruction of the river bed for several years.

> Public Works Statement.
>
> PAEROA-WAIHI. The combined railway and road bridge over the Ohinemuri River at Karangahake has been finished [and?] the section of the railway to Karangahake is just on the point of completion and will be opened for goods traffic shortly. Beyond Karangahake work has almost been confined to the tunnel, which is now fully half done.
>
> Some proposals with the view of expediting the completion of this railway have lately been made by the Waihi Goldmining Company and are now under consideration by Parliament. [50]

[50] https://paperspast.natlib.govt.nz/newspapers/AS19031117.2.21

Auckland Star, Volume XXXIV, Issue 274, 17 November 1903, Page 3



1909 11 04 Auckland Libraries Heritage Collections AWNS-19091104-07-02 Oliver and Walker.

November 4 1909.

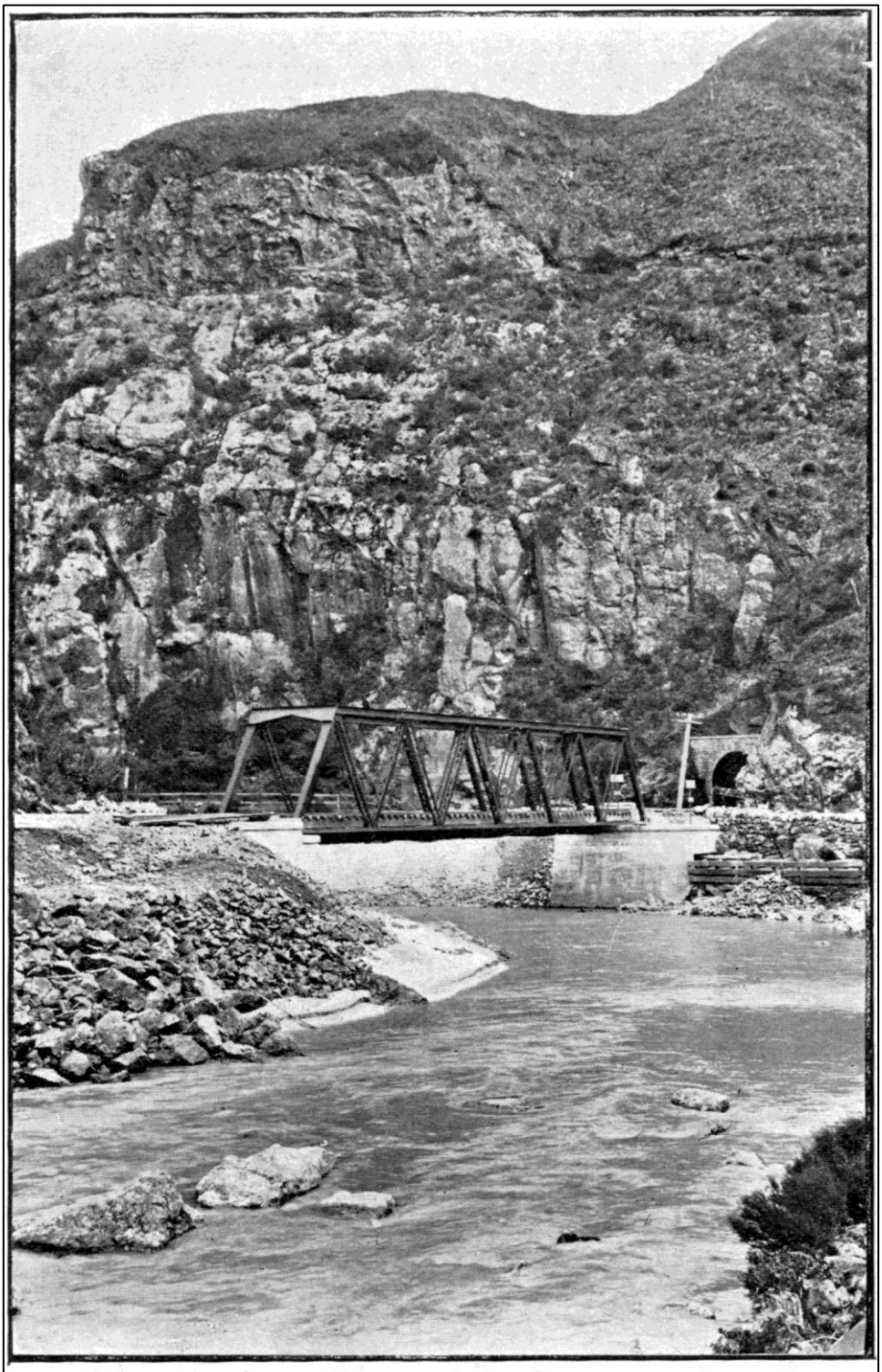
Auckland's Great Gold-mining Industry: A View Of The Road And River At Karangahake, Showing The Auckland Train Crossing The Railway Bridge. Oliver and Walker Photo.

Note the wooden foot path. The spoil from the tunnel has dispersed downstream. The large chimney belongs to the newly constructed Crown battery powerhouse.

1904

Eastern portal railway bridge

Completed end of 1904 or beginning 1905.



BRIDGE SPANNING THE OHINEMURI RIVER.

22 Showing tunnel entrance on the Paeroa-Waihi Railway.

From the picture book: New Zealand's Northern Goldfields.

Note that the road crosses the railway line directly in front of the tunnel exit. This was considered dangerous, and the road was taken over the tunnel exit.

21 July 1905

> The south end [Waihi end] of the railway tunnel at Karangahake abuts on the main traffic road, the line crossing to the bridge on the opposite side. Owing to the engine coming out quickly, several narrow escapes have taken place, as drivers of waggons cannot hear the approaching train in consequence of the noise made by the vehicles. The great danger to which traffic is exposed has been represented to the Public Works Department. Mr. Vickerman writes as follows: — "I am aware that there is danger at the south entrance of the Karangahake tunnel, and my train crew are specially instructed to go quite slow there, so as to have the train in hand; also to whistle when in the tunnel, which can be easily heard outside. You stated that there had been narrow escapes, but on inquiry I could find none that could be tested. If coach-drivers and others go recklessly along there it may lead to an accident, but if care is taken I don't think there is likely to be one. Before opening for passenger traffic some permanent arrangement will probably be made."[51]

Presumably the road over the tunnel mouth was completed shortly after this date.

[51] https://paperspast.natlib.govt.nz/newspapers/NZH19050721.2.23
New Zealand Herald, Volume XLII, Issue 12924, 21 July 1905, Page 4

Water race and tramway bridges at confluence

This is a challenge.

18 April 1876

Reporting on the Karangahake Company:-

> Mr. Cornes mine manager…
> The millhouse is erected—framing, logs, stamper-boxes and tables, with berdans, in position. The stamper-rods and other items require to go up, but all are on the spot. The motive power is water driven by turbine. The erection of this part has been let to Mr. Coote, who proceeds at once with his job. The water race is in hand, partially done, and will comprise 1700 feet [518m] of fluming. The completion of the mill and the first crushing from the mine will probably be six weeks hence.[52]

The wooden water race can be seen in the lithograph No.3[53].

9 May

A slightly longer length is given for the water race by the Thames Advertiser.

> Mr Cullen has also the contract for the water race, and it is now in a very forward state. The length is about 1,800 feet [549m], and one portion of it required some heavy rock cutting on an almost perpendicular face. There is a good deal of trestle work in it …[54]

The heavy rock cutting is presumably where the water race collects its water from the dam via a tunnel in the cliff (can be seen today).

First Infrastructure at Karangahake

The dam on the Waitawheta, wooden flume, hoppers, chutes, tramways, trestle bridges across the river, and of course the battery, are the first infrastructure constructed at Karangahake for mining. The reports don't mention if a tramway crossed the river with the flume.

3 June

> Karangahake.—The battery would have made a start by this time, but, unfortunately, the fluming was carried away for about 130 feet, and, as the timber will have to be supplied from Shortland, some short time must elapse before damages are repaired.[55]

13 June

> The Karangahake mine… The battery, fluming, and turbine are ready, the tail race being the only portion unfinished. [56]

So the first fluming bridge over the Waitawheta River completed by **13 June 1876.**

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[52] https://paperspast.natlib.govt.nz/newspapers/NZH18760418.2.25

New Zealand Herald, Volume XIII, Issue 4502, 18 April 1876, Page 3

[53] https://paperspast.natlib.govt.nz/newspapers/new-zealand-herald/1885/12/24/19

New Zealand Herald, Supplement, 24 December 1885

[54] https://paperspast.natlib.govt.nz/newspapers/THA18760509.2.15

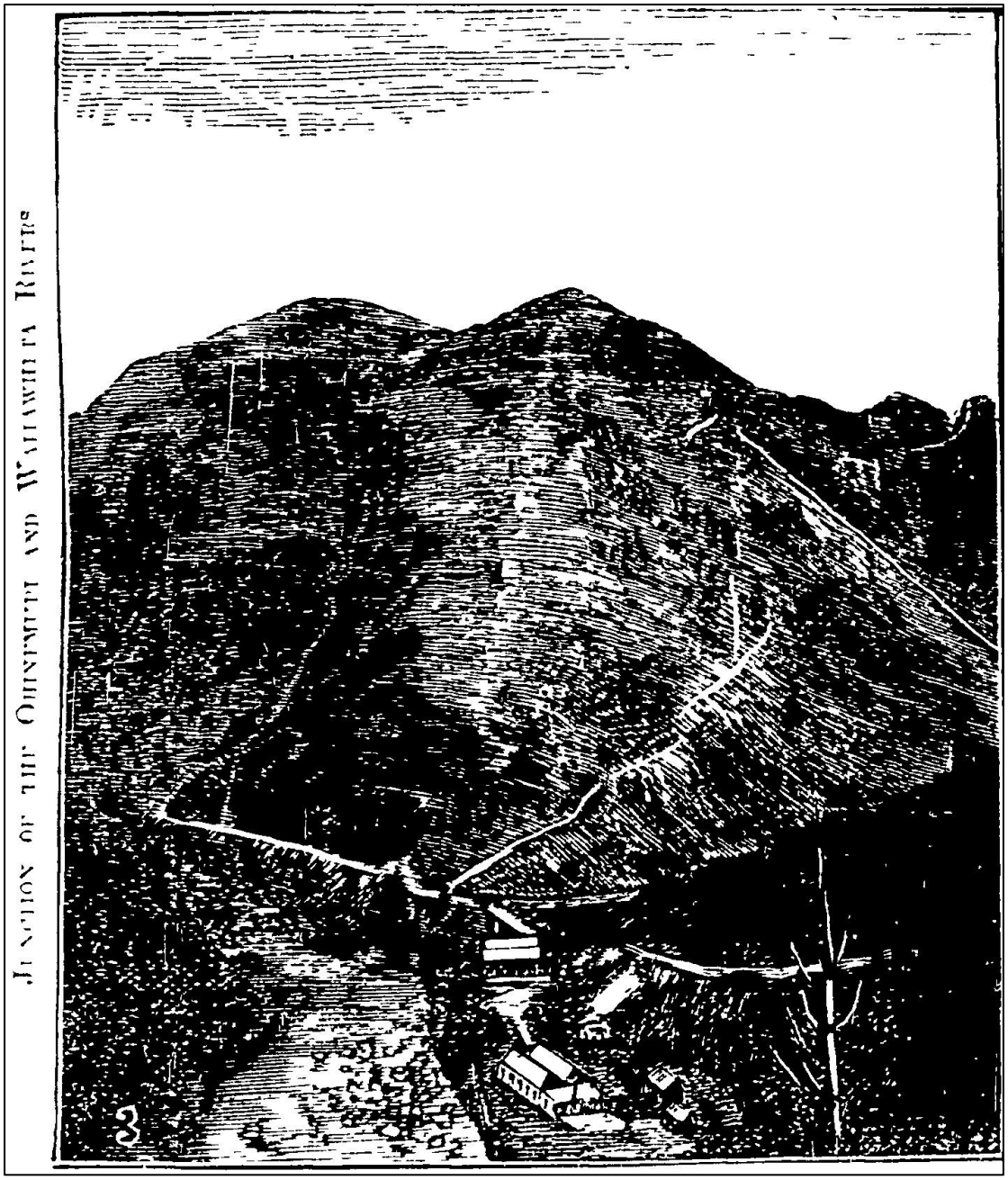
Thames Advertiser, Volume IX, Issue 2352, 9 May 1876, Page 3

[55] https://paperspast.natlib.govt.nz/newspapers/NZH18760603.2.43

New Zealand Herald, Volume XIII, Issue 4541, 3 June 1876, Page 6

[56] https://paperspast.natlib.govt.nz/newspapers/NZH18760613.2.17

New Zealand Herald, Volume XIII, Issue 4549, 13 June 1876, Page 2



Pictorial Christmas Supplement to the New Zealand Herald, December 1885.[57]

Image 3 shows the hotel in the foreground, Karangahake battery beyond, and the water race flume crossing the Waitawheta River beyond that. This is the earliest image, 1885. By this date there is also a tramway trestle bridge crossing the Waitawheta River. See below.

[57] https://paperspast.natlib.govt.nz/newspapers/NZH18851221.2.20.2

New Zealand Herald, Volume XXII, Issue 7516, 21 December 1885, Page 4

1884

1 March

> The Hauraki battery is working on company's dirt [ie Hauraki mine ore], the Sir Walter Scott is erecting a shoot by which they will be able to tip their dirt into the mill.[58]

The Sir Walter Scott mine is on the side of Taukani Ridge, true right bank of the Waitawheta River. The shoot (chute) must be what can be seen in the lithographs.

15 April

> Sir Walter Scott.—The shoot, tramway, &c, connecting this mine with the Hauraki Co.'s battery is rapidly approaching completion, after which crushing operations, will at once be started.[59]

10 May

> The proprietors of the Sir Walter Scott claim, Karangahake, commenced sending quartz to the battery on Monday last, and a capital return is anticipated.[60]

Sir Walter Scott shoot, and tramway complete. A trestle bridge carrying their tramway now crosses the Waitawheta River beside the water race flume. The Ivanhoe Company, on the Ohinemuri side of Taukani, also tram ore across this bridge. [61]

1 August

> The first annual meeting of the **Ivanhoe G. M. Co**. was held yesterday afternoon at the office of Mr. F. A. White, the legal manager. Mr. C. Alexander occupied the chair. From the directors' report, which was read, it appeared that a tramway had been constructed at a cost of about £600, and, when completed, a small crushing had taken place, which gave a return of 10ozs. 17dwts, melted gold. [62]

Next bridge over the Waitawheta River is not until the Woodstock furnace is under construction, 1885.

1885

24 June

Advertisement in the Thames Star: Application to form a water race.

> Warden's Office, Thames, 24th June, 1885.
> APPLICATION has been made by John McCombie to construct a Water Race for mining purposes, commencing at a point on the Ohinemuri River, about half-a-mile above the Hauraki Battery Site, and terminating at a point near La Monte's Furnace Site, as shown on the plan. The length of such race is half a mile or thereabouts [805m], and its intended course is south west. The mean

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[58] https://paperspast.natlib.govt.nz/newspapers/THS18840301.2.26

Thames Star, Volume XV, Issue 4727, 1 March 1884, Page 4

[59] https://paperspast.natlib.govt.nz/newspapers/THS18840415.2.18

Thames Star, Volume XV, Issue 4763, 15 April 1884, Page 2

[60] https://paperspast.natlib.govt.nz/newspapers/THA18840510.2.3

Thames Advertiser, Volume XV, Issue 4859, 10 May 1884, Page 2

[61] https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49

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

[62] https://paperspast.natlib.govt.nz/newspapers/NZH18840801.2.38

New Zealand Herald, Volume XXI, Issue 7085, 1 August 1884, Page 6

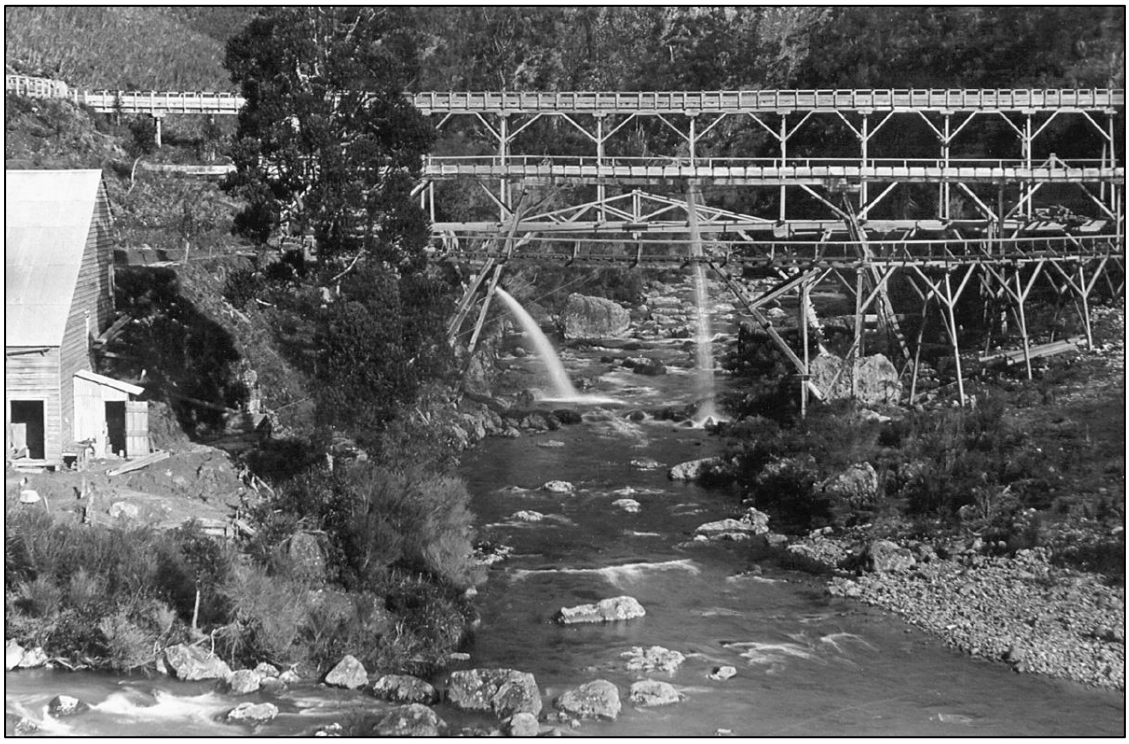
> breadth and depth of such race is 4 feet by 2 feet; it is capable of carrying ten sluice heads of water...[63]

7 November

The Woodstock furnace:

> The motive power will be water, of which there in an ample supply in the Ohinemuri River, the motor being a Pelton wheel, already in position. From the dam, built in the creek, the water will be led to opposite the furnace by fluming, 42 chains [845m] in length, 18 [362m] chains of which are on trestles, in one place there being a span of 90 feet [27m]. Where the fluming ends 20-inch wrought iron pipes convey the water into the furnace. [64]

The span of 90 feet is across the Waitawheta River.



This appears to be the earliest image of the Woodstock furnace, and Crown battery flumes crossing the Waitawheta at the confluence. M.M. White photograph B3575. 1892-4.

The top flume is the Crown water race (1892) which we should ignore in this instance. It adds confusion because it has a lower level with a distinctive A-frame support in the middle. It is intended to provide tramway connection across the river. [65]

The lowest bridge (dark) is the ore tramway for the Ivanhoe. Between these is the flume bringing water from the Ohinemuri to the furnace house, 1885. On close inspection we can see the "supported underneath by a straining rod of 1½in. iron". [66] See below.

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[63] https://paperspast.natlib.govt.nz/newspapers/THS18850624.2.20.3

Thames Star, Volume XVI, Issue 5128, 24 June 1885, Page 3

[64] https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35

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

[65] https://paperspast.natlib.govt.nz/newspapers/NZH18920504.2.47

New Zealand Herald, Volume XXIX, Issue 8869, 4 May 1892, Page 6

[66] https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48

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

Water is being spilt from the Woodstock flume. A by-wash opening will allow water to spill when not required at the furnace. The water discharging from the left of the river may be from the original Karangahake Co. flume. At the time of this photograph the battery has recently been removed.

This description from 24 September 1886:

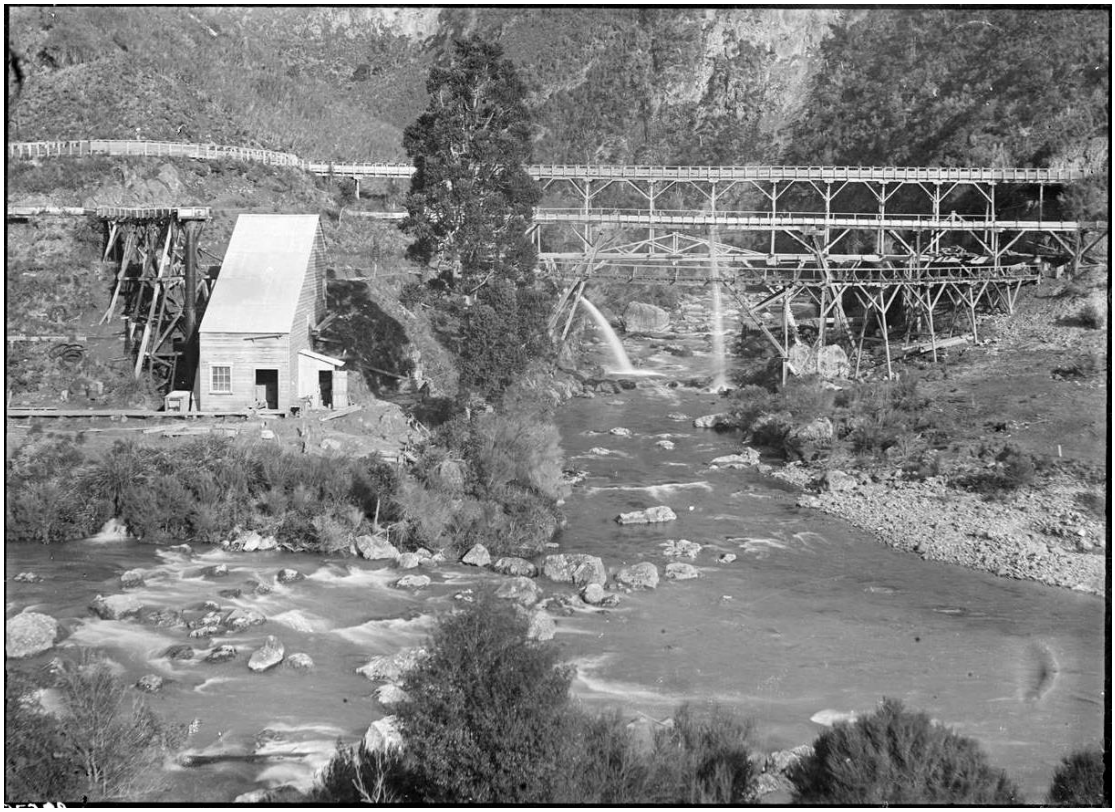
> The water to drive is taken from the Ohinemuri river, which runs close in front of the furnace house, and is brought down a distance of 42 chains [845m], in fluming three feet wide, and one foot six inches deep. This flume or race, is of timber all the way, the sides being 18 x 1¼, and the bottom, three boards of 12 x 1¼. For a distance of 18 chains [362m] it has to be supported on trestle work, the trestles varying in height from 4 to 30 feet and averaging 22 feet apart. One of the spans, where it crosses the Waitawheta River, is 90 feet between the sole plates, and 47 feet above the river. The building of this bridge was quite an undertaking in itself. The legs, which are over 40 feet long, are 10 inches square, and rest on sole plates about seven feet above the summer level of the river. These legs lean in towards the centre, 15 feet off the perpendicular, which reduces the span at the top to 62 feet, and this is bridged over by two stringers, each of which is composed of two pieces of 14 x 4, strapped and bolted together, and supported underneath by a straining rod of 1½in. iron. The feet of the legs and the sole plates are securely bolted down to the rock, so as to resist the freshes in the river during the winter.
>
> When the flume is full of water every ten feet of it holds over a ton weight, so it will be seen that this bridge would have a steady weight on it of over six tons, but by giving the flume more fall here than it has elsewhere the water rushes over quicker, and the flume is never more than half full, thus reducing the weight one half. When the bridge was finished it was tested with the flume full to make sure that it was fit for the work. The rest of the flume from the dam down has a fall of 1 in 500, or a shade more than ½ of an inch to every 20 feet, which makes the water run at about the same pace as a person at a smart walk.
>
> The whole of the timber used in the flume is the best heart of kauri, of which there is over 80,000 feet. At the top of the flume a dam had to be built, so as to raise the river about three feet above its ordinary level. This dam is over 100 feet across, and is built of kauri logs 18 inches square, bolted down to the rock, and planked with slabs three inches thick, and cross-planked with sawn timber 1½ inches. The bed of the river here is so uneven that some of these slabs are only three foot long, and some of them are 15 feet. The water is led into the flume through an iron grating of five-eighth inch bars, one inch apart, and is controlled by the usual floodgates, traps, overflow, &c. [67]

1892

Crown Company water race flume, for new battery.

[67] https://paperspast.natlib.govt.nz/newspapers/NZH18860924.2.48

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



M.M. White photograph B3575. 1892-4.

The same image as above. The top flume is the Crown water race (1892). It has a lower level with a distinctive A-frame support in the middle which is intended to provide tramway connection across the river.

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.

1894

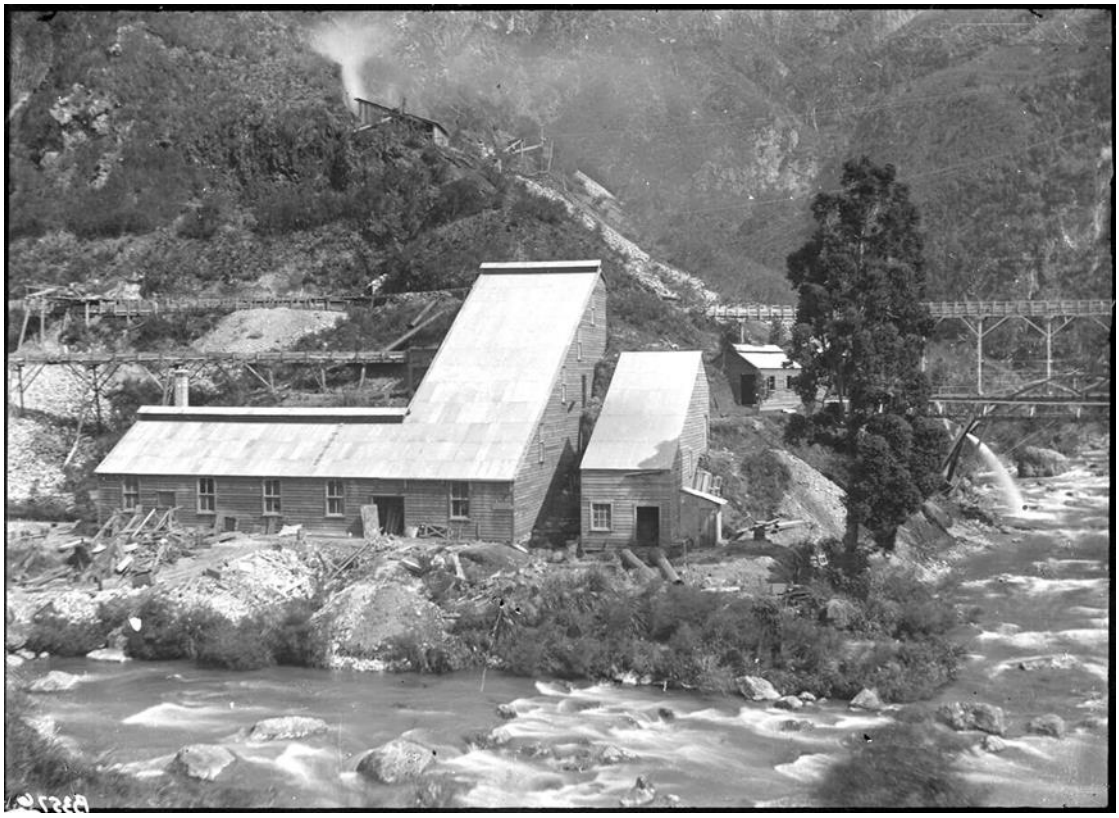
Old Hauraki bridge upgraded by Woodstock Co.

> 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. [68]

[68] 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.

This photograph was taken from the road edge.

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

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 Crown water race flume no longer arcs around the spur, but is tunnelled through it.

The new bridge to the water balance should exist, though it can't be made out in this image. The bridge in the foreground appears to be the old Hauraki bridge. The water balance lifts the ore carts to the level of the kiln. [69]

This battery operates for only a year before being replaced by a forty stamp battery on the same site (building commences early 1896). Hence this image could be considered to date at 1895.

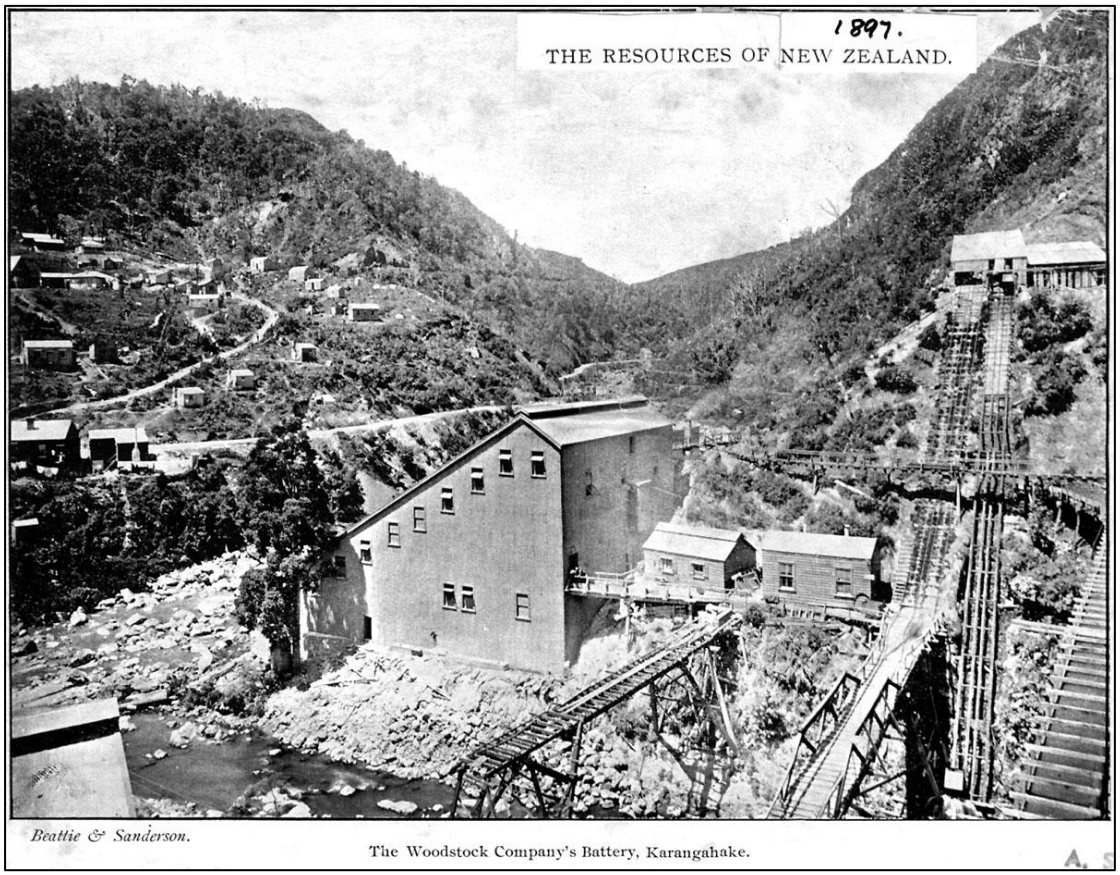
To recap: flume to furnace removed, original Karangahake/Hauraki tramway bridge abandoned, new bridge to water balance constructed. [70]

[69] 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

[70] https://paperspast.natlib.govt.nz/parliamentary/AJHR1895-I.2.1.4.3

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.

1900

A new bridge is erected for the Woodstock battery.

> 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

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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

train of trucks as they come from the mine, and will carry such a distributed load aggregating 10 tons. [71]

The new Talisman battery is complete, so late 1900 or 1901 or 1902. There is no large chimney on the Woodstock battery; this was erected early 1901[72]. The photograph is taken from the County Road.

The Traffic Bridge, beside the original suspension bridge, constructed late 1898. [73]

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.

[71] https://paperspast.natlib.govt.nz/parliamentary/AJHR1901-I.2.2.2.4

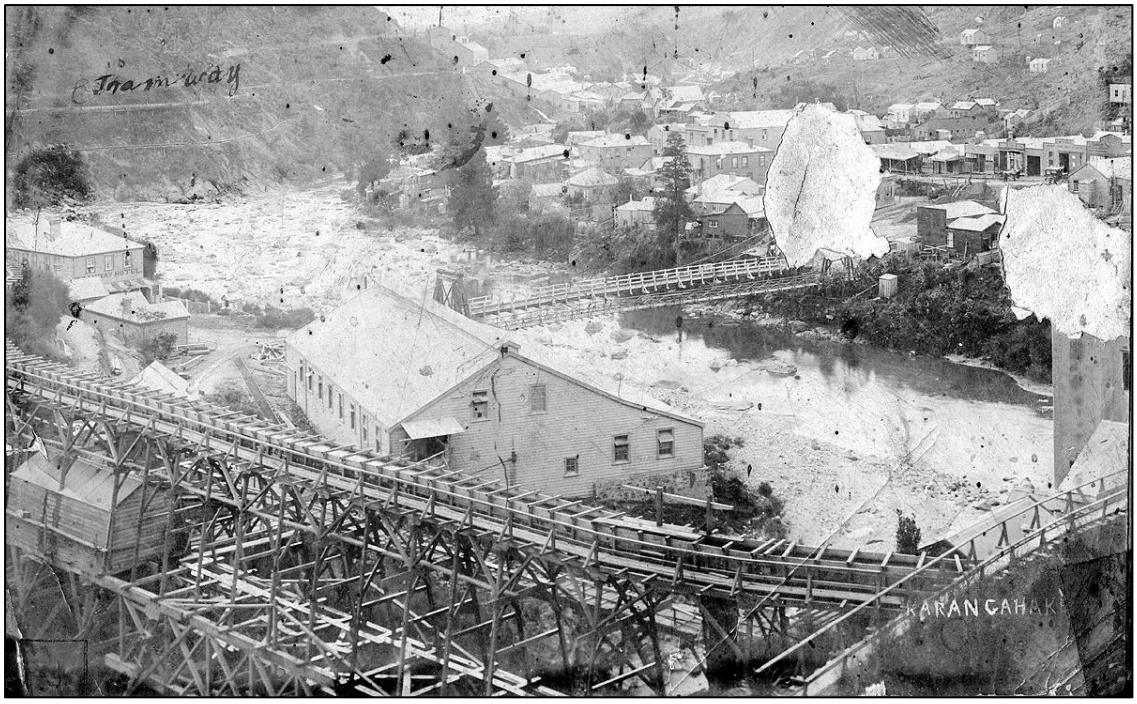
THE GOLDFIELDS OF NEW ZEALAND: REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING., Appendix to the Journals of the House of Representatives, 1901 Session I, C-03

[72] 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

[73] https://paperspast.natlib.govt.nz/newspapers/OG18980820.2.15

Ohinemuri Gazette, Volume VIII, Issue 520, 20 August 1898, Page 3



Staples collection. A similar date to previous photograph, 1901 or1902.

Prominent in the foreground is the Crown Company's water race flume as it crosses the Waitawheta River. Notice the footpath beside the flume. The structure is supported on a box/girder.

1906

3 April

CROWN MINES

The company are now constructing a large water-race, with the view of assisting a large steam plant, which may later on be erected near the battery site for the generation of electricity, to be utilised for the development of the mine to a greater depth, and to save expense in the way of consumption of fuel. The large bridge to carry the race is of the Platt type, and is being constructed in two spans of 82ft. This should be completed by the end of the month, after which Mr. F. R. W. Daw, the company's superintendent, is to leave for the Old Country on a holiday visit. Mr. Daw has now had charge of the Crown works for an unbroken period of 10 years and a-half.[74]

[74] https://paperspast.natlib.govt.nz/newspapers/NZH19060403.2.8

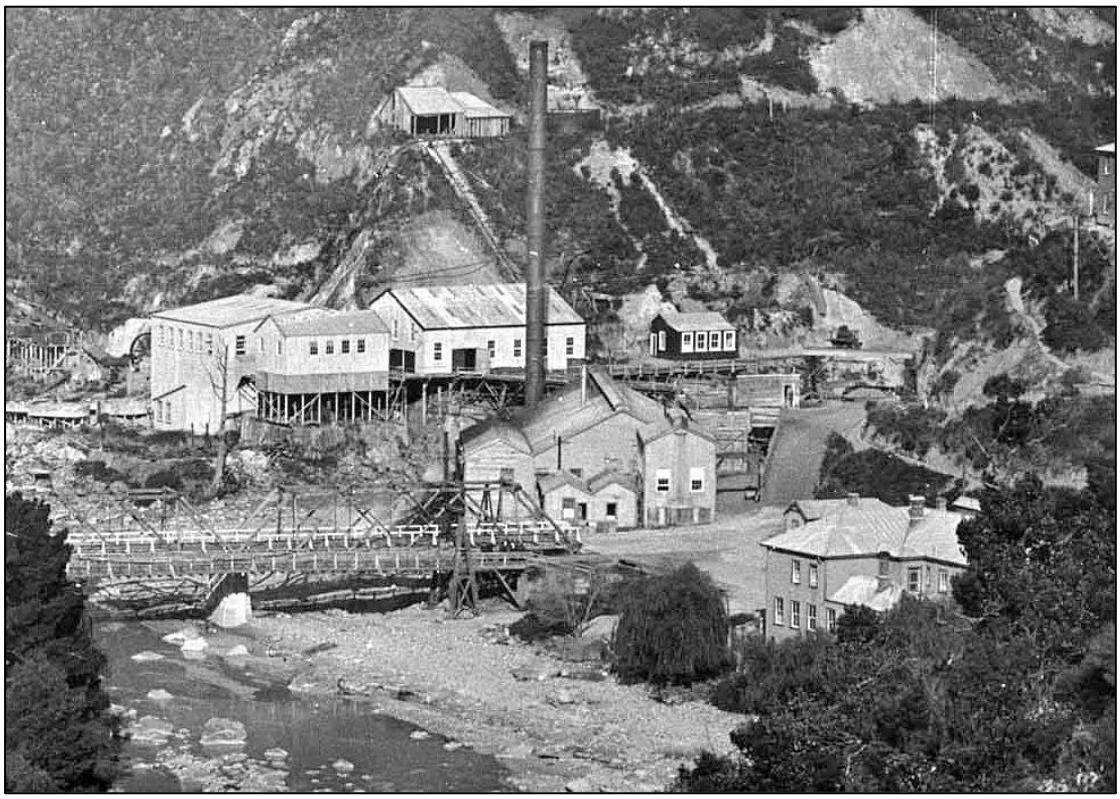
New Zealand Herald, Volume XLIII, Issue 13142, 3 April 1906, Page 3

“The large bridge to carry the race is of the Platt type” can be seen bottom right, this side of the original Crown flume. Presumably it was to replace the old flume. It appears unfinished in this image, and there is little evidence that this new race was ever completed.

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.

More/larger buildings have progressively been added behind the stamper section of the battery. A tramway enters the lean-to building.

1913



From a four image page, source lost.

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

The angled bridge to the Woodstock battery remains, but nothing else? Yes there is something. See below.

After 1913 bridge, suspension bridge removed. Before late 1915 when the two storey boarding house is removed.

Photograph taken from the Woodstock Blow area, may be No.8 Level.

Between the Talisman and Woodstock bridges is some box/truss bridge. This is the remains of the old Crown water race flume (see 1901 or 1902 Photograph above).

Note the narrow swing bridge across the river in the foreground. It shows in other photographs also. On the left of the bridge is a large tip head, with material tipped directly into the river. Where from? Is the roof to provide protection from material falling from the aerial cableway directly above? There is also a structure on the river bank directly across from the battery. What is it?

Staples Collection.

More recent

1959
Two suspension bridges for Paeroa municipal water supply pipe were installed, and one pedestrian only (below Dickey's Flat).

1985
New pedestrian bridge atop the rail/road bridge at Western portal.
New suspension bridge over Waitawheta River, between Dubbo battery and Woodstock battery remains.

2005?
New suspension bridge over Waitawheta River (below Dickey's Flat), a little upstream from the municipal water supply pipeline tunnel, installed by the Department of Conservation. Dan Bustard contractor.

2019?
New suspension bridge at Karangahake Reserve installed by the Department of Conservation.

2021
Replacement suspension bridge for Crown tramway walkway installed by the Department of Conservation.

Replacement suspension bridge below Dickey's Flat.

Some press reports of interest

19 January 1906

It was decided to erect a footbridge over the river at Mackaytown so as to connect the township with the railway, provided the Railway Department places a flag station there.[75]

2 March 1906

MACKAYTOWN FLAG STATION.

A letter was received from Mackaytown residents, stating that at a public meeting at Mackaytown it was decided that the best place to erect a bridge over the Ohinemuri River was at a place one mile five chains from the Karangahake railway station. The land for a road to the bridge would be given by Hancock and Co. Mr Cochrane urged that the Railway Department be asked for a flag station to be made on the railway opposite Mackaytown, but it was eventually decided to postpone consideration of this matter.[76]

5 October 1906

The bridge across the Ohinemuri River at Mackaytown, to give access to the flag station, is now completed.[77]

14 January 1907

The heavy rains that have obtained during the past couple of days…

The footbridge at Mackaytown, over the Ohinemuri River, has also been carried away by the water.[78]

8 February 1907

Regarding the damage done by the recent flood Mr G. Bray (engineer) reported to the Ohinemuri County Council yesterday as follows: —" The recent heavy rains did a large amount of damage throughout the County…

…the Mackaytown footbridge washed out at one end…

"Mackaytown Footbridge—The timber of this bridge has been saved and will be available for the re-erection of the bridge. I would recommend that the bridge be made at least eight feet higher and 60 feet longer. The estimated cost of the work is £90."[79]

28 June 1907

GALE IN OHINEMURI. BRIDGE AT MACKAYTOWN BLOWN OVER.

The high wind during the past few days has occasioned a considerable amount of damage in the district, mostly in the way of fences and tin chimneys blown down. The most serious damage reported is to the Mackaytown footbridge, which was blown over. The erection of the bridge had been just about

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[75] https://paperspast.natlib.govt.nz/newspapers/NZH19060119.2.87

New Zealand Herald, Volume XLIII, Issue 13079, 19 January 1906, Page 7

[76] https://paperspast.natlib.govt.nz/newspapers/OG19060302.2.8

Ohinemuri Gazette, Volume XVI, Issue 1284, 2 March 1906, Page 2

[77] https://paperspast.natlib.govt.nz/newspapers/NZH19061005.2.77

New Zealand Herald, Volume XLIII, Issue 13300, 5 October 1906, Page 6

[78] https://paperspast.natlib.govt.nz/newspapers/OG19070114.2.17

Ohinemuri Gazette, Volume XVII, Issue 2150, 14 January 1907, Page 2

[79] https://paperspast.natlib.govt.nz/newspapers/OG19070208.2.12

Ohinemuri Gazette, Volume XVII, Issue 2161, 8 February 1907, Page 2

completed by the contractors, Messrs White and Law, and. it had not been handed over to the County Council.[80]

8 July 1907

MACKAYTOWN FOOTBRIDGE. COST OF RENEWING THE BRIDGE. Concerning the footbridge at Mackaytown that was blown over during the recent gale, the engineer reported to the Ohinemuri County Council at its meeting yesterday as follows:—"I have to report that during the extremely heavy south-westerly gale which blew on the 26th of last month, the partially constructed suspension bridge at Mackaytown was blown down. In its descent the bridge caused an undue strain of a twisting nature upon the hooks of the union screws where they hung to the anchor rods, and when finally getting under the influence of the strong river current, the bridge tore open these hooks…[81]

There was some dispute about responsibility for the disaster, but it appears that the bridge was rebuilt. It lasted till damaged by floods 1936.[82]

3 February 1909

WHERE IS THE OHINEMURI COUNTY ENGINEER?
(To the Editor.)
SIR —It is in regard to this question that residents of Karangahake are exercising their minds at present. Some works partly completed, and some now started, are causing much speculation as to whether there is such a person. It must be patent to any ordinary individual that the bridge over the Ohinemuri River leading to the Talisman mine is unsafe, and it is a fact that the manager of the Talisman Company regards it so, as in spite of the large contribution to the County finances by the company, yet the machinery recently imported has had to be carted over the Hill Road at a large extra expense, owing to the condition of the bridge, which has been recognised unsafe by the Council for some two years…[83]

This is the Traffic Bridge of 1898? Deteriorating now after ten years. It appears to be known as the Talisman (Swing) Bridge now.

5 March 1909

Talisman Swing Bridge, Karangahake.— As regards the safety of this bridge, I may state that it is not safe to be subjected to a greater load than three tons, and a team of horses of not more than three. I would suggest that a notice be posted on each end of the bridge stating that the Council will not be responsible for any accident which might occur if such accident should be caused by a greater load than the above mentioned being taken over the bridge, and that all damage caused to the bridge by taking any load heavier than that specified shall be made good by the owner of team or load.[84]

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[80] https://paperspast.natlib.govt.nz/newspapers/OG19070628.2.22

Ohinemuri Gazette, Volume XVII, Issue 2218, 28 June 1907, Page 3

[81] https://paperspast.natlib.govt.nz/newspapers/OG19070708.2.14

Ohinemuri Gazette, Volume XVII, Issue 2222, 8 July 1907, Page 3

[82] https://www.ohinemuri.org.nz/journals/journal-44-september-2000/karangahake-roads-and-bridges

Karangahake Roads and Bridges. Ohinemuri Regional History Journal 44, September 2000

[83] https://paperspast.natlib.govt.nz/newspapers/OG19090203.2.17.3

Ohinemuri Gazette, Volume XX, Issue 2455, 3 February 1909, Page 3

[84] https://paperspast.natlib.govt.nz/newspapers/OG19090305.2.10

7 June 1909

KARANGAHAKE BRIDGE.
ITS UNSAFE CONDITION. REQUEST FOR A LARGER BRIDGE.
The following letter from the superintendent of the Talisman Consolidated, Ltd, Karangahake, came up for consideration at Friday's meeting of the Ohinemuri County Council: — "We wish to draw your attention to the unsafe, condition of the present traffic bridge at Karangahake. The hanger bolts are drawing through the timbers, and, sooner or later, the matter has to be faced of putting up a new traffic bridge, and we would like it faced at once. We are, no doubt, the largest contributers to the County fund, and should anything happen whereby the bridge is cut off through want of a proper bridge, then our battery and mine would be stopped, involving a loss to the company of thousands of pounds, besides loss of revenue to the County, and throwing hundreds of men out of work.
For the twelve months ending April, 1909, the Talisman Consolidated, Ltd, has paid some five thousand pounds odd gold duty, and we claim our demands are entitled to consideration, and we know that your Council will do their utmost to meet us. In about six months' time we have £20,000 worth of machinery coming to Karangahake, and some of the pieces are too heavy (ten ton pieces) to come over the present bridge, and they are too long to be taken over the hill. The driving shaft is 26 inches in diameter in itself. The last lot of machinery brought out had to be taken over the hill because many of the parts (six ton pieces) were considered too heavy for the bridge, and the cost to the company was enormous, for it took 16 horses to come up the Crown Hill. Then there was the great risk of an accident as it was brought down the hill, and the company would not risk any of the new machinery coming that way, even were it possible. Therefore, we have to respectfully ask your Council to consider the erection of a new traffic bridge at Karangahake, after the pattern of the Waitawheta one just erected at Waikino. Your engineer, Mr McArthur, was in Karangahake a few days ago, and this matter was mentioned to him, and he was also shown the serious state of the present bridge."
Mr Marrinan said there was no doubt the bridge was in a very dilapidated state, and it must have something done to it. Some repairs would have to be made to the bridge even to get the coal over. In the present state of its finances, however, the Council could not erect a new bridge, so he moved that the engineer report as to what would be the cost of doubling the hangers and bearers of the bridge.
This was seconded by Mr Franklin.
The Chairman (Mr Grace) said that they should get Government to put a grant for a permanent bridge on the next estimates.
Mr Lloyd said there was no doubt they would be able to get a grant for the bridge. If they could fix the bridge up so as to take over the machinery the Talisman people would be satisfied for the present. The motion was then put to the meeting and was carried.[85]

Ohinemuri Gazette, Volume XX, Issue 2468, 5 March 1909, Page 2

[85] https://paperspast.natlib.govt.nz/newspapers/OG19090607.2.9

Ohinemuri Gazette, Volume XX, Issue 2503, 7 June 1909, Page 2

This must have satisfied the Talisman management, as no new bridge was erected until 1912-13. Sounds like the original footbridge is already gone. The next bridge will be a truss with concrete pier.

9 April 1910

> MINISTER'S GOLDFIELDS TOUR.
> The Engineer had reported as to damages, stating that footbridges were destroyed at Mackaytown station, Owharoa station, also the footbridge and Benner's bridge, near Waikino. The estimated cost of replacing the Mackaytown bridge was £640, and of Benner's bridge £275; Owharoa bridge would not need replacing.[86]

10 June 1910

> COUNTY COUNCIL. MONTHLY MEETING
> MACKAYTOWN BRIDGE. Mr Lloyd moved that plans and specifications be prepared for the footbridge at Mackaytown. This was seconded by Mr Marrinan, and was carried.
> The Chairman said they wanted this bridge erected in such a way that it would not be washed away by flood as were the previous bridges.[87]

8 July 1910

> COUNTY COUNCIL.MONTHLY MEETING
> Mackaytown Swing Bridge. — The plans for this bridge have been put in hand, and are sufficiently far advanced to enable me to arrive at a fairly accurate estimate of its cost. The estimated cost of the bridge is £524 1s 8d.
> Benner's Bridge.—Although the plans are not in hand, I have measured the site. The span will be 138 feet and the deck level one foot above the footpath. I have prepared an estimate of the cost on the lines I would propose to build the bridge and the cost would be about ,£177 15s.[88]

Is the Mackaytown Swing Bridge across to the Mackaytown railway (flag) station? Benner's Bridge is the suspension bridge near the hotel at Waikino, swept away in 1981. There is an image.

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[86] https://paperspast.natlib.govt.nz/newspapers/AS19100409.2.57

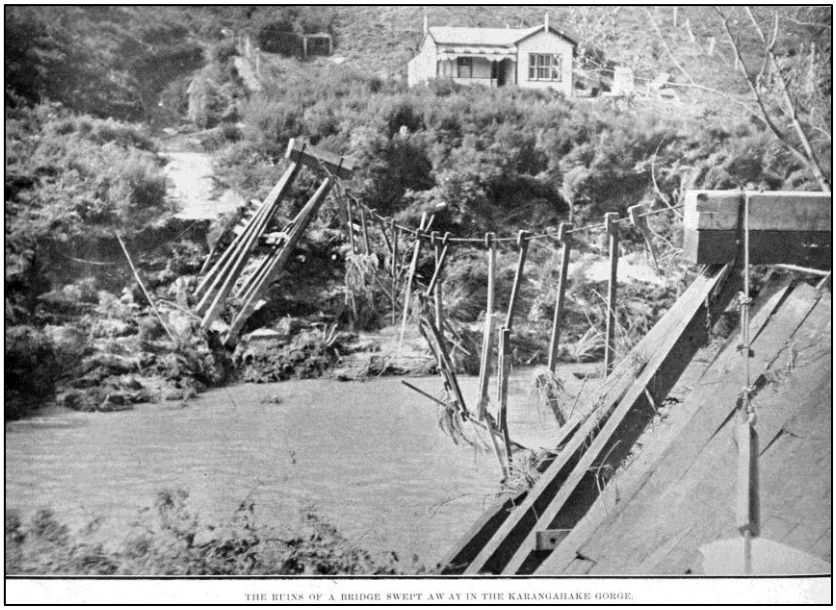
Auckland Star, Volume XLI, Issue 84, 9 April 1910, Page 9

[87] https://paperspast.natlib.govt.nz/newspapers/OG19100610.2.19

Ohinemuri Gazette, Volume XXI, Issue 2651, 10 June 1910, Page 3

[88] https://paperspast.natlib.govt.nz/newspapers/OG19100708.2.21

Ohinemuri Gazette, Volume XXI, Issue 2663, 8 July 1910, Page 3



1910 04 06 Auckland Libraries Heritage Collections NZG-1910 04 06-0022-03

Benner's Bridge at Waikino?

7 October 1910

COUNTY COUNCIL.

During the month the bridge at Owharoa known as the "Black Bridge" was damaged by a high load passing under the backstays. One of the backstays was pulled right off the poppet head and broke the overhanging part of the poppet head. Steps were immediately taken to replace the wire and open the bridge for traffic. The cost of making the repairs was £3. The bridge is now practically as strong as ever, but the broken poppet head does not look well.

So the bridge remains after all.

FOOTBRIDGE AT KARANGAHAKE.

E. J. Kitching applied for a footbridge to be erected at Karangahake over the Ohinemuri River opposite the School of Mines.

Mr Nathan moved that the letter be "received." He did not think the Council would be justified in erecting a bridge at this place, as there was another bridge close handy.

Mr Marrinan said the cost of the bridge would be very small, and he moved that the engineer report as to the cost of a bridge.

This was seconded by Mr Lloyd, who said that there were a number of people who would use the bridge, including some school children.

The motion for the engineer to report was carried.[89]

7 April 1911

COUNTY COUNCIL. MONTHLY MEETING

At the usual monthly meeting of the Ohinemuri County Council yesterday afternoon…

"Re bridge at Karangahake.—I would recommend that the new bridge be erected between the two suspension bridges and that the bridge consist of two one hundred feet spans with concrete pile in the centre of the river…

[89] https://paperspast.natlib.govt.nz/newspapers/OG19101007.2.24

Ohinemuri Gazette, Volume XXI, Issue 2702, 7 October 1910, Page 3

The recommendation of the engineer regarding the new traffic bridge at Karangahake was adopted on the motion of Mr Lloyd, an amendment by Mr Nathan that consideration be deferred for a month not being seconded.[90]

2 February 1912

At the monthly meeting of the Ohinemuri County Council the following contracts were let:—…

erection of a bridge over the Ohinemuri River at Karangahake, the bridge to consist of two 100 feet truss spans, with concrete piers, Kennedy and Taylor, £2487.[91]

COUNTY COUNCIL. MONTHLY MEETING

The monthly report by the engineer (Mr C. Bray) was read as follows :—…

"To remove the present bridge at Karangahake and re-erect it over the Waitekauri Stream on the Waihi-Waitekauri Road is estimated to cost about £180.[92]

5 July 1912

OHINEMURI COUNTY. MEETING OF THE COUNCIL

Kennedy and Taylor, contractors for the erection of the bridge at Karangahake, applied for extension of time on their contract owing to the difficulty in obtaining jarrah timber. Mr Franklin moved, and it was carried, that two months extension of time be granted.[93]

4 October 1912

OHINEMURI COUNTY. MEETING OF THE COUNCIL

I am pleased to be able to inform the Council that the timber for the Karangahake Bridge has arrived, and would suggest that the contractors be allowed four months from date to complete the work.[94]

27 November 1912

The Karangahake Bridge had also been commenced, and although the bridge had not yet been completed, the Council's liability in connection with it was between £ 1200 and £ 1300.[95]

2 December 1912

COUNTY WORKS.

Mr H. M. Corbett, when returning thanks last week for his re-election to the position of chairman of the Ohinemuri County Council, made reference to some of the more important works that the County Council has in hand. After speaking of the new offices now occupied by the Council—and which had become a necessity rather than a luxury—he mentioned the new bridge at Karangahake that is now nearing completion. Undoubtedly this bridge was

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[90] https://paperspast.natlib.govt.nz/newspapers/OG19110407.2.21

Ohinemuri Gazette, Volume XXII, Issue 2776, 7 April 1911, Page 3

[91] https://paperspast.natlib.govt.nz/newspapers/AS19120202.2.8

Auckland Star, Volume XLIII, Issue 29, 2 February 1912, Page 2

[92]

[93] https://paperspast.natlib.govt.nz/newspapers/OG19120705.2.15

Ohinemuri Gazette, Volume XXIII, Issue 2963, 5 July 1912, Page 2

[94] https://paperspast.natlib.govt.nz/newspapers/OG19121004.2.20

Ohinemuri Gazette, Volume XXIII, Issue 3001, 4 October 1912, Page 3

[95] https://paperspast.natlib.govt.nz/newspapers/OG19121127.2.12

Ohinemuri Gazette, Volume XXIII, Issue 3022, 27 November 1912, Page 2

badly needed, and it is surprising how the great amount of traffic to the mines was for so long carried over the flimsy structures that did duty for a long time. It would have been a wise policy years ago to have gone in for a permanent bridge instead of spending money on what at best were only makeshifts…[96]

ORHJ 44

A large heavy trestle bridge, replacing the first swing bridge at Karangahake township was built in 1912. This remained until the mid-1950s and the present pipeline bridge was built on the same site in 1958. The concrete centre pier of the trestle bridge still remains.[97]

13 January 1913

Good progress is being made with the construction of the new traffic bridge at Karangahake, and the structure should be completed by the end of this month.[98]

7 February 1913

OHINEMURI COUNTY. MEETING OF THE COUNCIL

KARANGAHAKE BRIDGE. The Talisman Consolidated wrote asking that when the traffic bridge at Karangahake is completed the Council leave the present bridge to be used as a foot bridge. The letter stated that at the present time there are over 400 men crossing the bridge daily besides a large number of school children and that it was highly desirable for the safety of all that the bridge be left in its present position. To renew the bridge and re-erect elsewhere would cost at least £800 to £1000.

On the motion of the chairman, seconded by Mr Franklin it was decided to reply to the company stating that when the necessity for a foot bridge arose the Council could consider the matter.[99]

The bridge not completed yet?

26 February 1913

The Ohinemuri County Council will hold its monthly meeting on Thursday, 6th March, at one o'clock. Among the business to be dealt with is the following motion of which Mr Marrinan has given notice :—"That the resolution of the Council of 1st February, 1912, dealing with the matter of removing the suspension bridge from Karangahake and re-erecting it over the Waitekauri Stream, be now rescinded and the matter reconsidered."[100]

2 November 1917

OHINEMURI COUNTY COUNCIL. ENGINEER'S REPORT.

The decking of the Karangahake traffic bridge at the Talisman battery is very much worn and will require protecting with longtitudinal planking of an approximate cost of material on the ground of £16.

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[96] https://paperspast.natlib.govt.nz/newspapers/OG19121202.2.6

Ohinemuri Gazette, Volume XXIII, Issue 3024, 2 December 1912, Page 2

[97] https://www.ohinemuri.org.nz/journals/journal-44-september-2000/karangahake-roads-and-bridges

Ohinemuri Regional History Journal 44, September 2000, Karangahake Roads and Bridges

[98] https://paperspast.natlib.govt.nz/newspapers/OG19130113.2.8

Ohinemuri Gazette, Volume XXIV, Issue 3038, 13 January 1913, Page 2

[99] https://paperspast.natlib.govt.nz/newspapers/OG19130207.2.14

Ohinemuri Gazette, Volume XXIV, Issue 3049, 7 February 1913, Page 2

[100] https://paperspast.natlib.govt.nz/newspapers/OG19130226.2.8

Ohinemuri Gazette, Volume XXIV, Issue 3057, 26 February 1913, Page 2

DOHERTY'S CREEK SWING BRIDGE. The suspension ropes on this bridge are not in a satisfactory state and will need renewing at an early date. Winding ropes suitable for the purpose can be secured from the Talisman Mine to replace same at a cost of £10. [101]

8 April 1918

OHINEMURI COUNTY COUNCIL.

SWING BRIDGE. It was decided to effect some repairs to Dougherty's swing bridge, and to close the bridge against traffic until the repairs were effected.[102]

7 July 1920

KARANGAHAKE NOTES.

The concrete bridge that is being erected over Doherty's creek is almost completed, and will be available for traffic in a few days' time. This is a much needed bridge, and will be greatly appreciated by all and sundry.[103]

5 August 1921

OHINEMURI COUNTY.

THE MONTH'S WORK. — County Engineer E. Shaw reported as follows to the Ohinemuri County Council yesterday:

…The band rotunda at Karangahake which was left in the hands of Cr. McGuire and myself to dispose of was sold to the Paeroa Beautifying Society for the sum of £50.

The foot-bridge over the Ohinemuri River at Karangahake known as Docherty's Creek bridge has become unsafe for traffic through one of its anchors giving way, and as it is not urgently required I would not recommend any expenditure in repairing same.[104]

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[101] https://paperspast.natlib.govt.nz/newspapers/OG19171102.2.16

Ohinemuri Gazette, Volume XXVIII, Issue 3840, 2 November 1917, Page 3

[102] https://paperspast.natlib.govt.nz/newspapers/OG19180408.2.12

Ohinemuri Gazette, Volume XXIX, Issue 3903, 8 April 1918, Page 2

[103] https://paperspast.natlib.govt.nz/newspapers/THS19200707.2.5

Thames Star, Volume LIII, Issue 14269, 7 July 1920, Page 1

[104] https://paperspast.natlib.govt.nz/newspapers/HPGAZ19210805.2.17

Hauraki Plains Gazette, Volume XXXII, Issue 4300, 5 August 1921, Page 2