The Furnaces

Two furnaces were built at Karangahake. They both used the same building on Battery Flat. This was at a site downstream of the confluence with the Hauraki Stream, an area now largely covered by moderately sized trees (amenity plantings c. 1985?).

Hauraki Stream, near the confluence, contains a wooden flume protruding from the true left bank. Was this a tailings flume from the Furnace house? Perhaps when it was treating ore by cyanide.

The La Monte Furnace

This was a water jacket blast furnace. The water jacket keeping the walls cool.

1885

23 May 1885

> Mr John D. La Monte, patentee of "The Water Jacket Air Blast Smelting Furnace," is about to visit this goldfield. The quartz, by this process, is reduced to a fluid state, and the gold melted out under conditions which prevent its loss. The fuel required is comparatively limited, the sulphur, &c, in the quartz supplying much of the reducing heat required. Upon an average, it is stated, about 95 per cent of gold in the stone is saved by this process, and the cost of working comparatively small.[1]

30 May 1885

> MR LAMONTE'S GOLD SAVING PROCESS.
>
> An important meeting was held at the Chamber of Commerce, in Auckland, on Thursday evening to take into consideration the best means of bringing to a practical issue the results of Mr LaMonte's enquiries, and of the proposals he was willing to submit to them for introducing his process into the goldfields of this and adjoining districts. There was a large attendance of those interested in mining present, and Mr J. Reid, President of the Chamber, took the chair.
>
> Mr Saunders read the following draft: - “Form a company of say 60,000 shares, of £1 each. I will deed to such company my Nevada Water Jacket Smelter (open jackets), and my Nevada Copper Smelter (open jacket). The Pacific Galena Smelter and the Pacific Copper Smelter also, my process for separating the gold and silver from the base bullion, and all plans and specifications for the same. Same as is in use in New South Wales. I will-furnish and deliver—at Auckland one 30 ton of smelting plant complete—ready to set up, one double refinery, also ready to set up, in fact all of the machinery complete for the plant, and will furnish skilled labour to erect and start the same, running it say 30 days successfully; then the skilled labourers to remain, if wanted, with the company to erect and start other works. Such patents and such plant to be delivered to the company at Auckland; provided that a cash consideration of £10,000 is paid in three instalments of like amounts, extending over a period of six years from signing the same —£1000 cash down, and 8000 shares of the company's stock fully paid up. This would

[1] https://paperspast.natlib.govt.nz/newspapers/TAN18850523.2.3
Te Aroha News, Volume II, Issue 103, 23 May 1885, Page 2

give us for the patents a net sum of about; £6000 only, with success guaranteed by us. - Yours truly, John D. LaMonte."[2]

Success guaranteed!

3 June 1885

Arrangements have at last been concluded between Mr La Monte, of gold-saving fame, and a syndicate composed of Messrs H. Campbell, D. J. McLeod, J. Reid, Alex Saunders, A. Porter, Wilsons and Horton, W. Fraser, J. M. Lennox, R. K. Davis, G. Aickin, O, C. McMillan, and LaMonte. The agreement is that a furnace is to be erected at Thames within four months, and run for sixty days at the expense of the inventor. The terms fixed are a sum of £10,000, to be paid to Mr LaMonte as follows:—£1000 to be paid down, and if results prove successful, the balance of £9000 to be paid; in addition to this, if the anticipations of those interested prove correct, a company will be formed, and the patentee is to receive one-fifteenth of the number of shares in it in paid-up scrip and one-fifteenth in contributing shares. The syndicate become possessed of the whole of the rights in the colony. Mr R. K. Davis, one of the syndicate, undertook, with the owners of the Woodstock mine, Karangahake, to expend £4000 in erecting a furnace and connecting it with the mine; in consideration of this one half the mine is given, and if the results are profitable, the £4000 is to be made a first charge on proceeds. A royalty of 4s per ton is to be paid to the syndicate for the use of the patent.[3]

4 June 1885

The proprietors of the Woodstock claim, Karangahake, have lost no time in setting in motion the arrangements for the erection of the LaMonte smelting furnace. Application was made at the Warden's office yesterday for a machine site on the flat near the Hauraki company's battery, and also for the right to the necessary water-race, from which power will be taken for driving the blast connected with the furnace. It may be mentioned that Mr Davis, who has undertaken the erection of the plant, receives one-half the ownership of the mine, and in the event of the venture proving successful, his expenditure of £4000 will be recouped from the profits, he, however, accepting the full risk of failure.[4]

8 June 1885

Mr La Monte guarantees 95 per cent. of the assay value of the stone...[5]

9 June 1885

Davis has gone to Karangahake to commence the erection of a La Monte furnace.[6]

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[2] https://paperspast.natlib.govt.nz/newspapers/THA18850530.2.10
Thames Advertiser, Volume XVI, Issue 5181, 30 May 1885, Page 3
[3] https://paperspast.natlib.govt.nz/newspapers/THS18850603.2.7
Thames Star, Volume XVI, Issue 5110, 3 June 1885, Page 2
[4] https://paperspast.natlib.govt.nz/newspapers/THA18850604.2.6
Thames Advertiser, Volume XVI, Issue 5185, 4 June 1885, Page 2
[5] https://paperspast.natlib.govt.nz/newspapers/THA18850608.2.10
Thames Advertiser, Volume XVI, Issue 5188, 8 June 1885, Page 3
[6] https://paperspast.natlib.govt.nz/newspapers/AS18850609.2.28
Auckland Star, Volume XXVI, Issue 129, 9 June 1885, Page 2

13 June 1885

Re Woodstock mine, Karangahake. A sample of stone tested by La Monte contained £30 worth of bullion per ton, as against fifty shillings' worth usually obtained by the battery process.[7]

22 June 1885

It has been more than suspected that a very large percentage of gold was being lost by the gold-saving processes at present in use. A Mr. La Monte, of California, recently visited Auckland, and has succeeded in impressing upon the minds of those interested in mining that what has hitherto been taken for granted, namely, that perhaps half the gold is lost in treatment, is a fact. But he goes further and asserts that he can save by means of furnaces, 90 per cent, of the bank assay.

He took samples from various mines, tested them, and was satisfied that they were rich enough to pay for treatment. His smelting process is dearer than our present gold-saving appliances—crushing mills—the difference being, say, 10s against 30s or £2, but it is urged that the increase of cost will be much more than compensated by the extra gold saved. A syndicate has been formed in Auckland for the erection of furnaces, Mr. La Month's terms partaking somewhat of the "no cure, no pay" principle. A furnace is to be erected on the Thames within a few months, and another at Karangahake, Ohinemuri.

The belief is prevalent that these furnaces will be of great benefit to Karangahake. Several of the mines in that district have excellent returns as far as quantity is concerned, but the gold is so poor running from 20s to 30s an ounce that it is not more than payable. In fact, silver may be said to predominate. Mr. La Monte was particularly struck with the quantity of silver in the lodes, and is thoroughly convinced that they will pay handsomely as silver mines, and for the treatment of silver the furnaces are admirably adapted.[8]

The Furnace. Three hundred tons of machinery, &c., in connection with Mr R. K Davis' furnace, is to be carted from Paeroa to Karangahake.[9]

29 June 1885

[The Woodstock reefs] have been proved and found to contain large percentages of gold and silver the latter preponderating. Stone from these reefs treated by Mr La Monte, in Auckland, assayed from £30 to £60 worth of bullion to the ton. The samples assayed from No. 1 reef, 6 feet thick, were taken by Mr La Monte, himself, from the tip head, where some hundreds of tons of quartz, broken out from the reef whilst driving the level, were thrown away by the shareholders who did not consider it sufficiently rich in gold to pay them for subjecting to the battery treatment and, like the shareholders in the celebrated Comstock mine, California, they knew nothing and cared less about the metal called "silver."

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[7] https://paperspast.natlib.govt.nz/newspapers/TAN18850613.2.3
Te Aroha News, Volume III, Issue 106, 13 June 1885, Page 2

[8] https://paperspast.natlib.govt.nz/newspapers/NZH18850622.2.39
New Zealand Herald, Volume XXII, Issue 7360, 22 June 1885, Page 6

[9] https://paperspast.natlib.govt.nz/newspapers/THS18850624.2.18
Thames Star, Volume XVI, Issue 5128, 24 June 1885, Page 3

> Mr La Monte's visit to the district, however, opened, their eyes to the fact that mining for silver will pay as well, if not better, than mining for gold and I have no doubt that their quartz which was pitched over the tip head as being of no further value, will be amongst the first parcel to be passed through the new furnace.[10]

11 August 1885

> Woodstock.-— Willett's and party, contractors for cutting and forming the horse grade section of tramway, are making good headway with the work, and will complete their section within the specified time. Milligan and party have, completed the formation of the self-acting section connecting the County road with the furnace site, and laying the sleepers and fastening the iron rails will be next in order. This tramway will be used as a mode of transport for material, &c., from the point of delivery by dray to the furnace site. Good progress is being made with the work of clearing and excavating for the furnace building as well as with the cutting and levelling for the water race fluming. [11]

The horse grade section is either near top of (or around the back of) the Woodstock Blow, or beside the Waitawheta River (with a cableway in between), or both. If beside the Waitawheta, then presumably this is a repair/extension of the wooden railed Hauraki tramway completed c. August 1883. Water race for the furnace is from the Ohinemuri River.

Self-acting incline completed

This is the incline, on the slope behind the Woodstock furnace, to facilitate the movement of materials from the County Road at the top.

4 September 1885

> Woodstock. —The furnace is being erected under the supervision of a gentleman named Hazlett, who is deserving of a meed of praise for the energy displayed and the excellent progress made, in spite of the vast difficulties encountered. At present the greatest drawback is the difficulty of getting material on to the ground, and timber especially is short just now. This is retarding the progress considerably. The frame of the building is up, and is roofed over with zinc. Its dimensions are 50 feet by 30 feet, and there is also a lean-to 14 feet by 20 feet which is intended for refining purposes.
>
> Behind the furnace is a very steep self-acting tramway, three or four chains in length, connecting with the road. This will be used for conveying coke, lime, and all requisites to the furnace. At the other side is a tramway 24½ chains [493m] long, running from the furnace to the hopper of the mine, the trucks of which carry a ton each. This tramway has been carried along a steep siding, and the cutting has just been completed. It skirts the southern side of the Waitawheta Creek. The hopper is connected with the mine by an aerial wire tramway 970 feet [296m] in length. Of course water will be required, but of this, happily, an ample supply is available. An excellent natural dam, about two chains wide, has been found in the Ohinemuri River. A water-race from this dam, 145 chains [2917m, error?] in length, will convey ten or twelve

[10] https://paperspast.natlib.govt.nz/newspapers/THA18850629.2.8
Thames Advertiser, Volume XVI, Issue 5206, 29 June 1885, Page 3
[11] https://paperspast.natlib.govt.nz/newspapers/THA18850811.2.9
Thames Advertiser, Volume XVI, Issue 5243, 11 August 1885, Page 3

> sluice heads to the furnace. From the head of the dam to the junction of the Waitawheta and Ohinemuri Rivers is 28 chains [563m]. At this point (the junction) a bridge will be necessary to carry the flume across. The water-race will require some 7500 feet of timber. The fall of water from the dam will be about 40 feet, and a Pelton wheel is expected to generate about 40 h. p.[12]

The 24½ chain [493m] tramway on the "southern side of the Waitawheta Creek" must be a recycling/extension of the Hauraki tramway; the start of what we now call the Crown tramway. The dam and water race will be the first on the Ohinemuri.

19 September 1885

> The Furnace. The fine weather now prevailing has permitted more rapid advancement of the work in connection with the erection of the furnace at Karangahake. The heaviest part of the machinery and plant is now on the site. The blower, stone-breaker, etc., were lowered down the self-acting tramway on Tuesday last, the line working very well; the rope and brake wheel are of a similar pattern to that known as the Moanatairi [Moanataiari] brake, which is capable of lowering a great amount of material during the day. Mr Haslett has a large number of carpenters engaged in the erection of the dams, fluming, and boxes for the water-race; also the tramway construction is making rapid progress. Mr Winter, with his assistants, is making good headway with the furnace brickwork, the iron casing all being in position. The refinery and testing furnace will be finished in a few days. Should nothing unforseen occur to retard the works, it is likely that a very few weeks from now, the fires should be alight, and we sincerely hope the spirited proprietor, Mr R. K. Davis, will be well rewarded for his enterprise.[13]

7 November 1885

> KARANGAHAKE, Friday. The furnace is in a forward state, and should be ready in a month at the outside. Mr. Haslett, who has charge of all the works connected therewith, estimates that, should all go well, a fortnight will see it completed. 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…
>
> As present the number of men employed in connection with the furnace is 33 and as many as 46 have been on the pay sheet… [14]

La Monte Furnace to Start?

16 December 1885

This report details the starting of the La Monte furnace at Thames. The Karangahake furnace was water powered, and has not started yet.

> The ore intended for treatment is in the first place pulverised in the stone-crusher to about the size of large pebbles. It is then carefully sorted and

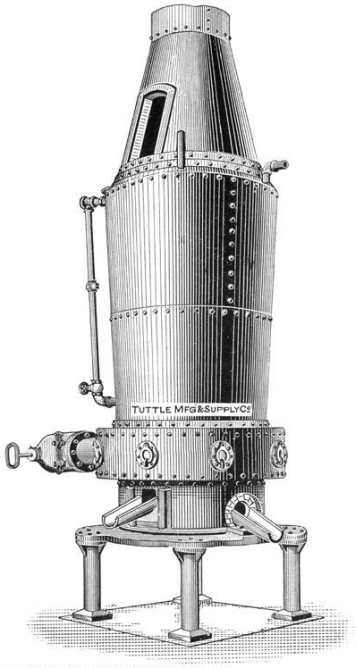
[12] https://paperspast.natlib.govt.nz/newspapers/NZH18850904.2.49
New Zealand Herald, Volume XXII, Issue 7424, 4 September 1885, Page 6
[13] https://paperspast.natlib.govt.nz/newspapers/TAN18850919.2.32
Te Aroha News, Volume III, Issue 120, 19 September 1885, Page 7
[14] https://paperspast.natlib.govt.nz/newspapers/NZH18851107.2.35
New Zealand Herald, Volume XXII, Issue 7479, 7 November 1885, Page 6

sampled, and assays are made for the purpose of ascertaining its value (for purchase from the producers) and analyses in order to decide upon the nature and quantity of the fluxes required. These consist chiefly of iron-stone and lime, the latter being obtained either from the bed discovered near Tararu Cemetery, or by the use of ordinary seashells.

The fire being lighted, the ore and fluxes are introduced into the furnace in the required proportions through the feed doors at the level of the upper floor of the building. The powerful blast from the rolange blower is admitted to the furnace by tuyeres, or openings in the water-jackets. As the ores are smelted, the metals which they contain fall into the lead bath in the base of the furnace, forming an alloy with the molten lead with which the receptacle is charged.

The bullion gradually overflows into the square well situated outside the furnace, whence it is ladled out, and run into moulds, forming ingots of about 80lbs weight. These are removed to the refinery, where the bullion is separated from the lead, and finally, purified in readiness for the market. The slag formed by the refuse runs continually from the ends of the furnace which are tapped alternately by the workmen, the red hot liquid passing down an iron gutter, where it is caught in large vessel, and conveyed on trollies to the rear of the smelting shed.[15]

This is an image of a water jacket furnace for copper ores. [16]
It may, or may not, help to visualize the furnace.



WATER JACKET FURNACE FOR COPPER ORES. FOR DESCRIPTION SEE PAGE 111

[15] https://paperspast.natlib.govt.nz/newspapers/THA18851216.2.8
Thames Advertiser, Volume XVI, Issue 5351, 16 December 1885, Page 3
[16] https://commons.wikimedia.org/wiki/File:Water-jacket_blast_furnace_for_copper_ores.png

1886

22 March 1886

KARANGAHAKE DISTRICT.

Woodstock Mine.— As the attention of the public has been for some time past, and is now to a great extent concentrated upon this mine, and the La' Monte furnance [furnace] connected therewith, we will commence with a description of the same. Most of the readers of the Herald are probably aware that the smelting furnance which has been for some months in course of construction is now perfectly completed, and as the first instalment of the necessary fluxes is now on its way to Karangahake, no time will be lost in commencing active operations. For this purpose the manager, Mr. Littlejohn, has been busily engaged during the last few days in transmitting ore from the mine, and a considerable quantity has already been put through the stone-crusher, and is quite ready for treatment in the furnace. At the time of my visit, on Monday morning, the three large hoppers were full of quartz, and the manager informed me that he has over one hundred tons ready to put through the stone breaker, and anticipates no difficulty in supplying a sufficient quantity to keep the furnace at constant work…[17]

Mr. H. A. Gordon, F.G.S., Inspecting Engineer, 4th May, 1886.

Until lately mining in this colony has been chiefly confined to gold and coal; but, recently, attention has been directed to argentiferous lodes[18], which exist at Karangahake and Waihi, in the Ohinemuri district, and smelting-furnaces for the reduction of this class of ore have been erected. So far these furnaces have not proved a success, owing to the class of ore not being of a suitable character for smelting at a cheap rate. The smelting-furnaces that are erected at Karangahake and the Thames are specially adapted for smelting argentiferous and auriferous ores containing a large percentage of galena and iron, as these minerals are specially required as fluxes, in conjunction with lime, to make the silica run freely; but where the ore is deficient of either galena or iron the cost of fluxes to smelt the silica is so great that it requires ore of a high grade to pay for its manipulation. Different classes of argentiferous ores require different treatment. Those containing galena and iron are specially adapted for smelting, while ores containing chlorides and chloro-bromides of silver can be manipulated far more advantageously and economically by chlorination and amalgamation.[19]

No. 1. Mr. Warden Kendrick, 24th April, 1886.

The advent of Mr. La Monte, from California, in the early part of the year was taken advantage of by an energetic syndicate, who at once made arrangements for the erection of two of his wet-jacket smelting-furnaces, one at the Thames, the other at Karangahake. The Thames furnace was completed, and up to the 31st March last had run through about 180 tons of ore, purchased from various

[17] https://paperspast.natlib.govt.nz/newspapers/NZH18860322.2.28
New Zealand Herald, Volume XXIII, Issue 7591, 22 March 1886, Page 5
[18] Containing silver ore.
[19] https://paperspast.natlib.govt.nz/parliamentary/AJHR1886-I.2.1.4.9
GOLDFIELDS, ROADS, WATER-RACES, AND OTHER WORKS IN CONNECTION WITH MINING (REPORT ON)., Appendix to the Journals of the House of Representatives, 1886 Session I, C-04

mines at Waihi, Karangahake, and Tui (Te Aroha); but little of any Thames stone was put through…

Page 4….At Karangahake much has been done during the year in the various mines, and a fair measure of success met with. The larger portion of the stone sent to the furnace at the Thames has been from this district, as much as £105 per ton being given as the assay-value of one parcel sold. The difficulty in procuring the necessary fluxes has retarded the opening of the local furnace, iron ore having to be brought from Whangarei by sea, up the Thames River to Paeroa, and from thence to be carted some seven miles; and, as the coke, lead, lime, &c, will have all to be brought from a distance, I am afraid that the expense will be too great for the class of stone to be treated. It certainly will be cheaper to send the more valuable stone to the Thames, as for every ton of stone smelted some two tons of flux have to be brought to the furnace.

No. 4. Mr. Mining-Inspector McLaren, 20th May, 1886.

Page 12.

In connection with the Woodstock Mine a complete smelting-furnace has been erected. Everything has now been ready for some months to begin operations, but there is no apparent intention to make a start; and the general impression is, that after the experience had from the same kind of furnace at the Thames they never will start. However, this remains to be seen. If not, it would not be difficult or very expensive to convert the water-power to drive a battery.[20]

3 July 1886

OHINEMURI GOLDFIELD. FROM OUR OWN CORRESPONDENT.

Karangahake Paeroa, Thursday.

Woodstock. --Matters are now approaching a crisis in the management of this mine. The equity of redemption of the furnace was to have been sold on Wednesday last at Tonk's mart Auckland, but up to the time of writing no news has been received concerning the sale. Until recently there was some hope that the Woodstock shareholders would have been unable [able?] to raise funds to buy or lease the smelter, but now it is discovered that there is a millstone round its neck in the shape of a £1500 mortgage which the buyer must first redeem. That hope, at least, is a fruitless one, as the shareholders in the mine demur even to paying their own calls. The trouble is chiefly caused by the gross misstatements of Mr La Monte, who asserted positively that Karangahake ores could easily be smelted with the aid of about 30 per cent of flux to assist. Provisions was duly made to get that amount of flux, when it was found that it would require more than eight times the percentage of iron and limestone flux, viz., 240 per cent added to the quartz before it would properly flow. As all the iron ore was foreign to Ohinemuri, and had to be handled five or six different times, that made a wonderful difference in the estimated expenses. This matter, combined with the lack of forethought on the part of Mr R. K. Davis and others, has brought matters to their present pass. It is hoped, however, that arrangements will be made for a month's run of the furnace, in order that its capacity and capability may be really and practically

[20] https://paperspast.natlib.govt.nz/parliamentary/AJHR1886-I.2.1.4.10
GOLDFIELDS., Appendix to the Journals of the House of Representatives, 1886 Session I, C-04a

known, and that the value of the Woodstock ores as treated by the fire process may be estimated also.[21]

8 July 1886

OHINEMURI GOLDFIELD.

Karangahake

It is now definitely settled that the fires of the Woodstock Furnace will be lit in about a week's time. Your correspondent has been favored with a perusal of a letter from headquarters in which it is stated that the furnace has been bought in on behalf of the trustees in R. K. Davis's estate and that they intend seeing the thing through. It is not well to prophecy concerning the future of anything connected with mining as there are, to use a popular phrase, wheels within wheels, there is not the slightest doubt however that given the fair starting of the smelter, no hitch in the supply of flux, and a little more foresight and common sense than was used at the LaMonte establishment at the Thames, that a new era will commence for Karangahake and the whole of the Ohinemuri Goldfield, with the first puff of smoke that rises from the furnace chimney.[22]

19 August 1886

KARANGAHAKE

Woodstock furnace.—For the scene of unreliability commend me to this concern. From its very conception it has been a very Will o' the Wisp for misleading. When LaMonte first visited Karangahake with a load of novelty and a number of mysteries encircling his person he was listened to as an oracle. In his off hand yankee dialectic he spoke of the fortunes that were being slung over the tipheads, the quartz that was being saved as not being worth a hundredth of that thrown away. He picked at random pieces of hungry looking quartz and extracted by some esoteric alchemy large prills of "bullion," and in short left an impression upon the credulous similar to that left upon a schoolboy after a midnight persual of Jules Verne.

He wanted to sell a furnace and like most commercial travellers whether travelling for a sewing machine at £10 or a smelter at as many thousands, a few slight exaggerations made no matter so long as the end justified the means. At this present moment however the major part of the quartz so jealously garnered up has been condemned by the assayer as worth nothing but for macadamising [road making] purposes. The fact of the matter is that unless foreign fluxes are introduced the Woodstock ores will not smelt freely and the cost of the fluxing outweighs the value of the ore. This is no fault of the system, which is the only true reducing system. The fault lies with the seller of the furnace whose words were that Karangahake ores would "flow like milk." The furnace was bought and erected on the strength of that statement. Hence these tears. As to the commencement of operations I can only paraphrase Cousin Jacks remark. "When it starts then-it starts."[23]

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[21] https://paperspast.natlib.govt.nz/newspapers/WT18860703.2.28
Waikato Times, Volume XXVII, Issue 2182, 3 July 1886, Page 3

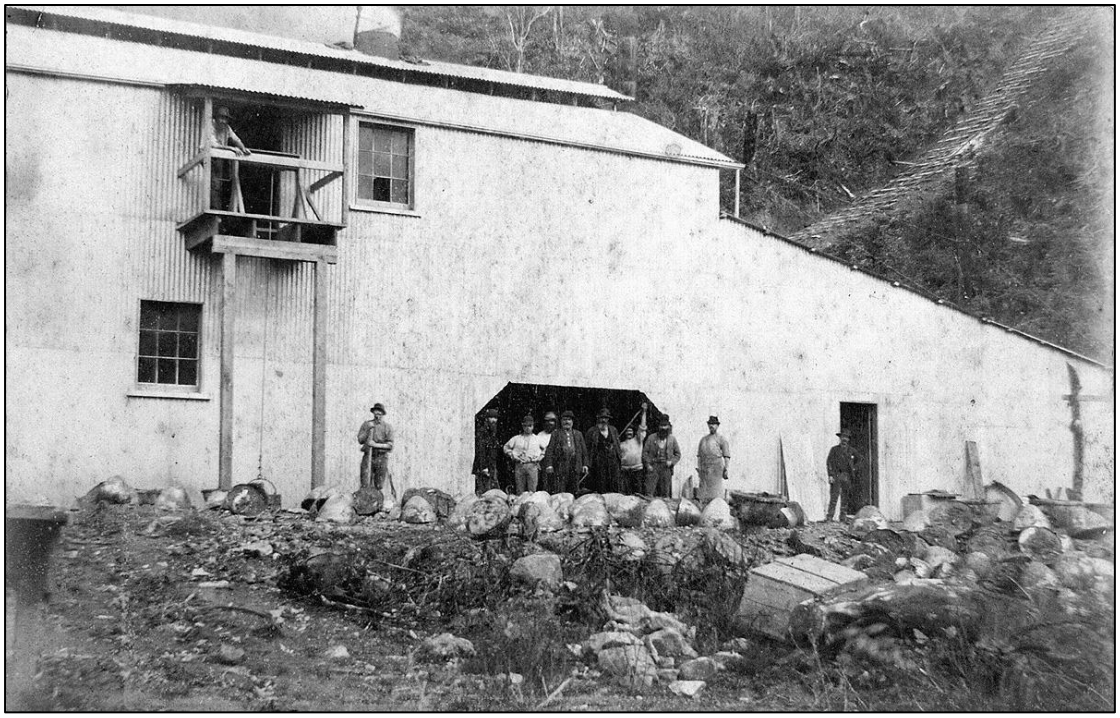
[22] https://paperspast.natlib.govt.nz/newspapers/BOPT18860708.2.12
Bay of Plenty Times, Volume XIV, Issue 2009, 8 July 1886, Page 3

[23] https://paperspast.natlib.govt.nz/newspapers/BOPT18860819.2.20.2
Bay of Plenty Times, Volume XIV, Issue 2026, 19 August 1886, Page 2

The Woodstock Furnace (La Monte) has short run

2 September 1886

> KARANGAHAKE Considerable disappointment has been manifested at the poor return from the 20 tons ore smelted at the Woodstock Furnace. It is said that unless there is prospect of better success that the Company will adjourn any further operations *sine die*. The second class ore from the Woodstock mine is shaping for a return of over an oz. to the ton at the Ivanhoe battery.[24]



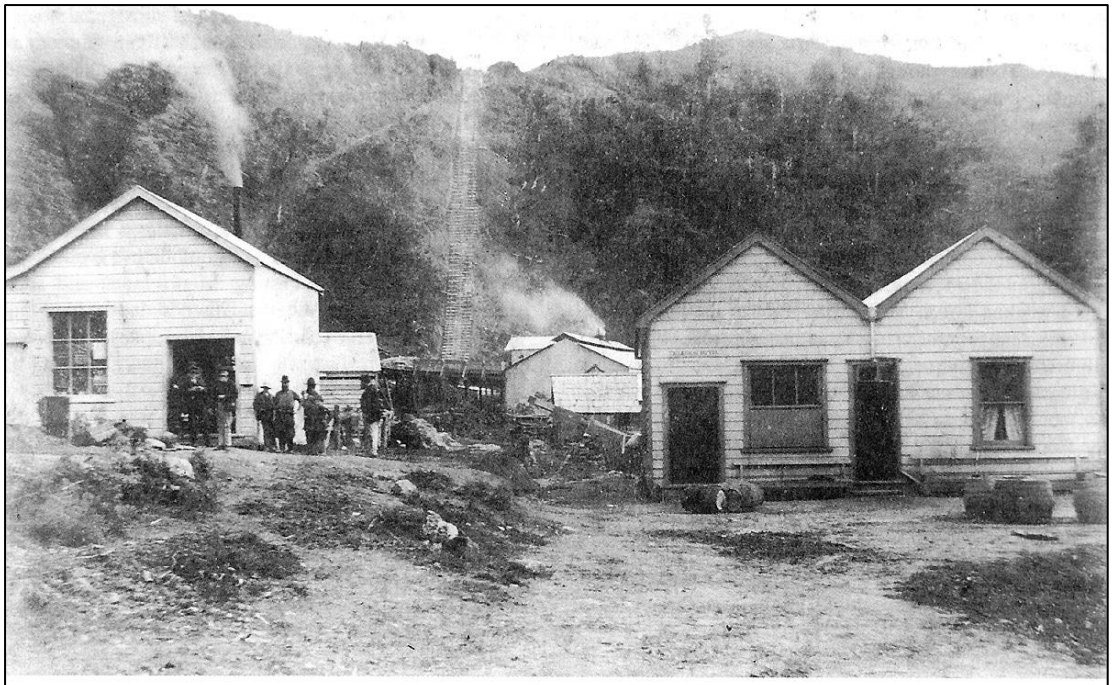
Staples Collection. Date and photographer unknown. This may be the earliest photograph of the furnace house. The balcony has no stairway, and there is no lean-to, with door above, on this wall, all of which appear in the later(?) images. The roof is ventilated, and the chimney appears to be a short round pipe.

The balcony has a rope for lifting/lowering a large bucket. There are 11 figures in the photograph. The incline behind the building looks freshly constructed.

But what are the objects in the foreground? All half egg-shaped lumps of slag, products of the furnace? "Reserved for future treatment"; see below.

So during operation, August or September 1886?

[24] https://paperspast.natlib.govt.nz/newspapers/BOPT18860902.2.8.1
Bay of Plenty Times, Volume XIV, Issue 2032, 2 September 1886, Page 2



Hoggs Store - La Monte Smelte - Tramway Hotel - 1886

Ohinemuri Regional History Journal 44[25]

Hogg's store on left, Tramway Hotel on right, La Monte furnace smoking in background. The incline behind.

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

The hotel is a simple affair, with only modest signage over the door. Barrels furnish the "garden bar". Seven figures can be seen at the store.

6 September 1886

> Karangahake, Friday. Woodstock, — Since the furnace shut down I have made some inquiry with regard to the general results attending the late smelting operations, and I find that the total quantity of stuff put through for the three and a-half days' run was approximately about 80 tons, made up as follows : —Iron ore, 42 tons ; quartz, 28 tons; lime, 4 tons; lead, 6 tons: total, 80 tons. The assay value of the quartz treated, after making a deduction of 15 per cent, for ordinary loss and moisture, was £496, and the amount of bullion saved was about £290 in value, showing a loss of fully 60 per cent, on the assay value of the ore treated. As against that, there is £100 worth of bullion in the slag, flue dust, and furnace trimmings, which have all been reserved for future treatment. A large proportion of the loss may be accounted for by the fact that the interstices of the brick lining in the furnace are all filled with lead bullion, and the floor, as well as the rim of the crucible, or furnace "well," are also lined with a pretty thick coating of the same substance.
>
> In short, the trial was not by any means a fair one, and it is to be hoped that the Company will see its way clear to give the process another chance by making provision for at least a fortnight's run before throwing up the sponge, and I am certain that the results will be more satisfactory to all concerned than was the case with the first venture.[26]

[25] https://www.ohinemuri.org.nz/journals/journal-44-september-2000/karangahake-township
[26] https://paperspast.natlib.govt.nz/newspapers/AS18860906.2.47
Auckland Star, Volume XVII, Issue 209, 6 September 1886, Page 4

24 September 1886

KARANGAHAKE FURNACE.

(from a CORRESPONDENT)

Now that the smelting furnace at present belonging to the Woodstock Gold Mining Company at Karangahake has been started, a short account of the plant may be of some interest to your readers. It is now just a little over a year since the Woodstock Co. made arrangements with Mr. R. K. Davis, by which he was to erect this furnace and connect it with the mine, so that the quartz could be brought down to it. I may here mention that the claim itself is so rough and broken on the surface, and so difficult of access, that it was impossible to build the furnace there, and a site had to be chosen for it at a distance of about half a mile from the foot of the hill on which the mine is.

I need not say much here about the furnace itself, as so many people have seen the one at the Thames, and it has been so often described that the majority of your readers will be familiar with the appearance of it. The one at Karangahake is just the same as the Thames one, with this difference, that the machinery in connection with it, that is the blower and stone crusher, is here driven by water power instead of by steam, and the quartz and fluxing materials are all delivered at such a height above the feeding floor that they can be sent straight to the crusher and smelter without any further hoisting.

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.

When the flume reaches the back of the furnace house the water is delivered into a wooden tank 3 feet square and 7 feet deep, from the bottom of which a wrought iron pipe, 20 inches diameter, carries it into the building. At the bottom of this pipe is a cast iron nozzle, four inches diameter, controlled by a

screw valve, and through this valve and nozzle the water is delivered on to the wheel, and as there is a clear fall of 40 feet from the tank down, you can imagine with what force the water strikes the wheel. The wheel used is a Pelton, six feet diameter, with cups 12 inches wide, and when the furnace is in blast, the ordinary speed is 60 to 70 revolutions per minute. The wheel, shafting, pulleys, &c., are from the foundry of Messrs. A. and G. Price, of the Thames.

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.

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

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

On arrival at the furnace house, the quartz is tipped on to a sloping platform, from whence it is fed into the stone crusher, and falls from it on the feeding floor of the furnace. The crusher is one of M. B. Dodge's No. 1, made by Savage, Son, and Co., of San Francisco, and can put through from 25 to 30 tons per day according to the size required. When the quartz comes from the crusher, it is mixed with the necessary fluxes, ironstone, lead, lime, &c., and is then fed into the smelter or furnace, from where it is drawn off below in a molten state, the quartz and fluxes as slag, which is thrown away [is this what we see in the first photograph above?], and the gold, silver, and lead at a lower level as bullion, which has still to be refined.

The house in which the furnace stands is a two storey building of galvanised iron, 45ft long, 30ft wide, and is 22ft high. From the end of this building, a

> large opening leads into the refinery, 34 x 30 feet, and one storey high. Here are two reverberatory furnaces, where the lead is extracted from the bullion, leaving only the gold and silver, which is not treated any further here, but is sold to the banks in that form.
>
> The blast for the smelter is got from one of Baker's rotary pressure blowers, No. 4½, made by Wilbraham Brothers, of Philadelphia, and when the furnace is working it runs about 120 to 130 revolutions per minute.
>
> Immediately behind the furnace house rises a very steep hill, about 200 feet high, and it is on the top of this hill that all the materials used in the erection of the works, as well as all the coke for the furnaces, and the lead, lime, ironstone, etc., for the fluxes, are delivered by the carts which bring them from Paeroa, so that a self-acting tramway had to be constructed here to lower these things down. This tram is about 400 feet long, with a fall of 180 feet, and is laid with three lines of 24lb iron rails, having a passing loop in the centre. The rope used is of steel wire, five-eighths of an inch in diameter, and is worked by a powerful break [brake] at the top. The average load put on the trucks is about a ton, but some parts of the machinery which had to be sent down weighed over two tons. Besides the aerial or wire tramway already described, there is another one of the same sort connecting another part of the mine with the horse tram, and having similar hoppers, trucks, etc., as the first one, with this difference, that the wires on it are 1050 feet long. The quartz at this part of the mine not having proved so suitable for the furnace as was expected, this tram has scarcely been used yet.

Is this the wire that can be seen in RIC 358 Waitawheta Gorge cableway Aklib[27], coming from lower down the Woodstock Blow, and further to the east? This cableway, with chute, receives ore from the north or east side of the Blow.

> I am informed that; altogether over four and a half tons of wire rope have been used in connection with these tramways, and over 20 tons of iron rails on the horse and self-acting trams. To give some idea of the amount of work done here, I may mention that at one time Mr. Haslett, who was manager for Mr. Davis, had 46 men at work under him, and during the five months the work was on hand, paid away for wages alone over £1900. Work was commenced on the 30th of July last year, and on the 30th of November, just four months after, the water was turned on to the Pelton wheel, and the machinery set in motion; and by the end of the year the whole of the works were so far finished that smelting operations might have been started at once, but for the difficulty of getting iron stone to flux with.
>
> Not the least difficult part of this undertaking was the carting of the materials from Paeroa to here, a distance of five miles over roads that in many places had never had a shilling spent on them, and where at times it took three or four horses to take what on ordinary roads would be considered but half a load for one horse. Add to this that there was a river to ford over 200 feet wide, which, after a day's rain, would rise to the floor of the carts, and sometimes stop all traffic for a week, and remember that most of the carting was done in winter, and you have some idea of what Mr. Dickey, who had the contract for this

[27] "D:\Karangahake research\Images\Auckland Libraries Heritage Collections\RIC 358 Waitawheta Gorge cableway Aklib.jpg"

work, had to contend with in transporting some 600 tons of material to the ground.

The levels for the water race, tramways, etc., were taken out by Mr. H. Crump, surveyor, Te Aroha, while the furnace itself was erected under the supervision of Mr, Lane, engineer, the whole of the works being under the immediate direction of Mr. J. M. Haslett, late of Auckland, and the total cost being about £8000.[28]

John Dye La Monte[29]

Was La Monte a Con Man?

A cutting obituary published in Australia after his death certainly inferred that he was a con man. The suggestion was made that only a Bret Harte might do justice to his complex character. Harte was famously known for his short stories about the colourful characters in the Californian Gold Rush.

In retrospect, the New Zealand establishment definitely would not have invested in La Monte if they had had access to the communication and information systems that we take for granted in the 21st Century. Let us look at five warning flags that would have immediately come up.

First, La Monte obviously had no formal training as a geologist, or mining engineer, let alone as a metallurgist. Yet he inferred, or outright claimed, these qualifications at various times.

Second, the patents on water-jacketed furnaces and ore processing that he licensed to various companies were trivial, almost meaningless modifications, or did not exist at all.

Third, when he did deals to sell his furnaces in New Zealand, it was probably not fully realised that he and Kahlo were principally in the business of selling as many smelter systems as they could, using sweetening deals and extracting royalties from gullible companies. This was their business model.

Fourth, and crucially important, NZ investors seemed unaware of La Monte's disastrous involvement in the Australian silver mines, which had already resulted in a scenario which had an uncanny similarity to what was about the happen in Thames, i.e. not delivering on the contracted results, blaming others for not following protocols, then being dismissed/disappearing after selling his shares, leaving the investors urgently needing to bring in competent people to clean up the mess. This happened in 1884/85, just before the NZ ventures.

Finally, by 1885, he was committing the cardinal sin of trading while grossly insolvent.

La Monte was lucky that he would have been given the benefit of the doubt by the NZ establishment. They were well aware that the mining business was highly speculative and would accept the risks involved; so that, while some of their investments would make enormous profits, there would be others that were spectacular failures. And examples abounded of even experienced and

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

[29] For detailed background on La Monte, see: https://www.thetreasury.org.nz/the-journal/john-dye-la-monte-the-wrong-man-in-the-right-place-at-the-right-time
John Dye La Monte - The Wrong man in the Right Place at the Right Time.

> well-qualified mining experts getting things wrong. For example, the metallurgist John Howell with a proven track record erroneously recommended the expensive expansion of the Te Aroha Silver and Gold Mining Company.
>
> Of course, all the warning flags would not have mattered if the 'La Monte Process' had been successful in New Zealand. However, any hard-nosed experienced metallurgist would have warned that the likelihood of success was extremely low. Besides, La Monte was demonstrably incompetent even when it came to getting the process working under favourable conditions with silver at Sunny Corner in Australia. When George Beardsley was recruited from California (presumably from the company that La Monte had been president of), he had the process quickly running and generating huge profits…
>
> So, in summary, what do we make of Mr John Dye La Monte? A cold analysis of the facts does not put him in a very good light. Multiple name changes, extreme license with the truth, promises that could not be kept, investors losing serious money, impenetrable financial affairs and a peripatetic habit of keeping ahead of his disasters. On the other hand, he displayed amazing energy, championed the development of silver mining in Australia, and in later years seemed to settle down doing nobody serious harm…
>
> Perhaps John Dye La Monte really believed in his smelters and his mining expertise but, in his quest for fame and fortune, he often extended himself beyond his abilities. Whatever the case, he lived an extraordinary life, of which the people of New Zealand got just the briefest glimpse.[30]

Richard K. Davis; who was he?

Davis was an Auckland accountant and commission agent, with shares in several Hauraki mining districts, his investment in the La Monte furnace at Karangahake in 1886 would bankrupt him.[31]

> R. K. Davis was a well-known citizen of Auckland. He became dazzled by the new scheme, and being interested in the Woodstock mine at Karangahake he conceived the idea of erecting a Lamont furnace for the Woodstock company. Mr Davis spent all the money at his command upon the furnace, which, however, did no better in Ohinemuri than at the Thames. The result was that he shortly afterwards became bankrupt, with liabilities to the amount of £10,496.[32]

10 June 1886

> Richard K. Davis.— At the end of May last year I entered into an agreement with the Woodstock Goldmining Company, Karangahake, to erect a furnace and subsidiary connections, in order to work the mine upon the smelting process. The price was to be £4000, to be paid out of the proceeds of the smelting, as set out in the agreement.

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[30] https://www.thetreasury.org.nz/the-journal/john-dye-la-monte-the-wrong-man-in-the-right-place-at-the-right-time
https://web.archive.org/web/20191218075322/https://thetreasury.org.nz/lamonte/wilkins.htm
John Dye La Monte - The Wrong man in the Right Place at the Right Time.

[31] Philip Hart. Te Aroha Mining District Working Papers; No. 72 and 86.

[32] https://paperspast.natlib.govt.nz/newspapers/TO19070216.2.6
Observer, Volume XXVII, Issue 22, 16 February 1907, Page 4

I received one-half of the mine as bonus for erecting the furnace. At several interviews with the proprietors after having commenced operation, their attention was drawn to the fact that, in our mutual interests, it was desirable the work should be done in a thoroughly substantial manner. They gave me then assurance that any extra cost beyond the £4000 should be allowed to me. This extra cost, including fluxes, amounted to 2450, making the total outlay £8500 or thereabouts.

My liability on this account amounts to £4000 (about), and the rest is out of my own pocket. The smelting process at Karangahake has not yet been in operation, although everything is in readiness for a 21 days' run. In consequence of the result of similar operations at the Thames being so unsatisfactory in the matter of expense, and the failure of Mr LaMonte to fulfil his agreement with regard to price, or cost per ton for smelting, a difficulty has been caused in obtaining the services of experts. The delay in getting returns for my outlay necessitated my calling a private meeting of my creditors in February last. The majority in number and value on that occasion decided to let me go on for four weeks under supervision of three creditors then appointed, and since then the estate has been virtually managed by these supervisors.[33]

[33] https://paperspast.natlib.govt.nz/newspapers/NZH18860610.2.4
New Zealand Herald, Volume XXIII, Issue 7660, 10 June 1886, Page 3

Parkes' Furnace

This was a reverberatory furnace. It will be established in the same Woodstock furnace house as was the La Monte.

1888

30 May

MR. PARKES[34] AND HIS GOLDSAVING PROCESS.

> Mr. Parkes, the inventor and patentee of one of the most recent processes of treating refractory ores, and saving the highest percentage of bullion, has been visiting the mining districts of the Thames peninsula for the last three weeks or so. From what we can learn Mr. Parkes is thoroughly convinced that the Thames ores can be satisfactorily treated, and he came to New Zealand determined to investigate the whole matter, and establish suitable plants where required. He has been through the whole of the principal mining districts of the peninsula, and one result is that an offer has been made through Mr. J. Chambers, Mr. Parkes' agent, to erect a plant at the Woodstock mine, Karangahake (Ohinemuri).
>
> A LaMonte plant had previously been erected on this mine, but did not meet expectations. Mr. Parkes would require that his own furnace should be erected, and he would then guarantee to save 90 per cent, of the assay bullion value of the ore. The probable cost of the furnace would be from £300 to £400. Of course, the cost of treatment in isolated positions would be greater than if a plant were erected in a central position where fluxes were easily obtainable, but in such positions as the Woodstock, which is isolated, he does not estimate that the cost of treatment would exceed £4 per ton, and the plant, if successful, would be taken over by the company at cost price…
>
> We may add that the process of treatment has already been proved to some extent, for parcels of ore sent to England and treated at Mr. Parkes' works have yielded respectively 92oz and 84oz of bullion per ton, being about 95 per cent. of the assay value.[35]

27 June 1888

> Paeroa, Tuesday. It is understood that Messrs. Parkes and Chambers are about to erect one of their furnaces at Karangahake in the old LaMonte furnace house.
>
> Tenders are called for carting 200 tons material from s.s. Kotuku to Karangahake.[36]

28 June 1888

> THE PARKES SMELTING FURNACE. Mr J. M Chambers has now got a staff of hands engaged in pulling down the La Monte smelting furnace, preparatory to establishing in its place one of Parkes's smelting furnaces

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[34] https://biography.yourdictionary.com/alexander-parkes
https://g.co/arts/41JeyyQFWruc3zyW6 images
https://en.wikipedia.org/wiki/Alexander_Parkes
There are many other sites that mention Parkes.

[35] https://paperspast.natlib.govt.nz/newspapers/NZH18880530.2.26
New Zealand Herald, Volume XXV, Issue 9067, 30 May 1888, Page 5

[36] https://paperspast.natlib.govt.nz/newspapers/NZH18880627.2.33
New Zealand Herald, Volume XXV, Issue 9091, 27 June 1888, Page 5

capable of treating six tons of ore per day. The smelter, which is to be erected in the Woodstock Company's furnace house, is to be in complete working order within six weeks, and operations will then be started upon a large tonnage of high-class ore, which has already been purchased from the Kenilworth tributers.[37]

7 July 1888

Messrs. Parkes and Chambers are making rapid headway with their plant at Karangahake, which will be ready in about three weeks. As the plant is simply an experiment, only about 150 tons of ore are required at present.[38]

Our Karangahake correspondent writes "Mr Chambers's men have completed the demolition of the La Monte water jacket furnace, which stood in the Woodstock Company's building, and a start has been made to erect one of Mr Parkes's reverberatory smelting furnaces in its place. Mr Parkes himself is now residing here for the purpose of superintending the construction of his own plant, which will be a full-sized one - equal to the treatment of 6 tons of ore per diem, and not an experimental furnace as has been stated by some of your contemporaries.

When increased smelting power is required the pioneer furnace will be supplemented by the erection of others, similar in general character, in the same building, which is sufficiently capacious for that purpose and is already fitted up with 'refinery', 'melting' and 'assaying' furnaces complete in every respect. Mr Parkes, who comes here with a world-wide reputation as an inventor and successful smelter of ores of every description, expects to be able to start operations within six weeks from date, and he is quite confident that his efforts to deal with our so-called refractory ores will be attended by highly satisfactory results. The first parcel of ore to be dealt with will be from Moore and party, tributers in the Kenilworth mine. It comprises about 40 tons, and the approximate value fixed upon it ranges from £12 to £50 per ton.[39]

29 August 1888

The stone breaker at the Parkes' furnace having proved useless, Mr Parkes has decided to get a set of rollers in its place. These are being made at Prices' on the Thames. This will delay the commencement of smelting for two or three weeks.[40]

Parkes' furnace started

27 September 1888

Karangahake. — The Parkes' furnace started to-day. Everything is in good order, and working well.[41]

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[37] https://paperspast.natlib.govt.nz/newspapers/AS18880628.2.28
Auckland Star, Volume XIX, Issue 152, 28 June 1888, Page 5
[38] https://paperspast.natlib.govt.nz/newspapers/TAN18880707.2.6
Te Aroha News, Volume VI, Issue 279, 7 July 1888, Page 2
[39] https://paperspast.natlib.govt.nz/newspapers/AS18880707.2.15
Auckland Star, Volume XIX, Issue 160, 7 July 1888, Page 4
[40] https://paperspast.natlib.govt.nz/newspapers/TAN18880829.2.11
Te Aroha News, Volume VI, Issue 294, 29 August 1888, Page 2
[41] https://paperspast.natlib.govt.nz/newspapers/NZH18880927.2.59
New Zealand Herald, Volume XXV, Issue 9170, 27 September 1888, Page 6

15 October 1888

A SERIES of most annoying delays have been experienced by the gentleman connected with the Parkes' furnace, Karangahake. First of all the centrifugal ore crusher would not work, and had to be replaced by others. The iron chimney stack was next found to heat too quickly, and had to be raised, and other petty delays have conspired to put off the starting of the furnace probably for another week or so.[42]

26 October 1888

A GENTLEMAN who has arrived here from Karangahake informs us that the Parkes' furnace has at just commenced smelting operations, a start having been made on Wednesday night.[43]

7 November 1888

The furnace has been erected in the building put up for the La Monte process, which has been considerably altered, and is now fitted up with all the conveniences necessary for the carrying out of smelting by Mr Parkes process. There are about twenty men employed, working in three shifts.

The process of treatment as described to me by Mr J. M. Chambers is as follows: — The first stage is the damping of the ore, which is then crushed to a fine dust, after which assays are taken of its value. The ore is then mixed with fluxes and is passed by means of a hopper into the bed of the furnace, and spread over with a rabble. The charge consists of a ton of the pulverised ore, and the smelting occupies four hours. After the ore has been under fire for this space of time the slag is skimmed off with a rabble at the upper end of the furnace, and the regulus[44] is tapped at the side. The regulus is then calcined, one half being reduced to lead, which is cupelled in an ordinary cupelling furnace.

The refining mainly consists of cupelling the lead containing the bullion. In this process the lead to be treated is placed in a bone ash crucible, and upon being reduced to a moulten state a jet of steam is thrown upon it which drives off the dross in the shape of litharge, leaving the bullion at the bottom.

One of the advantages Mr Parkes claims for his process is that there are only three operations connected with it, no roasting or calcining being required as in other processes. The three processes are :— (1) Smelting for regulus. (2) reducing the regulus with lead; (3) the refining of the lead bullion.

When the appointments and conveniences are complete, it is expected the bullion will be obtained in twenty four hours from raw ore. Some 16 tons of very rich ore from the Kenilworth will be shortly put through.

The coal being used is a mixture of Greymouth and Kamo.[45]

13 November 1888

The furnace for smelting ore erected at the Karangahake by Mr Parkes the last three weeks has proved very successful, and arrangements are being made for

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[42] https://paperspast.natlib.govt.nz/newspapers/THS18881015.2.7
Thames Star, Volume XX, Issue 6092, 15 October 1888, Page 2

[43] https://paperspast.natlib.govt.nz/newspapers/THS18881026.2.6
Thames Star, Volume XX, Issue 6102, 26 October 1888, Page 2

[44] an impure intermediate metal product created by the smelting process. Encarta Dictionary.

[45] https://paperspast.natlib.govt.nz/newspapers/TAN18881107.2.12
Te Aroha News, Volume VI, Issue 314, 7 November 1888, Page 2

the introduction of another furnace which will treat 12 tons per day. It has been decided to use Greymouth coal for the smelting. Four of the furnaces are to be erected at Te Aroha.[46]

15 November 1888

THE KARANGAHAKE FURNACE. DESCRIPTION OF THE PARKES PROCESS.

As the new furnace at Karangahake is now in thorough working order, and has been running splendidly for over a week, perhaps a short account of the works may be of some interest to your readers.

It is just three years since Mr R. K. Davis erected the first furnace here, which was one of the La Montes, and which, with its attendant refinery, blower, crusher, water-race, tramways, etc., cost over £8,000, and was then used for only four days, when it was shut down and pronounced a failure, not because it could not smelt the ores, but because the treatment was too expensive, and so it has remained ever since, rusting and rotting away, a sorry monument of misplaced confidence and misapplied capital. Now at last it has been taken down and put on our side [suggesting it is discarded outside the building?] and its successful rival has taken its place. Whether the old. furnace ever had a fair trial or not is a subject on which there is great diversity of opinion; but be that as it may the new one has certainly proved itself a great success, and is now going day and night, giving out lava-like streams of metal and slag, and at night illuminating the whole township. To Mr J. M. Chambers belongs the credit of this new venture, and I am sure that everyone is glad to see his pluck and enterprise rewarded.

CONSTRUCTION OF THE FURNACE

The new furnace is a reverberatory one on the lines patented by Mr Alexander Parkes, and has been built under the immediate supervision of that veteran metallurgist himself, who, with Mrs Parkes, has been residing at Karangahake for that purpose for the past three months, and who since the furnace started (although over 75 years of age) is to be found at his post at all hours of the day and night.

The old furnace, as most of your readers are aware, was a cupola or blast furnace, using hard coke for fuel, and requiring a strong blast, which was supplied by one of Baker's rotary blowers, whereas the new one, as I have already said, is a reverberatory furnace, using coal for fuel, and not requiring any blast (A very good idea of the shape, etc., may be got by referring to Chambers's Encyclopedia where he treats of lead smelting.) Another difference is that Mr Parkes has the quartz ground much finer than was the case before, and on that account requires much less in the way of fluxes. There is also a great difference in the number of men required in the working of the furnace, so that with the saving of labour and the saving of fluxes, the cost of treating will be very much less now than formerly.

PURCHASE OF THE ORE

Of course this furnace resembles the other in that it does not treat small parcels of ore for the public, and indeed this would be an impossibility, as the ores

[46] https://paperspast.natlib.govt.nz/newspapers/HBH18881113.2.10
Hawke's Bay Herald, Volume XXIII, Issue 8210, 13 November 1888, Page 2

require blending and mixing with the fluxes, etc., to say nothing of the damage the furnace would sustain, if it had to be cooled and cleaned out after every small lot of ore. But all ores brought for treatment are bought by the furnace proprietors at so much per cent, on their assay value, the percentage ranging from 30 for the very low grade ores to 75 and 80 for the higher grades; and this sum is paid to the producer clear of all charges, so that he has no risk or further expenses. It then rests with the furnace proprietors to get what they can at the lowest possible cost, the risk of saving or losing resting entirely with them.

When a parcel of ore is received at the works, whether it is one ton or fifty, it is put through the stone crusher and rollers and ground fine enough to pass through a sieve or screen having 64 holes to the square inch. It is then thoroughly mixed, and three samples are taken from it, one to be assayed by the buyer, one by the seller or his agent, and the third is sealed up and deposited with some disinterested person as a check. Then, if the assays made by the buyer and seller agree, well and good, but if not, the check sample is sent to an independent assayer, and between the three the price is arranged. In the great majority of cases, however, the check is not required, as the system adopted for sampling is so perfect that the assays rarely vary more than a few shillings per ton. Of course, even then the seller is not obliged to accept the price offered, but can remove his ore if he wishes, the only charge being a few shillings for grinding.

In some cases a ton or so is sent first to see how it will yield, and, proving satisfactory, the balance has been sent afterwards. In our case over ninety tons have been already purchased from our mine.

CRUSHING THE QUARTZ.

All the ores, flukes [fluxes], etc., on arrival at the works, are received on a large platform, which holds about 50 tons. This platform, or paddock, as it is called, is at the back of the building, and is eight feet above the upper or sampling floor, and from it the ores are fed into the crusher, then pass through the rollers and are delivered on the floor ready for sampling and mixing. The quartz when fed into the crusher varies in size from walnuts to pieces as large as a man's head, but when it falls on the floor eight feet below it is all reduced to a powder, and this, with the very hardest flinty quartz can be done at the rate of two tons per hour. In the sampling floor is a trap door connected with the furnace below by an iron hopper or shoot, which just holds enough for a charge. This hopper has a sliding door in the bottom which is controlled by the furnace men below, who, when they wish to put in a charge, draw the door and it drops down; the men on the floor above them immediately filling up the hopper again. The time required to smelt each charge is about four hours.

THE SITE OF THE WORKS

In selecting Karangahake as the place to erect the furnace Mr Chambers secured at once a building in which to put it where there was a refinery ready for use, a good floor for sampling and storage, a splendid water power for crushing and grinding, and the whole connected with the leading mines in the district by good ground and arial [aerial] tramways, and by the county road. But even with those advantages the expenses of erecting the plant have been very heavy. Of course, the old furnace had to be removed, then the building had to be enlarged [the photographs suggest that the main part of the building

was extended to the south], and a new tramway had to be constructed to get the materials over the river [the incline no longer serviceable?]. Hoppers and paddocks for the ores, etc., had to be made, and a new set of rollers had to be got and erected, and altogether there has been a great deal of work done, and a lot of money spent. Mr Parkes himself has been on the ground all the time the work has been going on, superintending, and is at present devoting his whole time and attention to smelting and refining. The management of the works generally has been intrusted to Mr J. M. Haslett, who seems to have carried them out in a very careful and substantial manner, and who is still in charge of the grinding and sampling part of the work. Mr Chambers has also spent a great deal of time here and deserves very great credit for having brought the undertaking to such a successful issue.

A HOPEFUL OUTLOOK.

The people of Karangahake have had many disappointments, and have laboured under many disadvantages, but still they have had faith in their reefs; they knew that the bullion was there, if they could only get it out and save it—but this they were unable to do by the old battery process, in many cases getting less than 20 per cent. of the assay value, and out of this having to pay heavy charges for carting and crushing. Their hopes were raised when LaMonte appeared on the scene, and again a year later when Railey's pans were tried, but in both cases only to be dashed down again lower than ever. Let us hope that this third venture within as many years will have a long run of success, and that the difficulty of treating the refractory ores of Karangahake will be a thing of the past, and that those who have so long had patience and have held on through all difficulties will at length reap their reward.[47]

Mr Haslett superintended the erection of the La Monte furnace also.

19 November 1888

PARKES' PROCESS FOR REDUCTION OF REFRACTORY ORES, AND OTHER INVENTIONS.

Mr Parkes interviewed. Mr Alexander Parkes, who has been staying in Tauranga for a few days for the benefit of his health, was on Saturday last interviewed by our reporter with the following result: —

Mr Parkes, an expert metallurgist and well-known inventor, who belongs to East Greenwich, London, came to the Colony from Birmingham, England, about six months ago, on the invitation of Messrs Chambers, merchants, Auckland, in order to establish reduction works for refractory ores at Karangahake and Te Aroha. He is a professional metallurgical chemist of well known repute in England.

THE DESILVERIZING LEAD PROCESS.

He is the inventor of a process for desilverising lead by means of zinc, which has upset the Paterson process, and has been adopted all over the world. After he took out his patent for this process he was paid 5d an ounce of royalty by parties using the process.

CELLULOID.

[47] https://paperspast.natlib.govt.nz/newspapers/AS18881115.2.30
Auckland Star, Volume XIX, Issue 270, 15 November 1888, Page 5

He is also the inventor of celluloid, a substitute for ivory, tortoise shell, &c, and used extensively for such articles as billiard balls, combs, knife-handles, brush-backs, collars, cuffs, &c. The articles made of his celluloid are also used extensively throughout the world.

Cold Process for Vulcanizing Rubber

In early life Mr Parkes also invented the cool process for vulcanizing rubber, for which also he obtained patents. In a recent action in chancery for breach of one of these patents, the judge styled Mr Parkes "the father of the cold Vulcanizing process."

Reduction of Refractory NZ Ores.

As stated, Mr Parkes came to the Colony, on the invitation of Messrs Chambers, to attempt the reduction of the refractory gold ores and other refractory ores at Karangahake and Te Aroha. The first furnace has been erected at the Champion mine [error], Karangahake; but Customs Work, which will be the principal furnace, is to be put up at Te Aroha in connection with the Champion Mining Co., now formed in London. This company was formed by a son of Mr Parkes; and Mr Parkes came to New Zealand to build the works for them at the places mentioned. He found good material to work upon, and is confident that he can treat the ores successfully, though there may be some trouble in getting flux at a cheap rate. In England the flux is obtained on the spot for a very small price but in New Zealand the cost is greater in consequence of the difficulty of obtaining a flux in the locality; but Mr Parkes has no doubt that this difficulty will be in time overcome. As the result of reduction by his process he expects to save from 90 to 95 per cent. of gold.

DETAILS OF THE REDUCTIOIN PROCESS.

The reduction operations which are of the simplest nature are as follows:

1. Fusion for regulus (a sulphide of the metal treated)

2. Reduction of the regulus to bullion; and

3. The ordinary refining process.

By this process there is no calcining or roasting. This is very important as the operation is therefore simplified and made much more effective, and more bullion is obtained.

Operations at Karangahake

The furnace has been working during the past month, but at present is waiting for a further supply of coal.

Absolute success of the Process to be soon Proved

Mr Parkes expects that, within the next fortnight, the absolute success of his process for economical reduction of refractory ores will be demonstrated.[48]

1 December 1888

A mishap occurred to Parkes' furnace at Karangahake, which has caused it to be shut down.[49]

[48] https://paperspast.natlib.govt.nz/newspapers/BOPT18881119.2.9
Bay of Plenty Times, Volume XV, Issue 2360, 19 November 1888, Page 2
[49] https://paperspast.natlib.govt.nz/newspapers/WT18881201.2.15
Waikato Times, Volume XXXI, Issue 2558, 1 December 1888, Page 2

8 December 1888

The Parkes' furnace at Karangahake is still closed down. The owners are very reticent as to the reason, but it is evident that in some details the affair is not as yet successful. We understand that a modification of the plant is to be made, which, it is hoped, will be more successful.[50]

18 December 1888

Mr. Chambers is negotiating with Mr. Howell, of Waiorongomai, for the sale of Parkes' furnace at Karangahake. I understand this will be sent on to Waiorongomai.[51]

The Secretary of Mines

to the Hon. the Minister of Mines. Sir, — Mines Department, Wellington, 27th June, 1889. [52]

Page 39. Karangahake.

Very few of the mines in this district have as yet been worked with success. There is a large percentage of silver and other metals in the ore along with gold, that has as yet baffled all those who have attempted to treat the ore. The ordinary crushing-batteries have been tried and found wanting. The La Monte furnace also has been tried, and proved a failure; and after this a battery and amalgamating-pans were erected by Mr. Railey to treat the ores—the same as adopted in Mexico some fourteen years ago; but this process also proved a failure. And, lastly, Mr. Chambers, of Auckland, made arrangements with the Parkes' Gold and Silver Ores Smelting Company, London, to secure the patent of their process for New Zealand if it proved a success for treating the ores in this district. He also guaranteed the expenses of Mr. Parkes coming to New Zealand to superintend the erection of a plant, and to prove his process capable of dealing with such ores as are found in this district.

Any one reading a description of the successful manner in which Parkes's process treated refractory ores sent from the colonies to London would naturally come to the same conclusion as Mr. Chambers—namely, that the erection of a plant in the North Island goldfields would tend to make the mining properties in the Karangahake, Te Aroha, Waihi, and Whangamata districts valuable. Mr. Chambers therefore erected a plant at Karangahake.

With such a flourish of trumpets did Mr. Parkes arrive in this colony that many believed a new era had dawned on mining, and that the industry that has been languishing in the Karangahake district for years would soon become a prosperous one. Mr. Chambers had perfect confidence that Mr. Parkes would treat the ores successfully, and purchased ores in the district by assay to operate on. The plant was completed, and the process carried on for nearly a month; but, instead of being able to obtain fluxes for smelting the ore for 12s. 6d. per ton, which was Mr. Parkes's estimate, it cost from £18 to £20 per ton, and even with all the costly fluxes the ore could not be successfully smelted.

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[50] https://paperspast.natlib.govt.nz/newspapers/WT18881208.2.18
Waikato Times, Volume XXXI, Issue 2561, 8 December 1888, Page 2
[51] https://paperspast.natlib.govt.nz/newspapers/NZH18881218.2.48
New Zealand Herald, Volume XXV, Issue 9240, 18 December 1888, Page 6
[52] https://paperspast.natlib.govt.nz/parliamentary/AJHR1889-I.2.1.4.3
THE MINING INDUSTRY., Appendix to the Journals of the House of Representatives, 1889 Session I, C-02

When examining the slag from the furnace it was full of knots and lumps of silica, like lumps of dry oatmeal amongst pottage.

This plant is referred to merely to show that the ore in this district is not suitable for smelting in its raw state as it comes from the mine, on account of the very large percentage of silica it contains. If smelting is resorted to the ore will have first to be crushed and concentrated, and then it is possible to smelt the concentrates and extract the metals. There are large lodes of ore in this district that will pay for working as soon as an efficient and economical process is found to extract a fair percentage of the metals it contains.

Mr. Warden Northcroft

to the Under-Secretary of Mines. Sir,— Warden's Office, Thames, 4th May, 1889. [53]

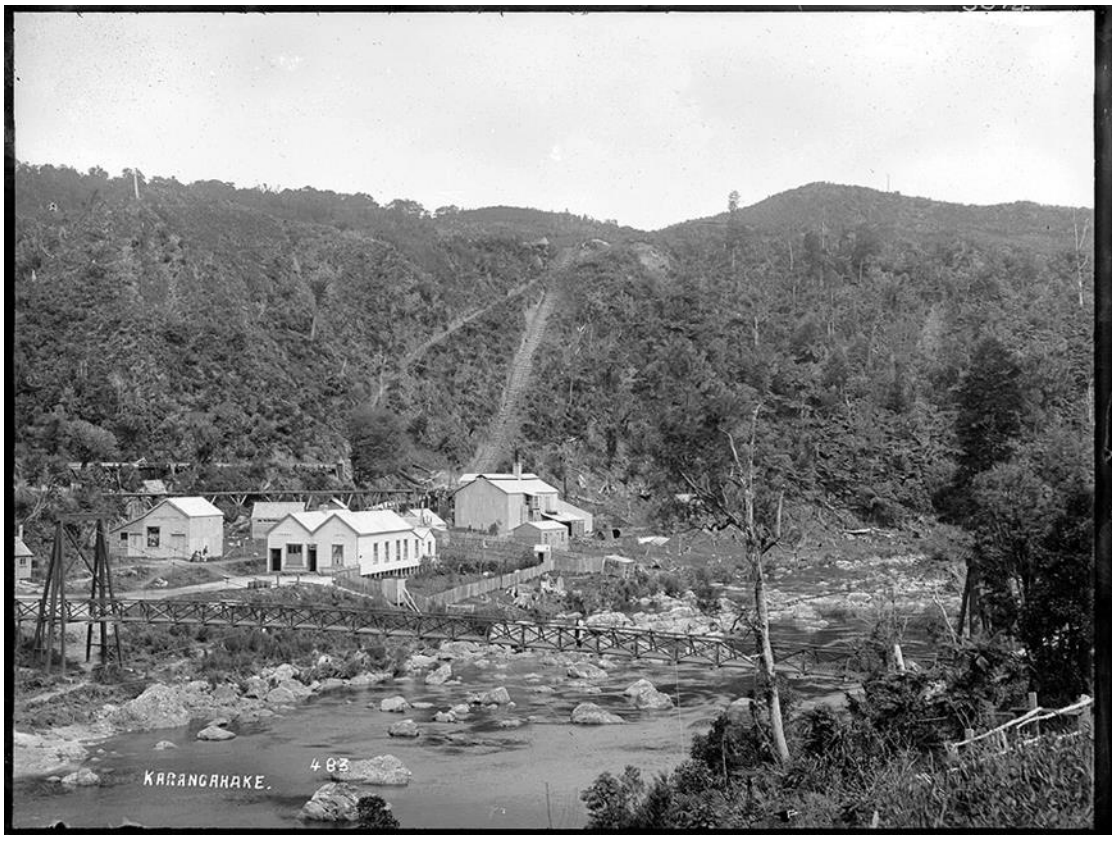
Page 92. "Parkes's process " has proved a failure, and disappointed all its supporters. It was looked forward to by the Karangahake, Waihi, and Te Aroha miners as a solution of the difficulty they had laboured under for many years— i.e., only getting in most instances half the bullion from their complex and refractory ores, and in many not even that. Mr. Parkes had samples of the ore from the Tui District sent to him in England. These he treated there, and claimed to have discovered a process of smelting by which, at a cost of not more than £2 per ton, he could treat any of the ores in that district, even the most complex and refractory. As the lodes are large and average from £4 to £20 per ton in value, it meant a "big thing" for the miners and mine-owners; but after building a furnace and running it for three weeks it had to be shut down and abandoned by Mr. J. M. Chambers, the enterprising gentleman who had introduced Mr. Parkes and his process, the loss being too great. This proved a great check to the mining industry, for the mine-owners and miners had pinned their faith to the "Parkes process" for dealing with our complex and refractory ores, he having, they were informed, successfully treated the same class of stuff in England.

The "Cassell process" is as yet untried, therefore the future must decide its suitableness.

It is unfortunate that in the initiation of most of these untried processes so much capital is wasted. The promoters usually set about the erection of the plant by putting up buildings and offices of the most expensive kind, as though there was not a shadow of a doubt of its ultimate success, and finding work for twenty years to come; whereas if it were tried on a smaller scale, and care and economy used, the cost would be small, and the loss and disappointment of the shareholders in proportion, and the mining industry as a field for investment would, as it deserves to do, stand higher with foreign capitalists than at present. Similarly with our mines: Generally, on the disposal of a mine to foreign capitalists, a new manager, one who is a stranger to the district, often without even colonial mining experience, is sent to take charge. He commences by the erection of expensive works —for the most part unnecessary and unproductive —before the mine is opened up and it is ascertained whether or not the output will justify the expense. The paid-up

[53] https://paperspast.natlib.govt.nz/parliamentary/AJHR1889-I.2.1.4.3
THE MINING INDUSTRY., Appendix to the Journals of the House of Representatives, 1889 Session I, C-02

capital is absorbed in buildings, tramways, and batteries; and the shareholders refuse to advance any more money on such an apparently barren venture. The expensive plant is sold for "a song," and a mine abandoned that, with the exercise of a little care, forethought, and judgment, and by the owners feeling their way gradually at first, would in time become a valuable property, and not only have recouped the outlay and repaid the shareholders, but probably added considerably to the wealth of the country. Such has been the fate of many mines on this field in the past, and, the same causes being still at work, will, I am afraid, be so in the future. It not only destroys confidence in our mining industries, but damages our credit as a colony.



Title: Showing the Ohinemuri River, the Tramway Hotel and Pioneer Store at Karangahake.

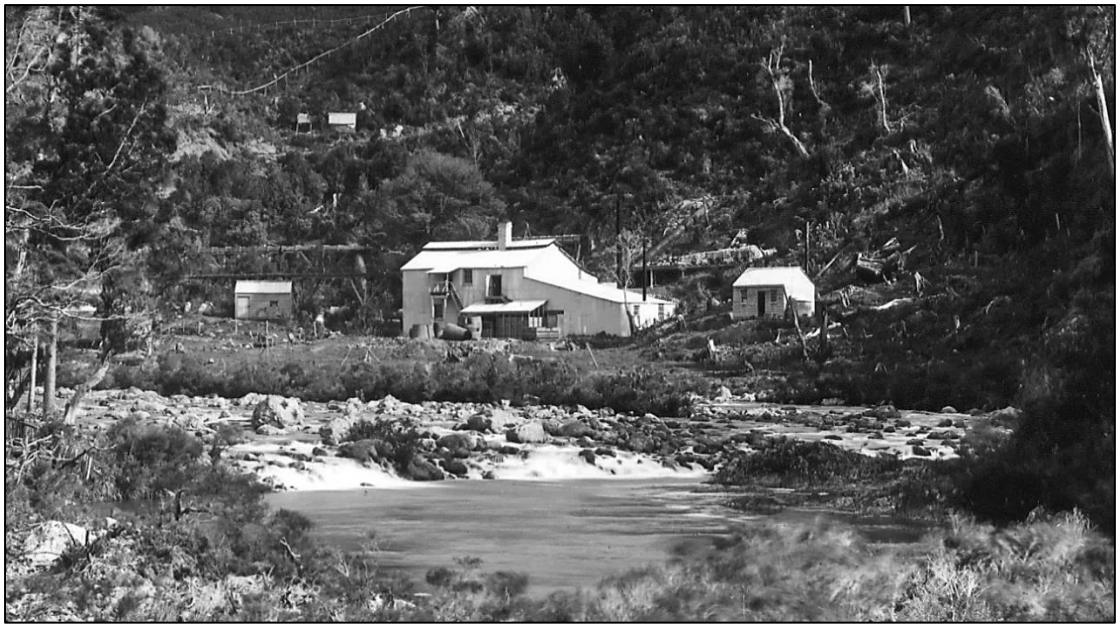
3574 Karangahake 483, Auckland Library. Photographer: JD Richardson/J Martin.

The incline is clearly visible, also a possible earlier sled track? From left; Hogg's store, Tramway Hotel, Woodstock Furnace house. The wooden flume supplying water from the Ohinemuri, and the trestle tramway to deliver ore to the furnace. The store and Hotel have bolder signage now.

The balcony now has a stairway, and there is a lean-to, with door above, on this wall. The chimney is now bricked, with a pipe extension.

Some large round/conical objects lie on the ground to the right of the furnace house. Is this the old La Monte furnace, being replaced by the Parkes'?

So mid 1888? Photograph was taken from the road.



The photographer (JD Richardson, J Martin) has identified this as the Parkes Furnace (484), Auckland Public Library.

The tramway and water race flume are visible. To the right of the furnace building an ore chute (pipe) and stacked ore and ore trucks. This could be the ore paddock mentioned in the text.

The building has a rectangular brick chimney, but has lost the pipe extension. There is a pipe chimney beyond the lean-to, and one at the end of the lean-to. The main section of the building appears to have been extended to the south; there is a break in the roof-line, and extending beyond the lean-to ("then the building had to be enlarged"[54]).

Several large cylindrical/conical objects lie on the ground in front of the furnace building; the old La Monte furnace?

Vegetation and infrastructure changes suggest that this photograph is later than the one above. It may already be being used for the cyanide trials.

Date: 1889+? There is no Crown Company water race visible; late 1892. Photograph taken from below the road, across the river. The building is near the downstream limit of Battery Flat.

[54] https://paperspast.natlib.govt.nz/newspapers/AS18881115.2.30
Auckland Star, Volume XIX, Issue 270, 15 November 1888, Page 5

Woodstock Furnace House Experimental Cyanide Plant

1 June 1889

> New Plant: A small experimental plant is about to be erected in the Woodstock furnace house under the supervision of Mr Napier, the Cassel patent to be the process used, with a Lamberton mill for grinding purposes.[55]

4 September 1889

> KAKANGAHAKE.—In this district the Woodstock battery [Woodstock furnace house] is treating ore by the McKay pans; but the majority of the mine owners and miners are waiting to see what the Cassel Company's process can do. [56]

26 September 1889

> The Cassell Company has a small experimental plant in full swing in the old furnace house, and is now putting through a lot of Woodstock and Kenilworth ores. The plant is jealously guarded from reporters and outside barbarians generally, and no one outside of the manager knows how matters are. It is understood by the man in the street, however, that everything is satisfactory.[57]

27 September 1889

> There was on exhibition yesterday in the window of Messrs. Frater Bros., three bars of bullion, weighing in all about 26oz, and representing in value about £28 10s, the produce of five tons of Waihi and Karangahake quartz treated at the test plant of the Cassel Company in Karangahake. The percentage saved is equal to 90 per cent. of assay value, and the cost is moderate; in fact, all that is now required is a certainty of sufficient quantity of ore of this grade to make the venture an assured success. The process is an entirely new one, being the application of cyanide of potassium in dilute solution to ore ground to a very fine state of division. The grinding is done by means of a Lamberton mill, the fineness of grinding being double that obtained by ordinary stamper battery. The bars of bullion will be on exhibition for a few days, so that those interested in mining may have an opportunity of seeing the results obtained from this new treatment. Parties desirous of having trial lots of not less than one ton put through the process may ascertain all particulars from the agent for the Cassel Company, Mr. Thomas Melville, High-street.[58]

The Cassel Company are using the old furnace house for experimentation.

So the first commercial use of the cyanide process is at the Woodstock Furnace House. Much easier access here than up at the old Railey's site. This is well before the Cassel/Crown battery.

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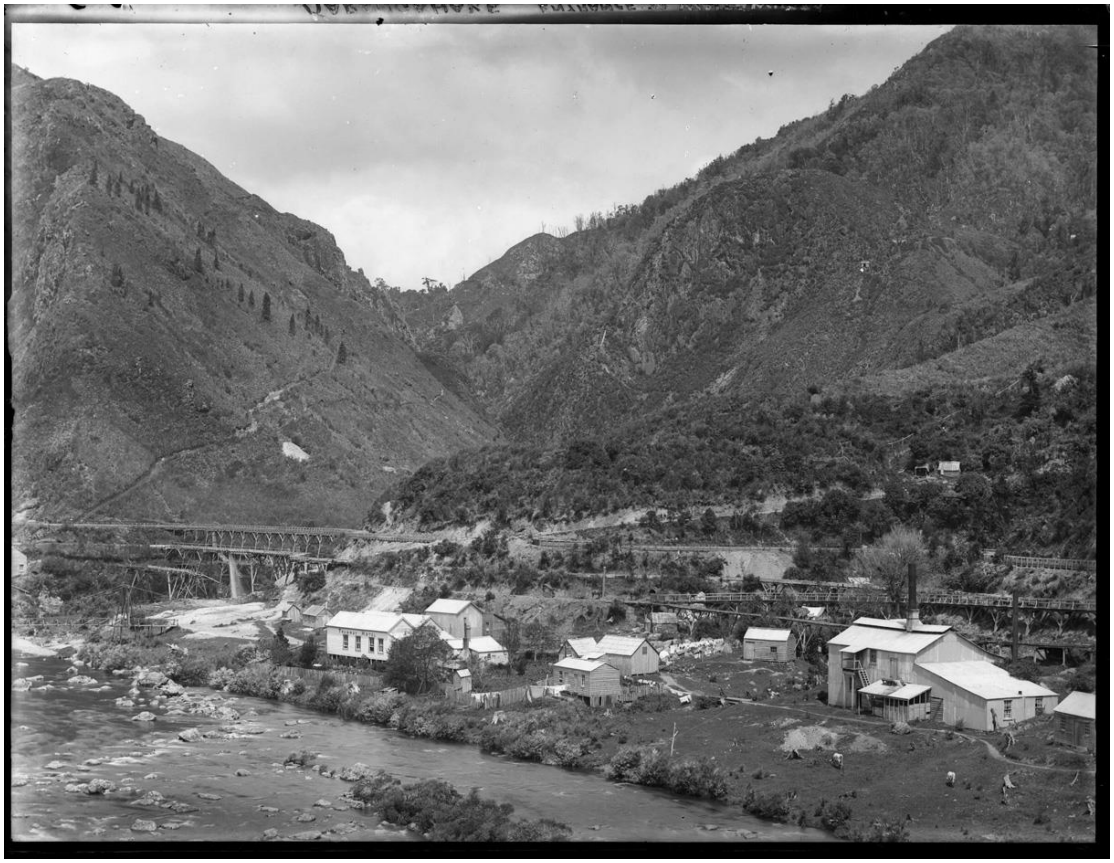
[55] https://paperspast.natlib.govt.nz/newspapers/TAN18890601.2.12.1
Te Aroha News, Volume VI, Issue 373, 1 June 1889, Page 2
[56] https://paperspast.natlib.govt.nz/newspapers/THA18890904.2.15
Thames Advertiser, Volume XXII, Issue 6412, 4 September 1889, Page 2
[57] https://paperspast.natlib.govt.nz/newspapers/WT18890926.2.18
Waikato Times, Volume XXXIII, Issue 2685, 26 September 1889, Page 2
[58] https://paperspast.natlib.govt.nz/newspapers/NZH18890927.2.13
New Zealand Herald, Volume XXVI, Issue 9481, 27 September 1889, Page 4



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

Visible are the Crown Company tramway and water race flume, completed towards the end of 1892.

The brick chimney has gained a substantial pipe extension, but the one at the very end of the lean-to has been lopped off. A leafy tree has grown up behind the lean-to. Although it looks in good condition, the furnace house may no longer support any activity. It was used in 1889 to house experiments with cyaniding of Woodstock ore. [59]

When did it go? Before 1898. It no longer appears in a photograph showing only the first suspension bridge; the second built 1898.

The walking path clearly shows a bridge over the Hauraki Stream. The furnace house was quite close to the stream.

Photograph taken from well above the road, c. 1893+?

THE HISTORY OF THE CYANIDE PROCESS.

BY J. MCCOMBIE.

…Owing chiefly to want of road accommodation for the transport of machinery, there was a long delay attendant upon the completion of the treatment plant at the Crown mine, and a small plant was erected in the Woodstock furnace house, in consequence. This plant comprised one stonebreaker, one Lamberton mill - dry crushing - two vats, fitted with mechanical agitators, one stock solution vat, one sump vat, one filter press, and four small barrel towers, for precipitation purposes.

Briefly, the process was fine grinding, agitation, filter pressing, and precipitation on zinc shavings. The first parcel of ore dealt with was taken from the Maria reef in Kenilworth mine, of which I was then part-owner and

[59] https://paperspast.natlib.govt.nz/newspapers/WT18890926.2.18
Waikato Times, Volume XXXIII, Issue 2685, 26 September 1889, Page 2

> manager, and which is now included in the Talisman Company's property. The plant was started early in the month of June, 1889, and I have now before me a copy of the first treatment sheet. Value of ore before treatment: Gold, £4 per ton; silver, £1 19s per toft; total value per ton, £5 19s Recovery: Gold, 89.2 per cent.; silver, 70.9 per cent. The strength of solution used was 0.5 per cent., and the consumption of cyanide was 4lb per ton of ore treated… [60]

When was the furnace building removed?

A photograph showing the building of the new 40 stamp Woodstock battery, so mid 1896, appears not to show the furnace building.

[60] https://paperspast.natlib.govt.nz/newspapers/NZH19110204.2.25
New Zealand Herald, Volume XLVIII, Issue 14596, 4 February 1911, Page 5

Appendices

Blast and Reverberatory Furnaces

A **blast furnace** is usually used to produce iron from iron ore. This is a vertical shaft furnace that is loaded with coke, iron ore and limestone and a strong 'blast' of air is injected at the bottom to burn the coke to generate carbon monoxide, which reacts with the iron ore to remove the oxygen, thereby releasing the molten iron metal. The limestone forms a lower melting-point 'slag', which cleans the iron by removing some of the impurities. Typically then the iron is sent to the next process, these days normally oxygen blowing, which burns out much of the carbon and other impurities to produce 'steel', which is basically just iron containing a small amount carbon and traces of other elements that improves its performance.

By contrast, a **reverberatory furnace** is basically just an open flat hearth with a firebrick roof over the top. It is an older-type furnace that typically would be used for the extraction of copper. The idea is that copper oxide concentrate is mixed with coke and silica sand (to form the slag), and placed on the floor or hearth of the furnace and then a massive flame is applied over the top of the material to melt it. The radiant heat is reflected from the roof (hence the name of the furnace) to heat the ore mixture, and the carbon takes the oxygen from the copper, producing carbon monoxide and carbon dioxide, thereby releasing the copper metal, which is tapped from the furnace from time to time.

The problem with the reverberatory furnace is that it is not very energy-efficient and therefore has tended to be replaced by other technologies such as flash-smelting, which has the additional advantage of being able to utilize much lower grade ores.[61]

Richard Knibb Davis.

A meeting of creditors in this estate was held yesterday afternoon at the office of the Official Assignee Fourteen creditors were present or represented by proxy. The following statement by the debtor was read:—

"I have practiced as an accountant in Auckland for the last four years. Latterly, during the last twelve months, I have speculated largely in gold mining interests. At the end of May last year I entered into an agreement with the Woodstock Goldmining Company, Karangahake, to erect a furnace and subsidiary connections, in order to work the mine upon the smelting process. The price was to be £4000, to be paid out of the proceeds of the smelting, as set out in the agreement. There was also a subsequent agreement, amending and embodying the first. I will produce both agreements at the meeting.

I received one-half of the mine as bonus for erecting the furnace. At several interviews with the proprietors after having commenced operation, their attention was drawn to the fact that, in our mutual interests, it was desirable the work should be done in a thoroughly substantial manner. They gave me then assurance that any extra cost beyond the £4000 should be allowed to me. This extra cost, including fluxes, amounted to 2450, making the total outlay £8500 or thereabouts.

My liability on this account amounts to £4000 (about), and the rest is out of my own pocket. The smelting process at Karangahake has not yet been in operation, although everything is in readiness for a 2l days' run. In consequence of the result of similar operations at the Thames being so unsatisfactory in the matter of expense, and the

[61] https://www.quora.com/What-is-the-difference-between-reverberatory-furnace-and-blast-furnace/answer/Bill-Cox-22

failure of Mr LaMonte to fulfil his agreement with regard to price, or cost per ton for smelting, a difficulty has been caused in obtaining the services of experts. The delay in getting returns for my outlay necessitated my calling a private meeting of my creditors in February last. The majority in number and value on that occasion decided to let me go on for four weeks under supervision of three creditors then appointed, and since then the state has been virtually managed by these supervisor.

In June, 1885, I bought the Smile of Fortune and Radical claim, together with water-race and battery at Owharoa, for the sum of £4500, on terms extending over two years. The first payment (£500) became due in the following October, but I have paid nothing on account of this purchase. Since the meeting of my creditors the supervisors have arranged with the vendors to take back the property, and prove on the estate for £3000. I expended £1577 in developing these mines, and this expenditure shows a loss of £1239. The product of the mines has been £338; the balance has been paid out of my own pocket, with the exception of a small amount for wages.

I entered into sundry other goldmining speculations of a minor character, all of which also turned out unsatisfactory. About six years ago I purchased an estate of 3223 acres at Kaipara, and paid for it £5800 cash. In consequence of the depreciation of live stock latterly the returns from this property have been unprofitable, and been a drag upon my resources. I have also made sundry investments in local companies, which have turned out badly.

Six years ago I was in possession of £12,000 in cash and clear of debt. I settled £3000 of this in trust for the benefit of my wife and children. My schedule of assets shows a surplus of £2500 over my liabilities, but it is more than probable there will be a large deficiency if realisation is effected at the present time. It was on the petition of one of my nonconsenting creditors that I was adjudicated a bankrupt."

Mr. Garlick expressed a wish to have a fuller examination of the debtor's books and accounts, and on the motion of Mr. Abbott the meeting was adjourned until his afternoon, in order that the supervisors might report as to the present position of the debtor’s affairs.[62]

RK Davis: Postscript

OBSERVER, VOLUME XXVII, ISSUE 22, 16 FEBRUARY 1907

The Lamont furnace fiasco at the Thames and Ohinemuri was brought to mind last week by the meeting of creditors in the twenty-year-old bankrupt estate of It. K. Davis, to receive the cheerful announcement of a long-deferred dividend of 1s 5d in the £. About 1885 a party of smart Yankees came to Auckland to boom a new-fangled water-jacket furnace that was going to save every pennyweight of precious metal — silver and the baser metals included — in the goldfields 'ore. An Auckland syndicate put several thousands pounds into the enterprise, and erected one of the furnaces on the beach at the Thames, at the foot of the Moanatairi Creek. Hopes ran high with regard to the new notion during the erection process, but after the furnace had been working a few weeks, and had produced little else than a tremendous heap of bottle-glass-like slag, it suddenly closed down, and was never heard of again. The Lamont process had been a ghastly failure so far as New Zealand was concerned.

At that time R. K. Davis was a well-known citizen of Auckland. He became dazzled by the new scheme, and being interested in the Woodstock mine at Karangahake —

[62] https://paperspast.natlib.govt.nz/newspapers/NZH18860610.2.4
New Zealand Herald, Volume XXIII, Issue 7660, 10 June 1886, Page 3

now part of the Talisman —he conceived the idea of erecting a Lamont furnace for the Woodstock company. Mr Davis spent all the money at his command upon the furnace, which, however, did no better in Ohinemuri than at the Thames. The result was that he shortly afterwards became bankrupt, with liabilities to the amount of £10,496. For twenty years the estate has been hung up, and Mr Davis drifted away long ago to Sydney, where he still lives, in feeble health.

Not long ago a proposal was made to annul the bankruptcy on payment of 3d in the £, and but for a discovery made by the Official Assignee it would have been agreed to. This vigilant official discovered that Mr Davis will become entitled to a legacy of several thousand pounds on the death of a relative now well advanced in years, and took pains to secure on behalf of the estate the bankrupt's rights in the matter. It is the sale of this reversionary interest for £844 that enables the payment of the present dividend. Its amount, by the way, would have been larger, only that the creditors gave practical proof of their sympathy with Mrs Davis, who still lives in Auckland, by agreeing that she should rank equally with themselves in respect of £650 that she had lent to her husband prior to his bankruptcy.[63]

[63] https://paperspast.natlib.govt.nz/newspapers/TO19070216.2.6
Observer, Volume XXVII, Issue 22, 16 February 1907, Page 4