

1899.

NEW ZEALAND.

# REPORTS OF WARDENS AND OTHER OFFICERS ON GOLDFIELDS.

*Presented to both Houses of the General Assembly by Command of His Excellency.*

No. 1.

Mr. Warden BUSH to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Thames, 3rd July, 1899.

I have the honour to furnish herewith the usual annual report on the Hauraki Goldfields. It affords me very great pleasure to report a considerable increase in the yield of gold for the year ending December, 1898, and in proof of this I beg you to note the following figures: The Waihi Mine produced gold of the value of £272,688, as against £134,553 in 1897; the Waitekauri, £66,585, as against £50,528 in 1897; the New Zealand Crown Mines, £55,483, as against £41,120 in 1897; while the Talisman came in with £32,648, the Komata Reefs with £17,795, and the Woodstock £15,692. This company has been somewhat unfortunate in the difficulty it has met with in its extractions, which has considerably interfered with their returns for the year. Notwithstanding this difficulty, which I understand has now been overcome, this mine, up to the end of 1898, is stated to have yielded gold to the value of £90,854. The Moanataiari Company and its tributers obtained £8,432; the May Queen (Hauraki) Company and tributers, £6,131; the Waiotahi, £4,571; the Mahara Royal, £4,236; and the Tararu Creek, £8,985.

In the Coromandel district the Hauraki Company obtained bullion valued at £16,545, as against £23,343 in 1897; the Royal Oak, £12,942, as against £24,441 in 1897; the Kapanga obtained £7,631, as against £5,695 in 1897; and the Hauraki Associated, £3,850.

There are several other mines in various parts of the field which are producing gold, but these, with the exception of the Waihi-Silverton, are the chief producers. This latter obtained gold to the value of £11,501 during the same period. The result of this has been greater vigour in development works, and the erection of additional crushing-power. Under the circumstances, a great increase in the gold return for the current year may reasonably be expected.

There are several small batteries either completed or in the course of erection on various portions of the field.

The permanency of the mines referred to seems to be established, and I have no doubt in time some of the mines which are at present plodding along will in the near future turn out gold-producers.

Vast sums have been spent in machinery of all descriptions, and in the construction of water-races. A very great amount of development work has been carried on during the year all over the field.

In the immediate neighbourhood of the Thames the work of testing the low levels for new runs of gold has not yet been commenced, the erection of the new pumping plant at the Thames-Hauraki Company's Mine, which is to enable the pumping of water to be carried out at as low a depth as 2,000 ft. below the sea-level, having occupied a much longer period of time than was thought would have been the case, owing to unfortunate delays occurring in the supply of portions of the machinery. This plant is now completed, and was opened on the 21st December last.

The work of testing the deep levels is one of great importance to this portion of the field, as upon the ultimate success of developing at greater depths than as yet have been obtained new and payable seams of gold depends to a large extent the future prosperity of this district. The importance of the work cannot be overestimated, for when one thinks of the rich runs of gold that have been discovered from time to time in the upper levels, and of the fact that in many instances payable gold has been left underfoot on account of the difficulty experienced in working the lodes, owing to the prevalence of water in large quantities, then the possibilities of the Thames as a gold-producer are more than of an ordinary character. The pump in question is capable of lifting

3,000 gallons of water from a depth of 2,000 ft. This should enable the lower levels to be reached within a reasonable time.

Kuaotunu is agitating for a low-level scheme, which, probably, may prove successful in connection with the Mariposa Mine, which is in the centre of other gold-producing mines.

The *Mining World*, of May speaking of New Zealand mining, says, "It is satisfactory to be able to state that a larger amount of gold has been obtained from the New Zealand mines in the past quarter than in any corresponding period; and that, although dealings in New Zealand shares are still very small compared with those which take place in more favoured groups, the recent movements of prices have been upward on balance, the advances having considerably exceeded the decline in market valuations. To some extent the improvement has been due to the best of all influences, the purchase of shares by local investors, who have excellent means of judging the position and prospects of individual properties. The general trade of the colony is expanding. The Auckland Mining Exhibition proved a great success. During 1898 there was an increase of 28,530 oz., valued at £100,487, over the preceding year's production; and it is worth while noting that from the 1st April, 1857, the date at which gold shipments from the colony commenced, the total amount of the precious metal entered for export up to the close of last year reached 13,845,725 oz., valued at £54,453,325. It is as well that the importance of this fact should be borne in mind by investors, who are apt to forget the important position which New Zealand has occupied, and is, we believe, destined to occupy, in the future among the great producing countries of the world."

During the present year several new claims have been taken in various portions of the district, chiefly consisting of claims taken up during the late boom, which were either surrendered or forfeited.

In the Coromandel district several extended quartz claims have been granted. This is a step in the right direction, as persons with limited means will have a better chance to thoroughly prospect their respective holdings; but, as under the labour regulations two men will fully man an extended claim, it will mean years before sufficient work to ascertain what is in the ground is done. I have no doubt this marking-out of fresh claims is in measure caused by the better feeling at present existing at Home with respect to New Zealand, as indicated in the extract from the *Mining World*.

The success which dredging has met with in the South has stimulated persons here to apply and take up portions of the foreshore for dredging purposes. Two claims now exist, and I trust, when reporting next year, I shall be able to give some information as to the success of the scheme.

A drainage scheme on a large scale is mooted in connection with Waihi, the idea being to drain out to sea a distance of four miles. This, it is contended, would drain all the mines to the 400 ft. level. The proposal, however, at present has not, so far as I know, advanced beyond the stage of being talked about.

The mining in this peninsula is little more than in its infancy, and the immense possibilities of our mining system unknown. Its permanency has, however, been placed beyond a doubt, and, looking at past results, the future can be faced without fear; indeed, the prospects at the present time are such that several years ago were little thought or dreamed of. There is still a large area of country, a great deal of which was pegged out during the boom, but which in the majority of cases never had a pick put into it, some of which, it is only fair to presume, will in the no distant future be thoroughly prospected, when some lucky prospectors will make discoveries which will add to gold returns of the district. It is no doubt the unknown nature of our reef system that has originated the idea of a drainage-area for Waihi, which, once established, would enable all claimholders to reach the 400 ft. level without having to incur expensive pumping machinery to unwater their shafts with.

Some three or four coal leases have been granted in the vicinity of Waihi. It is to be hoped coal in workable quantities may be discovered, as very shortly it will be very much required in that locality for mining purposes, owing to the disappearance of the timber from the land within reasonable reach of the mines.

The gold return for Coromandel County for 1898 was £53,829, being a decrease on the year 1897 of £19,508. This, no doubt, can be accounted for from the patchy nature of the run of gold there. In the current year probably this deficiency will be made up. Thames County, £47,580, an increase on 1897 of £15,402; Ohinemuri, £473,397, an increase on 1897 of £173,290.

#### THAMES COUNTY.

##### Tapu.

*Mahara Royal* (Mahara Royal Company, Limited).—This company, incorporated in England, has met with considerable success during the past year, winning 1,556 oz. of gold, valued at £4,236. New levels have been opened up in three sections. In the Royal section the main reef is being driven on in a southerly direction, and the ore is improving in value as it advances. The reef is about 8 ft. wide, shows colour of gold, and generally its appearance is most promising. In the Fluke section the new low level has to be driven 40 ft. further before it will intersect the main reef. Nice-looking veins of quartz were met with in the drive. The extension of the low level in the Shannon section is being pushed on, but the reef is not yet to hand. Ten stamps and twelve berdans have been added to the battery, at a cost of £1,700.

*Sheridan* (Sheridan Gold-mining Company, No Liability).—This company, formed in Napier, has not had any success. Some £5,000 was spent in prospecting, but the results were most discouraging. The mine and battery are to be sold at public auction at an early date.

There are no other mines of any importance at work in this district.

*Waiomo.*

*Monowai* (Monowai Gold-mines, Limited).—This mine has been well opened up, and a tramway constructed to connect the mine with the battery. Crushing has been constantly going on, and large quantities of concentrates saved. Mr. William Campbell, chairman of directors, who visited the mine last month, reported to his co-directors that the ore under cyanide treatment was showing satisfactory results. The value is about £3 per ton. Large supplies of ore are now available.

*Broken Hill* (Broken Hill Gold-mining Company, Limited).—This property is now under option to a Glasgow syndicate. Prospecting has been vigorously carried on during the year, with very encouraging results.

There are no other claims now at work in this locality.

During the year the Lowrie Brothers, prospectors, have taken up several small claims and spent a good deal of time testing them, but nothing of importance was found. They intend, however, to continue working in the locality, and are confident that they will soon make an important discovery.

Loose gold has been met with in many of the small creeks.

*Puru.*

*Puru Consolidated* (Puru Consolidated Gold-mining Company, Limited).—This company has been vigorously developing its property, but the ore has not been payable. Crushing operations were commenced in June and carried on up to December, but it was found that the results were not satisfactory, and consequently the battery was shut down. In all 944 tons of general dirt and 20 lb. of picked stone were treated, for a return of 163 oz., valued at £489 3s.

Prospecting operations have been carried on in the Big Reef Claim, but nothing payable has been discovered.

Most of the other claims which were held last year have been forfeited or surrendered.

*Tararu.*

*Tararu Creek* (Tararu Creek Gold-mining Company, Limited).—This company seems to have entered upon a new era of prosperity. A new and up-to-date thirty-stamp battery with a complete cyanide plant was completed, and has been in operation for the last nine months. Payable returns are being obtained, improving each month. The mine is well opened up, and large quantities of good ore are being obtained from the various reefs. The ore is treated by wet crushing and pan amalgamation. The tailings are then treated by the cyanide process. The returns from the tailings go to show that this process is admirably suited for the treatment of the ore from this mine at least, if not most of the ore from this portion of the field. Gold won, 3,637 oz.; value, £8,985.

*City of Auckland* (City of Auckland Gold-mining Company, No Liability).—The Tararu Creek Company have an option over this property, and intend fully testing the lodes which are said to exist. Very little work has been done during the past year.

*Kaiser* (Iron Cap Gold-mining Company, No Liability).—This ground was formerly worked by the Kaiser Gold-mining Company (No Liability). Lately the present company was formed, and more capital raised for the purpose of further testing the property. A large amount of work has been done in opening up the reef at the different levels. The quartz contains a great quantity of mineral, and is of a favourable character for gold. A crushing of 12 tons gave a return of 5 oz. 12 dwt.

*Chicago* (Chicago Gold-mining Company, No Liability).—This company, formed in Christchurch, has spent a considerable amount in prospecting and developing the mine. A ten-stamp battery, water-race, and a tramway connecting the mine and battery have been constructed. Crushing operations were commenced, and 156 tons of ore crushed, for a return of 26 oz. This return was so disappointing that the mine was at once shut down and protection applied for. The company have not yet given up hope of finding payable quartz, and intend to raise further capital.

*Eclipse* (Eclipse, Limited).—A large amount of work has been done in developing this mine. The reef varies from 3 ft. to 8 ft. From this reef 106 tons of ore were crushed, for a payable return of 136 oz. 16 dwt.; value, £396 14s. This return was considered so satisfactory that the company decided at once to erect a battery of ten stamps, at a cost of £2,240. A water-race and aerial tramway are in the course of construction, estimated to cost £2,000. The prospects of this mine are most satisfactory.

*Thames.*

*Kuranui* (Kuranui Gold-mining Company, Limited).—A shaft has been sunk on the flat near the battery, and a crosscut from the bottom put in, for the purpose of searching for Hunt's reef or some of the old Long Drive lodes which it was thought ran through the ground. Nothing as yet has been found.

*Kuranui-Caledonian* (Kuranui-Caledonian Company, Limited).—In the early part of the year a large amount of work was done from the Caledonian shaft in opening up the different reefs, but the prospects were not encouraging. The company stopped operations and let the mine on tribute. There are at present some sixty men tributing. The company crushed 180 tons 10 cwt. and 144 lb. picked stone for a return of 204 oz. 16 dwt.; value, £550; while the tributers treated 412 tons and 795 lb. picked stone for a return of 1,044 oz.; value, £2,792.

*Moanataiari* (Moanataiari Gold-mining Company, Limited) —This company did a large amount of work during the first six months of the year; but the returns from the quartz crushed at their own battery were so disappointing that the number of men on wages was at once reduced. Operations were then confined to developing the Cambria reef from the low level which connects with

the Moanataiari shaft. A large portion of the mine is now let on tribute, and the men employed are doing fairly well. The company crushed 3,102 tons, for a return of 1,367 oz.; value, £3,844. The tributers treated 1,049 tons of general dirt, for 1,811 oz.; value, £4,588.

*New Alburnia* (New Alburnia Gold-mining Company, Limited).—This company have employed a large number of men, but, unfortunately, without much success. Powerful winding machinery was erected, and the shaft sunk to about 600 ft. A crosscut from the Sons of Freedom level was then driven, at a depth of about 600 ft., to connect with the shaft. This gave good ventilation and saved a considerable amount of pumping. Unfortunately, the results have not been very satisfactory. Quartz crushed, 1,385 tons, and picked stone, 30 lb., for a return of 255 oz.; value, £659.

Several other small claims have been worked in this locality, but nothing of any importance was discovered.

*Victoria* (Victoria Gold-mining Company, Limited).—This mine has been under protection for six out of the last twelve months; since then only four men have been employed. A drive 270 ft. was driven in a north-westerly direction from the shaft for the purpose of cutting any leaders that might exist, but nothing of importance was met with. The Victoria reef was worked for some time, but the ore obtained did not prove payable. Quartz crushed, 131 tons, for a return of 58 oz. 17 dwt.; value, £158.

*Waiotahi* (Waiotahi Gold-mining Company, Limited).—This mine has been working since 1877, and has paid no less than forty-nine dividends; total, £35,550. It is the most systematically worked and the most consistent gold-producer in this portion of the district. The mine is still looking well, and there is every reason to believe that further dividends will be declared. Quartz crushed, 1,090 tons; return, 1,653 oz.—£4,571.

*Nonpareil* (Nonpareil Gold-mining Company, Limited).—This company have employed six men during the year in developing the Wade reef and prospecting generally, with indifferent results. The company crushed 34 tons of general dirt, for a return of 208 oz., valued at £570. Ten tributers have been working also, and have crushed 154 tons, for a return of 234 oz.; value, £642.

*Hauraki Golden Age* (R. K. Cooper).—Mr. Cooper, who formed a syndicate at Home for the purpose of taking over this property from the Hauraki Golden Age Company (Limited), started working at once, and took out 2,325 tons, which, on being treated, gave a return of 30 oz.; value, £81. The new forty-stamp battery which was erected by the former owners was never used. Before it was quite completed it was found that the ore discovered was not sufficiently remunerative to warrant the company continuing operations, and the mine was closed down. Mr. Cooper is confident that there exists payable ore in the mine, and is determined to leave nothing undone to prove that such is the case. The old battery is being renovated for the purpose of treating trial crushings from different parts of the mine.

The West Coast, Little Maggie, and Little Mabel Claims have been worked, but the gold return has been small.

*May Queen, Hauraki* (May Queen, Hauraki, Limited).—This mine comprises the May Queen and St. Hippo Special Claims. For the greater part of the year the company has been opening up a new reef in the Saxon section at the No. 6 level. At first a fair measure of success was met with, but lately the reef has not been so good, and the whole block was let on tribute. The company intend opening up lower levels, and for that purpose enlarged the May Queen shaft down to the present Big Pump drainage-level—520 ft. The shaft is being sunk below that level, and is now down 44 ft. It is intended to continue it for another 56 ft. further before opening out. This should give a large block of payable ground to work upon. The country is now perfectly dry in the winze, which is down 25 ft. below the No. 6 level in the Saxon section. This, I have not the slightest doubt, is due to the pumping operations at the Thames-Hauraki shaft. The prospects of this company are particularly bright, as it is known that gold is making downward in the reefs found at the lowest level. Quartz crushed by company, 2,039 tons, for a return of 1,866 oz.; value, £5,167. The tributers treated 199 tons, and obtained 357 oz.; value, £963.

*Thames-Hauraki* (Thames-Hauraki Goldfields, Limited).—This mine comprises the Queen of Beauty Extended, Deep Sinker, and Deep Levels Consolidated Special Claims. The pumping machinery at the Queen of Beauty shaft has been completed and is now in full work. The shaft has been enlarged and timbered down to 536 ft. A further distance of 94 ft. has to be completed before the bottom of the old shaft will be reached. The No. 8 chamber has been finished, and work will be at once commenced for the purpose of trying the Vengeance reef at this level. In the Deep Sinker section the driving of the north crosscut is being pushed on with all possible despatch for the purpose of meeting the Una and Vanguard reefs.

*Gloucester* (Gloucester Gold-mining Company, Limited).—Very little has been done in this mine. Last year a shaft was sunk, and it was intended to erect winding machinery, but nothing has been done. Prospecting has been going on, but the results are not satisfactory.

*Karaka* (Karaka, Limited).—The ground has been well worked during the year. The reef is from about 3 ft. to 5 ft. wide and carries gold at the thickest part. On the whole, the prospects have improved, and are very encouraging. Quartz crushed, 100 tons; return, 27 oz.; value, £80.

In the locality of Una Hill the Occidental, Thames, and Karaka Queen have been prospected, but nothing definite has been discovered.

*Fortuna Hauraki* (Fortuna Hauraki, Limited).—A considerable amount of work has been done during the year on the different reefs. The indications met with in the Gibraltar reef were considered favourable enough to warrant the company erecting pumping and winding machinery on the old Dark shaft. When complete the water was pumped out down to No. 3. level, at a depth of 200 ft., and work commenced there on the No. 2 reef. This reef varies from 4 ft. to 6 ft., and carries a great quantity of mineral. A little gold was seen at times. A tram-line was erected to convey the quartz to the five-stamp battery. After crushing 110 tons, for a return of 1 oz. 19 dwt., the mine was stopped. It is almost certain that this small return was due to some defect in the

construction of the plates or gold-saving apparatus. Trial crushings were then made at other batteries with more favourable, though not remunerative, returns. Quartz crushed, 349 tons; return, 61 oz.; value, £158.

*Ethel Reefs* (Ethel Reef Gold-mining Company, Limited).—This company has been engaged in prospecting and opening up reefs in various levels. The majority of the reefs are small, but the Jupiter reef is 20 ft. thick. Encouraging prospects have been met with in most of these lodes. The company has a four-stamp battery, which has been engaged in treating small parcels from the different reefs for the purpose of ascertaining the value of the mine. If satisfactory, a twenty-stamp battery (which has already been purchased and stored near the mine) will be erected. Quartz crushed, 655 tons of general dirt from all parts of the mine, for a return of 176 oz.; value, £467.

#### *Kirikiri.*

*Fleming's* (Malcolm Fleming).—Mr. Fleming has done a considerable amount of work. His battery, which consists of four stamps, has been running almost continuously on payable ore. The reefs opened up look well, and give promise of better returns than have previously been obtained. Quartz crushed, 77 tons, for a return of 108 oz.; value, £292.

Several other claims have been taken up in the locality, the result, no doubt, of Mr. Fleming's success.

#### *Puriri.*

*Puriri Gold Estates.*—This property has been worked with a small number of men, and a trial crushing is to be made at its small battery, which has been repaired. No returns have as yet been given.

*Empress of India.*—During the early part of the year a good deal of prospecting was done, but the results obtained were not sufficiently good to induce the owners to continue. The license was, therefore, surrendered. Lately a party was formed to further prospect the ground, and they are now at work. I have not heard of anything being discovered.

#### *Neavesville.*

Little has been done here, but last month a party of tributers took the Golden Belt property on tribute, and are doing fairly well.

#### *Tairua.*

*Broken Hills* (Broken Hill Gold-mining Company, Limited).—A large sum of money was expended in constructing water-races and foundations for a battery. All these works have now been discontinued, and the mine closed down.

Nearly all the claims which were in existence last year have been surrendered or forfeited, and the district practically deserted.

#### *Ohui.*

The only claims at work here are the Last Chance and Golden Hill. These are let on tribute. A small battery was erected, and a trial crushing of 25 tons put through. The return was not satisfactory, being only 15 dwt.

#### *Whangamata.*

*Whangamata Proprietary.*—This mine has been vigorously worked during the year, and a large amount of quartz, said to be payable, stacked ready for treatment. A battery-site has been excavated, and the battery buildings are now in course of erection. A water-race to supply power for driving the mill has also been constructed. It is anticipated that the return from the ore on hand will pay for the battery. I trust the company will not be disappointed.

*Wentworth.*—This mine is now worked by the Hauraki Peninsula Exploration Company (Limited), of England. During the year a large amount of work had been done in opening up the mine and saving quartz for treatment. Foundations for a battery are being made and water-races constructed.

Almost all other claims have been abandoned.

### OHINEMURI COUNTY.

#### *Karangahake.*

*New Zealand Crown Mines.*—This company have very considerably increased their output. A lot of very expensive work has been done, and an additional twenty head of stamps is to be erected. Capable management has made this one of the foremost mines in the district. One hundred and eighty men are employed, and large sums have been spent on water-races and air-compressing machinery. The management deserve great credit for the position this mine has attained.

*Woodstock.*—The Woodstock Company appear, to a great extent, to have overcome the difficulty they had in treating their ore. The vanners introduced seem to have fulfilled expectations, as the returns from this company show a marked improvement, and I have no doubt that in the near future the mine will be made a payable one. The company employ 161 men.

*Talisman.*—The Talisman Company have exceeded all expectations, whilst their ore has continued to run over £4 per ton. That this mine will prove a highly payable one there is no room for doubt. It is unfortunate that they are so cramped for room on their machine-site, and that there is so little available space for enlarging their mill, which, I believe, they desire to do.

The London and New Zealand Exploration Company have recently acquired the Victor Waihou and Talisman Extended Special Claims. There is every reason to believe that the Talisman and Crown reefs run into these properties. Large and extensive development works are to be inaugurated at once, and a large number of men are being put on. This company has

evidently acquired a very valuable property, and, as it is under capable management, it should prove a remunerative investment.

*Rotokoku.*

The Saxon No. 1 and No. 2 Special Claims have been taken over by an Auckland company. A good deal of development work has been accomplished, with considerable success.

*Imperial.*—Little work of importance has been done. More capital seems needed, and energetic measures taken to fully open the mine, which has every promise of becoming a payable one.

*Owharoa.*

The Ohinemuri Syndicate, after having spent a considerable sum of money, appear to be on the road to success. They have discovered two or three very fair reefs, giving good prospects. A few more months should decide the future of the mine.

*Waihi.*

The Waihi Gold-mining Company has shown marked advancement during the past twelve months. Since the Victoria mill started the output per month has hovered between £22,000 and £25,000 odd. It is now contemplated to increase this mill with another fifty head of stamps, for which the foundations are now being prepared. The two new levels opened in the mine on the Welcome and Martha have turned out remarkably well, and have conclusively proved that the ore considerably improves at the deeper levels. In some of the stopes in the No. 4 level the reef measures 50 ft odd in width. This probably is the richest mine in the Southern Hemisphere, and the management deserve great credit for the manner in which so many great works in connection with it have been carried out. The company employ about eight hundred men, and this does not include men working on various contracts, such as firewood-cutting, &c.

The Union Waihi Gold-mining Company's properties, which adjoin those of the Waihi Company, and are under the same management, have been most thoroughly and systematically prospected and opened up. It is the intention of this company, I am informed, to erect fifty head of stamps during the present year, to enable them to start crushing. There are two or three good reefs to work on, and I do not doubt that the company will be successful.

The Grand Junction Gold-mining Company have been able to do very little work indeed, owing to the main shaft in the east end being flooded. It is now considerably over eighteen months since the company struck the Waihi Company's lodes, and it is most difficult to follow the ideas the management have had in view. Seeing the great prospects before this mine, in that they have cut the Waihi lodes in both the eastern and western sections, it would be thought a vigorous policy would have been pursued, and active steps at once taken to have proper pumping plant erected. A new manager has now arrived from England, and I have no doubt an opportunity will be given to prove the mine's value.

*Waihi-Silverton.*—The Waihi-Silverton Company have scarcely realised anticipations. Active work has proceeded during the year, and a large amount of work done in opening up the mine. The mine itself shows every indication of improving. I am informed that the new reef which was struck a month or so ago is turning out very well. This company deserve every success, and I trust ere long may be returned amongst those yielding good returns.

*Waihi Consols.*—The Waihi Consols Company are sinking a shaft, but as yet have met with little of importance.

*Waihi South.*—The Waihi South Company have done little work. They have purchased the old Welcome ground, and intend shortly starting active work.

The Ohinemuri and Waihi Extended are being prospected by drilling holes with the diamond-drill.

The Favona Company have run out of capital, and is only being worked with a few men.

At the Waihi Beach very little work has been done. An option has now been taken over the property, and, as several new reefs have been discovered, there is a good chance of active work being carried on on this property.

*Waitekauri.*

*Waitekauri.*—The Waitekauri Gold-mining Company have made good progress, and is the second mine in the district. The mill has now practically been converted to a wet crushing one, with great success, as the monthly returns prove. The company intended erecting a new fifty-head mill at the Cross. In the mine itself two new shafts have been put down, and the mine is being thoroughly opened up. This company has now acquired the Grafton Nos. 1, 2, and 3 Special Claims, the old Kathleen Beehive, as well as several others, and altogether own a very large tract of country. In the Te Aomarama section development works of an extensive nature have been carried out with success.

In the Grace Darling very little work has been done; but I am informed that a company has been formed, and a mill is to be erected at an early date.

*Waitekauri Cross.*—This company has spent a large sum of money in developing their property. A shaft has been sunk and a good deal of driving towards the Cross end accomplished. The ore has improved in value, but is not as yet payable. An expensive water-race from the Whakamoehau Stream has been constructed. The company are deserving of every success, as they have expended a large sum of money.

*Waitekauri Extended.*—The Waitekauri Extended Company have not made a great deal of progress. The ore has been very low grade, but, I am informed, has lately improved considerably. The battery has not run continuously, owing to shortage of water. It would seem that to keep the mill continuously employed an auxiliary steam-engine is absolutely necessary. Should the value of the ore show any improvement, the company has good prospects of turning out a payable one.

*Maratoto.*

*Walker's Maratoto.*—The Maratoto Gold-mining Company has only lately been formed to work this claim. Good payable ore has been struck, and active work is being done in prospecting and opening up the same. A small battery of ten heads is in course of erection, and the company hope in the course of a few months to keep this continuously employed.

*Hikutaia.*

The Hikutaia Syndicate are now erecting a small testing plant, to see if the ore can be made to pay. The ground has been most thoroughly prospected and opened up, and driving on the lode in some eight different levels for considerable distances has proved that the ore is only just payable throughout.

*Komata.*

*Komata Reefs.*—The Komata Reefs Gold-mining Company is actively employed in driving a low level of some 3,000 ft. This will take some time, and until it is accomplished the mine cannot make much advancement. Regular returns have come to hand every month, and the prospects of the mine are good.

## COROMANDEL.

Mining in this part of the Hauraki district is still progressing steadily. Since the last mining boom very many of the old no-liability companies have ceased to exist, and this being the case has caused no end of ground to become again available to the miners for prospecting.

*Kauri Block.*

The Hauraki Mine still continues to produce a regular payable monthly yield, and more favourable results may arise at any time, owing to the development works continuously going on.

The Union Beach portion of the Hauraki Company's Special Claim has also turned out some good specimen stone, and its prospects are very encouraging.

The Golden Pah Company has had occasional patches of specimens, giving promise of better results later on.

The Bunker's Hill Company has had some capital patches of specimens during the year, and it is probable that a good account of this mine may await my next year's report.

The Hauraki South Claim is at present, I believe, let on tribute. Very little work has been done lately.

The Zealandia Mine is under protection, and very little work has been done during the year.

The Albion Special Foreshore Claim, the property of the Hauraki Main Lodes Company, is closed down at present.

Much work has been done in the Welcome Find Mine, and the company deserves credit for the way it has carried on operations, which, it is hoped, will prove successful.

The Hauraki No. 2 Claim is still in existence, but very little work has been done upon it during the year.

The Kathleen Mine is on freehold land, adjoining the Hauraki. A great deal of development work has been carried on; good reefs are there, and splendid-looking quartz, but payable ore has not yet been discovered.

The Kathleen Crown (also freehold) adjoins the Kathleen. Constant work has also been carried on in this mine, and a little gold has been seen from time to time, but so far nothing payable.

Blagrove's Freehold, adjoining the Kathleen Crown Mine, is at present closed down. The company is, I believe, being reconstructed.

Kapanga Company: At time of my last report several tributes were let in this mine. They have now, I believe, all run out. During the year the company has had some good and payable crushings, and its prospects are satisfactory.

Constant work has been carried on in Scotty's Mine, but not much gold obtained.

The Harbour View Special Claim is let on tribute, and several nice parcels of specimens have been obtained lately, encouraging to the company.

The New Hero Special Claim is in a good situation, and has lately been taken up under the new Mining Act. It adjoins Scotty's Mine.

Hauraki Associated: A good deal of work has been done in this mine, and good crushings have been obtained. A low level has been put in lately, and permanent crushings are expected to be commenced again very soon.

The Royal Oak of Hauraki Company's mine is now in full swing, and regular monthly returns are being obtained. The great water scheme mentioned in my last year's report is completed, and the machinery was started by His Excellency the Governor, Lord Ranfurly, on the 28th March last, everything working in thoroughly good order.

The Queen of the North Special Claim is still on development work, and its owners are sanguine of ultimate success.

The New Four-in-hand Company has lately completed the erection of a new battery, and its prospects are indeed very promising.

*Karaka Block.*

The Success and New Hauraki are the only claims at work on this block. A vast amount of work has been done during the year, but not much gold obtained.

The Wonder of the Age is the name of a new claim discovered by Mr. Henry Colthurst near the Karaka Block. A fine reef has been found, which gives splendid prospects, and it is to be hoped the discoverer (who is an old prospector in the district) may find something in this ground to recoup him for his patience and perseverance.

Hauraki Gem: Some nice specimens have lately been found in this mine by the tributers engaged in working it.

*Kennedy Bay.*

Very little is being done in this part of the district. The Bay View Special Claim is let on tribute, as also the Flossie. The Rose is turning out some nice specimens at present, and its prospects are good.

*Pukemaukuku Block.*

A good deal of prospecting has been done in this block during the year, but so far nothing of value has been discovered.

*Tiki.*

The Pukewhau, Progress Castle Rock, Royal Mint, and Pohutu are about the only claims at work in this part. The Progress Castle Rock Company obtained some specimens lately from its claim. I think this mine will yet occupy a more prominent place.

Several extended quartz claims have been taken up on ground which formerly was held as special claims. This indicates a new era from what has existed since the boom, when the cry was that 100 acres was too small. With small areas there is a better chance of the area being thoroughly prospected than with larger claims.

*Kuaotunu.*

This part of the district has been very quiet for months. Just lately the Kapai-Vermont and Great Mercury Claims have changed hands. They are good mines, but have been mismanaged. I trust the new owners will enter on active operations, and hope shortly to see these mines being well worked.

The Mariposa is steadily at work, also the Irene (on tribute) and the Waitaia, besides some small claims.

*Mercury Bay and Mahakirau.*

There was a small rush here towards the end of last year, and several special claims were pegged out.

The Colorado has changed hands, and the new proprietors are bent on giving it a thorough test.

Two 100-acre prospecting licenses have lately been granted at Gumtown, and some more applied for. It is probable that a battery will soon be erected near Mercury Bay, with money voted for that purpose last session.

*Opi-tonui.*

This freehold property, owned by the Kauri Freehold Gold Estates (Limited), has been most energetically worked during the year, and in the course of a month or so it is contemplated that the battery, consisting of forty stamps, cyanide plant, &c., will be in permanent working-order. There is an immense quantity of dirt ready and available for crushing. Quite a large township is forming here, and it promises to become a very important portion of this district. This company has expended £70,000 on its property, and is a very large employer of labour. It is to be hoped it will meet with the success it so richly deserves by adding considerably to our monthly gold returns.

Great efforts are being made to get a battery at Coromandel for the purpose of testing quartz, and thus save the expense of sending away parcels of ore to Thames and Auckland. The establishment of a battery here will prove of great benefit to this part of the district.

The monthly return of gold for Coromandel shows that its prospects generally are thoroughly satisfactory.

**TE AROHA.**

There has been little progress in this district during the year to report. Several claims have been given up, while some have again been acquired by those who have studied the district for many years past, and are confident in its ultimate prosperity.

The successful treatment of the refractory ores has not yet been accomplished, and till that takes place no great advance can reasonably be expected. The Rev. J. Campbell, of the Montezuma Company, is still actively experimenting in the treatment of refractory ore by thermo-hyperphoric process. If he succeeds, which there is good reason to suppose he will, the future of the district will be assured.

In the Montezuma Company there has lately been a reconstruction, the colonial shareholders being so confident of the ultimate success of the treatment that they have taken over everything from the original company, and now intend vigorously conducting further experiments under Mr. Campbell's personal supervision.

The Aroha Mines, at Waiorongomai, have recently been transferred from the Exploration Company to Mr. E. H. Hardy, who intends carrying on operations immediately. The old battery has been thoroughly repaired; ten head of stampers, a stone-breaker, and one of the latest concentrators are now in position. The water-race has been put in good repair, and a right to use the county tramway acquired. A staff of men are engaged obtaining ore from the old Premier workings, so that a trial crushing will be made at no distant date. Mr. Hardy has agreed to allow prospectors and others the use of his battery for trial crushings at any time; this, of course, will mean a good thing for the district, since ore may now be treated almost on the spot, whereas formerly it had to be sent to the Thames, thus entailing a considerable expense in the way of carriage.

Prospecting has been carried on on the Loyalty Palace Special Claim at Waiorongomai. The mine is now being let on tribute. A trial crushing of 28 tons gave a return of £118, the gold being worth £3 6s. per ounce.



Mr. Newsham has, in the same locality, been prospecting in the Alexandra Claim with satisfactory results an assay gave 90 oz. per ton, gold value £3 6s. per ounce.

Work has been going on in several other properties, but at present they have not been sufficiently developed to warrant any special comment. From the present indications on the field, I have little doubt but that the current year will be more prosperous than the last one was.

The Under-Secretary, Mines Department, Wellington. I am, &c.,  
R. S. BUSH, Warden.

## No. 2.

Mr. Warden ROBERTS to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Tauranga, 25th April, 1899.

I have the honour, in compliance with instructions received, to submit the following report of this portion of the Hauraki Mining District:—

*Te Puke Gold Reefs.*—This is the principal claim on the field, and has been in work continuously developing the large 20 ft. lode. The chief work done has been the putting in of an adit-level on the south, about 100 ft. below the former low level. This makes a depth of 320 ft. from the crown of the hill. The adit was driven in northwards for 200 ft., and the reef picked up in rather broken country. The adit passed through a number of reefs from 2 ft. to 12 ft. through, and all giving good prospects of gold. After the reef had been found, work was suspended on that portion of the mine, and a winze started from the low level. The winze was carried down on the foot-wall for 100 ft., when the air got so bad that work was suspended at the bottom of the winze. The reef is a promising body of stone of unknown size, as the winze is all quartz. It is of the same wavy laminated appearance as on the top levels, and prospects and assays more than payable.

*Clark's Freehold.*—This property of 300 acres freehold adjoins the Te Puke Gold Reefs on the north, and has the continuation of this reef, which runs about 15° east of north, and underlying to the east. A prospecting drive has been put in 80 ft. to cut the big reef, but, a hard class of country coming in, this work was abandoned for the present. A large outcrop of quartz to the east that gives good prospects has been driven for, but at too shallow a level; but it is thought the cap of the reef has just been picked up. The main work has been done on an 8 ft. reef that assays and prospects payable. It has been cut 30 ft. below the surface, and at a low level 80 ft. deeper. When cut the drive was carried ahead through a fine class of blue country, heavily mineralised with pyrites, when a 2 ft. leader was cut 16 ft. further, and that carries gold. A cross-cut was put in for 50 ft. on the hanging-wall side of the reef, and both reefs again cut through, with very encouraging prospects. Another 3 ft. reef has been cut in another portion of the ground that carries a large percentage of silver. Altogether some 600 ft. of driving, besides other prospecting work, has been done on this property, and the reefs well opened out.

*Ben Lomond.*—This is a special claim on Native land, and has a couple of nice reefs on it in a fine class of sandstone, but nothing has been done to develop them. During the past year the owners put a drive close to the boundary of Clark's Freehold, which it adjoins. This was with the view of picking up the Te Puke Gold Reefs lode, but the drive was put in at too shallow a level, and after driving over 100 ft. there was no sign of the sandstone, although it can be seen cropping out a few feet below where the level was put in.

*The Sisters.*—This is a freehold property. A considerable amount of work has been done. Various drives have been put in; the main drive is 130 ft., and a crosscut drive of 60 ft. Loose quartz and small leaders are constantly met with. The manager is very hopeful of striking the reef running through the Te Puke Gold Reefs Company.

The great want of the field is capital to develop it; for the reefs are of a promising kind, of great dimensions, and running in good sandstone country, with every convenience of both water and timber. The quality of the reefs are all low-grade ore, but in great quantity, and with exceptional facilities for easy and economical treatment.

I have, &c.,  
J. M. ROBERTS, Warden.

The Under-Secretary, Mines Department, Wellington.

## No. 3.

Mr. Warden ALLEN to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Blenheim, 4th April, 1899.

I have the honour to enclose you my annual returns for the Marlborough Mining District.

Up to the 31st March last there is nothing requiring special mention. Several dredging claims in the Wakamarina district have been taken up during the year, but at present no work has been done. A dredge is in course of construction, and I understand the owners are waiting for machinery from England. I have received contradictory reports *re* the discovery of reefs or leaders at Armchair Creek. Special claims have been taken up in that district, but no real work has yet been done, therefore I have no report to make as to the quantity or value of the stone.

The Under-Secretary, Mines Department, Wellington. I have, &c.,  
J. ALLEN, Warden.

## No. 4.

Mr. Warden HEAPS to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Nelson, 31st May, 1899.

I have the honour to forward herewith the returns for the year ended the 31st March, 1899, for each of the sub-districts of that portion of the Karamea Mining District within my jurisdiction, and to report generally thereon.

## NELSON.

I have not yet been able to visit the Wangapeka, but, from inquiries I have made, I learn that very little progress has been made during the past year. A few men, mostly old hands, are engaged in alluvial mining, and good gold is still being got in the well-known Blue and Nuggety Creeks, but on the Whangapeka proper very little mining is being done. Hopes were entertained that when the track was made to the Crow district employment would be found for a large number of miners, but so far they have not been realised, and very little prospecting for new openings has been done.

At the Sherry a few men are at work, and it is said good wages are being made. The land is mostly owned privately.

At McRae's run, Lower Sherry, a considerable amount of work has been done in the way of prospecting, with a view to floating a company to bring in water on a large scale from the Whangapeka River for hydraulic sluicing. Meanwhile good results have been obtained from one small terrace on the property worked with two or three heads of water.

On the Baton River some six men or so have been working during the past year, and much heavy work has been accomplished in bringing in water, cutting tail-races, &c., but it is said that the results have been most discouraging.

At the junction of the Baton with the Motueka River one or two men have been making a living working on the river-bed. It was at this place that application was made some time ago for a dredging area, but owing to strong opposition by the settlers the scheme was abandoned.

In the Big Bush, at the head-waters of the Motupiko, a few miners are making a living, but a difficulty is experienced at that altitude in getting water in sufficient quantity for sluicing purposes. The gold obtained is of superior quality.

On the Lake Station, Upper Buller, a party of prospectors were at work for some months on behalf of a Christchurch syndicate, but the results were not disclosed locally. The foreman said he could get gold almost anywhere on the place.

Only nine applications for mining privileges were received at the Nelson Court during the past year, three for water-races and six for prospecting licenses.

## MOTUEKA.

The two mineral licenses of 200 and 300 acres respectively which were granted last year having been surrendered, a license covering both areas has been issued to the Asbestos Company, Christchurch, but beyond getting out samples little practical work has been done. During the year two prospecting licenses have been issued for areas of 300 and 500 acres respectively, with a view to searching for deposits of asbestos in the Upper Takaka Valley, in the vicinity of Mount Arthur.

## TAKAKA.

The mining industry in this part of my district has been retrogressive. All the mining leases taken up last year have been abandoned, and there have been no new discoveries.

At Anatoki Jackson and party are constructing a head-race to divert water from the Anatoki River to work a terrace which is reported to contain good gold.

There are three other parties working in the bed of the river, but only making poor wages. The general opinion appears to be that, if the river could be worked on a large scale, good gold would be got, but heretofore the place has only been worked on the bars. All the gold from the Anatoki is coarse and nuggety.

Payable gold is said to be got at "Kill Devil" by ground sluicing during the summer months. Thirty-five mining privileges were applied for during the year.

## COLLINGWOOD.

Notwithstanding the large number of special claims and licensed holdings surrendered or cancelled during the past year, the mining outlook in this district is satisfactory, as the properties abandoned were mostly taken up in the first place for speculative purposes, and were in some cases a bar to legitimate mining.

The Parapara Hydraulic Sluicing and Mining Company have continued steadily at work during the year, and are said to have obtained fairly satisfactory results. The works are on a large scale, and employ a good number of hands.

The water-race which the Collingwood Goldfields (Limited) has had under construction for a considerable time past is now nearing completion, and the company are likely to commence sluicing on an extensive scale in three or four months' time. Meanwhile good prospects are said to have been obtained on the company's ground, and a large number of men are being employed.

On the Taitapu Company's property the Australasian Gold Trust have had several highly satisfactory crushings, and the prospects ahead are most encouraging. I understand that a number of men are prospecting on the Taitapu Company's own ground, and that further work is to be undertaken.

Quite a considerable number of applications have been made for mining privileges since the new Act came into force, and everything points to the coming year proving a brisk one for the mining industry in this sub-district.

I append additional returns from the Collingwood sub-district, showing—(1.) The machine-site licenses, occupation licenses, and coal leases in existence on the 31st March, 1899. (2.) The gold-mining licenses in existence on the 31st March, 1899. (3.) Abstract of licensed holdings surrendered and cancelled during the year ended 31st March, 1899. (4.) Abstract of licenses for special claims surrendered and cancelled during the year ended 31st March, 1899.

The Under-Secretary for Mines, Wellington.

I have, &c.,

WILSON HEAPS, Warden.

### No. 5.

Mr. Warden STRATFORD to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

The Warden's Office; Westport, 27th April, 1899.

I have the honour to forward herewith statistical returns for the Buller sub-district for the twelve months ended the 31st ultimo, and to submit the following report upon the gold-mining industry:—

#### LYELL AND MURCHISON.

In these localities more attention than usual has been paid during the year to dredging properties, with the result that, although a keen interest has always been taken in well-developed quartz-mines, but little attention has been given to the prospecting of undeveloped reefing properties. The good results from the dredges in Otago, and the important improvements which are daily be made in dredging plants, have gone to show that there are large areas of auriferous beaches and flats in the bed and along the banks of the Buller River which might be profitably worked by dredging, and a number of claims have been pegged out, extending from Longford to Berlin's, a distance of about forty miles. Dredging operations in the Buller in the past have not proved altogether successful, but the unsuitability of the dredges employed accounts for this. The results from the new Buller dredge, which is the most up-to-date plant on the West Coast, have proved that even the ground which was previously considered too poor and rough to deal with can now be treated with handsome profit.

In consequence of the success which has attended the Buller Company's operations, there is sure to be a number of other dredges started on the Buller River during the next few years.

*Exchange Dredge* (purchased by the Consolidated Dredging Company).—The workmen who purchased this property from the Cock Sparrow Company had met with fair success, and had paid off the purchase-money the sum of £1,000 almost entirely from gold won, but, being tempted by an offer of £2,000 for their property, gave an option to Mr. T. Hubert Lee, of Reefton, to purchase for that amount. Mr. Lee had no difficulty in floating a company to take over his option, and the shares were at a premium before the company was registered. The purchase-money has since been paid and the plant handed over to the purchasers, the Consolidated Dredging Company (Limited). It is the intention of the new company to lay up the dredge and make extensive alterations. The company has applied for a special claim of one mile of river-bed at Three-channel Flat, and, as it includes the ground that the old company was operating upon with good results, the work of the dredge, when the alterations are completed, should prove payable.

*Ranfurly Special Claim*.—This includes one mile of the Buller River at the old diggings near Berlin's. A certain amount of prospecting has been done on this claim, with highly payable results, as much as 9 gr. of gold to the load having been obtained from some of the paddocks. It is intended as soon as possible to float a company to erect a dredge to work this property.

*The Premier and the Junction Special Claims*.—These are situate near the Inangahua Junction, and the Dunedin Special Claim is situate at Flax-bush Fall, about six miles below Lyell. These claims each contain one mile of the river-bed, and have been taken up for dredging purposes, but so far very little work has been done on them.

*The Buller Dredge*.—This dredge is in active operation near Fern Flat, and is obtaining highly payable results. For the greater part of the year the company was employed in the erection of its new dredge, which was completed about the middle of September last, operations up to that time having been carried on with the old dredge. The new dredge is strongly built, and in order that the flats along the banks of the river may be worked it is fitted with elevators. The old dredge, which has latterly been laid up will be remodelled and started to work as soon as the necessary alterations can be made.

*Four-river Plain Gold-dredging Company (Limited)*.—Efforts are now being made to float this company. The ground includes a special claim of 100 acres, and also 130 acres of freehold land, situate about three miles higher up the river than where the Buller dredge is working.

*The Matakītaki Dredge*.—This dredge is working in the river of the same name, about half a mile above the traffic-bridge. Considerable delays have been experienced in making alterations and executing repairs, but the dredge is now working steadily and obtaining payable results. The plant is not up to date, and, the capital of the company being small, it does not permit of any extensive improvements being made. The results from the ground are therefore not so satisfactory as they would be if the claim were worked by a more modern dredge.

#### Quartz.

Quartz-mining operations have now been reduced to work in the one mine (the Alpine).

The United Italy Company, after driving a prospecting level for about 150 ft. without any favourable development, offered its property for sale by public auction. The claim and small five-head stamper battery and other plant were purchased for a very small sum by Mr. James Lowick,

of Lyell. The lease has since been surrendered, and the plant is lying idle. The Tyrconnel party, not being able to work with satisfactory profit on their leader claim at the Eight-mile, removed down to the old Croesus Mine, within a short distance of Lyell. A small amount of prospecting was done here, and one crushing was taken out. The result was, however, too poor to warrant work being continued, and the party have now suspended operations.

The Alpine Extended Gold-mining Company have, during the year, done a large amount of work. The mine has been fully manned, there being on an average fifty-two men employed in the mine alone, and the company's twenty-head stamper battery has been kept almost continuously at work. The stone treated has, however, been of low grade, and has left but a very small margin of profit over the working-expenses and the cost of carrying out the necessary development and prospecting works. Stopping has been carried on in the Nos. 9, 10, and 11 levels, the bodies of quartz ranging from 4 ft. to 20 ft. in width. A small amount of prospecting has been done in the upper levels, and the No. 11 level has been connected with the main shaft. Large quantities of quartz have been developed in almost every direction in which driving has been done, but so far the quality of the stone has been of low grade. The company is, however, now extending its No. 11 level north, in which direction prospecting operations have led the company to expect better results.

#### *Alluvial.*

The usual amount of alluvial mining is being carried on along the banks of the Buller River and its several auriferous tributaries, among which the Matakitaiki and Maruia offer splendid advantages for the efforts of individual miners. There are a large number of small claims which are being continuously worked, and from which the holders are obtaining a comfortable living, but no unusually rich finds have been reported during the year.

The Dee Creek Gold-slucing Company (No Liability) has expended a considerable sum of money in bringing on water to work an auriferous terrace at the back of Della Vedova's accommodation-house at Three-channel Flat. A small amount of sluicing, however, proved the ground to be not sufficiently good to pay a company, and the claim has been let on tribute to McGregor and party.

The Cuzco Gold-mining Company recently formed in Wellington, is working a deep flat on the right side of the Buller River, opposite Three-channel Flat, and near the mouth of Thompson's Creek. About half a dozen men have been employed in bringing on water and driving. The company so far appear satisfied with its prospects.

At the Maruia Mr. George Walker has been working steadily at his sluicing-claim with fair success.

Taking the district as a whole, a good healthy state of prosperity has been existent during the year, and there has been a marked absence of the booming and rushing so common, as a rule, on the goldfields. With a return of prosperity to the quartz-mining properties, and a judicious investment of capital in dredging, this district should continue to supply its full quota to the gold-production of the colony.

#### CHARLESTON.

During the year past there has been very little done towards the development of the mining industry. Most of the larger areas have been the greater part of the time protected, while their promoters have been arranging with syndicates to purchase the properties—the Lucinda, Lucy, and Brown's Terrace Special Claims. The two former have had an aggregate protection of twelve months since the 31st January, 1898, and the latter fifteen months since July, 1896.

The Totara Special Claim, of 26 acres, is being pushed ahead. Mr. J. M. Powell has brought in a water-race capable of carrying eight heads of water a distance of six miles; the latter portion of the distance, about 67 chains, is siphon. A large cutting, about 10 chains long, had to be made through the sound hills to bring the siphon through to the beach where the claim is opened up, and the owner is now reaping a good reward. The washdirt, which is black sand, is worked with a hydraulic elevator.

Two special claims adjoining the Totara have been applied for.

The miners working the beaches (commonly known as "beach-combers") have done very little during the last nine months, as the beach has been very poor.

The back lead still continues to be productive. No new claims have been taken up in this locality. The chief work is crushing cement in which fine small batteries are employed, the tailings from which give good returns to the "fly-catchers" in the creek into which the tailings are discharged.

The principal batteries are the Dublin City, an eight-head battery; the Morning Star, with four stamps; and the Enterprise, with four stamps. Messrs. Haxburgh and Craddock have lately erected a four-stamp battery, and are getting fair returns.

At the Four-mile the three special claims held by a German syndicate have had nothing at all done in them, and their owners are applying for permission to surrender absolutely.

At Brighton there are only about seven or eight parties at work, and the returns are poor. The terraces which were so rich and yielded such good results in the early days—1867 to 1870—now only afford a bare existence.

#### ADDISON'S.

At the Bendigo Claim the General Exploration Company have completed their water-races from Island Creek, a distance of five miles, with a capacity of fifty heads, and also their elevating plant, which is worked by a Pelton wheel, capable of delivering  $2\frac{1}{2}$  tons per minute with a direct lift of 120 ft. They have started sluicing some months, but the results have not been made public. From the point at which it was necessary to open out a cut of some 2 chains had to be worked before getting on the run of gold. Operations are at present suspended, pending instructions from Berlin, the headquarters of the company. The works and plant on this claim

are of a very extensive nature, having been designed and constructed with a view of dealing expeditiously with immense bodies of washdirt.

The Virgin Flat Company have had a number of men employed cutting races and preparing generally to work their alluvial claims on the flat.

During the past year Gould and party have driven 540 ft. of tunnel, moved the water-balance and hopper plant, and cut 1,000 ft. of storm-channel. They are now sluicing into the new tunnel from a fresh face, and feel confident of success.

Millikin and party have driven and boxed 450 ft. of tunnel, and have made a foundation for the water-balance, which they are now erecting. Whilst engaged upon this work they have also kept their battery running two shifts per day.

Carriday and party have been sluicing steadily throughout the year, with good results, and contemplate making alterations which will generally and greatly facilitate their operations.

Neil and party have also been sluicing almost continuously, and have recently had some very handsome returns.

The Shamrock Company's claim is let on tribute. A considerable length of tunnel has just been driven and boxed, and a lift driven by a Pelton wheel has been erected to take up stones, &c.

Sullivan and party have started a new claim at Wilson's lead, having driven a tunnel, put up a water-balance, constructed washing-tables, and repaired a large break in their principal dam.

The preliminary works required to open Halligan and party's claim are amongst the heaviest that have ever been undertaken at Addison's by a private party of miners, including a siphon flume across Dirty Mary's Creek over 700 ft. in length and 2 ft. in diameter.

*Venture Gold-mining Company (Limited).*—This company had the misfortune to lose the 30 ft. water-wheel which supplied power to the battery during a heavy storm that occurred about the middle of last year. The time and cost of erecting a new one considerably reduced the returns. The cement now being treated is of an average value of 1 dwt. per cubic yard. This is sufficient to show a good margin of profit, so that the company should soon be out of its present difficulty. Amount crushed during the year, 3,460 cubic yards; gold won, 205 oz.

*Addison's Long Tunnel Gold-mining Company (Limited).*—This company was formed in September last to take over the property of the Addison's Sluicing Company (Limited), at Gallagher's Lead, Addison's, as the latter company's capital was not sufficient to open up the claim. Operations have been steadily going on for the past six months. The returns are sufficient to pay wages and current expenses, or very nearly so. The disturbed condition of the lead has given trouble. No doubt as soon as the foundation becomes more regular the returns will improve. This claim has cost upwards of £5,000 to open up, and is owned principally by local investors. Return of gold won to 31st March, 1899, 166 oz. 16 dwt. 20 gr.

#### WAIMANGAROA.

The Westport Twin Gold-mines (Limited) consist of two special-claim areas at Waimangaroa, each containing nearly 100 acres. The company has recently constructed a water-race, battery, winding and driving wheels, cottages, &c., at a cost exceeding £4,500. A small quantity of stone has been crushed, but the result was not equal to the expectations of the proprietors.

*Britannia Gold-mining Company (Limited).*—This company is only recently formed, though the claim has been in hand for about three years, during which time prospecting has been carried on. The claim is situated at Stony Creek, Waimangaroa, and is on what is known as the "Republic" line of reef. A small battery of two 850 lb. stamps has been purchased, and contracts let for all necessary work in connection with same. The operations are considerably hampered by the difficulty experienced in getting material to the claim, though this difficulty will be somewhat lessened when the pack-track now under construction is completed. The prospecting has disclosed some 2,000 tons of stone, of an average estimated value of 1 oz. As the tunnels are extended the stone appears to get more solid and the country more regular. There are still outcrops of payable stone not yet driven on.

Nearly all the large claims in this locality have been surrendered, and very little work has been done during the year. Small parties of miners are scattered up and down the river, and are apparently making a fair living.

#### KARAMEA.

A few sluicing claims have recently been started at Karamea, but they have not been sufficiently worked yet to enable a reliable opinion to be formed as to whether they are likely to prove payable or not.

The Under-Secretary for Mines, Wellington.

I have, &c.,

H. A. STRATFORD, Warden.

#### N . 6.

Mr. Warden STRATFORD to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Reefton, 21st April, 1899.

I have the honour to forward to you herewith statistical returns for the year ended the 31st ultimo, and submit the following report on the Inangahua portion of the district under my charge for the same period:—

The chief feature of the year has been the completion and bringing into full working-order the extensive milling and gold-saving appliances of the Progress Mines of New Zealand, which have had the effect of very materially increasing the gold-production of the district for the year.

From the opening of the district to the 31st March last 738,006 tons of quartz have been crushed, from which 511,095 oz. of gold has been obtained, representing a value of £2,003,566, out of which £594,368 has been distributed in dividends. The total amount of alluvial gold raised for the same period is approximately estimated at 137,520 oz., representing a value of £510,894. The total production of the district is, as far as can be ascertained, 648,615 oz. of gold, of a value of £2,514,460.

The following table will show the calls, &c., made by various companies in the district during the year:—

Company.	Calls made.			Dividends.	Quartz crushed.	Yield of Gold.			Value of Gold.		
	£	s.	d.			£	Tons.	Oz.	dwt.	gr.	£
Cumberland Extended ...	1,600	0	0	...	115	25	3	0	99	7	3
Dillon Extended ...	666	13	4	...	...	...	...	...	...	...	...
Al Company ...	16	0	0	...	...	...	...	...	...	...	...
Kirwan's Reward ...	58	6	8	...	...	...	...	...	...	...	...
Progress Mines ...	...	...	...	...	37,500	15,563	10	17	63,593	3	7
" ...	...	...	...	...	*	1,271	14	0	5,315	15	10
Welcome ...	...	...	...	...	60	33	0	0	131	0	4
Keep-it-Dark ...	...	...	...	...	2,184	911	9	13	3,639	15	11
No. 2 South Keep-it-Dark ...	600	0	0	...	12	4	7	12	16	18	10
Maritana ...	100	0	0	...	...	...	...	...	...	...	...
Boatman's Exploration ...	413	6	8	...	...	...	...	...	...	...	...
Big River ...	...	...	...	900	730	1,355	5	0	5,491	3	10
" ...	...	...	...	...	†	165	0	0	662	3	4
St. George ...	200	0	0	...	25	18	0	0	71	12	0
Golden Lead ...	600	0	0	...	...	...	...	...	...	...	...
Hercules ...	350	0	0	...	...	...	...	...	...	...	...
Snowy Creek ...	200	0	0	...	...	...	...	...	...	...	...
Snowy Creek Extended ...	600	0	0	...	...	...	...	...	...	...	...
Lord Edward ...	200	0	0	...	...	...	...	...	...	...	...
Private companies—											
Last Chance ...	316	0	0	...	350	132	6	21	531	8	4
Sir F. Drake (syndicate) ...	...	...	...	...	1,069	334	15	15	1,538	2	6
" (tributers) ...	...	...	...	...	260	181	6	9	732	5	7
Other sources ...	...	...	...	...	...	1,442	0	0	5,764	3	8
	5,920	6	8	900	42,305	21,487	18	15	87,587	1	0
Alluvial gol ...	...	...	...	...	...	2,833	0	0	11,067	0	0
Totals ...	...	...	...	...	...	24,320	18	15	98,654	1	0

\* 344 tons concentrates treated by chlorination process. † Tailings by cyanide process.

I submit for your information the following account of the work done by the principal mines in the district during the year:—

#### CRUSHINGTON.

*Keep-it-Dark.*—The principal work done during the year has been the opening-up and development of the new reef which was discovered in the early part of the year in close proximity to the main shaft. The reef was discovered by driving from No. 1 level, which is 150 ft. in depth from the brace. The reef has been driven on in this level upwards of 156 ft., and is fully 9 ft. wide. In No. 2 level, which is 313 ft. down from the brace, the reef has also been disclosed and driven on 174 ft., maintaining the same average thickness as on No. 1 level, with better quality stone. A rise has been put up from No. 2 to No. 1 level, and from No. 1 level to the surface, which gives good ventilation, and will greatly facilitate the filling-in of the mine with mullock from the surface as the reef is stoped up. In No. 3 level, which is 476 ft. down from the brace, a tunnel is being driven to intersect the reef. This drive is now in a little over 200 ft., and it is expected the reef will be met with in about 60 ft. from the present face. Should the reef be of the same dimensions as on the other levels above, it will produce a very large body of stone, as there will be over 400 ft. of backs to stope out.

The only stone crushed during the year has been what was produced by driving the levels and putting up rises on this reef. By various tests which have been made of the tailings it is found that there is a large amount of fine gold being lost by the ordinary battery treatment. The company is at present erecting an extensive plant for the treatment of the whole of the tailings by the cyanide process, and it is confidently expected that the yield of gold will be materially increased by the process. The plant will be completed and in working order by the end of April.

The total output of the mine is 127,696 tons of quartz, which yielded 67,631 oz. of gold, valued at £263,393 1s. 7d., out of which dividends to the amount of £113,416 13s. 4d. have been paid.

*No. 2 South Keep-it-Dark.*—Prospecting operations have been carried on principally in driving a crosscut westward from old line of reef on No. 3 level, which is 475 ft. in depth from brace of main winding-shaft. This drive is directly crossing the strata. The rock passed through is a mixture of sandstone and slate. One or two narrow belts of soft slate intermixed with pug have been passed through, but, with the exception of a few small leaders, no quartz so far has been discovered. The drive is now in 516 ft. from old line of reef.

*Hercules*.—The operations during the year have consisted of prospecting. Attention was chiefly confined to No. 7 level, south end. A crosscut was driven to the east on this level near the southern boundary, to prove if the rich block formerly worked near this part by the No. 2 Dark Company could be located, but no success was met with. Work was then suspended for a short time, but has again been resumed in the north end of this level. It is now proposed to carry out some crosscutting, with the view of cutting the reef originally worked above in No. 6 level.

*Wealth of Nations Group*.—This comprises the Wealth of Nations, Energetic, and portions of the Gladstone, Beaconsfield, and Undaunted. During the year 811 ft. of driving and crosscutting has been completed, and was undertaken with a view of opening up new ore-bodies and endeavouring to locate what is known as the "Energetic" body of stone at the 350 ft. and 500 ft. levels. The new shaft has recently been baled out, and the excavating for the chamber for No. 6 level is now proceeding. In addition to sinking the incline-shaft a little deeper, so as to give sump room, the bottom of the new shaft has been connected with an old winze, which will help the ventilation. Chambers have been formed at both the 200 ft. and 300 ft. levels for the incline-shaft. Winding is at present done by the old water-wheel, but new gear has been ordered, which will be operated by water under great pressure. Seventeen men were employed on the 31st ultimo.

#### MURRAY CREEK.

*Golden Fleece Group*.—This is one of the properties of the Consolidated Goldfields of New Zealand. It comprises the Golden Fleece, Low-level Tunnel, and adjoining claims. During the early part of the year operations were confined to the No. 6 level in the Golden Fleece, driving along north and south and following a good track until they holed through the old workings of the old Ajax : 623 ft. of driving was done on this level, and a crosscut west 62 ft. In the Low-level Tunnel a considerable amount of driving and crosscutting has been done with rock-borers, viz., 557 ft. of driving and 226 ft. of crosscutting. Thirty-five men are employed.

#### BOATMAN'S.

*Welcome Company*.—The principal work done here has been on the Welcome No. 5 tunnel, where they have driven 253 ft. on the line of reef, crosscut 246 ft., raised 149 ft., and sunk a winze 100 ft. Nos. 2 and 4 levels have been retimbered 173 ft. At the present time they are opening out No. 6 level and catching up the water to prevent it getting back through the Fiery Cross Mine into the Just-in-Time, the shaft in which is shortly to be overhauled and reworked. The Specimen Hill low-level tunnel has been repaired and retimbered for 1,600 ft., and after putting in new air-boxes the driving of this tunnel south will be started again. The number of men employed is fifteen.

#### LARRY'S.

*Caledonian Group* (Consolidated Goldfields of New Zealand).—The Argyle tunnel was worked until the air became too poor. During the summer months a fair amount of surface-prospecting was done.

#### VICTORIA RANGE.

*Kirwan's Reward*.—Work on the several properties known by this name has been carried on by the Anglo-Continental Syndicate. During the year a considerable amount of prospecting has been done without finding any payable lode. On the Lord Brassey the total feet of short adits driven is about 2,500 ft. In the No. 4 level, now being driven under the line of surface stone, two small reefs, running north and south, and about 6 in. and 9 in. respectively, were cut through, but did not carry gold; the structure and general appearance is very similar, but totally different to the stone found on the surface. Much surface prospecting has lately been done on the Lord Brassey, and some patches of very good stone have been found on the eastern side of the eastern ridge near the mouth of No. 4 level. This work is still being prosecuted along an east and west line about 18 chains in length, on which good stone in quantity is to be seen on the surface, with a view of tracing it to the lodes, and, if possible, to estimate approximately the quantity of stone that could be collected by skimming the surface and mining it out where it has been discovered at a considerable depth. Up to the present nothing has been found on the surface to indicate where the solid lode is likely to be found. It is understood No. 4 level will be continued straight ahead to No. 3 shaft, in the vicinity of which there is a considerable body of fairly good stone that could conveniently be passed through No. 4 level, and from thence to the most convenient site in the locality for a small battery. The cleavage of the country-rock is generally very good for shooting, and the adit-works are therefore done at less cost per foot than in any other place in the district. It is quite dry overhead, and generally underfoot also. Notwithstanding the safe nature of the rocks, the level is being timbered as the work proceeds. The lode in the Earl Brassey is being bared on the north side of the ridge, and the stone tested for gold, but so far nothing payable has been found. A short tunnel was driven on the lode on the same side of the ridge some time ago, without, however, finding anything payable, but as the outcrop was promising this tunnel will be extended a few feet further.

*Boatman's Exploration Company*.—This company's property, consisting of four licensed holdings of 30 acres each, is east of and adjoining the Lord Brassey. During the past summer six men were employed. A lot of trenching was done, and boulders of quartz containing gold were frequently found. The surface of the country is very much broken. Five shafts of an average depth of 40 ft. were sunk, but failed to reach solid country. The total expenditure in prospecting is over £700. Work for the present is suspended, but next summer probably a low-level tunnel will be driven, which should thoroughly prospect the ground.

## BIG RIVER.

*Big River.*—The operations for the past year have consisted of the following works: The block of stone sunk on in No. 5 level to a depth of 60 ft. was stoped out, and a large amount of prospecting was done in No. 6 level without any success. Prospecting operations were then started between these two levels, and an intermediate level was driven on a good reef track for 150 ft., lumps of gold-bearing stone being occasionally met with. This drive was then stopped and a crosscut put in at a point showing good indications, and after 8 ft. had been driven the reef was found and driven on for 148 ft., averaging from 8 ft. to 10 ft. in width. This proved to be the end of the stone, and since that time stoping in the block has been carried on. The width of the reef in the stopes will average 6 ft., and is of a highly payable quality. A winze has been sunk on the reef to a depth of 28 ft., and driving has been commenced from a second intermediate (known as No. 2) to connect with this winze. From this last point to No. 6 level there is 60 ft. vertical, and it is intended to prove the reef to this level. So far there is every indication that the block will also live above No. 5 level, and operations will shortly be started to prove if this is so. In the upper levels prospecting is in progress in No. 1 intermediate, with good indications, and there is a strong probability that the rich reef formerly worked in No. 1 level will be picked up again here. The company shut down the cyanide plant in July last, and disposed of the remaining tailings to Mr. C. Ansley, who finished the heap in December last. Since then all tailings produced have been stacked for future treatment. During the year the company have crushed 730 tons of quartz, which yielded 1,355 oz. 5 dwt. of gold, and obtained 823 oz. of gold by cyanide process and 1,355 oz. by amalgamation, the total value of the gold being £7,703 7s. 5d., out of which a dividend of £900 was declared. The total output of the mine is 15,189 tons of stone, which yielded to the company 21,847 oz. of gold, valued at £87,976 6s. 11d., out of which dividends to the extent of £41,400 have been declared.

*Lord Edward.*—No work has been done in this mine for a considerable time, but active operations are again contemplated. Recent developments in the adjoining mine—the Big River—have recently resulted in a highly payable reef being found there, and, judging from similar indications in this mine, it is thought prospecting operations will prove equally remunerative.

*Snowy Creek.*—Early in the year active operations were commenced on this property. On a reef showing in the bed of the creek a winze was sunk on the northern bank on the hanging-wall side of the reef. After sinking 19 ft. the reef was intersected underlaying to the west. This winze was continued on the reef for 118 ft., at which point the stone was lost, it having dipped north, but a favourable track was left in the bottom. The reef will average in width for the whole distance sunk about 2 ft., and it is of a payable quality. To provide capital for erection of machinery, &c., the company was re-formed, the new company being in 48,000 shares of 5s. each, 24,000 shares paid up to 3s. being given to the old shareholders. Contracts are now in progress for sinking main shaft 110 ft. in depth (9 ft. 6in. by 4 ft.) and constructing a water-race 70 chains in length. The latter will carry twelve Government heads of water, delivered at a vertical height of 63 ft. above proposed machine-site. The main shaft will be sunk 155 ft. west of the reef in the winze.

## PAINKILLER.

*Dillon Extended.*—The only work done in this mine since last report has been that of extending the low-level tunnel a further distance of about 300 ft. south, and following the usual track and reef formation. No regular or defined body of quartz has been met with since that struck in January, 1898, but latterly loose gold-bearing stone has been met with. The winze is at present protected.

## DEVIL'S CREEK.

*Progress Mines of New Zealand.*—I am indebted to Mr. Spencer, general manager and engineer of the Consolidated Goldfields of New Zealand, for information concerning the mines under his charge, and also for the following report on the Progress Mines, and the interesting description of the working of the chlorination and canvas plants in connection therewith:—

*Progress Mines of New Zealand (Limited).*

“This property is situated four miles south-east of Reefton. In extent it is 527 acres. The mine itself at the present time is managed by James Martin. Work is carried on through two vertical shafts, shaft A being 820 ft. from surface to No. 6 level. Shaft B is 927 ft. from surface to No. 7 level, which at the present time is our bottom level. The B shaft is, however, now being sunk down to the eighth level (100 ft. vertically below No. 7). We are now down far enough, and the eighth chamber will be commenced as soon as the shaft is down about 10 ft. below the chamber. The bulk of the mining timber is lowered from No. 1 level in the old shaft, also from Progress No. 1 level in the new shaft, both of which are adit-levels. This is a small consideration, as it avoids carting all the timber up to the brace of the respective shafts. Work is carried on in No. 4, No. 5, No. 6 and No. 7 levels. Also, coal is brought through the Progress Battery level, and eventually hoisted up B shaft to the boilers.

“In the mine several blocks of auriferous quartz are worked, which in all probability are parts or offshoots of one and the same quartz lode, though in some cases no connection can be traced. The casing consists in shale more or less decomposed, carrying in many cases a pug seam on either one or both walls of the lode. The country-rock consists almost entirely of slates and altered shale; portions of the latter when hard are locally termed sandstone. During the period under review several winzes and raises have been connected, and a considerable amount of drifting and crosscutting done, principally with the object of developing old and exploiting new bodies of stone. The actual development work is as follows:—

“No. 4 Level: On the eastern end 188 ft. of drifting has been completed to explore a low-grade body of ore, also a winze put down on it 82 ft., besides which a crosscut towards the new shaft has been put out 440 ft. This crosscut, when through, will be of great service to us in



handling our coal, which at present is lowered to No. 6 level on the old shaft, and hoisted up the new shaft to surface.

"No. 5 level has been drifted 30 ft. east, and a crosscut put in 100 ft. to try and tap the Union body of ore. On the western end we have drifted 245 ft., to connect with a pass from the Progress battery level, through which we hope to be able to bring filling. Besides this a crosscut 420 ft. has been driven, in order to connect with new shaft. This is not yet complete. Also a winze put down 100 ft., and two intermediate drifts, the combined length of which is 183 ft.

"No. 6 Level: A raise has been put up 150 ft. on the eastern end, and 20 ft. of drifting on the south-east.

No. 7 drive east has been advanced 404 ft.—crosscutting, 53 ft.; and further drifting, 95 ft. On the western end 90 ft. of drifting, and on No. 7 Progress level 100 ft., has been completed, besides a winze down 74 ft. from No. 7, to insure good ventilation for No. 8 level. This winze will be down before the crosscut from the shaft is out to the reef.

"The shaft has also been sunk a further distance of 75 ft., and is now down to No. 8 level. We shall sink about 10 ft. below No. 8, there cut the station and place the chamber timber in position, and resume sinking to No. 9 level as speedily as possible. Average rate of sinking, 15 ft. per week, besides hoisting sufficient quartz for both mills.

"Machinery: A description of the machinery used in hoisting at shaft B appears in the annual report of 1898 issued by the Mines Department, since which date there is no alteration to report in the equipment. The machinery is giving entire satisfaction, and will handle a much larger output than it is now required to do. At the present time whilst sinking the whole output from this shaft is hoisted through the west compartment, the eastern cage being in constant attendance on the sinkers. The hoist used at shaft A is a 30-horse power Hornsby undertype geared engine, with two hoisting-drums.

"*The Forty-stamp Battery.*—The forty-stamp battery, by Fraser and Chalmers, has been running nearly continuously since last May, crushing 29,642 tons. Power for the mill is supplied from a 6 ft. Pelton, driven by an effective head of 168 ft. The crushers, which are two in number, by Blake, 9 in. by 15 in., are driven by a 3 ft. Pelton, whilst the Frue vanners are driven by another of the same size. The average speed of the mill is eighty-one drops of 8½ in. per minute. Screening of various sizes has been used experimentally, with the result that 20- to 25-mesh gives the greatest satisfaction. Value of forty-stamp mill, vanners, crushers, and mill-shed, £12,000.

"The Frue vanners, sixteen in number, have been constantly running in conjunction with the new mill, and giving good results. The percentage of concentrates extracted by the vanners is about 1.35 per cent. of the rock crushed, of an average value of 5 oz. 6 dwt. per ton. The value of the concentrates, of course, varies nearly inversely as the amount made, but by extracting from 1.3 per cent. to 1.5 per cent. we obtain the greatest value. On making very thorough investigations, it has been proved beyond doubt that owing to the nature of the quartz a large proportion of the concentrates are in such a fine state that it is impossible to retain them on the vanners. The fineness is not caused entirely by the crushing, but is partially due to the natural state in which the concentrates exist in the quartz, being in places only a stain or thin coating.

"The old twenty-stamp mill has crushed 8,363 tons of quartz during the last twelve months. The cost of milling and concentration by the new mill is 2s. 3.86d. The cost of milling only by the old twenty-stamp mill is 4s. 0.59d. per ton.

"*Chlorination.*—This plant started regular work during the latter part of December. Since the commencement 344.5 tons have been treated, yielding 1,271 oz. 14 dwt. 8 gr. bullion; value, £5,315 15s. 10d. Value of plant, £1,600. The furnace is of the reverberatory type, 80 ft. by 14 ft., all on the same elevation, without a drop on to the finishing-hearth, as is often the case. The cooling-floor is on the same ground-level as the furnace. The three treatment-vats, 9 ft. diameter by 3 ft. deep, are on a slightly lower elevation, to facilitate the filling. These tanks have filter-bottoms so arranged that the gas distributes itself evenly over the whole area, and ascends through the charge under treatment. The precipitating- and settling-vats are placed on a lower elevation still, so that the solution gravitates down from the treatment-vats. The whole works are enclosed in a building 142 ft. by 40 ft.

"The green concentrates obtained either from the Frue vanners or canvas plant are run on the top of the furnace next to the smoke-stack end, and dumped there in small charges to dry, when a certain amount of sawdust is added and intimately mixed. This charge is fed into the furnace through an opening in the top, and forms then part of a stock pile always kept in a cooler part of the furnace. From this pile the working-charge is drawn and constantly ravelled forward towards the hotter part of the furnace. The functions of the cooler part of the furnace—that is, where the stock pile lies—is in the first place to dry the pile; but it also acts as a condenser, and any metallic gold which may become volatilised in the vicinity of the flame is, in the act of passing this pile, redeposited in the cooler metallic particles. The working-charge, after being extracted from the pile, is ravelled forward, and the applied heat very soon induces the whole mass to ignite.

"If the concentrates themselves contain a large percentage of sulphur they scarcely require the applied heat to start the combustion. When in this stage the sulphur, antimony, and arsenic are being driven off, a large percentage of which is deposited in the dust chambers and flues. The working-charge during this time is gradually being drawn towards the finishing-hearth, over which the flame plays. When all sparking is finished the charge is roasted dead, and is then drawn from the furnace. Meanwhile another charge has been following up the first one all the way, and is placed on the finishing-hearth when the previous one is withdrawn. The object of roasting the ore before chlorinating is to expel the sulphur, arsenic, and antimony, and to oxidize the metals left behind, so as to leave nothing which can combine with the chlorine when subsequently treated with it in aqueous solution except metallic gold. From a chemical point of view a rough explanation of what probably takes place during the roasting is this: When the charge gets into such a position in the furnace that it begins to ignite the first effect is to distil off sulphur,

reducing the sulphides to a lower stage of sulphurisation. This sulphur burns in the furnace to  $\text{SO}_2$ , and, coming in contact with material undergoing oxidation, is converted into sulphuric anhydride,  $\text{SO}_3$ . The antimony and arsenic are also being volatilised during this period. If the concentrates themselves contain oxides of copper, magnesia or lime, salt has to be added while roasting to chloridize the material, which would otherwise absorb the chlorine whilst being gassed. When salt has to be added it is usual to do this just before the roasting is finished. The quantity of gold-chloride mixed with the chlorine gas evolved from the red-hot ore when salt is added is large; but these gases have to pass over a long length of comparatively cold, unsalted, unoxidized ore, so the  $\text{SO}_3$  from the colder ore, combined with the steam from the fuel, very soon reduce the gold-chloride in the furnace. The loss in bulk caused by roasting varies with the concentrates in different districts. Here it is about 29 to 30 per cent. In other words, 1 ton green sulphurets is represented by about 1,570 lb. of the roasted material. When roasted this material is spread out on the cooling-floor and damped until it binds in the hand when compressed. It is then screened into vats ready for gassing, about 5 tons green being gassed at once. To generate sufficient gas the chemicals required are 90 lb. sulphuric acid, 90 lb. water, 50 manganese-dioxide, and 60 lb. salt. This, of course, varies according to the material treated. The gas remains in contact with the roasted material thirty-six hours, after which water is applied, and the gold-chloride is subsequently drawn off into a settling-tank, thence to the precipitating-tank, where it is first violently agitated to liberate any superfluous gas, then the gold is precipitated by the addition of ferrous-sulphate solution in excess, stirred again, and allowed to settle. After standing forty-eight hours the clear liquid is decanted, passed through filters, and discarded. The brown precipitate of gold remaining in the vat is collected when in sufficient quantity, dried, and then run down with fluxes into the bar, the gold being exceptionally pure—991 fineness; value, £4 4s. per ounce.

“*Canvas Plant.*—An addition to the gold-saving appliances is now being erected, called a ‘canvas plant’; one-half is completed and working, the other half nearly so. The object of this arrangement is to arrest the fine particles of sulphurets which do not settle on the Frue vanners, being in very minute form (slime). Thus the pulp as it leaves the mill is classified, the coarse sands being put aside, whilst the slime flows on over a series of canvas tables, on which the fine sulphurets remain. The particles of lighter specific gravity flow away to waste, being practically valueless. The canvas tables are periodically washed down; the sulphurets accruing therefrom are dried down and then pass through the chlorination-works. Value of plant, £600.

“Some idea of the general arrangement of the plant may be gathered from the following: The pulp as it leaves the vanners is led away in launders to one or, preferably, a series of spitzkaste, in which the whole of the coarse sands are separated from the slime, the latter flowing on, the sands themselves being either stored or rejected according to their value. The secret of the successful working of the tables depends largely upon the classification of the pulp, for a little sand going over the spitzkaste will very soon foul the tables. When the slime in suspension reaches the canvas plant it is easily segregated into twelve parts, and flows along a small launder with  $\frac{1}{2}$  in. fall to the foot. Each of these twelve small launders feeds a separate table, 12 ft. by 12 ft., divided into four strips, each 3 ft. in width, on which the canvas is spread, having a fall of  $1\frac{1}{4}$  in. to the foot. This grade depends largely upon the classification of the pulp, and is so arranged that the slime of lighter specific gravity flows away whilst the heavier particles remain on the canvas. Between each table, 12 ft. by 12 ft., there is a drop of 6 in. This enables the supply-launder, also the residue-launder, to take  $\frac{1}{2}$  in. fall to the foot, so that the whole of the worthless material at the bottom of each table finds its way into the same launder. At the top of each table there is a board so shaped that the material it receives is evenly spread out over the whole 12 ft., so that there is an even stream flowing over each table. After the tables have been running a certain time the man in charge proceeds to wash down: First he cuts off the supply of slime from one table; this supply now flows on to an auxiliary table kept for the purpose. He then opens a water-valve, and the table is purified from any worthless material. The water is now stopped; a shutter at the bottom of the table is turned over; by so doing anything now coming from the table finds its way into another launder, down which the valuable material has to go, as it is liberated from the canvas by a spray of water under great pressure. This process only requires a few minutes, when the pulp again proceeds to flow over this table, and the operator washes another; the valuable pulp runs on down to a sump, from which it is pumped by a centrifugal up into a large tank beside the chlorination-works. The tank is so divided that one compartment or another can receive the pulp until it is full, when it is thrown out on to a draining-floor, after which it is thoroughly dried on the chlorination furnace, and then passes through in the same manner as the concentrates from the vanners. The centrifugal pump is driven by a small Pelton wheel from the main pressure-pipe. The worthless material flowing away operates on an automatic sampler, so a check is kept upon the discarded slime and a record obtained. The pulp from twenty stamps flows over twelve tables, 12 ft. by 12 ft., on one side of the building, and the other twenty stamps taking the other side of the same building. The whole process is on the some principal as the old Cornish frames, but modified and improved to suit the quartz pulp.

“*General.*—The tonnage per stamp per day is about 2.5 tons with the forty-stamp mill, and 1.5 tons with the twenty-stamp mill. The capacity of the new mill will very shortly be considerably increased. The forty-stamp mill has run about 305 days, and the twenty-stamp mill about 265, since March, 1898, crushing together 37,500 tons, yielding 15,563 oz. 10 dwt. 17 gr. of bullion, to the value of £63,593 3s. 7d. This amount was extracted by amalgamation only. From the new mill 391 tons of concentrates have been made, the majority of which have already passed through the chlorination furnace. The cost of chlorination has had scarcely time enough yet to adjust itself, and has cost about £2 15s. I think this will be reduced to about £2 10s. per green ton treated in the near future. The freight, duty, and the original cost of some of the chemicals, situated, as we are, makes the cost of treatment high. The value of the bullion from amalgamation is about £4 3s. per ounce; from chlorination, £4 4s. per ounce.

"Turning again to the mine, we find that cost of mining, exclusive of development, is about 9s. per ton, or, including a fair proportion of development, 12s. 6d. per ton mined. Average cost of transportation, 6d. per ton, over the aerial line, which has transported 32,965 tons since starting work.

"The number of men employed during March, according to our pay-sheets, is 263, exclusive of timber contractors, coal contractors, &c. Value paid away in wages during March, £3,109 15s. 9d."

#### MERRIJIGS.

*Golden Lead.*—The low-level tunnel is now in over 1,400 ft., and is 140 ft. past the perpendicular of the surface lode. The underlay of the strata is about 6 in. to the foot, so that nearly 100 ft. will yet have to be driven to intersect the same run of ground that is carrying the lode on the top levels. The driving now is fairly good, mostly slate, with occasionally small bars of hard sandstone. No quartz has yet been met with, but the drive is now in good reefing-country. New air-boxes have been laid from the mouth of the tunnel to the face, and the ventilation is all that could be desired.

*Cumberland.*—Prospecting operations have been actively carried on during the year. The low-level tunnel was extended to a distance of about 350 ft., and crosscutting therefrom and some prospecting at a higher level was done. The quartz met with in this level and crosscuts proved of low grade, and, beyond proving the existence of a large slate formation of great length and width, did not give satisfactory results. The face of this level is in a promising formation. A connection by means of an uprise between this level and the incline above was made, facilitating working and improving ventilation. Work in the mine at present is limited to driving and crosscutting from the incline level, about 150 ft. overhead from low-level tunnel. The ground is good driving country, and has the features usually accompanying a reefing formation.

*Last Chance.*—Here they have driven a main tunnel 150 ft. in length, and have stoped out some 50 ft. in height. Stone has also been quarried out from an open face 80 ft. in length, 20 ft. in width, by 25 ft. in height. The material quarried consists of numerous leaders of quartz encased in bands of sandstone. The quartz is separated from the sandstone by being dumped on grizzlies.

*New Inkerman Mines.*—The low-level tunnel from Rainy Creek to the New Inkerman shaft at Revival Gully was connected in August last with the section of the tunnel driven from the shaft during the previous year, thus connecting the two sides of the range. The distance driven for the five months was 1,058·18 ft., making the total length of the tunnel 3,752·18 ft. During the year various prospecting drives, north and south, were put in from the low-level tunnel. These represent 818 ft. of driving. Two uprisings were made. One of 50 ft. connects the tunnel with the ore-body in No. 3 level from the main shaft, and the other uprise, from No. 3 drive south low-level tunnel to connect with No. 3 Inkerman level from Rainy Creek, was started in January last, and at the end of February (when all work in the mine was stopped) had been risen 76 ft. Crosscuts opened from these uprisings represent 50 ft. of driving. At No. 3 Supreme level 1,210 ft. of ground was opened during the year, representing driving and crosscutting 1,176 ft., and sinking 34 ft. No. 3 Supreme level was extended 46 ft. At No. 1 level, Golden Gully, 449 ft. of ground was opened, representing 323 ft. of driving, 122½ ft. of sinking, and 3½ ft. of uprising. No. 3 Golden Gully level and crosscut was extended 191 ft., No. 4 level 43½ ft., and crosscuts therefrom were driven for 50½ ft. Excepting No. 3 Golden Gully all the Golden Gully workings and No. 3 Supreme level have been opening on ore. In the surface level and workings eastward of the main shaft 65 ft. has been opened on a reef track carrying patches of ore. The work for the year may be summarised as follows: Driving, 3,164¾ ft.; sinking, 156½ ft.; uprising, 129½ ft.; clearing and picking up old ground, 782 ft.; making a total of 4,232¾ ft. The average number of men employed during the year, exclusive of timber and coal contractors, was thirty-one. The company has now been working about two years and a half, and during that time has opened up over 12,500 ft. of country. The whole of the works have been well and faithfully carried out under the able management of Mr. B. Sutherland, mine-manager, and Mr. John Jamieson, underground manager, and careful supervision of Mr. Dixon, general manager and engineer. The total amount expended on the mine amounts to £29,524. Mr. Dixon has now gone to England, and will probably be absent about six months. He will doubtless place before his directors the true position of the mine. It is probable, as a result of his mission Home, that the capital of the company will either be increased or the company reformed, and that extensive crushing machinery and gold-saving appliances will be erected.

*Sir Francis Drake.*—In April, 1898, a start was made to deepen the main shaft for the purpose of opening a fresh level, for which purpose it was sunk another 130 ft., making the total depth of the shaft 356 ft. At a depth of 330 ft. a chamber was opened, and a crosscut of 25 ft. was put in when the line of reef was struck. The level was extended for 50 ft. further, when the reef was intersected. The reef was driven on for 80 ft., and an uprise was put up to connect with No. 1 level, and the work of stoping out was commenced and has been continued to date. The reef has been stoped to a height of about 90 ft., and about 1,069 tons have been taken out, and the stone has yielded 7 dwt. 4 gr. per ton. The reef has averaged 3 ft. 6 in. in width, and has lengthened as it has been stoped up, until at the top stope it is 130 ft. in length, and there is over 40 ft. of backs still to stope out to the level above. This year the level has been extended 120 ft. in blank ground, making 275 ft. driven from the shaft. In the surface level about 143 tons of stone have been taken out, averaging 1 oz. 4 dwt. 6 gr. per ton. On account of the good quality of this stone it is intended to prospect this part of the mine more thoroughly.

#### GENERAL.

The outlook for the current year is fairly promising, and it may, I think, be reasonably expected that the output of gold will be increased, as the Progress Mine's battery and plant is now

in full swing, and will probably be increased. The Keep-It-Dark Mine is well opened up, and their cyanide plant is nearly completed, so that regular returns may be looked for. The Big River is on good stone, and good returns may be expected.

In conclusion, I have to thank managers and directors of companies for the information with which they have so kindly supplied me, enabling me to furnish this report.

I have, &c.,

H. A. STRATFORD, Warden.

The Under-Secretary, Mines Department, Wellington.

### No. 7.

Mr. Warden STRATFORD to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Greymouth, April, 1899.

Herewith I have the honour to forward you my annual report on the Grey portion of my district, and at the same time to forward you the statistical returns.

#### BARRYTOWN (twenty miles north from Greymouth).

Barrytown Flat contains about 5,000 acres of low-lying swampy ground along the sea-shore. The flat is about one mile wide, and it consists of sea-beach deposits, alternate layers of black and grey sand, and shingle, which carry fine gold for a known depth of 25 ft. The dirt is payable if worked in large quantities, but the gold, being very fine, is hard to save, and a great spread of tables is necessary to trap it.

*Barrytown Flat Gold-mining Company (Limited).*—This company possess about 200 acres of flat, swampy ground in special claims. The water-supply is brought from Baker's Creek (in a flume carrying thirty-five Government heads of water) for about 110 chains, and from thence by iron pipes for a further distance of 50 chains to the claim, where it delivers under a 600 ft. head. The dirt is lifted by hydraulic elevators, or "blow-ups" as the miners call them, and discharged on to 300 ft. of washing-tables, the tailings delivering into the sea. The claim is worked day and night by means of arc lights; the electric installation is perfect, the dynamo being driven by water-power turbines. The cost of water-races and plant has been close on £15,000, and the company are now about to bring in another water-race from Fagin's Creek, with which to work the northern portion of their ground.

The company commenced work on their claim in July, 1898, but much time was lost in opening out. Up to the 31st March, 1899, about 4½ acres have been worked to a depth of 25 ft., and the following returns of retorted gold have been obtained: 1898—August, 35 oz. 16 dwt. 21 gr.; September, 109 oz. 14 dwt. 12 gr.; October, 99 oz. 1 dwt. 0 gr.; November, 111 oz. 11 dwt. 18 gr.; December, 54 oz. 7 dwt. 18 gr. 1899—January, 64 oz. 4 dwt. 3 gr.; February, 75 oz. 2 dwt. 12 gr.; March, 96 oz. 7 dwt. 12 gr. Total, 646 oz. 6 dwt.; value, about £2,540.

*Barrytown Flat No. 2 Company (no Liability).*—This company own a 100-acre special claim, about three miles north of No. 1 Company's property. They are bringing in a race from Canoe Creek to carry thirty-five heads, and deliver with a pressure of about 600 ft. at the claim. The country is very steep along the line of race, standing naturally at a slope of 1 to 1. The formation is broken slate-rock, in which a bench 8 ft. wide has been cut, on which the boxing will rest. About four miles of benching has been constructed to date. When completed the flume will be 4 miles 36 chains long, and 630,000 ft. of timber will be used in its construction, all of which will be rafted from Greymouth. From the end of the flume a siphon, 120 chains long, will convey the water to the claim. When completed, this company's race, siphon, tables, and electric-light installation will cost £20,000.

*Waiwhero Sluicing Company.*—This company was formed for the purpose of bringing in a water-supply of thirty heads from Canoe Creek to work ground situated on or below the terraces, which extend northwards from Canoe Creek. The ground was formerly held in a number of small sluicing or driving claims, but the want of sufficient water for proper working led to their consolidation into the special claims held by the company, and to be worked by the Canoe Creek race supply, which is now being brought in. The auriferous deposits on the terrace consist of ancient sea-beaches elevated about 300 ft. above sea-level. The flat ground along and below the terrace presumably contains much of the gold denuded and washed from the higher deposits, and also the more recent beach leads and scattered gold which appear to exist throughout the whole of the large marine formations known as Barrytown Flat. The company has done a very large quantity of work and has expended between £9,000 and £10,000. The length of Canoe Creek race, which was estimated by the miners in their application for water-rights at four and a half miles, proved on survey to be two miles longer, and to entail much heavier work than anticipated. Its construction continues in progress, from forty to sixty men being employed. Connected with this race a dam has been constructed, capable of stowing three hundred thousand cubic feet of water. The company is at present working a portion of its ground with water gathered into the main race from several small creeks. These give a fairly workable quantity in wet weather, and enable work on a small scale to be carried on; but in dry weather the supply falls below the least quantity which can profitably be employed, when it is used to drive the sawmill cutting timber for race-construction. The present workings consist of sluicing-face, equipped with pipe lines and two giant nozzles, and with tail-races which convey the water and dirt to the washing-tables, 8 ft. wide and fourteen in number. In connection with the washing plant there are amalgamating barrels, driven by a small water-wheel. Since the beginning of the year very little sluicing has been done, owing to continued dry weather. Up to the beginning of February the value of the gold obtained was a little over £800. For night-work, acetylene-gas plant has been installed with good results.

*The Pactolus Sluicing Company* holds two special claims of 50 acres each, with a frontage on the sea beach extending southwards from the Fourteen-mile Bluff for more than a mile. Portions of the ground have been worked more or less for the last thirty years, and were driven out or paddocked where sufficiently payable gold was found. More recently it became evident that a good supply of water, with systematic sluicing, had become necessary for profitable working, and the present company was formed for the purpose. The construction of the Fourteen-mile race is completed. It is about 500 ft. above sea level, a quarter of a mile long, constructed of fluming resting on a sidelong benching, terminating in a string of 11 in. piping which conveys the water to the sluicing-face. The face is opened up ready for work, and well equipped with giant nozzle, tail-boxes, and washing-tables suitable for the gold. Owing to dry weather, no sluicing has been possible since the beginning of the year. Gold was obtained to date to the value of £4 17s. 9d., the result of a small experimental washing of about 50 cubic yards of wash-dirt. The Twelve-mile race now under construction is about two miles long, traversing steep, rocky, sidelong ground at a height of 400 ft. above sea level. The company employs from ten to twenty men, and has expended between £2,000 and £3,000.

There are several terrace claims near Barrytown that are giving good returns. Amongst others the licensed holding held by E. H. Lewis deserves special mention as a paying concern; and the beach-coming is about the same as last year, affording a living to several families.

#### *Dredging.*

A number of dredging claims have been taken up all over the district, and it is expected that this mode of working will open up a new era in the West Coast mining.

At Canoe Creek, three miles north from Barrytown, where the creek discharges into the sea, 200 acres have been taken up for dredging purposes. The place is admirably adapted for this style of mining, and good prospects have been obtained. Some doubt is expressed as to whether the heavy black sand will leave the buckets or be retained in them by suction, but a little alteration in construction will obviate this defect.

Several claims for dredging have been taken up in the Grey River, and good prospects have been obtained in most of them. Steps are being taken to obtain suitable machinery.

The Grey River Dredging Company tested the property which they hold near Stillwater by means of a small dredge procured from the Grey Harbour Board, and the results were so satisfactory that a local company was formed, and plans are now being prepared in Dunedin for a dredge of suitable power to work the company's claim. The dredge which this company are procuring will cost over £5,000, and will compare favourably with the best dredges in use on the Otago rivers. Another dredge is being obtained to work on the Grey River, near the Little Grey Junction. The cost of this machine will be over £3,000.

The whole of Stillwater Creek, from its confluence with the Grey River to Maori Gully, has also been taken up, and is now being prospected for dredging purposes, some of the prospects already obtained being very good.

Besides the places mentioned, all the streams running into the sea south of Greymouth, such as Saltwater and New River, offer great facilities for dredging, and will ultimately be worked in this way. It is reasonably anticipated that in the course of a year or two the West Coast rivers will be actively engaged in the dredging industry, as those of Otago are at present. The conditions obtaining here point to the success of dredging operations, and, if the companies referred to above prove successful, there is no doubt that their success will induce capitalists to give ready attention to the dredging industry as applied to the West Coast.

#### *Hydraulic Sluicing.*

This is still the predominant mode of working on this field, and wherever water can be obtained at sufficient elevation, and there is a good dump for tailings, wages can be earned. Special mention may be made of sluicing claims at Upper Blackball and Healey's Gully, worked by the Roaring Meg Water-race; at Barrytown, by the Waihero Company, and Lewis and party with their own water-races; at Ben Hill, by a Christchurch company; at Riverview (near Ahaura), Maori Creek, and Maori Gully, by the miners; and at South Beach, Greymouth, by the Leviathan Company.

To keep this class of mining alive Government assistance in water conservation and in the construction of high-level water-races is required. Large areas of sluicing country could be opened up by the construction of the following races:—A fifty-head race from Deep Creek to supply Candlelight, Maori Gully, and the No Town district; a hundred-head race from Deadman's River to supply the Barrytown terraces and the Flat; a forty-head race from the Eastern Hohonu River to the Maori Creek and New River districts.

#### *General.*

Mining generally is improving in the district, and the construction of roads and tracks to the new mining centres by the County Council should tend to advancement of the mining interest. The new track from Upper Blackball, up the range to the Cæsus Claim, is a great boon to the prospectors, and pack-horses can now reach the summit with stores and plant, which heretofore had to be carried on men's backs. The road to Barrytown has been greatly improved; the rocks at the Nine-mile and Ten-mile Bluffs have been blown out, and a dray-road made over the Fourteen-mile and Seventeen-Mile Bluffs, and at low-water it is now an easy and pleasant journey from Greymouth to Barrytown.

#### *Coal-mining and Timber.*

The output of coal from the Brunner Mine for the year was 66,694 tons, and the output from the Blackball Mine during the same period was 52,835 tons.

*Timber.*—The total quantity of timber shipped from the Greymouth port during the year was 11,783,292 superficial feet.

*Magisterial and Revenue Returns.*

Return of cases disposed of in the Magistrates' and Wardens' Courts at Greymouth for the year ending the 31st March, 1899: Civil, 185; criminal, 184; wardens, 27.

The revenue for the year amounted to £2,670 1s. 9d., made up as follows:—

	£	s.	d.
Warden's department	2,398	6	9
Magistrates	206	5	0
Licensing fees	65	10	0
<b>Total</b>	<b>£2,670</b>	<b>1</b>	<b>9</b>

Particulars of revenue collected in the Warden's Court, Greymouth, for the year ending the 31st March, 1899:—

	£	s.	d.
Miners' rights	296	14	0
Machine sites and quartz-crushing	3	4	0
Business licenses	7	10	0
Water-races	23	7	6
Registrations	21	6	0
Rents and royalties	2,020	10	9
Miscellaneous	13	14	0
Fees and fines	12	0	6
<b>Total</b>	<b>£2,398</b>	<b>6</b>	<b>9</b>

AHAURA DIVISION.

*Blackball.*—Although no new ground has been discovered in this district during the year past, still about the same number of miners continue to work alluvial ground, and are fairly prosperous. On the Paparoa Range the Construction of the Croesus Company's battery and aerial tramway was delayed a good deal owing to bad weather and the difficulties encountered in transporting the plant and machinery, but the battery started work on the 20th November, and, up to the end of March, 750 tons of ore has been crushed, for a yield of 589 oz. 11 dwt. of gold, valued at £2,376 2s. The average of 16 dwt., though highly payable, is not up to the expectations of those interested in the mine, but it is anticipated the results will be enhanced considerably in the course of a few months, when the mine is well developed, a condition hitherto almost impossible, owing to the expense of transporting mine timber by manual labour. Now that the company's aerial tramway is available for the transport of timber to the mine, the development is being pushed ahead with all reasonable speed. The reefs are worked from the western slope of the hill, by means of adit levels, but the quality and size of the ore-body in the No. 1 level is variable, and, generally speaking, the reef is best where small. A winze has been sunk from the No. 1 level to a depth of 60 ft., on rich stone, and it is apparent that the lode is assuming a more regular course as it descends, and a contract has been let for the driving the second adit-level to cross-cut this block. The distance of the drive is estimated at 385 ft. When this work has been completed, the company anticipate being able to keep their 10-stamp battery working continuously on ore of useful quality. The battery is situated at the foot of the hill, and the transport of ore is conducted by means of an aerial line a mile and a half in length. Thirty men are employed at the mine works, and six men serve the work connected with the tramway and battery.

*Poneke Company.*—A cross-cut has been put in on this property some 400 ft., but without any good results, and at present work is confined to surface-prospecting.

*Sunlight Company.*—A cross-cut has been driven 500 ft. on this property, with a view of getting on to the lode which is being worked by the Croesus Company; but so far no good result has been secured, and work has been abandoned for the present.

*Taffy Company.*—This company has been engaged in testing a belt of country falling into the Ten-mile Creek. The rock is intersected with rich quartz-leaders, from which a couple of men recent dollied over 20 oz. of gold in a few weeks with primitive appliances. The company had driven several cross-cuts, with a view of locating the parent lode, but the country has been much disturbed by natural upheaval, and, though the gold continues to exist in the broken rock for a depth of 50 ft., nothing in the way of a defined ore-body has been discovered. It is the intention of the company to erect a 5-stamp mill to work the gold-bearing rock already proven, and to carry on extensive operations with a view of discovering a solid body of ore. The plans for the battery and accompanying works are in course of preparation, and the work will be proceeded with when these are completed.

*Homeward Bound and Red Lion.*—These claims are adjacent to the Taffy Lease. Rich leaders have been found on both leases. A very considerable amount of work has been done in prospecting by means of cross-cuts and surface-trenches, and an adit level has been driven several hundreds of feet on a formation in which gold-bearing quartz is frequently obtainable; but nothing of an appreciable size has been discovered as yet. The work has been pushed ahead with vigour under adverse conditions, owing to the difficulties of transporting stores, &c., in this inaccessible place, and it is very probable that the results will justify the enterprise shown.

*Alpha Company.*—The remarks regarding the last-mentioned claims apply also to the Alpha Company's property. A good deal of work has been carried out, and is still being pushed forward with commendable perseverance.

Work on the Corrie's Reward, which adjoins the Cræsus on the southern boundary, has consisted in driving cross-cuts and surface-prospecting by trenches. An adit is now being driven on contract to intersect a gold-bearing reef, 2 ft. in width, which outcrops near the boundary of the Corrie's Reward and Cræsus Company's ground. This is expected to reach the lode in the course of another 100 ft. of driving.

Several other leases on the Paparua are being prospected by cross-cuts and surface-trenches, and altogether a considerable amount of work is being done, which will be lightened now that the road to the top of the range has been constructed. Hitherto the difficulty of conveying stores and tools has served to retard progress.

The Grey River Sluicing Company have extended their water-race from Blackball Township to the north bank of the Grey River, at which they hold 30 acres of ground which has proved highly remunerative.

There is a large area of land, extending from Moonlight Creek to Blackball, which only requires water to be brought on to allow of extensive sluicing operations being carried on. The Garden Gully Gold-mining Company have let a contract for driving 300 ft. of tunnel in connection with their special claim. The Christchurch Wilson Gold-mining Company are prospecting the Just-in-Time Special Claim, adjoining the Garden Gully, and have met with encouraging prospects. The Lord Harris Gold-mining Company are also prospecting their special claim adjoining, south of the Garden Gully, and have also met with encouraging prospects.

*Moonlight Creek.*—About the same number of men are still employed here as there have been in past times. There has been a new discovery made at McCarthy's Creek by McDowell and party, which may lead to a considerable area of land being taken up and worked. The party, which consists of four men, constructed a water-race on the ground, taking two years to construct it, and are highly satisfied with their property. At Healey's Gully they have been short of water during the past three months. There is no cure for this unless by the construction of a dam in the Roaring Meg Creek. There is considerable prospecting being done for reefs at the head of Moonlight Creek.

*Orwell Creek.*—This place continues about the same. The old Napoleon Gold-mining Company worked their ground down the flat until driven out by water. Graham and party (eight men) have taken up 20 acres in Taylor's Gully. The ground is deep (70 ft.), and the party have erected machinery for pumping and lifting purposes. This district suffers from the want of water. In the locality there are large areas of sluicing ground which cannot be worked.

*Half-Ounce, Noble's and Duffer's Creek.*—There has been no change in these districts during last year.

*Ahaura.*—Several new claims have been taken up along the north bank of Ahaura River, and in all cases when water is available satisfactory returns are made.

*Nelson Creek.*—A great amount of sluicing is carried on at Nelson Creek. This locality is situated advantageously in respect of water to a much greater extent than any other part of the Grey Valley. A Sydney syndicate have been carrying on prospecting operations by boring at German Gully No. 3, and have obtained results favourable to further work being done. No new ground opened.

*No Town.*—There has been no ground opened in the district during the last twelve months. Karrigan and party have made a find at Terrace at Fenian's Creek, which may develop into something extensive. The Chinese in considerable numbers still continue working at Red Jack's and Sunday Creeks.

Particulars of revenue collected in the Warden's Court, Ahaura, during the year ending the 31st March, 1899:—

	£	s.	d.
Miners' rights ... ..	275	10	0
Machine-site licenses ... ..	2	0	0
Water-races ... ..	14	0	0
Rents and royalties ... ..	1,702	9	5
Registrations ... ..	28	3	0
Warden's Court fees ... ..	22	17	0
Miscellaneous ... ..	96	9	3

£2,141 8 8

I have, &c.,

H. A. STRATFORD, Warden.

The Under-Secretary, Mines Department, Wellington.

## No. 8.

Mr. Warden MACFARLANE, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Hokitika, June, 1899.

I have the honour to forward the mining statistical returns for the year ending the 31st March, 1899, together with my annual report on mining matters generally, in the district under my charge.

### HOKITIKA.

The gold-workings in this district being all alluvial, the output of gold is largely contingent on the water-supply, derived from the rainfall in the immediate neighbourhood of the workings. For the four months ending the 31st January, 1899, the rainfall—as recorded at the Meteorological Station at Hokitika—was 55·65 in., or 13·91 in. per month. The return of gold for the same period was 4,631 oz., or 1,157 oz. per month. The rainfall for the three months ending the 30th

April was 16·76 in., or 5·58 in. per month. The return of gold for the same period was 2,309 oz., or 770 oz. per month: thus showing a falling-off of over a third in the output of gold, due entirely to the limited and intermittent supply of water. The proper conservation of water for this district is still in the future, and, in consequence, hundreds of acres of known auriferous ground are lying fallow; whilst many miners are working ground for a bare living that, under conditions where a plentiful supply of water was obtainable, would yield a handsome profit over working-expenses. The above applies especially to that well-known block of terraces, commencing at Craig's claim, near the mouth of the Hokitika River, including the Brighton, Rimu, Back Creek, and Seddon's Terraces. At present the whole of this block is mainly dependent for water on what is known as "Handley's race," and this supply is wholly dependent on the local rainfall, consequently intermittent, and inadequate to meet the demand. This race changed hands recently, and is now owned and controlled by a few claimholders on Back Creek, whose requirements on their own claims will more than use all the water in the race, hence the hardships—that outsiders have now to depend on the water they can catch in dams, &c., as nearly all the creeks are held by the new owners in connection with their race. Under the old company, who held no claims of their own, each got a fair share of the water; but now the need for an independent supply is urgent. Two permanent sources of supply are available for these terraces—viz., Kanieri Lake, distant some five miles, out of which the Kanieri Lake Water-race Company propose taking 100 heads of water. Plans and specifications have been prepared and an estimate of the cost of the whole has been submitted to the company by their engineer, and they have already driven 500 ft. of tunneling commencing on the lake entrance, but as the water must be carried across the Hokitika River and valley through a siphon, the cost of the pipes and the bridge to carry them means a larger outlay of capital than the present small body of shareholders are prepared to expend. Consequent on this the matter was placed in the hands of Philip Perry, Esq., who undertook to float a company on their behalf; but owing to the non-proclamation of the Hokitika River, into which tailings from extensive hydraulic sluicing would ultimately find their way, he was unsuccessful. But for this obstacle, he says, he would have had no difficulty in getting a company to undertake the work.

It is a most unfortunate thing for the whole district that the excessive demands for compensation made by settlers and others, in connection with the proclamation of the Hokitika River, should block such undertakings. Not only were the claims exorbitant, but at least half the claims put in were for damage that could not possibly be caused by tailings from the terraces referred to. Even if 200 Government heads of water were brought into operation on this block, it could not possibly affect lands lying above the junction of the Hokitika and Kokatahi Rivers; consequently, if the river were proclaimed from that point to the mouth, it would meet the whole difficulty. This water-supply, from either Lake Kanieri or the Arahura River, is an urgent necessity; but, as far as I can learn, the floating of any company will be contingent on the river being proclaimed a tailing-site. I understand that lately the claims have been considerably reduced, and, in consequence, those interested in an increased water-supply for this district are hopeful that the Government will see their way to proclaim the river at an early date. Many owners of hydraulic claims are half the time suffering from enforced idleness; others are driven to drifting out the ground through long and expensive tunnels, simply because they cannot get water to sluice the whole away; whilst a much larger number cannot see their way to open up new claims for the same reason. It is, therefore, clearly in the interests of all concerned to see that no exorbitant claims should bar the way to the proclamation of the lower reaches of the Hokitika River, and to see to the removal of all obstacles that will interfere with the introduction of the water required.

The works in connection with the increased water-supply for Humphrey's Gully and the watershed of Arahura and Blue Spur Ranges are progressing slowly. Iron pipes, in the shape of an inverted siphon, have been substituted for the heavy wooden fluming near Milltown, and a new race of sufficient capacity to carry the increased supply of water is nearly finished—to connect with Black's Tunnel. The alteration and retimbering in this tunnel has given the management a good deal of trouble, but this, and other minor matters, will be finished at an early date. Owing to the above alterations the company have not been able to do any work in the claim since before Christmas, but they hope soon to commence operations with a very much better supply of water even from the old sources, half the supply having been lost in transmission through defective ditches and fluming. The supply from the Arahura will take some time before it will be available, as, in consequence of an immense slip on the new line of race laid off, it has been abandoned, and a new line is being surveyed. This will probably be completed in about two months, when the company will call for tenders for its construction; but, as it is through rough country, and as the portions of the old race above the dam will require enlargement and new fluming in places before it can carry the increased supply, considerable time will elapse before the water from the Arahura is available for sluicing purposes; but until this is accomplished the work on the claim and the output of gold will be limited and intermittent. Looking at the water-requirements of this company in connection with their other mining properties in the same neighbourhood, there is no probability of their diverting a portion to Seddon and Back Creek terraces.

Considerable gold is being got about the Blue Spur and neighbourhood. Boy's claim is still on gold, and several others are doing well. Dwyer's tunnel, to drain a continuation of the run of ground that Boys is on, is now in 2,500 ft., and they have 500 ft. more to drive. This tunnel is large enough to allow a horse working in it, and is subsidised by the Government. A number of claims are marked off, and held until the drainage-tunnel is completed, when the ground will be worked from shafts or inclined tunnels. Two dredging claims were taken up on the Blue-spur Creek, and some prospecting was done on different parts of the creek under the superintendence of Mr. Robert Hay, dredging-engineer, Dunedin; but, as far as I can learn, the results did not warrant putting on a dredge.



Prospecting areas for dredging have been applied for on the Arahura River, with a view to putting on powerful dredges if the prospects will warrant such outlay.

*Craig's Claim.*—Work in this claim was suspended for a considerable time owing to a fatal accident whereby three men were killed, the roof of the drive having fallen in and smothered them. Two parties of tributers are now at work on the same claim, and when a certain amount of dead-work is done, they expect to earn good wages at least; but this claim, in the past, has yielded such phenomenal returns that they may be justified in looking forward to a like return. Halley and others are still working payable ground on the same—or continuation of the same—run, and I am informed by Mr. Halley that a large area of ground under the water will give equally good returns, if the water-difficulty could be overcome.

McIntosh and party are said to be on payable gold on the Old Shanghai lead. The Priestman grab in use on this claim for stripping the overlying sand enables them to work their claim to much better advantage than by the ordinary method of hand-stripping.

During the year an attempt was made to dredge Lake Mahinapua, but after working some months the dredge has been laid up, the returns not warranting a further continuance of the work. I understand another attempt is about to be made with this dredge near the mouth of the creek, where they hope to obtain better returns.

Brighton Terrace and Rimu Flat still afford employment for a number of miners, and, if sluicing-water was available, good wages could be made in this block. The principal workings on the Kanieri are two tunnels, subsidised by Government: Main and party, on Commissioner's Flat, who are now in 1,200 ft., with another 1,000 ft. to drive; the other, Singer and party, higher up, who are in about 800 ft. Those tunnels are driven for the purpose of draining ground on Commissioner's and the upper part of Tucker Flat, where the upper levels have all been worked. It will take at least six months to prove the value of the lower levels, but should it prove payable it would render a considerable area available for the ordinary miner.

#### ROSS SUB-DISTRICT.

The past year shows no improvement on the previous year. The Mont d'Or hydraulic claim still keeps up its reputation as one of the best mining investments on the coast, four 1s. dividends having been paid during the year. The Ross United and Prince of Wales are both worked on tribute, paying small wages. The company being now in liquidation, they disposed of the Prince of Wales property for £1,600, and it is now owned by a private company. The negotiations with the Government *re* the working of Ross Flat have not yet resulted in any definite conclusion being come to. Mr. Napier Bell, C.E., on behalf of the Government, visited Ross in connection with a drainage scheme, and reported thereon, I understand, favourably; and Mr. Perham, Government Engineer, has sent in an exhaustive report on the suitability of an electric plant for doing the work, but I understand his estimate of the cost of the work is largely in excess of that of practical electric engineers in America, where installations are rapidly taking the place of steam-plants for pumping and operating all kinds of mining machinery. The people of the district are naturally impatient at the delays and postponements in connection with this important undertaking, and, now that the Government are in possession of so many reports, they look forward to an early settlement of the question. Quartz-mining, that at one time promised to be an important factor in our returns, has entirely ceased, the whole of the claims on Cedar Creek having been abandoned for a considerable time. However, I am glad to say the dredging industry is taking tangible shape in the district. On the Totara River a special claim for dredging was granted last year, and systematic prospecting was carried on for some months, until the company (a North Island one) was satisfied as to the prospects. They are now having a powerful up-to-date dredge built in Dunedin to work their claim, and during the year we hope to see it at work and getting good returns. Another dredging area has been taken up on the Mikonui River and Redman's Creek, including what was known as the Koh-i-noor Claim—a claim, and one of a number equally good, out of which large quantities of gold were taken, but of which only a small portion was worked on account of their inability to contend with the water. The depth is not more than 30 ft., and the place is easily accessible. They have also an important water-right (thirty-heads) that can be used for the generation of electric power. According to the opinion of those best acquainted with the history of this block, this should be a most valuable property, and only requires one of our modern dredges to deal with it. It is now under option to a Dunedin syndicate, and, as the option is short, we look forward to a speedy resumption of work on this once-busy field.

#### OKARITO AND JACKSON'S BAY SUB-DISTRICTS.

A decided improvement has taken place in this district during the year. The splendid return from one of the beaches of the Callary—above the Gorge—last winter, has resulted in the whole of the beaches on that river being pegged off, and held until the river is again low enough to work. Until last winter no systematic attempt was ever made to deal with the beaches on this river, but the large amount of gold obtained by Friend and party in the few weeks they were able to work has resulted as above. Several parties have been out in the ranges during the summer trying to discover the source of this gold, but so far without success. After passing the terminal face of the Spencer Glacier, little or no gold was found. From the worn appearance of the gold found in the Callary—a branch of the Waiho—it would appear as if it had travelled a long distance, or it may be that towards the head of the Spencer Glacier a belt of auriferous rock lies buried under the ice, out of which all this gold may have come. The grinding and rubbing action of the ice-streams would account for the water-worn appearance of the gold. However, further exploration is necessary in this direction; but this can only be done during the summer and autumn months. The Waiho Hydraulic Sluicing Claim, on the north bank of the Callary and Waiho Rivers is now in working order, the water having been turned on in May last.

This claim (100 acres) was first taken up by a party of miners residing on the Waiho, but being unable to bring in the water themselves they placed it under option to Philip Perry, Esq., who floated the company in London—capital, £24,000, in 24,000 shares. On his return, he at once had a survey made, plans and specifications were prepared, and an estimate made of the cost of bringing in thirty Government heads of water from the Totara River, and tenders called for the work. The tender of Robert Wylde was accepted, and the work was put in hand forthwith. The length of the race is a mile and three quarters. At the inlet end 20 chains was through very hard country rock, the cost per foot being from £1 1s. to £3. The tunnel is constructed to carry 100 head of water. The water is conveyed from the tunnel in 30 in. iron pipes, 110 chains long, the guaranteed carrying capacity of the pipes being thirty Government heads. This is, I understand, being considerably exceeded in actual delivery at the nozzles. They are now working under a 220 ft. head. The pipes were made on the claim, the average cost per foot being 10s. There are only 15 chains of ditching; cost per chain, £8. At present there is only one giant-nozzle in use, but a second will be put on whenever they have opened out sufficiently and the water can be used to advantage. They are only running one shift, and the tailings are being discharged into the Waiho River. The first clean-up will not fairly test the claim, as a good deal of dead-work has to be done before the water can be used to the best advantage. All parties are very hopeful of the results, as gold has been found at various levels, right up to the pipe-line. The work was completed and the water turned on on the 29th April, the total cost being close on £7,500. The contractor (Wylde) and the subcontractors, (McBeath and Reynolds) deserve the greatest credit for the manner in which the contract was carried out, when the difficulties of transit of material were so great. Owing to the unfortunate wreck of the s.s. "Waipara" at Okarito, and the condition of the roads, the extreme hardness of the rock in the tunnel, and the difficulty experienced in getting men who knew how to deal with it, the time-limit was considerably overrun, but I understand Mr. Perry was so well pleased with the manner in which the work was carried out that he will not enforce the penalty. Plans and specifications were furnished by J. C. Macfarlane, C.E., engineer for the company, under whose superintendence the work was successfully carried out.

On the river flat, immediately below the Waiho Company's claim, a 50-acre claim has been taken up by an English company, and is now being carefully prospected preparatory to a suitable method of working the claim being decided on. A prospecting license has also been taken out to prove the gravels in the lower reaches of the Waiho for dredging purposes, and, if the results are favourable, a dredge will be put on as soon as it can be obtained. The usual number of men are at work on the banks and bed, where, when the river is low, they make fair wages. A store and an accommodation-house is now on the ground to meet the wants of the increased number of men connected with the large claims, in addition to the ordinary residents. The Government have also erected a comfortable iron house near the terminal face of the Franz Joseph Glacier for the use of parties visiting this celebrated glacier, and who choose to provide themselves with the necessary equipment for camping in close proximity thereto. There is a good footbridge over the Waiho, and an hour's walk will take you to the terminal face of the most beautiful glacier in New Zealand. The road to the Waiho is fairly good for horse and foot-traffic, but will require considerable expenditure before it is fit for wheeled vehicles. The journey from Hokitika can be done in three days, or less, on horseback or bicycle.

A few men are still at work on Lake Mapourika, but here, as elsewhere, a larger supply of water is wanted before much good can be done; this can be obtained from McDonald Creek, but capital is required to profitably develop this field. One party is on payable gold in the terrace, about half way between the lake and the Forks, but, so far, they are the only ones who have obtained payable prospects. Nothing is doing on the Three- and Four-mile beaches, but, about twelve miles south of Okarito, at the Waikupakupa River and Sandfly Beach, a dredging option was given by the owners of a special claim to a Melbourne syndicate, to work the river and beach. Steps were at once taken by the syndicate to prove the value of the ground. This has been done in a thorough and satisfactory manner, and they are now making arrangements for working this beach by dredging. This is a well-known beach, and for the last few years has yielded large returns in gold to what are known as "beach-combers" on the sea-face of the beach. The large quantities of material that can be dealt with by an up-to-date bucket-dredge will no doubt yield a handsome profit to the company undertaking the work. The name of the syndicate is the "Waikupakupa," and is composed of some of the best mining men in Melbourne, and, should this venture prove a success, they are quite prepared to go largely into similar undertakings on the coast. Gillespie's Beach is held by an English company, but they have not yet decided on the kind of plant to work this claim. It seems the directors at Home favour the ball dredge (suction), and, but for the adverse opinion of Mr. Perry, the managing director, and others here, which was cabled Home, a dredge of that type would now be on the way out. This, of course, has hindered matters very much, but our experiences of suction-dredges in this colony have been so unsatisfactory that it would be madness to go in the face of such absolute proofs of failure in every instance when they were tried in mining claims, including seventeen different localities, five of them being on the West Coast. The difficulty of dealing with our beaches is less in connection with the lifting of the material and the pumping of the water than with the disposal of the sand after leaving the screens. In Otago, in river-dredging the whole of the appliances are carried on the hull of the dredge, and the Otago engineers seem to think that any departure from their present methods of dealing with the material dredged would be against their success. In dealing with our beaches, largely composed as they are of grey and black sand, a stable foundation for the tables is an absolute necessity, with a spread of table, say, 120 ft. in cross-section to deal with 50 tons per hour. This can never be obtained on a moving dredge. Methods other than those obtaining in Otago must be applied to our beaches, and it must be left to the skill of our engineers to get over the difficulties, if difficulties exist, which, to my mind, are more apparent than real.

The company who took up Sardine Terrace, north of the Haast, have not yet made a start. The original rights have been cancelled on account of non-payment of rent. In the Jackson's Bay district some prospecting has been done by a young man from Otago, who came over into the Arawata from the head-waters of the Dart. He reports that he found gold in some of the terraces on the Williamson branch of the Arawata that would pay small wages, but being difficult of access would not pay to work. He has also found payable gold in the Gorge River Block, and he has gone back to Otago to organise a party to work some ground and further prospect this block. Four miles of horse-track require to be constructed before men can be induced to remain. The prospects are so promising, and the possibilities so great, even in connection with minerals other than gold—for instance, the metal nickel, which is found in the drifts and gravels of Cascade and Gorge Rivers, and the course of which has not yet been located, besides copper and chrome—that every assistance should be given to those willing to prospect this district. A small amount has been placed on the County Council's requisition for tracks on the goldfields for a track which, if constructed, will give access to this important block.

Owing to the wreck of the s.s. "Waipara" at Okarito, communication has been somewhat irregular and unsatisfactory, the substituted boat being too small for the transport of stock. The risks run by steamboat owners in working this service are considerable, especially as they apply to Okarito, and in consequence they raised the freights, as they say, in proportion to the risk. This, of course, was strongly opposed by the settlers, but I think this opposition would cease if a more suitable boat were put on to do the work.

The tourist traffic has not yet made itself felt here, and, we suppose, will not do so until the accommodation and conveniences of transit are more up to date; nevertheless, they miss seeing some of the finest scenery in the world and the most beautiful glacier in New Zealand, simply because they cannot deny themselves the luxuries of the nineteenth century civilisation. Inter-communication between Ross and Okarito by road is progressing slowly, the Mount Hercules section being nearly completed. This being the most difficult section on the road, we hope to see the remaining portion, which is fairly easy of construction, finished early next year. Without bridges or punts on the larger rivers this road will always frighten delicate and timid travellers, and can never be a substitute for the steamer service.

#### GOLDSBOROUGH AND STAFFORD SUB-DISTRICTS.

The non-completion of the Waimea main tail-race, the dams and races, and the vexatious litigation connected therewith, has been a serious drawback to mining in this district during the past year, but, as will be seen from the notes furnished me by Mr. Aitkin, those difficulties are in a fair way of being got over, and the forthcoming year should show good returns. The Government have in this case subsidised the work very liberally, and it now remains for those holding claims in connection with these works to at once set about working their claims, and then applications for protection will be a thing of the past.

Kelly's Terrace Tunnel is slowly drawing towards completion, and when finished will open up a large area of what is said to be payable ground when once drained. The Wheel of Fortune's special claim, held by an English company, is still in the development stage, the return for the year having been trifling, and from prospecting only, but when the many extensive alterations and improvements now being carried out by the company's manager, Mr. Bertram, are finished, we may look for good returns from this property. Dredging licenses are being applied for in this district, but as they are only in the initial stage I cannot say much about them at present.

#### KUMARA SUB-DISTRICT.

In Kumara proper the population has not diminished to any appreciable extent, and the output of gold keeps about the same, but with the completion of No. 5 channel, and No. 4 being now in good order, and the trustees out of their difficulties, next year's output of gold should show a great improvement on the present. The Taipo and the Seven-mile, on which a number of claims were staked, have not, so far, shown much to warrant the expenditure gone to. This applies more especially to the sluicing-claims on the Seven-mile, where water was brought on at considerable expense, without so far giving corresponding results. However, further operations may disclose more encouraging prospects. The so-called "Soapstone reef," on the Taipo, on trial was disappointing and has been abandoned. That gold was found in connection with this dyke, or reef, was, to my mind, due to the fact that the Taipo, a gold-bearing river, crosses this dyke or reef at the present level, and also at very much higher levels in bygone days, thereby filling the rock-crevices with sand, and a little gold. I arrived at this conclusion after a careful examination of this outcrop and from careful tests, as also from the appearance of the gold and from my intimate knowledge of the same formations in other parts of the district. The track to the Seven-mile is now fairly good for pack-horse traffic, and the population is about stationary.

#### *Notes furnished by Mr. Aitken, Water-race Manager, Kumara.*

"The completion of the Wainihinihi Race will do much more for Stafford, Waimea, and Callaghan districts than for Kumara, although it was Kumara people that urged the Government to undertake the work. The Kumara supply is ample for the requirements of the field except in exceptional and long-continued dry weather, and the Kumara supply has not been short during the past two years, with the exception of two or three days in March last. The Wainihinihi Race is partially completed, and a few sluice-heads of water are now being conveyed by it into the Kawhaka water-shed. This has already been a boon to the Waimea district. The supply will be further augmented from the Little Wainihinihi Creek within a month, but the main supply will not be available for about eight months, when it is expected the work will be completed.

"During the past year very little has been done towards the completion of the Waimea main tail-race, but a contract has now been let for the completion of the work, and the construc-

tion and timbering of a shaft and chamber at the head of the channel. When this is done two or three parties of men who hold ground near the head of the channel will at once connect their private tail-races with the chamber and start sluicing operations.

“Steps are also being taken to supply water for sluicing purposes to the claims about to be opened up in the Middle Branch Flat, and the necessary races and dams will be constructed about the same time as the main tail-race will be completed. The completion of the main tail-race—with the necessary races and dams—and the starting of sluicing operations in the Middle Branch Flat, will, without doubt, give an impetus to mining and business in the Waimea district, as it is almost certain that no better patch of sluicing-ground exists in the Kumara or Waimea mining districts than the ground about to be worked through the Waimea.

“The Kelly’s Terrace drainage-tunnel has been driven during the year about 1,000 ft., and the total distance driven at the end of March last was 3,600 lineal feet. About 2,400 ft. has yet to be driven before the ground proposed to be drained will be reached. The main bottom has not yet been touched in driving, and it is anticipated that another 1,500 ft. will have to be driven before the main bottom is struck. No gold has been struck so far, and it is not expected that anything like a payable wash will be met with until the main bottom rises above the level of the drainage-tunnel.

“The ordinary workings in the Waimea and Stafford districts continue to yield much about the same as during former years, and a considerable population still continues to earn a livelihood in the various gullies scattered over the districts. The Wheel of Fortune Claim has been taken over by a strong company, the headquarters of which is in London, and active preparations are being made to elevate and sluice on a large scale. The company holds about one hundred acres of ground, and several race- and dam-rights are also held. These are now being surveyed, and some of the dams are being enlarged. As soon as the necessary data are obtained, the manager, Mr. Bertram, will elaborate a scheme for working the company’s property on an extensive scale. In the mean time the old machinery is kept at work—more for the purpose of prospecting than with a view to systematically work the ground.

“*Kumara.*—The water-supply on this field is now all that could be desired, and the miners have no reason to complain on that score. There is, however, little doubt that the best patches on the field have been worked out, and that the ground now being worked, and that will be worked in the future, will require all the skill and inventive genius of the miners, and the best appliances, together with an abundant water-supply, to make mining a success financially. These remarks apply more particularly to the claims working the layer of wash, resting on false bottom, that covers the greater portion of the Kumara field. There is, however, still a fair chance of payable gold being found in the deeper levels of the field. In fact, several of the claims driving into the terrace fronting the Teremakau Valley, at levels fully a hundred feet lower than the levels hitherto worked on the field, have met with extensive layers of gold-bearing wash that promise to give remunerative returns to a large number of miners for many years to come. It is a pity that more prospecting has not been done on the deep levels of the field. The Government has liberally aided prospecting at the deep levels by granting subsidies to construct a drainage-tunnel to drain the deep levels. This tunnel is now driven a total distance of about 1,600 ft., and drains the field almost throughout the full length of the tunnel to the main bottom, so that the overlying washes may be prospected by rising. With the exception of the prospecting done in driving the tunnel, the ground has been very little prospected. A few rises were put up, and in some of them fair prospects were obtained, but the facilities afforded by the tunnel have not been taken advantage of to anything like the extent that should have been.

“The No. 5 Channel is now complete, and a shaft has been sunk at the head for conveying water for flushing purposes into the channel. A race has also been constructed for bringing water from the Kapitea Hill race to the shaft at the head of the channel. The parties intending to open into the channel have now every facility for constructing their branch races. A contract has also been let for the supply of pipes, 26 in. in diameter, for the delivery of water under pressure from the Kapitea Hill race to the several claims that will sluice into the channel. It is anticipated that all the arrangements for the supply of water will be completed as soon as the branch races are driven, and that sluicing operations will be in full swing some time in July.”

Mining operations in the Greenstone district have slightly improved during the year, due in part to the increased water-supply furnished by the Erin-go-bragh Water-race Company. This company is now applying for a special claim on a terrace commanded by their race. Ordinary workings in the creek and Cape Terrace are somewhat restricted on account of the scarcity of water. The Greenstone Water-race Company talk of extending their head-race to work ground lower down, work in this claim having all but ceased on account of want of fall for tailings. Mr. Harris, who holds extensive water-rights in connection with special claims near the Blackwater, is endeavouring to form a company to construct the race and work his concessions, but up to date has not yet completed arrangements. Either of the above water-supplies could be utilised for the production of electric power, supplying power to the several dredging companies that are now in course of formation on the Greenstone and the Teremakau. On the Upper Greenstone an attempt was made to float a company to work what is known as the Galtee More Claim, a claim that has produced a large quantity of coarse gold from a strip of ground on the face and top of the high terrace, but as there was some doubt as to the extent of the auriferous wash, the project fell through. Extended and careful prospecting will easily prove whether the gold is confined to the front of the terrace or otherwise. I understand that the owners of the claim are still on payable gold. A number of dredging areas have been taken up in the creek and the Teremakau River, but only one of them has been prospected, viz., the Bun Tuck, in the Greenstone Creek. I am informed that very encouraging prospects were obtained, and a company is now being formed to work this ground.

That our rivers and creeks on the West Coast are as suitable for dredging—as far as engineering difficulties apply—as are the Otago rivers and creeks, goes without saying, and although our dredging ventures on the Coast, with the exception of the Buller dredges, have been failures, the little work that was done by our abortive attempts with the suction-dredges went to prove the highly payable nature of the ground they tried to deal with.

Taking into consideration the highly-auriferous character of the country through which our rivers and creeks flow; the immense deposits of auriferous gravels filling our valleys, creek-beds, and beaches, that cannot be worked except by dredges; keeping in mind the value of gold already won on the West Coast—approximately, £17,098,605; also keeping in view the application of electric power—the power of the future—the facilities for the generation of which are everywhere convenient and comparatively inexpensive: therefore, looking at all the surroundings, and with an intimate knowledge of the dredging areas available, I look forward with perfect confidence to the success of the dredging industry on the Coast. Nevertheless, no large expenditure of capital should be incurred without first carefully testing the area to be operated on; but, with ordinary precaution, success will surely follow.

I have, &c.

D. MACFARLANE, Warden.

The Under-Secretary Mines Department, Wellington.

### No. 9.

Mr. Warden HAWKINS to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Lawrence, 9th May, 1899.

I have the honour to forward herewith the annual statistics of the mining industry for the year ended 31st March, 1899, together with the annual report on mining matters in the district under my charge.

The mining enterprise throughout the district has shown considerable activity for the greater part of the year. Lately, 600 acres of the Waiholo Lake have been pegged out, and prospecting licenses are being applied for with the intention of testing the areas for dredging purposes.

#### LAWRENCE.

Five dredges have been working throughout the year on Tuapeka Flat and River below the Lawrence Township. They are as follows:—

William Murray and party, known as the Record Reign Dredge, have worked nearly all the available ground round about the Chinese camp: part of the time, I understand, getting fair returns. Next comes J. Harris and party. They have been at work steadily for the last nine months, with fair average returns.

The Evans Flat Dredging Company has done very well, obtaining 437 oz., and paying dividends amounting to £350.

The Tuapeka Dredging Company has also done well for the past twelve months, having won 329 oz. of gold, and the prospects for the future appear bright.

Lower down the river is the Balclutha Dredging Company, which, I am informed, has been getting only fair returns.

The following is a short summary of the work done at the Lawrence Court for the year: Applications lodged, 290; complaints entered, 32; complaints heard, 28. Revenue collected: Miners' rights, £257 15s.; rents, £1,373 4s. 6d.; registrations and miscellaneous, £187 10s.: total, £1,818 9s. 6d.

#### WETHERSTONE'S.

Messrs. Smyth, Adams, and Donlan, purchased the claim and dredge on Wetherstone's Flat from Mr. J. W. Robertson. They have named the dredge "The Golden Rise," and have had it overhauled and almost entirely rebuilt, at a cost of about £1,200, and it is now working again. The same party also hold a hydraulic sluicing claim in the same locality, the claim being known as the Golden Rise Claim. The races and dams in connection with it have been improved during the year. Work has been steadily carried on, and the results have been highly satisfactory. The party employs thirteen men on dredge and claim regularly, and at times more.

Mr. W. F. Smyth took up the old cement claim at Wetherstone's, and formed a company called the Golden Crescent Gold-mining Company, and the company has taken over the claim, and also the right to a water-race, to bring in water from Deep Creek, Waipori. The length of the water-race will be about seventeen miles. The water will be carried in a siphon of 20-in. pipes. The total cost of the race will be about £4,000. The whole length has been levelled, and about nine miles have been constructed. At the present time about twenty-five men are employed on the works.

#### BLUE SPUR.

The Blue Spur and Gabriel's Gully Consolidated Gold Company (Limited), still under the management of Mr. J. H. Jackson, has been working steadily for the year. The water-supply being exceedingly good for nearly the whole of the time has enabled the company to work about a thousand hours longer than they did the year before. The yield of gold was 3,032 oz., valued at £11,826.

The Local Industry Gold-mining Company (Limited) has been working in Gabriel's Gully, near Rocky Point. The returns have varied, but have not been satisfactory.

Messrs. J. Kitto and party have been working steadily during the year, and the returns are, I understand, very satisfactory.

Messrs. Mills and Browne, known as the Tuapeka Sluicing Company, at the foot of Munro's Gully, have again increased their area, and with their elevating plant have been doing very well.

#### TUAPEKA MOUTH.

The dredge on Messrs. McLeod and party's claim in this locality has been working on the flat during the year, but the returns have not come up to expectations.

I may mention that two dredging claims have been applied for on the Clutha River, just above the Tuapeka Mouth, but the applications have not as yet been finally disposed of.

#### MANUKA CREEK.

Two fairly good sluicing claims are now being worked in this locality, viz.: Messrs. J. D. Stewart and party and W. and J. Sutherland. The scarcity of water on account of the high altitude is the only trouble. Sutherland and party have a good hydraulic plant on their recently-acquired special claim of twelve acres, and are working with about six heads of water; results satisfactory.

#### WAITAHUNA.

There is very little to report on in this locality. Another dredge has been started, under the name of the Imperial Dredging Company, on a special dredging claim on Waitahuna Flat above the railway-line, and the prospects are good. The Waitahuna Dredging Company (Kirby and party) are still working their ground below the railway-line, but are making arrangements to put on a more powerful dredge.

The sluicing claims at Waitahuna Gully belonging to Charles Thomson and party (employing thirteen men), Sailors' Gully Company (seven men), Ferris and party (four men), Hagan and party (two men), and Quilter and party (three men), have all been working much the same as in former years.

The claim formerly owned by Messrs. W. Baker and party has been taken over by a company styled the German Flat Hydraulic Sluicing Company (Limited), with a capital of £1,300, and now that the company have good storage accommodation for water, and plenty of pressure, I think the claim is likely to turn out a success.

#### GLENORE.

The dredging claims in this locality are still doing well, and have been working constantly throughout the year. The following are the dredges, viz.: Messrs. J. Nelson and party, the Golden Bank Gold-dredging Company, the Stirling Gold-dredging Company, and the Woolshed Dredging Company. The former one, I understand, has been on rather poor worked-ground for some time, but the three latter have been on good gold, some of the weekly returns from the Stirling and Woolshed being as high as 40 oz.

The Mining District has been extended in the direction of Milton, taking in the bed of the Tokomairiro River. One other claim has been taken up, and it is probable others will follow. The new one taken up is the Riverbank Dredging Company, and they are now preparing to build the dredge.

#### WAIPORI.

The mining enterprise in this locality is still going ahead and attracting public attention. Nearly all the ground available or suitable for dredging purposes has been taken up. There are six dredges working, and they are all doing well. Two more are being built; one will start work shortly, and the other in a month or two. The one mentioned as starting shortly belongs to the Empire Gold-dredging Company, being the second dredge built by the company. As they hold two special claims, a dredge is required for each claim. This dredge is being built at a cost of about £3,300, and fitted up with all the latest improvements. The dredge put on this company's claim less than twelve months ago has done exceedingly well; the weekly returns have been good and regular, and dividends of 1s. per month have been paid since last July.

The Success dredge has continued to work throughout the year with very satisfactory results, having won 843 oz. of gold, and paid dividends amounting to £240.

Messrs. McNeill and party (private party): The dredge is an established success, and the returns have been good throughout the year.

The Jutland Flat (Waipori) Company have worked steadily for the year, and have won 1,226 oz. of gold, and dividends amounting to £1,500 have been paid.

The Upper Waipori Alluvial Gold-dredging Company (Limited) have also been working for the greater part of the year; the yield of gold was 850 oz., and dividends amounting to £600 have been paid.

Mr. W. J. Farrell, the mortgagee of the Amalgamated Deep-lead Company, took over the plant, water-races, &c., and has been working the claim on Cotton's Freehold, and has been getting very good returns.

The Golden Key Gold-mining Company has recently been formed, and has taken over the sluicing claim formerly held by Messrs. H. H. Eaton and party. The capital of the new company is £2,000.

The Bakery Flat Sluicing Company have a good hydraulic elevating plant on their special claim of 80 acres at Bakery Flat, and have done fairly well, having won 328 oz. of gold during the twelve months.

The Post-office Creek (Waipori) Gold-mining Company (Limited) has been formed during the year. Part of the ground was formerly held by Mr. James Parker; the area now held by the com-

pany being 91 acres. The mode of working is hydraulic elevating. The claim is just now being opened out, and the prospects are reported to be good.

#### BEAUMONT.

The Beaumont Local Co-operative Gold-mining Company had to reconstruct on account of so many mishaps with the claim and water-race, and a new company was formed to take over the claim, plant, and liabilities. The name of the company is the Champion Gold-mining Company, Limited.

A new dredging company, called the Sunlight Gold-dredging Company, has recently started operations on the Clutha River, at Horseshoe Bend, above the Beaumont, and the returns are very satisfactory.

Messrs. MacGregor, Pyrke, and Crossan hold three special dredging-claims below the Beaumont Bridge, on the Clutha River, and I understand dredges are to be put on these claims very shortly by an English syndicate.

Further up the river, at Horseshoe Bend, Messrs. Edie and Kirkpatrick have been at work steadily throughout the year. They have a good water-supply, and a lot of work has been done by means of hydraulic elevating, but I understand the yield of gold has not been so good as in former years.

#### WAIKAIA.

The activity of the mining enterprise is still kept up in this locality. No less than 240 applications for claims and other rights were lodged at the Warden's Court during the year. Thirty cases were entered and seventeen heard, and the revenue collected in the Warden's Court alone amounted to £630.

Some of the claims in the district are doing very well. The Argyle Hydraulic Sluicing Company, for instance, obtained 660 oz. of gold, valued at £2,600, for the year; and the yield of gold for the year for the Waikaia, Waikaka, and Nokomai districts is estimated at about 6,000 oz. The local bank at Waikaia purchased over 2,000 oz., and this does not include the Nokomai, Upper Wairkaia, or Waikaka gold which is sold elsewhere, estimated to yield about 4,000 oz.

The area held under special claims and licensed holdings from the Warden's Office at Waikaia is over 1,200 acres, and in all cases but three the rents are paid up to date, which speaks well for the prosperity of the district.

The Argyle Company has taken up a claim in Happy Valley, and has recently placed a first-class hydraulic elevating plant, and from the prospects obtained the claim is said to be a rich one.

The Lion Gold-mining Company are still engaged bringing a water-race to their special claim at Nokomai Flat.

The Piano Flat Gold-mining Company are busily engaged cutting a water-race from the Blue Lake to work their claim at Glenary by means of hydraulic elevating. When the race is finished, it will give a continuous supply of water all the year round.

Messrs J. Holland and party intend putting a dredge on their special claim on the Waikaia River, above Glenary, and the Nugget Gold-mining Company are also preparing to have a dredge placed on their claim at Growler's Flat, near the same locality.

The prospects are said to be good in several cases where dredging-areas are being applied for, near Waikaia and at Wendonside.

The Winding Creek Gold-mining Company have completed cutting their water-race from the Great and Little Leithen Creeks at a cost of about £12,000, but on account of the race being constantly carried away by heavy slips, they are unable to obtain a regular supply of water, and cannot work the claim to advantage; but the general opinion is, that if the company can get the race to carry sufficient water, they are sure to get good returns, as the ground held by them under special claim is known to be very rich.

Two special claims of 100 acres each have been taken up by Mr W. Hendry (as quartz-claims), situated at the back of the Titan Rocks, on the Glenary Run, but so far no work has been carried on excepting prospecting.

#### WAIKAKA.

Two dredges—viz., Messrs. W. McGill and party and J. R. Perry—have been in active work for the last year, and the returns have been very good.

Messrs. J. Marr and party and W. Little and party are busily engaged building dredges for their claims, and they will soon be ready to start work. Besides these, three more claims have been granted, and the dredges are ordered, or in course of erection. A very large portion of the land in this locality is known to be gold-bearing and suitable for dredging, and I shall not be surprised to see eight or ten dredges at work in the course of a year or two.

#### TAPANUI.

Very little mining is now carried on in this district, and there is nothing new to report.

#### GORE.

One dredge is now working on the Mataura River above Gore, a dredge is also at work on freehold land on the Waimumu, and another is in course of erection, while companies have been formed for working a third claim there and one on Charlton Creek. These lands are at present not included in the Mining District of Otago.

I have, &c.,

ROBERT S. HAWKINS, Warden.

The Under-Secretary, Mines Department, Wellington.

## No. 10.

Mr. Warden DALGLEISH, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Naseby, 3rd June, 1899.

I have the honour to submit herewith the annual statistics of the mining industry for the Mount Ida District for the past year, and in doing so I have to inform you that little or no alteration has taken place in the general aspect or condition of mining during the year. No new ground of any consequence has been opened up, but a number of prospecting licenses have been granted, principally in respect of dredging-ground, the result of which is still to be ascertained. The number of miners in the district remains satisfactory. The water-supply has been better than for a good many seasons, and the returns have been correspondingly good. The water-conservation works at Eweburn are progressing satisfactorily. The bank of the reservoir has now been carried to a height of about 30 ft., and the supply of water obtained is, I believe, greater than the most sanguine expectations of the engineer. The Government race has already been benefiting from this source, and will do so to a greater extent as the work on the reservoir proceeds.

Dredging, I regret to say, has hardly yet attained a paying position in this district; the prospects obtained in most instances were sufficiently good to insure success, but the actual results so far have not come up to expectations. Of course, it must be taken into consideration that this is a new system of treating the auriferous drifts, and naturally many difficulties are being met with, which I trust will be overcome by the engineering skill now being devoted to the subject, and a prosperous future developed for that system of working.

NASEBY.

In this locality there is no alteration of any importance to be noted. The Naseby Dredging Company's operations, although hampered a good deal by frequent breakages in the machinery, have been fairly successful. With a view of securing better results the company has dispensed with the screen on the dredge and erected boxes instead.

The Enterprise Gully Dredging Company has not yet commenced operations, but their dredge is being put together on the ground, and will shortly be at work. Hydraulic sluicing and elevating are the ordinary methods of mining employed in this locality, and it may be said that the supply of water has been ample for all purposes since last winter. There has not, however, been the same number of miners employed as during the previous year, but this is to be accounted for by the construction of the Eweburn reservoir, at which the men are now employed.

*Kyeburn Diggings.*—At Little Kyeburn about the same number of men are employed as during the previous year, and there is very little to report as the result of the past year's operations. The small dredge which was removed from the Fillyburn and placed on the Little Kyeburn was not a success, owing to its want of capacity and the extremely large boulders to be contended with, which prevented its being conveniently moved about, there being insufficient water for the dredge to float over them. There is, however, a noticeable improvement on the Kyeburn Diggings, where a party of Chinese, who purchased Mr. Forgie's property, have a large face opened out, and work night and day when the water permits. Mr. McLellan and his sons have opened a new claim on the Pass Hill, and are building a large dam and making other provision for the systematic working of the claim. Messrs. Beer have increased their plant and taken up the old Mountain Stream water-race, intending to put the same in thorough repair and utilise it for the purpose of obtaining a higher pressure. Mr. Blanchard's low-race, after years of idleness, has been put into thorough repair, and has been working steadily. A company—the Naumai Gold-dredging Company—has been formed, with a capital of £7,000, to work a terrace, and Mr. McLellan has sold his lower race to it. Plans for the dredge are now being made. Two other claims have been taken upon the same kind of ground, and negotiations are, I understand, proceeding for the placing of a dredge on one of them. Messrs. Parker are concentrating all their water on one claim, considering it advantageous to do so because of the very coarse nature of their wash material. Messrs. Brown Brothers, Kyeburn Peninsula, are still elevating in the mining reserve, and have also taken up a claim on School Flat on the same run of gold as the Naumai Dredge will start on. They have eleven men at work.

The Kyeburn Gold-dredging Company, which started operations on the Kyeburn River in January, 1898, is still working steadily, and, considering the dredge being old and small, is doing good work, the most serious drawback being the shallowness of the ground, which is often not more than 3 ft. deep.

The Mount Ida Gold-dredging Company, which started work with a new dredge in September last, has not up to the present been very successful, the ground so far proving much shallower than was anticipated. After being idle for some months, during which the dredge was fitted with an elevator, work is again being resumed, with, it is to be hoped, better results than heretofore.

At Hamilton's and Sowburn mining has been carried on in the same quiet manner as hitherto, and there is nothing fresh to report.

At Serpentine there has been some stir latterly, owing to the infusion of new blood into the district. Messrs. Diamond and party are erecting an elevating plant, and it is reported that others are going to bring water-races on to ground in this locality from the Taieri River; while Mr. J. Cogan is engaged in opening up a quartz-reef he has discovered, and which he estimates will go from 10 dwt. to 15 dwt. per ton.

MACRAE'S, NENTHORN, ETC.

Alluvial- and quartz-mining has fallen off during the past twelve months, so far as the gold-yield is concerned. The Macrae's Flat Dredging Company commenced operations in March last,



but-so far has not met with a great deal of success; it had, however, at first, a serious drawback to contend with, the dredge having been built in the wrong place, necessitating its cutting its way through a bar in order to get into the deep ground. Donaldson Brothers' mill and battery are kept going day and night, and they are said to be doing very well. The quartz is conveyed to the battery by an aerial tramway capable of delivering between 30 and 40 tons in eight hours. Mills and Sons have removed their five-head battery from Nenthorn, and erected it at the top end of Macrae's Flat. They are crushing stone from the Golden Bar reef, and have had a crushing which yielded something over 5 dwt. to the ton. Cunningham Brothers and Ross have erected a five-head battery, but have not yet commenced crushing.

*Bonanza Mine.*—This mine is situate about eight miles from Macrae's, southwards. Operations are carried on from three levels—low-level adit, 60-ft. level, and high-level adit. The low-level adit is 190 ft. below the high-level adit, and is 1,550 ft. long, and connects with the battery with a self-acting aerial tramway. The battery consists of rock-breaker, Huntingdon roller-quartz mill, and grinding- and amalgamating-pan, all driven by a 6-ft. Pelton water-wheel, the pressure at wheel being 110 ft. A large dam has been constructed to conserve the water for crushing purposes. Fifteen hands are employed at the mine. As regards alluvial mining, it may be said that all Europeans and Chinese are doing fairly well.

At Nenthorn Messrs. Sligo Brothers have had a good crushing, and are said to have struck a block of stone supposed to go from 5 oz. to 6 oz. to the ton. They expect about 50 tons of stone in the block. The battery is a ten-head stamper-battery, driven by water-power. They have crushed for themselves 500 tons, yielding 339 oz. of gold; and for small parties 169 tons, yielding 263 oz. Callery and Son are also reported to have had a good crushing, yielding about 104 oz. for six months' work, and are still on good stone. Connell and party's crushing would appear not to have been so good, averaging about  $\frac{1}{2}$  oz.

At Hyde mining matters call for no special comment. The Taieri Gold-slucing Company's operations have, apparently, not been very successful, one claim having been abandoned, and the company itself is in liquidation.

At Rough Ridge, Idaburn, and Blackstone Hill, there have been no fresh developments, and consequently nothing to report.

At St. Bathans the past season has been a very good one for water, and the Scandinavian Company has in consequence been enabled to keep the bulk of its customers pretty regularly supplied. The company has recently purchased from the St. Bathans Water-race Company the old Otago water-race, claims, and plant, for the sum of £1,700 odd, and is engaged cleaning out the race, which is expected to deliver twelve heads of water when in order.

Muddy Creek and St. Bathans Channels: It is understood that the Government have subsidised both these channels to the amount of £1,000. They are the main outlets for the tailings, and, if not maintained in a state of efficiency, mining on both sides of the hill would be seriously hampered. A good deal of work, however, has been done in both, and they seem to be working satisfactorily.

The Shamrock Company are understood to be well pleased with the result of their operations. The shareholders are principally Alexandra people. Johnston's Creek Claim is shut down for want of water.

There is a considerable number of claims along the banks of Muddy Creek, and all are doing fairly well. Garty and Gallagher, who are amongst the number, have had a good deal of trouble with slips, but, it is thought, have surmounted their difficulties.

*Kildare Hill.*—This claim, which is owned by Mr. Ewing, has been a very rich one, and is understood to be still maintaining its reputation in the face of great difficulties in working it.

*Vinegar Hill.*—Mr. Ewing has a large face stripped in this claim, and is known to have extracted a large amount of gold from this quarter.

At Vinegar Flat is situated another of Mr. Ewing's claims, which has paid very well, but it is said that the run of gold has been lost, and is being traced farther up the flat. The plant has been shifted by Mr. Ewing from his old workings at Cambrian, and he is now prospecting at Soldiers' Gully and is reported to have obtained good gold.

The United M. and E. Water-race Company is understood to be a good property, and its shareholders appear well satisfied. Eagle and Gray's claim has been shut down for a considerable time for want of water. Gay and Fordham are elevating about 20 ft. and said to be doing well. The Cambrian dredge, which originally cost between £4,000 and £5,000, has been sold for £3,000, and removed to Chatto Creek, near Alexandra, where it is known as the "Galtee More."

Morgan and Hughes are still doing very well in their claim at Vinegar Flat, and have great prospects before them. They shift their stones by means of a tramway worked by water-power.

Hunt and Reilly at St. Bathans, and Davis and party, Cambrian, are said to be doing fairly well.

Coal-mining: Ormond Hughes has an excellent property in his coal-pit at Cambrian, and has recently obtained a steam-engine of about 20-horse-power, which will enable him to cope with drainage-water, hitherto a great drawback. He is also erecting machinery for stripping the coal. James Enright has opened a pit, since last report, at Blackstone Hill, and obtained good coal.

*Matakanui.*—The mode of working here being hydraulic sluicing, water is an important element, and the industry has been frequently interrupted for some years past by dry seasons; the past year has, however, been more favourable, and work has been vigorously carried on, with satisfactory results to those concerned. On the flats it is proposed to place dredges, and the material for one is now being placed on the ground, while other claims have been pegged off. The Thompson Gorge Gold-mining Company intend further prospecting their ground, and are obtaining the necessary implements from Dunedin.

The Ophir Dredging Company built a dredge on their claim near Black's, which has been at work for about nine months, it is believed with varying success, though, owing to its being a private company, the actual results are not known.

Very little is being done by alluvial miners, a few of whom are employed at German Gully and German Hill, both of which places are believed to be payable if a sufficient supply of water could be obtained to work the ground.

In conclusion, I may say that the revenue has kept fairly well up, and the volume of business transacted in the various Courts in my district shows no falling-off:—Wardens' Courts: Number of complaints, 45; general applications, 301; applications opposed, 43; applications for licensed holdings, 3; total area of licensed holdings, 55 acres; applications for special claims, 10; total area of special claims, 696 acres; number of miners' rights issued, 270; number of water-race licenses, 283; number of general registrations, 431. Amount of revenue collected, £1,059 2s. 8d.; deposits for surveys, £244 1s. 3d.

I have, &c.,

S. MEAD DALGLEISH, Warden.

The Under-Secretary, Mines Department, Wellington.

## No. 11.

Mr. Warden MCCARTHY to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Clyde, 20th May, 1899.

I have the honour to enclose herewith the annual statistical returns, and to submit the following report on mining matters in the Dunstan-Wakatipu subdivision of the Otago Mining District for the period ending the 31st March last.

I do not propose to enter into details with respect either to particular claims or localities. That is always much better left to the Inspectors of Mines, who have the necessary technical experience, and are able to gather their information from actual observation. There are, however, certain salient features appertaining to each distinct class of mining which may prove of general interest.

### HYDRAULIC SLUICING.

There is nothing new to report in this branch of the industry. It does not appear either to attract to any considerable extent the energies of the individual miner, or to impress the imagination of mining speculators. The season has been a fair one in so far as water is concerned, but there have been no phenomenal workings-up, and I question whether the returns are up to the average of even comparatively recent years. The position, therefore, has to be faced, that ground suitable for hydraulic sluicing is becoming year by year more difficult to discover, and this fact, together with the comparatively dry seasons so characteristic of Central Otago, makes the yield of dividends increasingly problematical. It is, in fact, in many cases quite an open question whether, with the Otago Central Railway almost knocking at our very doors, water now devoted to sluicing would not be more profitably employed if used for irrigation. The only ventures likely to be profitable are those possessing large and permanent water-supplies, which, of course, presupposes the command of capital.

### QUARTZ-REEFING.

There is no forward movement to chronicle in this direction. A few small parties are working at Upper Waikaia, the Old Man, and the Carrick Ranges. From what can be learned, they have had payable, though not phenomenal, returns. The Cromwell Mine at Bendigo is now being worked by tributers with varying success; whilst at Macetown, the Tipperary Mine, the property of the Westralia and New Zealand Gold Explorers' Company (Limited), an English corporation, has been closed down, and the manager, Walter J. Stanford, removed by his directors to London, with a view to a consultation as to further developments. Work on the Premier Mine at the same place is being prosecuted, but the returns are small, and I question if they much more than cover working-expenses. The Bullendale Mine, at Skippers, is not just now yielding any gold, but, under a new arrangement, is being further exploited.

### DREDGING.

This method of mining has become the fashion of the hour. In the district under my care there are fifty dredges, the capital cost of which cannot have been less than £250,000, and nearly all of these are in active work, of which a goodly proportion are dividend-paying. Before the close of the next financial year I hope to be able to report the construction of ten additional dredges, at a cost of at least £50,000. Most of the Molyneux River, from the Tallaburn to Cromwell, as well as considerable stretches of the Manuherikia, the Kawarau, and Clutha Rivers, are under application, and the attention of investors is now being directed to the Nevis, Lindis, Dart, and Cardrona Rivers and adjoining flats. Whilst not wishing to disparage the three former fields, I cannot help saying that the latter is well worthy of a trial. Gold has been found in the ranges, the terraces, and gullies, on both sides, and tunnels have in one or two places been driven underneath the stream, the bed of which seems to be good dredging-ground. The result of these latter operations was eminently satisfactory. In one part of the valley, about fifteen miles distant from its head, payable wash has, I hear, been struck at a depth of 25 ft. In passing, I may state there are, at the present time, 192 applications awaiting the preliminary hearing, of which no less than seventy-five are set down for hearing at the next Cromwell Court.

I now feel it my duty to sound a note of warning. Most of the ground capable of being dredged by known methods is already under application; and whilst there is no doubt that, as in the past so in the future, the evolution of the dredge will steadily proceed, yet investors must

take heed, lest the prosperity at present obtaining in the dredging world leads to a number of claims of the "wild cat" order being let loose upon the community as beasts of prey upon the unwary and the simple. And this leads me to a consideration of the one great need of those dredging in deep, swift-running rivers, such as the Clutha, the Kawarau, and the Molyneux. At present the only known method of prospecting these rivers is by the construction of a dredge, the cost of which may involve an expenditure of well nigh £15,000. If the river-beds and banks prove barred, the dredge may have to be shifted to another part of the river, or even dismantled altogether and removed to a different district. Either operation involves great expense and loss of time. What is wanted, then, is for some mechanical genius to design a dredging prospecting plant for use in rivers such as those named, which should be at once comparatively speaking inexpensive, strong, and easily portable. If such a plant were procurable, not only could the river-beds be tested without the great expense incident to the construction of a dredge, but those designing dredges would be able to ascertain, with some approximation to accuracy, the character of the ground proposed to be treated, and shape their designs accordingly. For it must be borne in mind that each reach of these rivers has characteristics peculiar to itself, which necessitate appropriate modifications in the machinery of the dredge intended to work it.

#### SUGGESTED ALTERATIONS IN THE MINING LAW.

As the law now stands, the weight of authority seems to lie in the direction of the doctrine of lateral support being applicable to mining claims. The object of that doctrine is to preserve intact the surface of the land; an object which, it will be seen, is altogether inapplicable to every method of mining except those which necessitate the sinking of shafts and the driving of tunnels. In these latter cases it is all-important that lateral support should be preserved, otherwise the shafts and tunnels might collapse, and there would ensue, not only waste of capital, but possibly great loss of life. But, in sluicing and dredging, the very object of procuring a license is to enable the licensee to win the gold, even if that should involve the subsidence and washing away of the surface. The doctrine of lateral support is, therefore, quite inapplicable to these systems. No doubt the licensee does not wish the auriferous dirt naturally standing within the limits of his claim to fall into that of an adjoining licensee; but to conserve to the former the lateral support of the adjoining claim when the respective terms of the several licenses authorise the washing away of the land affected by both is to perpetuate an absurdity. What is needed is a statutory rule amply protecting the rights of adjoining licensees. When a claim is worked by means of drives and tunnels there should be reserved between that and any other claim ample barriers, such as are provided for in the case of coal-mines; but in the case of adjoining dredging or sluicing claims the rights of the licensees would be amply protected by a provision that, where the ground for a distance of one chain on either side of the boundary is worked and the proceeds divided in manner directed by the Warden, after application made by either of the parties, the licensee so working should not be liable to any action for damages in respect of mining operations on any part of the claim so worked. I mention this matter because adjoining claims are becoming exceedingly common, and boundary-disputes are sure to crop up, and much money will be wasted in litigation, and this waste might be saved by timely legislation.

#### REVENUE.

The goldfields revenue during the year just closed has been well maintained. The figures are as follows: For Clyde, Alexandra, and Roxburgh, £3,044 12s. 2d.; Cromwell, £1,125 17s.; Queens-town, £1,120; Arrowtown, £380; total, £5,670 9s. 2d.

There is at present every indication, notwithstanding the great reduction effected by "The Mining Act, 1898," in mining rents, that during the current year these sums will show no shrinkage.

#### COAL-MINING.

As was to be expected, the steady development of the dredging industry and the increase of population consequent thereon has given a stimulus to prospecting for coal, with the result that there has been a marked increase not only in the output, but in the number of miners employed.

#### PASTORAL AND AGRICULTURAL PURSUITS.

The frequent falls of rain during the period under review have not been without their effect on these industries. The sheep and cattle are healthier, the wool heavier, and the crops more abundant than has been the case for many years past.

I have, &c.,

S. E. MCCARTHY, Warden.

The Under-Secretary, Mines Department, Wellington.

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#### No. 12.

Mr. WARDEN CAREW to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Dunedin, 8th June, 1899.

I have the honour to forward herewith statistical returns respecting the Hindon Goldfield for the year 1898-99.

The number of miners working there is now under fifty, and nothing of special importance has occurred during the year. The principal alluvial workings are those of the Deep Stream Amalgamated Hydraulic Sluicing Company, which company has paid regular monthly dividends to

its shareholders. Quartz reefing is at a standstill, the Barewood Reefs being apparently too low grade to be profitably worked under present circumstances, and a number of areas have been surrendered.

The miners generally are distributed over the field, and are fossicking and working ground about the old workings.

The Under-Secretary, Mines Department, Wellington.

I have, &c.,

E. H. CAREW, Warden.

### No. 13.

Mr. Warden POYNTON to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Warden's Office, Invercargill, 27th April, 1899.

I forward herewith the annual statistics. I have nothing of interest to report concerning the subdivisions of this district.

#### PRESERVATION INLET.

I regret to have to state that this field has not developed according to expectations. The results from the three claims that have been crushing during the year are disappointing. No new discoveries have been reported.

#### OREPUKI.

This place still keeps up its gold yield. The lead west of the River Waiau, discovered a couple of years ago, has yielded but little. Nothing fresh has been found in that locality.

There is a revival of interest in Orepuki shale. A lease of about 1,700 acres has been applied for. It is believed that the gold- and shale-mining industries can be worked together without friction, the shale being at a considerable depth in most places, while the gold is near the surface. It will require tact on the part of the Shale Company's officials to avoid friction with the holders of rights for water-races, dams, &c., on the area applied for. Their rights, being prior to those of the lessees, must be safeguarded in every way. Provision will also have to be made for a covenant in the lease to permit of mining rights being granted in future over the area to be leased.

#### WYNDHAM.

Very little is being done in this sub-district. The recent addition to the Otago Mining District to the west of Gore, known as the Croydon field, is auriferous to a payable extent, and rights have been granted relating to it. There will be serious difficulty if sluicing on anything approaching a large scale is attempted in disposing of the *débris*. The area proclaimed is small and completely isolated; the streams traversing it are small and sluggish, and along their banks there are many settlers who will strongly object to the streams being polluted and filled with tailings. The field is so small that it would not be advisable to proclaim these streams sludge-channels and pay a large sum to the numerous riparian proprietors for compensation.

#### ROUND HILL.

Several more claims to be worked by hydraulic elevating have been taken up in this locality. The two at work have had satisfactory returns, but, the past summer having been rather dry, the yields were not so large as they otherwise would have been.

#### DREDGING.

Much interest is taken by the Southland people in dredging. A number of claims have been taken up in the bed of the upper Waiau River. A dredge is being built on one of them, and will be at work during the winter. If successful, others will be built. Prospects are said to be very good. Dredging claims have also been applied for at Lake George, near Round Hill, and at Colac adjoining. Old miners who have worked in the neighbourhood say that rich leads traverse the area between those places, but are too deep to be worked otherwise than by dredging. The beds of several streams outside the boundaries of the mining district are to be tested by means of dredging. Many of the river-beds and low terraces in Southland are gold-bearing. Dredging has some advantage over other forms of mining when applied to private lands. The tailings and *débris* can be kept on the land to a great extent, and the running water required is but small. Gold-dredging in Southland promises to become an industry of great importance.

I have, &c.,

J. W. POYNTON, Warden.

The Under-Secretary, Mines Department, Wellington.

### No. 14.

Mr. JAMES COUTTS, Inspector of Mines, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Inspector of Mines' Office, Thames, 29th April, 1899.

I have the honour to forward herewith the annual statistical return and report on the mining industry in the Auckland District for the year ending 31st March, 1899.

The gold-mining industry in the Auckland District for the year ended the 31st March has borne out the statement made in my last annual report, and, it is gratifying to find, is now on a more satisfactory basis than ever before, due to systematic mining, gold-saving appliances, and improved machinery. It is true there are a number who complain that this district is in a worse state than it was previous to the boom in 1896 and 1897, but in comparing the gold returns it will be seen that there was an increase in last year's return over 1897 of £51,489 14s. 2d., and this

year there is a further increase over last year of £170,604 8s. 1d., which is a most convincing proof that gold-mining in this district is advancing by leaps and bounds, and will yet exceed the most sanguine expectations. The increased returns are due to the large yield of bullion obtained from the Waihi Company's mine and other mines in the Ohinemuri County, but there is also a considerable improvement in the return of gold from the Thames County during the year. There is a slight falling-off in the return in the Coromandel County. This can be accounted for in the gold not being so evenly distributed through the lodes as in the Ohinemuri County, and consequently the returns are more liable to rise and fall.

With the chance of some rich discovery being made, and the additional stamps now in the course of erection at the different mines, it may reasonably be expected that the return of gold from this district for the year 1899 will be greatly in excess of the year just ended.

#### GREAT BARRIER ISLAND.

*Barrier Reefs Mine.*—This company are systematically prospecting their property, and doing good work. A low level has been driven in from the side of the hill for a distance of 1,050 ft., and has intersected what is termed the large reef; but as a considerable quantity of water was oozing out of the face of the drive when the reef was cut it was deemed advisable to discontinue driving on the reef until the water drained off. The tests taken from the reef did not give a high percentage of the precious metal, but little work has been done on it to prove its value. Driving is proceeding on a reef that was intersected at a distance of 700 ft. from the entrance of the low level. The drive west on the reef is in a distance of 250 ft. from the crosscut, and the eastern drive has been driven on the reef for a distance of 300 ft., and a connection made with a shaft that was sunk down from the side of the hill to this level, a distance of 220 ft. Since communication was effected with the shaft the ventilation throughout the level is all that can be desired. From the low level to the outcrop of the reefs there is 350 ft. of backs, and the reef that is at present being worked upon varies from 1 ft. to 6 ft. in thickness. Assay tests taken from the reef have given satisfactory results. The company contemplates erecting a twenty-stamp battery, with modern appliances, for the treatment of the ore, the site for the battery being selected at a suitable place about half a mile from the present low level. This company has worked continuously during the year, employing from fifteen to twenty-four men. No returns.

*Great Barrier Gold- and Silver-mining Company.*—This company have given an option over their property to the Melville Corporation Company, who have fourteen men employed in driving on the reefs that traverse the claim, with the object of proving the value of the reefs before purchasing the property. A considerable amount of work has been done in prospecting and driving on the reef at the upper levels, but the operations now in progress are confined more to opening up the reefs at the low level. The main cross-cut is being extended for the purpose of intersecting the large reef, and is in a distance of 300 ft. The country for some distance has been of a very hard nature, but is now greatly improved, and is more favourable for gold-bearing reefs. The drive west on Lee's reef has been driven up to the boundary, and the same reef has been driven on east of the cross-cut for some considerable distance. The reef varies from 1 ft. to 2 ft. in thickness, and the country is of a favourable description for making speedy progress. No returns.

There was a considerable amount of work done in the Iona, Aotea, and Great Barrier Proprietary Mines in the early part of the year, but, not meeting with sufficient inducements, the work was stopped, and some of them surrendered.

#### PORT CHARLES DISTRICT.

Comparatively little work has been done in this part of the goldfield during the year. The Eva Claim, which is owned and worked by McNeil Brothers, had three parcels, amounting to 105 lb. of stone, treated, for 79 oz. of gold. Two men were employed. Very little work has been done on this mine for the last four months. Prospecting operations were carried on for some time in the Donald McKinnon Claim, but, as nothing of importance was discovered, the work was stopped.

*Hauraki Peninsula Mine.*—A good deal of prospecting work has been done on this claim, and a large reef was discovered on the surface, from which samples of the ore were assayed that, I am informed, gave payable results. A low level has been driven for the purpose of intersecting and proving the reef at a depth. Three men were employed, but so far no returns have been sent in from here.

#### CABBAGE BAY DISTRICT.

Most of the claims taken up in this district during the boom have been surrendered or abandoned. The White Star Consolidated property, which comprised several holdings, and was worked by Bewick, Moreing, and Company, has been abandoned and the mining plant sold by auction; but since then several of the holdings have again been taken up by other parties, and a limited amount of prospecting work is now being carried on. In the Queen Victoria of Hauraki, Belgic, Jersey, and City of Gisborne Claims two and three men have been employed, but nothing of importance has been discovered.

#### KENNEDY BAY DISTRICT.

There has been a good deal of prospecting done around here in the following claims, which have employed from two to three men: The Bay View, Flossie, Morning Star, Evening Star, Vanderbilt, Omoho, and Rose, all of which have had returns of gold from small parcels of ore that have been treated at the Hauraki Associated battery. Dyer and party have also carried on sluicing operations below the junction of the Waikoromiko and Haratunga Streams.

## WAIKOROMIKO DISTRICT.

*Four-in-Hand Mine.*—This company has decided to work their mine and prove the value of the property. In the Four-in-Hand section the reef has been opened up on three levels, and maintains an average width of 17 in., and in Nos. 2 and 3 levels fair prospects have been met with. At No. 2 level it has been driven on for a distance of 172 ft. A small leader has been worked upon at No. 2 level, and a stope carried along the back of the level for a distance of 54 ft., and the quartz won from here gave payable returns. At No. 3 level 130 ft. of driving has been done on the reef, and gold was frequently seen in breaking out the quartz for the whole of this distance. In the Tainui, Tainui Extended, Cuirassier, and Cuirassier Extended sections there has been a good deal of work done, with fair results. The company has erected a five-stamp battery on the claim, and constructed an aerial tramway to convey the quartz from the upper levels to the mill, the tramway being about a quarter of a mile in length. It is a complete plant, and crushing is to be started at once on the ore that is stacked on the surface of the mine.

*Napier Mine.*—This mine has been worked the greater part of the year by tributers, who put through a small parcel of 2 tons, for 6 oz. 7 dwt. of gold. Four men were employed.

*Tandem Mine.*—A good deal of work was done in this mine in the early part of the year, and 20 tons of quartz were crushed, for a return of 6 oz. of gold. The reef varies from 9 in. to 2 ft. in width.

*Lillis Mine.*—This was worked for some time by the Kauri Gold Estates Company, whose attention was directed to opening the reefs, which did not prove payable, and the company stopped operations and let the mine on tribute to the parties who formerly worked the ground, and with satisfactory results.

*Forest Queen Mine.*—There have been two men employed in this mine continuously, who have done a good deal of prospecting on the reefs, and have been induced to drive on the reefs as gold was occasionally seen in the quartz as it was broken out.

## TOKATEA.

*Boyal Oak of Hauraki (Limited).*—This company has done a very large amount of development work during the year. On the Tokatea reef there has been 10,000 ft. of driving, rising, sinking, and stoping done, and on the No. 1 tribute leader there has been about 2,300 ft. of driving, &c., accomplished. The company have gone to a considerable expense in constructing a water-race, from which the water is used for driving the air-compressors, the compressed air being carried in pipes to the mine to drive the battery, winding-engine, and, if necessary, the rock-borers. This has cost a good deal of money, but the company will soon be repaid for the outlay, as the quantity of coal used for steam purposes delivered on the mine has been something considerable, and has run into a large sum of money. The company have not crushed a large amount of ore, but it has been very rich; 257 tons of ore and 6,658 lb. of specimens have been treated, for 4,712 oz. 1 dwt. of gold; value, £11,868 13s. There has been an average of 75 men employed in the mine during the year.

*Tokatea Consols.*—This company have done a good deal of developing work during the year. In the No. 1 level, on the west side of the range, the reef has been opened up for a considerable distance, and some very good ore has been obtained from the reef at the No. 2 level, on the east side of the range. Driving and stoping operations have also been carried on on leaders which vary from 2 in. to 10 in. in width. There was treated during the year 72 tons 11 cwt. of general dirt and 382 lb. of specimens, for 223 oz. 2 dwt. of gold; value, £630 5s. 2d. An average of five men have been employed.

*Hauraki (New Zealand) Associated Gold-mines (Limited).*—This is an English and locally owned property, and comprises 86 acres, situated nearly on the top of the Tokatea Range, the highest point of the claim being 1,000 feet above sea-level; thus the various reefs or leaders can be worked nearly to the level of the sea before pumping machinery is required. No. 1 adit-level is 200 ft. below the top of the hill, and has been driven in on the various leaders for a distance of 500 ft.; No. 2 level is 100 ft. below No. 1, and has been driven a distance of 700 ft.; and No. 3 level is 100 ft. below No. 2, and driven a distance of 750 ft. The principal leaders operated upon are the Rainbow End lead, Foot-wall lead, and Cross reef. Those have been well opened up from the No. 2 level, nearly 400 ft. of driving having been done on the Rainbow End lead, besides a good deal of stoping. On the foot-wall leader 300 ft. of driving has been done, and this block stoped out to the No. 2 level. During the past five months only a limited quantity of ore has been broken out, owing to the most of the ground at No. 2 level being exhausted. The No. 3 level will soon reach the point where the main leader should be met with. This level is 750 ft. in length. 450 ft. of a cross-cut and 390 ft. has been driven on the Rainbow End reef. In connection with the mine there is a modern crushing-mill, consisting of a ten-stamp battery, four berdans, one crusher, and automatic feeders worked by water-power generated by a Smith-Vale turbine. There is also a 25-horse-power engine and boiler, which can be used when short of water; and there is a two-stamp mill for crushing specimens, with assay and melting plant complete. 506 tons 8 cwt. and 7 lb. was crushed, for 1,352 oz.; value, £3,850 7s. 8d. Twenty-seven men were employed.

*Harbour View Mine.*—The company's operations have for the greater part of the year been directed in working on the Blue Peter leader, at No. 2 and No. 3 levels, in the section of the mine formerly known as the "North." The leader varies from 4 in. to 8 in. in width, from which picked stone is occasionally obtained. The company treated 4 tons 11 cwt. of general dirt, for 28 oz. 4 dwt. of gold; value, £81 7s. 4d. The Harbour View section is let on tribute, and it is on the Simpson and Ben Bow leaders that work is being carried on. The average thickness of the leaders is about 6 in. The tributers crushed 5 tons 10 cwt. of general dirt and 170 lb. of specimens, for 112 oz. 19 dwt. of gold; value, £293 8s. 1d. On an average four wages-men and eight tributers have been employed during the year.

*Queen of the North Mine.*—This company have had four wages-men and two tributers employed. The company's operations have been directed to driving and stoping on the Peep of Day and Queen of the North leaders, which vary from 3 in. to 10 in. in width, from which picked stone is occasionally obtained. Tributers who have a surface portion of the mine are also meeting with a fair amount of success. The company had 3 cwt. of ore and 30 lb. of picked stone treated, for 23 oz. 18 dwt. of gold, value £68 2s. 2d.; and the tributers crushed 3 tons 14 cwt. of ore and 92 lb. of picked stone, for 33 oz. 8 dwt. of gold, value £95 3s. 9d.

*East Hauraki Mine.*—Operations in this mine have been principally confined to developing the East Hauraki leader in the No. 2 level, where it was intersected as a cross-lode, and from which payable ore has been obtained. 12 tons 10 cwt. of general dirt and 81 lb. of specimens were treated at the Hauraki Associated battery, for 78 oz. 7 dwt. of gold; value, £223 5s. 11d. Five men have been employed.

*Good Luck Mine.*—This ground has been worked by a party of tributers, who have treated a small parcel of 3 tons of ore, for 57 oz. 1 dwt. of gold.

*Golden Spark Mine.*—Two men have been working this ground on tribute, who crushed 1 ton of ore taken from a small leader, which gave a return of 7 oz. 6 dwt. of gold.

*Hauraki Gem.*—A party of tributers are working this ground, who are meeting with very encouraging prospects. They had 3 tons of quartz crushed, for 30 oz. 9 dwt. of gold; value, £86 15s. 5d.

Prospecting operations were carried on for some time on the Golden Lead, Pigmy, New Hero, and Great Kapanga Mines, but no gold returns have been received.

*Conquering Hero.*—A little work has been carried on in this mine in the upper levels, and 1 ton of ore was treated at the May Queen Extended battery, for 2 oz. 15 dwt. of gold.

*Scotty's Gold-mine (Limited).*—A very considerable amount of work has been carried out in this company's mine during the year. The most important feature has been the discovery of Scotty's reef in the Golden Point level, close to the shaft. It has since been cut in the Corby level below, and is now the principal development work in the mine. Judging from its indications, and comparing its character to the Kapanga, there is every reason to hope that a rich discovery will be made here as the work proceeds.

*New Hauraki Gold Properties (Limited).*—This company now comprises an area of 224 acres, in which is included the Success Gold-mining Company's ground. The development of the mine is directed in prospecting the east and west reef, which varies from 6 ft. to 30 ft. in width, but it is low-grade ore, and only assays up to about 5 dwt. Still, there is a chance of meeting with a chute of payable ore as the work proceeds, which would be of great importance to this district. In the Success portion of the property work is being carried on on the Jubilee No. 2 reef at No. 3 level. There has been rich patches of gold obtained from this reef, and there are great probabilities of something important being discovered, as the reef in places looks well, and the country is all that can be desired.

*Buffalo Mine.*—This mine has been worked by a party of tributers for the greater part of the year. A small parcel of 3 tons 1 cwt. 9 lb. of ore from a small leader was crushed, for 93 oz. 12 dwt. of gold.

#### KARAKA BLOCK.

*Poneke Nos. 2 and 3, Karaka Block.*—A considerable amount of work has been done on this ground in development and proving the value of the reefs that traverse the property, but this claim so far has not turned out as well as anticipated. A crushing of 32 tons treated at the Success Battery only gave a return of 11 oz. 5 dwt. of gold, and the mine is now protected.

#### PUKEMAUKUKU.

*Aitken's Freehold.*—There have been from three to five men continuously employed on this property, who have been employed in prospecting the reefs, which vary from 6 in. to 18 in. in thickness, and tests taken from the reefs have given fair results, but not sufficient to warrant the erection of a battery to treat the ore.

*Empress.*—This mine has been worked at intervals with two men, and a crushing of 3 tons of ore was treated, which gave a return of 3 oz. 5 dwt. of gold.

#### KAPANGA.

*Kapanga Mine.*—This company are still pushing on with the development of their mine, and have done a very large amount of work above the 500 ft. level. During the time the operations of the company were directed in prospecting the deep levels the workings above the 500 ft. level were neglected, and in consequence the drives, passes, &c., required in many places to be retimbered, which entailed a considerable amount of labour and expense before a fair start could be made here. In the early part of the year a good many tributers were employed in working on leaders above the 500 ft. level, some of which did remarkably well, but the company decided to work the ground themselves, and as the tribute agreements ran out they were not renewed. The company also bought out one of the parties so as to get the mine to themselves, to prevent the works being hampered that they had decided to carry out. Communication has been effected between the 400 ft. and 500 ft. levels on Scotty's reef, thereby opening up an extension section of the mine. The prospects of this block of ground on Scotty's lead are exceedingly encouraging. The company treated at their own mill 303 tons 11 cwt. and 382 lb., for 1,103 oz. 5 dwt. of gold, value £3,217 16s. 3d.; and the tributers crushed 38 tons 4 cwt. and 1,236 lb., for 1,604 oz. 4 dwt. of gold, value £4,680 7s. 6d. There has been an average of fifty-five men employed in the mine during the year.

#### KAURI BLOCK.

*Hauraki Gold-mining Company (Limited).*—The operations on the various leaders and reefs in this company's mine are being energetically developed, and, although the return has not been

quite as large as it was the previous year, it is sufficient encouragement for the management to push on with the development work, with the object of discovering another rich chute of gold; and the prospects met with from time to time lead the men that are acquainted with the nature of the gold-bearing country in this locality to believe that an important discovery may be made any day. The work during the year has been chiefly confined to that portion of the mine above the 400 ft. level, and the principal gold-producing reefs have been the cross-reef No. 2, No. 6 reef, and No. 2 reef at the adit-level. The reefs have been driven on for a distance of 1,524 ft., risen on 154 ft., winzes sunk 242 ft., and 4,565 ft. stoped out, from which 2,319 tons 3 $\frac{3}{4}$  cwt. of ore and 2,147 lb. of picked stone have been treated, for the excellent return of 6,208 oz. 14 dwt. of gold.

The old Union Beach section of the mine has been drained, the drives, passes, and other parts of the old workings timbered where required, and during the last few months a thousand pounds' worth of gold has been obtained and sold from this section of the mine. This has gone a long way to cover the working-expenses, which may be considered very encouraging, irrespective of any important discoveries that might have been made. There have been 102 men employed on the property.

*Bunker's Hill.*—This company's ground has been continuously worked during the year, employing on an average eight men. The work has been chiefly confined to the 270 ft. level, where gold-bearing leaders of a payable character have been discovered which are likely to pay the cost of opening up the level. During the last few months 160 lb. of picked stone has been treated, for 260 oz. 17 dwt. of gold; value, £783 1s.; which may be considered very encouraging, as the stone was obtained from the bottom level, where the leaders are intact for some distance.

*Welcome Find.*—Operations in this company's mine have been confined to working on the Just-in-Time reef and on other leaders at the No. 3 level. The Just-in-Time reef is about 20 in. in width, the quartz being of a kindly description for the precious metal. The drive is being extended westward on the above-named reef for the purpose of connecting the winze that is being sunk on the reef from No. 2 level. When this connection is made it will give good ventilation, and as an intermediate level is opened out from the winze it will give better facilities for working, and the stuff broken at the intermediate can then be passed down to No. 3 level, and thus save hauling the dirt up to No. 2 level with a windlass. The company has so far not met with the success they deserved for the amount of work that has been done. A crushing of 26 tons was lately treated, for 58 oz. 9 dwt. gold; value, £164 2s. 11d. An average of twelve men have been employed in the mine.

*Golconda Mine.*—This company's operations have been limited to developing the mine with three men, and confined to working on the No. 1 leader at the intermediate level. The leader is small, and consequently the amount of crushing-dirt obtained is not very great, and they are depending in a great measure on finding rich patches of specimens. They lately had a crushing of 51 lb. of specimens, for a return of 25 oz. 2 dwt. of gold, the value being £71 10s. 8d.

*Hauraki No. 2 Mine.*—Operations in this mine are now confined to working at the surface levels, but so far they have not been successful in discovering payable quartz, although the reef that is at present being driven upon, which is about 6 in. in thickness, is of a promising character for gold. Two men are employed.

*The Zealandia Mine.*—There has been very little work done in this mine during the year.

*Hauraki South.*—This company has done a considerable amount of work at the 150 ft. level during the year, but, not finding anything payable here, the operations at this level have been suspended, and the column of pumps taken out of the shaft. The operations are now confined to the surface levels, and most of it has been let on tribute. During the year the tributers crushed 29 tons, for 70 oz. 7 dwt. of gold; value, £218 1s. 8d. Twenty-two men are employed.

*Blagrove's Mine.*—Operations in this company's mine were vigorously carried on for the first eight months of the year, when the funds became exhausted, and the directors in England found it necessary to consult with the shareholders as to a reconstruction, to find money to carry out the works in progress and other contemplated works to prospect the mine. The mine is equipped with a first-class pumping-engine, with all the necessary appliances for raising the water, and a winding-engine, most complete of its kind, with all the safety appliances that are used for raising or lowering of men in the shaft. A considerable amount of work was done in the development of the property. The shaft was sunk a further distance of 48 ft., and enlarged below the 150 ft. level from 6 ft. by 3 ft. to 7 ft. by 4 ft. A good deal of driving has been done on Nos. 1 and 3 reefs, some very rich specimens being obtained in driving eastward on them, and at No. 2 level the No. 3 reef was driven on for some distance, and varied from 6 in. to 4 ft. in thickness, the country here being of a good description for gold-bearing lodes. Rich specimens were obtained, but not sufficient to pay. Some driving was also done on No. 2 reef in the old workings, and prospecting drives put in the spurs of the hill. There has been 521 ft. driven on the reefs and leaders, 2,351 ft. of stoping, 164 ft. of rises, 106 ft. of winzes, 510 ft. of cross-cut drives, and the main shaft sunk 48 ft. This company's claim comprises 128 acres, and the manager is Henry Battens, who had twenty-four men employed.

*Kathleen Crown.*—This company's claim comprises 92 acres; the manager is Henry Battens, who has had twenty-three men employed. The works that have been carried out during the year have been principally prospecting and opening up the mine. A large amount of work has been done on Argall's reef at the 200 ft. level, and, although the reef varied very much at times, yet it looked promising, as nice pieces of specimens were sometimes obtained, which led the manager to believe that something of importance would be found under the spot where gold was taken out on the surface, but, unfortunately, his hopes were not realised. Driving on No. 1 reef north and south has also been carried on for a considerable distance. In Thompson's section, operations have been continuously pushed forward on the various reefs and leaders that traverse this section of the mine and as gold was occasionally seen in No. 2 and 3 reefs the prospects looked encouraging and an



important find was daily expected here. During the month of June the sinking of the main shaft was resumed, the work being let on contract. The cost of sinking 100 ft. was £522 10s., and the total depth of the shaft is now 305 ft. A chamber is cut out and timbered at a depth of 250 ft., and another chamber at what is termed the 300 ft. level; and driving is now proceeding at the latter level for the purpose of intersecting the reefs, and as the country is more favourable at this level it is fully expected payable ore will be met with when the reef is cut.

*The Golden Pah.*—This company have now got their winding and pumping plants completed, and everything in connection with the mine is now in good order. Development works are in progress on the various leaders that traverse the mine at the 60-ft., 80-ft., 130-ft., and 193-ft. levels. The Pacific and road levels have been driven a distance of 3,500 ft. The prospects of the mine look more promising than they have done for some time, as during the last four months 35 tons of ore and 57 lb. of picked stone have been treated for 104 oz. 4 dwt. of gold, and value £312 12s. There have been thirty-one men employed in the mine.

*Hauraki Main Lodes.*—This company did a large amount of prospecting work in the shape of driving at the 180-ft. level of their shaft, but, not being successful in discovering any payable lodes, they decided to stop operations for a time, and then applied to the Warden for absolute protection.

*Kathleen Mine.*—This company has done some excellent prospecting work, and, although they have so far not been successful in finding payable ore, yet the shareholders have every confidence that something good will be found, as the claim is well situated, being in close proximity to where the rich chutes of ore have been taken out of the Hauraki Company's Mine. The principal development work in progress at present is the sinking of the shaft, which is nearly down to where the 300-ft. level is to be opened out; and a crosscut is being driven easterly at the 200-ft. level, where the manager hopes to meet with something of importance.

*Hauraki North.*—This company has three men at present employed sinking a winze on the Hauraki North reef, from the surface, but no important discovery has been made. There has been very little work done in this mine during the year.

*Trig Hill.*—This ground has been worked by a party of tributers, at the surface levels, who crushed a parcel of 4 tons for 8 oz. 14 dwt. of gold. Two men were employed.

*Wynyardton Mine.*—This ground has been worked the greater part of the year by a party of four tributers, who have crushed 31 tons of ore for 52 oz. 11 dwt. of gold, value £153 5s. 4d.

#### PREECE'S POINT.

*Preece's Point Mine.*—In the early part of the year the company had men on the engine pumping the water out of the mine, but for several months past there has been little or no work done, pending the reconstruction of the company to raise capital to develop the property.

*The Golden Shore.*—There was a considerable amount of work done by this company in the beginning of the year, but after sinking the shaft to a depth of 137 ft., and trying the reef at this level and the 75 ft. level, a crushing of 6 tons of quartz treated only gave 2 oz. 16 dwt. of gold, and, this not coming up to their expectations, work was suspended for a time.

#### Opitonui.

*Kauri Freehold Gold Estates.*—This company have done a very large amount of work on the different sections of the property. In the Lanigan section an adit-level has been driven on the reef for a distance of 1,600 ft., the reef varying from 3 ft. to 7 ft. in thickness, and what is termed "Lanigan's shaft," near the mouth of the above-named drive, has been sunk to a depth of 250 ft., and from this shaft three levels have been opened out. The works in progress are: Driving east and west at No. 3 level to intersect the reef, carrying a stope on the reef along the back of No. 2 level, and sinking a winze from No. 2 to No. 3 level on the reef. In the Hilda section an adit-level has been driven on the reef for a distance of 800 ft. The average thickness of the reef in this drive is 6 ft. A stope is being carried along on the back of this level, rails are being laid down, and other preparations are being made for stoping out the reef above this level, and shafts have been put down on the reef from the surface to this level to be used for running down stuff to fill in the stopes. In the Maiden section a shaft has been sunk to a depth of 150 ft. and two levels opened out from it—No. 1 at a depth of 65 ft. from the surface, and No. 2 at a depth of 125 ft. The reef is cut in No. 1 level and driven on 25 ft., the reef here being about 3 ft. 6 in. in thickness. A crosscut is being driven at No. 2 level for the purpose of intersecting the reef; No. 2 adit-level has been driven on the reef for a distance of 600 ft. and this reef will average 5 ft. 6 in. in thickness. Carvell's section: The reef that runs through this section is considered a cross-lode, which strikes from the Maiden reef to Lanigan's. A shaft has been sunk on this section to a depth of 70 ft., and a drive put in on the reef at the 70 ft. level for a distance of 300 ft. This reef is about 4 ft. in thickness. The work had to be suspended here for a time on account of the temporary pumping-plant not being capable of competing with the water, and in consequence more powerful machinery is being erected. The forty-stamp battery and gold-saving appliances will be completed in the course of another month, and as the mill is connected with the mine by a light railway for conveying the quartz from the mine to the mill, and as hoppers and everything are ready at the mine, no time will be lost before crushing is commenced.

#### KUAOTUNU.

*Mariposa Mine.*—This company's claim comprises 101 acres, and there has been an average of thirty-three men continuously employed during the year. A considerable amount of prospecting and development work has been done on the property, from the low level up to the outcrop of the reefs, a height of 460 ft. There has been 1,127 ft. of driving done, 129 ft. of sinking, 279 ft. of rises, and 2,944 ft. of stoping during the year. The principal work in progress is the sinking of the

main shaft from the low level, which has now attained a depth of 100 ft., and it is expected that a further distance of 50 ft. of sinking should intersect the junction of the No. 2 and Fluke reefs, but it is the manager's intention to open out a chamber at a depth of 100 ft., and drive for the No. 2 and Fluke reefs at that level. At the top of the shaft a large chamber has been cut out of the rock in which the pumping and winding machinery is erected, and near the centre of the claim, being 750 ft. in a north-easterly direction from the main cross-cut that was driven conjointly by the Kapai-Vermont and this company. The smoke is carried direct from the furnace of the boiler up to the surface, a distance of 300 ft., through a steel pipe-flue, which is suspended in the centre of a rise by iron yokes, the whole being air-tight to prevent any smoke finding its way into the workings. The whole of this work has been carried out in a most efficient and careful manner, and reflects credit on the management of the mine. The Try Fluke and Eastern reefs that have been operated on this year have varied from 18 in. to 5 ft. in thickness, and have produced 2,812 tons of ore, and, on being treated by the amalgamation process and cyanide process, gave a return of bullion to the value of £3,740. The prospects of this company look more promising than they have done for some time past, and, should the reefs at the low level yield as high a percentage of the precious metal as was obtained from the quartz won from the upper levels, the shareholders will have a fair chance of being recompensed for the money it has cost in opening up the mine.

*Kapai-Vermont.*—The operations in this company's mine have been of a very limited nature for the greater part of the year, the ground being partially protected. Two and sometimes three men were employed to repair the drives and do a little surface prospecting. The company's affairs have been for some considerable time in a very unsatisfactory condition, but the property has now been sold, I am informed, to an English company, who are going to lose no time in commencing work to open up the reef below the main adit-level, from which excellent returns were obtained in the floor of the drive.

*Great Mercury Mine.*—This company's claim comprises 34 acres, and there has been an average number of eighteen men employed on the property during the year. There has been 629 ft. of driving done in the reef and 470 fathoms of the reef stoped out, from which 1,202 tons of quartz has been treated by the wet amalgamation process, for 518 oz. 18 dwt. of gold, value, £1,237 18s. 2d.; 1,065 tons of tailings treated by the cyanide process, for 633 oz. 2 dwt. of gold, value, £1,299 7s. 5d. The operations in the mine have been carried out satisfactorily and with a fair amount of success; but, as the affairs of the company have been very complicated, the directors found it necessary to sell the property, and in consequence it was sold on the 27th March to Mr. J. Craig, of Auckland.

*Waitaia Mine.*—This company has done a large amount of development work in the shape of opening up the reefs and leaders that have been intersected at the different levels, and the following are some of the works carried out during the year:—Geard's level, north on the Blue-face reef, has been extended a distance of 50 ft. This drive is in a total distance of 285 ft. from the cross-cut, 85 ft. having been driven on the Blue-face reef and 200 ft. on No. 5 reef, and the same level has been driven south on the reef for a distance of 282 ft. The drive on No. 3 reef, at the Smithy level, has been extended a distance of 70 ft., and is now in a distance of 117 ft. A winze has been sunk on No. 3 reef from Barrett's level to a depth of 55 ft., and a rise put up from the Smithy level, to meet the bottom of the winze, to a height of 60 ft. This is considered a good block of ground, as payable crushing dirt was obtained from the top of the winze to the bottom of the rise, a distance of 110 ft., and the reef will average 9 in. in thickness throughout. The No. 3 reef has been driven on at No. 4 level for a distance of 30 ft., making the total distance driven on the reef 516 ft., the ore broken out in this drive for the whole of the distance being of a payable character. No. 4 level cross-cut has been extended 10 ft. This drive is now being put in for the purpose of intersecting any reefs or leaders that may traverse the eastern portion of the property. No. 5 level south has been extended on the reef for a distance of 166 ft., and is now in a total distance of 577 ft. The reef has varied from 3 in. to 3 ft. in thickness, and gold has been frequently seen in breaking out the quartz. In the north drive at this level the No. 3 reef has been driven on 90 ft. and No. 5 reef driven on 88 ft. A rise has been put up on this reef from No. 5 to No. 4 level, a distance of 150 ft., and an intermediate level is now being driven 70 ft. up the rise for the purpose of proving the block, and to be in a position to work out the reef to more advantage. There are various other works done in this mine, but too numerous to mention. The company contemplates erecting a crushing-plant to treat the ore as it is won from the mine, but the kind of crushing-plant has not been decided on yet. During the year 112 tons of ore has been treated for 171 oz. 6 dwt. 4 gr. of gold, value £432 2s. 4d., and on an average eighteen men have been employed.

*Irene Mine.*—This company's mine has been protected for the greater part of the year. In the month of May a crushing of 163 tons of ore was treated, when 91 oz. of gold was obtained by amalgamation and 43 oz. 10 dwt. by the cyanide process, the value received for the gold being £283 1s. 1d.

*Aorere Mine.*—This company has done very little work on their own account during the year, but the mine has been let to a party of four tributers, who have confined their operations to driving and stoping on the Aorere reef at the low level. The average thickness of the reef is about 9 in.; but the quartz has to be carefully selected before it is sent to the mill, as a good deal of it is not of a payable character. The tributers have had 89½ tons of ore crushed and treated, from which they obtained £246 16s. 7d. for the bullion by amalgamation and £253 13s. 11d. by the cyanide process.

*Handsworth Mine.*—This claim comprises 5 acres, and adjoins the Irene. It is owned by Lewis Woodcock, who works the mine with two men. The low-level cross-cut is in a distance of 340 ft., and in this drive several leaders have been intersected, varying from 1 in. to 4 ft. in thickness, all carrying gold; and in driving on what is termed No. 2 leader very good picked stone is frequently obtained. A parcel of 170 lb. of stone was treated in the month of January last, which

gave a return of 107 oz. 10 dwt. of gold. The owner now contemplates erecting a small battery, with the object of working the mine on a larger scale.

*Juno Mine.*—This property is being worked by a party of tributers. Two men are employed in driving on small leaders near the surface, and who lately put through the battery a small parcel of  $3\frac{1}{2}$  tons of quartz and 2 lb. of picked stone for 10 oz. 5 dwt. of gold.

*Lucky-hit Mine.*—In this mine two men are employed, who last month put through the battery half a ton for 3 oz. 11 dwt. of gold.

*Royal Rose Claim.*—A small parcel of 4 lb. of picked stone was lately put through the battery for 1 oz. 5 dwt. of gold. Two men are employed.

*Moonlight Claim.*—In this claim two men are employed, and 27 lb. of stone was lately crushed for 14 dwt. of gold.

In the early part of the year a little work was done in the Phoenix, Ajax, Mint, Golden Anchor, and Prospect Mines.

#### MERCURY BAY.

*White Brothers' Claim.*—This property comprises 30 acres, and is situated about four miles from Mercury Bay on the old track to Opitonui. A good deal of work has been done on this claim during the last five months. A cross-cut drive has been put in from the side of the hill for a distance of 85 ft., and two gold-bearing leaders cut. A trial crushing has been put through from the leader that was intersected 67 ft. in the drive, and from  $2\frac{1}{2}$  tons of ore treated 6 oz. 14 dwt. of gold was obtained. Those leaders vary from 3 in. to 9 in. in thickness. A low level has also been driven a distance of 40 ft., and a reef 7 ft. in thickness cut through in the face of the drive. The stone when crushed up fine and washed off in a tin dish gives fair prospects of the precious metal. The owners intend to try and get a syndicate to put in money to prospect and open up the reefs before forming into a company.

*Colorado Mine.*—This mine is situated close to White Brothers' claim, and has been partially protected and is worked by two men. There is about 50 tons of quartz stacked at the mouth of the drive, broken from a reef about 2 ft. in thickness, which is said to contain gold in payable quantities. A five-stamp battery was purchased to treat the ore, but it has not been erected yet.

There are a few men prospecting in Mahakirau, and some in the Kauri Timber Company's leases above Gum Town, and from the latter place it is rumoured something important has been discovered.

#### MATARANGI DISTRICT.

*Matarangi Mine.*—This mine was worked for some time by Noble and party of five tributers, who put through a parcel of 27 tons of ore for a return of 4 oz. 15 dwt. of gold. This not being payable, the tribute was given up, and the battery that was erected on the mine has been sold and removed to Morototo.

#### TIKI.

Mining operations during a part of the year were more active than usual, several of the claims being prospected, but so far no payable discovery has been made.

The Pahutu and Matawai Mines were worked for some time by the Hauraki Development Syndicate, who obtained fair prospects, gold being frequently seen in the quartz, which gave the syndicate sufficient encouragement to erect a small two-stamper battery to crush the ore on the claim, and thus save carting the quartz a considerable distance; but after treating some of the quartz, which was not payable, crushing was stopped. It is considered that the best gold will be found on the deeper levels, as the best quartz obtained was from a winze sunk on the lead at the low level; but as there was a large quantity of water here to contend with work was stopped. 50 tons 13 cwt. of ore was treated for 32 oz. 19 dwt. of gold. An average of eight men have been employed.

*Coromandel Freehold.*—Work has been carried on in this mine for the greater part of the year on the different reefs that were operated on some years ago, and from which good payable ore was obtained. The present company have so far not been successful in discovering any rich chutes of ore, although a good deal of prospecting has been done on the different reefs, that vary from 9 in. to 4 ft. in thickness. A trial crushing of 5 tons treated at the Thames gave a return of 1 oz. 15 dwt. of gold. From three to ten men have been employed.

*Progress Castle Rock.*—This mine has been continuously worked, the principal work being the extension of a low level to intersect the reef, which has now been accomplished, and a connection made by a winze sunk on the reef from No. 3 level. This will give good facilities for opening up the block of ground between Nos. 3 and 4 levels. At No. 3 level the reef is about 2 ft. in width, and has been driven on for a distance of 380 ft., and the quartz tested from here is said to be worth from £4 to £5 per ton. The company contemplates erecting a battery near the mine, and a road has been made for the purpose of getting the machinery on to the site. There have been six men employed.

The Pukewahau, Royal Mint, Prospero, Pride of Hauraki, Magnet, Specimen Hill, and Butterfly have carried on prospecting operations intermittently, but nothing that may be considered payable has yet been discovered in any of the above-mentioned mines.

#### MANAIA.

The mines taken up in this part of the field are at a standstill at present, but during the early part of the year a little prospecting was carried on in the Golden Hill Extended, British Fleet, and Little Minnie Claims, but, as nothing of importance was discovered in any of the mines, work was stopped.

#### THAMES DISTRICT.

*Mata.*—There was a little prospecting carried on in this locality in the early part of the year on the Mata and Sisters Claim, but no returns have been made.

## TAPU.

*Mahara Royal.*—This ground is held by an English company, who have done a large amount of work in developing the different reefs discovered on the property. In the early part of the year operations were directed in extending the low level, driving and stoping on the Royal reef at No. 3 level, and driving on the foot-wall of the Fluke reef. In the low level the reef has now been intersected and driven on for a distance of 50 ft. The reef varies from 5 ft. to 8 ft. in width, the quartz being of a very kindly description, and assay-tests taken from time to time have given good payable results. In the Fluke section a cross-cut is being driven to cut the Fluke reef, and is now in a distance of 137 ft. The reef is expected to be intersected now at any time. The Shannon ground has now been acquired by this company, and in this section an adit-level has been driven to intersect the Shannon reef, and this reef is now being driven upon and looks most encouraging, as gold can be seen in the quartz as it is broken out. The company have had an additional ten-stamp battery erected, which is now completed and has started crushing. This is a very complete battery, and comprises twenty stamps and sixteen berdans. The company is now in a position to treat a large tonnage of ore, and, as the reefs met with in the low levels are good, the prospects of the company for the year now entered upon may be considered exceedingly encouraging. The company crushed 2,488 tons, for 1,556 oz. 9 dwt.; value, £4,230 15s. 9d. An average of thirty-three men were employed on this property during the year.

*Sheridan Mine.*—Operations were carried on continuously till the month of January, when work was stopped. The company did a large amount of prospecting work in opening up the reefs at the different levels. At the low level a rise was put up on the reef to a height of 195 ft. to connect with No. 3 level, which was the means of giving good ventilation throughout the workings, and opened up a considerable block of ground on the reefs. The reefs varied from 3 ft. to 6 ft. in thickness, but the quartz crushed did not produce sufficient gold to cover the working-expenses, and last month the mine and battery were sold. 276 tons of ore was treated for 105 oz. 17 dwt. of gold. Nine men were employed.

*Little Jessie Mine.*—A good deal of work of a prospecting nature has been done on this claim during the year, and a parcel of 32 tons of quartz treated gave 4 oz. 11 dwt. of gold. Two men were employed.

Prospecting operations have been carried on in the City of Santa Rosa, Golden Horn, Comet, and Golden Point Claims. Small parcels of ore were treated, but not any of a payable nature, and so far nothing of importance has been found in those claims.

## WAIOMO.

*Monowai Mine.*—This mine has been continuously worked during the year, and a considerable amount of money has been spent on ground tramways, water-races, additions and alterations to battery and cyanide plant. Experiments have been carried on for some time to ascertain the best method for the treatment of the ore, it having been tried by amalgamation and concentration; but, the trials not being satisfactory, the cyanide process is again being tried, and, it is said, with better results. This is to be adopted, and the plant fitted up for the cyanide process. In the Monowai section, the reef at No. 3-B level is a very large body of quartz, and has been driven on the foot-wall side of the reef for a distance of 680 ft. Cross-cuts have been put through the reef in several places in this drive, and found to be from 25 ft. to 30 ft. in thickness. Rises have been put up, and connections made with No. 2 level. This has given good ventilation, and provided facilities for working out the blocks of ground to good advantage, as the quartz from the upper levels can now be run down the passes to the low level, which is connected with the battery by a ground tramway and run into the mill, a distance of a mile and a quarter. In the Gem section, the Crown and Gem reefs have been opened up to a considerable extent, but the quartz crushed from here was low grade, and not payable. This section has also been connected with the battery by a ground and incline tramway three-quarters of a mile in length. 963 tons of ore has been treated for 126 oz. 4 dwt. of gold, value £347 1s. Forty men have been employed.

*Broken Hill Mine.*—This mine has been continuously worked. In the early part of the year operations were confined to opening up the reef at the No. 1 and No. 2 levels, where there is a well-defined body of quartz, from which, it is said, payable assay tests have been obtained. The work in progress at present is cleaning out and retimbering the low level which has been standing for some time and has partially collapsed. From two to four men have been employed in this mine.

*Comstock and Paraquet.*—A little prospecting work has been done on those mines at intervals, with two and four men on each, but nothing of importance discovered.

## PURU.

*Puru Consolidated.*—A large amount of work has been done on this property in developing the reef at the different levels. In the No. 1 level the reef has been driven on for a distance of 386 ft., which varies from 1 ft. to 2 ft. in width; and in the No. 2 level the Rimu reef has been opened up to a considerable extent, stoping operations done, and rises put up to No. 1 level, a height of 70 ft. Crushing was carried on from the month of June till December, but it was found there was not sufficient gold in the quartz to pay, and in consequence the battery was stopped. 944 tons of general dirt and 20 lb. of picked stone was crushed, for a return of 163 oz. 1 dwt. of gold; value, £489 3s. There have been seven men employed on the property.

Prospecting operations were carried on for a time with two men on the Big Reef Claim, but nothing of a profitable character discovered; and most of the other claims taken up in this district have been abandoned.

## TARARU.

*Tararu Creek Mine.*—This company has done a very large amount of work during the year, and operations on the reef are being vigorously proceeded with. The main adit level, which has been put in on a level of the battery, has been driven a distance of 2,700 ft. At this point a break was met with, and a rise was put up on the reef, alongside of the break, to a height of 103 ft., which is used as a travelling-way, and a pass to run the quartz down from the upper levels, the rise being partitioned off into three compartments. The City of Dunedin level has also been driven from the Tinkers' Gully side of the hill for a distance of 1,550 ft. The drive is being extended on the reef at this level, and stoping carried on over the level for a length of 500 ft., and to a height of 90 ft., and is about 4 ft. in width, from which an ample supply of ore is obtained to keep the mill constantly employed. The low-level adit has been extended a distance of 300 ft. from the bottom of the main pass through the break. The reef was not picked up through the break until some considerable distance had been driven, but a body of quartz has been met with which is supposed to be the main reef. All the necessary plant has been fitted up for working rock-drills in the drives and stopes with compressed air. When the rock-drills have been fairly started a large saving should be effected to the company, as the quartz should be broken much cheaper than it can be done by hand labour. Since the connection has been made with the upper workings from the low level a considerable saving has been effected in the transport of the ore to the battery, which is now conveyed to the mill at a small cost in trucks drawn by a horse, delivering from 55 to 65 tons daily. The systematic manner in which the mine is worked, and the cheap transit of the ore to the mill, has placed the company in a more advantageous position to work their property. The ore is treated by wet crushing and amalgamation, the tailings being treated by the cyanide process. 8,479 tons of quartz has been crushed, for 3,637 oz. 9 dwt. of gold; value, £8,985 15s. 10d. One hundred and twenty men are employed in the mine and battery.

*The City of Auckland Mine.*—There has been little work done on this mine during the year, but the Tararu Creek Company have now got an option over the property, and they will no doubt do some work to ascertain the value of the reefs.

*Iron Cap (late Kaiser) Mine.*—This company has done a large amount of work in opening up the reefs at the different levels, several hundred feet of driving having been done. The work at present is confined to driving on the Kaiser reef at the No. 2 level. This drive is in a total distance of 500 ft., 220 ft. having been driven on the reef, which varies from 4 in. to 18 in. in thickness, the quartz being of a kindly description, containing a large percentage of iron pyrites and other minerals which are considered favourable for the precious metal. A trial parcel of 12 tons of ore was treated at the Moanataiari battery, for a return of 5 oz. 12 dwt. of gold. Six men have been employed.

*Scandinavian Mine.*—This mine was worked in the early part of the year by a party of tributers who had 82 tons of quartz treated from the different reefs at the company's battery, which gave a return of 17 oz. 7 dwt. of gold; value, £44 14s. 6d. This not being payable, work was stopped and the property sold.

*Argosy Mine.*—There has been very little work done on this property during the year.

*Chicago Mine.*—This company did a considerable amount of work in the early part of the year. A ten-stamp mill was erected, water-race constructed, and tram-line laid from the mine to the mill, and a good deal of development work was done on the reefs in the mine. When the mill was completed, 156 tons of ore was crushed, for a return of 26 oz. 13 dwt. of gold, but, this being disappointing, the yield not coming up to expectations, the work in the mine was stopped and application made to the Warden for protection.

*Eclipse Mine.*—This company, in the beginning of the year, did a large amount of work on the reef at No. 3 low level. The reef in this drive varied from 3 ft. to 8 ft. in thickness, from which 106 tons of quartz was crushed, for the payable return of 136 oz. 16 dwt. of gold; value, £396 14s. 4d. This yield having exceeded their expectations, the company at once decided to erect a battery to treat the ore as it is won from the mine, instead of stacking the quartz on the surface, and at present the following works are in progress: A ten-stamp mill is being erected; water-race constructed, and nearly completed, and an aerial tramway is in the course of construction for the purpose of conveying the quartz from the mine to the mill, a distance of a mile and a quarter. There is a slight hitch with the contractor for carrying out the latter work, but, apart from this, the battery should be completed in two months' time. A shaft is being sunk, and is now down a depth of 80 ft. This is being put down for the purpose of opening up the reef, and an engine and poppet-head is put up, and everything in connection with this plant is nearly completed. The company deserves great credit for the manner in which they are developing the property, and it is to be hoped the shareholders will be handsomely rewarded for the money it has cost.

*Shellback Creek.*—Very little work has been done in this locality during the year. The Waitangi, Thames Special, and Mabel Claims have been worked intermittently, but nothing of importance has been discovered.

## KURANUI.

*Kuranui Mine.*—This mine was worked by tributers in the beginning of the year, who treated 125 tons of ore from the surface levels for 89 oz. 5 dwt. of gold, value £194 11s. 5d.; but at present there are only two men working in the ground on tribute. The company have nine men employed on wages who are engaged driving a cross-cut from the bottom of a shaft which has been sunk 51 ft. on the flat near the company's battery. This drive is being put in for the purpose of intersecting the continuance of Hunt's or any other of the Long Drive leads that may traverse this part of the property.

*Kuranui Caledonian Mine.*—This company did a large amount of work in the beginning of the year from the Caledonian Shaft, at Nos. 1, 2, 3, and 4 levels, on the different reefs and leaders that have been cut in their mine, but, being unfortunate in not finding gold in sufficient quantities in the reefs or leaders to pay, they determined to stop operations on their own account, and have since let a great portion of the mine on tribute. There are at present sixty men engaged working out blocks of ground on tribute on the various leaders in the mine. The company crushed 180 tons 10 cwt. of ore and 144 lbs. of picked stone, for a return of 204 oz. 16 dwt. of gold, value £550 4s. 10d.; and the tributers crushed 412 tons of general dirt and 795 lbs. of picked stone, for 1044 oz. 18 dwt. of gold, value £2,792 4s. 2d.

## MOANATAIARI.

*Moanataiari Mine.*—This company did a very large amount of work the first six months of the year in the Point Russell and Cambria sections of the mine, but the quartz that was treated from the reefs at their own battery proved very disappointing, and in consequence the company were reluctantly compelled to reduce the number of men they had employed on wages. During the latter part of the year the company's operations have been chiefly confined to developing the Cambria reef from a low level which is connected with the Moanataiari shaft. Thirty-four wages-men are employed by the company. A large portion of the mine is now let on tribute on the various reefs and leaders from the No. 3 level to the surface, and some of the tributers are meeting with a fair amount of success. During the year the company crushed 3,102 tons of ore, from various parts of the mine, for 1,367 oz. of gold, value, £3,844 7s. 9d., and the tributers crushed 1,049 tons of general dirt for 1,811 oz. 11 dwt. of gold, value, £4,588 0s. 10d. Seventy-three men are engaged tributing on the various leaders.

*New Alburnia Mine.*—This company has consistently employed a large number of men in developing their mine, but, so far, have been unsuccessful in meeting with any important discoveries, which is to be regretted, as the company has spent a large sum of money in opening up the mine. The company erected a powerful winding-engine and poppet-legs for the purpose of proving the reefs at deeper levels. The shaft has been sunk a total depth of 633 ft., and a cross-cut has been driven from the Sons of Freedom level to connect with the shaft at a depth of 603 ft. This has given good ventilation, and a considerable saving will be effected by having only to raise the water that is met with in the shaft at a depth, to this level, instead of having to pump it to the surface. Stopping operations have also been carried on at the No. 4 and No. 5 levels on the Dickson and Sons of Freedom reefs, which would average 3 ft. 6 in. in thickness, but the quartz treated did not prove payable. One thousand three hundred and eighty-five tons of general dirt and 30 lb. of picked was crushed, for a return of 252 oz. 19 dwt. of gold; value, £659 14s. 3d. Twenty-eight men were employed.

*Tudor Mine.*—Two men are employed driving on the Bendigo reef, who had 7 tons of quartz crushed, for 7 oz. 6 dwt. of gold.

*Darwin Mine.*—From two to four men have been employed in this mine driving on a reef at the low level, and 8 tons of quartz was crushed, for 7 oz. 10 dwt. of gold.

*Freedom Mine.*—Two men are employed in this mine, and 11 tons of quartz was crushed, for 10 oz. 6 dwt. of gold.

*Golden Drop (late Londonderry) Mine.*—Two men are employed in this mine, who are working on a small leader, from which they have crushed 3 tons of quartz, for a return of 16 oz. 6 dwt. of gold.

Work has also been carried on intermittently in the New Whau, Moanataiari North, and Orlando Mines.

## GRAHAMSTOWN.

*Victoria Mine.*—The operations in this company's mine have been limited. At No. 1 level a cross-cut has been driven a distance of 271 ft. in a north-westerly direction from the shaft, with a view of intersecting any leaders that might traverse this section of the mine. A small leader was cut through at a distance of 107 ft. This was driven on, but nothing of importance was discovered, and the work in this direction was stopped. Stopping operations were carried on for a time on the Victoria reef, above No. 2 level, but as the quartz crushed from here did not prove payable the work was suspended. At the intermediate level between Nos. 2 and 3 levels a good deal of stopping was done on the Victoria reef, but the quartz treated did not prove payable. 131 tons of quartz have been crushed from this mine, for 58 oz. 17 dwt. of gold; value, £158 17s. 10d.

## WAIOTAHU.

*Waiotahi Mine.*—This mine is still being steadily worked, and sufficient gold is being obtained from the quartz crushed from the various leaders operated upon to cover the working-expenses and pay the regular dividends, which must be very satisfactory to the shareholders. 1,090 tons of quartz were treated during the year, for 1,653 oz. 16 dwt. of gold; value, £4,571 5s. Sixteen men have been employed in the mine.

*Nonpareil Mine.*—This mine has been continuously worked during the year. The company has had six men employed on wages, the work being chiefly confined to the Wade reef, from which 34 tons of quartz have been crushed, for 208 oz. 11 dwt. of gold. There have also been ten tributers working in the mine for the greater part of the year on the Liverpool and Wade reefs, who crushed 154 tons of ore, for 234 oz. 15 dwt. of gold; value, £642 11s. 6d.

*Hauraki Golden Age Mine.*—A considerable amount of work was done in this mine in the early part of the year on the different reefs. The new forty-stamp battery was completed, and an aerial tramway was in course of construction for carrying the quartz from the mine to the mill, when some monetary difficulty arose and all work was stopped, and the mine was then protected. However, work has again been resumed under the management of Mr. E. K. Cooper, who has

started driving on the reef from the Point Russell section of the Moanataiari Mine; and prospecting is also carried on in the Golden Age section. A trial crushing of 225 tons was put through the battery last month from the mullock-tip, which gave a return of 30 oz. 1 dwt. of gold; value, £81 2s. 8d. Ten men are employed on the property, although the mine is protected.

The West Coast, Infant, Little Muriel, and Little Maggie Mines have had from one to two men employed, but the quartz treated and gold obtained during the year has been very limited.

#### WAIOKARAKA.

*May Queen-Hauraki.*—This company have done a considerable amount of work during the year. The May Queen shaft has been enlarged from the surface to 12 ft. 5 in. in the clear down to the present Big Pump drainage level, a depth of 520 ft., and the shaft is now being sunk below the 520 ft. level, and is down 44 ft.; but it is the company's intention to sink other 56 ft. before opening out the next level, which will give a large block of ground on the reef to be operated upon. New poppet-head and other things in connection with the winding-gear have been erected over the May Queen shaft, and a Lancashire boiler put in position for the purpose of working the air-compressor for rock-drills; also a Cameron pump put in the shaft, to be used in case of emergency. In the Saxon section a winze is being sunk on the No. 1 lode from No. 6 level, which is now down a depth of 25 ft., the country being perfectly dry, which is a proof the water must be drained off by the Thames-Hauraki pumps. Should no water be met with in this winze, it is the manager's intention to sink another winze at the junction of the No. 1 and new lode, to more fully prove the value of the lodes in this section of the mine. In the Saxon and Cardigan sections of the mine the No. 1 and No. 2 lodes have been operated upon at the different levels, but for some time past chiefly by tributers. The company during the year crushed 2,139 tons of ore for 1,866 oz. 10 dwt. of gold, value £5,887 14s. 5d.; and the tributers have crushed 199 tons of ore, for 351 oz. of gold, value £963 15s. 6d. From the Cardigan section the company had 112 tons 10 cwt., treated for 245 oz. of gold; value, £648 0s. 9d. The tributers in the same section crushed 97 tons 10 cwt., for 121 oz. 11 dwt.; value, £331 12s. 4d. Twenty-three wages-men employed and thirty-four tributers.

*Thames-Hauraki.*—Since the erection of the pumping-plant good progress has been made with the stripping and enlarging of the shaft. Previous to the completion of the pumps the shaft had been timbered down to a depth of 420 ft., or drainage-level, and since then it has been timbered down a further distance of 136 ft., or a total depth of 556 ft.; but there is still 194 ft. to be enlarged and retimbered before the bottom of the old shaft is reached. At a depth of 327 ft. a large chamber has been made, and two cisterns placed in position, where the first set of plungers work from, which are supplied with water from the bottom of the shaft by two double-action Cameron steam-pumps, it being considered more convenient to use those pumps until the bottom of the old shaft is reached than by putting in the large draw-lift. The No. 8 chamber has been retimbered, and work will soon be commenced here with a view of trying the Vanguard reef at this level. Deep-Sinker Section: Work has been vigorously carried on in this section of the mine. The eastern cross-cut was extended a distance of 390 ft., but, the country not being of a favourable description, it was deemed advisable to suspend work in this drive for a time. The northern cross-cut is being pushed on with all possible speed for the purpose of intersecting the Una and Vanguard reefs, and is now in a distance of 790 ft. from the shaft. The country has been of a very hard description, and nothing of importance has been discovered, but it is expected the Una may now be met with at any time. In the Deep-level Consolidated section very little work has been done during the year. A small parcel of  $7\frac{1}{2}$  tons of quartz was treated from the Thames-Hauraki section, for 5 oz. 11 dwt. of gold; value, £14 14s. 2d. There are fifty men employed on the Thames-Hauraki section, and thirteen men in the Deep-sinker section.

#### KARAKA.

*May Queen Extended.*—Operations in this mine have been confined to driving on the Hague Smith reef for the purpose of intersecting any cross leads that might strike into the reef, as it is generally where leaders run into the reef that gold is obtained, but so far nothing of importance has been discovered. 33 tons 10 cwt. of quartz was treated, for 19 oz. of gold; value, £28 4s. From two to four men have been employed.

*Adelaide Mine.*—This mine was protected in the beginning of the year, but has latterly been worked by tributers, who crushed 18 tons 10 cwt. of quartz, for 12 oz. of gold; value, £36; and last month the mine and plant was advertised for sale. Four men have been employed on this property.

*Claremont Mine.*—This is one man's ground, and is worked by the owner, George Bryant, whose whole attention is directed to working the reef and the small flinties striking into where he states rich specimen stone is obtained. During the year he treated 345 lb. of stone, for 255 oz. 9 dwt. of gold; value, £689 14s. 3d.

*Manchester Mine.*—This mine has been worked by tributers most part of the year, who crushed 43 tons of quartz, for 40 oz. 8 dwt. of gold. Six men were employed.

*Gloucester Mine.*—There has been very little work done on this mine during the year. The shaft which was sunk last year, on which it was intended to erect pumping- and winding-machinery, has been at a standstill, and the work that has been done has been confined to prospecting the reefs at the surface-levels. 1 ton of general dirt and 86 lbs. of stone were treated, for 29 oz. 17 dwt. of gold; value, £90 3s. 10d. Three men were employed.

*Karaka (Limited) Mine.*—This mine has been continuously worked during the year. The drive on No. 2 reef has been driven a distance of 150 ft. from the junction of No. 1 and No. 2 reefs, and the reef has run from 3 ft. to 8 ft. in thickness. It is a good feature in this reef that where the best gold is obtained is at the places where the reef is thickest, and lately the prospects met with on this reef are more encouraging than they have been for some time past. The eastern

cross-cut has been extended a distance of 240 ft. The country in this drive is very tight at present, but a change for the better is looked for at any time. 100 tons of quartz was crushed, for a return of 27 oz. 11 dwt. of gold; value, £80 18s. 6d. Thirteen men have been employed.

Prospecting work has been carried on in the Karaka Queen, McIsaac's, Rose, and Duplex Mines, one and two men being employed on each mine.

#### UNA HILL.

*Occidental Mine.*—The North Star low level cross-cut has been extended a distance of 157 ft. with a view of intersecting the well-known Loyalty and Hague Smith reefs. Since the last-mentioned reef was cut it has been driven on for a distance of 90 ft., and most favourable prospects met with. Stopping operations have also been carried on on the North Star leader, and a good deal of prospecting has been done on the reefs at the upper levels. 89 tons 10 cwt. of quartz has been crushed, for 84 oz. 4 dwt. of gold; value, £227 6s. 10d. Seven men have been employed.

#### HAFE CREEK.

*Hauraki Fortuna Mine.*—In the beginning of the year a considerable amount of work was done in opening up the reefs in the surface levels on the Gibraltar, Magnolia, and Jupiter reefs, and in which a little gold was frequently seen in the quartz. The Gibraltar reef was driven on for a distance of 200 ft. at the No. 1 level, and a winze sunk on the foot-wall of the lode to No. 4 level, and, as the indications met with in this reef were of a favourable character, the company decided to erect a small pumping- and winding-plant on the Old Dart shaft, and when this was completed the water was pumped out of the shaft down to No. 3 level, a depth of 200 ft., and work was then carried on for a time on the No. 2 reef, which was driven on for a distance of 230 ft. The reef varied from 4 ft. to 6 ft. in width, and was highly mineralised in places, amongst which a little gold was frequently seen. In the No. 2 level operations are being carried on on the No. 1 reef, and this reef is similar to the No. 2 reef at No. 3 level. A five-stamp battery was erected near the mine, and a tramway constructed to carry the quartz from the mine to the mill; but, after crushing 110 tons of quartz, from which only 1 oz. 19 dwt. of gold was obtained, the battery was stopped, and trial crushings put through some of the other batteries. The total number of tons crushed was 349 tons 10 cwt., for 61 oz. 3 dwt. of gold; value, £158 2s. 9d. Eighteen men employed.

*Ethel Reefs Mine.*—This company has vigorously carried on prospecting work on the various reefs and at different levels, preparatory to commencing stoping operations. The Jupiter reef is a large body of quartz about 20 ft. in thickness. The other reefs vary from 18 in. to 6 ft. in width, and from which encouraging prospects are obtained. The company's four-stamp battery crushed trial parcels of quartz from time to time with the object of testing the reefs as the work proceeded, and with a view as to the advisability of erecting a twenty-stamp battery to treat the ore, the twenty-stamp mill being in the company's possession and stored near the mine. However, the erection of the battery has not been commenced yet. The company crushed 655 tons of general dirt and 86 lb. of picked stone, for a return of 176 oz. 10 dwt. of gold; value, £467 14s. 9d.

#### KIRIKIRI.

*Fleming's Mine.*—A considerable amount of work has been done in this mine during the year, and a four-stamp battery erected. Since the battery was completed 77 tons of quartz and 15 lb. of picked stone have been treated, for 108 oz. 7 dwt. of gold; value, £292 19s. 9d.; and lately Mr. Fleming has given an option to a syndicate over the property. Eight men were employed in the mine.

#### PURIRI.

*Empress of India.*—In the beginning of the year there was a good deal of work done on this property, but the company that had an option over it gave it up, and the ground was then protected. 50 tons of ore was crushed, for 34 oz. of gold; value, £91 16s.

*Puriri Gold Estates (Limited).*—There was very little work done on this property for some time, but lately the eight-stamp battery situated at the bottom of the hill has been repaired, and is to be used for crushing the quartz as it is won from the mine. No returns.

#### NEAVESVILLE.

There has been little work done in this district, but a party that has lately taken some ground on tribute is at present repairing McLiver's battery and water-race, with a view to starting operations in the mine.

#### TAIRUA.

*Broken Hill Mine.*—There has been very little work done on this mine during the year, and partial protection has been granted to work the ground with eight men. At present a trial crushing is being taken out, with the object of treating it to see what it is worth. No returns.

*Albert Mine.*—Six men were employed on this ground in the early part of the year, but little or no work has been done on the ground for some time past.

#### OHUI.

*Last Chance.*—There has been very little work done on this ground for some time. A small battery was erected, and a parcel of 25 tons was crushed, which only gave a return of 15 dwt. of gold.

#### WHANGAMATA.

*Whangamata Proprietary Mine.*—This company has done a very large amount of work during the year in constructing a water-race, excavating a battery-site, and opening up the mine. The



company have now decided to erect a No. 5 Krupp mill to crush the quartz. The mill will soon be completed, and crushing is expected to be started in the course of another month. An average of thirty-five men have been employed. No returns.

*Wentworth Mine.*—There has been a considerable amount of work done on this property during the year, and preparations have been made for the erection of a crushing-plant; but the company is now trying to get the adjoining claims to amalgamate, with the object of working the ground on a larger scale and to better advantage. Twenty-nine men are employed. No returns.

There has been very little work done in the other mines in this locality during the year.

#### OHINEMURI COUNTY.

##### MARATOTO.

*Hikutaita Gold Syndicate.*—There was a considerable amount of work done on this company's property in the beginning of the year, but the number of men was reduced to two in the mine pending the erection of a crushing-plant, and it has now been decided to erect a No. 5 Dodge crushing-plant, which is said to be equal to five stamps. This mine is well opened up, and as the reef is from 6 ft. to 14 ft. in thickness there would be no difficulty in keeping a forty-stamp battery continually crushing for years should the quartz that is to be treated at the small mill prove payable. No returns.

*Maratoto Mine.*—This mine partly changed hands, and a company was formed in Auckland composed chiefly of local shareholders, who lost no time in commencing development operations, and have been successful in discovering what they consider payable ore, and in sufficient quantities to warrant the erection of a ten-stamp battery and the necessary gold-saving appliances to treat the ore. The battery is now being erected, and is expected to be completed at an early date.

*The Waitekauri Extended (Limited).*—This company has done a very large amount of work during the year. There has been a total of 3,933 ft. of driving done, 550 ft. of rises and winzes, and 1,000 ft. of stoping. The average width of the reef is from 25 ft. to 30 ft. and underlies about 22 degrees, and its course about 150 degrees east of north. There is about 6 ft. of the hanging portion of the reef that may be considered payable ore, so far as it has been opened up. It carries a large percentage of lime and is what might be termed a "cement vein," the gold in it being excessively fine and only worth from 10s. to £1 an ounce. The reef carries a little gold from wall to wall, but a great portion of it is not payable, and only one chute of good ore has so far been followed up; but there is every reason to believe that payable chutes of ore will be met with as the work proceeds. There was great difficulty at first in getting the aerial tramway to work, and it was only constructed half-way from the mill to the mine. This has lately been extended up to hoppers near the low level, and the quartz is now conveyed from the hoppers to the mill, a distance of a mile and a half, and is working very satisfactorily. There are seventy-two buckets fixed on the rope, carrying from 150 lb. to 160 lb. of ore in each, and the rope completes the circle in fifty minutes, thus delivering 35 tons in eight hours. The mine and battery is now in better working order, and it is anticipated that in a short time monthly returns will be sent in regularly. 1,011 tons was treated, for a return of 925 oz. 4 dwt. of bullion; value, £920 14s. 6d. Forty-five men were employed.

##### KOMATA.

*Komata Reefs.*—This company have done a large amount of development work during the year, the chief being the driving of a low level for the purpose of operating on the reefs at a depth. The company has an air-compressor at the entrance of the tunnel, which is used for forcing in air to work the rock-drills, the work of extending the tunnel is being pushed on with all possible speed. It is expected the reef will be hand in this level before the supply of ore is exhausted in the upper levels, and thus enable the manager to keep up a supply of quartz sufficient to keep the battery continuously crushing. The principal reefs operated upon in this company's mine are the Komata, Argall, Hartridge, and Leamington, which vary in size from 9 in. to 8 ft. in thickness. 5,435 tons of ore were treated, for 14,477 oz. 14 dwt. of gold; value, £17,795 3s. 6d. Eighty-five men have been employed, mine and mill included.

##### KARANGAHAKE.

*Woodstock Gold-mining Company's Mine.*—The usual works necessary for keeping up a constant supply of ore have been carried on—that is, driving, sinking, and stoping on the reef. The mine is well opened, and there is plenty of ore in sight to keep the battery, which consists of forty heads of stamps, constantly crushing for some time to come. The method of treating the ore from this mine for some time past was not as satisfactory as could be desired, as the ore contained coarse as well as fine gold, and the cyanide process did not give results anything like equal to tests; consequently experiments have lately been tried in order to save a larger percentage of gold, and an alteration in the form of a concentration-plant has been adopted, which, in conjunction with the cyanide process, is giving better results, and the present mode of treatment is wet-crushing, amalgamation, concentration and cyaniding. 9,850 tons of ore has been treated, for 17,427 oz. of bullion; value, £15,692 3s. 6d.; and a hundred and sixty-one men have been employed.

*New Zealand Talisman Mine.*—This company's mine is now well opened up, a large amount of development work having been done during the year. The reef will average 4 ft. in width throughout, and has been driven on for a considerable distance at the different adit-levels. This mine is well situated on the north-eastern side of the high range known as "Trig. Hill Station," and no sinking or expensive pumping-machinery should be required for many years to come, therefore the mining expenses cannot be very great, and the ore is delivered at a small cost, being

conveyed in buckets down a wire-tramway direct from the mine to the mill. In the Bonanza section a good chute of payable ore has lately been discovered, which has greatly enhanced the value of this property, and in consequence the monthly returns from the month of August have been nearly doubled. The company's reduction-plant is in close proximity to the mine, and consists of two stone-breakers, twenty head of stamps, one Krupp ball-mill, six berdans and amalgamating-tables; and the cyanide plant includes fourteen vats, twelve of them being 22 ft. and the other two 18 ft. in diameter. A revolving drying-furnace is erected, and, if required, is capable of putting through 40 tons a day, and is working very satisfactorily. 8,696 tons of ore was treated, for 44,541 oz. 19 dwt. of gold; value, £32,648 13s. 1d.; and an average of ninety-four men were employed.

*The New Zealand Crown Mines (Limited).*—Mining operations on this company's property are being vigorously proceeded with, the work being now directed more to opening up the mine at a depth, the chief point of development being the sinking of the main underlie-shaft on the reef near the entrance of the main adit-level. The reason for sinking on the reef is that owing to the surface of the property being of a very precipitous nature, a suitable place could not be selected to sink vertically. This shaft has now attained a depth of 150 ft., and the prospects met with are said to be most encouraging. Two levels have been opened out from this shaft—No. 1 at a depth of 70 ft., and No. 2 at a depth of 140 ft., both drives being pushed ahead with all possible speed. A large chamber has been excavated over the top of this shaft in which is erected a powerful winding-engine driven by compressed air and lighted up by electricity. Some considerable distance in the same adit-level another shaft is also sunk down on the reef to a depth of 140 ft., and over this shaft a winding-engine is fitted up similar to the former and is used for winding purposes, but this is more of a temporary character, and is used at present for the more expeditiously opening-up of the reef and for ventilation. When the levels that are being driven from the No. 1 shaft are connected with the workings in No. 2 shaft, the quartz will be trucked to the No. 1 shaft, and winding the stuff up No. 2 shaft will be discontinued. Stopping on the reef is proceeding over the different levels, and abundance of quartz obtained to keep the sixty heads of stamps constantly crushing; and as the reef is from 4 ft. to 16 ft. in width, there is enough quartz in sight to keep the battery going for several years. 27,860 tons of quartz was treated, for 28,234 oz. 18 dwt. of gold; value, £55,483 5s. 4d., an increase of £14,363 3s. 2d., compared with the previous year, which must be considered very satisfactory. One hundred and eighty men are employed.

*Imperial Mine.*—This company has had from five to seven men constantly employed, the work being principally confined to putting in a low level and driving on the course of the reef, which has now been driven on for a distance of 143 ft. The reef is also being operated upon in a drive on the outcrop; but the reef formation is of a broken character, and the prospects met with here are not as good as could be desired; but the manager is sanguine that something of importance will be discovered at the low level.

*Talisman Extended Mine.*—This company had four men employed for the greater part of the year in extending an adit-level, with the object of intersecting any reefs that might run through the property; but as no important discovery was made the work was stopped, and arrangements are now being made to amalgamate it with the New Zealand Talisman Company's Mine.

*Woodstock Main Reef.*—For some time this company had twenty men employed prospecting their property, but as no payable quartz could be obtained, and the prospects met with being disappointing, they stopped all work.

Prospecting operations have been carried on in the Stanley, Sterling, and Waverley, but nothing of any importance discovered.

#### OWHAROA.

*Ohinemuri Syndicate Mine.*—Work in this company's mine is steadily progressing, but the developments have not yet resulted in the intersecting of any payable chutes of ore. A reef recently met with is being driven on north and south, and a little gold is being obtained, but nothing of a payable character is expected until the drive has been advanced to a point under the surface-workings where good payable ore was obtained in the early days. It is thought this reef is one of those worked in the Smile of Fortune, and to prove this it is intended to continue the crosscut, with a view to intersecting the waterfall and No. 4 lodes. Another drive from the No. 1 drive south is being pushed ahead for the purpose of cutting the Radical lodes, which should now be to hand at any time. The country that is being penetrated in the crosscut is of an excellent description for gold-bearing lodes, and it will be disappointing if payable ore is not met with when the lode is cut. There has been a large amount of water to contend with in the shaft, but the pump has been quite capable of dealing with the water that has been met with so far. There has been an average of twenty-seven miners and eight bushmen employed on the property. No returns.

*Rising Sun Mine.*—Operations in this mine have been directed to opening up the mine at a depth. A drive has been put in from the side of the hill for a distance of 600 ft., for the purpose of intersecting the reef that has been worked on at the upper levels; and, according to the survey, the drive was in the distance it should have been met with, but as there was some doubt about it, the company decided to sink a winze on the reef from the upper level. The reef is about 3 ft. 6 in. in thickness, and is a strong body of kindly-looking quartz, and from which I am informed payable assays have been obtained. Four men employed. No returns.

#### WAIHI.

*Waihi Mine.*—This company's mine is worked on a large scale, and is being systematically and extensively opened up, and the prospects met with in the development of the reefs go to show that a still further improvement might reasonably be expected at no distant date, as the reefs

fully maintain their size and quality as they are being opened upon at a depth. The No. 2 shaft, on which the powerful pumping-machinery is erected, has now been sunk to a depth of 450 ft., and is substantially timbered throughout. There are five levels opened out from this shaft, including the adit-level, which is connected with the shaft at a depth of 50 ft., and the No. 1, 2, 3, and 4 levels are connected with those driven from the No. 1 shaft, and also connections are made with No. 3 shaft. The Welcome, Victoria, Martha, and Surprise reefs have now been opened upon to a considerable extent, and vary in width from 1 ft. to 56 ft., and from which abundance of quartz is produced to keep the Waihi battery of ninety stamps and Waikino of 100 stamps constantly crushing. Operations are still being carried on as usual from the No. 1 shaft, which has now attained a depth of 373 ft., and No. 3 shaft on the western side of the Martha Hill is down a depth of 280 ft. At this shaft a winding-engine has lately been erected, and a branch-line is being laid down from the company's main railway to hoppers near the top of the shaft, and when everything is completed a large tonnage of quartz will be hoisted up this shaft and forwarded direct to Waikino Mill. For some time past the company has been experimenting on the extraction of the gold from the ore, as to the best methods, and which will give the best results with wet or dry crushing, and as some of the other companies have now adopted the wet crushing, and it has been proven to be an advantage over the dry, it is to be hoped this company will also do the same; that is to say, if the company's interest will not suffer thereby, as it would be a great boon to the men employed in the crushing-plants if they were converted from the dry to wet crushing. In comparing the gold-returns it will be seen the great progress that has been made during the past year. In 1898, 37,164 tons were crushed, for 126,801 oz. gold, value, £134,553 8s. 9d.; in 1899, 86,809 tons, for 273,817 oz., value, £272,688 9s. 10d. Increase—49,645 tons, for 147,016 oz., value, £138,135 1s. 1d. The company has now 710 men employed.

*Waihi Consolidated Mine.*—This mine was not continuously worked during the year, a period of protection having been granted, as all the available capital had been spent in the erection of the pumping- and winding-machinery, and the development of the mine, and a reconstruction of the company was necessary to raise capital to carry on further operations to prove the value of the various reefs that have been intersected. The shaft has been sunk to a depth of 300 ft., and No. 1 level opened out at a depth of 80 ft., No. 2 at 200 ft., and No. 3 at 300 ft. The principal work has been done on the Favona reefs at No. 3 level, and there has also been a good deal of work done on the reefs at No. 2 level, which varied from 4 ft. to 7 ft. in width, and from which payable assay tests are said to have been obtained. Twenty-two men are employed. No returns.

*Waihi Union Mine.*—This mine has been steadily worked during the year. The No. 1 shaft has been sunk a further distance of 100 ft. below No. 3 level, and No. 4 level opened out at a depth of 382 ft. Development work is proceeding on the Union reef at the No. 2 and No. 3 levels, which vary in width from 3 ft. to 6 ft. A great portion of the reef is considered to be low-grade, but there is a fair chance of a payable chute of ore being met with as the work proceeds. The Amaranth reef, which is a large body of quartz, from 10 ft. to 30 ft. in width, has been driven on at No. 1 level for a distance of 1,650 ft., and portions of this are considered payable in the Winner section. The No. 2 shaft is down a depth of 240 ft., and the Winner and Union reefs operated on from here to a considerable extent. A powerful air-compressor engine has been erected at No. 1 shaft for the purpose of working the pumps and machinery at No. 2 shaft, also for working Tangye pumps and rock-drills in the workings in the No. 1 shaft when required. Forty-five men are employed in and about the mine, exclusive of management, clerical, or firewood-cutters. No returns.

*Waihi Silvertown Mine.*—Operations in this company's mine have been steadily carried on during the year. The shaft has been sunk a further distance of 70 ft., and No. 4 level opened out at a depth of 300 ft., from which a crosscut has been driven, and the reef intersected. This is being opened up on north and south of the crosscut preparatory to commencing stoping. The reef is about 10 ft. in width, and there is a slight improvement in the quality of the quartz. There has also been a large amount of driving and stoping done on the reef at No. 3 level. It was found to be absolutely necessary to overhaul the battery as it had been run until it was in a very bad state of repair, and in consequence of the stoppage the yearly return is not as large as if the battery had been running full time. The prospects of this mine are said to be improving, and it may reasonably be expected that the returns of gold will be larger next year. 8,350 tons of ore was treated for 6,736 oz. of gold; value, £11,501 4s. 5d. There are 105 men employed.

*Grand Junction Mine.*—A very large amount of work has been done during the year, both in the eastern and western sections of the property, and it is to be regretted that the company did not meet with the success they deserved for their perseverance in developing the mine; and lately it was found necessary to stop all work with a view to give time to consider ways and means as to the further development of the property. In the eastern section the manager repaired the main shaft, also bottom level, and commenced a drive (outside the dam that was put in to keep the water back at the bottom level), with the intention of intersecting the reef at another place between the crosscut and Waihi Company's boundary; but unfortunately, when the drive was nearly up to the reef, a large quantity of water was tapped, more than the pump could raise, and in consequence operations had to be stopped, and little more can be done until larger pumps are put in. A prospecting shaft was put down to a depth of 250 ft. near the north-eastern boundary, and on the supposed line of reef from which crosscuts were driven, with the object of intersecting the reef, but unfortunately the reef could not be picked up, and this work was suspended. In the western section the No. 2 shaft was enlarged and sunk to a depth of 260 ft., and a large body of quartz was discovered, supposed to be the Martha Reef, and on this a considerable amount of work has been done, and some of the assay tests taken from this reef are said to be of a payable character. An average of thirty-eight men employed.

*Waihi Consols Mine.*—This company's operations are confined to sinking the shaft, which is down a depth of 160 ft., and is penetrating a tight class of country. It is intended to sink to a depth of 500 ft. before opening out. Two steam-pumps are used for pumping the water. Fourteen men are employed.

*Waihi Gladstone Mine.*—This mine was protected for some time, but seven men are now employed in the development of the reef at a depth of 200 ft. No returns.

*Waihi Extended.*—Operations in this mine have been limited, the work being chiefly extending a cross-cut with a view to intersecting a reef. From two to four men have been employed.

*Waihi South.*—There has been very little work done in this mine during the year.

*Waihi Beach Claims.*—The work done on these claims during the year has been very limited. Negotiations were carried on for some time between the owners of the property, with a view to amalgamating the holdings and raising capital to work the mines. In the Waihi Beach claim a reef 3 ft. 6 in. in width is exposed, on which a little prospecting has been done, and tests taken from here are said to have given good results. In the Ocean View Extended a reef 5 ft. in width has been driven on for a distance of 100 ft.

#### WAITEKAURI.

*Waitekauri Mine.*—This company are vigorously opening up the reefs at the low levels in the Golden Cross section of the mine, and it must be most gratifying to the shareholders to find that a highly remunerative class of ore is obtained at the low level. The reef varies from 6 ft. to 40 ft. in width, and is chiefly worked from what is termed the No. 1 and No. 2 shafts, on which substantial pumping and winding plants are erected. Four levels have been opened out from the No. 1 shaft: No. 1 level, at a depth of 130 ft. and the reef driven on at this level for a distance of 1,160 ft.; No. 2 level opened out a depth of 230 ft., and the reef driven on 880 ft.; No. 3 level, at 330 ft., and the reef driven on 350 ft.; and No. 4 level, at a depth of 400 ft., and the crosscut driven 36 ft. Two levels have been opened out from No. 2 shaft; No. 1 level at 80 ft., and No. 2 level, at a depth of 180 ft. Also Corbett's level has been driven on the reef a distance of 960 ft. Stopping operations have been carried on during the year on the reef over Corbett's and Nos. 1, 2, and 3 levels, from which 22,840 tons of quartz have been obtained, which when treated gave 73,450 oz. 3 dwt. of bullion, value £66,584 3s. 4d. At the Waitekauri battery ten heads of stamps have been changed from the dry to wet crushing, and as the percentage of gold obtained from the ore treated by the wet crushing is even better than at first anticipated, the other thirty heads will be changed from the dry to the wet crushing within the next two months, thus doing away with the dust nuisance, and a considerable expense will be saved in the roasting of the ore. The company have done a large amount of development work in the Komata and Waitekauri sections of their property, and in both sections I am informed they are opening up payable blocks of ground. There are 230 men employed on the property.

*Waitekauri Cross Gold-mining Company's Mine.*—This company has done a large amount of prospecting during the year at the main adit-level in the Taranaki section of the property, but the work is more confined now to opening-up the reef at a depth, and for this purpose an underlie shaft is being sunk in the hanging-wall portion of the reef, which is dipping at an angle of 67 degrees. The shaft is 10 ft. by 5 ft., and is divided into two compartments: in one is fixed a permanent ladderway, and in the other two steel-rail tramways are fixed for the skips to run on for hauling the stuff up. At the top of the shaft a self-tipping arrangement is placed in position whereby the quartz, &c., is tipped out of the skip into the truck without any further handling. The winding is done by means of an electric hoist, which is fixed in an underground chamber, cut out at the head of the shaft. The electric motor is a compound four-pole ironclad type machine of forty brake horse-power. The winding-drums are arranged in tandem, each capable of raising 1 ton (*plus* the weight of the rope) up an incline of 60 degrees at the rate of 300 ft. per minute. A triplex-action pump has also been provided, which is geared to run at four distinct speeds to suit the different depths and volumes of water met with. It is capable of lifting 2,400 gallons per hour from a depth of 300 ft. Water having been met with in the shaft at 180 ft., and making at the rate of 500 gallons per hour, the management has decided to open out a level at that depth and will drive north and south on the reef to prove its value at that depth. The station at which the power for driving the above-mentioned machinery is generated is situated at Marototo, about two miles from the mine. The power is generated by two compound dynamos, which are driven by belts of massive fly-wheels on each side of a 3 ft. Pelton wheel, which is driven by water with a head of 210 ft. An elaborate switch-board contains all the necessary measuring-instruments, switches, safety-fuses, lightning-arresters, and magnetic cut-outs. The current is conveyed to the mine by two pairs of copper cables on flued insulators, fixed on cross arms to the poles erected for their support. A distributing switch-board is placed in position at the mine for the control of the current to the different circuits for hoist, pumps, lamps, &c. Telephone communication is also established between the generator and the mine. Eighteen men are employed. No returns.

*Alpha Mine.*—A considerable amount of work has been done in the development of this mine. The reef is cut in six different levels that have been driven in from the side of the hill. The levels are connected by passes from No. 5 level upwards for a distance of 400 ft. and a rise is being put up on the reef from No. 6 to No. 5 level. This will be used for conveying the quartz down from the upper levels to No. 6 level; then it will be trucked direct to the mill, a distance of about 500 ft. The reef varies in width from 4 in. to 4 ft., and tests taken from time to time have given excellent results. The crushing-plant will be completed in about two months' time and will have all the latest appliances necessary for the treatment of the class of ore met with in this company's mine. The plant will consist of twenty stamps of 900 lb., rock-breaker, six vats (twenty-two feet

in diameter), with amalgamating-plates, self-feeders, distributors, and other necessary connections. A steam-engine of forty-five horse-power is placed in position to drive the stamps, &c. Ten men employed.

*Waitekauri Union.*—This company's operations during the year were chiefly confined to driving the low level in the western section of their property. In the month of January the tunnel was in a total distance of 1,700 ft., but as nothing of importance had been met with for the whole of this distance the company decided to apply to the Warden for protection, which was granted, and all work was suspended. Twenty men were employed.

*New Zealand Jubilee Mine.*—This company had forty men employed for the first four months of the year, mostly on development work, but since then very little work has been done on the property.

*Grafton United Mine.*—From three to eight men were employed on this property in the early part of the year, but for some time past no work has been done on the claim.

*Young New Zealand Mine.*—This company has done a good deal of prospecting on the property during the year, but nothing of importance has been discovered. From three to five men have been employed. There were 19½ tons of ore crushed for 31 oz. 10 dwts. of gold, value £57 13s. 8d.

*Grace Darling Mine.*—The operations carried on in this company's mine have been limited, the work being chiefly prospecting. Four men employed.

#### WHAREKIRAUPUNGA.

*Royal Standard Mine.*—There has been very little work done on this property during the year; but lately, I am informed, operations of a prospecting nature have again been resumed.

#### PIAKO COUNTY.

##### TE AROHA.

Mining operations in this district have been very quiet during the year. The Plutus and Ruakaka Mines have been intermittently worked, but parcels of ore broken from the reefs in those mines and treated at the thermo-hyperphoric reduction-plant did not turn out as well as anticipated, and in consequence work was stopped. Those mines were held by the Montezuma Gold-mining Company, which is now in voluntary liquidation, but being reformed under the name of the XXth Century Goldmining Company, and at present a parcel of ore is being broken out of the Grand Result Mine, Wairorongomai, for treatment. 301 tons of ore was treated, for 194 oz. 4 dwt. 9 gr. Twelve men have been employed.

##### WAIORONGOMAI.

*Empire and New Find Claims.*—There was very little work in these mines in the beginning of the year, but Mr. E. H. Hardy has taken an option over those mines and the Wairorongomai Battery, and has opened up the mine and repaired the battery, preparatory to commencing crushing. There is about 200 tons of quartz broken out, which, it is considered, will give payable results. Twelve men are employed. The tramway from the mill to the mine has been put in an efficient state of repair, and is now in good working order.

*Alexandra Mine.*—This is one man's ground, and is worked by the owner, W. Newsham, who lately had 3 tons of quartz treated at the Thames for the payable return of 56 oz. 11 dwt., value, £190.

Prospecting work is being carried on in the Welcome and Loyalty; and also some work was done in the early part of the year in the Te Aroha, Cadman, and Munster Mines.

#### TAURANGA COUNTY.

##### KATIKATI.

*Eliza Mine.*—Two men were employed in this mine for a time, but, as the lead was small, and no important discoveries were made, work was stopped.

##### TE PUKE.

*Fleming's Freehold.*—From four to eight men have been employed on this property, the works carried on being driving and sinking on the reef. Operations were carried on for some time on the western side of the hill, but work is now more confined to the eastern side of the hill, where the reef was first discovered.

Prospecting operations have been carried on on Clarke's Freehold, Sisters, Te Puke, and Ben Lomond with from one to four men, but no returns have been sent in from any of the mines.

## ACCIDENTS IN GOLD-MINES FOR THE YEAR ENDED 31ST MARCH, 1899.

Name.	Mine.	Nature.	Date.
Edward Patton ..	New Zealand Crown Mine ..	Fractured ankle .. ..	2 April, 1898.
Robert Reid ..	Ohinemuri Syndicate ..	Shoulder bruised by a fall .. ..	2 " "
*William Mangan ..	Waihi-Silverton .. ..	Fatal accident: timber breaking in shaft ..	7 " "
Esther Joughin ..	Waihi Mine .. ..	Leg injured by a fall .. ..	9 " "
A. E. Tapling ..	Waitekauri Mine .. ..	Eye injured by explosion of gelignite ..	7 May "
Patrick Hayes ..	Thames-Hauraki .. ..	Leg broken by cage .. ..	9 " "
John Trebilcock ..	Hauraki Anchor .. ..	Head and shoulder injured by a bucket ..	19 " "
Lloyd Francois ..	New Zealand Jubilee .. ..	Side injured by a bucket .. ..	18 June "
*Richard Handcock	Waihi Consolidated .. ..	Fatal accident: killed by falling down a shaft	18 July "
*Walter Devel ..	Montezuma Plant .. ..	Injured with truck tipping up; died from the injuries	29 " "
Jamieson and Boyle	Hauraki Mine .. ..	Slightly injured .. ..	21 " "
John Gilroy ..	Hauraki Main Lodes .. ..	Ankle slightly bruised .. ..	30 " "
*Robert McGregor..	New Zealand Jubilee Mine ..	Fatal accident: killed by crossbar descending shaft	29 Aug., "
C. Berkery ..	Kathleen Crown .. ..	Shoulder injured .. ..	27 " "
Albert Reid ..	New Zealand Crown Mine ..	Body slightly bruised by a piece of rock ..	18 " "
James Ingles ..	Moanataiari Mine .. ..	Leg broken by a piece of rock .. ..	10 Sept., "
H. Murrell ..	New Zealand Talisman .. ..	Injured by a piece of rock .. ..	23 " "
*B. A. Graham	New Zealand Jubilee Mine ..	Fatal accidents: suffocated through the effect of timber catching fire in the mine	23 " "
*J. W. Stevens			
Henry Giveen ..	Komata Reefs .. ..	Leg slightly injured .. ..	28 " "
John S. Taylor ..	Waitekauri Extended .. ..	Body injured by a belt.. ..	11 Oct., "
Edmond Noonan ..	Komata Reefs .. ..	Hand and leg injured .. ..	1 Nov., "
J. McLachie ..	Waihi Battery .. ..	Collar-bone broken by falling between vats	4 " "
William Cannon ..	Alburnia Mine .. ..	Injured by explosion of a shot .. ..	22 " "
John Worgan ..	Deep-sinker .. ..	Shaken by jumping out of cage.. ..	11 Jan., 1899.
J. Newith ..	Waihi Mine.. ..	Collar-bone broken by a piece of rock ..	12 " "
G. Connell ..	Waihi-Victoria Battery ..	Right hand severely injured by tappet of stamps	3 March "
William Murray ..	New Zealand Crown Mine ..	Injured by a piece of rock falling on him	8 " "
Henry Kelly ..	New Zealand Crown Mine ..	Arm broken by falling down underlie shaft	17 " "
Henry Carlson ..	New Zealand Talisman ..	Arm torn off whilst engaged in putting belt on pulley	28 " "

\* Fatal.

There were six fatal accidents.

## No. 15.

Mr. R. TENNENT, Inspector of Mines, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Inspector of Mines' Office, Westport, 3rd April, 1899.

I have the honour to report as follows on the gold-mines in the Marlborough, Nelson, and West Coast districts, for the year ending the 31st March, 1899:—

## WAKAMARINA.

*Golden Bar and Ravenscliff Quartz-mines.*—(17/1/99): Operations on this property have been at a standstill during the year.

## COLLINGWOOD.

*Parapara Hæmatite-works.*—(13/1/99): These works are still being successfully carried on by Messrs. Washbourne Brothers, and last year the output increased to over 100 tons. The proprietors are of opinion that, as the excellent preserving qualities of the hæmatite become better known, the sale will still further increase. The cost of production will be greatly reduced by the introduction of improved machinery, and a large and productive industry established.

*Golden Ridge Mine.*—(12/1/99): This property is owned by the Taitapu Gold Estates (Limited). Operations are confined to surface prospecting, by eight men, south of the old Golden Ridge workings. So far, nothing of importance has been discovered; but the manager (Mr. H. Fulton) is sanguine of picking up a run of country corresponding with the Aorangi section of the Taitapu Gold Estates, which has lately been giving good returns.

*Aorangi (late Pioneer) Mine.*—(11/1/99): The development of this property, which is owned by the Australasian Gold Trust (Limited), is being carried out under the management of Frank H. Johnson. The area now being developed consists of 100 acres. The reefs, which vary from 2 ft. to 5 ft. in width, are worked from crosscuts, Nos. 2 and 3 being connected by two winzes, and ventilation thus amply provided for. The crosscuts are connected with the shoot by a ground-tramway, 5 chains in length, the shoot being 150 ft. in length to the hopper. This hopper, which has a holding capacity of 50 tons, is connected by a short tramway with the battery, consisting of three heads, which has been recently erected, a 5-horse-power horizontal engine furnishing the motive-power. The manager intends to push on with developments to the southward of the present workings (which are now well opened out) as there is a favourable change in the nature of the country. In December last, 60 tons of quartz gave a return of 318 oz. 15 dwt. retorted gold, and 97 tons from the same reef was crushed in February for a return of 126 oz of gold.

## LYELL.

*Alpine Extended.*—(23/10/98): Active operations on this property still continue to be carried on very satisfactorily, but the general character of the stone throughout the mine is poor, with occasional patches of better quality. No. 10 main level south has opened out two blocks of stone, which average from 60 ft. to 80 ft. in length, and vary from 4 ft. to 20 ft. in width. No. 1 block is stoped to No. 9, and No. 2 block is raised 78 ft., leaving 28 ft. yet to be taken out. No. 10 prospecting drive north has been enlarged, and re-timbered 192 ft., preparatory to sinking a winze at the face. The country passed through was a mixture of broken quartz and slate for the first 50 ft., when a solid stone was struck about 2 ft. in width, and for the next 30 ft. it varies more or less in size. At a depth of 80 ft., a crosscut intersected a solid reef that was lying on the hanging-wall. Work was then suspended pending the extension of No. 11 level north. The shaft from No. 10 level has been sunk to a depth of 110 ft., and fitted with winding machinery actuated by compressed air. Ropes, cages, and all other appliances, are safe and in good condition. No. 11 south has been driven 249 ft., making a total distance of 409 ft., of which the first 170 ft. was on a reef from 4 ft. to 5 ft. wide. Afterwards the country was hard, and of a more unfavourable character; for the last 50 ft. a small body of good gold was passed through. During this course, several crosscuts were put in on both sides without favourable results. Stopping at the back of No. 11 level has been carried to a height of 39 ft. The reef varies from 2 ft. to 8 ft. A small body of stone about 20 ft. further south has also been worked. No. 9 was driven north 111 ft. on a reef which varies from 5 ft. to 8 ft. It then pinched to 1 ft., but shortly afterwards widened to between 6 ft. and 7 ft., which width was maintained to the end of the drive, when the reef dipped underfoot. Since September, stoping has been vigorously carried on, the reef ranging from 4 ft. to 7 ft. in width, and the stopes averaging 111 ft. in length. At the commencement of the year, prospecting was done on the upper levels, but, beyond a few occasional gold-bearing quartz boulders, quartz of a solid character was not found. In order to intersect a parallel line of reef at the north end of the level, a crosscut was put in 41 ft., but without making any development of importance. Reports up to date. Fifty men employed.

*United Italy.*—(16/5/98): At the time of visit, operations at this mine and the Golden Crown were suspended.

*Cræsus, Lyell.*—(16/5/98): At this property, driving on a track of reef 2 ft. wide was being vigorously pushed forward by six men working three shifts.

*Lady Agnes Quartz-mine.*—Operations on this property have ceased.

Red Queen, and also the Swanson Claims have ceased operations.

*Twins, late Beaconsfield.*—After a lapse of several years, this property was lately taken over by a British syndicate, of which Mr. Charles Lempfert, of Westport, is attorney, and Mr. George Edwards mine manager. The development-works are situated on the east bank of the Waimangaroa Stream, about a quarter of a mile south from the foot of the Denniston incline. Water for motive-power and other purposes is conveyed over a race half a mile in length, which carries fifteen heads, its intake being the Waimangaroa River. Its construction is chiefly fluming, with 300 ft. of tunnelling. A substantial and complete ten-head battery (by the Greymouth Foundry Company) with one berdan attached, is driven by a 6 ft. Pelton, under a pressure due to 46 ft. The ore delivered to the battery is raised through a shaft 110 ft. in depth by means of a 24 ft. diameter water-wheel, with 8 ft. diameter drums attached. The shaft, which has three equal compartments, is fitted with substantial poppet-head gear and all other safety-winding appliances. A 10 in.-diameter hollow plunger, with 3 ft. stroke, driven from a 30 ft.-diameter water-wheel, raises the water direct to the surface. Mining operations are chiefly confined to the west side of the stream, the mine being entered by an adit 20 ft. above ordinary stream water-level. The quartz is passed down to the low level which connects with the shaft, a considerable amount of prospecting in cleaning out and extending old tunnels and rises has been done, but, up to the present, developments have proved nothing of importance. At time of writing, all work has been suspended for some time.

*Britannia Quartz-mine.*—So far as the auriferous character of this property has been proved, the formation is broken; consequently the reef is found under similar conditions. The reef varies from 6 in. to 18 in. in width. In view of treating a quantity of ore that is already brought to grass, and to carry on mining operations on a small scale, with the stone in sight, the company has decided to erect a small battery, driven by water, near the mine. Water is available from Beaconsfield Creek, and can be conveyed over a flume-race 5½ chains in length. The battery site excavation is well forward, and, to facilitate the carriage of the plant to its position, a saddle-track is under construction. Six men are employed.

## REEFTON.

*Low Level Tunnel.*—(25/3/99): At the commencement of last year, when the winze which connects with the Golden Fleece was completed to a depth of 581 ft. work was suspended for several months. Operations are again resumed, and driving and crosscutting with rock-drills actuated by compressed air are being vigorously pushed forward on the Golden Fleece track, in view of proving the existence of this reef to deeper levels. The average cutting for each machine is 54 ft. per week. On the 27th instant, in terms of section 206 of "The Mining Act, 1898," complaint was notified to the superintendent of the Progress Mines that better ventilation on the working faces must be provided. Thirty-two men employed. Reports up to date, and other provisions of the Act strictly complied with.

*Progress Extended Quartz-mine.*—(23/3/99): This property is opened and mined from A and B shafts. A shaft is used for winding the ore from Nos. 4 and 5 levels, and upcasts from the whole workings; B shaft is the main downcast, and is used for winding from Nos. 6 and 7 levels. The capacity of this mine, as the second gold-producer of the colony, is confined to the milling power of

the quartz-crushing plant. Output of ore treated from the 1st June, 1898, to the 1st March, 1899, was 33,000 tons. Mining and developments, which embrace important connections with B shaft and Nos. 4 and 5 levels, also an extension west on No. 5 level with Progress filling in shaft, are being vigorously pushed forward. These works when completed will form most valuable factors in the future safety and economy in the working of this mine. Winzes, rises, and other works directly in connection with the faces are kept well in advance, thus the management is relieved from shortness of faces or disadvantage to the workmen. The principal centres of ore-production are the stopes above Nos. 6 and 7 levels. On No. 5 stopes sixteen men are employed one shift; this ore is raised by a shaft. On No. 6 stopes forty men are employed, and on No. 7 seventy men are engaged stoping. The stone varies in width from 6 ft. to 22 ft., and the levels, as far as they have been extended, still continue on solid stone. Sinking-operations from the bottom of B shaft were commenced on the 9th February, 1899—the previous depth was 945 ft. The management decided to sink to a further depth of 200 ft., which will make a total depth of 1,145 ft. Stations will be made at 100 ft. vertical, which will give two additional levels below the present

No. 7. This work is being carried on by three shifts of four men, and the cage on the west side is exclusively used for sinking purposes, while the cage on the east side raises and lowers all men and material from Nos. 6 and 7 levels. The shaft in every particular is finished as the work progresses, and the winding-cage with the truck is lowered to the bottom. The average sinking per week is 15 ft. (21/11/98): A complaint was laid by the secretary of the Miners' Union, to the Hon. the Minister of Mines, against the inspection of this mine—that it was in a very unsafe condition. (7/12/98): A joint inspection was made by the Inspectors of this district, and a full report was forwarded to the Mines Department. The result of this inspection did not prove satisfactory to the Union; and, at the request of the Rt. Hon. the Premier (during his visit to Reefton in company with His Excellency the Governor), two practical miners were appointed by the Miners' Union to accompany the Inspector, and a full and exhaustive inspection was made of every detail connected with the workings. The report of their examinations simply confirmed my statements—namely, that the mine was safe and in a most satisfactory condition. Ventilation throughout the mine good. Mr. James Martin is mine-manager *vice* Mr. Greenish, resigned. One hundred and eighty men are employed at this mine, apart from battery and chlorination works. Reports up to date, and other provisions of the Act enforced. Seven inspections made during the year.

*Wealth of Nations*.—(4/2/99): Since this group of mines was taken over by the Consolidated Goldfields of New Zealand, the works carried out have been principally of a development character—to cut off the two present winding-shafts, and to place a shaft in a more central position of the field. A new incline-shaft was sunk from the battery level to a depth of 630 ft. This shaft is being fitted with winding-gear. The 350 ft. level has been extended on the reef-track 440 ft., with a crosscut 211 ft., and winze 36 ft.; on the 500 ft. a crosscut is driven 141 ft. These crosscuts are being continued. Extensive repairs in retimbering the battery level; also the old Energetic battery level, which had collapsed, was retimbered for 300 ft. Timber repairs in the stopes have also been done. Reports up to date. Thirteen men employed. Ventilation good.

*Keep-It-Dark Quartz-mine*.—(24/3/99): During the year the principal works carried on were the development of the new reef that was lately discovered about 200 ft. south-west from the main shaft. Crosscuts from Nos. 1 and 2 intersect the reef at 150 ft. and 200 ft. respectively. The stone, which averages 9 ft. in width in both levels, was found under similar conditions, and has been driven on for 160 ft. and 170 ft. Rises from No. 2 to the surface are connected and thoroughly timbered throughout with substantial ladders. The passes provide good ventilation, and in future will serve to fill the stopes from the surface dump. To prove the existence of the reef to deeper levels a crosscut from No. 3 is being driven under contract by three shifts. With the exception of No. 3 crosscut, mining operations are suspended at present until the cyanide plant by A. G. Price, engineers, Thames, is ready to treat the tailings direct from the battery. Reports to date.

*Hercules Quartz-mine*.—(6/9/98): Four contractors are driving an easterly crosscut on No. 7 level, 300 ft. from the main shaft. At time of my visit prospects were unfavourable. Since this contract was finished work has ceased. Ventilation was good, and all other material was in good condition. The manager was instructed to post his name at the mine. Reports to date.

*Keep-it-Dark No. 2*.—(28/6/98): Work at this mine is very irregular, being chiefly of a prospecting character. Since last visited No. 2 level has been repaired, and four men had driven 70 ft. out of the 100 ft. that was contracted for. (24/3/99): Work has ceased.

*Golden Fleece Quartz-mine*.—(28/6/98): This property is now connected with the Inangahua low-level tunnel. (12/11/98): The intermediate on the line of the Fleece lode has been extended to a total length of 630 ft., and well timbered throughout. Ventilation is good. Travelling-ways and all other works were found in good condition. Reports are kept regular and up to date.

*Ajax Quartz-mine*.—(28/6/98): On this property six men are employed on surface-trenching.

*Sir Francis Drake Quartz-mine*.—(11/11/98): From the bottom of the shaft a low-level has been driven 78 ft. along the line of reef, also a rise 130 ft., which connects Nos. 2 and 1 levels. These works are well timbered. The ventilation is very good. The manager's attention was called to the tins that were in use for carrying explosives, and this matter was strictly attended to. Twelve men were employed.

*Big River Quartz-mine*.—(9/12/98): The principal work at present being pushed forward is driving the intermediate between Nos. 5 and 6 to connect with the winze from No. 5, which was sunk on a small block of stone. On further extension of the intermediate a compact block of rich stone was met with about 48 ft. in length by 5 ft. in width. This block is now stoped, and the crushing from this stone has given very handsome returns. Ventilation was very good. Reports well kept. Twelve men employed.



*St. George Quartz-mine.*—(10/12/98): This sandstone formation, which is composed of small gold-bearing quartz-veins, is worked from 6 ft. to 12 ft. in width, on tribute. Mr. James Sutherland is in charge. The plant consists of a five-head stamp-mill, driven by water-power. Up to the present only seventeen loads have been treated.

*Last Chance Quartz-mine.*—(12/7/98): This property is situated on the Big River Road. The formation is sandstone intermixed with quartz-bearing veins. It varies in width to about 30 ft., and is worked in an open face. The greater portion of this ground is put through the mill, as it is difficult to pick out the valuable stone. A five-stamp battery, driven by steam-power, forms the plant. This is a private company of four men.

*Inkerman Mines.*—(7/2/99): On this property extensive developments from the Rainy Creek side have been carried out. The chief work is the completion of the low-level tunnel which connects the Rainy Creek with the new Inkerman shaft, a distance of 3,762 ft. A considerable amount of crosscutting and rising has been pushed forward in view of striking at lower levels the ore-bodies that are known to exist in the New Inkerman and Scotia, but the developments so far have proved of little importance. All operations in connection with the low-level tunnel have ceased. In the No. 2 Supreme sixteen men are employed to determine the blocks that are on the main drive, but up to the present nothing of a permanent character has been found. Timber and ventilation are strictly attended to. Twenty-seven men are employed. At time of writing all work was suspended.

*Golden Treasure.*—(15/11/98): This property has been reopened by the Anglo-Continental Gold-mining Syndicate (Limited), Mr. James Naismith, mine-manager. The shaft by which mining operations are connected is 308 ft. in depth, and is divided into two winding compartments and one ladderway compartment, which is furnished with a substantial ladder. The only work that is being done is repairing No. 1 level, which is retimbered in a very substantial manner. The winding-cage in use, which was not provided with proper safety appliances to raise and lower persons, was prohibited, and the manager was duly notified to that effect; also with reference to fencing across the entrance to the shaft and over the shaft's mouth. Five men employed.

#### VICTORIA RANGE.

*Cumberland Extended.*—(11/11/98): The principal work is pushing forward the leading stope and timbering the passes. The drives throughout the mine are all well timbered and in good condition. Ventilation is good. Fifteen men are employed.

*Kirwan's Reward.*—(14/11/98):—The prospecting work carried out on this property is under the supervision of Mr. W. Kirwan, on behalf of the Anglo-Continental Gold-mining Syndicate (Limited). The Nos. 1, 2, and 3 tunnels have been driven 480 ft., 291 ft., and 312 ft. west respectively. They are well timbered and ventilation good. At present work has ceased in Nos. 2 and 3 tunnels, but four men are employed preparing the ground to start other two crosscuts. The works throughout are in a satisfactory condition.

*Boatman's Exploration Company.*—(14/11/98): On this property prospecting is principally carried on by sinking shafts 6 ft. by 3 ft. No. 1 shaft, situated about 4 chains east of Kirwan's Reward, and No. 2 shaft, situated 3 chains south of Lord Brassey, are sunk to depths of 12 ft. and 15 ft. The ground sunk through is a formation of loose slate intermixed with small particles of quartz. The shafts are close timbered. Mr. J. McRafferty is mine manager.

*Welcome.*—(22/8/98): The works on this property still continue of a development character. No. 5 drift has been extended north 250 ft. A winze was sunk on the reef 100 ft., and the same reef was followed by a rise for 149 ft. Crosscuts from this level were driven east and west 246 ft.; and two men are engaged in cleaning out No. 6 level. Nos. 2 and 4 levels have been retimbered, and 1000 ft. on the specimen low-level tunnel was cleaned out during the past two months, which work is being continued.

At the Just-in-Time work will be started as soon as the road is made to deliver machinery at that point, which work is expected to be completed at an early date.

#### PAPAROA RANGES.

*Julian Quartz-Mine.*—During the year a mutual agreement between the Julian Gold-mining Company and the Victory Gold-mining Company was arrived at, and an amalgamation of the two properties under the title of the Julian Gold-mining Company was confirmed. Mr. Charles Curtis, late partner in the Victory, is now mine manager. Since the amalgamation of the properties a prospecting tunnel on the west of the Victory line of reef has been driven 260 ft.; also 7 chains of tramway and 260 ft. of shoot to connect the Julian reef with the Victory low-level tunnel have been built, this work being necessary to convey the ore across the Victory lease, and to connect the Julian section of the property with the battery-incline. Stopping on both sides of the reef is steadily carried on. Ventilation good; nine men employed.

*Cræsus (Paparoa).*—The surface developments that have been erected consist principally of a ten-head battery and aerial tram-line by the Despatch Foundry Company, Greymouth. From the upper terminal, the tram-line rises for nearly 200 ft. to the crest of the mountain, whence it descends for 2,300 ft. to the machine-site; the average gradient is 1 in 3, and the distance between terminals a mile and a half. The battery, which is under the charge of Mr. R. W. Raithby, is worked intermittently, as the mine developments are not sufficiently advanced to keep the mill continuously employed. Under these conditions the battery works on an average twelve hours per day, but in the near future it is expected that sufficient ore will be obtainable to increase the output and enable the battery to be worked night and day. The mined ore for battery purposes is confined to No. 1 level, in which the reef has been followed for 300 ft., and proved to the surface outcrops, giving backs varying from 110 ft. to 190 ft., which increase in height as the drive extends into the hill. The reef varies from 6 in. to 8 ft., and the value of the ore varies with

the size of the stone, but generally best where the reef is thin; average value, 16 dwt. per ton. A winze from No. 1 level, to test the descent of the ore-body, preparatory to driving the No. 2 adit-level, is sunk between 50 ft. and 60 ft. on a reef which averages 2 ft. in width. The quality of the ore seems to improve with the depth. A contract to drive the No. 2 adit-level will be let in the course of a few days. The distance estimated to cut the lode is 400 ft. During the past few weeks the mine-manager has been engaged opening up a new line of reef which runs in close proximity to the main lode. They form an obtuse angle with each other, and their course is east-north-east north and south. This ore-body, which averages 1 ft. in width, appears to be of high grade, and has been intersected by an adit at a depth of 90 ft. from the surface. The size and quality of the stone are similar to the outcrop-stone. A tram-line is being constructed to convey the ore to the paddock, and in the course of a few weeks stone will be obtainable for battery purposes. Mr. T. Crabb, mine-manager, has at present thirty men employed under his charge.

## Ross.

*Antonio Zala's Tunnel, Donnelly Creek.*—(13/9/98): This old subsidised tunnel is now driven 1,027 ft. Up to the present nothing of a promising character has been found to warrant further expenditure.

*Gagliardi and Son, Mount Greenland.*—(13/9/98): This subsidised tunnel is now driven 416 ft. So far, developments have proved nothing of importance.

## ACCIDENTS AND FATALITIES.

*Progress Extended Quartz-mines.*—(3/7/98): A chamber-man in B shaft named George Faulkner fell into the shaft with a loaded tub from No. 6 level, and was killed.

*Big River Quartz-mine.*—(19/1/99): A miner named John Morton was killed by a stone which fell from the face, striking him on the head while he was assisting to lift a cap-piece.

*Progress Extended.*—(14/2/99): At the bottom of B shaft a sinker named John Mason met with an accident, which terminated fatally, by the descent of the cage crushing his body. (22/3/99): A miner named David Spalding received a scalp wound and bruised shoulder by a fall of stone while preparing a set of timber at the face. Injuries not serious.

## NELSON AND WEST COAST DISTRICTS.

The following statement, compiled from the monthly returns furnished by owners of quartz-crushing machines, shows the quantity of stone crushed, and the yield of gold from the various mines for year ending the 31st March, 1899:—

Name of Mine.	Ordinary Quartz Crushed.				Tailings.							
	Amalgamation.				Cyanide.				Chlorination.			
	Tons.	oz.	dwt.	gr.	Tons.	oz.	dwt.	gr.	Tons.	oz.	dwt.	gr.
Alpine Extended ...	11,286	3,245	7	0								
Progress ...	29,942	12,301	3	12					314	1,271	14	0
" ...	6,340	2,660	13	0								
Wealth of Nations ...	1,498	602	12	0								
Keep-it-Dark ...	2,224	891	9	13								
Big River ...	730	1,067	7	0	2,489	613	7	0				
Victory ...	77	82	19	0								
Golden Lead ...	24	29	18	0								
Sir Francis Drake ...	1,573	573	14	0								
Welcome ...	60	50	15	0								
Merrijigs (Fleming and party) ...	20	24	3	0								
All Tributaries ...	4	5	15	0								
Kelly, Edge, and Smith ...	76	14	10	0								
Last Chance ...	350	148	16	0								
No. 2 South Dark ...	12	4	7	12								
Australasian Gold Trust (Limited) ...	177	510	15	0								
Julian ...	110½	129	19	7								
Croesus ...	750	589	12	0								
Cumberland ...					6,335	1,700	10	20				
Totals ...	55,253½	22,933	15	20	8,824	2,313	17	20	314	1,271	14	0

## ALLUVIAL MINING.

## MAHAKIPAWA.

*The King Solomon Mine.*—(2/7/98): The auriferous gutter which forms the ancient bed of the Mahakipawa Creek is the seat of operations. Since Mr. Alexander Campbell (mine manager) took charge, the tunnel entered a narrow gorge 5 ft. in width, that was driven in for 100 ft., when the position of the level was raised 10 ft. by a jump-up. On this higher level the gutter was followed

for 150 ft. with prospects improving as the drive proceeded. The lead, after emerging from the gorge, has taken a gradual bend towards the centre of the valley, and is now running in a straight course with the old King Solomon shaft. The solid "barrier" between the old and the new workings is 306 ft. in thickness. Eight men are employed. The drive is securely timbered. (17/1/99): Owing to a break in the water-race, work was at a standstill. These repairs have been completed, and operations are now in full swing.

*Wakamarina Gorge Claim.*—(4/7/98): At time of visit work was suspended. Mr. Thomas Alexander, manager for the company, gives the following information: From the upper dam—that diverts the Wakamarina river into the main channel—to the pump-well 128,000 cubic yards of gravel was raised from the bed of the Deep Creek Gorge with unprofitable results. The No. 3 Bay, situated between the pumps and the lower-dam, still remains to be proved. (17/1/99): Operations were at a standstill.

Mr. Alexander along with another man makes a living sluicing on the banks of the gorge.

A local company are bringing in a water-race from the old reservoir situated on Grimmety Hill, to work the Yukon, Hamilton Flat.

#### COLLINGWOOD.

*Parapara Hydraulic Sluicing Company.*—(16/1/99): This company hold an area of 150 acres, with a water-right of 100 heads from the Parapara river. The main pipe is about two miles in length, and ranges from 30 in. diameter at the intake to 18 in. at the works. The upper layers of the wash-dirt are sluiced over two open tail-races, whilst the deeper ground from which the best results are obtained is lifted by means of elevators to height of 60 ft. Twenty men are employed.

*Quartz Ranges Crushing and Sluicing Company.*—This property was not visited during the year.

*Rocky River Sluicing Company.*—This property was also not visited.

#### MARUIA.

*Hector Sluicing Claim.*—(22/11/98): This company hold an area of 39 acres 2 roods 43 perches, and employ ten men. The wash-dirt is about 70 ft. in depth, with course boulders, and the water-supply depends much on the season. Plush tables are being erected to treat the fine gold.

On the Maruia River and its tributaries fifty men find employment.

#### WESTPORT.

*Halligan and Party's Claim, Addison's Flat.*—(29/12/98): This private party of six men continue sluicing operations on the east side of the Charleston road.

*Shamrock Claim.*—(29/12/98): Since the extension of the sand-tunnel and the removal of the elevating-plant to the north face were completed, sluicing operations have been carried on by two shifts, with very profitable results. Eleven men are employed.

*Bendigo Sluicing Claim.*—(30/11/98): This property is owned by the General Exploration Company. The extensive development works are completed, and sluicing operations were being carried on in full swing, but at time of writing this property has ceased work.

*Fairdown General Exploration Company.*—(24/11/98): Sluicing operations were carried on with six men. Operations on this property are also suspended.

*Mackle and Party.*—(29/8/98): This party of five men hold an area of six acres, with a water-race of two miles and a half in length. Its carrying capacity is ten heads, and the intake is the Orawaiti River. Operations consist of sluicing and raising the *débris* by means of an elevating tramway, worked by a water-balance. The face operated on is a deposit of tailings, 50 ft. in depth, which were deposited into the Caledonia Gully from the upper terraces. Good wages are made.

*Jamieson and Party.*—This party consists of two men. This ground is worked from two tunnels, 1,300 ft. and 700 ft., and water is supplied from Ballarat Creek.

*Waimangaroa River.*—Along the banks of this stream, ten parties make fair wages by driving small drives into the banks, and washing the drift in the stream.

#### REEFTON.

*A1 Sluicing Claim.*—(6/2/99): This subsidised prospecting-tunnel has been extended to a total length of 1,457 ft., and crosscuts driven west from the main tunnel 200 ft., with unfavourable results.

#### AHAURA.

(10/3/99): In this district there are eleven claims, which employ nineteen Europeans and seven Chinese.

#### ORWELL CREEK.

(9/2/99): The Napoleon Company's old shaft mines are still worked by a few men. Several parties are opening out fresh claims in a gully about three miles east from the village. Nothing of importance was discovered. About thirty miners find employment in this locality.

#### NELSON CREEK.

(1/11/98): In this old mining district employment for ninety miners is still found.

Shellback and Baxter's Creeks are worked by forty Chinese.

Moonlight Creek and its tributaries give employment to sixty miners.

*Callaghan's Creek.*—(29/10/98): This district supports nine Europeans and eight Chinese.

*Bellhill Hydraulic Sluicing Claim.*—(3/11/98): This property, which is owned by a Christ-church company, employs five men. The face has a depth of about 200 ft., and is operated on by two nozzles. The wash from the tail-race is treated over a cocoa-matting-surface table.

*German Gully, near Callaghan's Creek.*—(1/11/98): This property is owned by a Sydney company, and employs three men. Operations are confined to clearing out an old drainage tunnel, but owing to a break at the face work had ceased.

*Healey's Gully.*—(2/11/98): The subsidised water-race in this locality has caused quite a mining boom. Twelve parties, which include a total of thirty-two miners, make good wages.

*No Town Creek.*—(24/2/99): On this creek there are about eighty Europeans and forty Chinese, working single-handed.

Thomas Walton's claim, situate about seven miles distant from the township, pays very handsome wages. The washdirt is 20 ft. in depth and overlies a sandstone formation. The extension of this lead is being prospected by three other parties. Scarcity of water is the chief drawback.

#### GREY RIVER.

*Antoni's Creek.*—(10/3/99): The washdirt varies from 3 ft. to 9 ft. in depth, and when water is scarce the dirt is washed in cradles and long-toms. This class of gold-saving gives employment to twenty-four Europeans and thirty Chinese.

*Blackwater Creek and Tributaries.*—(10/3/99): Long-tom boxes is the usual method of treating this ground. In some cases the surface is sluiced off, while others drive out the ground, and very satisfactory results are obtained. On this creek there are 120 Europeans and eighty Chinese at work.

*Junction and Noble's Creeks.*—A few Chinese and three Europeans work along the banks of these creeks, also three dredging claims are pegged off. Immediately these streams are proclaimed sludge-channels for the discharge of mining *débris*, prospecting will proceed.

*Snowey Creek.*—Preparatory to sinking operations being commenced at the quartz-mine, the survey-line of a water-race for motive-power is well forward.

*Big River Creek.*—There are nine miners sluicing.

#### GREY VALLEY.

*Sulky Gully Water-race.*—(6/12/98): The construction of this subsidised water-race, which is two miles and a half in length, includes 545 ft. of tunnelling, and at the intake a very substantial dam is built. The work throughout has been completed in a workmanlike and satisfactory manner.

*Duffers and Brandy Jack's Creeks.*—The mining population on these creeks continues about the same. The various claims are worked by six parties, which include nineteen men, also several one-man claims and six Chinese.

#### HOKITIKA.

*Craig's Freehold.*—(6/9/98): This property was the scene of a serious mining accident, by which James McKenna, jun., Edward Roberts, and David King, lost their lives by being buried under a fall of roof, which was fine sand. After the bodies were removed the mine was abandoned.

(29/10/98): Mr. James Craig notified me that he had let his freehold, South Hokitika, for the purpose of mining. Two parties of tributers will commence operations on the 31st instant.

(10/3/99): Operations are started to reopen and develop this property by driving tunnels from the north and south sides of the auriferous belt. These drives are driven 256 ft. and 300 ft. respectively, and are very securely timbered. Provision for ventilation is made from an old shaft on the north side, but for the south drive a shaft will be sunk. The work is carried on under tribute-system by two parties of six men each. Mr. Charles Chesterfield is in charge of the party on the north side, and Mr. Robert Gouldie heads the other party.

*University Reserve.*—(10/3/99): A party of four men work this claim. Mr. McDonald is in charge. Operations are confined to sluicing off a block which adjoins an old shaft.

*Shanghai Claim.*—(10/3/99): The principal work done during the past three months is the removal of the working-plant to the south side of the claim. On completion of this work active operations will commence.

*New-chum Gully.*—(28/3/99): In Messrs. Noble, Stenhouse, and Crawford's drainage tunnel the country driven in is locally known as "old-man bottom," and satisfactory progress is being made.

*Main and Party's Drainage Tunnel, Kanieri.*—(28/3/99): This subsidised tunnel has been driven from the paddock a total distance of 475 ft., and thoroughly timbered.

*Tucker Flat, Kanieri.*—(7/12/98): Messrs. Holmes and party's drainage-tunnel has been driven a further distance of 118 ft., and well timbered.

#### KUMARA.

*No. 5 Channel.*—(24/6/98): Work is progressing very satisfactorily with exception of the ventilation. The trustees' attention was called to this important matter, also the cage on No. 1 shaft. Mr. Burger promised that these matters would be strictly attended to.

*Deep Level.*—(24/6/98): The ground, which is intermixed with large boulder-stones, continues hard and wet. The contractors are making satisfactory progress in driving.

*No. 4 Channel.*—(23/6/98): Owing to a break in the roof 945 ft. in from the mouth of the tunnel, all sluicing operations connected with this channel were at a standstill for a considerable time. Repairs were satisfactorily completed, and operations are again in full swing.

## Ross.

*Mont d'Or Claim.*—(26/10/98): The year past has been one of success for the company, owing chiefly to the very wet season that has been experienced throughout the Coast. The yield of gold was 1,532 oz. 7 dwt. 6 gr.: value, £6,009 6s. This shows an increase on the previous year of 300 oz. During October and November water was available for forty-four days out of forty-eight, which time constitutes two months' washing. The yield of gold for that period was 656 oz 6 dwt. 12 gr. This shows that, with a continuous water-supply, the yield can be easily increased. The company's water-races, sixteen miles in length, are in good order, having been overhauled and retimbered during the year. A new pipe-line has been laid down to the upper face, which very much facilitates operations, also a line for 800 ft. of 22 in. diameter pipes laid to the lower face, which will increase the pressure and water-supply considerably. The shareholders have been paid 4s. in dividends during the year.

*Ross United.*—(26/10/98): Sluicing operations are still continued with twelve tributers.

*Prince of Wales.*—(26/10/98): This property was lately bought by Mr. C. Davey for a syndicate. The claim is now worked by eleven tributers.

(26/10/98): Marchesi and Scott, Clearwater, are cleaning out an old drainage-tunnel. Two men are employed.

## CEMENT-MINING.

## ADDISON'S FLAT.

*Golden Sand.*—(14/7/98): The south face, where operations were commenced, has been abandoned owing to the large quantity of boulders that were embedded in the cement. On the north side of the claim a new face is opened, from which better results are obtained.

*Venture Claim.*—(14/7/98): This claim was idle owing to repairs to water-wheel.

## DREDGING.

*Buller No. 2 Dredge.*—(21/9/98): The mechanical appliances that are placed in position for the successful working of this dredge are substantial and of the most improved types. Since operations were commenced a large area of ground has been gone over, with satisfactory results. Owing to the high bank it was found necessary to lengthen the elevator; but, apart from this stoppage, the dredge has been kept steadily at work, every part of the machinery running well. The dredge is fully equipped with all the necessary safety-appliances, in accordance with the Act, for the safety of life.

*Matakitaki Dredge.*—(19/11/98): This dredge, when in full work, gives employment to eleven men and one boy, exclusive of two men who are employed by contract for the supply of timber. The dredgemaster's attention was directed to the well not being provided with a proper bridge for the convenience of the workmen. A circular was posted, calling his attention to section 29 of "The Mining Act Amendment Act, 1895," Passenger-boat and barge, to convey firewood on board, are provided. Mr. William Faithful is dredgemaster.

*Wakamarina Dredge.*—(17/1/99): Since last visited, this dredge has not done any work. Unfortunately, during the last flood the front portions of the pontoons were filled with water, consequently the dredge is virtually standing on end.

*Imperial Dredge.*—(17/1/99): This new dredge is being built to the order of a Wellington company. Mr. Gale is legal manager. The company's office is in Featherston Street, Wellington. A circular of regulations was forwarded to Mr. Robert Cunningham, foreman.

*Mahakipawa Dredge.*—(17/1/99): This dredge is idle, and information of a reliable character could not be obtained as to future operations.

## ACCIDENTS AND FATALITIES.

*Fern Flat.*—(16/5/98): A miner named Charles Deas had his leg broken by a fall of earth in his tail-race.

*Craig's Freehold.*—(6/9/98): Three miners, named James McKenna, jun., Edward Roberts, and David King lost their lives by a fall of roof, which was fine sand.

*Mont d'Or.*—(4/3/99): A miner named George Brown had his leg broken by a stone rolling from the face.

*Woodstock.*—(23/3/99): A partner in a private claim, named Robert Douglas, had his right leg broken by a fall of reef at the face.

## GENERAL REMARKS.

Owing to Mr. Richards's (Assistant Inspector of Mines) duties being confined with Mr. Dick, Government Valuer, on the Grey River and its tributaries for the past three months, a number of small outlying properties, particularly on the Paparoa Ranges, have not been visited.

The gold-mining prospects in the Westport District are not of an encouraging character at present.

Judging from the advanced stage of development of the new reef in the Keep-it-Dark, together with the addition of the extensive cyanide plant that is newly erected, a very considerable increase in the output of gold may be anticipated.

I have, &c.,

R. TENNENT, Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

## No. 16.

Mr. JOHN HAYES, Inspector of Mines, to the UNDER-SECRETARY for MINES, Wellington.  
SIR,— Office of Inspector of Mines (Southern District), Dunedin, 26th April, 1899.

I have the honour to present the following report on the gold-mines visited during the year ending the 31st March, 1899:—

## QUARTZ-MINES.

*Barewood Reefs, Barewood.*—(8/12/98): On visiting this property, I found the operations had been stopped by the exploiting syndicate (the Anglo-Continental and the London and New Zealand Exploration Companies jointly), and that the plant was being dismantled prior to its sale. A considerable amount of work has been done and money spent without finding anything sufficiently good to warrant further development. As stated in my last report, three shafts were being sunk in a line parallel to the line of reef, and a tunnel driven from the Taieri River Gorge. The latter was (approximately) 300 ft. in when stopped. No. 1 shaft was sunk some 200 ft., and a cross-drive driven to cut the reef, but, after being continued to beyond the perpendicular line of reef at surface, failed to meet with any quartz. This crosscut, however, crossed well-defined walls filled in between with angular pieces of country rock and mullock. This "lode-track" was driven on in a southerly direction for nearly a chain, when an extra quantity of water was tapped, which eventually overpowered the two pumps. Up to this one pump could effectually deal with the water. When it was found that the water was too much for the pumps, the work was stopped. No. 2 shaft was sunk to nearly 200 ft., and a crosscut driven in a similar manner to that at No. 1 shaft without finding any reef. Two walls, with mullock filling, were cut through at some 40 ft. from the shaft, and a drive put in northwards for, say, three-quarters of a chain without finding any quartz. Both in the shaft and crosscut the country rock was very hard, and the water less than in either of the other shafts. No. 3 (or Scott's Gully) shaft had just passed through 7 ft. of reef at my previous visit, at a depth of 150 ft. The shaft was continued to over 200 ft., and at the 200 ft. level the reef was cut a few yards to the east of the shaft, where there is a large body of stone which maintains its width to where work was stopped on the south side. Going north the reef decreases in width, and was only some 8 in. wide at the face when operations ceased. Some 80 ft. above this level the reef was also driven on in both north and south directions, and maintained an average width of over 4 ft. The best quartz was found on the hanging-wall side. A good quantity of water was met with at the 200 ft. level. From time to time 53 tons of quartz was crushed, and yielded 10 oz. of gold.

*Canada Reefs, viâ Milton.*—(2/12/98): Messrs. Lawson, Ritchie, and Andrew have a claim here of 80 acres, which has been let on tribute for a term of three years to Mr. W. G. Mouatt, late underground manager at Achilles Mine, Bullendale. There are three lines of reef, known as Ocean View, Canada, and Lawson's. The first-named two were worked about twenty-five years ago to some extent, and are said to have yielded fairly good returns. Some years ago a low-level adit was driven, the object being to cut the Ocean View Reef at a distance of 700 ft. from the adit mouth. Owing to a disagreement among the then holders, this distance was not accomplished and the place was abandoned. Subsequently Lawson and party drove a crosscut from the face of the adit (600 ft. from mouth). This crosscut was driven 200 ft., passing through lode-formation carrying a trace of gold, but not finding any defined reef. This place is not now at work. Present operations consist of an adit-level (near the top of the hill) on the Ocean View Reef, which will gain about 125 ft. of backs, and a small shaft, which will be connected with this adit. This shaft is 60 ft. deep; levels have been commenced on each side, that on the west side being 35 ft. in, the reef varying from 1 ft. 6 in. to 4 ft., carrying payable gold; on the east side the level is 60 ft. in, and the reef 2 ft. 6 in. wide, carrying fair gold. To my mind, this side looks as though it will maintain greater permanence than the other. The reef is nearly vertical, and the shaft described is some 400 ft. higher than the low-level adit. It is proposed to sink a trial shaft on the Canada Reef, which, where it has been worked at surface, shows a width of from 4 ft. to 6 ft. as a rule. A ten-head battery has been erected at the mouth of the low-level adit, and a self-acting incline constructed to bring the stone down from the upper adit and shaft. It is expected that crushing operations will commence early in the new year. Water rights are held by the party for twelve heads of water from a tributary to the Waipori River, and a pressure due to a vertical height of 400 ft. is available to drive the Pelton wheel at the battery. Twelve men are employed at present. It is expected this number will be doubled when the place has got fairly to work.

*O.P.Q. Gold-mines, Waipori* (C. Rillstone, provisional manager).—(9/11/98): Since my last visit, work appears to have been pushed forward with a good deal of energy. The main shaft, 12 ft. 6 in. by 4 ft., has been sunk to a depth of 220 ft., a new Roby "Undertype" mining-engine, with winding and pumping gear, set to work, head gear (poppet-heads) erected and fitted with safety-cages and detaching-hooks. The pump is 9 ft. diameter by 5 ft. stroke, both lift and force. At present the lifting-set only is in use in connection with the sinking, and one cage in use for lowering the men to a platform at 200 ft. and raising them to the surface. The *débris* from the sinkers is raised in a bucket in a separate compartment. A lot of new plant is on the ground, ready for use as soon as required. It is proposed to cross-cut the reef at 300 ft. deep. As stated in my last report, two tunnels were being driven on the line of reef. These have been continued, and are now in 940 ft. and 1,120 ft. respectively. From this latter tunnel a crosscut (east) is being driven to the new shaft, and will form an adit for water. This crosscut passes right through an old shaft which has been cleaned out for ventilation. Owing to the fact that the first-mentioned (and shorter) tunnel starts from the surface at a considerable distance further up the gully than the other one, it is really leading by about 800 ft., the vertical distance between the two tunnels giving the lower and longer one about 80 ft. of backs. The line of reef is approximately north and south, and very patchy so far as seen. From the upper tunnel a cross-

cut has been driven west in the foot-wall for 87 ft., and from the lower tunnel a crosscut was similarly driven for 121 ft. without meeting with any parallel reef. Some 400 tons of quartz has been taken out of these tunnels, and, I am informed, shows a yield of 14 dwt. per ton on being assayed. The battery-site is being prepared, and a good portion of the machinery is on the ground. (22/2/99) The sinking of the main shaft is being continued, and at this date is 250 ft. deep. The low-level adit tunnel, previously named, is now connected by a crosscut to the shaft at a depth of about 70 ft. from the surface. The pump now delivers its water to this level. Both adit tunnels have been continued on the line of reef, and have passed through old workings into a fair thickness of stone. The battery-plant is not yet erected, but portions of this work are in progress.

*Gabriel's Gully Prospecting Association, Lawrence.*—(13/9/98): Since my last visit the prospecting works have very considerably advanced at the low-level tunnel, but the reef has not been picked up beyond the "cross course." A drive has been commenced to prospect the solid country through the main (Blue Spur) fault. At about 28 yards beyond the fault, a small quartz-leader was cut; this is being followed up, and the main drive is also being continued. The latter shows patches of quartz. Mr. E. Johns is in charge of the work, three men being employed. Tunnels, &c., all in first-class order. The operations of the association were specially reported on to the Hon. Minister of Mines under date of the 26th September, 1898.

*Excelsior Quartz-mine, Old-man Range (S. W. Gray).*—(17/1/99): Five men are employed here. The reef consists of granulated quartz, and averages 2 ft. 6 in. thick, but sometimes attains to a thickness (or width) of 6 ft. It is also variable in its inclination, in this respect resembling the reefs at Carriek Range. The nature of the country rock necessitates very close timbering, and Mr. Gray takes considerable care over this. At present all the stone is raised up a small shaft by hand power, but an adit is being driven at a lower level, and when this cuts the reefs the shaft will be dispensed with for hoisting purposes. The battery is a light one, with three heads of stamps driven by a 3 ft. Pelton wheel, with a water pressure of 43 lb. per square inch. Owing to the high altitude of this mine (some 3,000 ft. above sea-level) work can only be carried on for eight or nine months in the year.

*Excelsior Extended Quartz-reef, Old-man Range (Holden and Gray).*—(17/1/99): A new mine is being opened out here about a mile east from Gray's Excelsior Mine, and at a level some 500 ft. lower. The reef is supposed to be the same as that worked at the Excelsior, and where found at the surface at this new claim appears very broken, but it is expected to turn out more solid when followed further into the mountain. It is of the same character as up above (granulated) and a dish I saw washed showed a good prospect of rich gold. Mr. Holden states that this gold realises £4 per ounce. Two levels have been started: the lower one is 79 ft. in and below the reef, the upper one is on the reef with stone 1 ft. 6 in. wide at the face. It is intended to erect a small battery here. The gold here and at the Excelsior Claim is very pure and easily saved; it amalgamates very readily.

*Rough Ridge Reefs and Battery.*—(22/9/98): Nothing is being done here at present.

*Bendigo Reefs (Cromwell Proprietary Company, Limited).*—(2/3/99): At my previous visit the mine here was being worked on tribute. Since then certain changes have taken place in the administration of the company's affairs, and the company now works the mine by day-labour. Mr. J. A. Dobson, late of the Thames District, has recently been appointed to the management. On this date I found work going on in the old level (where the tributers were working last year), and also in the south branch of the reef at the 150 ft. level. Ventilation, &c., was very satisfactory, but I had to again find fault with a workman for carelessness in respect to explosives. Nineteen men are employed underground here. At the main deep-shaft no work is being done except pumping. Some 600 yds. to the east of this shaft a new shaft 9 ft. by 4 ft. has recently been commenced, and is now down 60 ft. It is proposed to sink down to 200 ft. and then open out, but Mr. Dobson says there is a possibility they may put in a crosscut at 100 ft. down, to prove the reef at that depth. This shaft is further east than any existing workings on the company's claim, and will command a line of reef of some 2,000 ft. in length to the boundary of the claim. About half a mile to the east of the claim there are some old shafts on what is supposed to be the same line of reef as that worked by the company. Including contractors for the new shaft, and battery-men, thirty-five persons are employed.

*Carriek Range Quartz Reefs, Bannockburn.*—(7/3/99): Messrs. Lawrence Brothers are working the Day-dawn Mine, which includes the old Caledonian Mine, this latter being at level some 130 ft. higher than the former. The reef is nearly vertical, and averages 18 in. wide. Three persons are employed. Messrs. Lawrence estimate they have seven or eight years' stone to work at their present rate of output. The gold obtained is said not to average more than  $\frac{1}{2}$  oz. to the ton of stone, which gets more refractory as it goes deeper, the foreign metals being arsenic and antimony. The battery is near the low-level (Day-dawn) adit, and has four heads of stamps (800 lb.), driven by a hurdy-gurdy wheel receiving its water at a pressure due to a head of 250 ft. vertical (108 lb. per square inch). There is also a berdan. Water is obtained from the Carriek race (which supplies part of the Bannockburn diggings), and conveyed to the battery by 7 in. pipes, 450 ft. in length. At the Star Mine and battery (belonging to Mr. James Lawrence) three persons are employed, surface stone only being got at present. This is said to yield 15 dwt. of gold to the ton. The battery has ten heads of stamps, and is driven by a hurdy-gurdy water-wheel. Water is obtained from the Carriek race, and is conveyed through 900 ft. of 7 in. pipes for a vertical distance of 210 ft. On the opposite side of the ridge from the Star Claim a prospecting tunnel is being driven by Mr. T. Holliday, who has a claim of 54 acres. The tunnel is in some 300 ft., but the reef not yet cut. Nothing has been done at the Young Australia since my last visit, but I hear that some fair stone has been met with in the locality by a party prospecting, but no work yet done of a permanent character.

*Tipperary Mine, Macetown (Westralia and New Zealand Gold-explorers, Limited) (W. J. Stanford, manager).*—(15/10/98): The winze-shaft, which was being sunk at my last visit, is down over 90 ft., and a level opened out on the line of reef from both sides of the winze, that on the east

side being 80 ft. in, showing the reef to be 3 ft. 6 in. wide, and carrying the best gold near the hanging wall. The west level is upwards of 60 ft. in, the reef being 3 ft. wide at the face. The stone from the level in the winze-shaft has yielded 15 dwt. to the ton. At the top of this winze a chamber has been cut for the reception of hoisting-gear, to be worked by an oil-engine, and an excavation made vertically above the winze to allow of height for winding pulley-frame and shoot. In the main level the stone has pinched out, so that the only milling-quartz at present in sight is that in the winze-workings. At my inspection in February last I objected to the system of ventilation adopted, and suggested that prompt measures should be taken to provide a second outlet to the surface, which would act both as an airway and as a means of escape for the men in the event of accident. My wishes are now being given effect to, a shaft having been sunk up Tipperary Gully down to the lode, and a level is being driven in the formation to meet another level being cut from a rise from the main level alongside old workings, and it is expected that communication will be established in the course of a few weeks. Twenty-three persons are employed, fifteen of whom are engaged in connection with the new air-drive. At this date the air was fairly good. Similar circumstances in respect to storage of explosives affect this mine in common with Premier Mine, and have been similarly dealt with. Under date of the 21st November Mr. Stanford wrote to say that the air-connection was made on the 5th instant, and gave excellent ventilation.

*Premier Mine, Macetown (Glenrock Consolidated, Limited)* (W. J. Stanford, general manager; W. Patton, mine-manager).—(14/10/98): Since my last visit arrangements have been made with the Mines Department for the storage of a limited amount of explosive material in a specially-constructed chamber connected with the mine, but at a long distance from any workings. This chamber is very satisfactorily arranged, is kept under lock and key, and only entered with a safety-lamp, and at my visit the amount of gelignite in stock was below the allowed quantity. Excellent ventilation is maintained throughout the mine, but pressure from the working stopes is causing a crush on the timbers in the main incline. This is only to be expected in the meantime until the stoped-out ground has become settled. The main incline is being continued, and is now 950 ft. down. There are also four stopes in work, and prospecting is being continued in the top level. The reefs at Macetown appear somewhat patchy. At Premier Mine, the stone dips at an angle of, say, 1 in 4 on the bottom, the walls are somewhat irregular and have a pitch of probably 50° to 60° from the horizontal. Near the top of the incline the stone has a depth of some 25 ft. by an average width of 3 ft., and gradually increases to 70 ft. deep by 3 ft. wide; it then thins out and decreases in depth to 45 ft. at No. 12 stope, and at this date is only 10 in. wide at the bottom of the incline, and is not carrying so much gold as formerly, the last crushing only averaging 8½ dwt. to the ton. Boring operations have been commenced near the battery, with the object of proving a lead of alluvial wash.

*Shotover Quartz-mining Company's Claim, Skippers*.—(9/3/99): This was formerly known as the "Gallant Tipperary," and was shut down for some time. Since the present company was formed, what is known as "the machine-level" tunnel has been repaired, and continued with the object of cutting the reef at a lower level than that at which it was formerly worked, the vertical distance between the two tunnels being 270 ft. This low level tunnel is 6 ft. 6 in. high, 4 ft. 6 in. wide at bottom, 3 ft. at top inside of timbers, and approximately 600 ft. long at date. It is thought another 500 ft. may have to be driven before the reef is cut. The tunnel is being well constructed. The ground in which the tunnel is being driven is lode-formation, but this is of no value (foliated schist, with thin, leafy, white quartz). I understand the reef exists as a block of quartz, and that at the higher level it was (when cut) found to be going down almost perpendicularly. It is from the evidences there obtained that the estimate as to the probable distance to drive in the lower level has been arrived at.

*Phoenix Mine, Bullendale (Achilles Gold-mines, Limited)*, (James S. Cherry, provisional manager).—(18/10/98): Shortly after my last visit, the company (Achilles Goldfields, Limited) went into voluntary liquidation, and has now been reconstructed under the title of the Achilles Gold-mines (Limited). In consequence of the circumstances which rendered a reconstruction of the company necessary, the working of the mine was, to a great extent, suspended for some time. The new company having engaged Messrs. John Taylor and Sons, of London, as their consulting engineers, this firm sent out two of its officers, Mr. N. C. Morcom and Mr. J. S. Cherry, as superintendent and mining manager respectively, and these gentlemen arrived at the mine on the 5th September. Since then operations have consisted principally of taking the accumulated water out of the mine, and putting the roadways and plant in order, so as to make a fresh start. It is expected that in a comparatively short time the mine and battery will be again in full swing; but before the mine can be worked to advantage, the sinking of the incline shaft will have to be continued to No. 6 level at least, and afterwards kept in advance of the working levels. Some re-arrangement of the plant is contemplated, and in all probability some renewals at the battery will have to be undertaken.

*Longwood Prospecting Tunnel*.—(22/6/98): This tunnel was driven 950 ft. at my visit on the 31st August, 1897. Since then work has been standing for some time, but was resumed recently. At that date I estimated a reef might be cut at, say, 1,000 ft. At this visit I find a reef 2 ft. wide has been passed through at 994 ft., and it is intended to drive the tunnel a little further. The tunnel is kept in very fair order. (31/3/99): I understand that since my visit nothing payable has been found, and that operations have again been suspended.

*Preservation Inlet (Morning Star Mine)*.—(18/6/98): This mine is situated at Long Beach, and is entered by four levels from the side of a mountain range. The lowest level is known as No. 2, and connects to the outside by a crosscut tunnel, from which it has been driven on the line of reef for 499 ft. No. 1 level is 86 ft. above No. 2, and is driven 591 ft. No. 1A level is 138 ft. above No. 1, and 718 ft. in. No. 1B level is 156 ft. above No. 1A, and 192 ft. in. Below No. 2 level a winze has been sunk to a depth of 170 ft., so that the ground has been proved to a vertical depth of 550 ft. below No. 1B level. At the lowest point where the reef has been cut—namely, at the bottom of the winze—it is 6 ft. wide, and assays 4 dwt. to the ton. No. 2 level is said to have never



yielded good payable stone. Good stone made at 18 ft. to 20 ft. below No. 1 level, and was up to 2 ft. 6 in. wide. Between No. 1 and No. 1A the best gold has been won, the reef averaging 20 in. in width. Above No. 1A the stone gets thinner, and at the top of the highest rise is 4 in. wide at date. A little lower down it was thinner still. No. 1B was driven some distance without getting any quartz, and when struck the stone cut out again after running about 15 ft. It was from 12 in. to 14 in. wide, and is said to have assayed 9 oz. to the ton. The whole of the four levels are standing at present without stone at their respective faces. It is most desirable that at least one level should be pressed forward to prove the ground ahead. From the present position of the faces, No. 1A level would perhaps be the best to go on with. Unless something of this sort is done, the returns must fall off very materially, as the ground now open will be stoped out in the course of a few months. Taken as a whole, the reef appears very patchy, the stone getting thicker and poorer as it gets deeper, and *vice versa*. In working, all the stone is shot down, passes to No. 2 level, and is conveyed by a self-acting incline to the battery. An aerial tramway has recently been constructed to convey mining timber, &c., from the wharf to the workings. Ventilation and general arrangements underground appear well attended to, but I found it necessary to call attention to the carelessness of several of the employés in the handling of explosives. At the battery there are ten heads of stamps, four berdans for treating the blanketings, and ten smaller berdans for the tailings, all driven by a Robey undertype semi-portable engine with a pair of 8 in. cylinders, having a stroke of 12 in.; boiler pressure, 55 lb. No report-book (as required by section 323) is kept. Subsequently wrote the legal manager about this. Persons employed (fifty-three): One manager, one underground foreman, thirty men stoping, four men in rises, three men trucking, three men labouring, nine men at battery, one smith, one carter.

*Sunrise Mine.*—(18/6/98): The Sunrise Company is now driving tunnels on property adjoining that of the Morning Star Company. No. 1 tunnel (at present standing) has been driven 70 ft. in, and has cut a reef about 6 ft. wide in two divisions of 3 ft. each, with a 2 ft. band of mullock between. No. 2 tunnel is now 210 ft. in, and it is expected that the reef will be cut at 260 ft. or thereabouts. The Long Drive tunnel is nearest the Morning Star Mine. It is 270 ft. in, and is expected to cut the Morning Star reef at about 470 ft. Twelve men are employed. General direction of reefs is given as north and west.

My brief visit to Preservation Inlet was owing to the receipt of a complaint from the Morning Star Company to the effect that the way in which the *débris* from the Sunrise Company's long-drive tunnel is being deposited is likely to cause accident. I found the excavated material from the tunnel being tipped down a steep sideling near the tunnel mouth, and, as a precaution against the stuff sliding too far, branches of trees are used to bind the lower end. I also found the overflow water from a small creek (from which the Morning Star Company obtains water) falling over a cliff and filtering through the *débris* from the tunnel. This will have the effect of washing out the binding material and cause the stuff to remain open and loose. In my opinion, the probable danger has been somewhat overestimated by the Morning Star Company, whom I recommended to carry the overflow water referred to clear of the Sunrise Claim, and also requested the latter company to form a protective breastwork to their tipped material with trees and wire-rope ties.

Shaft-sinking is in progress at the Alpha and Tarawera claims. A shaft has been sunk at Golden Site, and tunnelling is in progress. At Cuttle Cove a reef is being traced by trenching.

SUMMARY RETURNS FROM QUARTZ MINES for Year ending 31st March, 1899. (Southern District.)

Name of Company.	Ordinary Quartz crushed.		Produce of Amalgam.		Retorted Gold.		Melted Gold.		Refined Gold.		Tailings treated.	Gold obtained.	Value of Gold from Tailings.		
	Tons.	ct.	Oz.	dt.	Oz.	dt. gr.	Oz.	dt. gr.	Oz.	dt. gr.			Tns.	Oz. dt.	£
Achilles Goldfields (Limited), Bullendale	591	0	..	..	96	19 6	..	..	..	..	..	..	..	..	..
Glenrock Consolidated (Limited), Macetown*	4,845	0	7,921	5 2	4,98	15 0	2,490	5 23	..	..	42	193	0	643	12 0
Westralia and New Zealand Gold Explorers (Limited), Macetown	458	0	715	0	161	13 0	225	11 8	..	..	..	..	..	..	..
Morning Star Gold-mining Company, Preservation Inlet†	3,733	0	6,348	16 2	2,060	4 0	..	..	..	..	..	93	9	..	..
Golden Site Extended Gold-mining Company, Preservation Inlet	1,107	0	746	19	301	12 5	..	..	..	..	..	..	..	..	..
Alpha Quartz-mine, Preservation Inlet	338	0	50	0	53	8 0	..	..	..	..	..	..	..	..	..
Cromwell Goldfields (Limited), Bendigo	2,841	10	6,440	13 2	2,844	3 12	..	..	..	..	..	..	..	..	..
Lawrence Bros., Bannockburn ..	79	0	288	0	84	1 0	..	..	..	..	..	..	..	..	..
James Lawrence, Bannockburn ..	450	0	402	0	107	0 0	..	..	..	..	..	..	..	..	..
Golden Gate Gold-mining Company, Bannockburn	75	0	..	..	55	0 0	..	..	..	..	..	..	..	..	..
F. W. Gray, Bald Hill Flat ..	304	10	923	0	373	11 15	..	..	..	..	..	..	..	..	..
R. T. Symes, Bald Hill Flat ..	148	0	302	0	93	0 0	..	..	..	..	..	..	..	..	..
Beal and Peterson, Macrae's ..	195	0	535	0	194	0 0	..	..	..	..	..	..	..	..	..
W. G. Donaldson, Macrae's‡	550	0	..	..	18	13 0	..	..	..	..	..	..	..	..	..
H. N. Mills and Sons, Nenthorn ..	120	10	..	..	18	7 0	..	..	..	..	..	..	..	..	..
F. H. Perry, Rough Ridge ..	Nil.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
H. F. Knight, Waipori ..	"	7 10	..	..	16	18 0	..	..	..	..	..	..	..	..	..
T. Rodgers and party, Waipori ..	1,880	0	..	..	378	11 18	354	7 11	368	7 2	..	..	..	..	..
Mount Highlay Syndicate, Hyde ..	47	0	22	6	8	7 0	..	..	..	..	..	..	..	..	..
A. Parker, Hindon ..	782	0	224	0	83	10 0	..	..	..	..	..	..	..	..	..
Burnt Creek Quartz-mine, Round Hill	53	0	..	..	10	0 0	..	..	..	..	..	..	..	..	..
Barewood Quartz-mine ..	360	0	..	..	62	7 8	..	..	..	..	..	..	..	..	..
Taieri Quartz-mine, Deepstream ..	685	0	231	0	98	15 0	..	..	..	..	..	..	..	..	..
Canada Reefs, <i>via</i> Milton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	19,650	0	25,149	19 9	9,618	16 16	3,070	4 18	368	7 2	42	286	9	643	12 0

\* Gold recovered from tailings by cyanide process. † Tailings treated by amalgamation. ‡ Forty-two and a half tons scheelite.

## HYDRAULIC AND ALLUVIAL MINES.

*Marawhenua and Livingstone Diggings.*—These were visited in April, 1898, and an examination made as to the extent of auriferous ground on the Hospital and Municipal Reserves, which the miners in the district desire to be thrown open for mining purposes. This was duly reported upon. It was pointed out to me that there were 102 miners on the field, and that, unless some arrangement were come to as to working the gold-bearing portion of the reserves, many men would have to leave the district owing to the claims on the present diggings becoming worked out. At the time of my visit water was very scarce, and in consequence of this over half the men in the locality were compulsorily idle.

*Manuka, via Milton.*—(27/4/98): Messrs. Stewart and Sons are working an alluvial claim. The wash is from 30 ft. to 45 ft. thick, and of a fine character generally. Area of claim, 6 acres; 2 acres yet to work. Their water-race is fourteen miles in length, and takes its water from Nuggety Gully (rights to eight heads and small gullies; rights to two heads, which are crossed by the race). Actual water-supply is about 30 per cent. less than above, and the pressure at the nozzle is that due to height of face.

*Waipori Deep Lead.*—(22/2/99): Last year this undertaking was in liquidation. It has been purchased by Mr. W. J. Farrell (a gentleman well known in connection with the reefs of the Macetown District), and is managed by Mr. J. C. Nicholson, who has had considerable experience in hydraulic mining. At present the upper wash is being worked, by hydraulic sluicing and elevating, down to a false bottom; but at my visit I did not see the work going on, the men all being engaged temporarily on a dam at the head of the pipe-line.

*Golden Key Mine, Waipori.*—(22/2/99): This mine, situate about a mile on the Lawrence side of the O.P.Q. Mine, is working a deep lead of alluvial wash of considerable richness. The shaft is 50 ft. deep, 6 ft. 4 in. long, and 3 ft. 8 in. wide, divided in two compartments, one of which is fitted with good iron ladders. The wash is raised through the other compartment in buckets, a steam-winch supplying the power. A small Worthington pump deals with the water. Ten men at present employed. Ventilation and timbering are fairly satisfactory. No rules or signal-code posted.

*Local Industry Co-operative Gold-mining Company (Limited), Lawrence* (J. C. Arbuckle, secretary.—(13/9/98): The company are now working a claim in Gabriel's Gully, near to Rocky Point, by means of hydraulic-sluicing and -elevating. The ground at present being operated on is somewhat shallow, and overlaid by tailings from workings higher up the gully. The latter contains a little fine gold, but the gold in the wash is from medium fine to coarse. One sluicing-nozzle and one elevator are at work. The elevator has a lift of 22 ft.; sluice-box is 110 ft. long, and fitted with angle-iron, riffles, and coconut-matting.

*Blue Spur and Gabriel's Gully Consolidated Gold-mines (Limited), Lawrence* (J. Howard Jackson, C.E., manager).—(13/9/98): The work at this company's mine is conducted in a first-class manner. The face of cemented wash varies from 40 ft. to 100 ft. in depth, and continues to be worked in the manner described in my report of last year. Forty persons are employed. Owing to the dry season last summer, and the frost and the snow of the winter, there has been a good deal of broken time during the year; consequently returns are somewhat below the average. Every care appears to be taken to insure safety.

*Beaumont (Beaumont Local Co-operative Gold-mining Company).*—(14/6/98): In consequence of a fatal accident to William Thomas Moyle, on the 10th June, I visited this company's claim, a description of which was sent in after my visit of the 9th March, 1898. See remarks under head of "Accidents." (14/9/98): Since my visit to this claim in June (to inquire into a fatal accident reported elsewhere), the elevator has been re-erected. I had previously expressed the opinion that the original appliances were inadequate for saving the fine gold, and this was subsequently admitted by the management. In consequence of recommendations made by me the sluice-boxes have been doubled in length and a set of side-tables fixed, the result being very satisfactory to the company, as gold which is too fine to be caught by the methods previously used is now saved. Twelve employées.

*Island Block Gold-mining Company (Limited), Island Block.*—(19/1/99): Operations here are hydraulic-sluicing and -elevating. The surface is flat, and the wash averages 42 ft. deep. From 25 ft. to 30 ft. of the top part of the wash is poor, and at my visit an area of this was being stripped off, and being passed over the sluice-boxes to catch any gold which it may contain. Occasionally the wash at the bottom is in gutters formed in the bed-rock (mica-schist), which is ordinarily of a rather rough character. One sluicing-nozzle and one elevator are at present employed, with an additional elevator for pumping purposes only. The sluice-boxes are approximately 160 ft. long. At the head they have a fall of 8 in. in 12 ft., gradually reduced  $\frac{1}{4}$  in. in each 12 ft. length to  $5\frac{1}{2}$  in. per box-length (12 ft.). The boxes are fitted with longitudinal bars and cross-riffles, underlaid by coconut-matting. The first 12 ft. length is also provided with flexible netting between the bars and matting. When working on the bottom, the total height of elevator is 65 ft. The water supply is from the Tallaburn and Fruad Creeks—principally the latter—with a storage reservoir for each creek. The races are six miles and a half long, and terminate at an altitude of 700 ft. above the workings. This should give a pressure of 300 lb. per square inch, but, owing to the irregular way in which the various sizes of pipes (varying from 22 in. to 15 in. diameter) are laid, there is a good deal of unnecessary friction, and the actual pressure, as shown by a new standard gauge, was only 225 lb. per square inch. The pipe-line is two miles and a quarter long. Fourteen men are ordinarily employed. With the power available in the water-supply, if the pipe-line were systematically re-arranged, the question of working this flat by electrically-driven dredges, instead of by hydraulic-sluicing and -elevating, might, I think, be worthy of consideration.

*Hercules Sluicing Claim, Roxburgh,* (Mr. John Ewing).—(25/2/99): A description of this claim appeared in my report of last year. At this visit, I found the work going on much in the

same manner as before, the manager, Mr. D. Robertson, keeping the place in good order, and exercising care in keeping things safe. I understand this ground is not particularly rich, but that it rather more than pays expenses.

*Roxburgh Amalgamated Mining and Sluicing Company (Limited), Roxburgh.*—(18/1/99): Since my last inspection of the company's claim a considerable amount of work has been done. The old road from the town to the cemetery has been enclosed, and a new road made in a northerly direction on the east side of the claim, joining the old road nearly a mile above the bridge crossing the Teviot Stream. A layer of sand, from 25 ft. to 30 ft. thick, overlies the wash, and a considerable area of this has been, and is being, stripped by ground-sluicing. The pipe-line has also been diverted from the penstock to fit in with the altered conditions of the work, and workshops, &c., removed further back. Three paddocks are open, two of which were at work—hydraulic sluicing and elevating—at my visit. Mr. Waigh, the manager, informs me that, near the manager's house, the wash is improving very materially, and the richer wash appears to carry back into the unworked ground. Twenty-two men are employed. Very fair dividends on the paid-up capital were paid during last year. The total area of the claim is 98 acres, of which rather more than one-fourth has been worked. A plan of the claim is kept by the working manager. This is ruled into squares representing a chain each, and the face of the worked ground is marked on the plan from time to time. A similar arrangement exists at Blue Spur and at the Empire Dredging Claim at Waipori. I think, if working plans of all mining and dredging claims were kept in similar manner, it would be found a decided advantage all round, especially if made on a scale which would admit of the varying conditions of the claims being shown.

*Bald Hill.*—(17/1/99): The several sluicing claims here are in full work; the water-supply has, so far, been very good, and, from what I could learn, the yield of gold has been satisfactory. Beyond the advances of the working-faces in an ordinary way, there is little to note since my last report, and there does not appear to be anything calling for special comment.

*Matakanui (Tinker's).*—(14/1/99): On the whole, the season has so far been a good one, and the water-supply has kept up well. The fears that it might soon give out (which were freely expressed to me by several of the miners on this date) were dispelled to some extent by the very heavy rains which fell on the following days. At my visit I found that most of the claims were getting matters put ship-shape after the holidays, and learned that the first half of the season had been productive of fairly good yields of gold. At the Sugar-pot claim a very good patch was struck, resting on the schist-rock near the back of the claim. Thirty-four men are employed at the several claims near the township; also six men at the Drybread Diggings and six at the Devonshire Diggings, making a total of forty-six men, all told, in the locality. There are no Chinamen here. Two dredging claims have recently been taken up—one at each side of the township. I still hold the opinion expressed in my last year's report—viz., that to work the Matakanui field to the best advantage the whole of the claims should be consolidated and a good storage-reservoir made in Thompson's Gorge, by which a continuous supply of water could be depended on. The old system of paved tail-races, washed up at long intervals, obtains here, and I have been repeatedly informed that very fair prospects can be obtained in the tailings. This being so, it is quite evident that gold is being lost. This could be avoided, to a great extent, by such an installation of sluice-boxes and saving-tables as may be seen at Round Hill and other places.

*Morgan and Hughes's Claim, Shepherd's Flat, near St. Bathans.*—(21/9/98): This claim adjoins Mr. Ewing's Shepherd's Flat Claim, and is worked by sluicing, four men being employed. Work is carried on for eight hours per day, and water stored in dams at night. The face is about 100 ft. deep; area of claim, 8 acres. Stones are filled by hand into a truck, and hauled up an incline by a winch driven by a Pelton wheel.

*Ewing's Claims.*—(21/9/98 and 22/9/98): Mr. John Ewing's claims at Cambrian's, Shepherd's Flat, Vinegar Hill, and Kildare Hill, St. Bathans, were visited. Mr. Ewing continues to work his claims with the thoroughness which characterizes all his operations. Good provision is made for the safety of the employes, and at night the claims are mostly lit up with powerful electric lights. At Shepherd's Flat a large proportion of good-sized stones have to be dealt with. This is very successfully done by a stone transit-plant or modified aerial tramway which Mr. Ewing has designed for the purpose. The sluiced stuff is conveyed along a short race fitted with a screen and trap-door at its lower end. The stones are caught on the screen, and dropped through the trap-door into a truck having a loose body. When the truck is full, the trap-door is closed and the truck moved away on rails, another truck taking its place under the trap-door. The loaded truck body is then attached to a hoisting-rope, and raised to a convenient height and then hauled along the wire-rope tramway to where a movable tipping apparatus is secured. This engages the truck body and allows the load to be tipped, after which the empty truck body is returned to its carriage and the operation repeated on the truck which has been loaded in the meantime. Mr. Ewing states that twenty trucks per hour can be dealt with. The plant is worked by water-power. Employes (thirty-four): Kildare Hill, six; Vinegar Hill, five; Shepherd's Flat, sixteen; Cambrian's, seven. Other claims held by Mr. Ewing (twenty): Matakanui, seven; Bald Hill Flat, seven; Roxburgh, six.

*Hunt's Claim, St. Bathans.*—(12/1/99): Two men employed here sluicing. At present working off barren ground overlying the wash. Rights are held for eight heads of water from Dunstan Creek, and the race is some six miles long. Working pressure, 200 ft. head. Only Mr. Ewing's and the United M. and E. Company's Claims are at present on gold at this side of the hill.

*Eagle's Claim, St. Bathans.*—(12/1/99): This claim adjoins that of the United M. and E. Company, and has an area of 3 acres. The auriferous wash has a dip of about 75° from the horizontal, and the easily-accessible portion of it has been worked. For the last two years the

work has been of a non-remunerative character, a large amount of barren ground having to be sluiced off in order to expose a deeper area of payable wash, the thickness of which is estimated at 100 ft., measured at right angles to the inclination of the deposit. Mr. Eagle states that the gold is not concentrated in his claim as in some of the neighbouring workings, but is more generally distributed through the entire thickness of the wash. Water is conveyed from Mount St. Bathans in a race seven miles long, and is high enough to give a pressure due to a vertical height of 400 ft. The work is carried on with about half the available pressure. The claim-holders have a right to four heads of water. The pipe-line commences with a diameter of 22 in. and diminishes to 7 in. diameter. Two men employed.

*St. Bathans's.*—(13/1/99): The United M. and E. Company have two claims. That adjoining Mr. Ewing's Kildare Hill Claim comprises an area of about 24 acres. The auriferous wash is overlaid by a considerable thickness of barren ground. One nozzle and one elevator are ordinarily at work; the latter uses some five heads of water, at a pressure due to a vertical height of 350 ft. The sluicing-nozzle passes four heads from a height of 180 ft. Depth of elevator, 55 ft. Four men are employed in the claim, and one man on the races. In common with the general practice of the St. Bathans's district, the sluiced material is elevated into a paved tail-race, which is washed up twice a year. I cannot but think that this method is responsible for the loss of a certain amount of fine gold, and that if sluice-boxes, fitted with riffles and matting (and possibly side-tables in addition) were provided, the outlay would be repaid in a very short time.

*Scandinavian Claim, St. Bathans's* (M. Nicholson, manager).—(22/9/98): When at this claim I did not see the manager, and only one man was at work directing the sluicing-nozzle and attending to elevator. The face of wash here is very deep, and the work appears to be carried on with due regard to safety.

Memorandum from Mr. Nicholson, dated 10/10/98: "Face of wash now being worked, 120 ft. deep; water-pressure due to a head of 350 ft. Water-race is twenty-five miles long, and has first rights to twenty-five Government heads of water from the Manuherikia River; a good portion of the water is sold to holders of other claims. Ten men ordinarily employed by the company, which is a registered one. 520 oz. of gold got last season. The company only get the surplus water for their own claim after other claims (whose owners purchase the water) are supplied."

*Gallacher and Party, St. Bathans.*—(22/9/98): This is situate between the township and the Scandinavian Claim, and has been worked for many years with a fair amount of success. The area is 3 acres, and two men are employed. There is a small amount of water at a low head, with which the sluicing is ordinarily done, but a two-head supply, with a pressure due to a head of 300 ft., is bought from the Scandinavian Company, and used principally for breaking down the heaviest part of the ground. A small elevator is used at this claim.

*Ophir.*—(20/9/98): The Ophir Deep Lead Gold-mining Company's claim has not turned out a success; the company has gone into liquidation, and the mine is closed. Nothing further has been done at the quartz-reef at Ophir.

*Arrow Flat, Arrowtown.*—(15/10/98): A water-race is now in course of construction to bring in water some 500 ft. above Arrow Flat, for the purpose of working the beaches by hydraulic elevating.

*Arrow Falls Gold-mines, near Arrowtown.*—(15/10/98): Work is temporarily suspended, pending the erection of a steam-crane for moving the large stones. As the crane has arrived at Kingston, work will be resumed in a week or two.

*Arthur's Point Sluicing Company, Queenstown.*—(19/10/98): This company has a claim (licensed holding) on Section 109, Block XIX., Shotover District (area, 16 acres and 23 perches), close to the Big Beach, formerly worked by the Sew Hoy dredges. Up to date the work on the claim has been mostly of a prospecting character, about £50 worth of very fine gold having been obtained. This is not considered satisfactory, and unless the yield improves it is in every way likely that operations will soon cease. About £700 have been spent in bringing in water and putting down an elevating plant. Six heads of water are picked up from various small creeks from the Coronet Peak Range, the race being nine miles long. Seven men are employed when water is available. (9/3/99): This claim has been recently let on tribute.

*Londonderry Claim, Skipper's Point (Skipper's Sluicing Company, Limited)*, (A. J. C. Brown, secretary, Dunedin; James Scott, manager).—(18/10/98): The ground held comprises an area of 63 acres. The face of wash is very thick, averaging about 170 ft., and is of a light sandy character, containing a little gold right through, the best parts of the wash being in stony seams. The stuff is sluiced off down to a false bottom, which is variable, consisting in some places of gravel and in others of white sand and tough clay. The bed-rock is mica-schist, but no gold is got below the false bottom. As there is any amount of fall for tailings no elevators are required. Two nozzles are employed. Water rights are held for twenty Government heads from Skipper's Creek, and the water is conveyed by a race five miles in length, and by 33 in. and 22 in. diameter iron pipes about two miles long. The water-race has a fall of 8 ft. to a mile. At the claim iron sluice-boxes are set in a tail-race having a fall of 1 in 10, and tram-rails, fitted both crosswise and longitudinally, serve for riffles. The gold is of a character which admits of its being easily saved. Owing to the amount of frost and snow at this altitude, work is only carried on for about eight months in the year. Eight to twelve men are ordinarily employed. A tailrace tunnel 310 ft. long and 6 ft. by 5 ft. in section, which will admit of the claim being worked to better advantage, has been recently completed at a cost of about £1,000.

*Davis Brothers' Claim, Maori Point.*—(19/10/98): This claim is very similar to the Londonderry Claim. At my visit the men were not at work at the face, but I judged them to be engaged on the water-race.

*Upper Shotover.*—(8/3/99): Visited Messrs. Smith and Son's Claim, principally to examine the method adopted and designed by them for working river beaches by a hydraulic jet-pump. This

method is very ingenious, yet simple, and as I made a detail drawing in section, and reported specially on it, in all probability a full description will appear in the report of Mr. Wilson, the Inspecting Engineer. Several river-bed claims are now being worked on the principle inaugurated by Messrs. Smith, and others are about to commence.

*Croydon, near Gore.*—(6/5/98) : Mr. John Nicholson has a prospecting area of 180 acres on Crown lands at Croydon, near the eastern base of the Hokonui Range, and has got a small face open, showing fine gold. His present water-supply is somewhat limited. The wash is in two divisions. The upper part is of small quartz pebbles and sand ; a trial wash gave 20 colours to the dish, the lower wash (which is of coarse river-bed pebbles) showing about double the foregoing prospect. Some prospecting operations have also been conducted between this claim and the Charlton Flat. Fine gold has been proved, and from what I saw of the ground, and the prospects obtained, there is little doubt that dredges of medium size could work the ground to advantage.

*Waikaia.*—(21/12/98) : At the landslip there have been workings on a small scale for several years. About eighteen months ago an attempt was made to form a company to work the ground by hydraulic sluicing, and a considerable sum spent in preliminary expenses, laying off water-races, &c. As the flotation was not successful, the working of the ground is being resumed on the old lines, by tunnelling and trucking out the wash-dirt. One party of two men has already made a start, and another party is also making preparations. The best gold is got on a sandy bottom, and is said to have yielded as much as £1 10s. per day per man, when worked prior to the attempted flotation.

*Waikaia Gold-mining and Water-race Company, Scrubby Terrace.*—(21/12/98) : The company not finding this claim so good as anticipated, it has recently been let on tribute, and is being worked much on the same lines as detailed in my last report.

*Argyle Hydraulic-sluicing Company, Waikaia.*—(21/12/98) : At my visit the elevator was being moved at the lower claim and sluicing operations were in hand at the upper claim.

*Winding Creek Gold-mining Company (Limited), Waikaia.*—(21/12/98) : This company is now carrying on the work at what used to be known as the "Break-'em-all Claim," at Winding Creek (referred to in my last report as being taken up by the Otago Syndicate, Limited). About twenty-five miles of water-races have been constructed to bring in fifty heads of water from the Big and Little Leithan Creeks, the upper branches of the Waikaka, Winding Creek, and other smaller streams. The smaller or branch races supply a main race capable of carrying the full fifty heads. A considerable length of the race is through rocky country, covered with heavy bush. The hydraulic plant consists of about a mile of steel pipes, of from 15 in. to 30 in. in diameter, and two elevators. The cost of the works is given by Mr. R. Hay, C.E., of Dunedin—under whose charge the water-supply and installation have been carried out—at upwards of £10,000, the capital being raised in England. At my visit I noticed that the water-supply was short, and, from what I could learn, it may be somewhat intermittent. Since my previous inspection, a lot of ground has been sluiced away near where Kennedy and party were then working, and at this date an elevator is ready for work near where the old bucket-elevator formerly stood, and preparations are in hand for sluicing at the opposite side of the creek.

*Round Hill Gold-mining Syndicate (Limited), Round Hill, Southland.*—(11/10/98) : In consequence of a fatality at this company's works on the 6th inst., I attended the adjourned inquest and inspected the workings, all of which appear well managed. Accident reported on to Hon. Minister of Mines under date of 13th October. (See "Accidents.")

#### DREDGING.

The interest taken in this method of gold-mining continues to increase, and at the end of the financial year (31st March) the number of dredges in work in Otago and Southland was upwards of seventy ; four are undergoing removal, nine are standing for various reasons, and (approximately) not less than thirty new dredges are either in course of construction or projected. There is an all-round tendency to build dredges very much larger and more powerful, recent examples being the Magnetic and Electric No. 3 dredges at Cromwell, the Earnsclough No. 2 and Golden Point dredges at Alexandra ; but much larger dredges even than these are under consideration. This is no doubt a step in the right direction under certain conditions, but what has very forcibly struck me in several instances is that, in my opinion at least, whilst great attention is being paid to increased lifting capacity, the arrangements for saving the gold, especially where the latter is very fine, do not keep pace with the demands which a greater quantity of stuff appears to require, and, this being so, it naturally follows that gold is being lost. That this has been so in more cases than one I can vouch for. In some parts of the district very large dredges are not needed ; in fact, where the ground to be worked is not more than 20 ft. deep, does not carry any big boulders, and is away from a swift current, it will be found that a very moderate-sized dredge will answer all requirements.

In my last year's report I expressed the opinion that some of the flats in Southland were well worth attention for dredging purposes. This is now being fully recognised, and during the year dredges have been built at Gold Creek, near Gore, and Waimumu, near Mataura, whilst others are now being built in other parts of the district. Additional dredges are being built at Waikaka, one is in course of construction on the Mataura River near Gore, and others are proposed to be built some twelve miles above Waikaia and also near Round Hill.

*Inch Valley.*—During the year, the dredge formerly at work near the landslip at Waikaia has been removed to Inch Valley, on the Shag River, some six or seven miles above Palmerston, and another has been built at Macrae's Flat ; new dredges have been built at Chatto Creek and at Ophir, whilst dredging operations are about to commence at Matakaui. All these districts—Ophir excepted—are, together with Gold Creek and Waimumu, new fields for the dredging industry.

New dredges have been completed at Glenore, Tuapeka, Waipori, and on the Molyneux River, about Alexandra, Clyde and Cromwell, also on the Kawarau River, and at Nevis.

Taken as a whole, the dredging industry has been very successful. The number of dredging ventures which have proved absolute failures could, so far as Otago and Southland are concerned, be practically counted on the fingers of one hand. Perhaps the most conspicuous among these is the Kawarau dredge, which was built, and commenced work near Victoria Bridge, and was afterwards moved to the mouth of the Nevis. This is a modern, up-to-date dredge, but failed to get gold, and is now laid up. So far as I am aware, this is the only dredge in this district owned at Home, and its non-success will not cause British capitalists to be greatly enamoured with what is really one of our very best paying industries. As a matter of fact, snug fortunes have been made in a very short time by owners of dredges, and it is very questionable if any other class of mining property in the colony is so genuinely reliable as dredging.

That the industry will extend to other parts of the district there is no doubt. Last year I expressed my opinion as to the possibility of Cardrona being a field for dredging. Since then claims have been taken up for the purpose, and prospecting operations are now in hand.

In my last report a copy of the regulations which I had prepared in the interests of safety to persons employed on dredges was given. These were issued to all dredges, and, I am pleased to say, met with the approval of many dredge-owners and managers, whilst many expressions of thanks have been tendered me by the men employed, who have practically realised their importance and value. These regulations are now adopted as special rules under "The Mining Act, 1898."

I have visited most of the dredges at work during the year, and have noted with pleasure that greater care is exercised, and better provisions made for safety than was the case previously. Under the head of "Accidents," it will be noticed that they have been very few in comparison with previous years, notwithstanding the fact that the number of dredges has increased.

#### ACCIDENTS AT GOLD-MINES.

##### *Fatal.*

A fatal accident occurred at the Beaumont Co-operative Company's hydraulic claim on the 10th June, 1898, to a young man named William Thomas Moyle, who was in charge of the work of removing an elevator. I inspected the claim, and attended the adjourned inquest. From the evidence it appeared that two trenches had been cut to allow of the framing-timbers being got into position, and, as barely enough ground had been taken out, deceased was undermining a short piece, in order to get the timbers in place, when the ground gave way and buried him. In my opinion, the reason of the ground giving way was due to the frost during the night previous and the subsequent thaw during the day. A verdict of "Accidental death, caused by a fall of earth," was returned, the jury not considering any blame attachable to the management. In connection with this accident, Robert Ledlie, manager of the claim, was summoned for a breach of "The Mining Act, 1891," in not reporting the accident to the Minister and Inspector. Mr. Hawkins, S.M., inflicted a small fine.

Lee Chong, a Chinaman, aged sixty-five, was caught by a slide of earth in his tail-race at Yankee Gully, Waikaia, on the 10th August, 1898, and severely crushed, his bladder being ruptured. He died on the following day. The Coroner's jury returned a verdict of "Accidental death." This accident was not reported to me.

Under date of the 27th September, 1898, Mr. Warden Dalgleish advised me of a fatal accident to Joe Bun Yan, a Chinaman, working at a claim at Kyeburn. Deceased was caught by a fall of earth from the face of the claim and badly crushed, death resulting some two or three hours after the accident. Verdict of the jury, "Accidentally killed by a fall of earth from face of workings; no blame attached to any person."

At Round Hill (Southland), on the 6th October, 1898, Robert Stewart, employed by the Round Hill Mining Company (Limited), was drowned in No. 2 Paddock, and his body found blocking the mouth of the elevator. I inspected the claim and attended the adjourned inquest. It appeared that Stewart's shift commenced at midnight on the 5th October, a young man named Graham being Stewart's mate. Graham did not turn up to work, and the men on the offgoing shift offered to remain with Stewart, who declined their offer, saying that if his own mate did not turn up in course of an hour or so he would come for one of them. When the morning shift came on it was found that the sluicing-nozzle was playing on the face, and the paddock flooded at its lower end, but no men could be seen. On the paddock being pumped out, Stewart's body was found as described. I think deceased had been moving some obstruction from the mouth of the elevator with his hands or feet instead of with the pick provided for the purpose, and had been drawn against the mouth-piece, his body naturally blocking it. This would allow the water from the sluicing-nozzle to accumulate until Stewart was drowned. A verdict of "Accidental death" was returned.

John Pringle, age thirty-five, a miner working a sluicing claim at Sutherland's Gully, Livingstone, was killed on the 29th November, 1898. The evidence went to show that there had been a fall of ground, and deceased and two other men were breaking the lumps with picks, when a large piece of sandstone split and broke away, falling partly on deceased and causing immediate death. Verdict of Coroner's jury: "Accidental death."

A Chinaman named Chin Mun Ock, age forty-eight, was found dead in his claim at Stockyard Gully, Galloway Run, near Alexandra, on the 1st February, 1899, and had apparently been dead about four days. From the evidence it appeared he had been killed by a fall of earth.

Ah Mow, a Chinaman, working a sluicing claim at Nevis, was killed by a fall of earth. Mr. W. W. Masters, reporting on this under date of the 25th February, 1899, says the place was a very

safe one to work in, and there was plenty of room to get out of the way of a falling face (which is not very deep). He considers the accident was due to the want of ordinary caution on the part of deceased.

*Non-fatal.*

A few slight accidents have been reported by the managers of various mines, but none of them appear more serious than a fractured rib.

ACCIDENTS AT DREDGES.

J. W. Bodenhausen, an employé on the Cambrian's dredge, had his leg broken on the 8th September, 1898. He was in the act of stepping on the buckets or chain when in motion, and got his foot fast between the links. On coming into contact with a guide roller, he was thrown down on the deck, sustaining the injury referred to. A trick of this sort is a senseless one, and at variance with the regulations framed for the safety of men employed on dredges, in which special mention is made of this stupid and dangerous practice.

James Hewitt, manager of the Vincent dredge, Clyde, had his right hand severely crushed on the 16th March, 1899, when replacing the cover of an oil-cup (whilst the machinery was in motion) by being caught between gear-wheels.

Alexander Patrick, employed on the Hartley and Riley dredge, near Cromwell, was accidentally drowned on the 17th March, 1899. Deceased was ashore, digging a hole for one of the mooring-posts. A wagon containing coal for the dredge having arrived, he went to assist in discharging the coal from the wagon to one of the boats. According to a report obtained from Mr. J. McGeorge (dredge-master of the No. 3 electric dredge) deceased was lowering himself over the bank by the bow-line, when he slipped into deep water. As he could not swim, he struggled about, and was caught by an eddy which hurled him into the stream. The Molyneux River at this place is very deep and swift-running, and, once caught by the current, the strongest swimmer could not hope to live against it. A life-buoy was thrown out from the dredge, but Patrick could not catch it, and the men on board were unable to render any other assistance.

I have, &c.,

JOHN HAYES, F.S. Sc.,

Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

No. 17.

Mr. ALEXANDER AITKEN, Manager, Waimea-Kumara Water-races, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

Kumara, May, 1899.

I have the honour to forward the following report on the Waimea-Kumara Water-races for the year ended 31st March, 1899:—

*Waimea Race.*—The total sales of water from this race during the year amounted to £694 16s. 1d., and the expenditure for maintenance and repairs during the same period was £841 18s. 2d.; showing a debit balance of £147 2s. 1d. on the year's transactions.

The average number of miners supplied with water from the race during the year was 42·75, and the approximate quantity of gold obtained by them was 2,122 oz., the value of which was £8,275 16s.

The sales of water are £93 2s. 6d. less than during the preceding year, and the amount of gold obtained was 287 oz. less, or £1,119 6s. less money-value.

The difference in the sales of water and the yield of gold during the year shows a very considerable falling-off; but this is not attributable to the increasing poverty of the ground worked, but to a series of accidents to the race that stopped the supply—in one instance of the whole of the race, another the Stafford branch, and another the Tunnel Terrace branch. The time lost by breaks was greater during the past year than has been the case during many former years.

Since the deviation of the Waimea race at Kawhaka was completed no stoppages or accidents have taken place in that portion of the race, and the race throughout, so far as any one can judge, is in very good condition; but races in exceptionally bad weather are more subject to accident than most other works.

The weather during the end of January was exceptionally bad in this district, and the rivers and creeks were in higher flood than they had been for twenty years, but comparatively little damage was done to any of the races.

The expenditure on ordinary maintenance and repairs was £164 16s. 8d. greater than during the former year, and this was caused by the extraordinary number of accidents that occurred during the year, necessitating a much larger outlay in effecting repairs.

Besides the sales of water above referred to, about £115 of free water was given to the parties who could not afford to pay on account of poor washings, and had such reduction not been made the parties would have had to abandon their claims, and leave the district or add to the number of unemployed.

A considerable quantity of waste water was given to parties trying new ground commanded by the race, but this was only given after all the paying parties had been fully supplied, and was principally given during wet weather, when there was plenty of water to spare.

*Waimea Main Tail-race.*—Owing to financial difficulties, the trustees of this work have done very little during the past year toward the completion of the main tail-race, but this has now been arranged by an advance of sufficient money to pay off all the existing liabilities, which has now been done. The money for this purpose was advanced by four of the parties who are interested in the com-

pletion of the work, and the advance will be repaid by a percentage of the channel-dues payable by parties using the channel. A contract has been let for timbering the upper portion of the channel, excavating and timbering a chamber at the head of the channel, and enlarging and timbering a shaft, 8 ft. by 3 ft. in the clear, divided into three compartments; one compartment for flush-water, one for lowering material for repairs and maintenance, and one for a ladderway. When this contract is completed, which will be about the 15th June, two or three parties who hold ground near the head of the channel will at once start to construct their private tail-races from the channel to that portion of their claims where they intend to open out and start sluicing operations immediately thereafter. The completion of this main tail-race and private tail-races connected with it, and the starting of sluicing operations in the Waimea Middle Branch Flat will, without doubt, give a great impetus to mining and business in the Waimea district, as it is certain that no better patch of sluicing ground exists in the Kumara or Waimea districts, so far as is at present known, than the ground about to be worked through the Waimea main tail-race.

*Race and Dams, Middle Branch.*—All difficulties in connection with rights to races and dams in the middle branch of the Waimea Creek have now been overcome, and valid rights for three dams, and the necessary races to connect with the claims on the Middle Branch Flat, have been obtained. The work of construction of one of the dams, and the races leading to and from the same, are now being put in hand, and the whole will be ready for the supply of water at about the same time as the channel will be in a position to start sluicing. The other dam-sites will be made use of should necessity for the same arise, and the races now being put in hand will connect one dam-site with another, and with the head of the Waimea Main Tail-race and the claims working into it.

*Kelly's Terrace Drainage Tunnel.*—The Kelly's Terrace Drainage-tunnel has now been driven a total distance of 3,600 ft., and of that 1,000 ft. has been driven during the past year from a shaft 2,600 ft. from the mouth of the tunnel. Another shaft will now be necessary before the tunnel can be driven much farther, as the haulage is getting too long and the ventilation is defective. A further distance of 2,400 ft. has yet to be driven before the ground proposed to be drained has been reached, and a shaft for haulage and ventilation will be required for every 1,000 ft. or 1,500 ft. of tunnel. The tunnel, so far as it has been driven, has in no place touched the main bottom, and it is probable that another 1,000 ft. or 1,500 ft. will have to be driven before any main bottom will be reached. The parties in the district, who have worked ground in the vicinity of the tunnel, are of opinion that gold will be struck when the main bottom is reached on the tunnel level, but no gold has yet been struck in the tunnel or shaft of a promising character, although odd colours have been obtained.

*Wheel-of-Fortune Claim.*—This claim, situated on Piper's Flat, near Stafford, was formerly held and worked by Mr. Batchelor, but it is now held by a strong English company, the headquarters of which is in London. Very little actual mining work has been done on the claim since it was acquired by the company. The extent of the claim held is about 100 acres. The company also holds several race- and dam-rights, but will eventually require to use water from the Government race if the extensive sluicing and elevating works contemplated by the present manager are carried out. Surveys are being made for the purpose of enlarging present and constructing new dams for the conservation of water, extending and enlarging races, and making preparation for the construction of powerful elevating machinery. In the meantime the old elevating machinery is kept at work, and the ground is being thoroughly prospected, with results, that so far as can be judged, are satisfactory to the manager and the company.

*Number of Days Water was lost.*—The following table shows the number of days on which water was lost, for the year ending 31st March, 1899 :—

Date.	Water running over Dam.	Quantity of Water lost.	Holidays.	No Water for Channel.	Dams empty.
April, 1898	8 days.	11 days.	7 days.	...	...
May, "	5 "	7½ "	...	...	...
June, "	5 "	12 "	...	...	...
July, "	9 "	13 "	...	...	...
August, "	1 "	½ "	...	...	...
Sept., "	3 "	3½ "	...	...	...
Oct., "	8 "	13 "	...	...	...
Nov., "	12 "	11 "	...	...	...
Dec., "	1 "	1 "	7 days.	...	...
Jan., 1899	11 "	35 "	7 "	...	...
Feb., "	...	...	...	...	...
March, "	...	...	...	3 days.	2 days.
Total	63 days.	107½ days.	21 days.	3 days.	2 days.

*Branch Race to Callaghan's.*—The total sales of water from this race during the year was £191 12s. 6d., and the expenditure for maintenance and repairs was £163 12s. 6d., leaving a credit balance of £28.

The average number of miners supplied with water was ten; and the approximate quantity of gold obtained was 491 oz., having a value of £1,914 18s.



The ground sluiced during the year has been poor, and the result has been disappointing, but there is a very large area of ground in the district still unprospected, and the claims now being worked may strike wash of a more payable character at any time.

There is one claim at Callaghan's worked by Menzoni and party that yields fair returns, but they use no water from the Government race as they have private dams and water-races. This claim has been worked for the last thirty years, and the owners have done well during all that time. There is a probability that this claim will be worked more energetically in the future than has been the case in the past, and that the owners will at an early date use water from the Callaghan's race. They have recently taken up more ground for the purpose of extending sluicing operations. None of the other parties working in the locality have struck the same run of auriferous wash.

*Kumara Race.*—The total sales of water from the Kumara race for the year amounted to £2,711 14s. 5d., and the expenditure for maintenance and repairs during the same period was £2,174 3s. 11d., showing a credit balance of £537 10s. 6d. on the year's transactions.

The average number of miners supplied with water from this race during the year was 70.66, and the approximate quantity of gold obtained by them was 4,671 oz., having a value of £18,216 18s.

The sales of water are £177 8s. 10d. less than during the preceding year, and the yield of gold 49 oz. less, having a value of £191 2s.

The decrease in the sales of water and the amount of gold obtained is not large, and may fairly be accounted for by the increasing poverty of the ground and the abandonment of several of the claims on account of their non-payable character.

The expenditure on maintenance and repairs during the year was much larger than it has been for many years, being £333 3s. 11d. more than last year. The head-race tunnel, which from the time of its construction has given a great deal of trouble, and has been a great source of expense, had to be retimbered, as it was in an unsafe condition for a considerable portion of its length. About a hundred and eighty sets of timber were put in, and a total length of 720 ft. completely renewed. In doing this work the tunnel was enlarged, as that portion was, for some reason, much smaller than the rest of the tunnel. The work done was executed in a substantial manner with heart of red-pine and silver-pine timber, and the whole was securely lathed and close-lined with heart-timber. A great portion of the work was done during the night, so that it would not interfere with the supply of water to the field, and this method of doing the work considerably increased the cost. It would have been running too much risk to leave this work undone for any longer time, as an accident to this tunnel would stop all sluicing in Kumara.

The work done has considerably increased the carrying capacity of the tunnel, and there would now be no difficulty in supplying 150 sluice-heads.

That the best of the ground in Kumara, so far as at present known, has been worked is without doubt the case, but there is still a large area of ground unworked that, with improved and better methods of working, will pay, and extensive sluicing operations will be carried on in Kumara for a great many years to come, even if no new discoveries are made. Improvements in the methods of sluicing are still being made on the field, and larger quantities of wash are being sluiced away. Larger supply-pipes are being used, and the width of sluice-boxes is being increased, with the result that more material is washed away and more gold saved, and blockages in tail-races and channels are not of such frequent occurrence as formerly.

Besides the sales of water above referred to, water to the value of £469 15s. 7d. was supplied to claims having a succession of poor washings. In all cases where water was given to poor claims, full inquiries were made as to the necessity for so doing, and the claims would have been abandoned if assistance had not been given. When water was plentiful, and running to waste down the creeks, extra water was supplied to claims using the race-water, and water was supplied for prospecting. Water was also supplied to the wheels on No. 5 Channel and the Deep Level Prospecting Company, besides water for washing down with and water for fire purposes in the Borough of Kumara.

Large quantities of water were also supplied for flushing the channels: No. 2 Channel, ten sluice-heads; No. 3 Channel, 23 sluice-heads; No. 4 Channel, ten sluice-heads.

For two working-days only were the dams empty, and on one other day the supply was short, during the whole of the year. The water-supply for Kumara is now all that could be desired, and the miners have no reason to complain on that score. The raising of the by-wash at the Loop-line dam has increased the storage capacity by 30,000,000 cubic feet, or about eight days' full supply, without any water running in during that time; but, as the races supplying the dam bring in a considerable quantity of water during the driest weather, the capacity of the dam may be fairly stated as having been increased to the extent of ten days' full supply.

The catch-water race to carry water from the watershed of the lower dam into the Loop-line dam has now been completed and acts well, and the Loop-line dam now fills much faster and with less rainfall than formerly. The Kumara water-supply will never run short, except during a very long period of dry weather or during a very hard winter when all the water is frozen up.

*No. 5 Main Tail-race.*—This main tail-race has now been completed, and a shaft has been sunk at the head for the conveyance of flush-water into it. The Kapitea Hill Race has been extended to the proposed pipe-line for No. 5 Main Tail-race, and a race has been cut from that point to the flush-water shaft, so that water can be supplied at once for washing down any *débris* that may be put into the main tail-race while the private tail-races are being driven.

One party is prepared to start at once driving a private tail-race connected with the main tail-race, and several other parties are also preparing to do likewise. A contract has been entered into for the supply of the necessary pipes for conveying water under pressure to the several claims about to be opened up, and about August next sluicing should be in full swing in the No. 5 Main

Tail-race. This tail-race, when in full working, will considerably add to the sales of water from the Kumara Race.

*Deep Level Company.*—Very little work has been done by this company during the year, more on account of want of funds than want of faith in the ultimate result of prospecting the deep levels of Kumara. It is a pity that more prospecting has not been done in the deep levels. The Government has liberally assisted by granting subsidies to construct a drainage-tunnel from which prospecting can be carried out, and but little prospecting has been done. The drainage-tunnel is now driven for a distance of 1,600 ft., and drains a large portion of the field to the main bottom, so that the overlying washes may be prospected by rises from the tunnel. With the exception of the prospecting done in constructing the tunnel, only a few rises have been put up, in some of which fair prospects were obtained; but the facilities afforded by the drainage-tunnel for thoroughly prospecting the ground passed through have not to any extent been taken advantage of. Several parties of miners are, however, engaged in driving into the deep levels from the face of the terrace fronting the Teremakau, fully 100 ft. below the bottom hitherto worked in Kumara, and have met with encouraging prospects. Some of the parties are making fair wages, and have found extensive layers of wash that, with proper facilities, would pay well. The probability is that the work now being done by these parties will lead to extensive mining operations in the deep levels of Kumara.

*Wainihinihi Water-race.*—The total length of this race when completed will be a little more than a mile and a half, or 126 chains. Of this, 92 chains have been constructed in open cutting. This portion of the work was let in thirty co-operative contracts. Water is now running from the little Wainihinihi Creek and several other small branches into the Kawhaka watershed, and the effect of even the small quantity now being carried into the Kawhaka and thence into the Waimea Race is being felt in Waimea. In dry weather about six sluice-heads are carried by this race, and with very slight rainfall there is twenty sluice-heads. Besides the 92 chains above referred to, one tunnel  $3\frac{1}{2}$  chains in length has been completed, and three other tunnels have been started; 11 chains of the rock siding has been benched for ditching, which will make a much more permanent race than fluming, as was originally intended. Very little timber will be used in the construction of the race, except in some of the tunnels. The use of timber structures in races of this class should be avoided as much as possible, as in the course of a few years the maintenance and repair of such structures becomes a great source of expense, and the liability to accident is much greater than when the race is constructed in earth or rock.

The completion of this race will give the Waimea, Stafford, and Callaghan's districts a good and continuous supply of water, and will assist Kumara supply when required, which will be but seldom. The only thing that will interfere with a full supply for the whole field will be a hard and severe winter that would freeze all the water, as the sources are more than 1,000 ft. above sea-level.

I have, &c.,

ALEXANDER AITKEN, Manager, Water-races.

The Under-Secretary, Mines Department, Wellington.

### No. 18.

Mr. R. MURRAY, Manager of the Mount Ida Water-race, to the UNDER-SECRETARY for MINES, Wellington.

SIR,—

I have the honour to submit the following report on the Mount Ida and Blackstone Hill Water-races, for the year ending the 31st March, 1899:—

#### MOUNT IDA WATER-RACE.

The total sales of water from this race during the year amounted to £1,496 9s., and the expenditure on maintenance and repairs for the same period, £1,231 4s. The total cash received was £1,541 8s. 7d. On account of payment in advance free water to the value of £37 was supplied. Free water to the value of £13 8s. 9d. was supplied to assist in opening up new claims, and free water for washing-up was also supplied to the value of £97 19s. 10d. The total value of water supplied from this race during the year was £1,644 17s. 7d. The average number of miners supplied with water was 49·42, a decrease of 11·5 over that of last year; this has been chiefly owing to the construction of the Eweburn Reservoir. The approximate quantity of gold obtained by parties using water from this race was 2,895 oz., valued at £11,145 5s. From the 1st April until the 19th July, when, on account of the frost, the water had to be turned off, the weather was very dry: only a daily average of four heads in the race for four months. I started to clean out the race on the 22nd August, and finished on the 19th September. From the 1st September to the end of March the season has been the best for water since the Government took charge of the race. The siphon crossing Wet Gully had to be repaired by putting in a new elbow. This work was done by the maintenance-men during the winter. Two sets of legs in the flume crossing Main Gully having sunk had to be raised and soleplates put under them. This flume will have to be strengthened by next season. On the 11th December a heavy thunder-cloud burst on the east side of Ten-chain Gully down the Pearce's Gorge, filling the race in many places with rough boulder-gravel. I cut through the race in several places and had it sluiced out. The water was off for eleven days while this was being done. On account of the demand for water from Coalpit Dam—the siphon, 22 in., in the supply-race where it crosses a deep tail-race, being unable to carry a sufficient supply—I had to put in a 17 in. one alongside of it. The race from Mullholland's Dam had to be widened and a deviation made in it to do away with several chains of fluming, and thus meeting the demand from there for elevating. There are nine elevating-claims supplied with water from the race, an increase of one over last

year, all, I believe, doing fairly well. A small break occurred in the Wedderburn on the 19th February. With this exception, and the damage done by the thunderstorm, the race during the year has been kept in fair working order by the maintenance men. In retimbering the long tunnel between the East Eweburn and Butcher's Gully in 1893 twenty-three sets, which I then deemed would safely do for a few years longer, will have to be replaced this winter when the water is turned off, and can be done by the maintenance men.

#### BLACKSTONE HILL RACE.

The total sales of water from this race amounted to £129 10s., and the total cash received £129 10s. The total cost of maintenance and repairs was £2 14s. With the exception of repairing a small break last October in the Hill's Creek branch of this race, no other work has been done to it during the year. The average number of miners supplied with water from this race during the year was 9, and the approximate quantity of gold obtained was 140 oz., valued at £539.

I have, &c.,

R. MURRAY, Manager.

The Under-Secretary for Mines, Wellington.

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## APPENDIX.

## No. 1.

STATEMENT showing the REVENUE of the GOLDFIELDS collected in the several DISTRICTS, and the GOLD DUTY of the COLONY of NEW ZEALAND, for the Period from the 1st January to the 31st December, 1898.

District.	Miners' Rights.	Business Licenses, Machine and Residence Sites.	Water-races, Sluices, &c.	Gold-mining Leases, Rents, and Royalties.	Registration.	Fees and Fines, Wardens' Courts.	Miscellaneous.	Totals.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
<b>AUCKLAND.</b>								
Coromandel ..	289 2 0	52 10 0	2 15 0	1,984 11 6	21 7 0	105 14 0	295 12 5	2,751 11 11
Te Aroha ..	35 0 0	..	..	1,641 1 10	3 18 0	13 1 0	5 6 8	1,698 7 6
Thames ..	617 10 0	11 10 0	6 3 0	3,287 7 8	16 11 0	39 17 0	65 6 9	4,044 5 5
Ohinemuri ..	432 10 0	253 15 0	8 0 0	4,906 12 9	34 1 0	64 7 0	2,001 9 4	7,700 15 1
Puhipuhi ..	12 10 0	3 10 0	0 5 0	250 0 0	0 13 0	0 10 0	7 2 11	274 10 11
Tauranga ..	5 10 0	..	..	84 5 0	0 18 0	0 19 0	..	91 12 0
Totals ..	1,392 2 0	321 5 0	17 3 0	12,153 18 9	77 8 0	224 8 0	2,374 18 1	16,561 2 10
<b>NELSON.</b>								
Collingwood ..	76 10 0	..	8 15 0	608 18 0	12 4 0	5 17 0	93 17 10	806 1 10
Westport ..	178 10 0	2 6 0	9 5 0	1,222 9 9	22 2 0	35 9 0	1,706 3 1	3,176 4 10
Charleston ..	83 0 0	..	9 0 0	273 16 0	5 12 0	..	9 0 6	380 8 6
Ahaura ..	280 0 0	2 0 0	15 0 0	1,713 12 11	27 15 0	..	91 2 9	2,129 10 8
Reefton ..	216 0 0	..	18 2 6	2,921 5 0	14 3 0	44 8 11	229 16 4	3,438 15 9
Wangapeka ..	21 10 0	..	0 10 0	..	0 8 0	..	1 2 6	23 10 6
Lyell ..	48 10 0	..	3 2 6	296 14 0	2 19 0	..	0 19 0	352 4 6
Motueka ..	6 0 0	..	0 5 0	78 15 0	1 2 0	..	11 4 2	97 6 2
Murchison and Owen's ..	24 10 0	..	7 0 0	156 9 0	5 2 0	..	1 16 0	194 17 0
Totals ..	934 10 0	4 6 0	66 0 0	7,271 19 8	91 7 0	85 14 11	2,145 2 2	10,598 19 9
<b>MARLBOROUGH.</b>								
Havelock ..	76 2 0	3 0 0	4 5 0	272 11 2	6 18 0	23 0 0	71 7 9	457 3 11
<b>WESTLAND.</b>								
Hokitika and Kaniere ..	164 0 0	7 10 0	4 17 6	573 6 6	10 15 0	7 16 0	81 16 6	850 1 6
Greymouth ..	303 14 0	9 2 6	24 17 6	2,293 3 3	23 18 0	13 9 0	9 13 6	2,677 12 9
Ross ..	36 0 0	..	3 2 6	321 12 0	4 14 0	1 9 2	0 7 0	367 4 8
Stafford ..	112 11 0	..	13 12 0	56 16 6	10 15 0	0 14 0	65 11 3	259 19 9
Kumara ..	237 0 0	..	3 15 0	323 15 7	13 14 0	4 13 0	..	582 17 7
Goldsborough ..	36 0 0	..	4 15 0	..	3 7 0	2 9 0	1 14 0	48 5 6
Okarito ..	18 10 0	..	1 10 0	51 17 6	1 17 0	..	0 5 0	73 19 6
Totals ..	907 15 0	16 12 6	56 9 6	3,620 11 4	68 15 0	30 10 2	159 7 3	4,860 0 9
<b>OTAGO.</b>								
Tapanui ..	4 0 0	..	..	7 0 0	0 13 0	..	..	11 13 0
Hindon ..	94 10 0	..	0 15 0	615 17 6	2 13 0	..	2 10 0	716 5 6
Naseby ..	144 0 0	39 0 0	70 7 6	839 13 10	22 18 0	36 13 6	377 1 3	1,529 14 1
Roxburgh ..	..	..	..	..	..	..	..	..
Alexandra ..	..	..	..	..	..	..	..	..
Clyde ..	426 10 0	18 5 0	21 5 0	2,106 8 0	35 9 0	28 9 0	408 6 2	3,044 12 2
Black's ..	..	..	..	..	..	..	..	..
Pembroke ..	16 0 0	..	1 0 0	3 17 0	1 1 0	..	0 1 0	21 19 0
Cromwell ..	266 5 0	5 3 0	7 17 6	725 18 10	23 5 0	24 3 0	327 1 10	1,379 14 2
Queenstown ..	167 0 0	28 0 0	5 10 0	671 11 4	21 12 0	14 12 0	211 4 0	1,119 9 4
Arrowtown ..	80 0 0	..	9 15 0	257 3 4	10 8 0	3 9 0	..	360 15 4
Lawrence ..	264 1 0	1 0 0	16 7 6	1,186 8 10	14 17 0	50 3 0	92 14 0	1,625 11 4
Waikaia ..	126 0 0	10 10 0	8 9 6	435 8 0	10 11 0	16 16 0	9 6 6	617 1 0
Orepuki, River- ton, Preserva- tion, and Longwood ..	186 0 0	15 10 0	17 17 6	789 15 6	19 3 0	39 15 0	6 2 0	1,074 3 0
Maerewhenua ..	3 0 0	..	3 15 0	..	6 14 0	..	21 6 6	34 15 6
Wynham ..	10 0 0	..	1 0 0	16 3 0	1 4 0	..	0 1 0	28 8 0
Nenthorn ..	1 10 0	..	..	..	..	..	..	1 10 0
Middlemarch ..	1 10 0	..	..	..	..	..	..	1 10 0
Ashburton ..	1 0 0	..	..	12 10 0	0 1 0	..	..	13 11 0
Totals ..	1,791 6 0	117 8 0	163 19 6	7,667 15 2	170 9 0	214 0 6	1,455 14 3	11,580 12 5
Grand totals ..	5,101 15 0	462 11 6	307 17 0	30,986 16 1	414 17 0	577 13 7	6,206 9 6	44,057 19 8

## No. 2.

STATEMENT showing the REVENUE of the GOLDFIELDS collected in the several DISTRICTS, and the GOLD DUTY of the COLONY of NEW ZEALAND, for the Period from 1st January to 31st March, 1899.

District.	Miners' Rights.	Business Licenses, Machine and Residence Sites.	Water-races, Sluices, &c.	Gold-mining Leases, Rents, and Royalties.	Registration.	Fees and Fines, Wardens' Courts.	Miscellaneous.	Totals.
AUCKLAND.								
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Coromandel ..	56 0 0	5 0 0	..	183 1 9	1 6 0	14 10 0	30 15 8	290 13 5
Te Aroha ..	4 10 0	..	..	218 5 6	1 1 0	..	0 14 0	224 10 6
Ohinemuri ..	60 0 0	40 4 0	0 10 0	1,225 4 6	0 17 0	9 5 0	382 1 3	1,718 1 9
Thames ..	74 0 0	1 0 0	1 0 0	351 11 0	4 15 0	4 12 0	16 5 6	453 3 6
Puhipuhi ..	4 0 0	1 0 0	..	37 0 0	..	..	3 10 6	45 10 6
Tauranga ..	..	..	..	17 10 0	0 2 0	..	0 10 0	18 2 0
Totals ..	198 10 0	47 4 0	1 10 0	2,032 12 9	8 1 0	28 7 0	433 16 11	2,750 1 8
NELSON.								
Motueka ..	2 10 0	..	..	..	..	..	0 10 0	3 0 0
Collingwood ..	14 10 0	..	0 10 0	46 7 6	1 11 0	1 0 0	2 11 0	66 9 6
Westport ..	39 10 0	..	1 10 0	123 1 10	1 4 0	4 10 0	139 10 10	309 6 8
Charleston ..	29 0 0	..	1 17 6	39 16 6	1 19 0	..	3 6 0	75 19 0
Ahaura ..	64 10 0	..	1 17 6	398 17 3	6 1 0	23 4 6	6 19 6	501 9 9
Reefton ..	56 0 0	..	4 15 0	860 15 2	2 14 0	1 1 0	51 3 9	976 8 11
Wangapeka ..	4 0 0	..	..	..	0 1 0	..	1 17 0	5 18 0
Lyell ..	14 0 0	..	..	22 15 0	0 10 0	..	2 10 0	39 15 0
Murchison ..	1 0 0	..	0 5 0	42 11 0	0 9 0	..	1 11 9	45 16 9
Totals ..	225 0 0	..	10 15 0	1,534 4 3	14 9 0	29 15 6	209 19 10	2,024 3 7
MARLBOROUGH.								
Havelock ..	11 10 0	3 0 0	0 5 0	34 0 0	2 10 0	1 2 0	41 12 0	93 19 0
WESTLAND.								
Hokitika and Kani- eri ..	44 0 0	..	0 12 6	8 4 6	1 0 0	0 5 0	3 16 0	57 18 0
Graymouth ..	..	..	..	..	..	..	..	..
Ross ..	11 10 0	..	2 2 0	16 15 6	1 1 0	..	2 5 6	33 14 0
Stafford ..	39 10 0	..	3 10 0	22 10 0	2 7 0	2 13 0	20 11 0	91 1 0
Okarito ..	10 10 0	..	..	..	0 8 0	..	1 19 0	12 17 0
Kumara ..	57 0 0	..	1 0 0	29 1 4	3 5 0	2 14 0	1 15 6	94 15 10
Goldsborough ..	..	..	..	..	..	..	..	..
Totals ..	162 10 0	..	7 4 6	76 11 4	3 1 0	5 12 0	30 7 0	290 5 10
CANTERBURY.								
Ashburton ..	0 10 0	..	..	..	..	..	..	0 10 0
OTAGO.								
Middlemarch ..	3 0 0	..	..	..	..	0 6 0	..	3 6 0
Tapanui ..	10 0 0	..	..	..	..	..	..	10 0 0
Hindon ..	15 0 0	..	..	98 6 3	0 6 0	..	2 4 0	115 16 3
Naseby ..	30 10 0	5 0 0	7 14 11	114 7 5	5 4 0	2 9 6	72 3 3	237 9 1
Black's ..	..	..	..	..	..	..	..	..
Alexandra ..	..	..	..	..	..	..	..	..
Clyde ..	81 10 0	3 10 0	2 10 0	402 6 6	3 14 0	11 8 0	226 18 9	731 17 3
Roxburgh ..	..	..	..	..	..	..	..	..
Cromwell ..	52 5 0	0 1 0	0 5 0	130 15 4	4 12 0	1 11 0	34 9 0	223 18 4
Queenstown ..	42 10 0	5 0 0	0 15 0	23 16 1	5 2 0	..	17 8 4	94 11 5
Arnpwotown ..	19 11 0	..	0 17 6	53 1 8	1 1 0	1 16 0	0 15 0	77 2 2
Lawrence ..	57 5 0	..	1 7 6	377 16 0	2 17 0	4 3 0	16 1 6	459 10 0
Orepuki, River- ton, Preserva- tion, and Long- wood ..	48 0 0	3 0 0	4 15 0	258 11 8	4 11 0	2 12 0	27 11 0	349 0 8
Pembroke ..	2 0 0	..	..	1 0 0	..	..	..	3 0 0
Maerewhenua ..	1 0 0	..	0 7 6	..	0 11 0	..	1 17 6	3 16 0
Waikaia ..	21 10 0	4 10 0	0 15 0	68 15 0	1 14 0	22 15 0	4 3 9	124 2 9
Wyndham ..	5 10 0	..	..	2 13 0	0 2 0	0 2 0	0 5 0	8 12 0
Nenthorn ..	..	..	..	..	..	..	..	..
Totals ..	390 1 0	21 1 0	19 7 5	1,531 8 11	29 14 0	47 2 6	403 17 1	2,442 11 11
Grand totals ..	988 1 0	71 5 0	39 1 11	5,208 17 3	62 15 0	111 19 0	1,119 12 10	7,601 12 0

## No. 3.

COMPARATIVE RETURN of REVENUE derived from the GOLDFIELDS in the several DISTRICTS of NEW ZEALAND during the Years 1897 and 1898, showing INCREASE or DECREASE under each Head of Revenue.

District.	Miners' Rights.	Business Licenses, &c.	Water-races, Sluices, &c.	Gold-mining Leases, Rents, and Royalties.	Registration.	Fees and Fines, Wardens' Courts.	Miscellaneous.	Gold Duty.	Totals.
<b>AUCKLAND—</b>									
Year 1898 .. .. .	£ 1,392	£ 321	£ 17	£ 12,154	£ 77	£ 224	£ 2,375	£ 14,219	£ 30,779
Year 1897 .. .. .	1,807	1,190	74	26,953	173	126	1,444	10,403	42,170
<i>Increase</i> .. .. .	..	..	..	..	..	98	931	3,816	..
<i>Decrease</i> .. .. .	415	869	57	14,799	96	..	..	..	11,391
<b>NELSON—</b>									
Year 1898 .. .. .	935	4	66	7,272	91	86	2,145	..	10,599
Year 1897 .. .. .	956	32	77	5,942	90	89	679	..	7,865
<i>Increase</i> .. .. .	..	..	..	1,330	1	..	1,466	..	2,734
<i>Decrease</i> .. .. .	21	28	11	..	..	3	..	..	..
<b>MARLBOROUGH—</b>									
Year 1898 .. .. .	76	3	4	273	7	23	71	..	457
Year 1897 .. .. .	55	3	3	281	5	7	26	..	380
<i>Increase</i> .. .. .	21	..	1	..	2	16	45	..	77
<i>Decrease</i> .. .. .	..	..	..	8	..	..	..	..	..
<b>WESTLAND—</b>									
Year 1898 .. .. .	908	17	56	3,621	69	31	159	..	4,861
Year 1897 .. .. .	948	11	60	2,126	75	62	1,465	..	4,747
<i>Increase</i> .. .. .	..	6	..	1,495	..	..	..	..	114
<i>Decrease</i> .. .. .	40	..	4	..	6	31	1,306	..	..
<b>OTAGO—</b>									
Year 1898 .. .. .	1,791	117	164	7,668	170	214	1,456	..	11,580
Year 1897 .. .. .	2,061	106	164	7,770	175	259	941	..	11,476
<i>Increase</i> .. .. .	..	11	..	..	..	..	515	..	104
<i>Decrease</i> .. .. .	270	..	..	102	5	45	..	..	..
<i>Total Increase</i> .. .. .	..	..	..	..	..	95	1,651	3,816	..
<i>Total Decrease</i> .. .. .	725	880	71	12,084	104	..	..	..	8,362

## No. 4.

COMPARATIVE RETURN of the TOTAL AMOUNTS of GOLDFIELDS REVENUE (exclusive of Gold Duty, collected in the several Districts during the Years 1897 and 1898, and the Quarters ending 31st March, 1898 and 1899 respectively, showing the INCREASE or DECREASE in respect of each District.

District.	Years 1897 and 1898.				Quarters ending 31st March, 1898, and 31st March, 1899.			
	1897.	1898.	Increase.	Decrease.	1899.	1898.	Increase.	Decrease.
AUCKLAND.								
	£	£	£	£	£	£	£	£
Coromandel .. ..	6,081	2,752	..	3,329	291	667	..	376
Te Aroha .. ..	1,739	1,698	..	41	225	656	..	431
Thames .. ..	9,902	4,044	..	5,858	453	1,292	..	839
Puhipuhi .. ..	389	275	..	114	46	126	..	80
Ohinemuri .. ..	13,625	7,701	..	5,924	1,718	3,016	..	1,298
Tauranga .. ..	31	92	61	..	18	14	4	..
NELSON.								
Motueka .. ..	7	97	90	..	3	3	..	..
Collingwood .. ..	723	806	83	..	66	149	..	83
Westport .. ..	2,312	3,176	864	..	309	1,670	..	1,361
Charleston .. ..	308	380	72	..	76	130	..	54
Ahaura .. ..	1,071	2,130	1,059	..	501	500	1	..
Reefton .. ..	2,966	3,439	473	..	976	1,117	..	141
Wangapeka .. ..	21	24	3	..	6	16	..	10
Lyell .. ..	300	352	52	..	40	137	..	101
Murchison and Owen's ..	158	195	37	..	46	78	..	32
MARLBOROUGH.								
Havelock .. ..	381	457	76	..	94	120	..	26
Picton .. ..								
WESTLAND.								
Hokitika .. ..	504	850	346	..	58	111	..	53
Kanieri .. ..								
Greymouth .. ..	2,657	2,678	21	..	..	688	..	683
Ross .. ..	399	367	..	32	34	52	..	18
Stafford .. ..	448	260	..	188	91	70	21	..
Okarito .. ..	68	74	6	..	13	23	..	10
Kumara .. ..	580	583	3	..	95	149	..	54
Goldsborough .. ..	92	48	..	44	..	24	..	24
CANTERBURY.								
Ashburton .. ..	..	14	14	..	1	..	1	..
OTAGO.								
Hindon .. ..	761	716	..	45	116	216	..	100
Naseby .. ..	1,378	1,530	152	..	237	424	..	187
Alexandra .. ..	2,573	3,045	472	..	732	844	..	112
Black's Clyde .. ..								
Roxburgh .. ..	..	..	..	..	..	..	..	..
Cromwell .. ..	1,627	1,380	..	247	224	378	..	154
Arrowtown .. ..	478	361	..	117	77	99	..	22
Queenstown .. ..	1,187	1,119	..	68	95	607	..	512
Pembroke .. ..	33	22	..	11	3	3	..	..
Lawrence .. ..	1,727	1,626	..	101	460	297	163	..
Waikaia .. ..	580	617	37	..	124	149	..	25
Tapanui .. ..	21	12	..	9	10	2	8	..
Orepuki, Preservation, and Longwood .. ..	1,020	1,074	54	..	349	180	169	..
Maerewhenua .. ..	63	35	..	28	4	6	..	2
Wyndham .. ..	22	28	6	..	9	4	5	..
Nenthorn .. ..	2	2	..	..	..	2	..	2
Middlemarch .. ..	4	2	..	2	3	1	2	..
Totals .. ..	56,238	44,061	..	..	7,603	14,015	..	..
Net decrease .. ..	..	..	..	12,177	..	..	..	6,412

## No. 5.

RETURN of GOLD DUTY credited to LOCAL BODIES for the Year ended 31st December, 1898, and Quarter ended 31st March, 1899.

Local Body.	For the Year ended 31st December, 1898.	For the Quarter ended 31st March, 1899.
COUNTIES—		
Coromandel .. ..	£ s. d. 1,710 9 5	£ s. d. 164 3 3
Ohinemuri .. ..	11,778 2 7	3,160 0 1
Piako .. ..	2 4 7	6 14 0
Thames .. ..	343 2 11	315 10 4
BOROUGH—		
Thames .. ..	384 13 4	135 4 5
Totals .. ..	14,218 12 10	3,781 12 1

The Treasury, Wellington, 31st May, 1899.

ROBERT J. COLLINS,  
Accountant to the Treasury.

## No. 6.

RETURN of the QUANTITY and VALUE of GOLD ENTERED for DUTY\* for EXPORTATION from NEW ZEALAND from 1st APRIL, 1857, to 31st DECEMBER, 1898.

PRODUCE OF THE GOLDFIELDS IN		DURING THE QUARTER ENDED 31ST DEC., 1898.		ENTERED FOR EXPORTATION TO THE 30TH SEPT., 1898.		TOTAL ENTERED FOR EXPORTATION FROM NEW ZEALAND TO THE 31ST DEC., 1898.	
County or Borough.	District.	Qu'ntity	Value.	Quantity.	Value.	Quantity.	Value.
		Oz.	£	Oz.	£	Oz.	£
County of Coromandel ..	Auckland	3,581	15,110				
Thames ..		2,716	11,440				
Ohinemuri ..		36,459	133,549				
Piako ..		4	16				
Borough of Thames ..		1,706	7,187				
		<u>44,466</u>	<u>167,302</u>	2,235,887	8,419,878	2,280,353	8,587,180
	Wellington ..	..	..	188	706	188	706
County of Marlborough	Marlborough ..	..	..	86,385	336,415	86,385	336,415
County of Collingwood ..	Nelson ..	..	..	1,674,859	6,640,045	1,674,859	6,640,045
County of Buller ..	West Coast	4,831	19,326				
Inangahua ..		6,213	24,850				
Grey ..		6,001	24,002				
Westland ..		5,756	23,022				
Borough of Kumara ..		118	471				
Hokitika ..		53	212				
Ross ..		965	3,860				
		<u>23,937</u>	<u>95,743</u>	4,355,701	17,322,651	4,379,638	17,418,394
	Canterbury ..	..	..	24	96	24	96
County of Taieri ..	Otago	1,105	4,284				
Tuapeka ..		2,128	8,501				
Vincent ..		1,687	6,629				
Maniototo ..		824	3,272				
Waitaki ..		556	2,215				
Lake ..		29	116				
Wallace ..		1,319	5,276				
Bruce ..		294	1,176				
Fiord ..		512	2,048				
Southland ..		630	2,520				
Stewart I. ..		15	60				
		<u>9,099</u>	<u>36,097</u>	5,415,059	21,433,908	5,424,158	21,470,005
	Unknown ..	..	..	122	484	122	484
Totals ..	..	<u>77,502</u>	<u>299,142</u>	<u>13,768,225</u>	<u>54,154,183</u>	<u>13,845,727</u>	<u>54,453,325</u>

## No. 7.

COMPARATIVE RETURN of the QUANTITY and VALUE of GOLD ENTERED for DUTY\* for EXPORTATION from NEW ZEALAND for the YEARS ended 31st DECEMBER, 1897 and 1898.

PRODUCE OF THE GOLDFIELDS IN THE DISTRICT OF	DURING THE QUARTER ENDED—				TOTALS FOR YEAR 1898.		TOTALS FOR YEAR 1897.	
	31st March, 1898.	30th June, 1898.	30th September, 1898.	31st December, 1898.	Quantity.	Value.	Quantity.	Value.
	Oz.	Oz.	Oz.	Oz.	Oz.	£	Oz.	£
Auckland ..	29,405	29,157	39,355	44,466	142,368	527,786	105,477	392,337
Marlborough ..	160	18	603	..	781	3,003	810	3,195
Nelson ..	..	1,462	258	..	1,720	6,882	1,892	7,055
West Coast ..	25,207	16,107	14,697	23,937	79,948	319,789	58,817	235,430
Otago ..	14,696	19,819	11,729	9,099	55,343	223,231	84,649	342,187
Totals for 1898	69,468	66,563	66,642	77,502	280,175	1,080,691	..	..
Totals for 1897	69,621	60,046	60,222	61,756	..	..	251,645	980,204

\* Gold duty abolished in the South Island on the 31st March, 1891, by "The Gold Duty Abolition Act, 1890."

Department of Trade and Customs,  
Wellington, 25th January, 1899.

W. T. GLASGOW,  
Secretary and Inspector.



## No. 8.

RETURN of the QUANTITY and VALUE of GOLD ENTERED for DUTY\* for EXPORTATION from NEW ZEALAND from 1st APRIL, 1857, to 31st MARCH, 1899.

PRODUCE OF THE GOLDFIELDS IN		DURING THE QUARTER ENDED 31st MARCH, 1899.		ENTERED FOR EXPORTATION TO THE 31st DECEMBER, 1898.		TOTAL ENTERED FOR EXPORTATION FROM NEW ZEALAND TO THE 31st MARCH, 1899.	
County or Borough.	District.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		Oz.	£	Oz.	£	Oz.	£
County of Coromandel	Auckland	1,642	6,862				
" Thames ..		1,382	5,818				
" Ohinemuri ..		31,600	113,423				
" Piako ..		67	282				
Borough of Thames ..		514	2,164				
		35,205	128,549	2,280,353	8,587,180	2,315,558	8,715,729
	Wellington ..	..	..	188	706	188	706
	Marlborough ..	..	..	86,385	336,415	86,385	336,415
	Nelson ..	..	..	1,674,859	6,640,045	1,674,859	6,640,045
County of Buller ..	West Coast	3,493	13,999				
" Inangahua ..		4,610	18,441				
" Grey ..		5,890	23,561				
" Westland ..		5,331	21,324				
Borough of Hokitika ..		84	335				
" Ross ..	551	2,204					
		19,959	79,864	4,379,638	17,418,394	4,399,597	17,498,258
County of Ashburton ..	Canterbury ..	12	49	24	96	36	145
County of Taieri ..	Otago	1,297	5,088				
" Tuapeka ..		9,546	38,638				
" Vincent ..		12,978	52,166				
" Maniototo ..		5,357	21,577				
" Waitaki ..		1,249	5,034				
" Lake ..		2,403	9,738				
" Wallace ..		2,021	8,120				
" Waikouaiti ..		23	92				
" Waihemo ..		295	1,196				
" Bruce ..		616	2,473				
" Fiord ..		719	2,879				
" Southland ..	1,134	4,570					
" Stewart I. ..	4	16					
		37,642	151,587	5,424,158	21,470,005	5,461,800	21,621,592
Unknown ..	..	..	..	122	484	122	484
Totals ..	..	92,818	360,049	13,845,727	54,453,325	13,938,545	54,813,374

\* Gold duty abolished in the South Island on the 31st March, 1891, by "The Gold Duty Abolition Act, 1890."

## No. 9.

COMPARATIVE RETURN for the QUARTERS ended 31st MARCH, 1899, and 31st MARCH, 1898.

District of	Quarter ended 31st March, 1899.		Quarter ended 31st March, 1898.	
	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£
Auckland .. .. .	35,205	128,549	29,405	110,872
Marlborough .. .. .	..	..	160	597
West Coast .. .. .	19,959	79,864	25,207	100,829
Canterbury .. .. .	12	49	..	..
Otago .. .. .	37,642	151,587	14,696	59,512
Totals .. .. .	92,818	360,049	69,468	271,810

Department of Trade and Customs,  
Wellington, 1st May, 1899.

W. T. GLASGOW,  
Secretary and Inspector.

## No. 10.

STATEMENT showing the PRICE of GOLD per OUNCE, PRICE charged per TON for CRUSHING QUARTZ or CEMENT, and PRICES charged for WATER per SLUICE-HEAD per WEEK, during the Year ending 31st March, 1899.

Mining District.	Price of Gold per Ounce.	Price charged per Ton for crushing Quartz or Cement.	Price charged for Water per Sluice-head per Week.	Remarks.
AUCKLAND—North Hauraki .. ..	£ s. d. £2 16s. to £3 2s. 6d.	£ s. d. ..	£ s. d. ..	No public batteries; no water sold.
South Hauraki .. ..	£2 15s.	0 5 6	£3 to £4	..
Ohinemuri .. ..	£2 8s. to £3	0 8 0	..	Ditto.
Te Aroha .. ..	£3 12s.	0 7 6	..	..
Puhipuhi .. ..	..	..	..	None sold on field.
Tauranga .. ..	..	..	..	No mines crushing.
MARLBOROUGH—Pelorus and Wairau ..	3 17 0	..	..	No quartz worked in district.
NELSON—Wangapeka .. ..	£3 12s. to £3 15s.	..	..	..
Motueka.. ..	3 12 0	..	..	..
Charleston .. ..	3 19 0	0 1 6	2 5 0	40 in.
Inangahua .. ..	£3 18s. to £4 4s.	8s. to 10s.	..	..
Collingwood .. ..	3 13 6	..	..	..
Takaka .. ..	3 13 6	..	..	..
Westport .. ..	3 18 9	..	..	..
Murchison .. ..	3 18 0	..	..	..
Lyell .. ..	3 18 0	0 10 0	..	..
WESTLAND—Hokitika, Kanieri, and Waimea.. ..	3 18 0	..	3 0 0	40 in.
Totara and Ross .. ..	3 18 0	0 12 0	1 10 0	40 in. head.
Stafford .. ..	3 18 0	..	1 10 0	..
Greymouth .. ..	3 18 0	0 12 0	0 10 0	..
Kumara .. ..	3 18 0	..	1 10 0	20 in. by 2 in. opening.
Ahaura .. ..	3 18 0	0 12 6	1 10 0	Sluice, 20in. by 2in.
Okarito .. ..	3 18 0	..	..	..
OTAGO—Hindon .. ..	3 15 0	..	..	..
Tuapeka.. ..	3 18 6	..	3 0 0	..
Longwood .. ..	3 10 6	..	..	..
Preservation and Waiau .. ..	3 15 0	..	..	..
Orepuki and Roundhill .. ..	3 18 6	..	..	..
Arrow (Wakatipu Goldfield) and Queenstown	3 15 0	12s. 6d. to 15s.	..	20 in. by 2 in.
Mount Ida .. ..	..	..	..	..
Macrae's, Hyde .. ..	3 17 0	..	£1, private Hogburn race	£1 10s., Government race, 40 in. by 1 in.
Hamilton, Serpentine	..	..	1 0 0	20 in. by 2 in., 4 in. pressure.
Maerewhenua .. ..	3 17 0	..	..	Water used by owners.
Cromwell .. ..	3 17 0	0 8 0	0 4 0	..
Waikaia.. ..	3 17 6	..	1 15 0	..
Tapanui.. ..	3 15 0	..	..	..
Wyndham .. ..	£3 16s. to £3 18s.	..	..	..
Roxburgh .. ..	..	..	..	..
Clyde and Alexandra	3 17 0	..	..	Water used by owners.
Black's .. ..	..	..	..	..



No. 12.  
TABLE showing the AVERAGE RATE of WAGES per WEEK for the Year ending 31st March, 1899.

Mining District.	General Managers.	Legal Managers.	Mining Managers.	Engineers.	Engine-drivers.	Stokers.	Blacksmiths.	Carpenters.	Miners.	Labourers.	Boys.	Chinese.	Agricultural Labourers.	Domestic Servants.
<b>AUCKLAND—</b>														
North Hauraki	£ s. d. £5 to £10	£ s. d. £1 to £2	£ s. d. £3 to £5	£ s. d. £3 to £3 10	£ s. d. 2 14 0	£ s. d. 2 8 0	£ s. d. 2 8 0	£ s. d. 2 14 0	£ s. d. 2 8 0	£ s. d. 2 2 0	£ s. d. 5/ to 30/	£ s. d. ..	£ s. d. 1 16 0	5/ to 15/
South Hauraki	£500 to £1000 p.a.	£1 to £2	£3 to £5	£3 to £3 10	2 14 0	2 8 0	2 8 0	3 0 0	2 5 0	1 10 0	10/ to 15/	..	1 10 0	5/ to 10/
Puhipuhi	2 0 0	1 0 0	4 0 0	3 0 0	2 10 0	2 0 0	2 10 0	3 0 0	2 8 0	2 0 0	1 5 0	..	1 16 0	10/ to 15/
Ohinemuri	£150 to £1000 p.a.	£1 to £2	£4 to £8	£4 to £5	3 0 0	2 8 0	2 8 0	3 0 0	2 8 0	2 2 0	1 10 0	..	1 10 0	5/ to 10/
Te Aroha	8 0 0	4 0 0	8 0 0	4 0 0	3 0 0	2 0 0	3 0 0	3 0 0	2 10 0	2 0 0	1 5 0	..	1 10 0	10/ to 15/
<b>MARLBOROUGH</b>														
Collingwood	5 0 0	1 10 0	5 0 0	3 10 0	2 10 0	2 0 0	2 14 0	2 14 0	2 8 0	2 0 0	0 12 0	..	1 0 0	10/
Takaka	10 0 0	£1 to £3	£4 to £10	4 0 0	1 16 0	3 0 0	£3 to £4	3 10 0	2 17 0	1 16 0	0 10 0	..	1 5 0	10/
Inangahua	..	..	5 0 0	..	3 10 0	3 0 0	3 10 0	3 10 0	£2 10 to £3	2 8 0	£1 10 to £2 8	..	1 15 0	10/ to 15/
Charleston	..	..	4 0 0	..	3 0 0	2 8 0	3 0 0	3 12 0	2 14 0	2 10 0	0 15 0	..	1 0 0	10/
Westport	..	0 10 0	4 0 0	..	3 0 0	2 8 0	3 0 0	3 12 0	2 14 0	2 8 0	1 4 0	..	..	10/ to 15/
Lytell	..	2 0 0	5 0 0	£3 10 to £4	3 10 0	2 15 0	3 10 0	3 10 0	£2 10 to £3	£2 5 to £2 11	£2 to £2 5	..	£1 and found	9/
Ahaura	..	..	4 0 0	£3 10 to £5	3 0 0	2 10 0	3 10 0	3 12 0	2 10 0	1 10 0	0 15 0	..	1 10 0	7/ to 15/
Murchison	..	..	..	4 0 0	3 10 0	2 15 0	3 0 0	3 0 0	2 10 0	2 5 0	2 0 0	..	£1 and found	9/
Wangapeka	..	..	..	..	..	..	3 0 0	2 14 0	3 0 0	2 2 0	0 5 0	..	1 16 0	6/ to 10/
<b>WESTLAND—</b>														
Waimea and Stafford	6 0 0	..	..	3 10 0	..	..	3 10 0	3 10 0	2 10 0	2 10 0	1 16 0	2 10 0	..	12/
Hokitika and Kamari	4 0 0	1 0 0	£4 to £5	4 0 0	3 0 0	..	..	3 12 0	3 0 0	2 10 0	1 0 0	£1 10 to £2	1 0 0	8/ to 15/
Ross	..	1 5 0	5 0 0	..	..	..	4 0 0	3 12 0	3 0 0	2 10 0	1 0 0	..	..	8/
Kumara	..	1 10 0	4 0 0	..	3 0 0	..	3 10 0	3 10 0	£2 10 to £3	2 10 0	1 0 0	..	25/ and found	7/ to 15/
Greymouth	..	£1 to £2	£4 to £6	£3 to £5	3 0 0	2 10 0	£3 to £3 10	10/ to 14/ day	£2 10 to £3	7/ to 9/ a day	8/ to 15/	20/-30/ found	20/-40/ found	5/ to 12/6
Okarito	..	..	..	..	..	..	3 10 0	3 10 0	3 0 0	2 10 0	..	..	1 10 0	10/
<b>OTAGO—</b>														
Hindon	4 0 0	..	4 0 0	..	3 0 0	..	..	..	2 8 0	2 2 0	..	..	1 0 0	10/
Tuapeka	4 0 0	2 0 0	3 10 0	£4 to £5	2 10 0	2 2 0	2 14 0	2 14 0	2 2 0	2 0 0	0 10 0	1 0 0	1 0 0	8/ to 10/
Taparui	..	..	..	..	3 0 0	..	10/ a day	10/ a day	8/ a day	6/ a day	10/ and found	0 15 0	1 0 0	8/ to 10/
Cromwell	..	..	4 10 0	4 0 0	3 0 0	2 10 0	2 10 0	3 0 0	2 8 0	2 0 0	1 5 0	1 0 0	£1 and found	9/
Clyde	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alexandra	5 0 0	10/ to 21/	4 0 0	3 0 0	2 10 0	..	3 10 0	3 10 0	£2 8 to £3	2 8 0	0 15 0	1 5 0	£50 a year and found	7/6 to 15/
Black's	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Roxburgh	4 0 0	3 10 0	4 0 0	..	2 15 0	..	3 0 0	2 10 0	2 2 0	2 2 0	0 10 0	1 0 0	15/ to £1	10/ to 14/
Waikaiti	5 0 0	£40 per ann.	3 0 0	3 0 0	2 10 0	1 8 0	2 14 0	3 0 0	2 2 0	1 16 0	0 15 0	1 10 0	2 2 0	8/ to 10/
Orepuki, Longwood, and Preservation	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arrow	6 0 0	1 0 0	5 0 0	4 0 0	3 0 0	2 10 0	3 0 0	4 0 0	3 0 0	2 8 0	10/ to £1	£1 to £1 5	£1 to £1 5	10/ to 15/
Queenstown	5 0 0	1 0 0	5 0 0	4 0 0	3 0 0	1 10 0	3 0 0	4 0 0	3 0 0	2 8 0	10/ to £1	£1 to £1 10	£1 to £1 5	10/ to 15/
Mount Ida	5 0 0	£25 per ann.	£3 to £3 10	£3 10 to £4	3 0 0	2 8 0	£2 10 to £3	£2 10 to £3	8/ & 9/ a day	7/ to 8/ a day	10/ to 15/	1 16 0	£1 and found	7/ to 8/
Wyndham	..	..	..	..	..	..	2 10 0	2 10 0	..	2 0 0	12/ to 15/	..	1 10 0	6/ to 12/

## No. 13.

NUMBER of MACHINES employed in ALLUVIAL and QUARTZ-MINING, and the VALUE thereof, for the Year ending 31st March, 1899.

Mining District.	Machinery employed in Alluvial Mining.											Machinery employed in Quartz-mining.							Approximate Value of all Mining Plant included in this Return.						
	Steam-engines employed winding, crushing, &c.		Pudding-machines.	Whims.	Whips or Pulleys.	Stices, Tons, and Stice-boxes.	Water-wheels.	Hydraulic Hose.	Pumps.	Dredges.	Quicksilver and Compound Cradles.	Derricks.	Stamp-heads crushing Cement.	Boring-machines.	Steam-engines employed winding, crushing, &c.		Crushing-machines.	Stamp-heads.		Water-wheels.	Whims.	Whips or Pulleys.	Derricks.	Bardans.	
	No.	Aggregate h.p.													No.	Aggregate h.p.									
AUCKLAND—																									
Ohinemuri .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	1,700	..	504	14	..	1	..	..	..	£
North Hauraki .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	38	1,166	3	121	1	..	..	..	..	53	193,520	
South Hauraki .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	27	2,311	28	400	26	..	..	..	..	161	47,936	
Te Aroha .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2	10	..	..	..	..	..	..	149,280	
Puhipuhi .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	250	
Tauranga .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Totals .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	93	5,177	34	1,035	42	..	1	..	214	..	390,986	
MARLBOROUGH—																									
Wakamarina .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cullen's Creek .. .. .	..	2	23	..	1	1	48	4	8	8	2	..	3	..	..	..	1	10	..	..	..	..	..	..	9,440
Waikakaho .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other places .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals .. .. .	..	2	23	..	1	1	48	4	8	8	2	..	3	..	..	..	1	10	..	..	..	..	..	..	9,440
NELSON—																									
Wangapeka .. .. .	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60
Collingwood .. .. .	..	..	..	..	..	..	..	..	7	..	..	..	..	..	2	47	4	48	..	..	..	..	..	..	27,050
Takaka .. .. .	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
Inangahua .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26	733	22	380	20	2	3	..	65	181,517	
Charleston .. .. .	..	..	..	..	..	95	6	71	..	..	..	..	24	..	..	..	..	..	..	..	..	..	..	..	800
Lyell .. .. .	..	..	..	..	..	78	..	5	..	1	..	..	..	..	..	..	3	35	3	..	..	..	..	..	18,000
Murchison .. .. .	..	..	..	..	..	630	1	3	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16,000
Westport .. .. .	..	..	..	..	..	53	3	24	..	..	..	..	22	..	..	..	4	35	5	..	1	1	1	..	10,000
Ahaura .. .. .	..	..	..	..	1	100	1	100	2	..	3	1	..	1	..	..	2	22	2	..	..	..	..	..	22,700
Totals .. .. .	..	..	..	..	1	1,031	11	214	3	3	3	1	46	1	28	780	35	515	30	2	4	2	66	..	276,177
WESTLAND—																									
Stafford .. .. .	..	..	..	3	6	8,000	6	600	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30,000
Ross .. .. .	..	..	..	2	2	60	4	40	..	2	..	..	..	..	..	..	2	10	1	..	..	..	..	..	14,000
Hokitika and Kanieri .. .. .	..	..	..	..	2	95	1	110	1	..	..	..	5	..	..	..	..	..	..	..	..	..	..	..	2,600
Greymouth .. .. .	..	..	..	..	..	1,400	2	510	28	1	40	..	..	..	..	..	2	6	2	..	..	..	..	..	13,280
Kumara .. .. .	..	..	..	..	..	150	2	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,500
Okarito .. .. .	..	..	..	..	..	23	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	..	120
Totals .. .. .	..	..	..	3	10	9,728	15	1,345	33	3	50	..	5	..	..	..	4	16	3	..	..	..	..	..	62,500
OTAGO—																									
Tapanui .. .. .	..	..	..	..	..	24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	130
Hindon .. .. .	..	..	..	..	..	15	2	2	..	..	..	..	..	..	5	38	4	31	2	..	..	..	..	..	..
Tuapeka .. .. .	..	..	..	..	..	560	13	22	38	16	..	..	..	..	..	..	3	35	2	..	..	..	..	..	50,000
Cromwell .. .. .	..	4	49	..	..	..	..	5	..	14	1	..	..	..	3	23	7	34	1	..	..	..	..	..	58,000
Clyde and Alexandra .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Roxburgh .. .. .	..	1	2	..	4	3	1,700	4	25	7	36	..	1	..	1	..	3	21	1	1	1	..	..	..	200,000
Black's .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Orepuki, Longwood, and Preservation .. .. .	..	6	90	..	..	250	..	5	..	..	..	..	..	..	4	32	4	20	2	..	..	..	..	..	11,000
Waikaia (Switzer's) .. .. .	..	..	..	..	..	300	3	6	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12,000
Arrow .. .. .	..	..	..	..	..	250	..	50	5	..	..	..	..	..	..	4	40	3	..	..	..	..	..	..	25,000
Queenstown .. .. .	..	..	..	..	..	400	..	50	2	3	..	..	..	..	..	5	75	..	..	..	..	..	..	..	40,000
Naseby .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kyeburn and Clarke's .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hamilton's and Sowburn .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hyde and Fullerton's .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Macrae's, Strath-Taieri, and Shag Valley .. .. .	..	..	..	..	..	355	3	169	1	6	..	..	..	..	3	39	7	50	6	..	..	..	..	..	32,000
Serpentine .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
St. Bathans, Ida Valley, &c. .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maerewhenua .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wyndham .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals .. .. .	11	141	..	4	3	3,854	25	334	53	79	1	1	..	1	15	132	37	306	17	1	1	..	..	..	428,130

## SUMMARY.

Auckland .. .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	93	5,177	34	1,035	42	..	1	..	214	..	390,986
Marlborough .. .. .	..	2	23	..	1	1	48	4	8	8	2	..	3	..	..	..	1	10	..	..	..	..	..	..	9,440
Nelson .. .. .	..	..	..	..	..	1	1,031	11	214	3	3	3	1	46	1	28	780	35	515	30	2	4	2	66	276,177
Westland .. .. .	..	..	..	..	3	10	9,728	15	1,345	33	3	50	..	5	..	..	..	4	16	3	..	..	..	..	62,500
Otago .. .. .	..	11	141	..	4	3	3,854	25	334	53	79	1	1	..	1	15	132	37	306	17	1	1	..	..	428,130
Totals .. .. .	..	13	164	..	8	15	14,661	55	1,901	97	87	54	5	51	2,136	6,089	111	1,882	92	3	6	2,280	..	..	1,167,233

## No. 14.

TABLE showing approximately the NUMBER, DESCRIPTION, and VALUE of the WATER-RACES, TAIL-RACES, DAMS, RESERVOIRS, and GROUND-SLUICES in Operation during the Year ending 31st March, 1899.

Mining District.	Water-races.				Tail-races.		Dams.		Reservoirs.		Ground-sluices.		Approximate Total Cost.
	No.	Length in Miles.	No. of Sluice-heads.	Approximate Cost.	No.	Approximate Cost.	No.	Approximate Cost.	No.	Approximate Cost.	No.	Approximate Cost.	
<b>AUCKLAND—</b>				£		£		£		£		£	£
Hauraki North ..	8	7 $\frac{1}{4}$	22	8,450	2	50	3	510	2	25	..	1,835	10,870
Hauraki South ..	18	24	153	57,586	6	340	71	770	2	5,000	..	..	63,696
Te Aroha ..	1	1	10	1,000	..	..	..	..	..	..	..	..	1,000
Puhipuhi ..	4	8	20	200	..	..	1	100	..	..	..	..	300
Ohinemuri ..	14	8 $\frac{3}{4}$	99	14,550	1	1,000	7	3,000	..	..	..	..	18,550
Totals ..	45	49	304	81,786	9	1,390	82	4,380	4	5,025	..	1,835	94,416
<b>MARLBOROUGH—</b>													
Pelorus ..	42	60	92	7,027	11	475	4	145	4	105	..	..	7,752
<b>NELSON—</b>													
Wangapeka, Baton, and Sherry ..	5	10	112	10,250	8	..	6	..	..	..	3	150	10,400
Collingwood ..	27	22	260	14,195	4	80	13	395	..	..	..	..	14,670
Inangahua ..	447	363	3,446	148,281	533	31,745	594	22,574	..	..	..	..	202,600
Charleston ..	98	115 $\frac{3}{4}$	441 $\frac{1}{2}$	25,694	136	10,812	329	9,247	..	..	86	380	46,133
Westport ..	198	161	1,287	365,550	182	27,617	388	17,175	..	..	..	..	410,342
Lyell ..	51	58	102	7,200	13	570	14	1,300	..	..	..	..	9,070
Murchison ..	122	99	437	19,071	48	1,600	39	1,993	..	..	..	..	22,664
Ahaura ..	742	681 $\frac{1}{2}$	2,781	133,491	803	67,419	711	19,916	..	..	..	..	220,826
Motueka ..	5	4	15	1,000	1	60	7	85	..	..	..	..	1,145
Takaka ..	6	5	12	..	3	..	3	..	..	..	..	..	..
Totals ..	1,701	1,519	8,893 $\frac{1}{2}$	724,732	1,731	139,903	2,104	72,685	..	..	89	530	937,850
<b>WESTLAND—</b>													
Hokitika & Kanieri ..	300	250	630	220,800	300	3,500	310	3,000	..	..	..	..	227,300
Ross ..	146	120	540	56,000	170	3,400	75	1,980	..	..	50	620	62,000
Kumara ..	180	100	375	24,000	175	12,000	65	4,500	11	7,000	30	600	48,100
Greymouth ..	378	336	1,292	87,006	776	17,651	986	13,180	..	..	..	..	117,837
Okarito ..	53	32	311	9,000	18	600	14	520	..	..	..	..	10,120
Stafford ..	550	350	1,000	20,000	550	3,000	500	6,000	50	3,000	500	3,000	41,000
Totals ..	1,667	1,188	4,148	416,806	1,989	46,151	1,950	29,180	61	10,000	580	4,220	506,357
<b>OTAGO—</b>													
Hindon ..	73	115 $\frac{1}{2}$	710	35,420	21	380	12	1,505	..	..	20	125	37,430
Tuapeka ..	320	900	1,820	16,950	435	9,500	313	7,200	..	..	..	..	33,650
Tapanui ..	5	8 $\frac{3}{4}$	10	130	3	30	2	30	..	..	..	..	190
Clyde, Alexandra, Black's, and Roxburgh ..	581	1,550	2,420	95,000	372	20,000	160	19,000	1	3,000	..	..	137,000
Arrow ..	90	175	225	20,000	125	4,500	25	1,400	25	..	..	..	25,900
Cromwell ..	482	1,345	1,845	90,722	280	13,640	229	11,690	..	..	..	..	116,052
Waikaia ..	140	400	870	36,000	150	2,200	127	2,000	..	..	20	900	41,100
Orepuki, Longwood, and Preservation ..	60	94	336	12,025	24	2,000	26	400	..	..	..	..	14,425
Queenstown ..	120	200	600	50,000	150	5,000	40	1,700	30	..	..	..	56,700
Naseby ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kyeburn & Clarke's ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hamilton's and Sowburn ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hyde & Fullerton's ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Macrae's, Strath-Taieri, and Shag Valley ..	600	1,564	2,354	..	327	..	140	..	..	..	..	..	..
Serpentine ..	..	..	..	..	..	..	..	..	..	..	..	..	..
St. Bathans and Ida Valley ..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wyndham ..	14	35	86	4,470	..	..	..	..	..	..	..	..	4,470
Totals ..	2,485	6,387	11,276	360,717	1,887	57,250	1,074	44,925	56	3,000	40	1,025	466,917

## SUMMARY.

Auckland ..	45	49	304	81,786	9	1,390	82	4,380	4	5,025	..	1,835	94,416
Marlborough ..	42	60	92	7,027	11	475	4	145	4	105	..	..	7,752
Nelson ..	1,701	1,519	8,893 $\frac{1}{2}$	724,732	1,731	139,903	2,104	72,685	..	..	89	530	937,850
Westland ..	1,667	1,188	4,148	416,806	1,989	46,151	1,950	29,180	61	10,000	580	4,220	506,357
Otago ..	2,485	6,387	11,276	360,717	1,887	57,250	1,074	44,925	56	3,000	40	1,025	466,917
Totals ..	5,880	9,203	24,713	1,591,068	5,627	245,169	5,214	151,315	125	18,130	709	7,610	2,013,292

## No. 15.

RETURN of CASES in the WARDENS' COURTS, and COSTS AWARDED, for the Year ending 31st March, 1899.

Mining District.	Number of Mining Disputes adjudicated on.	Aggregate Amount of Value.		Amount of Costs awarded.	Cases wherein Judgment has decreed Specific Performance.
		Claimed.	Recovered.		
<b>AUCKLAND—</b>		£ s. d.	£ s. d.	£ s. d.	
North Hauraki .. .. .	426	984 19 0	408 1 8	358 14 6	..
South Hauraki .. .. .	10	1,804 7 5	947 6 6	189 4 0	..
Te Aroha .. .. .	28	205 13 6	60 2 0	17 10 0	..
Puhipuhi .. .. .	..	..	..	..	..
Ohinemuri .. .. .	258	9,159 7 5	2,017 14 1	324 7 3	..
<b>MARLBOROUGH .. .. .</b>	139	97 17 6	68 8 3	12 18 6	..
<b>NELSON—</b>					
Collingwood .. .. .	12	44 15 0	24 10 0	7 16 6	3
Inangahua .. .. .	52	410 0 6	398 10 6	21 5 0	..
Lyell .. .. .	4	..	..	..	..
Westport .. .. .	32	212 0 0	3 0 0	21 12 6	..
Charleston .. .. .	5	103 0 0	12 17 8	4 1 0	..
Ahaura .. .. .	..	..	..	..	..
Motueka .. .. .	1	8 10 6	8 10 6	3 2 0	..
Takaka .. .. .	1	..	0 5 0	1 11 0	..
<b>WESTLAND—</b>					
Kumara .. .. .	7	193 17 2	9 19 4	9 19 0	..
Greymouth .. .. .	26	397 14 6	304 14 6	23 12 3	..
Hokitika and Kanieri .. .. .	6	43 7 6	5 0 0	4 18 0	..
Stafford .. .. .	6	62 18 4	12 10 0	17 10 0	..
Ross .. .. .	2	..	..	3 12 6	1
Ahaura .. .. .	20	773 2 6	359 5 0	13 3 0	..
Goldsborough .. .. .	..	..	..	..	..
<b>OTAGO—</b>					
Tapanui .. .. .	..	..	..	..	..
Hindon .. .. .	4	268 6 9	95 6 3	2 9 0	..
Tuapeka .. .. .	28	539 1 10	106 1 10	95 12 0	..
Cromwell .. .. .	30	2,868 8 6	1,823 3 6	15 2 0	..
Roxburgh .. .. .	..	..	..	..	..
Black's .. .. .	29	650 14 4	144 17 0	55 16 0	..
Clyde and Alexandra .. .. .	..	..	..	..	..
Waikaia .. .. .	17	856 0 0	611 0 0	146 9 8	..
Orepuki, Longwood, and Preservation Arrow (Wakatipu Goldfield) .. .. .	45	489 4 10	351 3 2	34 1 6	..
Queenstown .. .. .	6	200 0 0	..	5 0 0	1
Mount Ida .. .. .	4	1,164 11 2	..	3 12 0	1
Maerewhenua .. .. .	41	140 10 0	65 15 0	66 3 3	..
Wyndham .. .. .	..	..	..	..	..
<b>Totals .. .. .</b>	1,239	21,178 8 3	7,838 1 9	1,459 2 5	6

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