1902.

NEW ZEALAND.

THE GOLDFIELDS OF NEW ZEALAND:

REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING.

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

INDEX.

	Page.
Accidents	26, 52, 58, 85
Alluvial Mining—	
Marlborough, Nelson, and West Coast ..	19, 55
Otago and Southland	65
Antimony	27, 84
Battery Superintendents, Holders of Certificates	134
Cinnabar	27, 85
Compressed Air, Losses with	33
Dredging (Gold)	23
Marlborough, Nelson, and West Coast ..	23, 58
Otago and Southland	23, 76
New Dredges	24, 26
Godbe Agitation Method of Leaching ..	31
Examination Papers—	
Battery Superintendents	130
Mining Managers (Mining Act)	128
Elmore Ore-concentration Process	27
Gold-dredging	23, 63, 68
Gold Purchased by Banks	141
Gold-saving: Paper by H. W. Young, A.M.I.C.E.	20
Hæmatite Paint	61
Hydraulic Mining—	
Marlborough, Nelson, and West Coast ..	19, 55
Otago and Southland	19, 65, 93
Inspectors of Mines (Reports)—	
Mr. Coutts, Thames	36
Mr. Green, Dunedin	61
Mr. Tennent, Westport	52
Mechanical Ventilation	27
Mine Managers, Holders of Certificates, Mining Acts	132
Payne and Peck's new Dredge-elevator ..	24
Prospecting for Gold	2
Quartz-mining	19, 36
North Island	19, 36
Otago and Southland	19, 61
Inspectors' Reports	36, 52, 61
Machines employed	135, 178
Quartz crushed, and value	138
West Coast	19, 52
Reports of Inspectors of Mines—	
Mr. Coutts, Thames	36
Mr. Green, Dunedin	61
Mr. Tennent, Westport..	52
Reports of Managers of Water-races—	
Mr. Aitken, Kumara	122
Mr. Murray, Naseby	126
Report of Engineer for Water Conservation ..	127
Reports of Wardens (*see* Wardens)	
Roads constructed by direct Grants	2
Scheelite	27, 85
Schools of Mines—	
Coromandel	8
Karangahake	11
Nelson	12

	Page.
Schools of Mines—*continued.*	
Otago	14
Reefton	13
Thames	3
Waihi	8
Westport	14
Expenditure on Schools	18
Statistical tables	142
Gold Duty	172
Gold Exported, 1857–1901	173
Gold Exported, Comparative Return, Years 1899 and 1900	173
Gold Exported, 1857 to 31st March, 1902 ..	174
Goldfields Revenue, Quarter ending 31st March, 1902	170
Goldfields Revenue, Comparative Return, Quarters 31st March, 1901, and 31st March, 1902	174
Goldfields Revenue, Comparative Return, 1900 and 1901	171
Goldfields Revenue, Comparative Return ..	172
Goldfields Revenue, Year ending 31st December, 1901	169
Gold purchased by Banks	141
Machines Employed	135, 178
Mining Leases	181
Price of Gold, &c.	175
Prices of Provisions	176
Quartz Crushed	138
Quartz-crushing Machines	175
Rates of Wages	177
Statement of Affairs of Mining Companies ..	182
Summary of Works Constructed	142
Wardens' Court cases	186
Water-races, &c.	179
Water-races, Results of Working	168
Works completed on 31st March, 1902 ..	151
Works in progress on 31st March, 1902 ..	146
Steming Shotholes	31
Subsidised Roads and Tracks	1
Wardens' Reports—	
Mr. Burgess, Clyde	114
Mr. Bush, Thames	86
Mr. Carew, Dunedin	112
Mr. Cruickshank, Lawrence, &c.	120
Mr. Hawkins, Greymouth	94
Mr. Keddell, Oamaru	112
Mr. McCarthy, Invercargill	121
Mr. McEnnis, Naseby	112
Mr. MacFarlane, Hokitika	107
Mr. Roberts, Tauranga..	92
Mr. Wilson-Heaps, Nelson	92
Water Conservation	127
Water-races	122, 126, 168

ADDENDA.

On page 134, to list of battery superintendents' certificates issued after examination under "The Mining Act, 1898," add the names of—

Carter, S , Waihi.
Clark, John L., Waihi.
Fuller, John P., Kuaotunu.
Horn, G. W., Kuaotunu.

1902.

NEW ZEALAND.

THE GOLDFIELDS OF NEW ZEALAND:

REPORT ON ROADS, WATER-RACES, MINING MACHINERY, AND OTHER WORKS IN CONNECTION WITH MINING.

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

Mr. JOHN HAYES, F.S.Sc., Inspecting Engineer, to the Hon. JAMES McGOWAN, Minister of Mines.

SIR,— Mines Department, Wellington, 15th May, 1902.

I have the honour to present my report for the year ending the 31st December, 1901, together with those of Inspectors of Mines, Wardens, and other officers connected with the Department. The tables showing Government expenditure on roads, bridges, tracks, prospecting operations, &c., are made up for the financial year—viz., from the 1st April, 1901, to the 31st March, 1902.

SUBSIDISED ROADS AND TRACKS.

The expenditure (as subsidies) authorised and the liabilities on outstanding authorities for the year ending the 31st March, 1902, are as follows :—

Name of Local Body.	Expenditure for the Year ending 31st March, 1902.	Liabilities on Authorities on 31st March, 1902.
	£ s. d.	£ s. d.
Coromandel County	35 0 0	245 0 0
Thames County	147 9 0	178 1 6
Thames Borough	...	100 0 0
Ohinemuri County	391 7 6	382 10 0
Waitoa Road Board	130 0 0	...
Piako County	210 0 0	...
Collingwood County	285 13 1	12 0 7
Buller County	325 0 0	...
Grey County	397 10 0	625 0 0
Westland County	73 7 3	96 19 3
Tuapeka County	...	240 0 0
Lake County	744 0 0	...
Contingencies	72 16 9	...
Totals	2,812 3 7	1,879 11 4

ROADS CONSTRUCTED BY DIRECT GRANTS.

The following statement shows the expenditure and liabilities on authorities issued on roads from direct grants to the several local bodies during the year ending the 31st March, 1902 :—

Name of Local Body.	Expenditure for the Year ending 31st March, 1902.	Liabilities on Authorities on 31st March, 1902.
	£ s. d.	£ s. d.
Great Barrier County	200 0 0	...
Whangarei County	135 0 0	65 0 0
Coromandel County	5,977 10 2	4,893 9 4
Thames County	2,197 16 5	3,182 11 11
Thames Borough...	100 0 0	...
Ohinemuri County	4,679 4 3	2,284 16 5
Piako County	58 0 0	105 0 0
Tauranga County	700 0 0	287 0 0
Pelorus Road Board	481 14 2	138 0 0
Wairau Road Board	...	600 0 0
Collingwood County	1,538 3 9	1,307 5 7
Waimea County	647 14 6	1,122 7 0
Buller County	4,305 0 0	3,700 0 0
Inangahua County	959 18 3	2,257 12 6
Grey County	1,592 16 10	3,170 0 0
Brunner Borough	...	250 0 0
Westland County	2,745 13 7	1,304 7 5
Ross Borough	200 0 0	...
Taieri County	...	400 0 0
Bruce County	200 0 0	168 0 0
Tuapeka County	500 0 0	2,075 0 0
Vincent County	1,900 0 0	...
Lake County	831 15 0	1,197 10 0
Southland County	850 0 0	1,000 0 0
Knapdale Road Board	...	250 0 0
Wallace County	150 0 0	...
Lands and Survey Department	6,742 2 0	2,393 18 5
Public Works Department...	7,068 11 9	3,832 10 4
Totals	44,761 0 8	35,984 8 11

PROSPECTING FOR GOLD.

The following statement shows the expenditure and liabilities on authorities issued in subsidies to prospecting associations and parties of miners recommended by the local bodies in the different counties for the year ending the 31st March last :—

Name of County.	Expenditure for Year ending 31st March, 1902.	Liabilities on Authorities on 31st March, 1902.
	£ s. d.	£ s. d.
Thames	74 0 10	925 19 2
Bay of Islands	75 0 0	...
Marlborough	17 0 0	13 0 0
Coromandel	269 14 6	24 10 0
Buller	345 8 6	479 6 9
Inangahua	...	51 5 0
Grey	12 0 0	91 10 0
Westland	499 1 3	240 15 3
Contingencies	217 5 8	...
Totals	1,509 10 9	1,826 6 2

SCHOOLS OF MINES.

The instruction given at the various schools in the different mining districts continues to be of considerable service in the theoretical training of aspirants for certificates, by which they become eligible for positions as mine-managers and battery-superintendents. As a result of the examination open to schools of mines students, a scholarship was won by Mr. C. Fraser, a student at the Coromandel School of Mines. This entitles the holder to three years' free instruction at the University of Otago and a grant of £50 per annum.

The following reports relative to the past year's work have been received from the several schools :—

THAMES SCHOOL OF MINES.

Mr. F. B. Allen, M.A., B.Sc., Director, reports as follows :—

The following record indicates the work done at the Thames School of Mines during the last nine months of 1901, from the 1st April to the 31st December. Although, owing to the depressed state of mining in the immediate neighbourhood, the attendance has been less than formerly, nevertheless the students have attended regularly, and much good work has been accomplished; while in the battery there has been an increase in the number of parcels treated for the public.

The battery has been worked throughout the year by P. H. Grumitt, battery-superintendent, and he has performed his duties carefully, zealously, and entirely to my satisfaction, and I sincerely regret that he severed his connection with the school at the end of the year, with the intention of going to Australia.

Mr. A. B. Hardinge, as drawing-master, has performed his duties in a highly efficient manner, and several of his students have taken high positions in the annual examination in mechanical drawing.

The position of assistant lecturer and assayer has been temporarily held for the last nine months by Mr. K. M. Barrance, who resigned on the 31st December, and applications are now being called for a permanent assistant.

The museum has been opened to the public each week, a considerable number of mining-men taking advantage of the opportunity afforded them of viewing the rocks, minerals, and ores of the district displayed in proper order, and of comparing doubtful samples in their possession with those in the cases. The collection has proved of great assistance to the students in mining, mineralogy, and geology; new samples are being added from time to time, and the written labels are being gradually replaced by printed ones fixed in front of the specimens. This relabelling is a long process, but will be a very decided improvement when completed, and will enhance the value of the collection.

A great improvement has been made in the general appearance of the school property by removing the old fence and continuing the picket fence all round the grounds. The fence, which is 5 ft. high and strongly built, is painted white, and has a pleasing effect.

As usual, a number of excursions have been made to different places in connection with the mining and geology classes. On one occasion, through the courtesy of Mr. H. P. Barry, the metallurgical class spent a day in viewing all the details of the Waikino battery. Every part of the works was visited and much useful information obtained by the class concerning practical battery-work. On another occasion several of the students of the same class were permitted, through the kindness of Mr. R. W. Powell, to conduct a cyanide test on tailings in the Tararu battery. The students conducted all the operations—from the filling of the vats to the melting of the bullion—themselves, one of their number possessing a battery-superintendent's certificate being in charge of the party, and the results obtained were highly satisfactory. Altogether about 150 tons of tailings were treated, the assays of the ore, cyanide-solutions, residues, and bullion being also carried out and recorded in proper form by the students, who were thus enabled to put into practice the principles they had been taught at the school.

The number of assays made in the school assay plant during the last nine months is as follows :—

Public assays	162
Assays in connection with the experimental plant	184
Total assays	346

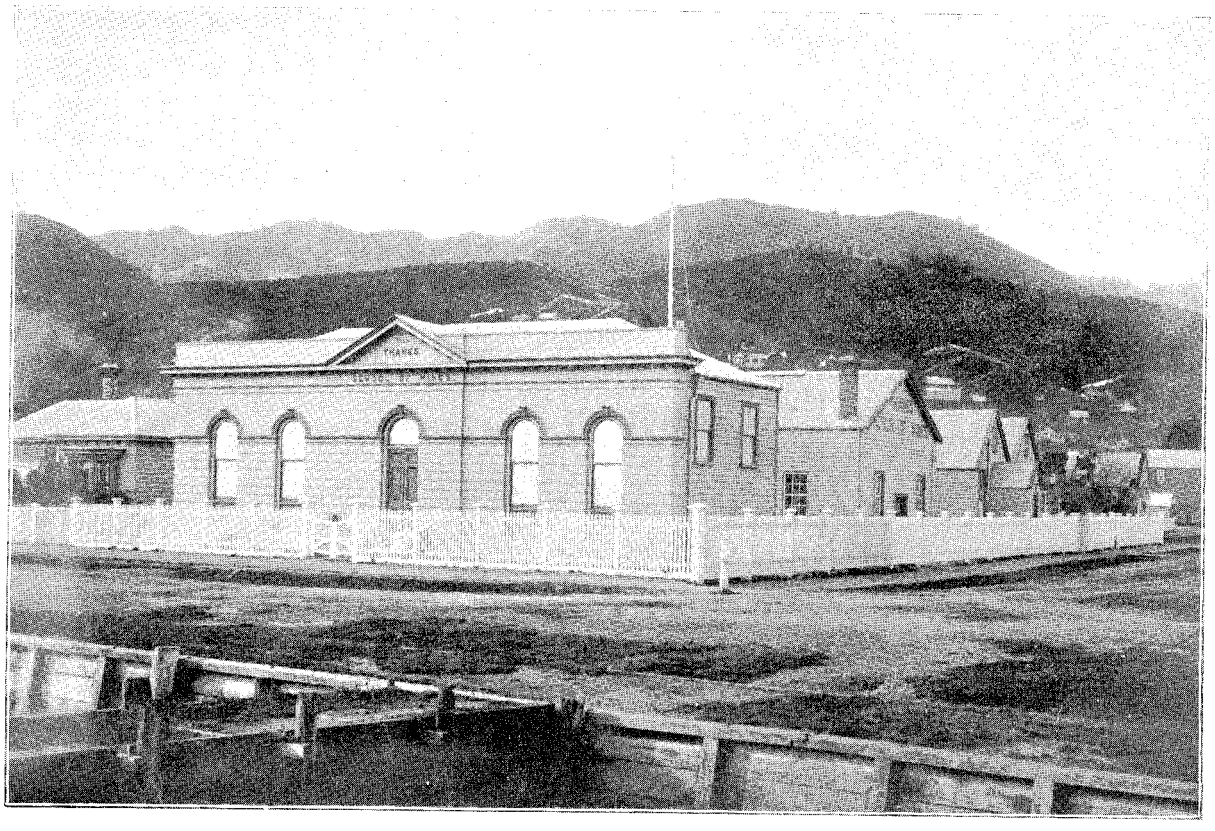
All the assays were made in duplicate in the separate assay-room set aside for this class of work, and every care was taken to insure accuracy in the results; and in this connection my own personal work has been largely increased during the last year. The school has continued to make assays for the Mines Department, details of which are given in this report.

There has been a considerable increase in the amount of ore treated in the experimental plant, the number of parcels, quantity of ore, and value of bullion recovered for the last nine months of 1901 being greater than for the whole twelve-monthly period preceding, and this increase in ore-treatment was especially marked during the last four months of the year.

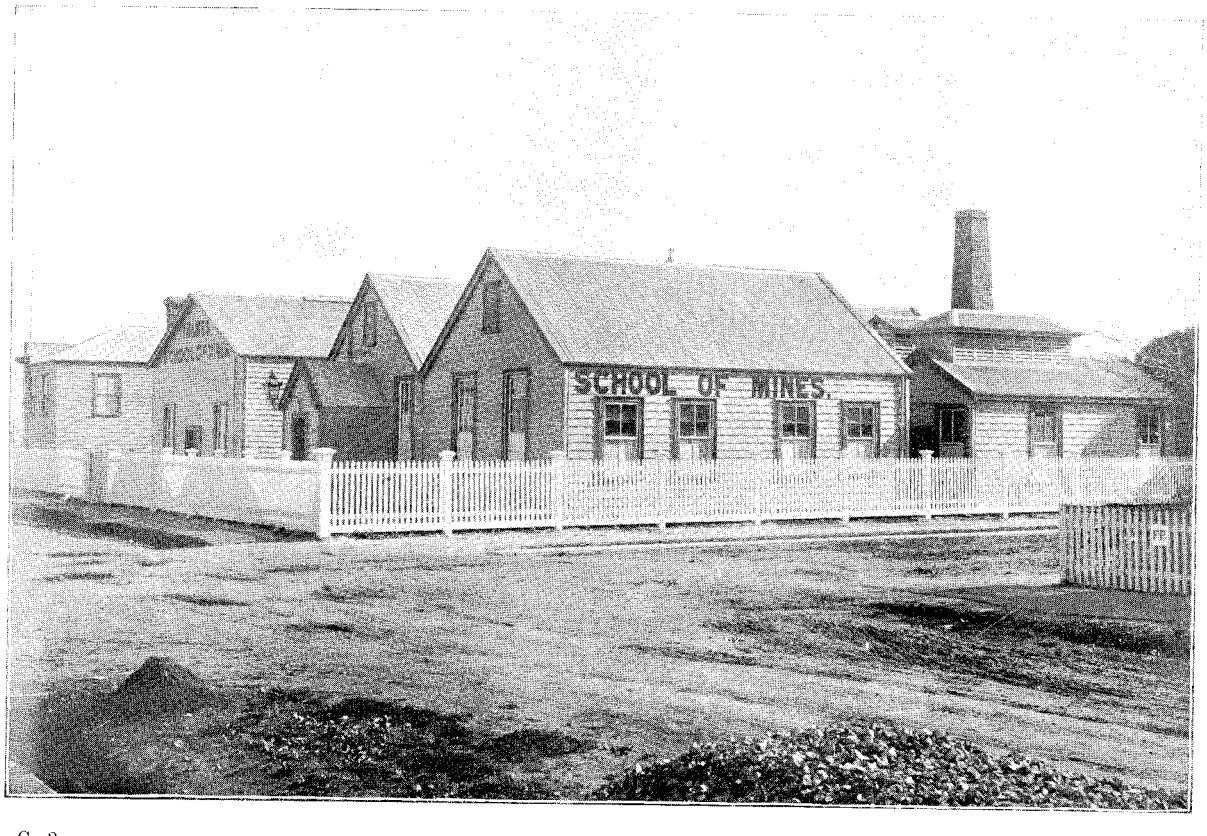
Eight parcels, weighing 16,240 lb., were treated by pan-amalgamation, and yielded 66 oz. 18 dwt. 12 gr. of bullion, worth £128 11s. 1d.; five parcels, weighing 15,920 lb., treated by the cyanide process, yielded 63 oz. 18 dwt. 11 gr. of bullion, of the value of £172 10s. 5d.; and ten other miscellaneous parcels, of an aggregate weight of 6,298 lb., gave 35 oz. 6 dwt. of bullion, worth £38 19s. 8d. These together make an aggregate of twenty-three parcels, weighing a little over 17 tons, from which 166 oz. 2 dwt. 23 gr. of bullion were recovered, and a total value of £340 1s. 2d. returned to the owners of the parcels. The average rate of extraction both by pan-amalgamation and by the cyanide process was 83·5, and the details of weight, assay-value, percentage extractions, &c., for the separate parcels are shown in the attached tabulated statement.

TABULATED STATEMENT showing PARCELS of ORE treated at Thames School of Mines Experimental Plant from 1st April to 31st December, 1901.

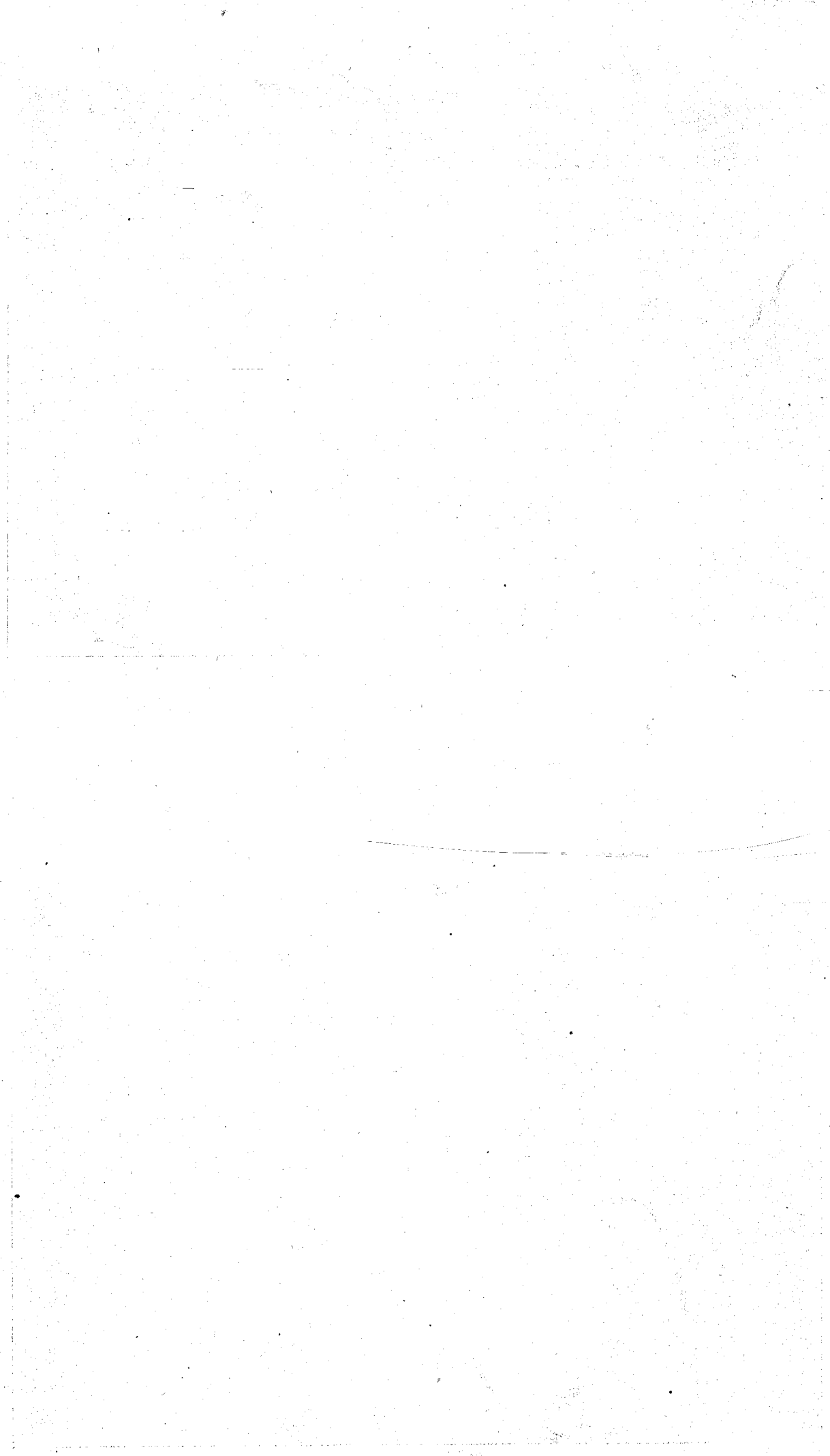
Name of Mine or Owner, and District.	Description of Ore.	Dry Weight of Ore.	Assay-value of Ore per Ton.			Bullion saved.	Value per Ounce.	Percentage saved.		
			Gold.	Silver.	Value.			Gold.	Silver.	Value.
A.—BY PAN AMALGAMATION.										
		Lb.	Oz. dwt. gr.	Oz. dwt. gr.	£ s. d.	Oz. dwt. gr.	£ s. d.			
Gladstone, Waihi ...	White quartz	2,240	0 13 20	5 15 22	3 6 11	4 5 0	0 12 6	84·2	57·0	79·5
" " ...	Cyanide tailings	2,240	0 9 20	4 18 2	2 9 2	1 6 18	0 16 2	49·7	21·1	45·7
Huanui, Waitekauri ...	White quartz, with iron-oxides	2,520	6 7 6	23 6 6	28 1 5	21 6 18	1 7 3	95·9	54·2	92·0
Te Puke Gold Reefs ...	Soft flaky white quartz	560	6 11 2	2 15 11	26 9 10	1 18 12	2 12 0	75·4	89·4	75·6
Taniwha, Tairua ...	Quartz stringers in rhyolite	2,100	21 17 13	14 4 19	88 18 7	34 3 3	2 8 2	98·7	98·0	98·7
K. Macleod, Top Valley...	Splintery white quartz	2,520	0 14 11	...	2 19 3	0 16 21	3 12 0	90·8	...	90·8
Byron Bay, Komata ...	Quartz, with blue veins and reddish mullock ...	2,030	1 5 0	2 5 9	5 4 6	2 7 0	1 16 4	91·4	63·0	90·2
Incognito, Maratoto ...	Mullocky quartz, with MnO_2	2,030	0 8 9	0 9 5	1 14 5	0 14 12	1 19 7½	92·3	83·5	92·0
B.—BY CYANIDE.										
Gladstone, Waihi, A ...	White quartz, with iron-pyrites	1,120	0 15 3	6 6 1	3 13 1			11·5	12·0	11·5
" " B ...	" "	1,120	0 12 14	5 5 20	3 0 11	1 11 6	0 13 1	50·0	38·3	48·0
" " C ...	" "	2,240	0 2 6	2 10 10	0 14 0			66·6	10·0	46·3
Te Puke Gold Reefs ...	Soft flaky white quartz	4,640	10 10 10	4 1 22	42 9 10	30 9 0	2 15 8	96·3	95·0	96·3
" ...	White flaky quartz	6,800	7 4 22	2 9 18	29 4 8	31 18 5	2 14 4½	97·8	96·3	97·7

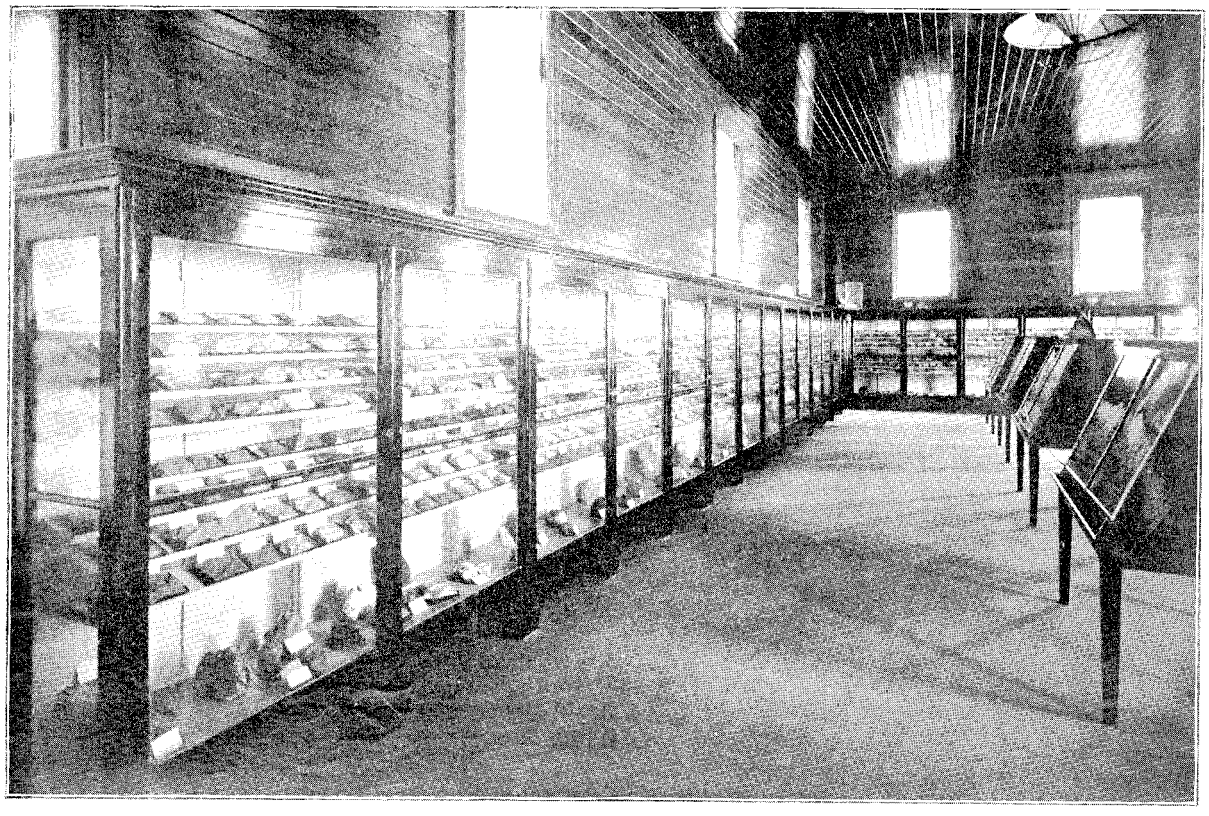


School Buildings.

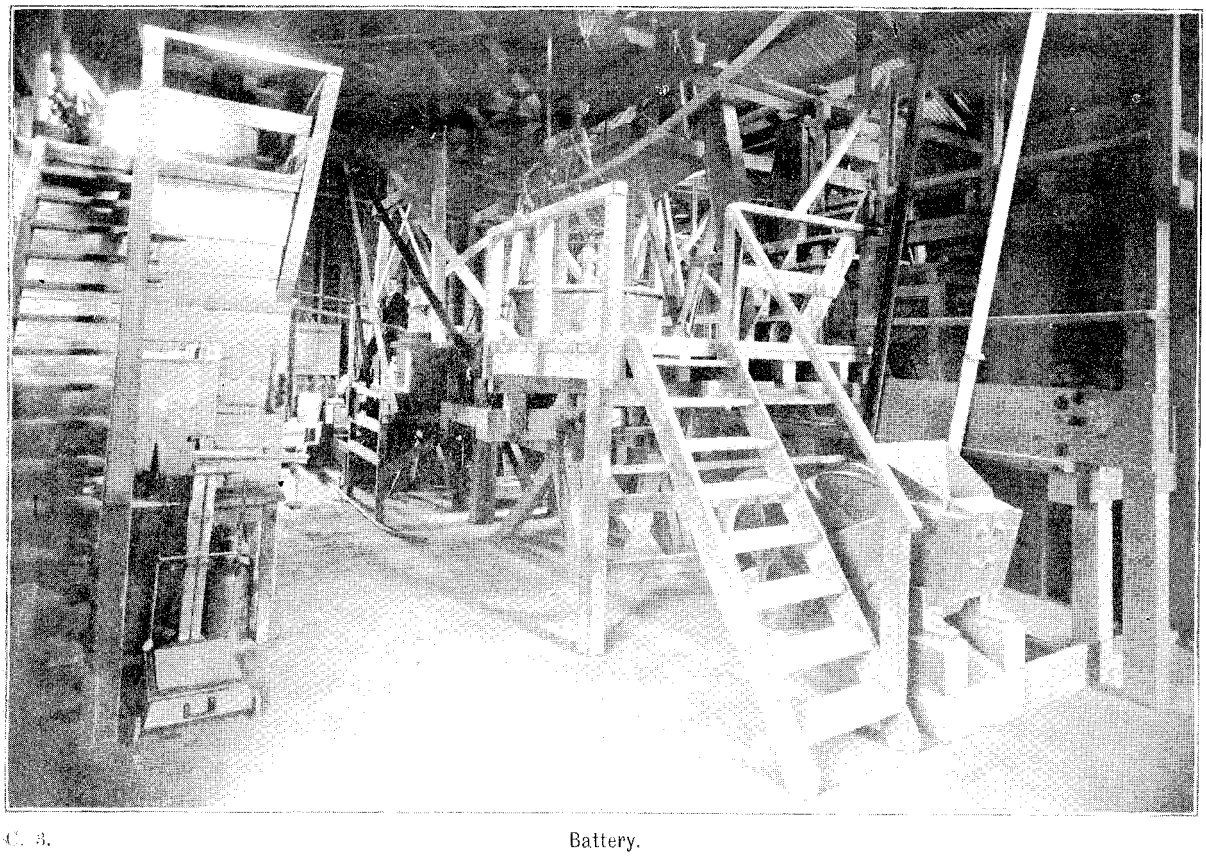


School Buildings.



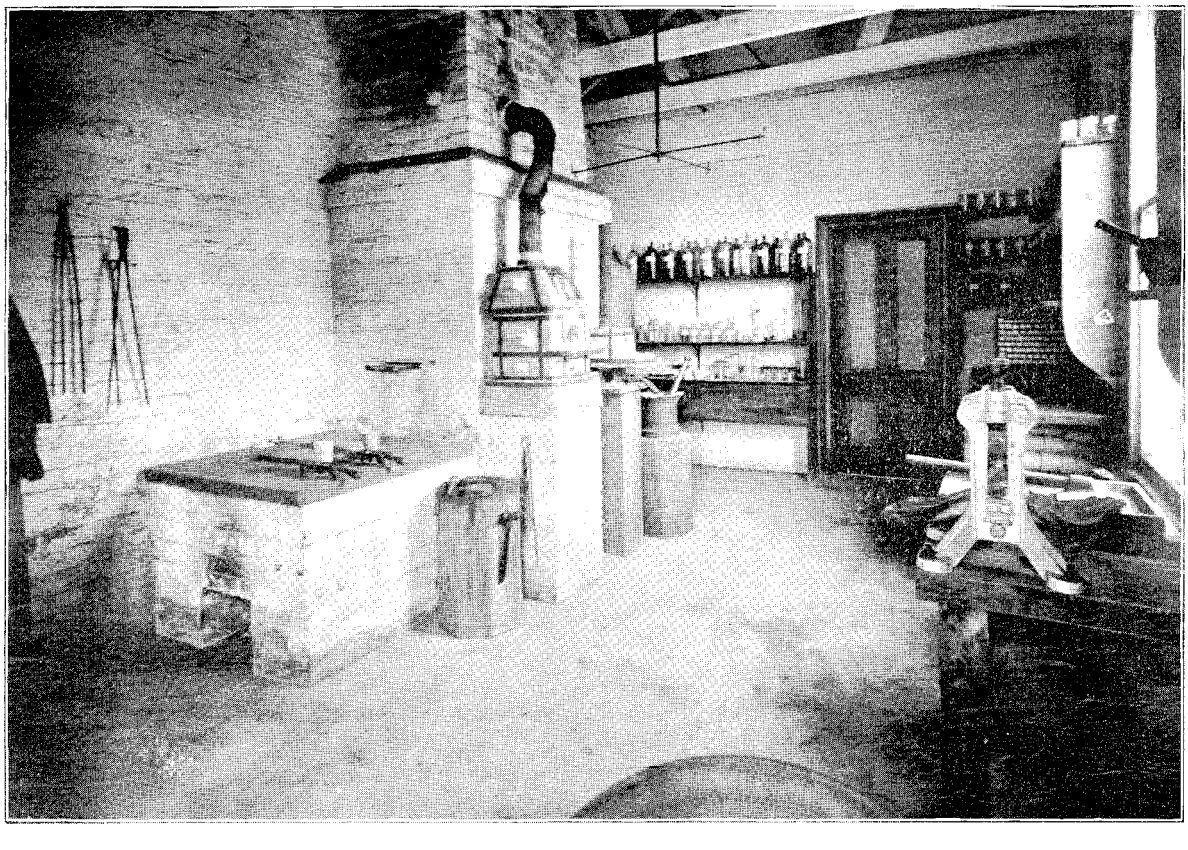


Museum Interior.



C. B. Battery.

Laboratory.



C. 3. Assay Room.

The following parcels were also treated in the battery during the year, but either from their nature or their poorness did not require treatment by pan-amalgamation or by the cyanide process:—

Owner and District.	Weight.	Yield in Bullion. Oz.	dwt.	gr.	Value. £	s.	d.
Bank of New South Wales, Thames	750 lb. ashes ...	29	3	0	23	6	0
M. Davis, Kirikiri	8 lb. specimens ...	4	0	0	10	7	6
T. C. Bayldon, Thames	500 lb. bottles ...		...		...		
" "	560 lb. glass		...		...		
E. H. Henderson, Gisborne	1,120 lb. slate, A		...		...		
" "	1,120 lb. slate, B		...		..		
" "	1,120 lb. slate, C		...		...		
" "	1,120 lb. slate, E		...		...		
" "	8½ dwt. retorted bullion	0	7	0	0	11	8
Merriman, Thames	½ lb. specimens ...	1	16	0	4	14	6

TABLE of ATTENDANCES for the Year ending 31st December, 1901.

Name of Subject.	First Term.	Second Term.	Third Term.
Registered students—			
General and mining geology	12	5	5
Mineralogy and blowpipe	7	5	5
Land and mine surveying	11	10	7
Mathematics	11	12	12
Mining and applied mechanics	11	9	7
Metallurgy of gold and silver	...	10	7
Practical chemistry	14	14	13
Theoretical chemistry	14	11	12
Practical assaying	14	15	15
Mechanical drawing	13	10	13
Total	107	101	96
Saturday science class	50	61	46
Total attendance at classes	157	162	142
Individual registered students	36	31	29
Total individual students	86	92	75

RESULTS OF ANNUAL EXAMINATIONS, 1901.

The following table shows the results of the late annual examinations:—

Subject of Examination.	First Class.	Second Class.	Third Class.	Failed.	Total.
General and mining geology	1	1	...	...	2
Pumping and winding	...	...	1	...	1
Ventilation	...	...	2	...	2
Explosives	2	...	...	...	2
Mining and applied mechanics	1	1	...	...	2
Theoretical chemistry (senior)	2	1	...	...	3
Theoretical chemistry (junior)	...	1	...	...	1
Practical chemistry (senior)	1	...	..	...	1
Practical chemistry (junior)	1	...	1	1	3
Practical assaying, dry (senior)	1	...	1	...	2
Practical assaying, dry (junior)	1	2	...	1	4
Practical assaying, wet (senior)	1	...	...	...	1
Practical assaying, wet (junior)	2	...	...	...	2
Surveying (land and mine)	1	...	1	...	2
Map-drawing	1	1	...	...	2
Mineralogy and blowpipe	...	2	...	...	2
Metallurgy	4	1	1	...	6
Mechanical drawing	3	1	4	...	8
	22	11	11	2	46
Saturday science	2	1	6	3	12
Totals	24	12	17	5	58

The annual examinations held during the second and third weeks of December, 1901, were supervised by myself and my assistant. The papers were set by the following gentlemen: Mr. Hayes, F.S.Sc., Inspecting Engineer of Mines; Mr. Alexander McKay, F.G.S., Government Geologist; Dr. Maclaurin, Government Analyst; Mr. C. H. Pierard, and the Surveyor-General, and were received each day of the examination from Mr. Coutts, Inspector of Mines. A fewer number of candidates presented themselves for examination, but obtained a better proportion of passes than the previous year.

There was one candidate for the University scholarship, Mr. C. A. Banks; but, although he gained 75 per cent. or over in eleven subjects, he obtained less than 75 per cent. in one of the scholarship subjects, and was thus disqualified. Mr. Banks did remarkably well, considering that he is only a two-years student, in scoring 614 marks, or an average of 76·7, in the scholarship subjects. He secured the President's gold medal with a total of 931 in twelve subjects, an average of 77·6 per cent.

During 1901 the following Government certificates have been granted to Thames School of Mines students after examination: One first-class mine-manager's, one second-class mine-manager's, and seven battery-superintendents' certificates.

In January, 1902, the annual Government examination was supervised at the Thames School by Mr. Coutts, and two candidates for first-class mine-managers' and five for battery-superintendents' certificates presented themselves for examination.

Governing Body.

At the annual meeting of subscribers held on the 11th February, 1902, regret was expressed at the deaths of the late President, Mr. E. McDonnell, and of Mr. T. Cautley, a member of the Council. The annual report and balance-sheet were read and confirmed, and the prizes and certificates distributed. The first of the new certificates of merit granted to students for proficiency in the mining and metallurgy courses was granted to Mr. C. A. Banks.

The following officers were elected for the year 1902: President, Mr. G. Denby; vice-president, Mr. M. Paul; hon. treasurer, Mr. J. Hague Smith; Council, Messrs. E. F. Adams, W. Baker, T. C. Bayldon, H. Haszard, W. H. Paltridge, R. W. Powell, E. Cartwright; hon. secretary, Mr. A. Bruce.

Great satisfaction was expressed at the admirable manner in which the new syllabus has been printed by the Government Printing Office. The syllabus contains a large amount of useful information concerning the school, and is illustrated with six views of the interior and exterior of the school property.

The thanks of the Council and myself are due to several gentlemen for donations to the museum during the last nine months: Mr. J. E. Banks, Waihi specimens; Mr. Clark, Waihi specimens; Mr. P. Morgan, andesites and rhyolites; Mr. Trelease, copper and silver ores; Mr. A. G. Williams, guano and other specimens from Surprise Island; Captain Robie, island shells; Mr. R. W. Powell, telluride ore; Messrs. Odlum, Woolcock, Martin, for miscellaneous samples.

It gives me much pleasure to acknowledge the hearty co-operation of the Council and the assistance of the secretary in furthering the interests of the school.

The accompanying table shows the special examinations for gold and silver, &c., which have been made during the year at the Thames School of Mines for the Mines Department, and special reference may be made to several of the more interesting ones, as follows:—

No. 2839, forwarded by Mr. Robertson, surveyor, consisted of half a dozen pieces of crystalline quartz, containing white and black mica and 15 per cent. of dark mineral which proved to be magnetite. A small amount of gold, amounting to 1 dwt. per ton, was present, as well as 0·2 per cent. of cassiterite or tin-oxide, accompanied with 3 per cent. of wolfram.

No. 2863. Five samples forwarded by Mr. M. Webster from Wangapeka. No. 1: Small seams of rusty quartz, contained 22 gr. of gold per ton. No. 2: White quartz, carried traces only. No. 3: Solid white quartz, with much oxide of iron, contained 18 gr. of gold per ton. No. 4: Blocks of white quartz, with massive iron-pyrites, contained 6 dwt. 22 gr. of gold and 3 dwt. 3 gr. of silver per ton. No. 5: This was a fine-grained galena, containing about 40 per cent. of lead sulphide, along with copper and iron sulphides, and 16 per cent. of silica; it is a rich silver-ore, containing 7 dwt. 13 gr. of gold and 264 oz. 3 dwt. 2 gr. of silver per ton.

No. 2864. Four samples from Marlborough, forwarded by Mr. F. F. MacLeod. No. 1, from 3 ft. reef, Devil's Arm-chair: This was a brownish-white quartz, containing 8 dwt. 19 gr. gold per ton. No. 2, from 5 ft. reef, half a mile higher up the hill: The quartz was white, and contained 12 gr. gold per ton. No. 3, loose stone shed between the two outcrops, some white and some brown pieces, averaging 2 dwt. 2 gr. gold per ton. No. 4, from 5 ft. reef, at mouth of Top Valley: this carried 1 dwt. of gold per ton. Further samples from the same district forwarded by Mr. K. MacLeod pointed to the existence of some good ore-bodies, as shown by assays Nos. 2871 and 2878; while to confirm the prospects shown by the small samples a ton of the ore from the Top Valley was forwarded to me for treatment, and yielded £2 14s. per ton. The bullion was of good value, and a little gold was visible in the stone.

No. 2879. Small piece of quartz forwarded by Mr. R. M. Houston, M.H.R. Said to have been found near the river at Mangonui. The quartz was polished on one face; it had a bluish tinge, and contained free gold and dark-coloured iron-pyrites. The bullion present amounted to $1\frac{3}{4}$ oz. per 1 lb. av. of stone, and was worth £2 15s. per ounce. The stone and the bullion in it greatly resembled Thames specimen stone.

No. 2883. Three more samples forwarded by Mr. Houston. No. 5: Small piece of rusty-brown quartz, from large reef. No. 6: Rusty-brown honeycomb quartz (polished on one face), from Glennay's Creek. No. 8: Quartz which had been roasted to find if any silver were present. No gold or silver was found in any of these samples, which did not resemble sample No. 2879 in appearance.

No. 2930. Quartz forwarded by Mr. Houston from Mangonui. This was glassy quartz with dark-coloured patches, but no gold or silver beyond a trace was found in it. It resembled No. 2879 in appearance, but was whiter and more glassy, and did not show the same bluish tinge.

No. 2880. Quartz forwarded by Dr. Chapple from Nelson District. It was clear, semi-transparent quartz, coloured red, with micaceous hæmatite; showed coarse gold freely, and assayed 10 oz. 1 dwt. 15 gr. gold per ton.

No. 2889. A similar sample taken from a different place in the reef. This showed no free gold, but assayed 1 oz. 5 dwt. 5 gr. gold per ton.

No. 2901. Four samples forwarded by Dr. Chapple from the same locality. The stone was similar in appearance to No. 2880, but none of the four samples were of any value. No. 1 was marked "fair sample of reef"; No. 2, another reef, probably poor; No. 3, loose rubble and mullock on foot-wall; No. 4, quartz lying near smithy.

No. 2928. Two samples from the same locality. No. 1, main reef, 1 ft. solid quartz; No. 2, sugary quartz, 2 ft. hanging-wall of No. 1 reef. These contained only traces of gold per ton. The later tests thus failed to at all approach the promising results of the first sample, which showed gold so freely imbedded in the solid particles of quartz.

No. 2900. A sample of alluvial gold forwarded by Mr. T. James to ascertain loss on melting and value per ounce. The sample lost 0·82 per cent. on melting with borax, and this was increased to 1·29 per cent. during the cupellation of the bullion-assay. The amount of dirt and black sand present with the gold causes a variable loss, but in the present case the loss on melting 100 oz. should be from $\frac{3}{4}$ oz. to 1 oz. The gold and silver in the unmelted sample were as follows: Gold, 0·9328; silver, 0·0543: value, £3 19s. 2d. per ounce (unmelted). While in the melted sample the amounts were: Gold, 0·9405; silver, 0·0549: value, £3 19s. 9$\frac{3}{4}$d. per ounce (melted). The values are calculated on a mint value of £3 17s. 9$\frac{1}{2}$d. per ounce standard gold, and no allowances are made for value of silver, or charges for melting, shipping, insurance, &c.

No. 2912 was interesting on account of the scheelite in the concentrates, along with a good amount of gold.

No. 2913 was a large block of chrome-iron ore containing magnesia.

No. 2869, forwarded by Mr. Whinray, Gisborne, was described as quartz, and an assay for gold was required. The sample was pure white, but slightly softer than quartz; it gelatinised in acid, and an analysis proved it to be a feldspar. It contained no bullion.

—	Description.	Locality.	Sender.	Result of Assay.
2829	White quartz ..	Wairau River ..	Hon. Mr. Mills	8 dwt. 19 gr. gold per ton.
2836 (1–3)	Brown quartz ..	Napier	Mr. H. Macdonald ..	Small traces of gold per ton.
2837 (1)	Flaky quartz ..	..	Messrs. Johnstone and Co.	2 oz. and 8 gr. gold and 9 oz. 16 dwt. 15 gr. silver per ton.
2837 (2)	Crushed sample ..	Masterton	Mr. T. J. Donnelly ..	No gold present.
2837 (3)	Slate	Hawke's Bay ..	Mr. W. Thomson ..	"
2839	Quartz and magnetite	Stewart Island ..	Mr. Robertson	See body of report.
2844	White quartz ..	Baton River ..	Mr. Joseph Taylor ..	5 dwt. 1 gr. gold and 1 dwt. 6 gr. silver per ton.
2847	Quartz stringers in brown country-rock	..	Mr. A. F. Hadfield ..	Traces of gold per ton.
2848 (1)	White surface quartz	Arm-chair Creek ..	Mines Department ..	Minute traces of gold per ton.
2848 (2)	Rusty quartz ..	" ..	" ..	"
2848 (3)	" ..	Aniseed Creek ..	" ..	"
2851	Quartz and schist ..	Queen Charlotte Sound	Mr. H. F. Logan ..	No gold or tellurium.
2857	Siliceous rock ..	Golden Bay ..	Mr. T. H. Baird ..	No gold present.
2863 (1–5)	Various	Wangapeka	Mr. M. Webster	See body of report.
2864 (1–4)	Quartz	Marlborough ..	Mr. F. F. MacLeod ..	"
2867 (1–3)	Calcite veins in country-rock	Mangapai	Mr. N. Jackson	Traces of gold per ton in all three.
2868	Hard sandstone ..	..	Mr. J. Shore	No gold present.
2869	Silicate	Gisborne	Mr. J. Whinray	"
2871	White quartz ..	Top Valley	Mr. K. MacLeod ..	8 dwt. 9 gr. gold per ton.
2872	Banded quartz ..	..	Mr. F. Iredale	Slight traces of gold.
2874 (1)	Cement sand ..	Westport	Mr. H. J. Hayns ..	8 dwt. gold per ton.
2874 (2, 3)	Serpentinous rock ..	D'Urville Island ..	Mr. Woodman	No gold present.
2874 (4)	Brassy pyrites ..	" ..	"	Trace of gold per ton.
2874 (5)	Dark pyrites ..	" ..	"	"
2876	Oxide of iron ..	South Africa ..	Mr. Rees	"
2878 (1)	Brown quartz ..	Marlborough ..	Mr. K. MacLeod ..	6 dwt. 7 gr. gold per ton.
2878 (2)	Brecciated quartz ..	" ..	" ..	10 dwt. 2 gr. gold and 2 oz. silver per ton.
2878 (3)	White quartz ..	" ..	" ..	4 dwt. 9 gr. gold per ton.
2879	Quartz	Mangonui	Mr. R. M. Houston, M.H.R.	See body of report.
2883 (1–3)	"	"	"	"
2930	"	"	"	"
2880	Red-coloured quartz	Nelson	Dr. Chapple	"
2889	"	"	"	"
2901 (1–4)	Various	"	"	"
2928 (1, 2)	Quartz	"	"	"
2881	White quartz ..	Top Valley	Mr. John Main	3 dwt. 3 gr. gold per ton.
2888 (A)	Clean tailings ..	Marlborough ..	Mr. C. D. Morpeth ..	2 dwt. 12 gr. gold per ton.
2888 (B)	" ..	" ..	" ..	5 dwt. 7 gr. gold per ton.
2900	Alluvial gold ..	Rappahannock Creek	Mr. Thomas James ..	See body of report.
2902	Shell limestone ..	Dannevirke	Mr. J. J. Barnes ..	No trace of gold.
2903	Iron-pyrites ..	Methven	Mr. J. Hobbs	Small trace of gold per ton.
2908	Quartz	Top Valley	Mr. D. Campbell ..	5 dwt. 7 gr. gold per ton.
2912 (1)	Concentrates ..	Macrae's	Messrs. Donaldson ..	1 oz. 7 dwt. 17 gr. gold per ton.
2912 (2)	" ..	"	" ..	4 dwt. 10 gr. gold per ton.*
2913	Chrome-iron ore ..	D'Urville Island ..	Mr. R. Woodman ..	43·99 per cent. chromic oxide, 3·01 per cent. magnesia, and no gold.
2915	White quartz ..	Timm's Creek ..	Mr. A. Muir	2 oz. 2 dwt. 20 gr. gold and 2 dwt. 12 gr. silver per ton.
2916 (1)	Massive iron-pyrites	Maharahara ..	Mr. Ed. Foley	3 dwt. 18 gr. gold per ton.
2916 (2)	Slate	" ..	"	2 dwt. 12 gr. gold per ton.
2917	Flaky quartz ..	Ohau River	Survey Department ..	1 dwt. 21 gr. gold per ton.
2927 (1)	Bluish quartz ..	Alexandra South ..	Mr. E. C. Stewart ..	1 dwt. 18 gr. gold per ton.
2927 (2)	Brown quartz ..	Gisborne	Mr. J. Whinray	Trace only of gold per ton.
2929	Various samples of quartz	Pelorus Sound ..	Mr. F. B. Farmar ..	No gold found.
2931	Tailings	Top Valley	Mr. T. W. Young ..	1 dwt. 12 gr. gold per ton.

* These concentrates contain scheelite.

COROMANDEL SCHOOL OF MINES.

Mr. D. V. Allen, A.O.S.M., who is Director of the school and manager of the public battery at Coromandel, reports as under:—

The school opened the second week in February, and closed on the 20th December, 1901. Throughout the year we had an average attendance of sixteen students, with an average attendance at classes of thirty-four. This rather small number of students is solely accounted for by so many leaving the district in search of work.

Twelve students presented themselves for the Schools of Mines Examination held in December, and the results were very satisfactory. The certificates obtained were eight firsts, three seconds, and eight thirds.

The scholarship for competition by students of the North Island schools of mines fell to Colin Fraser, who obtained 75 per cent. in each subject. Great credit is due to Mr. Fraser for the way he has perseveringly worked his way to distinction.

In the examination for first-class mine-managers and battery-managers our school was also very successful: four candidates passed for mine-managers, one for coal-mine manager, and one for battery-manager.

Forty-six public assays were done by myself during the year. Several valuable specimens were received for the museum.

The subjects of instruction were mathematics, mining, &c., surveying, mechanical drawing, metallurgy, chemistry (theoretical and practical), and assaying.

The prospects of the school for the incoming year appear to be quite as good as last year.

Public Battery Report.

During the year ending the 31st December, 1901, thirty-three parcels of ore from various parts of the neighbourhood were treated at the battery. These represented 78 tons 6 cwt. of quartz and 242 lb. of picked stone. The result was a return of 208 oz. 8 dwt. of retorted gold. Several minor repairs have been effected to the mill. The oil-engine gave considerable trouble, the work being too much for it.

The Minister of Mines has agreed to authorise £50 to be expended on repairs, and also to enable us to increase our water-supply. When all the improvements are made we shall be in a better position to give satisfaction to the public.

WAIHI SCHOOL OF MINES.

Mr. P. G. Morgan, M.A., Director, writes:—

During the early part of the year the attendance at the various classes was the largest known in the history of the school, but towards the end of the year the unsettled feeling which prevailed in the district, owing to the protracted dispute which arose between the Miners' Union and the mining companies, caused the attendance to fall off considerably. The average number of registered students during the year was forty-seven, and the class-attendance 139, as against forty-nine and 148 respectively for the previous year.

The appended table shows the subjects taught and the attendance at the various classes during the past twelve months:—

Table of Attendances for the Year ending 31st December, 1901.

Name of Subject.	First Term.	Second Term.	Third Term.
Mining	13	12	14
Advanced mining	...	...	14
Mathematics	23	22	6
Theoretical surveying	17	14	15
Practical surveying	11	14	15
General geology	11	2	...
Mineralogy and blowpipe analysis	12	7	...
Theoretical chemistry	18	14	4
Practical chemistry	21	12	6
Assaying	26	19	12
Metallurgy	8	6	3
Drawing	12	16	8
Totals	172	138	97
Individual registered students	56	48	38

During the greater part of the year assaying and chemistry were, as in former years, the most popular classes, but in the last term the attendance in these classes fell away so much that mining and surveying took the lead. The members of the last-mentioned classes attended very regularly, and made excellent progress. In the other classes those who attended regularly did good work, but the progress of many was impeded by their irregular attendance.

It gives me pleasure to say that the conduct of the students has been most exemplary. With hardly an exception, all are most anxious to learn.

The following is a *résumé* of the work done during the year in the various classes :—

(1.) *Mining* (average attendance, 13).—Instruction was given in shaft-sinking, opening out and exploitation of mines, timbering, pumping, hauling and winding, mine-ventilation, tapping water, modes of constructing dams, blasting, explosives, and strength of materials. All the students in this class attended regularly, and made excellent progress.

(2.) *Advanced Mining and Mining Geology.*—This class, which was a special class for candidates intending to sit for the Government examinations for mine-managers' certificates, was attended by fourteen students, all practical miners. The last set of examination papers for first-class mine-managers' certificates was fully explained and answered. Notes were given respecting the nature and mode of occurrence of mineral deposits, the formation of lodes and deep leads, the dynamics of lodes, &c.

(3.) *Mathematics* (average attendance, 17).—In this class the instruction was individual, and adapted to each student's needs as far as possible. Some of the members of this class attended regularly, and made good progress; but on the whole the attendance was irregular, and the progress made somewhat unsatisfactory. The work done comprised arithmetic, the whole subject; algebra, as far as quadratic equations; the use of logarithms; and a little Euclid. One student reached the third book of Euclid, and showed that he had obtained a good grasp of the subject.

(4.) *Theoretical Surveying* (average attendance, 15).—The students in this class, all practical miners, attended regularly, and made good progress. They were well grounded in the use of logarithms, the solution of triangles, the various calculations connected with land and mine surveying, mine-surveying problems, &c.

(5.) *Practical Surveying* (average attendance, 13).—This class was taught the adjustments and uses of the various instruments. A large amount of useful field-work was done, besides some plan-drawing and other indoor work.

(6.) *General Geology* (average attendance, 6·5).—During the first term this class was well attended. The instruction given was a continuation of the previous year's work, and comprised the geological periods, treated with special reference to New Zealand geology. Most of the members of this class had attended during the preceding year, and had taken much interest in the easier and more general part of the subject. This encouraged me to attempt this year a rather high standard of instruction; but the unfamiliar, jaw-breaking names of the fossils were too much for most of the students, and during the next term the attendance dwindled away to two. Evidently the instruction was not given on the most suitable lines; but experience teaches, and in future years care will be taken to present the subject in a more simple manner, with special reference to local geology.

(7.) *Mineralogy and Blowpipe Analysis* (average attendance, 9·5).—In this class blowpipe and other tests for simple minerals were taught. Mineralogy was hardly touched upon owing to the attendance falling off, and the class being therefore discontinued during the third term.

(8.) *Theoretical Chemistry* (average attendance, 12).—The chemistry of the non-metallic elements and of the alkali metals, together with the laws and principles underlying chemical reactions, was taught in this class. Instruction in chemical arithmetic was also given. The attendance in the chemistry and assaying classes was greatly affected during the last term by the depression prevailing in mining and business circles. The nature of the subject also caused the attendance to fall away. Chemistry, like mathematics, but in an even greater degree, is one in which many students fail to make any great progress. Its importance, however, to those who wish to acquire a knowledge of assaying or of the cyanide process cannot be overrated.

(9.) *Practical Chemistry* (average attendance, 13).—The work done in this class included the preparation of oxygen, hydrogen, chlorine, and carbon-dioxide, with illustrative experiments, tests for metals and acids, separation of the metals, manipulation of apparatus, and quantitative analyses of simple substances.

(10.) *Dry and Wet Assaying* (average attendance, 19).—In this class, which has always been the largest in the school, individual instruction is given, and each student is carried on from year to year as far as he wishes to go. Much good work was done by the students in this class, but many (in fact, all) of them are greatly hampered by their imperfect acquaintance with theoretical chemistry. It is difficult to make the beginner in assaying understand the importance of this subject to him, until he finds it out for himself from practical experience. The work done in assaying covered pretty nearly the whole of Park's treatise, with the exception of one or two analyses which seem almost out of place in a school of mines—*e.g.*, analyses of milk, sugar, artificial manures, &c.

(11.) *Metallurgy of Gold and Silver* (average attendance, 6).—This class is adapted specially to the needs of candidates for battery-superintendents' certificates. Last year the subject-matter comprised crushing and concentrating machinery, amalgamation, cyanidation (very fully treated), chlorination, bromination, miscellaneous lixiviation processes for the recovery of gold and silver, smelting, roasting and smelting furnaces, chemistry of gold and silver, &c.

(12.) *Drawing* (average attendance, 12).—This class was much better attended than in former years. Instruction was given in the use of instruments, lettering, machine-drawing, plan-drawing, &c.

A prospectus and syllabus, which gives full information concerning the classes, fees, &c., has lately been printed. Copies may be obtained on application to the secretary or Director of the school.

During the year some changes have taken place in the teaching staff. In April Mr. K. M. Barrance, assistant lecturer, left to take up a similar position at the Thames School of Mines. His place was taken by Mr. A. H. V. Morgan, M.A., who is possessed of the highest university credentials, and since his appointment has done very good work. At the end of April, on account of his ceasing to visit Waihi, we lost the services of Mr. A. B. Hardinge as drawing-master, but

Mr. R. H. Mitchell, who is also an accomplished draughtsman, kindly consented to carry on the class. The thanks of myself and all concerned are due to Messrs. Hardinge and Mitchell for their honorary services as drawing-masters.

At the annual Government examinations for schools of mines held during December eighteen of our students presented themselves, taking between them forty-two papers, with the result that two first-class, twenty-two second-class, and fifteen third-class certificates were obtained, whilst three papers fell below the minimum. Many of the second-class papers, especially those in the mining subjects, were not far off first class. Considering that all our students are employed in mines or batteries, most of them working the three shifts, and have therefore little time for study, these results are very creditable. The President's medal, given for proficiency in the mining subjects, was won by Mr. Boyd Bennie, with an average of 69 per cent., Mr. N. Whyte, with an average of 66·5 per cent., closely following.

Last year the school sent nine candidates up for mine-managers' and battery-superintendents' certificates, with the result that six obtained first-class mine-managers' certificates, and two battery-superintendents' certificates. For this year's examinations some ten or twelve of our students are candidates.

During the year nineteen assays and analyses were made for the public, besides a number of determinations of minerals which were not charged for. A good deal of experimental work was done in the school laboratory by the staff and one or two of the more advanced students. In this way several minerals previously unknown in the district were identified. The following results may be quoted as showing the character of the work done in the school laboratory :—

(1.) Analysis of stilbite from the Waihi Extended Mine : Water lost at 100° C., 1·41 per cent.; loss on ignition (water), 16·91 per cent.; silica, 56·68 per cent.; alumina, 16·41 per cent.; calcium-oxide, 8·45 per cent.; sodium-oxide, 0·97 per cent.: total, 100·83 per cent. Specific gravity, 2·103.

(2.) Analyses of borings from a borehole in the Waihi Consols Claim at a depth of about 400 ft.: No. 1 sample—Silica, 60·70 per cent.; alumina, 18 per cent.; ferrous oxide, 6·86 per cent.; calcium-oxide, 4·03 per cent.; magnesium-oxide and manganese-oxide, strong traces; alkalies and water, not determined. No. 2 sample—Silica, 65·72 per cent.; alumina, 16·37 per cent.; ferrous oxide, 6·81 per cent.; calcium-oxide, 4·60 per cent.; magnesium-oxide and maganese-oxide, strong traces; alkalies and water, not determined. The analyses and microscopic examination of the particles showed that the borehole was passing through a solid andesite. No. 1 sample was mixed with a certain amount of material from the upper part of the borehole.

(3.) Analysis of a soft black substance from a crosscut in the Waihi Mine: Water lost at 100° C., 13·70 per cent.; loss on ignition, 13·55 per cent.; silica, 36·88 per cent.; lead-oxide, 0·38 per cent.; copper-oxide, traces; alumina, 26·60 per cent.; ferric oxide, traces; oxides of nickel and cobalt, 1·63 per cent.; manganese calculated as Mn_3O_4, 5·07 per cent.: total, 97·81 per cent.

(4.) Analysis of oxidized ore from Waihi Mine: Water lost at 100° C., 0·26 per cent.; loss on ignition, 1·60 per cent.; silica, 89·98 per cent.; ferric oxide, 5·62 per cent.; alumina, 1·82 per cent.; oxides of manganese and nickel, 0·39 per cent.: total, 99·67 per cent. The oxide of nickel was not exactly determined, but was at least 0·20 per cent. All metallic iron was removed by a magnet, but the percentage of iron was nevertheless unexpectedly high. The sample assayed 2 oz. 5 dwt. 17 gr. of gold and 10 oz. 2 dwt. 12 gr. of silver per ton. The specific gravity was 2·314.

(5.) Specific gravities of various samples of Waihi quartz (oxidized ore): No. 1, 2·314; No. 2, 2·517; No. 3, 2·505.

(6.) Analysis of lustrous, friable, bituminous coal from Wharekeraupunga: Water lost at 100° C., 0·55 per cent.; volatile matter, 36·50 per cent.; fixed carbon, 51·15 per cent.; ash, 11·80 per cent.: total, 100 per cent. The sample contained no less than 15 per cent. of sulphur, the greater part of which must have been combined with the carbon compounds, for the ash consisted mainly of silica and alumina. As the coal occurs in very thin, broken seams of no great extent, it is commercially valueless. A qualitative examination of the ash revealed the interesting fact that it contains the rare element vanadium in easily detected quantity. The vanadium probably occurs in the coal as a sulphide.

(7.) Experiments in testing potassium-cyanide solutions: The bulk of these experiments was made in order to ascertain the influence of the double cyanide of zinc and potassium on the titration of cyanide-solutions with silver-nitrate. A full description of the experiments would occupy too much space for the present report, but the following conclusions, amongst others which were arrived at, may be given: (*a.*) The more diluted the solution the greater is the total amount of apparently free potassium-cyanide, and therefore the greater is the amount of double cyanide which appears to be simple cyanide. (*b.*) The greater the percentage of double cyanide present the greater is the percentage of apparently free potassium-cyanide. (*c.*) The more slowly the titration is performed the less is the percentage of apparently free potassium-cyanide. A moderate speed gives the most consistent results.

A second set of experiments was made in order to ascertain the influence of exposure to the atmosphere on potassium-cyanide solutions of 0·1 to 0·5 per cent. strength. It was found that forty-eight hours' exposure in deep beakers not more than half filled caused losses of from 22 to 36 per cent. with fairly pure KCN solutions. The ratio of the exposed surface to the bulk of the liquid had evidently an important influence on the results. It appeared also that the percentage loss of KCN was less in the stronger solutions (0·5 per cent.) than in the weaker solutions (0·1 per cent.), though, of course, the absolute loss was much greater. In order to test the influence of alkalies with respect to atmospheric loss, caustic potash and quicklime were added to the extent of 0·4 per cent., with the result that in the solutions containing caustic potash the average loss was reduced to 10·7 per cent., and in those containing lime to 5·1 per cent.

During the year a large number of rock and mineral specimens, collected by myself or given by various donors, has been added to the school collection. Among these may be specially mentioned several pieces of solid rhyolite containing fragments of easily recognisable charcoal. One specimen was obtained at a depth of 110 ft. in the Grand Junction No. 1 shaft; the others were found in excavating one of the Waihi Company's No. 4 shaft chambers at a depth of over 200 ft. Quite as noteworthy, perhaps, are specimens of partly silicified wood, containing 5 per cent. or more of free carbon, from a depth of 620 ft. in the Grand Junction shaft. The rock in which this fossil wood is imbedded is not improbably a decomposed andesite lava, though it may be decomposed andesitic tuff.

In conclusion, I have to thank the committee for the continued attention which they have given to the requirements of the school. Thanks are due also to Messrs. K. M. Barrance and A. H. V. Morgan, M.A., who have in turn acted as assistant lecturers.

KARANGAHAKE SCHOOL OF MINES.

The Director, Mr. R. B. McDuff, writes:—

I have the honour to furnish herewith the first annual report on the Karangahake School of Mines for the year ending the 31st December, 1901.

At a public meeting held in October, 1899, for the purpose of establishing a school of mines at Karangahake the following gentlemen were appointed to carry out the resolutions passed at the meeting: Messrs. C. H. Taylor, J. R. Noble, W. Goldsworthy, G. N. McGruer, F. Rich, R. Stackpole, jun., and Alexander Hogg. At a committee meeting held at the close of the public meeting Mr. Hogg was appointed secretary, and Mr. W. Goldsworthy and H. W. Guthrie trustees. So untiring in their efforts was this committee that in a little over a year the school was erected and fitted up with all the necessary appliances ready to open at the beginning of the present year.

Applications for the position of Director were called, and that of Mr. W. H. Baker, B.Sc., of the Thames School of Mines, was accepted. Mr. Baker took charge at the beginning of the year, and continued up till the end of March, when he resigned, having received the offer of a more lucrative position in Tasmania. Applications for the directorship resulted in my appointment, and I commenced my duties on the 1st April, 1901.

The school has had a most successful year, the attendance at the lectures being excellent, as is shown in the table appended.

The course of instruction is similar in all respects to that of the Waihi School of Mines, and embraces all the subjects necessary for the Government mine-managers', battery-superintendents', engine-drivers', and assayers' certificates.

The school-year is divided into three terms: First term, from the first Monday in February to the 30th April; second term, from the 9th May to the 20th August; third term, from the 9th September to the 20th December.

The fees charged are 5s. per term for each subject taken up. In addition to the class fees there is a membership fee of £1 per annum.

No Saturday science class is held for children.

The following improvements have been made in the school during the year: Sixteen lockers for the assaying class; a lecture-bench placed in front of the blackboard; a mineral case provided; and the assay-room ceiled with iron.

The capacity of the assay-room is taxed to its utmost at present, it being only 14 ft. by 10 ft., and, with an attendance of twenty students, working becomes very inconvenient. If the number of students in this class increases—as I am convinced it will do next year—some addition will have to be made to allow the work to be carried out successfully.

One great drawback to the school is the want of a waiting-room for the students; having only one class-room, they are compelled to remain outside until the earlier class is over, which is not very pleasant in the winter months.

TABLE OF ATTENDANCES for Year ending 31st December, 1901.

Subject.	First Term.	Second Term.	Third Term.
Mining	8	11	11
Surveying	9	12	12
Assaying	13	16	20
Theoretical chemistry	10	18	20
Metallurgy	11	13	11
Mathematics	4	7	13
Geology	3	3	4
Mineralogy	3	3	4
Drawing	4	4	3
Practical chemistry	13	18	20
Totals	78	105	118
Total individual students	25	31	37

The Hon. J. McGowan, Minister of Mines, has visited the school, and approved of what has been done; and, on representing that the survey class was working with a primitive theodolite, he kindly sent a new and up-to-date theodolite when he returned to Wellington. This gift was much appreciated by the Council and students.

The annual meeting was held in the school on the 22nd July, when the following officers and Council were elected: President—A. H. Curtis, Esq.; vice-presidents—D. G. Waddell, Esq., F. Rich, Esq., C. H. Taylor, Esq.; Council—Messrs. C. H. Taylor, W. Goldsworthy, F. M. Brown, R. Stackpole, jun., C. Trezise, H. W. Guthrie, J. Jackson, R. D. Jones; treasurer—R. D. Jones; secretary—Alexander Hogg.

The number of assays done for the public during the year was eleven, all being for gold and silver. One analysis of coal was also made for a local syndicate, who are prospecting near the township.

The annual examinations on the papers sent by the Mines Department have just been completed, twelve students presenting themselves for the subjects which they had taken up. This number would have been greater had not a slump in mining matters taken place, causing some of the best students to temporarily leave the district.

In conclusion, I must heartily thank our President, Mr. A. H. Curtis, for his handsome gift of seven valuable books to the school library, the Council for their hearty co-operation with me in every plan for the improvement of the school, and the donors of mineral specimens. In this connection the thanks of the school is especially due to Mr. F. B. Allen, of the Thames School of Mines, and Mr. W. H. Baker, of Tasmania.

NELSON SCHOOL OF MINES.

Mr. W. F. Worley, the Instructor, writes as follows, his report being made up to the 31st March, 1902, instead of the 31st December, 1901:—

Blowpipe Analysis Classes.

Two classes—an upper and a lower—have met weekly for the study of this subject. The work attempted and the results achieved are so similar to those of former years that a detailed account of this work is scarcely necessary. Twenty-six boys belonged to these classes during the year, but by the end of the year the number had decreased to twenty-two. The usual examination has not yet been held, as it has been found necessary to change the time of year for the commencing and closing of these classes. After the usual standard examination of the school, when scholars are passed from a lower to a higher standard, there are generally several boys anxious to join the blowpipe classes. As it is extremely inconvenient to have new boys entering the class three months after starting new work, the classes will in future be reformed at the same time as the ordinary school classes. By adopting this arrangement the blowpipe classes will not be examined till the end of June. The results of this examination will be embodied in my next annual report.

During Easter week twelve members of the class were taken to Eighty-eight Valley to search for fossils. Each boy secured several specimens, and at the same time had opened up to him a new avenue of possible pleasure.

Assaying.

Only twelve assays were made for the public during the year. This is the lowest number yet recorded. Prospecting for reefs has, for the time being, been almost abandoned in this district.

Adult Classes.

By special arrangements with the Nelson Board of Education a course of lectures on the chemistry of agriculture was delivered for the benefit of the teachers of this district. Twenty-five teachers availed themselves of this opportunity. In all fifteen lectures were delivered, each lecture lasting about an hour and a half. Attention was first given to the composition of plants. The method of analysing plant-substances was explained, and some partial analyses were made before the class by way of illustration. The chemistry of the elements usually found in plants was then taken up. Each of these elements was produced before the class, their properties being illustrated by numerous experiments. The part played by these elements in plant physiology was then explained, and some analyses made of plant-substances, such as starch and sugar. Use was made of the microscope for the studying of the cell-structure of plants, the starch granules, and the chlorophyl. The attention of the students was then directed to the sources from which plants get these elements or compounds containing them. In this connection air, water, and soil were considered, special attention being given to the soil. Finally, the attention of the class was directed to the necessity of manuring to make up for deficiencies in the soil. Natural and artificial manures were considered in detail. The sources of supply, methods of using and of manufacture, adulterations of and simple tests for being dealt with by experiment. A small quantity of superphosphate was made before the class, and to it were added suitable quantities of substances containing potash, nitrogen, magnesia, sodium, chlorine, and iron, till a perfect manure for kitchen-garden crops was obtained. Experiments were then made with this manure to show its effects on growing plants. A good deal of appreciation was shown by the members of this class, and there is reason to believe that good will result from the lectures.

Conclusion.

By an arrangement with the committee of the Nelson Institute the typical sets of ores and rocks belonging to the School of Mines are now exhibited in the Nelson Museum. There is a distinct understanding that they are only there for exhibition. The key of the case containing

them is in my possession, and I have been granted the right of teaching mineralogy there to my classes. By this arrangement these valuable specimens are now available to the public. Any miner or prospector may see them, and, by means of the descriptive catalogue, learn their chief properties and modes of occurrence.

My thanks are due to the town School Committee for the loan of the schoolroom on two afternoons of each week.

REEFTON SCHOOL OF MINES.

Report of the Director, Mr. J. W. Lee:—

During the year classes in the various subjects have been held regularly, at which the attendance has been fairly good. The number of students, however, is not so large as might be expected, especially when the number of young men working in the district is considered. It should be remembered, however, that the distances from the school at which their work is situated seriously affect their regular attendance, especially with weekly shift changing, which drawbacks are intensified during the winter months.

In January last examinations for battery-superintendents' and mine-managers' certificates were held under the supervision of Mr. R. Tennent, Inspector of Mines for this district. At these examinations three students obtained full passes as battery-superintendents; one a partial pass in the same examination, since completed at the interim examination; and three have since been successful in obtaining complete passes as mine-managers.

At present the number of individual attending students is twenty-five. During the year the average attendance has been as under:—

Class.	Number of Students.	Average Attendance.
Mining and mathematics	15	10
Surveying	12	10
Theoretical and practical chemistry	10	6
Practical assaying	11	6

The instruction in each class has been as follows:—

Mining (including Mining Geology and the Dynamics of Lodes).—The construction and timbering of shafts, drives, stopes, &c., with sketches of timbering; hauling and winding; explosives; mineral veins, their nature, modes of occurrence; metalliferous ores, their character, and strata in which they chiefly occur; faults and fault rules. Special attention has been paid to ventilation, embracing natural and artificial, fans, water-gauge, horse-power, friction, and splitting of air in mines, anemometers, furnaces, water-blasts, &c., and also to pumping, comprising drawing and forcing pumps, motors, rods, with all other accessory appliances, sinking pumps, &c.; also calculations as to horse-power required for pumping and delivery water from pipes and pumps have been fully dealt with; dams, their construction and use. Students have also been instructed to draw plans and sketches of the various appliances in use for ventilation and pumping. Mine accounts, comprising wages, time-sheets, costs per ton, statements and analyses of expenditure.

Text-books: Gordon's "Mining and Engineering," Le Neve Foster's "Ore and Stone Mining," C. Pamely's "Colliery Managers' Handbook."

Mathematics.—The whole subject of arithmetic.

Surveying.—Logarithms, plane trigonometry, chaining, keeping field-notes, traversing, computation of traverses by rectangular co-ordinates; closing lines; areas; magnetic and true meridians compared; connection of underground and surface meridians; adjustments of the theodolite, miners' dial, and compass; dialling by fast and loose needle; problems *re* dip and strike of lodes, and connection with reefs and mine-workings at required relative positions; plotting by co-ordinates, and protracting.

A considerable amount of field-work has been done with the Y theodolite, granted to the school in last January, and students are shown practical instrumental work with it as often as possible.

Text-book: Brough's "Mine Surveying."

Theoretical Chemistry.—General principles; atoms and molecules; combining weights; the non-metallic elements; alkali metals; the metric system of weights and measures; chemical notation and formulæ, and corresponding percentage composition; salts, acids, alkalies, and general fundamental principles of inorganic chemistry.

Text-books: Bloxam's "Chemistry," Lupton's "Chemical Arithmetic."

Practical Chemistry.—Reagents; qualitative analysis, comprising group and detailed separations, thence proceeding to simple analyses; volumetric analysis, with especial reference to the testing of potassium-cyanide solutions; analyses of simple substances; tests for gold and silver in ores and alloys, and also in solution as chloride; manipulation and laboratory-work; preparation of different gases, as hydrogen, oxygen, &c., and their physical and chemical properties.

Assaying.—Fluxes; reducing agents; dry assays of gold, silver, lead, tin, mercury, and antimony ores; wet assays of copper, lead, zinc, antimony, and iron ores, with calculation of results in each case; tests and special methods of assaying tellurides of gold and silver; tests by wet and dry methods of different minerals and alloys. Some work has also been done in electro-metallurgy and electroplating.

In both practical chemistry and assaying subjects students are taught practical work and manipulation, and encouraged to verify their results by their own practical observation and experiments as far as possible.

Metallurgy of Gold and Silver.—Special classes in this subject have been held for the benefit of students preparing for battery-superintendents' examinations, dealing with the following branches: Crushing machinery; amalgamation, with the use and properties of mercury; machinery used; concentration and vanning; chlorination and cyanide processes, with especial reference to recent improvements; other leaching processes; roasting ores; testing and assaying ores; chemistry of the various processes; arithmetic; plans and sketches of the various appliances and machinery.

Text-books: Park's "Practical Chemistry and Assaying" and "Cyanide Process," Louis's "Gold-milling," Rose's "Metallurgy of Gold," Eissler's "Gold" and "Silver."

Special instruction has been given at different times to persons desirous of obtaining certificates as engine-drivers, and six persons have been successful in obtaining such certificates by examination during the year.

Class fees are: Mining and surveying, 12s. 6d.; chemistry, assaying, and metallurgy of gold and silver, each 7s. 6d. per quarter. No members' fees are required from students, but any persons other than students may become members on payment of a fee of 10s.

The number of assays performed for the public during the year has been forty-two, and berdan tests ten. A number of ore-samples have been submitted for analysis or identification of the mineral contents, but no results of very special interest have been obtained.

In conclusion, I have to thank the committee of the school most heartily for their co-operation and support, always accorded very readily; also the various donors of mineral specimens for the school collection, and Messrs. J. Chambers and Son for a number of catalogues of mining machinery for the school library.

WESTPORT SCHOOL OF MINES.

The hon. secretary, Mr. Edward Young, has supplied the following particulars to the 31st March, 1902:—

Owing to the want of an Instructor, classes were suspended during the early part of the year 1901, but were reopened on the 5th July, Mr. D. A. Strachan, M.A., having kindly undertaken to deliver lectures on chemistry, while practical instruction in assaying was given by the President, Mr. James Bradley.

There has been an average attendance of seven students, who have all made very satisfactory progress, and are becoming proficient in the analysis of complex ores. One of them, Mr. Sydney Fry, has lately passed his examination for a quartz-mining manager's certificate at Reefton.

There is only one class at present, the fee for each term being 10s., except for pupils attending day-schools, who are admitted at half-price. The ordinary annual membership fee is 10s.

The work done in the school during the period has included ninety-four chemical, scorification, amalgam, and fusion assays, besides innumerable chemical tests of salts, minerals, &c. Most of the assays were made from ores of the district—tin, copper, antimony, zinc, zincblende, and other minerals—and in some instances high results of gold and other metals were obtained. The institution has been of marked utility to the district, and promises, from the increasing interest now being taken in it, to be still more fruitful of benefit in future.

The chief drawback is the want of a regular Instructor. Free railway-passes to schools of mines students, if I may venture the suggestion, would also be a great boon to the latter, besides increasing the attendance. One of our students, the Mr. S. Fry above mentioned, often walked home after lectures, from Westport to Waimangaroa, a distance of ten miles. An appliance much required by the school is a second-hand theodolite for the teaching of surveying.

During the period under report the school has been visited by Mr. Hayes, Inspecting Engineer, and also by Messrs. Tennent and Richards, Inspector and Assistant Inspector of Mines for the district, and others who take a deep interest in it, and contribute any interesting mineral specimens they can find.

The text-books used are Jago's "Chemistry," Dr. Black's "Chemistry," Park's "Laboratory Instructions," Hiorns's "Metallurgy," and Brown and Griffith's "Assaying."

The school has a membership of forty-six, in addition to students. Various local donations have also been received, including a subsidy of £10 from the Westport Borough Council.

The school wish to record their gratitude to Mr. D. A. Strachan, M.A., for his gratuitous and very valuable services to the institution.

OTAGO SCHOOL OF MINES.

(In connection with the University of Otago, Dunedin.)

The Director, Professor James Park, F.G.S., reports as follows for the twelve months ending the 31st March, 1902:—

During the session of 1901 the school showed the satisfactory attendance of thirty-eight registered students, and one casual student for one special subject only—namely, practical assaying. The thirty-eight students attended with the intention of going through one or more of the courses of study prescribed in the calendar for the several divisions of the school. Of that number, eleven entered for their first year, leaving twenty-seven in their second or third year. In past years students have not strictly followed the curriculum prescribed in the calendar, and for this reason the year of attendance does not always coincide with the academic year of a student's course, and failure to pass a satisfactory examination in a subject at the end of the session may throw a student out of the prescribed course, and in some cases necessitate attendance in the same class for another year.

Of students who entered for their third or final year, four completed their studies with success, and, having presented satisfactory certificates of time spent in practical work, were awarded the diplomas and certificates to which they were entitled. These students were as follows: Leslie Maurice Jolly, diploma of Associate in Mining and certificate of Metallurgical Chemist and Assayer; Thomas Otto Bishop, diploma of Associate in Mining, diploma of Associate in Metallurgy, certificate of Metallurgical Chemist and Assayer, certificate of Mine and Land Surveyor; Harold Tyndall de Renzy Harman, diploma of Associate in Mining and certificate of Metallurgical Chemist and Assayer; Frederick Thomas Seelye, diploma of Associate in Mining.

Diplomas and certificates were issued during the year to nine students who had already passed the prescribed course, on production of certificates relating to practical work, in accordance with the regulations of the Mining School. The names of these students are as follows: Herbert Edmund Allen, diploma of Associate in Mining; Edward Arthur de Lautour, diploma of Associate in Mining; George Herbert Royse, diploma of Associate in Mining and certificate of Metallurgical Chemist and Assayer; Colin Campbell, diploma of Associate in Metallurgy; George Aubrey Gow, diploma of Associate in Mining, diploma of Associate in Metallurgy, and certificate as Metallurgical Chemist and Assayer; Sydney Parker Street, diploma of Associate in Mining; James Baillie Macdonald, diploma of Associate in Mining; George Watt Thomson, diploma of Associate in Metallurgy; William Graham Royse, diploma of Associate in Metallurgy.

The attendance in the different classes and the results of the annual examinations in the subjects of instruction in the Mining School are shown in the following tabulated statement:—

TABLE I.

Subject.	Teacher.	Attendance.	Results of Examinations.			
			First Class.	Second Class.	Third Class.	Failed.
General geology	Dr. Marshall	8	1	3	3	1
Mining geology	"	6	1	1	3	1
Mineralogy	"	8	...	4	3	1
Petrography	"	7	1	1	5	...
General metallurgy	D. B. Waters	11	2	3	2	3
Special metallurgy	"	13	1	4	5	3
Assaying, first course	"	16	6	6	3	1
" second course ...	"	10	3	2	3	...
Blowpipe analysis	"	12	2	8	2	...
Mining, first course	The Director	11	8	3	...	...
" second course	"	4	2	2	...	...
Applied mechanics, first course ...	"	9	4	3	1	1
Mine and land surveying, first course	"	12	10	1	1	...
Mine and land surveying, second course	"	6	2	3	1	...

In addition to these classes, students in their first, second, or third year, according to their standing, had to attend the University classes in mathematics, theoretical mechanics, theoretical physics, practical physics, theoretical and practical chemistry; and two students, with the intention of qualifying for the diploma of Associate in Geology, attended the classes in biology and palæontology. No failures were recorded in the University classes, with the exception of three in mathematics and three in theoretical chemistry. The results of the examinations in these subjects are shown in the following table:—

TABLE II.

Subject.	Teacher.	Attendance.	Results of Examinations.			
			First Class.	Second Class.	Third Class.	Failed.
Mathematics	Professor Gibbons	9	1	...	5	3
Theoretical mechanics ...	Professor Shand	10	1	4	5	...
Theoretical physics	"	9	2	3	4	...
Practical physics	"	5	1	4	...	...
Theoretical chemistry ...	Professor Black	14	3	1	7	3
Practical chemistry	"	10	2	5	3	...
Biology	Professor Benham	2	2	...	...	...
Palæontology	"	2	1	1	...	...

Students in the different divisions, according to their standing, had also to attend the drawing classes at the School of Art, the Director of which reported satisfactory progress in the case of every one.

The examination results are shown in the accompanying tabulated statement:—

TABLE III.

Subject.	Teacher.	Attendance.	Results of Examinations.			
			First Class.	Second Class.	Third Class.	Failed.
Solid geometry	Mr. D. Hutton	7	2	2	3	...
Machine-drawing	Mr. W. Peck	6	5	1	...	...
Model-drawing...	Mr. D. Hutton	8	5	1	2	...
Practical plane and solid geometry	"	6	2	2	2	...

The work done for the public in the valuation of ores, bullion, &c., by assay, by Mr. D. B. Waters, lecturer and instructor in assaying, was as follows: Charged for at fixed rates, 52; not charged for, 5; total, 57.

In this period the Director examined and reported on three collections of rocks and fossils: two from Southland, in connection with the probabilities of coal being discovered, and one from Hokianga, relating to a copper-discovery.

Staff.—Up till the year 1900 the teaching staff of the Mining School consisted of five members, including the Director and lecturer in metallurgy, and three outside lecturers—namely, a lecturer in geology, a lecturer in applied mechanics, and a lecturer and instructor in mine and land surveying. The regrettable death of the late Professor Ulrich led the Council of the University to reorganize the staff on a new basis. The outside lecturers were dispensed with, and instead of these a lecturer in geology and mineralogy was added to the permanent staff. This new appointment led to a rearrangement of the subjects of instruction, as indicated in Table I. This arrangement will be adhered to in the present year, except in the case of mining geology, which will be taught in future by the Director as the first chapter in the mining course.

Regulations of School.—At the end of last sessien a revision of the regulations of the school was prepared. The new matter related principally to the issue of diplomas and the course of study in the different divisions, and after lengthy consideration and some amendment was finally approved and recommended to the Council by the professorial board. The new regulations and a synopsis of the instruction in each class are embodied in a separate publication recently issued from the Government Printing Office by the courtesy of the Hon. James McGowan, M.H.R., Minister of Mines.

Examination Papers.—In response to a request from the Director in July, the Hon. the Minister of Mines agreed to the printing of the annual examination papers by the Mines Department, and in fulfilment of that promise printed papers were placed in the hands of the students at the October examinations, an innovation which was much appreciated both by the staff and the students.

Students' Library.—In July the students organized a social entertainment at the school to raise funds for the purchase of books for their library. The proceeds of the social realised some £10, which, with the sum of £12 obtained from a similar entertainment in 1900, was spent in the purchase of standard books of reference on mining and metallurgical subjects. The self-reliance of the students in this matter deserves much commendation, and for such a praiseworthy object the Council of the University might be reasonably requested to subsidise any small sum collected in this way.

In August the Hon. the Minister of Mines presented the library with a set of the back numbers of the annual reports of the New Zealand Mines Department, and promised to send copies of all the publications of this Department in the future. Donations of technical works were also received from Mr. A. Hamilton and the Director.

Donations to the School.—Valuable gifts of serviceable and up-to-date machinery and mining plant were received from a number of mining companies in the Auckland goldfields, notably the May Queen, Kuranui-Caledonia, Moanataiari, Big Pump, and Waihi Companies. The machinery proved of great value for class demonstration. It included a hoisting-cage with safety appliances (new model); two $3\frac{1}{8}$ in. Ingersoll-Sargeant air rock-drills, with fittings; one rock-drill column and arm; two tripod stands; one rock-boring augur; sets of steel drills for single- and double-hand drilling; set of drills for air-drill; samples of cruciform, hexagonal, and octagonal drill-steel; set of tools for charging blast-holes, including scraper, tamping-bars, prickers, and "gun"; single- and double-hand striking-hammers; driving and sinking picks; shovels; examples of fire-bars; steel-wire and flat hemp ropes; two mine-trucks; one 12 in. pump bucket valve; one cheese-clack, &c.

From the Waihi Gold and Silver Mining Company (Limited) were also thankfully received 2 cwt. of cyanide tailings; from the Woodstock Gold-mining Company (Limited), 1 cwt. of argentiferous gold-ore; from the New Zealand Jubilee Gold-mining Company (Limited), $\frac{1}{2}$ cwt. of cupriferous gold-ore; and from the Monowai Gold-mining Company (Limited), 1 cwt. of complex sulphide ore. These ore-samples proved a valuable addition to the material available for the experimental work undertaken by the advanced students in metallurgy and assaying.

The geological collections were supplemented during the year by a collection of Trias fossils from Nelson, presented by the Director, and a typical series of rock-specimens representing the Maitai formation of New Zealand, together with sundry other rocks and minerals, from the same

source. The Trias fossils will form the nucleus of a collection of New Zealand type fossils, which is much needed for the instruction of students in the geological division.

In addition to the above donations, the receipt of a collection of West Australian rocks and gold-ores from Mr. Max von Bernewitz, of Kalgoorlie, and a collection of Victorian rocks and minerals from Mr. O. G. Adams, Director of the Stawell School of Mines, has to acknowledged.

Graduates of Mining School.—The *Australian Mining Standard* of a recent date supplied the following interesting information relating to the present positions occupied by a number of old students of the school in different parts of Australia: W. A. McLeod, Director of the Charters Towers (Q.) School of Mines; O. G. Adams, Director of the School of Mines, Stawell (V.); A. C. Boydell, lecturer on assaying, metallurgy, mineralogy, chemistry, and petrography, Bendigo (V.) School of Mines; Thomas Esdaile, lecturer on assaying, metallurgy, and chemistry at the South Australian School of Mines; A. Purdie, Director, Government Technical School, Perth (W.A.); P. J. McLeod, University and Technical School, Hobart; W. H. Baker, formerly of the Karangahake School of Mines, Director of the Launceston (T.) School of Mines; F. B. Stephens, former Director of the Stawell (V.) School of Mines, but now manager of the Cassilis Gold-mining Company, Gippsland (V.); and Murray Russell, Government Inspector of Mines, Queensland. In addition to these, the following old students of the school hold responsible positions in New Zealand: F. B. Allen, Director of Thames School of Mines; Percy G. Morgan, Director of Waihi School of Mines; D. V. Allen, Director of Coromandel School of Mines; F. T. Seelye, lecturer, Waihi School of Mines; and A. Montgomerie, superintending engineer, Kauri Gold Estates (Limited), Auckland goldfields.

It is also a pleasure to record that Mr. D. B. Waters, our lecturer in assaying and metallurgy, and Dr. P. Marshall, lecturer in geology and mineralogy, are old students of the Otago Mining School. It is further gratifying to note that J. Malcolm Maclaren, an old student, secured the 1851 Exhibition Research Scholarship for 1901. Mr. Maclaren is at present investigating the gold veins of Great Britain and Ireland, and has been favoured with permission to conduct his laboratory research work in the Davy-Faraday laboratory of the Royal Institution in London.

Besides these, many students of the Otago Mining School fill positions as assayers, metallurgical chemists, cyanide managers and operators, mill-managers, mine-managers, and mining engineers in New Zealand, the different States of the Australian Commonwealth, in America, South Africa, and Newfoundland.

Progress of Mining.—The unexampled progress of gold-mining in all parts of the world during the past decade can be traced directly to the introduction and successful operation of the cyanide process of gold-extraction. Many mines that were formerly closed down, or working at a loss, are now paying regular dividends; and piles of tailings, at one time regarded useless sands, are yielding a profitable return through the application of this process.

The cyanide process depends on a series of highly complex chemical reactions, and for this reason is probably the most difficult and technical of present-day metallurgical processes. Its successful introduction in the Australian Colonies and New Zealand, often under the most adverse conditions, is a splendid tribute to the value of the training imparted in our mining schools. The process may truly be said to have revolutionised the art of gold-mining, which now occupies a foremost position among the established industries of the world. In the past twelve years it has already added over £50,000,000 to the wealth of the British and American peoples, and its possibilities in the future seem almost without limitation. And it came most opportunely. It is almost certain that, had the process been invented twenty years ago, its introduction had been well-nigh impossible through the lack of men possessing the high technological skill required for its successful operation. But it so happened that it came when the mining schools were fairly established and in full swing. The schools were called on to supply the men to work the process. In a sense they were placed on their trial, and for the first time since their establishment were required to justify their existence. This period was an anxious and critical time in the history of our New Zealand mining schools, and writing now, ten years after, it is gratifying to record that the reliable and successful work of our students, who were thus suddenly called upon to take the place of the old-time millman and battery-manager, dispelled for all time any lingering doubts of the value of a technical mining education. Since filling all the available positions at the New Zealand mines, the overflow of our certificated students has found its way to responsible positions in connection with the process in all parts of the world, wherever gold-mining is conducted on scientific principles.

If the colonies are to stem the tide of foreign competition, greater facilities must be provided for the acquirement of a technical training in the higher branches of applied science. It is not so much in the manual occupations that we feel the stress of foreign competition as in the domain of mining, metallurgy, engineering, chemistry, electricity, and manufacturing industries. Mining has already afforded a wide field for hundreds of our more intelligent youth, who have discovered not only a remunerative source of employment for themselves, but one in the pursuit of which they contribute largely to the wealth of the nation. Hitherto mining is the only industry in New Zealand in connection with which any serious attempt has been made to introduce technical education. That the results have already more than justified the expenditure is clearly shown in the more systematic development of our mines and the yearly increasing value of our mineral productions. There is, therefore, now no need to go to Germany or America to discover that money spent on technical education is money well invested on behalf of the community.

EXPENDITURE ON SCHOOLS OF MINES.

The following table shows the expenditure by the Government on schools of mines since their inauguration, exclusive of subsidies paid to the University of Otago towards the School of Mines in connection with that institution:—

Financial Years.	Subsidies towards the Erection of Schools of Mines, and Maintenance.	Chemicals and Apparatus, also Mineralogical Specimens supplied to Schools of Mines.	Scholarships.	Salaries of Teachers, and Travelling-expenses, &c.	Total Sum paid by the Department towards the Schools of Mines.
	£ s. d.	£ s. d.	£	£ s. d.	£ s. d.
1885–86 ...	...	36 19 9	...	1,223 9 10	1,260 9 7
1886–87 ...	257 16 6	409 1 4	...	2,716 9 3	3,383 7 1
1887–88 ...	253 15 9	253 14 1	...	1,714 9 6	2,221 19 4
1888–89 ...	42 10 0	6 12 9	...	1,139 4 1	1,188 6 10
1889–90 ...	142 2 0	181 14 10	...	716 3 10	1,040 0 8
1890–91 ...	217 6 6	54 8 0	...	620 9 9	892 4 3
1891–92 ...	181 14 0	...	...	689 5 9	870 19 9
1892–93 ...	312 3 4	...	...	670 1 0	982 4 4
1893–94 ...	197 0 5	...	...	858 19 4	1,055 19 9
1894–95 ...	390 0 0	45 10 10	...	773 17 8	1,209 8 6
1895–96 ...	820 0 0	...	50	849 3 0	1,719 3 0
1896–97 ...	352 14 11	58 18 6	100	834 12 8	1,346 6 1
1897–98 ...	1,089 18 6	29 19 9	100	780 19 0	2,000 17 3
1898–99 ...	740 15 2	32 19 7	50	729 10 11	1,553 5 8
1899–1900 ...	990 3 4	24 3 8	50	52 16 3	1,117 3 3
1900–1901 ...	866 10 11	56 3 4	98	77 7 10	1,098 2 1
1901–1902 ...	1,155 12 3	63 5 1	49	69 16 4	1,337 13 8
Totals ...	8,010 3 7	1,253 11 6	497	14,516 16 0	24,277 11 1

The above statement shows the amount expended on the different schools of mines throughout the colony; but, in addition to this, the sum of £9,303 6s. 2d. has to be added, as that has been paid to the School of Mines attached to the University of Otago, £750 being paid last year towards maintaining the school, which makes the total expenditure up to the 31st March last to be £33,580 17s. 3d. This expenditure has extended over a period of seventeen years.

PRODUCTION OF GOLD AND SILVER.

The following comparative statements show the quantity and value of gold entered for exportation for the last two calendar and financial years:—

Name of District.	Year ended 31st December, 1901.		Year ended 31st December, 1900.		Increase for 1901.	Decrease for 1901.
	Quantity.	Value.	Quantity.	Value.		
	Oz.	£	Oz.	£	Oz.	Oz.
Auckland ...	191,968	695,551	166,342	605,398	25,626	...
Marlborough ...	133	513	535	2,147	...	402
Nelson	7,212	28,138	3,718	14,605	3,494	...
West Coast ...	113,286	454,006	73,923	295,733	39,363	..
Otago	142,940	575,492	129,075	521,629	13,865	...
Canterbury ...	22	83	23	90	...	1
Totals ...	455,561	1,753,783	373,616	1,439,602	81,945*	...

Name of District.	Year ended 31st March, 1902.		Year ended 31st March, 1901.		Increase for 1902.	Decrease for 1902.
	Quantity.	Value.	Quantity.	Value.		
	Oz.	£	Oz.	£	Oz.	Oz.
Auckland ...	201,861	728,498	166,049	604,018	35,812	...
Marlborough ...	277	1,108	247	970	30	...
Nelson	4,207	17,118	5,126	19,238	...	919
West Coast ...	104,441	418,322	85,779	343,728	18,662	...
Otago	128,200	515,265	135,753	548,444	...	7,553
Canterbury ...	19	71	22	84	...	3
Totals ...	439,005	1,680,382	392,976	1,516,482	46,029†	...

* Total net increase, value £314,181. † Total net increase, value £163,900.

GOLD-MINING.

During the year a considerable part of my time was occupied in the performance of duties of a special character, which included the examination of several areas of lands comprised in the West Coast coalfields in connection with the proposal to establish State collieries, and the supervision of prospecting-works. These, in conjunction with the various other departmental and office duties, prevented my making my usual visits of inspection to several parts of the colony.

The reports of the Inspectors of Mines for the respective districts, and also those of the several Wardens, will be found very complete. These, together with the information which is published monthly by the Department in the columns of the *New Zealand Mines Record*, render a voluminous annual report from me altogether unnecessary.

QUARTZ-MINING.

Taking quartz-mining as a whole, the industry may be regarded as satisfactory. In the North Island the Waihi Company's mines have not only materially increased their output, but the developments carried on during the year have still further proved the value and permanence of the company's property. As pointed out in the report of Mr. Warden Bush, the large output of these mines would have been larger still had the work not been affected to some extent by labour troubles. Indications of a favourable character are also to be noted in connection with several other properties, and as these become more fully developed, and the most approved modern methods and appliances adopted for the treatment of the ores, the maintenance of the position occupied by this branch of the gold-mining industry will be fully assured. The success which has attended the scientific treatment of the complex ores raised at the Monowai Mine, Waiomo, and referred to in the reports of Mr. Coutts, Inspector of Mines, and Mr. Warden Bush, is very satisfactory, and should tend to encourage further enterprise in a similar direction. There are reefs in various parts of the colony which are of a somewhat complex nature, and if the ore from these were to be thoroughly tested, and the best method of treatment arrived at, there seems no reason why such should not be worked on a systematic and comprehensive method to a profit.

During a visit to the Reefton portion of the West Coast Mining District I was pleased to notice the manner in which working operations at several of the quartz-mines are concentrated. In all probability, the comprehensive methods adopted here more nearly approach the conditions mentioned in my last annual report (as desirable for the working of low-grade ores) than is the case in any other mining district in the colony, and the results obtained are ample justification for the procedure. In the case of the New Inkerman Mines regular crushing has not yet begun, but the property is being opened out at various levels and the body of stone well proved. The foresight displayed, and preliminary work accomplished before attempting to put out a large tonnage of ore, must result in the mines being eventually worked with economy.

Where fairly large bodies of low-grade ore exist, thoroughly comprehensive methods embodying concentration of operations, with consequent economy in expenditure for labour and material, must be adopted to make the working of such reefs a commercial success.

Quartz-mining in the Southern district has been very quiet during the last two or three years, the late "boom" in dredging having overshadowed every other branch of gold-mining for the time being. Quite recently, however, a little more attention has been directed to the reefs; and I cannot but think that, if the energy and enterprise which have characterized the mining and metallurgical research and subsequent development of some of the properties in the Northern and West Coast districts were to be devoted to the reef systems of the south, good results would be obtained. Reefs exist which could be worked economically if handled on a fairly large scale, but other methods than amalgamation are required to extract the gold contained. This is a matter which has not received the attention it deserves.

In another portion of this report I reproduce information recently issued by the Australasian Ore-concentration Syndicate (Limited), of 4, Bishopsgate Street Within, London, E.C., descriptive of the "Elmore" method of the concentration of ores by oil. This patented process is at work on a commercial scale at a copper-mine in Wales, which is said to have been a losing concern prior to the adoption of the "Elmore" method; and from copies of reports I have seen by eminent mining engineers whose reputations are firmly established throughout the mining world, there appears to be a reasonable prospect of the process meeting the requirements of some of the mines and undeveloped reefs of this colony.

In an examination of the plant at work in Wales by one well-known engineer it was found that about 85 per cent. of the values contained in the ore was saved by this process, as against 15 per cent. by ordinary water concentration as previously carried out with the best machinery that could be got. The ore in this instance was of low grade. Another report on a test parcel of ore by both the ordinary and the "Elmore" processes of concentration gives the following results: Recovery by water concentration, 32·62 per cent. of copper, 35·23 per cent. of gold; recovery by "Elmore" process, 85·10 per cent. of copper, 75·00 per cent. of gold. Results such as these will no doubt lead the managers of New Zealand mines to inquire into the question for themselves.

HYDRAULIC AND ALLUVIAL MINING.

With the exception of the commencement of sluicing operations in connection with the works of the Humphrey's Hydraulic Sluicing Company (Limited), at Humphrey's Gully, near Hokitika, there are no very important developments on an extensive scale to report for the year in this branch

of gold-mining work. For some considerable time past the company referred to have been engaged in extensive and costly works, comprising the construction of water-races and other necessary erections, and are to be congratulated on having at length reached a productive stage. The engineer, Mr. E. W. Spencer, reports having erected gold-saving tables at the end of the ordinary wash-boxes. These have proved very effective in catching the fine gold, as much as 27 per cent. of the gross yield being saved by this means. The results are further proof of the loss of fine gold which takes place at many sluicing claims where tables are not provided. This is a feature to which I have repeatedly drawn the attention of various claim-managers, and have the satisfaction of knowing that the results obtained by the subsequent adoption of tables has led to mining operations which were previously carried on at a loss becoming commercially successful.

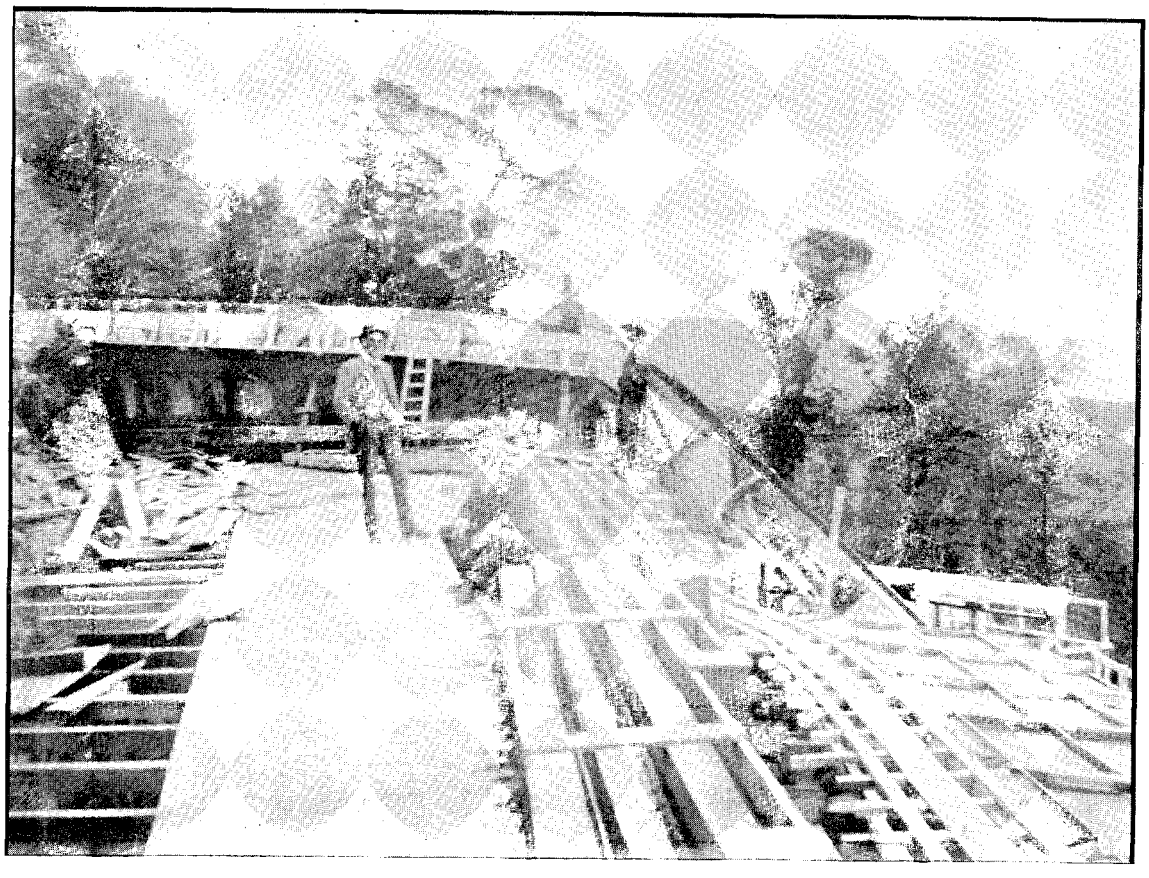
In connection with the question of saving fine gold, Mr. H. W. Young, A.M.I.C.E., of Greymouth, who has had considerable experience in the West Coast goldfields, has very kindly placed the following notes and accompanying drawings, together with photographs showing the Waiwhero Sluicing Company's plant at Barrytown, at my disposal for the purposes of this report. Mr. Young says,—

"I may premise that, excepting amongst those more or less familiar with the subject, great misapprehensions exist as to the practicability of economically working what is vaguely termed 'black-sand' ground, and of saving the very fine gold with which black sand is frequently associated. Many regarded this as a mysterious and insoluble problem, and there was a widespread delusion that fine gold never was or could be profitably recovered from black-sand wash. These views are disproved by the history of the industry on the West Coast, for the golden beaches were discovered in the first year of the rush, and have contributed a most profitable and large proportion of the whole yield of these goldfields. The beach-workings of the earlier period extended more or less throughout the entire length of the coast-line, and were held in small claims, worked in most cases by 'paddocking.' Thus the overburden was removed by stripping, and cast aside, only the leads or layers of concentrated washdirt being washed. The gold was saved on plush, &c., by cradles or toms, or by copper plates. The washdirt usually contained a large proportion of black sand, and was sometimes almost entirely of heavy black and grey sands. The quantities dealt with and the appliances required were small, all operations being carefully conducted by hand. As usual, the miners tested and watched their tailings, letting no gold escape that it would pay them to save. By degrees, and as the richer deposits were worked out, small water-races were brought in and ground-sluicing resorted to, also the process known as 'beach-combing' or 'haymaking,' by which were worked the gold-bearing black sands sorted out and deposited on the beaches by wave-action. Many tracts of beach have thus been continuously worked for more than thirty years, often by their original holders or their descendants. The modes of working such claims have not materially altered, though many ingenious devices in connection with them may be observed.

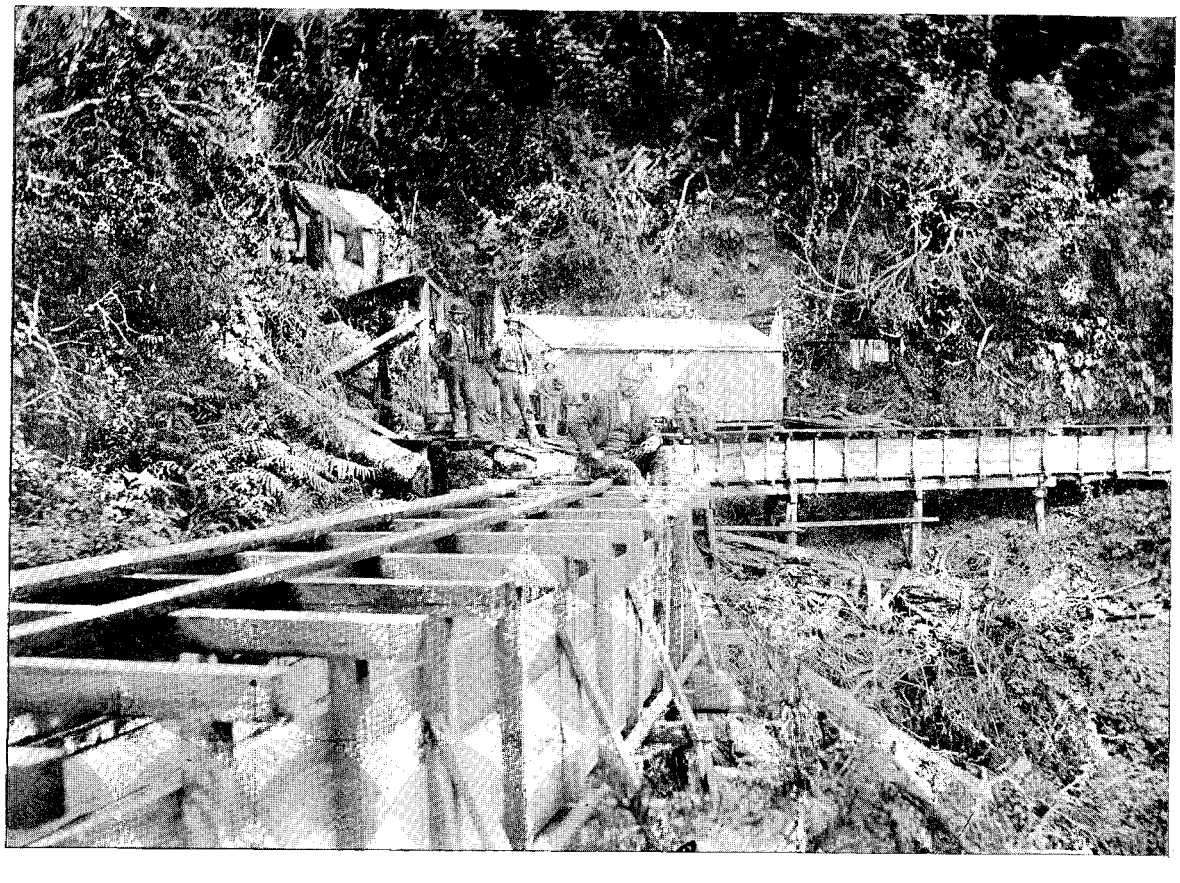
"Fine-gold working on a large scale has been largely confined to and developed in the vicinity of Westport, where extensive gold-bearing marine deposits exist. When the richer leads were worked out in small claims, poorer ground in larger areas was taken up, and the systematic development was begun of washing-appliances capable of putting through large quantities of comparatively poor dirt at a cheap rate. At first the plant was generally somewhat similar in construction to the American undercurrent tables, having a main cross-launder discharging on to the tables through numerous small gates, but this and other arrangements and details gradually developed according to experience. During the period of development there was no lack of means to supply the plant, or of skilful and observant men to adapt it to its purposes. Innumerable experiments of all kinds were tried, some leading to progress and others abandoned after failing to stand a working-test, and it is interesting to note that amongst the latter are many which have been recently suggested or patented as up-to-date novelties.

"Without going into the particulars of older forms of tables, and confining these remarks to the general Westport type and improvements on it, it may be said that the modern fine-gold-washing plant as used on the West Coast consists of three main essential parts. The first is the hopper-box with stone-shoot, which receives the water and gravels from the tail-race connecting with the sluicing-face, and separates the stones and shingle from the water and sands. The second comprises the 'sand-box' or 'boil-box,' with its discharge-ducts and other accessories, intermediate between the hopper and the tables. The third comprises the washing-tables and their accessories. These three essential parts deal with the stuff from the face and reduce it to concentrated gold and heavy sand ready for amalgamation. While these three features are necessary elements in any successful plant, they differ in form and detail in various constructed examples. Some four years ago, as engineer for the Waiwhero Sluicing Company, it was my business to provide working-drawings for a plant of medium size, and later for a much larger one, both of which have stood long and satisfactory working-tests; also (for other companies) designs for somewhat similar plants, but with modifications to suit special circumstances. Based on a knowledge of the successes and failures of the Westport district, and with all available information from those who had special experience in the matter, it was possible to make designs embodying and improving on the best practice of the time. It may be best to describe this in detail, noting possible variations or improvements, as the conditions and necessities of each case may require special attention and modifications.

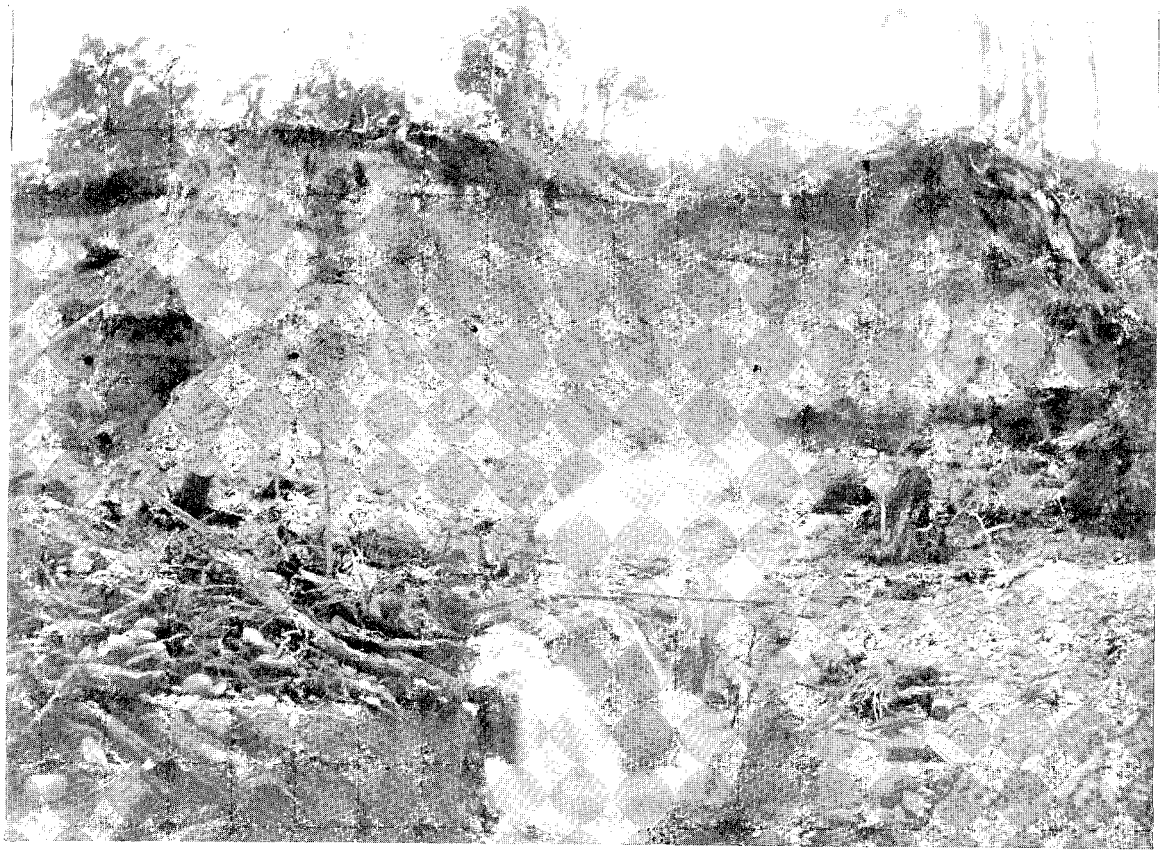
"The object of the hopper-box is to receive the discharge of the tail-race from the sluicing-face and eliminate the coarser stones from it. The most suitable width for the hopper-plates is 3 ft. for small water-supply up to, say, five heads, and 4 ft. for larger ones. The plates should be square, of equal breadth and length, so that they can be turned round and over to equalise wear, and of steel $\frac{3}{8}$ in. thick, punched (not bored) with holes $\frac{7}{16}$ in. in diameter, about $1\frac{1}{8}$ in. pitch on diagonal lines. The plates are subject to great scour, necessitating frequent renewals,



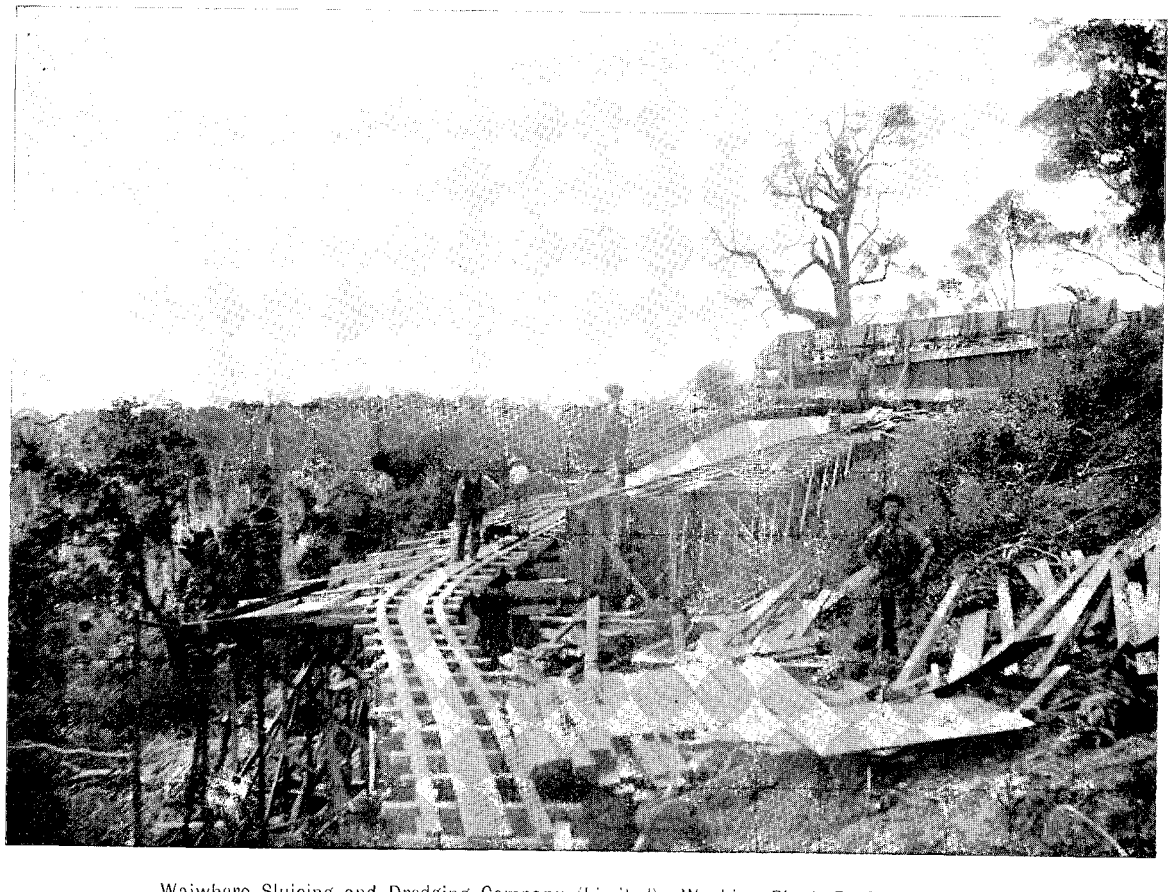
Waiwhero Sluicing and Dredging Company (Limited : Washing Plant, Buckley's Terrace. Tables, looking south from level of ducts.



Waiwhero Sluicing and Dredging Company (Limited): Main Canoe Creek Water-race, thirty-five heads capacity, six miles and a half long.



Waiwhero Sluicing and Dredging Company (Limited). Sluicing Face, Buckley's Terrace (250 ft. above H.W.M.).



Waiwhero Sluicing and Dredging Company (Limited) Washing Plant, Buckley's Terrace.

Drawing No 1.

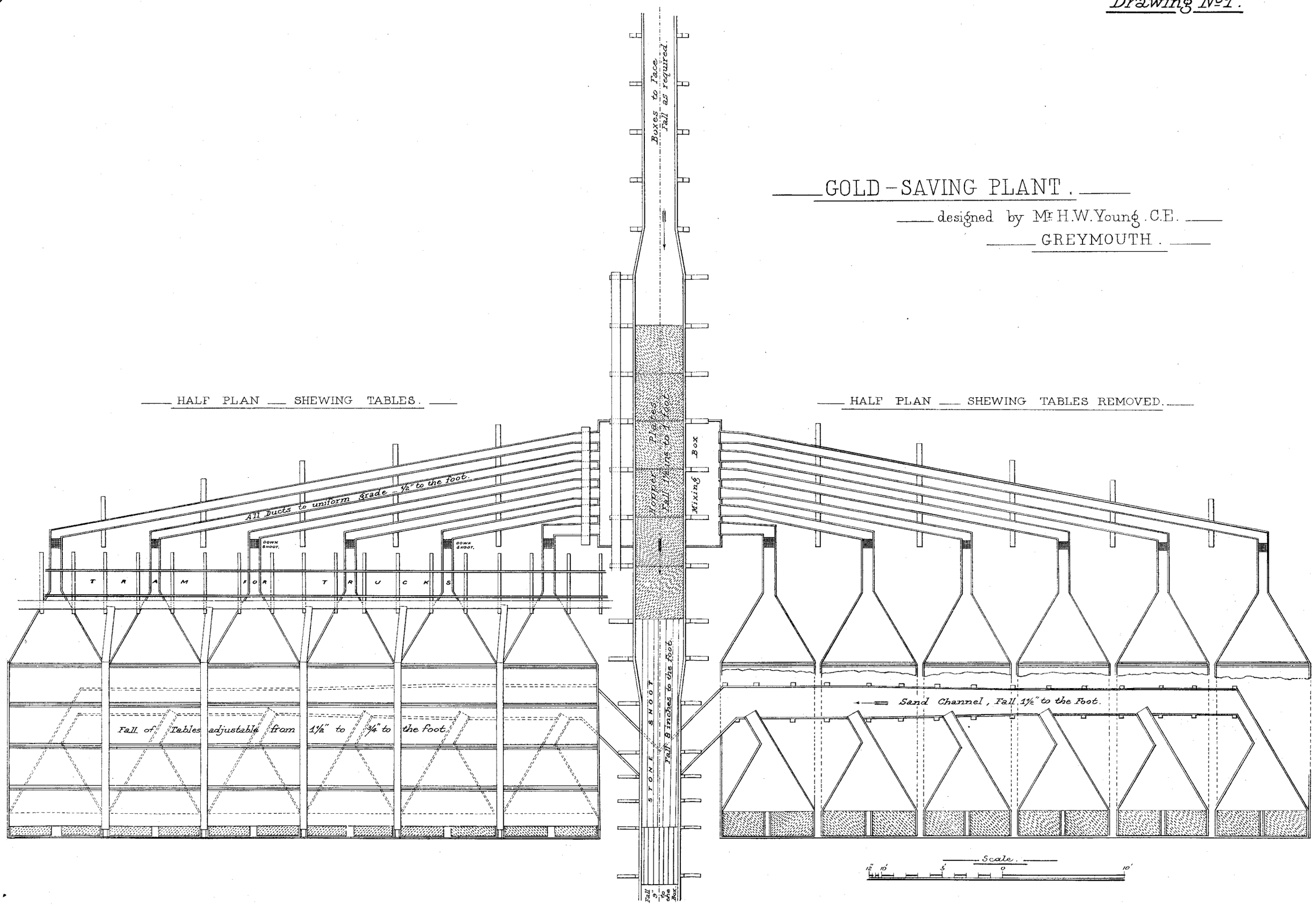
GOLD-SAVING PLANT.

designed by Mr H.W. Young. C.E.

GREYMOUTH.

HALF PLAN — SHEWING TABLES.

HALF PLAN — SHEWING TABLES REMOVED.



C.H.P. delt.

By Authority: John Mackay, Government Printer.

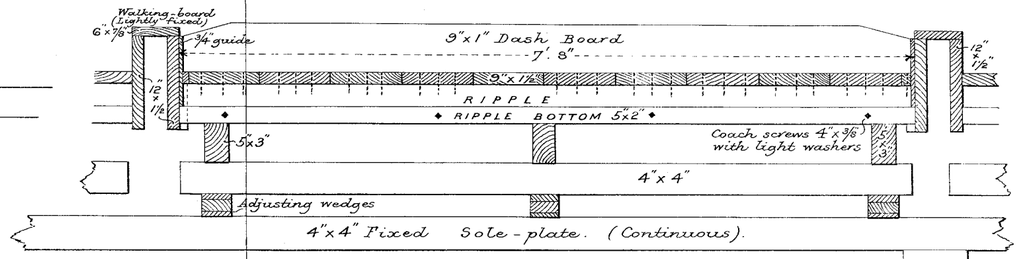
2.250 5.02 231

Drawing №2.

GOLD-SAVING PLANT.

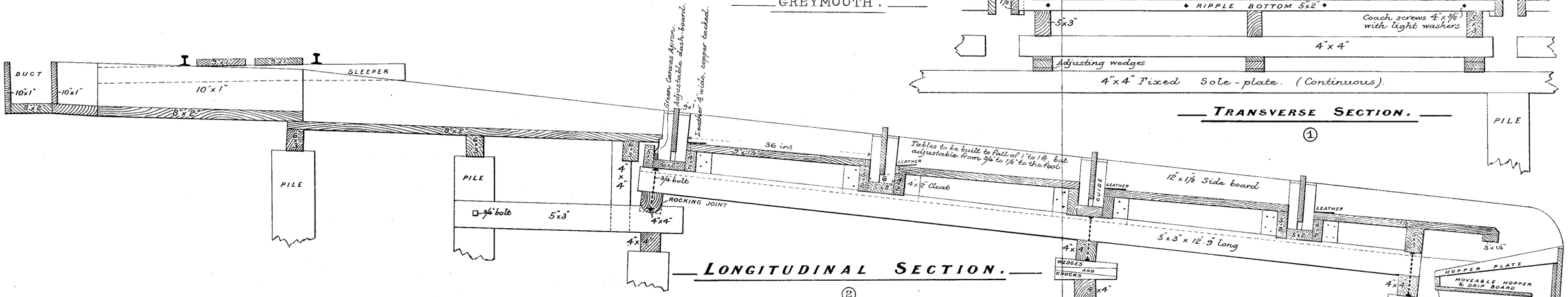
designed by Mr H.W. Young. C.E.

GREYMOUTH.



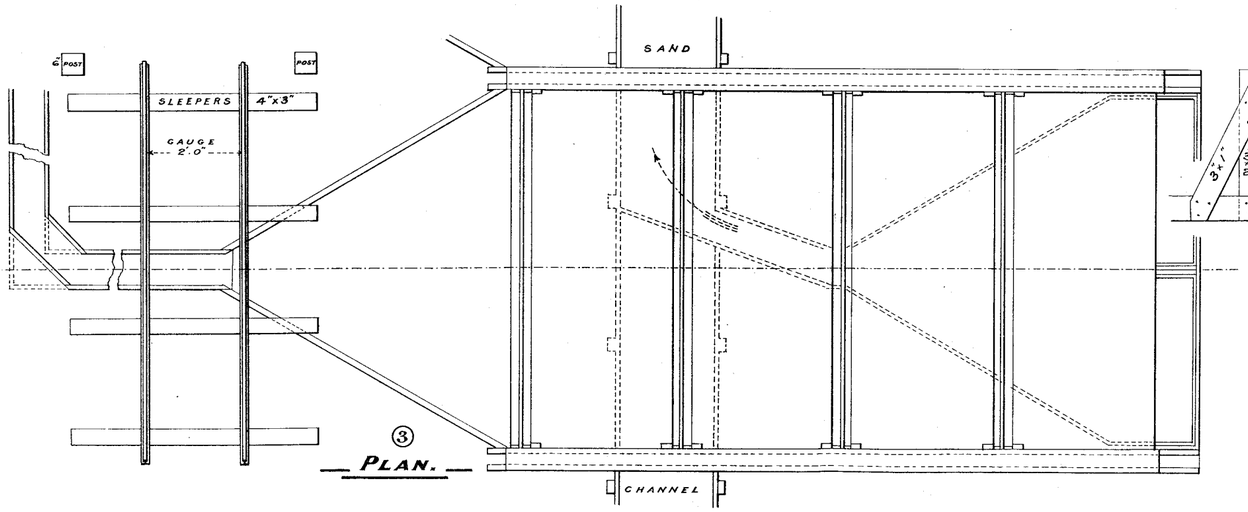
TRANSVERSE SECTION.

①



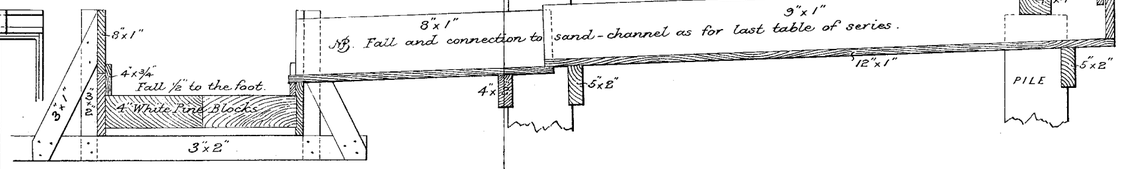
LONGITUDINAL SECTION.

②



PLAN.

③



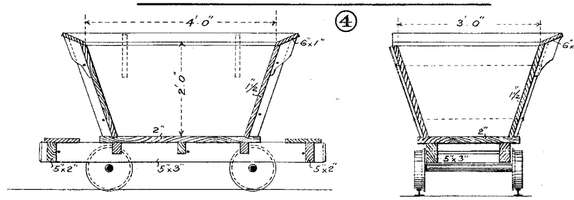
NOTE.

Faces of Table-boards to be dressed, & ends gauged to thickness & close jointed to ripple timbers.

Inside faces of ducts, tables &c to be dressed. All joints to be shot close and well primed with red & white lead.

SECTIONS OF WASHING-TRUCK.

④



C.H.S. del.

By Authority: John Mackay, Government Printer.

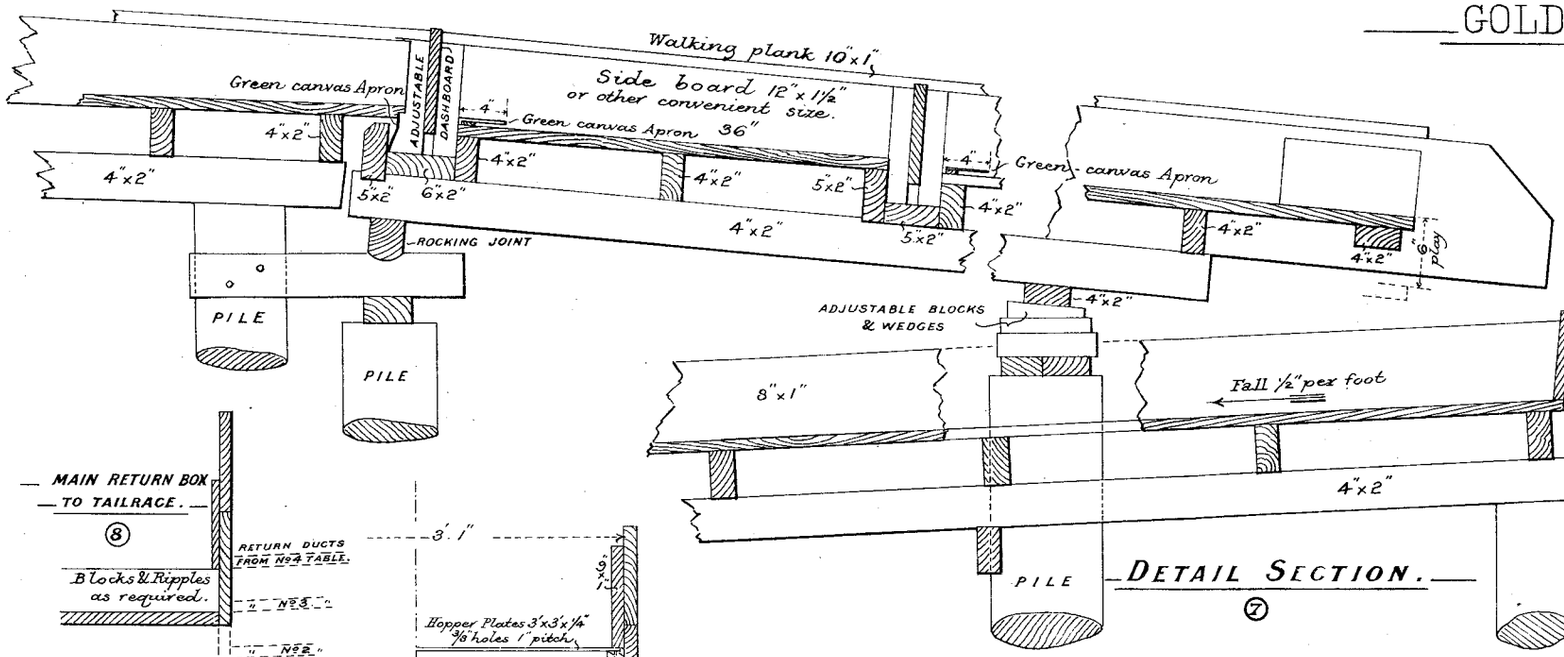
2250 5.08 231

Drawing No 4.

GOLD-SAVING PLANT.

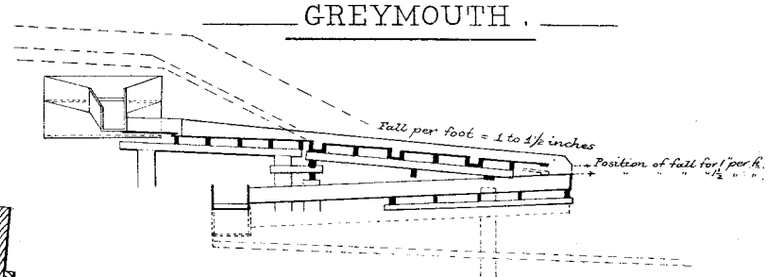
designed by Mr H.W. Young. C.E.

GREYMOUTH.



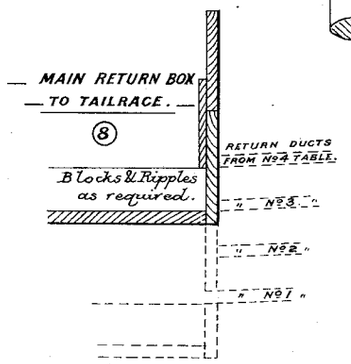
DETAIL SECTION.

⑦

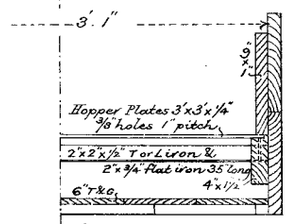


GENERAL SECTION.

②



⑧

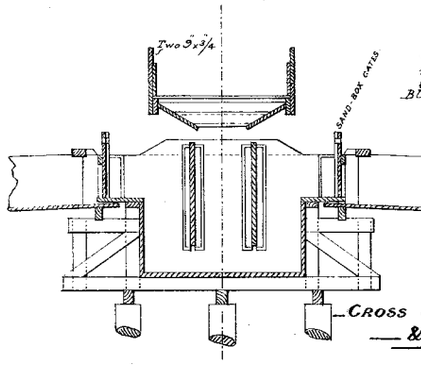


½ CROSS SECTION OF HOPPER BOX.

⑨

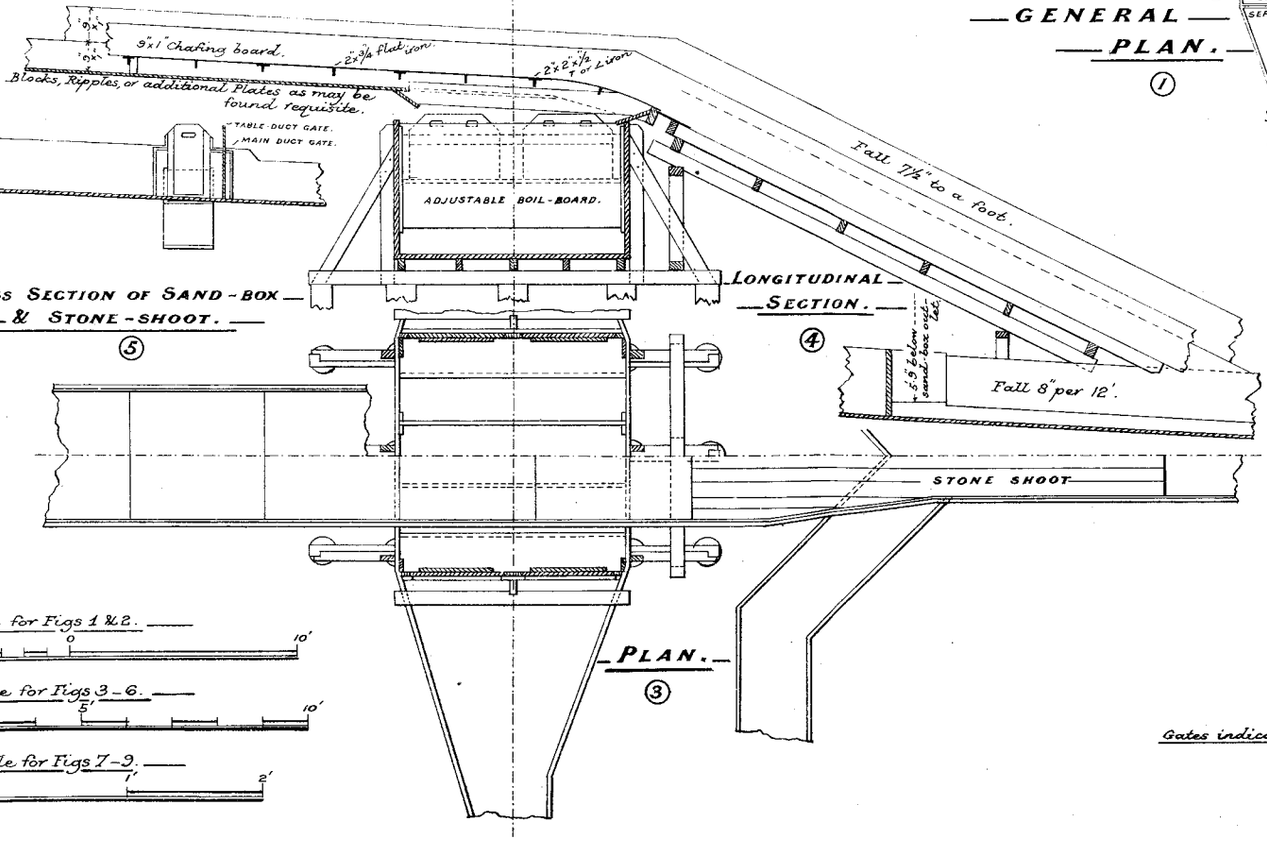
GENERAL PLAN.

①



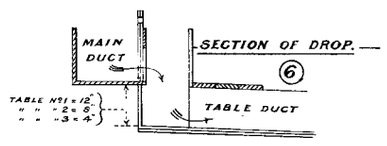
CROSS SECTION OF SAND-BOX & STONE-SHOOT.

⑤



LONGITUDINAL SECTION.

④

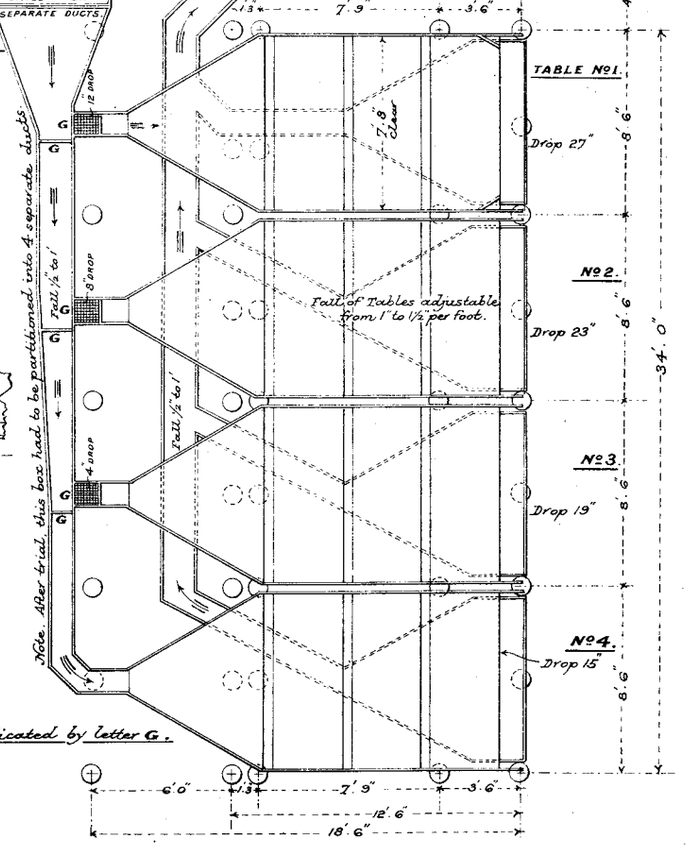


SECTION OF DROP.

⑥

PLAN.

③



Note. After trial, this box had to be partitioned into 4 separate ducts

Gates indicated by letter G.

Scale for Figs 1 & 2.

Scale for Figs 3-6.

Scale for Figs 7-9.

C.H.P. delt.

By Authority: John Mackay, Government Printer.

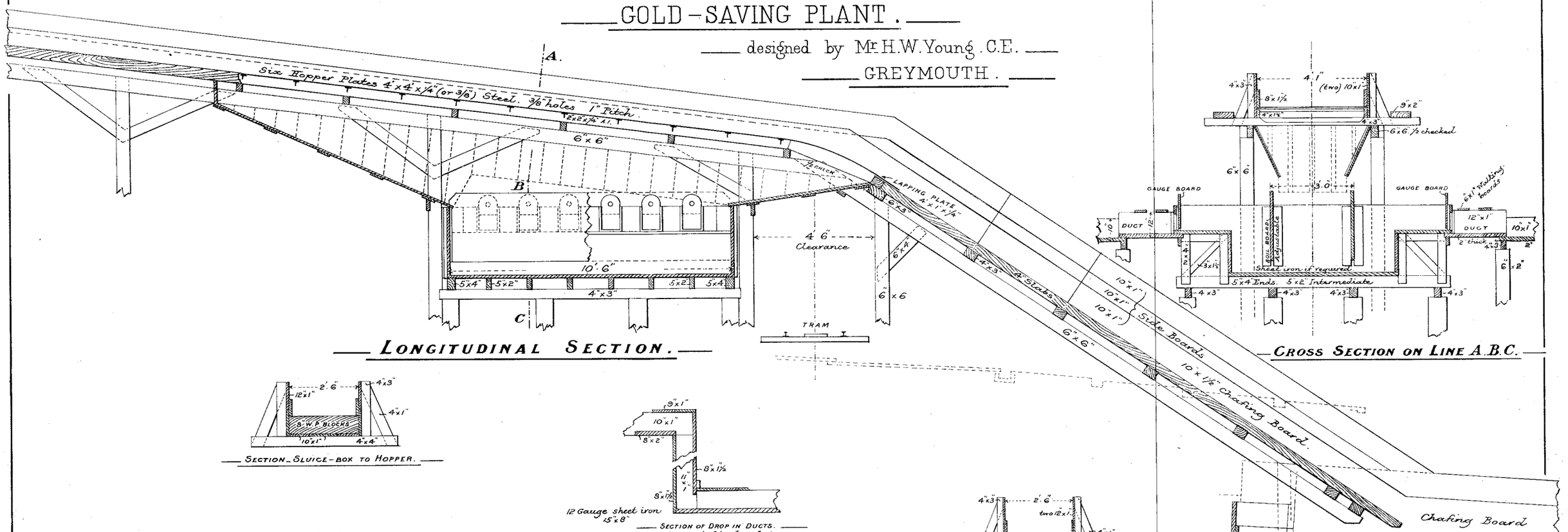
2.250 5.02 231

Drawing No. 3.

GOLD-SAVING PLANT.

designed by Mr. H.W. Young, C.E.

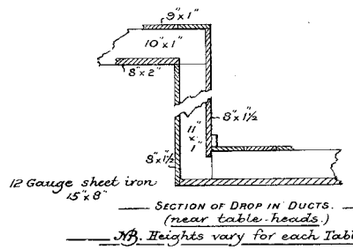
GREYMOUTH.



LONGITUDINAL SECTION.

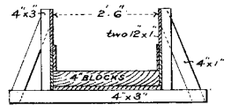
CROSS SECTION ON LINE A.B.C.

SECTION SLUICE-BOX TO HOPPER.

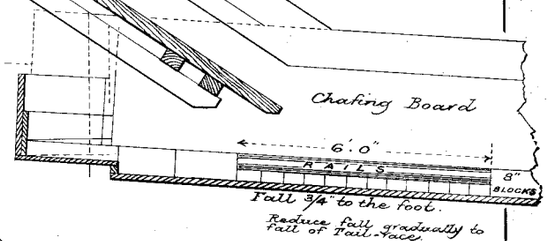


SECTION OF DROP IN DUCTS. (near table heads.)

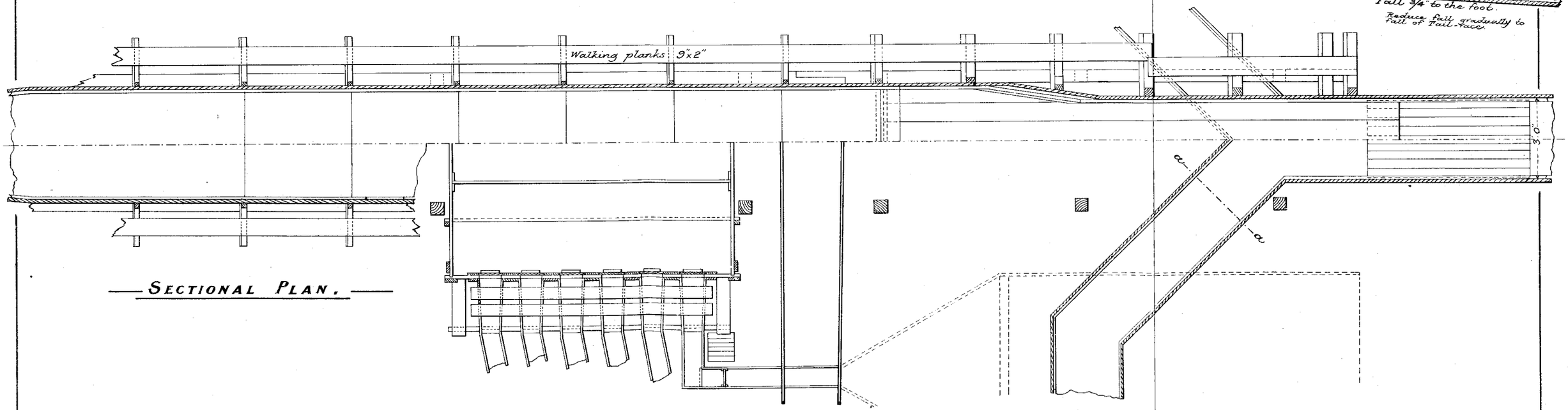
NB. Heights vary for each Table.



SECTION ON LINE aa.



Scale.
12" 6" 0 5' 10'



SECTIONAL PLAN.

C.H.P. delt.

By Authority: John Mackay, Government Printer.

2250 502 231

and are so far made of the ordinary market mild steel. A harder steel, if obtainable, would be more durable and cheaper in the end. The best size of perforation for hopper-plates has been a matter for experiment by myself and others, variations from $\frac{1}{4}$ in. to $\frac{5}{8}$ in. having been put to working-tests. It is proved that holes of less than $\frac{3}{8}$ in. diameter unduly limit the discharge through the plates, are liable to choke, and that there is no advantage whatever to be gained by their use. The discharge through $\frac{7}{16}$ in. holes is sufficient in amount, and the fine shingle particles which pass through with the sands, and seldom exceed $\frac{1}{4}$ in. in diameter, are not troublesome in their size or quantity; in fact, many consider that they are of benefit in keeping lively the sands on the tables. With holes exceeding $\frac{7}{16}$ in. in diameter, the size and quantity of small shingle becomes excessive, and the water passes away so rapidly as to prevent material from being carried forward over the plates. The hopper-plate box should be graded so that, as nearly as possible, the water and fine stuff will just disappear through the plates as the 'hopperings,' or coarse shingle, slide into the stone-shoot, which is a steeply inclined box carrying the hopperings into a tail-race or tip-head. Owing to variations in the water and gravels it is impossible to make this process fully automatic, but it can be made nearly so, and requires very little attention. This depends upon the proper adjustment of the grades and length of the hopper-box to suit (*a*) the quantity of water in use, (*b*) the nature of the stuff, and (*c*) the state of the hopper-plates, which varies greatly as the holes get bevel-edged and worn. Much adjustment is obtained by using plain unperforated plates to blind a suitable length of hopper-surface at its upper end, or by narrowing it at the sides.

"In the latest plant I have devised and introduced an improvement by making the grades of the hopper-box easily adjustable. Instead of being built in and fixed to its framing, the hopper-box is formed in sections hinged together, so that it can be adjusted to whatever combination of grades best suits the conditions of the time. Instead of hopper-plates, bar screens or grizzlys have been tried, but these get choked with the thin flat stones common in beach-wash. As some amount of water and sand find their way over the hopper-plates and down the stone-shoot, it is necessary to insert screen-bars in the upper part of the shoot to save this, and to carry the sand either to a separate table or to one of the main tables. The stone-shoot grade is too steep for hopper-plates, and the grizzly is thus necessary.

"The tail-race from the sluicing-face should widen out and have a low grade at its junction with the hopper-box—say, 6 in. to the box, or 1 in 24—and for a short distance the hopper should have the same grade, gradually increasing as the stone-shoot is approached.

"The sand-box is placed directly under, and in line with, the hopper, and receives the water and sand discharged through the hopper-plates. In some plants the sand from the hoppers is received on boarding arranged like a pent roof, with its ridge under the centre-line of the hopper-box. This boarding divides the sand and water into halves, shedding one on either side, where it is received into long parallel troughs acting as sand-boxes for each wing of tables respectively. The objection to this halving operation is that an equal number of tables must be kept going in each wing, while with the central box any inequality in the number of tables on each wing does not matter. The central sand-box must have a length proportional to the number of tables to be served, the distance between centres of outlet-gates being about 18 in. The best width is 10 ft. clear, of which a width of 2 ft. on each side is 1 ft. in depth from the top of the box, and the central width of 6 ft. is 2 ft. 6 in. deep. In this central portion are fitted longitudinally two vertical boards or partitions fully 2 ft. wide, held in slides so that they can be adjusted to a sufficient height above the bottom of the box, usually about 7 in. to 9 in. These boil-boards are placed about 3 ft. apart. A shrouding of match-boarding extends from each side of the hopper-box to the level of the top of the boil-boards, where the sides are drawn in to a distance of about 2 ft. from each other. Similar boarding extends from the ends of the hopper-boxing into the sand-tank, the whole of the sand and water thus being delivered into the space between the boil-boards. By this means the water in the sand-box is kept in a constant 'boil,' with the sand in suspension and unable to settle. In the shallower wings the agitation is less, though enough to prevent settlement. Gates consisting of wooden slides, with an opening of about 8 in., are placed in the wings, and regulate the discharge into the ducts leading to the table. In long sand-boxes it is necessary to control the discharge of stuff into the sand-box, so that the sand is distributed throughout its length, but in short boxes this is unnecessary. A clean-water flume should be fixed round and into the box, so arranged that water can be let into any duct for streaming down its table or for filling the sand-tub. In some cases tail-water from the amalgamator water-wheel provides this flushing-water. From the regulating-gates of the sand-box the water and sand is led to the various tables by ducts having a cross-section 8 in. by 8 in. in clear. These ducts can be made in separate boxes, with 8 in. by 2 in. bottoms and 10 in. by 1 in. sides, or by laying down a floor of 6 in. by 1 in. T. and G. boards, and subdividing this into boxes with 8 in. by 1 in. partitions. Experience of both methods is in favour of the separate boxes.

"The ducts require setting to a gradient of 1 in 24, or steeper if there is much heavy sand, with vertical drop-boxes to adjust the surplus fall. The ducts discharge on to the top member of each table called the 'V' piece. This portion of table is fixed permanently level, is in length about three-quarters of the width of the washing-table, and in its own width tapers from duct-width to table-width. It is not used for gold-saving, its function merely being to convert the narrow duct current into a regular shallow stream of full table-width.

"The washing-tables themselves should always be made adjustable for fall, which requirements can be attained by simple and cheap means. It was the usage to make the tables fixtures, at grades supposed by their builders to be suitable, but which in practice had to be repeatedly altered and rebuilt at great expense. The hinging of the table to its 'V' piece in such manner as would obviate loss of water and sand can be effected by simple devices. A prime essential for any satisfactory washing-table is that the fall of the table can be

easily altered and adjusted to suit the nature of the stuff treated and the quantity of the water used. The range of adjustment should be between 1 in. to the foot to 2 in. to the foot. From careful experiments with a mixed quality of old beach-wash and its overburden, containing a fair but not large proportion of black sand, I found that 1½ in. to the foot just reached the maximum and 1¼ in. the minimum working-fall, and adopted 1⅜ in. as a good working-mean. The best fall in any particular case must depend on the lightness or strength of the gold, the nature of the wash, and especially the proportion of heavier sands, and the quantity of water available, the object always being to save the greatest possible percentage of gold and to deal with the largest possible quantity of material. With regard to the best width and length of tables, opinions differ. Narrow tables are objectionable, and widths of 4 ft. or 8 ft. are most generally used. The Waiwhero tables are 8 ft. wide, and a considerable experience of their working has disclosed no reason for altering or subdividing that width. As the table-sides induce a little scour on the saving fabric and are unfavourable to gold-deposit, it is evident that the proportion of edge to surface should be the smallest possible, and that therefore a table should be of the greatest width it is expedient to use. The evolution of the Westport district arrived at tables about 8 ft. wide, constructed longitudinally, with four panels or strakes of plain surface, each 4 ft. long, and with cross-trough ripples between the 'V' piece and the first strake and between adjacent strakes. I tried a reduction of strake-length to 3 ft., with four strakes, and found in practice the 3 ft. more than sufficient; that fully nine-tenths of the gold was deposited on the first strake, and practically the whole remainder on the second strake, with very few colours on the third, and therefore reduced subsequent tables to three strakes each. Where the gold is of the lightest quality, however, it is better to have a greater number. The length of strake can, however, be reduced to 2 ft. or less, as the gold-saving is practically confined to a length of 12 in. or 15 in. below the ripple, and any length below that merely serves to regulate the water-current before it descends into the next trough. Four strakes of 2 ft. each would make an excellent table.

"The water issuing from a trough reaches the table-plush with a downward current, bringing the gold into contact with, and bedding it in, the plush. Whenever the flow has resumed its horizontal current the gold remains in suspension, and tends to remain in its particular layer of water until a vertical disturbance carries it downwards. The usual trough-ripple is 5 in. wide in clear, 4½ in. deep from the table-surface at the upper side, and 3½ in. at the lower side, fitted with an adjustable dash-board or baffle-board at its centre. The trough is therefore 1 in. deeper on the upper side of the dash-board than it is on the lower side, which gives sufficient head for discharge without backing the water on the strake above. The trough is square, rectangular in section, this form having proved preferable to a curved one.

"In referring to the grade of tables, the fall given to the strakes is meant, not including the inch allowed to each trough. It is a good plan to fix the last and lowest strake with a fall of, say, 1½ in. to the foot in excess of the others, so that cocoanut-matting or other rough material may be used to trap any floaters that may have escaped.

"The manner of laying on plush or other gold-saving covering is as follows: Immediately below each trough a strip of leather about 4 in. wide is tacked along its upper edge on to the table. This forms a long flap, under which the upper edge of the plush is snugly laid. Instead of the leather, canvas can be used, but neither handles nor lasts so well, though much cheaper. The plush for 8 ft. tables should be 52 in. wide, as this allows for shrinkage and lap. It is better cut into 26 in. widths, which are more easily handled, and laid in four overlapping widths. When the plushes are laid down under the leather apron and overlapping each other they do not require to be held in place by battens or other means, and can be quickly lifted for washing and relaid.

"Various fabrics are in use for saving the gold, but some variety of plush is almost always included. Generally, good plush or other special material is laid on the upper strakes, and some coarser and cheaper ones on the lower. Blankets made for the purpose, or of the ordinary market kind, are in use, but lose their nap and saving efficiency much sooner than plush, and require more frequent renewal. The ordinary market plush fails in the backing, and becomes useless long before the nap is worn; therefore the best of it has a comparatively short life, seldom exceeding three months. To meet this difficulty the Waiwhero Company obtained some specially manufactured fabric, called the 'water-resisting gold-saving plush,' through Mr. James Trent, of Christchurch. A large set of tables was clothed with this in February, 1901, and did not require renewal until the end of that year. It has proved an excellent gold-saver, and, its life being so much longer than that of ordinary plush, it has proved cheaper than other varieties, although greater in first cost. For some reason there remains a 20-per-cent. duty on plushes used for mining purposes, although all other similar imports for gold-saving purposes are admitted free. This tax on industry is a hardship to all dealing with fine gold, and enhances the cost of production.

"The tailings from the tables are usually discharged into boxes leading into the main tail-race, just behind the bottom end of the stone-shoot, so as to carry the hopperings forward to the tailing site or 'dump.' The boxing from the tables may be either placed in a line under the table-ends, in which case a considerable fall is required, or may be carried back under each table to a branch of the main tail-race placed under the tables. Across the head of the tables, and usually along the 'V' piece, a tramway should be laid along the whole range of tables and extending into the amalgamating-shed. The washing-tub, which runs on this tramway, is simply a strong watertight box on tram-wheels, the box being about 2 ft. deep, 1 ft. 8 in. by 2 ft. 8 in. in clear at bottom, and 3 ft. by 4 ft. at top, with sloping 6 in. shelves on the edges of one side and both ends on which the washer can place his cloths. Before lifting the plushes or blankets the table should be shut off from the sand-box, and well streamed with clean water so as to clear off any sludge or surplus sand. The cloths are then rolled up and carefully conveyed to the washing-tubs, washed, and relaid. The washing-tub is then rolled to the next table, and so on until the set is completed, after which the

tub is run to the amalgamator-house. Amalgamation is effected in revolving barrels actuated by a water-wheel. Plushes should be washed every eight to twelve hours, and blankets more frequently.

"In the treatment of wash containing gold it should be possible to easily and at any time alter and adjust the proportions of stuff and water dealt with, also to adjust the hoppers and the fall on the tables, especially when variations in the nature of the ground or in the available water have to be considered.

"Experience has proved the value of the sand-box, of separate and direct ducts from the sand-box to each table, of the trough-ripples, and of adjustable parts, but the dimensions and general arrangement of any plant must be made to suit the conditions of the case. In determining the size required the amount of water available is generally the ruling element. From observation and the experience of those working with tables there should not be less than 10 ft. width of table per sluice-head of water, or 60 cubic feet per minute, and 12 ft. of table or more per head is better. In sluicing it requires special experience to keep the stuff moving regularly down the tail-race, or the tables may be alternately under- and over-fed. In dredging, the delivery of dirt should be more regular, and therefore require the minimum proportion of water.

"I have endeavoured to ascertain the quantity of wash per sluice-head which can be dealt with by table-washing on a large scale. From measurements and estimates of the ground worked, and with carefully kept records of the hour-heads expended in working it, I conclude that the average quantity of ground per hour which one sluice-head can deal with is about 5 cubic yards. This result must differ in various cases, because the fall and capacity of the tail-race, the proportions of material which go respectvely over the stone-shoot and tables, and other elements have to be considered. In the two cases from which my estimates were made, one fall was of very sandy beach-gravel with a considerable overburden of coarse shingle, while the other had very sandy washdirt with an overburden of blue-reef pug."

Drawings Nos. 1, 2, and 3 show the general arrangements in plan and section of a plant erected at the Waiwhero Sluicing Claim, near Barrytown. It has been found in some instances that the very strong winds have a tendency to lift the adjustable tables at their upper end when fitted with the rocking-joint shown. To meet this an improved joint has been designed, which is strong, easily fixed, and inexpensive. The table-joist end runs between two studs—say, 4 in. by 2 in.—and rests in a stirrup of $2\frac{1}{4}$ in. by $\frac{1}{4}$ in. iron, with perforated side. A pin of $\frac{5}{8}$ in. round iron passes through the studs, joists, and stirrup, making a very secure hinge-joint. The drawing No. 4 gives a good example of a small cheap plant if modified in construction so as to have the improved table-joint, separate distributing-ducts, and tables having three strakes of 2 ft. length, with a fourth and lowest strake, say, 3 ft. long, and with extra fall of about $1\frac{1}{2}$ in. per foot.

DREDGE-MINING.

As was to be expected as the result of the recent "boom" in both the West Coast and southern goldfields, a large number of investors have gained an experience in which disappointment is the leading feature. Numerous dredges have been built and put to work: in some instances dredges were not suited to the work required to be done; in others the conditions of the ground to be worked were not suitable for dredging.

It must not be considered that the designers of dredges are to be entirely blamed for the first condition named, as the rush of business brought about by the "boom" was such that engineers were not, in many instances, allowed time to properly consider the requirements of claims (many of which were inadequately tested), and reliable data for their guidance was frequently not available. As regards the second condition, many applicants for shares took little or no trouble to inquire into the *bona fides* of the claims or their suitability for dredging, and thus claims which might probably be worked to advantage by hydraulic mining, but not by dredging, were taken up as dredging claims, with results that any independent person with only a slight knowledge of alluvial gold-mining might easily see could only prove financially disastrous.

The impetus given to dredging by the "boom" has passed, and as actual work proves the value or otherwise of claims, as well as the suitability or unsuitability of the dredges employed, this branch of gold-mining is settling down to a steady industry, which will, it is to be reasonably expected, continue for many years to come. There is little doubt that the returns for dredging would have been much greater than they were during the year but for the fact that some of the larger rivers were high for a much longer period than is usual, consequently those dredges at work in rapid currents and gorges were of necessity stopped for a considerable portion of their time.

The following summary shows the number of dredges working, building, standing, and under removal at the end of the year:—

—	Working.	Standing.*	Building.	Under Removal.	Total.
West Coast district ...	36	8	29	...	73
Southern district ...	147	25	30	19	221
Totals	183	33	59	19	294

The above statement shows an increase of thirty-eight working dredges as compared with those of the previous year.

* Some of the dredges under this heading have been sold for removal.

As each working dredge is, on the average, responsible for the direct employment of about a dozen men (including coal-miners and carters), it will be seen that the present state of the industry gives occupation to over two thousand persons, without taking into consideration those who are employed in the manufacture of machinery both in and beyond the colony, as well as in the building of pontoons, erection of machinery, repairs, removal and rebuilding of dredges, cartage of material, and in the various incidental requirements of this branch of the mining industry.

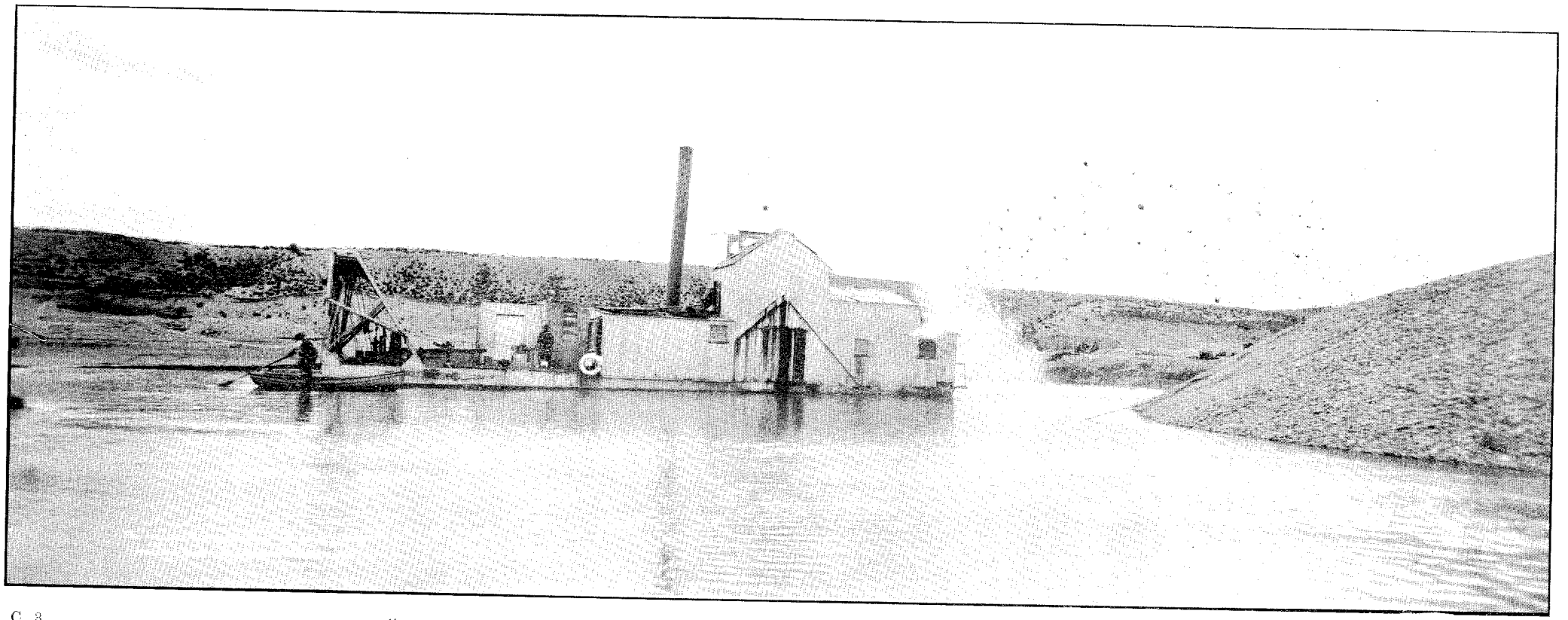
The safety of workmen employed on dredges continues to occupy the attention of the Inspectors of Mines, and it is found that both dredgemasters and workmen are becoming more observant of the regulations issued in this respect, and the dredges are, as a rule, kept well equipped with the required safety appliances. The great majority of fatal accidents in connection with dredge-mining are by drowning, and it is to be feared that carelessness, if not recklessness, on the part of employees (especially in the handling of boats in swift-running rivers) is often the cause of such accidents.

In regard to the construction of dredges for work in the West Coast district, experience has demonstrated the necessity of increased powers and strengths of machinery (as compared with the usual practice found suitable to the characteristics of the Southern district) to successfully deal with the tight wash, large boulders, and buried timber which are met with in many of the claims. This is a feature which will doubtless be dealt with by engineers in designing future dredges.

The most novel and striking improvement which appears to have been introduced during the year is that of the centrifugal tailings-elevator patented by Messrs. Payne and Peck, of Dunedin, of which a drawing is given. A photograph showing the machine at work on board the Ngapara dredge, Alexandra South, is also reproduced. This elevator is, I understand, working very satisfactorily, and at my last visit to Dunedin I saw a larger machine (intended to replace a ladder elevator) in course of construction for the Sandy Point dredge working near Alexandra South. As this dredge ranks as one of the largest at work, and has a deep bank-face to excavate, in addition to what is lifted from below water-line, its stack of tailings is necessarily high. The adoption of the new elevator on this dredge is being watched with much interest; the test may be considered a fairly severe one, and if successful here its future may be reasonably considered to be assured.

The following paragraph from the *Otago Daily Times* of Monday, the 27th May, 1901, describes the trial at Dunedin of what may be termed an 'experimental machine,' improvements having been effected in those of later design:—

"*Trial of a New Dredge Elevator.*—A practical test of an invention which, if what is claimed for it is borne out in its actual use, will very largely decrease the cost of dredge-construction took place on the reclaimed ground on Saturday afternoon in the presence of a large number of gentlemen interested in mining. The machine is the invention of Mr. W. Peck, with whom Mr. F. W. Payne, consulting engineer, is associated in the patent rights. The invention is intended to do away with the elevator at present in use on dredges, and it simply throws the stuff away with great force. In the first test on Saturday about 5 tons of stone, some of which consisted of rubble about 1 ft. in diameter, was put through the machine, and it disposed of this readily, throwing the most of it to a distance of about 100 ft., while some of the larger stones were cast as far as 300 ft. In the second test the stone was bagged, and emptied down the shoot in a continuous stream, and the result was even more satisfactory, the material being hurled away to a distance without any trouble. The trial with the stone used was perfectly successful, and, given the same results with the varied material that is taken up in the elevator-buckets on a dredge, the invention is a most important one to the mining industry. The machine consists of a wheel or drum with beaters or vanes somewhat similar to a water-wheel. The general dimensions of the machine under trial on Saturday were 5 ft. diameter by 3 ft. wide, with four beaters or impact plates. The machine was driven at a speed of 240 revolutions per minute. The tailings are delivered on to the periphery of the drum, and, being struck by the revolving beaters, are projected in the required direction. The advantages of the machine are obvious. In the first place, the cost of this machine as compared with an ordinary bucket elevator is trifling, and the cost of maintenance is also immensely reduced, as there are only four wearing surfaces and two bearings, in place of tumblers, rollers, links, bushes, pins, &c. The impact plates used on the machine at the trial were only soft metal, the manganese plates not yet being to hand. The inventors have given much time and study in determining, by calculation and experiment, the best form of wheel, and have also given the various practical points that will no doubt suggest themselves to dredging-men due consideration, and now state they are prepared to place these wheels at work on any dredge. One difficulty that will no doubt suggest itself is the disposal of the large stones. This difficulty, it is claimed, has been entirely overcome, and the inventors state that any stone that can come up in the buckets may be put into the machine with impunity. In regard to the deposit of silt, the present machine has been constructed to elevate material such as is now being delivered to existing elevators, and if it is required to elevate silt the inventors suggest a slightly modified form of vane. A 120 ft. elevator is now lying in Messrs. McGregor and Co.'s yard, near the new machine, this huge structure being a strange contrast to the simple, unpretentious-looking wheel at work on Saturday. In the carrying of bucket elevators the pontoons have to be made deeper and wider than would otherwise be necessary; while poppet-heads have to be erected for the attachment of hanging ties, &c. All this additional work can now be dispensed with, and it is estimated that a saving of £6,000 to £6,500 could have been effected in one at least of the mammoth dredges now being built if the machine had been invented in time to save the expense of a long elevator and its attendant large pontoons, &c. One of the drawbacks of a bucket elevator is that it deposits the material in one spot, causing a series of heaps, and to attain a better distribution revolving shoots have been in some cases resorted to, and shoots delivering sideways. This difficulty, it is claimed, is entirely overcome by the new machine, which gives good distribution of the material, thus insuring an even stack. In cases where this distribution is not permissible,



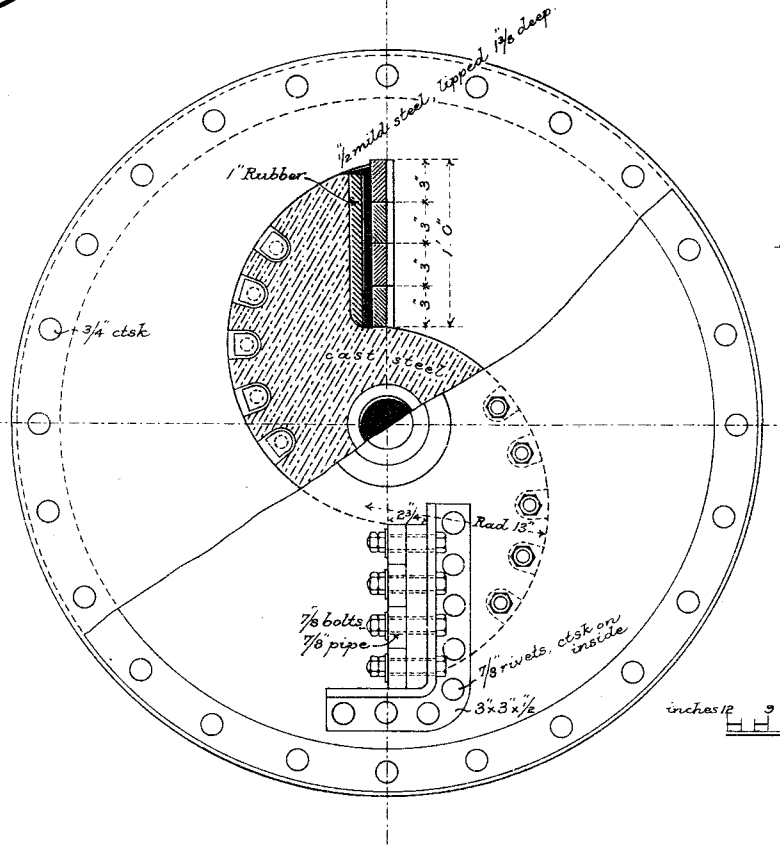
C. 3.

Ngapara Dredge, Alexandra, Otago, showing action of Messrs. Payne and Peck's Patent Centrifugal Elevator.

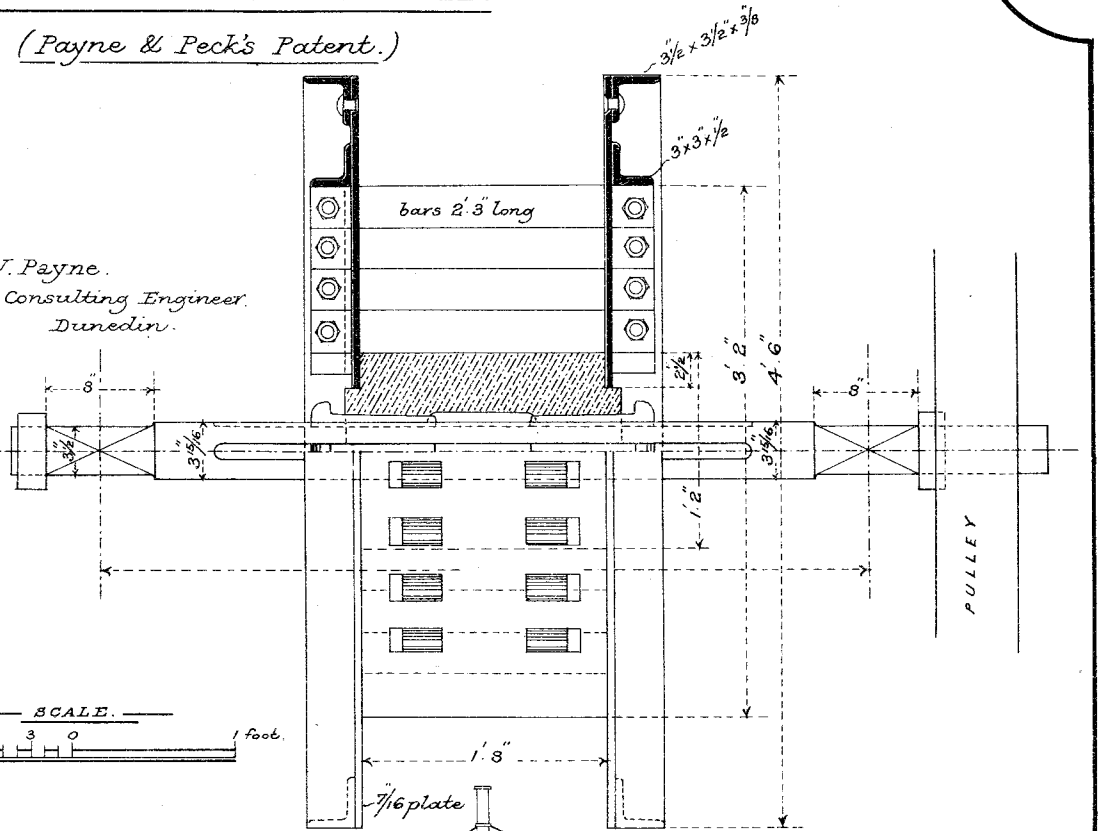
[Face page 24.

CENTRIFUGAL ELEVATOR.

(Payne & Peck's Patent.)

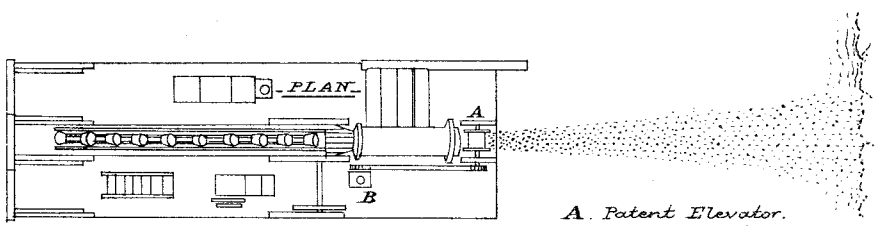


F. W. Payne.
Consulting Engineer.
Dunedin.

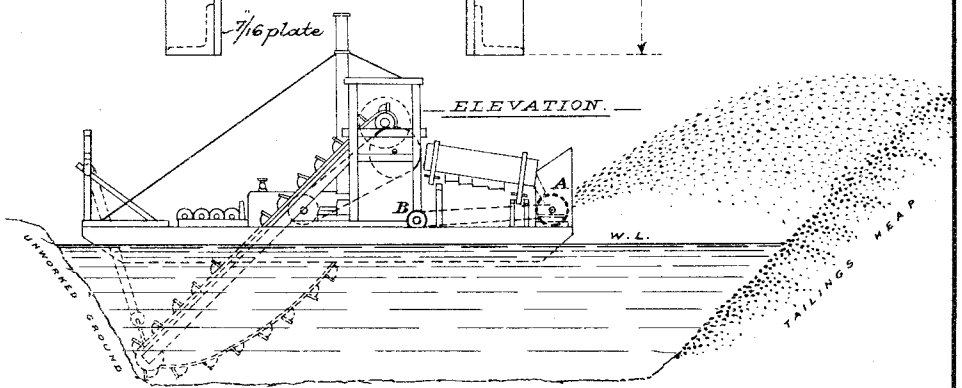


SCALE.

inches 12 9 6 3 0 1 foot.



A. Patent Elevator.
B. Engine for driving same.



C.H.P. delt.

By Authority: John Mackay, Government Printer.

6.250 5.02 278

a deflector, or director plates, can be used, the addition of these being included in the patent rights of the machine. It is understood that the machine has been patented all over the world."

"*Working of Gold-dredges by Hydraulic Pressure.*—The adaptation of water-pressure to the work of driving dredge machinery has been applied by Mr. W. O'Brien, of Waipori, with considerable success, steam-power having been abandoned in its favour in one instance at least—viz., that of the Waipori Consolidated dredge. This dredge has buckets of 3¼-cubic-feet capacity, the working-speed being about thirteen buckets per minute. One Pelton wheel—which is set high enough for the discharge-water to be used in conjunction with that lifted for washing purposes—drives the bucket-chain and centrifugal pump, a smaller and reversible Pelton wheel being used to work the winches. Water is conveyed to the edge of the paddock by a line of pipes from a water-race, and has a pressure due to a head of 160 ft. vertical. To accommodate the water-supply to the varying movements of the dredge, the pipes are carried by a number of small pontoons, on which ball-and-socket joints are mounted; thus the pipe-line is made capable of a certain amount of flexibility without loss of water. The arrangements, as I saw them, worked very sweetly, and I was informed that the substitution of water-power for that of steam had effected a saving of about £1,000 per annum, the weekly working-cost of the dredge being about equal to 6 oz. of gold. It occurred to me that the substitution of armoured hose for the present system of pipes with ball-and-socket joints might probably be an advantage in reducing loss of pressure due to friction and abrupt changes in the direction of the water-current. The practical success of the system has been proved, and this method is being adopted on a new dredge which is to rework the ground already worked by the Jutland Flat dredge near Waipori Township, also on the Lower Enfield dredge, and is being substituted for steam-power on one of the dredges at Cardrona. Mr. W. O'Brien, the patentee, supplies the following particulars:—

"The pressure is obtained as in any ordinary hydraulic claim—viz., the water being conveyed in pipes down the slope of a hill. The water is conveyed on to the dredge from the bottom of the hill or edge of the paddock by means of a floating column of pipes, coupled with revolving joints; each joint to be fixed and supported by means of floating pontoons. The water-pressure, when conveyed on board the dredge, will work the turbine, Pelton wheel, or any other water-motor to drive the dredging machinery. The length of pipes and position of pontoons of floating column will be so arranged as to take up the smallest space up and down the hull of the dredge when the dredge is close to the bank. The pontoons will be worked from the dredge, and can be so manipulated as to permit of the dredge being moved from side to side of the run or face with ease by the ordinary winding-gear on board the dredge. A dredge can be built to work by the above method at a considerably less cost than those which are worked by steam-power, as there will be no expensive engines and boilers to provide for. The turbine or Pelton wheel will be placed at the same elevation as the sluice-boxes. The water discharged from the turbine or Pelton wheel, after working the machinery, will wash the stuff discharged from the buckets. The water-pressure provides a power which can be turned on at any moment, so that time is not lost in lighting fires and getting up steam. A power is always at hand to drive the electric light or work grindstone, water-blast, &c. Water-power, where available, is the cheapest power known, and, when used direct, very poor ground can be made to pay.

"*Advantages claimed.*—No fuel will be required, no engine and boiler to keep in repair, less oil and wear-and-tear, less labour required, as when the water-motor is once set to work it does not require attendants; therefore a second man on the dredge can attend to the lines, sluice-boxes, &c., and give assistance with anything which may require to be done. Bucket-dredging is undoubtedly the quickest method of working ground, on account of regularity of working, everything being afloat, following its work, stripping and cleaning the bottom at the same time, discharging the tailings evenly on worked ground, and requiring no attendance, and the gold going into the boxes continually, giving regular weekly returns. With an uneven bottom, such as holes and rises, the ladder can be raised or lowered to clean the same out. This cannot be said of the hydraulic-elevating system, in which there is a great deal of lost time in shifting and erecting plant, continual shifting of the hydrant, and stoppages through stones getting into the throat of the elevator. The sluice-boxes being stationary, the tailings accumulate at the end of the boxes and require building and looking after. The material also has to be lifted much higher to obtain a dumping-ground for it. In the elevating principle only a small percentage of the water-power is obtained. For example, five Government heads (or 300 cubic feet of water per minute), with 150 ft. of pressure, is about the smallest power used with the hydraulic elevator. These five heads of water 150 ft. high will give a force equal to over 60-horse power, including friction, when applied to the Pelton wheel for driving the machinery. This 60-horse power will work five large dredges, with buckets of 4-cubic-feet capacity, capable of raising over 100 yards of material per hour 25 ft. high, with power to spare."

Advance Stripping by Dredges.

In connection with the working of dredges on flats, I have in previous reports urged the importance of stripping off the soil and clayey matter in advance of the dredging of the auriferous wash, and of depositing the overburden or surface material on the top of the tailings. By this means good land would not sustain much damage by reason of dredging operations, and land which is now cold and useless for cultivation would be vastly improved and made into fairly good farm land, owing to the facilities given for natural drainage by the breaking-up of the tightly packed matter underlying the surface. The operation would also tend to materially increase the yield of gold by reason of the gravels (during their treatment in the screen or sluice-box) being free from contact with the clay, which, under present conditions, is known to carry off a considerable percentage of fine gold. This subject I have at different times discussed with Mr. F. W. Payne, consulting engineer, of Dunedin, with a view to the satisfactory solution of the question by simple

means, which should not only be provided for in new dredges, but, if possible, be capable of attachment to existing machines. As the result of our consideration, we think the desired object may be gained somewhat in the following manner: A dredge working flat land to have a tailings-elevator; this may either be a fairly long elevator of the ladder type, or a centrifugal elevator such as that already referred to and illustrated in this report. When a ladder elevator is adopted in the case of an existing dredge, it may be necessary to provide for increased flotation by means of small auxiliary pontoons bolted to the stern end at each side of the dredge's hull, in order to counteract the leverage of the elevator. In working, the bucket-ladder will be raised so as to strip the ground down to the top of the gravel, and the elevator (if of the ladder type) lowered to as nearly a horizontal position as circumstances will admit, in order that the material passing over it may be conveyed as far back from the dredge as possible. The revolving screen is to be thrown out of gear, and a box shoot (made in sections so as to be readily set up and taken down) is run through the screen to act as a conveyor for the material from the discharged buckets to the foot of the elevator. Where a dredge is not fitted with a revolving screen, blind plates would be placed over the ripples in the sluice-box, and answer the same purpose as a box shoot inside a revolving screen. The machinery is now started and a cut made across the face of the paddock, the width being determined by the distance the dredge can move forwards before the bows come in contact with the gravel left below the stripping. When this cut is completed the box shoot is removed, revolving screen thrown in gear, and elevator either raised or thrown out of gear, as circumstances may require (in the case of a dredge with sluice-box and ripples the blind plates are lifted), and the dredge set back to work the gravel. These changes can be quickly accomplished, and in many instances there would not be any need for the elevator to work except when stripping is being done. This, of course, depends largely on the relative thickness of the overburden and gravels. No question of patent rights is involved in connection with this method, which owners of dredges are at perfect liberty to adopt.

Particulars of a Recent Dredge.

The new dredge for the Sheddon's Freehold Gold-dredging Company (Limited), at Waikaka Valley, Southland, of which an illustration is given, is the design of Mr. C. L. Watt, consulting engineer, Dunedin. Whilst the general appearance of the dredge is very similar to many others working on flats, there are several differences in detail, for particulars of which, and also a drawing of the dredge, I have to acknowledge my indebtedness to Mr. Watt. There is a departure in the construction of the bucket-ladder, the bulk-heads being placed diagonally. This plan (which is not considered suitable for river-work) has been devised for paddock-dredging, where grass, tussock, flax, and small scrub have to be dealt with, and it is claimed that, owing to the absence of cross-stays and bracings, the ladder is kept free from accumulations of *débris*. In the Southland dredging field several machines are fitted with tines connected to the bottom tumbler or its shaft. These act as picks, and cut into the ground so as to loosen it a little in advance of the buckets. Mr. Watt has deviated from the ordinary style of tine by fitting those on the dredge in question with side cutters in addition to the ordinary points, so as to allow the ladder more freedom at the face of work, and admit of its being more easily moved.

There is no revolving screen on this dredge, a sluice-box being used. This is on somewhat different lines from the ordinary run of sluice-boxes as used on dredges, and is made of iron instead of wood. Reference to the drawing (elevation) will show that there is a considerable drop from the buckets to the shoot in the head of the sluice-box, and at about 25 ft. down the box there is another drop of 30 in. Beyond this the sluice-box is increased in width to 6 ft. for a distance of some 40 ft., the entire length of the box being 65 ft. The upper part (25 ft. long) is covered with perforated plates, the lower portion (40 ft. long) being fitted with ripple-bars laid longitudinally and transversely, with perforated plates intervening, the usual matting being adopted throughout. An appliance resembling in principle a suggestion embodied in my report of last year has been adopted on this dredge. This consists of an endless belt of matting revolving upon an endless revolving grid-iron made the full width of the box. It is fixed inside the box below the perforated plates, and travels upwards, making one revolution every three minutes. The gold, sands, silt, &c., which pass through the perforated plates fall on the travelling mat, on which jets of water, having a head of from 3 ft. to 4 ft., are made to play. This is plainly shown on the drawing. The sands, gold, &c., washed off the mat fall on the streaming-down tables, which are constructed with boil-boxes something after the style adopted at the Round Hill claims by the late manager, Mr. G. Lee, and introduced by him on some of the dredges at Waikaka. Provision is made by means of a trough (not shown in drawing) to catch any gold which may find its way through the revolving mat, and carry it forward to the streaming-tables. The "save-all" box or shoot is brought under and to one side of the sluice-box, and enters the latter where it widens out.

The water from the centrifugal pump does not enter the sluice-box at right angles, as is usually the case, but by a deflection in the delivery-pipe is made to attack the wash as it falls from the buckets on to the dump-plate. A churning-action is thus set up which has a tendency to dislodge any particles of gold that may be adhering to the wash. The latter then travels down the sluice-box for some 25 ft., where it drops 30 in. as already stated, and becomes further disintegrated, finally travelling over the ripples and plates in the wide box to its discharge beyond the stern of the dredge. The dredge is working with excellent results.

ACCIDENTS AND FATALITIES.

The following table shows the number of persons who have lost their lives, and also the number of those who have met with injuries, whilst employed in connection with gold-mining work during the year:—

	Northern District.		West Coast District.		Southern District.		Totals.	
	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.	Fatal.	Non-fatal.
Quartz-mining	5	28*	1	1	...	2	6	31
Hydraulic and alluvial mining	...	...	...	...	1	1	1	1
Dredge-mining	...	...	2	4	5	5	7	9
Totals	5	28	3	5	6	8	14	41

* Some of these were only slight accidents.

OTHER MINERALS.

Beyond the usual output of scheelite by Messrs. W. and G. Donaldson at Macrae's, Otago, and some prospecting operations for antimony at Alexandra South, which may be considered fairly successful, little or nothing appears to have been done during the year.

The cinnabar lode near Waitahuna is not yet being worked. It is proposed to form a company to develop and work the mine.

MECHANICAL VENTILATION.

So far nothing has been done in the direction of providing by mechanical means constant and reliable air-currents for the complete ventilation of quartz-mines in this colony, most of the mines relying on natural ventilation, which is both uncertain and irregular.

The simple fan illustrated and described in last year's report has apparently supplied a want felt at several coal-mines. One of these fans, 9 ft. in diameter, has been erected at the Orepuki Shale-mine, and at 180 revolutions per minute circulated a current of 33,120 cubic feet of air, with a depression of $1\frac{1}{10}$ in. W.G. The cost of this fan was only about £140 erected, the mine-owners providing an engine for driving it. Mining managers who have seen the fan at work consider that its efficiency and small cost should cause it to become very popular. Three others are now in course of construction for the ventilation of coal-mines.

THE ELMORE ORE-CONCENTRATION PROCESS.

The following is the text of a description of the above process. It is issued by the Australian Ore-concentration Syndicate (Limited), 4, Bishopsgate Street Within, London, E.C. The syndicate announce that they have a testing plant capable of treating 10 tons per day, and are prepared to make laboratory tests and to report results free of charge, and large scale tests at moderate fixed rates, which will be remitted in cases where the syndicate's process is adopted.

Metallurgists throughout the world have hitherto become accustomed to understand that the separation of the metalliferous and valuable portions of ores from the gangue with which they are associated must depend upon the difference of specific gravity of the mineral particles and the rocky constituents of the ore. It may come as a complete surprise to many when they are told that the latest improvement in concentration does not depend in the slightest degree upon specific gravity for the perfect separation of the rock from the mineral, and that the percentage recovery is equally good when treating slimes and finely divided minerals, such as would largely pass away as "float" in any ordinary process of concentration by water over mechanical jigs and vanners. Such, however, is the case, and it is the object of the following description to introduce to the notice of the reader the Elmore process for concentration of ore, slimes, and tailings by the use of oil, which is likely to inaugurate a distinct addition to the field of ore-concentration.

The process, as worked at the Glasdir Copper-mines at Dolgelly, North Wales, may be shortly described as follows: The rock from the mine, after passing through the usual stone-breakers, is crushed in a pair of Cornish rolls, and run thence to two Huntington mills, wherein it is reduced to pass through a thirty-hole screen, and issues therefrom with just sufficient water to make it into a freely flowing pulp. From the Huntington mills the pulp passes directly into the open end of a horizontal rotating drum, inside of which is fixed a helix with cross blades or buckets, which lift up the pulp to a certain height and drop it again, at the same time propelling it forward to the opposite end of the drum, thus keeping the pulp in constant agitation for the few seconds which are occupied in its progress through the drum. With the pulp is also admitted a small quantity of a thick, sticky oil (the residue left in the stills in the refining of paraffine-oil). This oil is, of course, subjected to the same agitation as the pulp, and is consequently tumbled about with it, and exercises the remarkable property of sticking to and buoying up the particles of mineral that are floating about or suspended in the pulp; but it does not stick to or have any effect whatever upon the particles of rock which are present in much greater number. The oil and pulp automatically discharge from the opposite end of the drum into a pointed box or spitzkasten, in which the tailings or rock at once settle down and flow off with the water at the bottom, whilst the oil, by reason of its buoyancy, floats to the top and carries up with it practically all the values which the ore contained. From the top of the pointed box the oil, with its load of mineral, flows off continuously to a specially constructed centrifugal machine, where the oil is extracted from the mineral (which is left in the machine), the oil being at once ready for re-use. For close extraction three mixing-cylinders are sometimes used, the pulp passing from one to another after floating off the oil and collected mineral, and receiving a fresh stream of oil in the next mixer. A second centrifugal

machine is also found desirable below the first, to separate the last of the oil and water from the concentrates. The concentrates are left in the machine, practically dry and free from oil.

The Glasdir Mine was originally equipped with one of the most modern concentrating-mills obtainable, which was worked in the best possible manner under the direct personal supervision of able experts. Over 52,000 tons of ore from the Glasdir Mine were treated by the jig and Luhrig table plant referred to, with a result that only 14·5 per cent. average value recovery could be obtained from the ore. The Glasdir Company secured the services of expert managers from Germany and Cornwall, as well as from America, and gave the mill every chance to show its best performance. During the time the various experts sought to remedy the defects in the dressing and concentrating process which had been established at so great an expense; almost every known mechanical appliance was tried in turn to see if a reasonable recovery could be got from this ore, but without success, owing to the large proportion of float and slime material produced. Magnetic separation was considered and tried, but with negative results; several chemical processes were tested, and in turn abandoned, owing to great cost or poor recovery. It was found that the disastrous loss arose largely from the very friable nature of the pyrites.

The process was first tried in the laboratory, then on a small working-scale, and then with a plant erected at the Glasdir Mine capable of treating about 50 tons of ore per week. After a lengthened trial of this plant a larger one was erected, which gave eminently satisfactory results when treating 100 tons per week. From the experience gained from working this last-named installation the existing plant was designed, which is a thoroughly practical working equipment in every respect, treating 250 tons of ore weekly. The recovery of over 80 per cent. of the metallic values from the Glasdir ore by the new process having been fully demonstrated, the whole of the original jig and Luhrig table plant has been abandoned in favour of the new plant.

The Elmore ore-concentration process has already been investigated and favourably reported upon by several eminent experts. Mr. Charles M. Rolker, M.I.M.M., the well-known mining engineer, made an exhaustive examination, and in a paper which he read upon this process before the Institution of Mining and Metallurgy said, "The mechanical contrivances brought into action by the inventor are excellently adapted to the work demanded, and bespeak very careful thought, as well as patient, systematic, and highly intelligent work. Seemingly insuperable mechanical difficulties in the initial stage have been very ingeniously overcome, and the process has arrived at a practical working-stage." Mr. J. H. Collins, F.G.S., past president of the Institute of Mining and Metallurgy, and formerly chief chemist and metallurgist of the Rio Tinto Company (Limited), in his report upon another mine, the ore from which was treated at Glasdir by the Elmore process, says, in reference to the process, "It is not my province here to report upon this process in detail, but I feel bound to say that in my opinion it will open a new era in the treatment of tender sulphuret ores." The plant of the Glasdir Mine has recently been studied by mining experts connected with some of the largest and best-known mines, with the result that the process is about to be applied to low-grade ores in different parts of the world where such ores have heretofore been found impossible to work at a profit, and it is anticipated that, by the use of the Elmore process, in the near future some mines which have been either standing idle or have been worked at a loss will become successful.

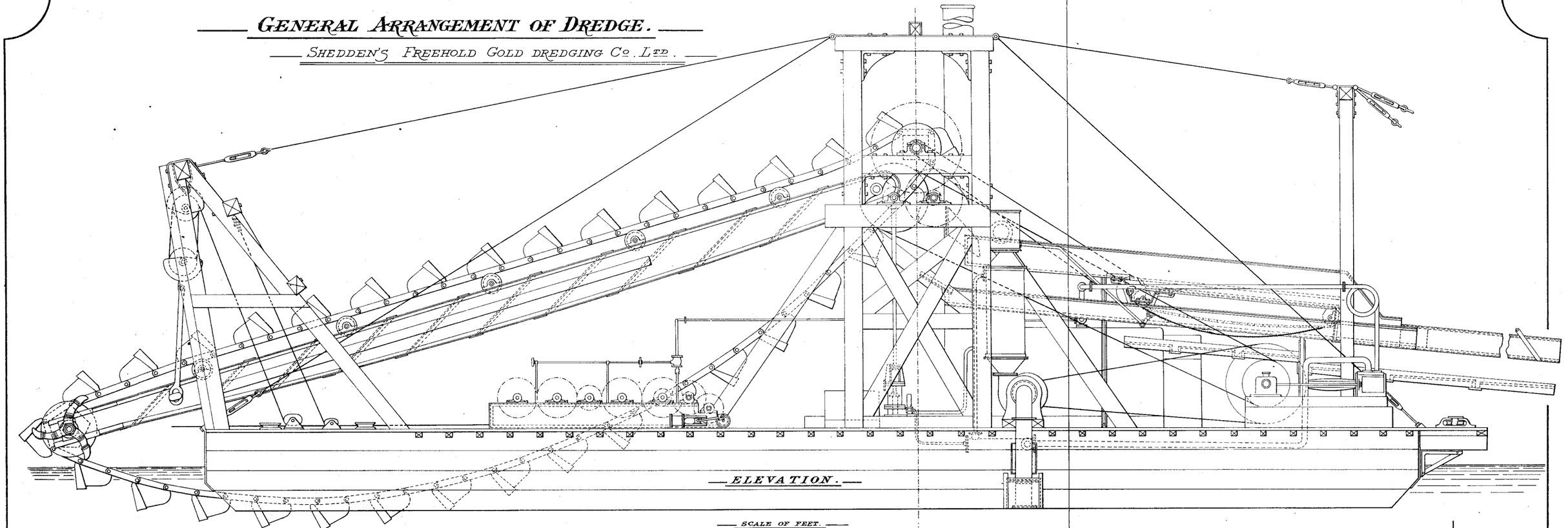
Experiments have shown that on auriferous antimony, cinnabar, and molybdenum ores, the sliming properties of which are such as to preclude the possibility of their being concentrated commercially by water, the process gives a very high extraction and rich concentrates. Some copper-ores from South Africa which have been very wastefully treated in the past, owing to difficulties in concentration caused by the presence of magnetite, have been in small tests enriched from 6 to 40 per cent. of copper. Another copper-ore from Mexico in which the presence of heavy garnets interferes greatly with concentration of the auriferous copper minerals has given a concentrate of 23 per cent. copper from mill tailings. In both these cases the final tailings after the oil process were very poor. Free gold seems easily caught by the oil even when quite coarse. There may be no advantage on such material over existing processes, but late experiments indicate a successful application even to very fine gold. Some of the copper-ores from the Mount Lyell district and from British Columbia seem particularly well adapted to the treatment. A much larger number of tests than is here indicated have been made, but those quoted will suffice as showing the variety of ores the process has successfully treated, and experiments with telluride and sulphide ores from Western Australia have been made with very satisfactory results, inasmuch as the oil is found to effect a practically complete extraction of the sulpho-telluride contents of the ore. Detailed results of a number of tests are given herewith in the tabulated statement on the next page, to which special attention is directed.

The process has a great future, particularly in cases of difficulty by water concentration arising from brittleness or lightness of minerals to be separated, or from heavy gangue accompanying the minerals, such as heavy spar, magnetite, garnets, rhodonite, &c. It does not seem to matter how finely the mineral breaks; if it is a mere scum on the water-surface, contact with the oil in the agitating-cylinders appears to assure recovery of the float values. Where water is scarce the process has a great advantage, for the rock can be crushed with the minimum quantity used in regular wet stamping, and by settling can be used over again, as muddiness of the returned water is no disadvantage. In practice it has been found at Glasdir that very little attention is required for the control of the process; that considerable variations in quantity of oil-supply and temperature are allowable; and unskilled labour can be used under the ordinary intelligent superintendence necessary in any mill. The plant is much simpler than that of an ordinary concentration-mill; is not expensive to install; is subject to little or no wear-and-tear; and can be put below any wet-crushing machinery. In existing mills where heavy loss in slimes occurs this process can be easily added as an auxiliary plant. Material as coarse as 20-mesh has been concentrated.

The loss of oil has been found to be at Glasdir 1¼ gallons per ton of ore treated, and may be taken as varying, according to ore and other conditions, between 1 and 3 gallons per ton. The oil is of a very cheap class; its cost may almost be said to be the cost of transport to any particular place.

GENERAL ARRANGEMENT OF DREDGE.

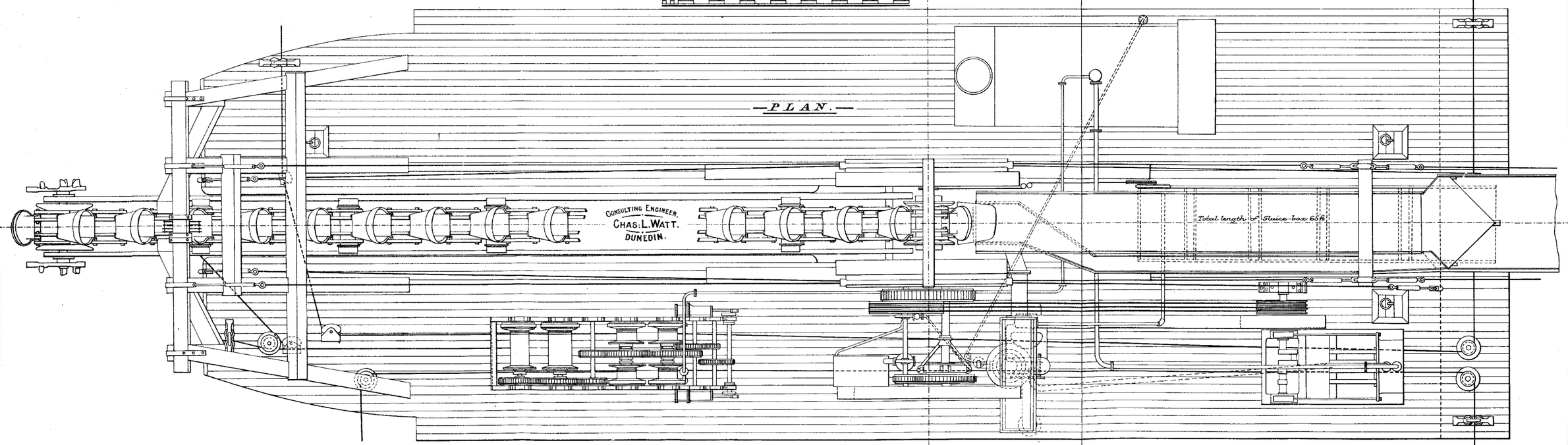
SHEDDEN'S FREEHOLD GOLD DREDGING Co. Ltd.



ELEVATION.

SCALE OF FEET.

0 5' 10' 15'



PLAN.

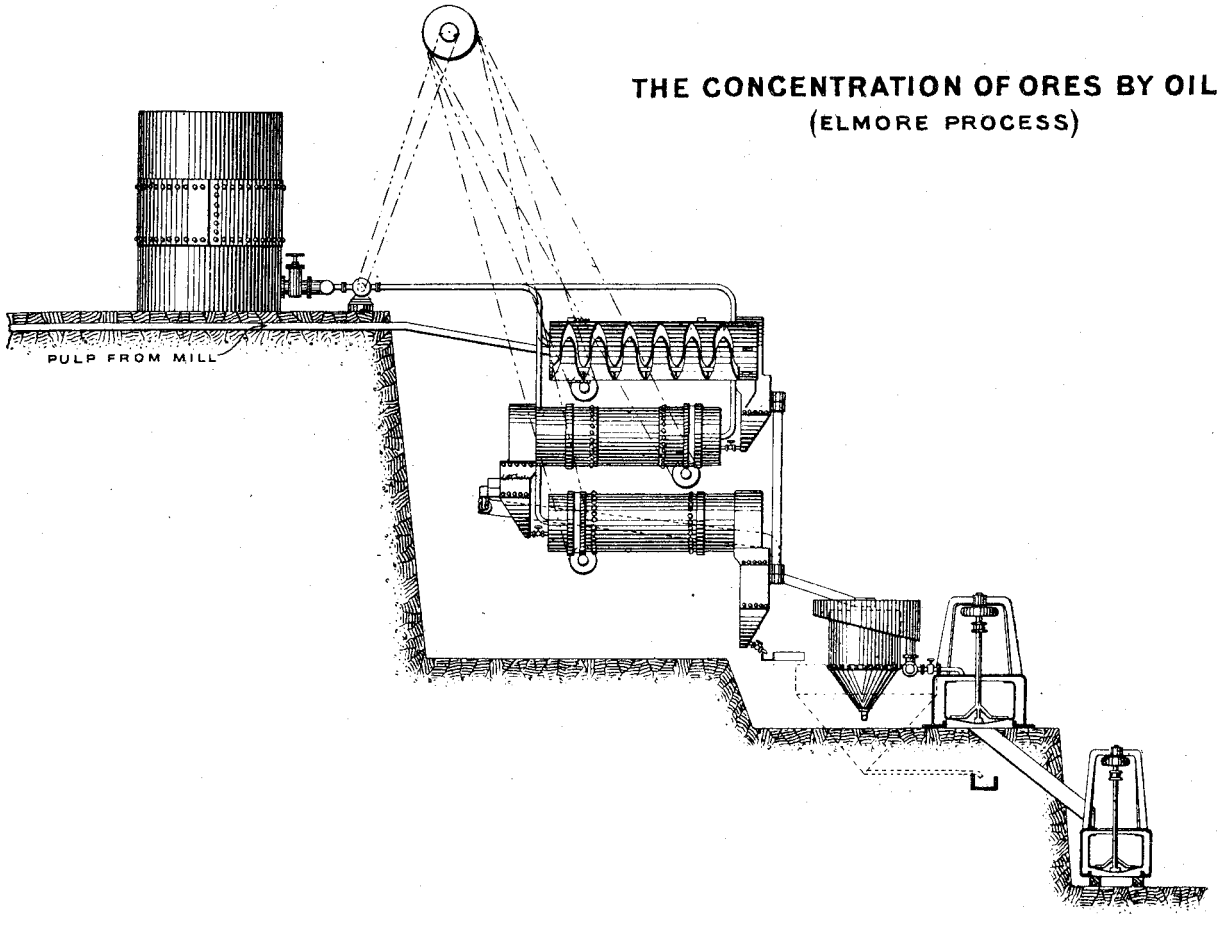
CONSULTING ENGINEER.
CHAS. L. WATT.
DUNEDIN.

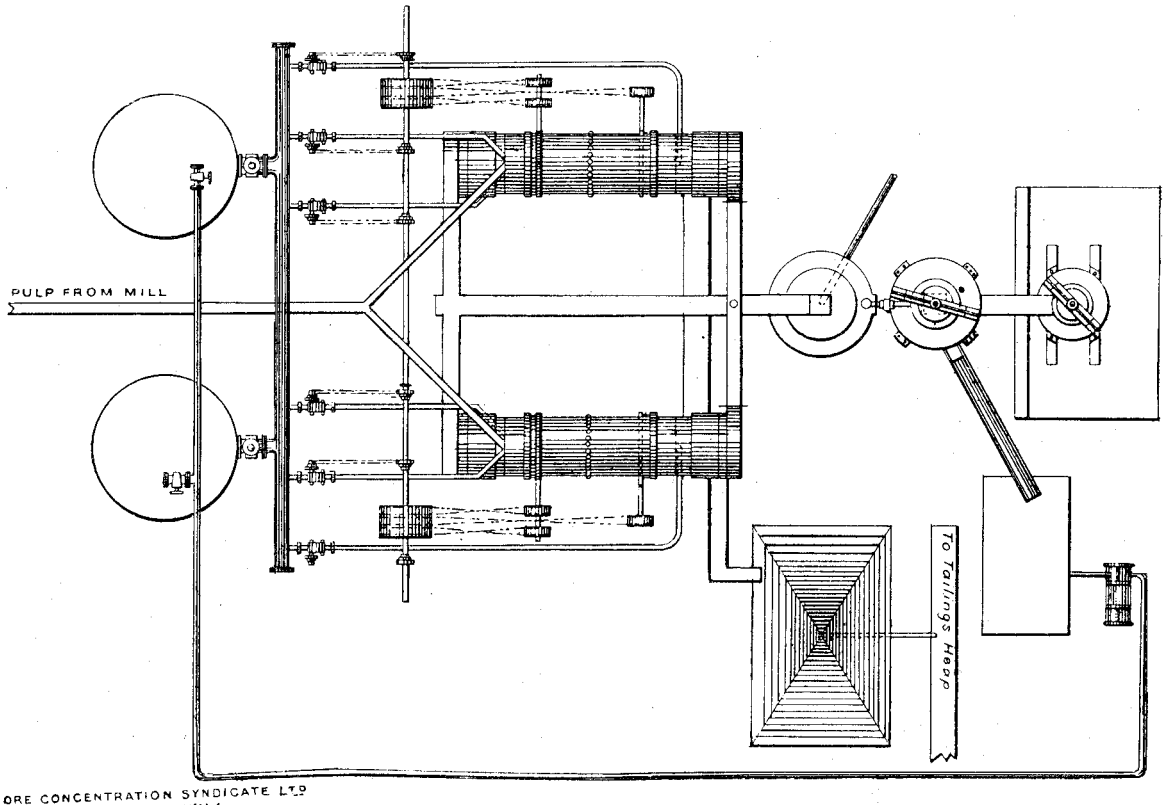
C.H.P. del.

By Authority: John Mackay, Government Printer.

2 250 502 271

THE CONCENTRATION OF ORES BY OIL
(ELMORE PROCESS)





THE ORE CONCENTRATION SYNDICATE LTD
4, Bishopsgate St Within,
LONDON, E.C.

By Authority : John Mackay, Government Printer.

2,200 6.02 302

To Face Page 28 (2)

Some Results of Tests made by the Elmore Ore-concentrating Process on various Ores, Slimes, Tailings, etc.

Description of Ore.	Original Assay.			Assay of Concentrates.			Assay of Tailings.			Percentage of Values recovered in Concentrates.			Ratio of Concentration.
	Copper.	Silver.	Gold.	Copper.	Silver.	Gold.	Copper.	Silver.	Gold.	Copper.	Silver.	Gold.	
	Per Cent.	Oz. P.T.	Oz. P.T.	Per Cent.	Oz. P.T.	Oz. P.T.	Per Cent.	Oz. P.T.	Oz. P.T.	Per Cent.	Per Cent.	Per Cent.	
Copper-ore	7·1	3·9	0·61	14·6	8·0	1·28	Trace	Trace	Trace	95·0	91·0	92·0	2 to 1*
"	7·6	2·67	0·27	10·9	3·6	0·39	"	"	"	94·0	90·0	94·0	1½ " 1
"	3·9	0·33	0·64	19·1	2·7	3·00	"	0·07	0·09	94·0	98·0	90·0	5·2 " 1
"	3·6	0·73	0·24	11·5	2·5	0·60	"	Trace	Trace	97·0	98·0	96·0	3⅛ " 1
Tailings from a water-concentrating plant	1·58	..	..	7·8	..	..	0·11	..	..	84·0	..	..	5 " 1
Copper-ore	3·40	1·74	0·19	8·0	5·0	0·51	Trace	Trace	Trace	91·0	93·0	95·0	2½ " 1
Gold-ore (telluride)	..	0·10	1·27	..	..	6·1	..	..	0 05	..	..	96·8	5½ " 1
..	..	0·24	3·05	..	1·5	18·3	..	Trace	0·19	..	..	97·5	7 " 1*
South African gold-ore	..	..	0·91	..	..	3·79	..	..	Trace	..	..	96·0	3·5 " 1
Antimonial gold-ore (tailings)	..	0·05	0·613	..	..	6·13	..	..	..	..	..	98·0	10 " 1
Copper-ore	3·0	6·5	..	8·40	16·2	..	0·30	0·90	..	90·3	80·0	..	5·1 " 1
Silver-ore	1·15	32·0	..	3·0	65·4	..	0·30	7·0	..	85·2	87·3	..	2·4 " 1*
Magnetic oxide, with copper-pyrites	11·5	..	..	29·0	..	..	0·60	..	..	94·0	..	..	2½ " 1
Copper-ore	2·2	..	..	9·0	..	..	0·45	..	..	80·0	..	..	5 " 1
"	4·3	1·90	Trace	12·1	5·6	0·66	0·08	Trace	Trace	97·0	98·0	..	3⅛ " 1
"	2·8	1·78	"	10·8	7·4	..	0·05	"	"	98·0	99·0	..	3⅛ " 1
"	3·6	1·41	0·31	8·1	3·5	0·75	Trace	"	"	96·0	95·0	93·0	3 " 1
Antimonial gold (tailings)	..	0·14	0·516	..	0·6	3·8	..	"	0·17	..	90·0	77·0	7 " 1
" (slimes)	..	0·14	0·232	..	1·5	2·4	..	"	Trace	..	90·0	94·0	7 " 1
Magnetic oxide, with copper-pyrites	3·6	..	..	14·5	..	..	0·33	..	..	92·0	..	..	4⅖ " 1
Slimes from silver-mines	..	16·2	0·2	..	153	2·0	..	4·1	Trace	..	77·0	90·0	12½ " 1
Copper-ore	4·4	..	..	15·31	..	..	0·62	..	..	89·6	..	..	3½ " 1
Pulp from battery-table (silver-ore)	..	23·5	0·35	..	220	3·5	..	6·0	0·1	..	76·5	74·8	12½ " 1
Magnetic oxide, with copper-pyrites	3·20	..	..	13·10	..	..	0·08	..	..	98·0	..	..	5 " 1
Copper-pyrites in quartz	1·80	..	..	9·00	..	..	0·15	..	..	93·0	..	..	6¼ " 1
" slate	2·80	..	..	15·65	..	..	0·04	..	..	98·7	..	..	7½ " 1
Transvaal banket	..	0·20	0·327	..	2·55	3·627	..	0·067	0·039	..	70·67	88·85	12½ " 1
West Australian gold-ore	..	1·30	1·147	..	3·25	13·060	..	1·000	0·025	..	21·90	97·80	12½ " 1
	Mercury.			Mercury.			Mercury.			Mercury.			
Cinnabar (quicksilver) ore	0·50	..	..	11·00	..	..	0·023	..	..	96·0	..	..	21 " 1
"	1·24	..	..	13·10	..	..	0·075	..	..	95·2	..	..	12 " 1
"	1·75	..	..	19·00	..	..	0·200	..	..	90·0	..	..	16 " 1

* Nearly.

SUMMARY.

1. The process saves the finest slime or float mineral, free gold, sulphides, or tellurides, &c., which is the chief source of loss in water-concentration plants, and will separate such mineral even when the same is of less specific gravity than the gangue it occurs in.

2. It can be used after any system of wet crushing, without classification, on material finer han 20-mesh (400 holes to square inch), or can be added to existing concentration-mills for the treatment of the slimes which carry off value; it is thus specially adapted to the saving of "float losses." The grade (mesh) of crushing necessitated will, of course, depend in each case upon the degree of fineness and dissemination of the values through the matrix of the ore, and the ease with which these can be detached therefrom during crushing.

3. The pulp flows automatically and continuously through the mixers without attention, and the oil passes continuously from the surface of the spitzkastens below mixers into the centrifugal machines, and thence, freed from concentrates, is pumped back into circulation again through tanks feeding the mixers. The discharge of concentrates from the centrifugal machines involves extremely little labour. The power required is very small, being simply that to revolve the mixers and to run two centrifugal machines for several sets of mixers.

4. The cost of installation is not relatively high for a plant in which the capacity is at least 50 tons per day. The floor-space occupied is very small.

5. The cost of operating is very low, and wear-and-tear as little as any running machinery will admit of.

6. The quantity of water necessary per ton of ore is small, and, by settling, this can be used over again, except, perhaps, where amalgamation is used before concentration. Mine-waters, even where acid or charged with soluble salts, can be generally employed.

7. Clean concentrates are produced almost free from rocky particles, but containing a small percentage of oil, which is no disadvantage for smelting or roasting, and assists in briquetting if this be desirable.

8. Certain minerals can be separated from others of similar or greater specific gravity. For instance, copper-pyrites can be taken from magnetite, which is impossible by water concentration, and very imperfectly accomplished by magnetic separation, however slowly and carefully concentrated.

9. Although oil is used freely in the process, the whole plant and building can be kept absolutely clean and neat, owing to the perfection of the mechanical appliances as now developed. The total loss of oil depends in part on percentage of concentrates, and may be taken at from 1 to 3 gallons per ton of ore.

10. The plant is constructed in very convenient units of about 25 tons daily capacity, but depending on character of ore, and can be easily added to when installed.

11. The concentration depends on the surface condition of the material, and generally it may be said that metallic surfaces are attachable to the oil, and earthy surfaces not. Nevertheless, sulphur, earthy-looking cinnabar, graphite, molybdenite, atacamite, and some other minerals, which in advance might not seem to possess promising surfaces, are most successfully taken up by the oil. Tellurides which are difficult to concentrate by water, and from their gold and silver values need close saving, are easily concentrated by this process. Some oxidized gold-ores in which the metal is so fine as to defy amalgamation have given good results. Average banket gold-ore from the Rand mines without any previous amalgamation has yielded a high extraction and rich concentrate. These last three classes promise a field for the process in direct competition or in conjunction with cyaniding. As it is desirable to extend the knowledge of its application, correspondence is invited, and samples will be received for laboratory testing by the process, in cases where difficulty or loss occurs in existing methods of concentrating or cyaniding.

12. Where an ore is heavily mineralised the adoption of the oil process by no means precludes the employment of water-concentration plant, especially where such is already installed. The contrary is indeed the case, water- and oil-concentration systems being frequently capable of advantageous combination, the former supplementing the latter and rendering it more efficient. By the addition of an oil-concentration installation to water-concentration plant, not only are all float losses (more or less inevitable with water concentration) effectually recovered, but the capacity of the wet-concentration system is greatly increased.

The vanners, Wilfry tables, &c., would not need to be run as close concentrators, but employed merely to yield a large proportion of the mineral as sharp "heads," all middlings, tailings, and slimes being passed through the oil plant for the complete recovery of the balance of values. The total saving by the combination is greater than possible with the most perfect water-dressing system alone, whilst the economy is dual—that of the water-concentration plant being increased by freeing it from the necessity of close separation, thereby utilising its maximum ore-capacity, and that of the oil plant by relief from the need of dealing with a large proportion of the coarser material.

13. Where gold occurs both finely disseminated through the quartz or other ore matrix, and also in association with pyrites, tellurides, or refractory minerals, the oil process offers a ready means of treatment. The mineralised values are thereby obtained in a high degree of concentration available for smelting recovery, or for roasting with subsequent chlorination, cyaniding, &c., whilst the residual values (if any) in the siliceous tailings are obtained in a condition readily recoverable by ordinary cyanidation. Thus the bulk of an ore otherwise unsuited to direct leaching extraction may be so treated after the removal of the refractory contents by means of the oil-concentrating process. Notably is this so in the case of tellurides and sulpho-tellurides and copper compounds.

14. The readiness with which the finest mineral particles are retained by oil renders possible in many instances the simultaneous recovery of slimes values with the concentration of the coarser ore, and will thus often obviate the need for subsequent slime-treatment plant, filter-presses, &c.;

nor will the ore have to be crushed or reground to the same degree of fineness as at present found necessary with sulpho-telluride and other refractory ores.

15. It should be remembered that, as a rule, metallic oxides are not saved by oil, although partial exceptions occur, as in the case of atacamite, oxide of copper, and cassiterite. Sulphide minerals, on the contrary, are almost invariably retained with completeness, the most notable exception being the incomplete removal of "blende." Hence, in the installation of oil-concentration plant, care should be taken to avoid undue oxidation at any stage in the previous reduction operations, in order to prevent the possible formation of oxide films on the surfaces of the sulphides present in the ore. It is for this reason also that tailings and slimes sent for trial should be taken as "running" samples, and despatched hermetically sealed.

THE GODBE AGITATION METHOD OF LEACHING.*

This is a new method, recently patented by Mr. Ernest Godbe, of Salt Lake, Utah, for leaching fine or slimy ores by agitation and the separation of the solution from the ore.

In the case of most ores, especially tellurides and sulphides, the finer they are pulverised the higher is the extraction by the cyanide-solution; but it is well known that very fine or talcy ores cannot be successfully leached by percolation, and this is the class of material the Godbe process is more particularly designed to treat. It consists of a combination of agitation and upward percolation simultaneously in the same vat. The pulp is stirred with a cyanide-solution containing lime in a circular vat, the diameter of which is not greater than the depth, and while being so stirred a stream of solution is introduced in the bottom from below a false filter-bottom, and rises up through the agitated and suspended ore, and overflows at the top perfectly clear and free from slime. To do this the miller or stirrer is placed close to the bottom of the vat, and does not revolve fast enough to throw the slime up to the surface of the charge, but just sufficient to keep the entire mass well up in suspension and flowing around in the tank, and at the same time always leave a few inches of perfectly clear solution at the top. The solution in its upward course comes into intimate contact with every particle of slime, as the latter is constantly changing its position in the tank and rises above the mass of slime into the clear-solution zone at the top, from whence it overflows perfectly clear and ready for precipitation.

During the period of dissolving the gold the speed of the stirrer is increased so that the entire charge is in thorough agitation, and at this stage compressed air can be blown in to hasten the dissolution of the gold if the ore requires it. After the dissolution has taken place the gold-bearing solution is washed out by displacement with weak precipitated solution until all the gold has been washed out of the charge, and in turn the weak precipitated cyanide-solution is displaced with water, when a plug is drawn and the charge allowed to run out into the tailings-dam. Each displacement operation washes out about 80 per cent. of the solution contained, so that it generally takes three displacements—two of solution and one of water—to recover practically all the gold-bearing solution from the charge. These displacements, however, take place very rapidly, two hours only being required for each one. The proportion of solution to ore varies according to the specific gravity of the slime, being from 1·2 to as high as five parts of solution to one of ore.

When used in connection with plate amalgamation no settling is required, as the water is withdrawn by displacement with the cyanide-solution. One important feature is that by using a large quantity of solution, which can be done—the upward percolation taking place so rapidly—a very much weaker solution can be used and still bring the proper or necessary amount of cyanide of potassium in contact with the metals to be dissolved, thereby reducing the loss of cyanide to a minimum, both as to the loss of the latter in attacking basis, as well as in the ordinary losses of solution. A warm solution greatly assists the operation mechanically, and, presumably, chemically.

STEMMING SHOT-HOLES.

The experiments made by the French Committee on Explosives were undertaken in accordance with instructions issued by the Minister of War, and extended to the following points: Comparison of the different methods of stemming in relation to the utilisation of the explosive; comparison of these methods from the point of view of the relative safety afforded thereby; comparison with reference to the danger of ignition through friction.

The Utilisation of the Explosive.

These tests were made with Abel blocks, measurements being taken of the change in volume effected in the case of different methods of stemming under similar conditions. Although furnishing exact and comparable results, this method of testing presents different conditions to those obtaining in the practical use of explosives, more particularly as regards the friction between the stemming and the sides of the hole; nevertheless, the Committee considered it the best method available for the purpose in view.

The blocks employed were of the usual dimensions—viz., 28 cm. high, 25 cm. diameter, with a central bore 28 mm. in diameter, and varying in depth from 14 to 18 cm., according to the test. In order to increase the length of the stemming, the blocks in some instances were fitted with an iron tube screwed into the bore. This tube was 70 cm. long and 30 mm. inside diameter. The

* From the *Engineering and Mining Journal.*

carefully weighed charge of explosive was formed into a small cartridge, fitted with a fulminate detonator, and pressed into the bore of the block with a bronze stemming-rod, the compression being regulated so as to insure equal density throughout all experiments with a given explosive. The stemming being then introduced and pressed down in the usual manner, the charge was fired by a Bickford fuse.

After firing, the volume of the resulting crater was gauged with water, the block being then sawn in two, axially, to reveal any bubbles which, in badly cast blocks, might falsify the result of the test. The materials used for stemming were: Finely powdered dry quartz sand, dry clay, water, ordinary moist sand, clay rubbed down in water, and forming a plastic mass of about the consistence of glaziers' putty. The following explosives were employed: Grisoutine dynamite, with 12 per cent. of nitro-glycerine; Favier's grisounite-couche, with 4·5 per cent. of trinitro-naphthalene; Favier's grisounite-roche, with 8·5 per cent. of di-nitro-naphthalene; and Cugny's dynamite-gomme, with 92 per cent. of nitro-glycerine. The results obtained are considered to show that plastic clay forms the best stemming under all the conditions of stemming employed—sand, dry clay, and water all proving inferior.

Another set of experiments was afterwards conducted under different conditions, the sides of the bore being made as rough as possible so as to contrast with the smooth walls in the first set of tests. With this object an Abel block was completely imbedded in brickwork, the latter being pierced by a channel forming a continuation of the bore in the lead block. Iron ties were fitted to bind the block and brickwork more firmly together, thus forming a block of high resisting-power, measuring 65 cm. across and 90 cm. in height. The bricks forming the walls of the central channel were roughly dressed, and thus presented considerable irregularity of surface.

A preliminary test having shown that a 50-gramme cartridge of grisounite-roche could be exploded in the centre of a similar block without shattering the lead, this weight of explosive was taken throughout, the more so because it corresponds fairly well with the charges used in practice. The stemming, about 60 cm. (24 in.) in height, only penetrated into the lead for a distance of 6 cm. (2·4 in.), nearly the whole remaining within the brickwork. The charge was exploded in the centre of the leaden block, and the resulting crater could therefore be measured with great precision. Under these new conditions, which more closely approximated with those of practice, sand stemming proved superior to plastic clay.

It therefore follows that the conditions of use have a decisive influence on the superiority of the materials employed for stemming, and it is consequently difficult to ascribe marked superiority to any of those examined. In any event, however, it would seem that, in practice, ordinary sand is preferable to clay, contrary to the conclusions that one would be inclined to draw from the experiments with the Abel blocks.

Risk of Blown-out Shots.

In the course of the previous experiments the stemming was invariably blown out of the tube, even in the case of small charges (10 grammes) and with long stemming (up to 80 cm.). Consequently the Abel blocks, which do not allow any of the gas to escape, are badly adapted for the comparison of the different kinds of stemming in this respect. To remedy this defect a trial was made with blocks pierced with a narrow bore for the purpose of allowing the gas to escape; but this method proved unsuitable, the vent being in some cases obstructed as a result of the deformation produced in the metal by the explosion, and the results being far from comparable.

Parallelopiped blocks of cement concrete were then employed, the dimensions finally selected being: Width, 30 cm.; height, 60 cm.; central bore, 30 mm. in diameter and 45 cm. high. With these blocks it was possible to use 50-gramme charges without risk of dangerous projections of material. All the blocks were made of the same mark of cement, with stones of the same size, and the comparative tests were made with blocks prepared at the same time, so as to have identical conditions of experiment. The blocks were imbedded in clayey ground, and well rammed all round, the top of the blocks being flush with the surface. A large wooden screen was suspended at a height of 30 cm. above the blocks, in order to stop any scattered fragments. In the case of blown-out shots the stemming was projected with violence against the screen, on which it produced a well-defined impression.

Ordinary sand and plastic-clay stemmings were tested, the sand being tamped in the hole with a stemming-rod, whilst the clay was first rolled into short plugs, which were rammed gently after insertion in the hole. The results show that a minimum length of 30 cm. of stemming is necessary to prevent expulsion in the case of clay, but that about 25 cm. of sand is sufficient, the latter being therefore the best.

Risk of Ignition by Friction.

The chief danger incurred in shot-firing is that of ignition, by friction, of fragments of the explosive, or traces of nitro-glycerine left adhering to the sides of the shot-hole after the charge has been driven home. This risk is mainly confined to explosives of the dynamite and black-powder types, the Favier explosives, on the other hand, affording almost perfect safety in this respect. Consequently the tests were limited to ordinary dynamite (75 per cent. of nitro-glycerine) and fine-grain black mining-powder. In order to approximate as closely as possible to the conditions obtaining in practice, use was made of a reciprocating-piston, working in a pump-barrel, the latter representing the shot-hole, the former the stemming-rod. The pump-barrel was composed of cement and flint concrete, and was open at both ends, the interior being recessed in the shape of a spiral intended to retain small quantities of the explosive during the stroke of the piston. The latter measured 40 mm. in diameter, and had a stroke of 12 cm.; whilst the crank from which it was driven was arranged to run at a speed of 125 or 375 revolutions per minute, the linear velocity of the piston in the former case being 50 cm. per second, and in the latter 1·5 m. per second.

The test was applied to mixtures of explosive and stemming (sand or clay) in equal proportions. The sand used was finely powdered, dry, siliceous sand, the clay also dry, this condition being selected in preference to the damp state, as presenting greater risk of ignition. Four series of tests were applied, the intensity of the friction being progressively increased. First series: The (wooden) piston was accurately adjusted in the cylinder to reduce the play to a minimum, and the speed was 125 revolutions per minute. The machine was run continuously for eight hours a day during ten days, successive additions being made every hour of the mixtures of stemming and dynamite or powder. In no case was any explosion produced. Second series: The same apparatus was used, except that the wooden piston was replaced by one of iron, also fitted tightly into the cylinder. After eleven days the test was suspended, no explosion having been produced. Third series: In order to increase the friction the cylindrical piston was replaced by an iron one of slightly conical shape, the pump-barrel being tapered to correspond. The previous tests were repeated during four days, the machine being stopped every half-hour for the addition of small quantities of explosive into the cylinder. At the close of the experiment the concrete cylinder was found to be worn for a distance of several centimetres. The results were negative throughout. Fourth series: The same machine was used again, after adjustment, but the speed was increased to 375 revolutions per minute. This considerably increased the vibration, the foundation rocking continually, and producing knocks between the cylinder and piston. The machine was run for a whole day, with stops at intervals of a quarter of an hour for the addition of more explosive; but, though the cylinder was found to be worn and the piston to have become very warm, no ignition occurred. Sand mixtures alone were subjected to this test.

Although it would be inadvisable to conclude from the negative results furnished by these tests that there is no risk of ignition from friction in practical shot-firing, it may be assumed that the probability of accidents from this cause is small; the more so that the presence of fragments of explosive on the sides of the shot-holes is likely to be rare, provided the explosive has been properly packed in the cartridge.

The Committee consider that the foregoing tests, without having completely solved the whole of the problems investigated, have at least shown that: Sand stemming appears to give better results than clay in practice; sand stemming opposes greater resistance than plastic substances to blowing out, which is a factor of considerable importance in the case of fiery or dusty pits; the danger of ignition by friction in stemming shot-holes seems to be remote, whatever kind of stemming is employed. Consequently the Committee is of opinion that no reason exists for the exclusion of sand stemming in conjunction with safety explosives.

LOSSES WITH COMPRESSED AIR.*

The question as to the causes of loss in the transmission of power by the use of compressed air is very important to all who use it, and, as compressed air is much used in mining, it may be interesting to consider the subject and to try to summarise the causes of loss. We may set out by stating that: (1) When air (or any gas or steam) is compressed it becomes hotter; (2) when it is expanded it becomes cooler; (3) when it is heated its pressure is increased; (4) when it is cooled its pressure is reduced.

Compressed air is obtained by using cylinders fitted with specially arranged valves to admit air from the atmosphere into the cylinder during the return stroke, and to exhaust it from the cylinder into the air-receiver during the advancing—that is, the compressing stroke. The air-cylinders are generally in a line with the steam-cylinders, or tandem-wise, the two pistons being on the same piston-rod.

Suppose that an air-compressor compresses air which is at about atmospheric pressure (say, at 15 lb. per square inch), and at 63 degrees Fahr., into one-third of its former volume, by applying Boyle's law it is known that at a constant temperature its pressure would then be 45 lb. absolute pressure (15 lb. absolute pressure × 3), and (45 − 15) 30 lb. above the atmospheric pressure. But the temperature is not constant, it rises; and, in reality, the compression into one-third of its volume will in this case raise the temperature of the air from 63 degrees Fahr. to 360 degrees Fahr. Now, this temperature should give a pressure of about 55 lb. above the atmospheric pressure (instead of 30 lb.). If the air could be kept at this high temperature it would remain at this pressure, and all would be well, because in that case, when the air was used in the cylinder, it would expand from 55 lb. above the atmospheric pressure to the atmospheric pressure, and at the same time it would cool down from 360 degrees Fahr. to 63 degrees Fahr. If that could be done the air, when used, would give back practically the same amount of work as had been performed upon it in compressing it. But in actual practice the compressed air has to be taken a long way in iron pipes, and these pipes give out the heat. The compressed air is thus cooled, and if it should be cooled down to its original temperature, 63 degrees Fahr., while still occupying the same volume, its pressure would have fallen to exactly 30 lb. above atmospheric pressure, in conformity with Boyle's law. This is what actually does occur in practice. A loss of heat always results in loss of work.

It will be seen that a very low proportion of the work done in the steam-engines compressing the air is given off by the engines or motors using the compressed air, on an average from 25 to 30 per cent. only, so that two or three times as much fuel is consumed as would be necessary if steam were used direct; but, of course, there are circumstances in which no other motive force can be so well applied, unless it is electricity.

In summarising the causes of loss it would be well to classify the losses into those which may be called the primary and secondary causes respectively.

* Abstract from article by Mr. George Farmer in the *Journal of the British Society of Mining Students.*

Primary Causes of Loss or Lowness of Useful Effect.

1. Generation of heat during compression, which passes away by radiation, &c., without producing any useful effect; this loss of heat represents exactly the same loss in work.

2. During compression, the temperature of the air being increased, its bulk is increased. During compression from atmospheric pressure to 45 lb. above, its bulk is increased so much by the increase in temperature that what should be 2 cubic feet becomes 3 cubic feet in the air-cylinder; but on leaving it, with reduction again of the temperature, the bulk is again reduced to 2 cubic feet, so that the work of compression is performed on a larger bulk of air than work is obtained from.

3. Inability to get much expansion out of the compressed air at the motor. The compressed air on arriving at the motor, at the point it is to be utilised, is at or near the temperature of the atmosphere, and always holds some moisture in suspension. On expanding in the cylinder of the motor its temperature will fall to such an extent that the moisture will freeze, and ice is formed in the exhaust-passage of the engine.

Secondary Causes of Loss.

(1.) Resistance to air in passing through suction-valves. (2.) Resistance to air in passing through delivery-valves. (3.) Clearance-losses in cylinder. (4.) Leakage past the piston. (5.) Losses from friction of mechanism. (6.) Losses in air-mains from leakages. (7.) Losses from friction in air-mains of insufficient diameter.

Means of diminishing the Loss of Power.

There have been several methods adopted for diminishing the loss of power in compressing air, and the writer will first try to describe, or consider, those adopted for diminishing primary losses, the more important ones. These losses have been to some extent obviated by surrounding the air-compressors—the cylinders—with cold water, so that the surface of the cylinder shall not be heated during compression. This reduces the pressure of the air, and consequently less work has to be done upon it in order to compress it, and hence also less heat is generated in the act of compression. By this means the temperature is not raised so high, and thus less heat—*i.e.*, less work—is lost by radiation during the whole operation. It is necessary to cool the cylinders for other reasons, such as the lubrication of the cylinder and the packing of the piston-rod and valves. Also, when the cylinder is very hot, the air which enters from the atmosphere is at once heated and expanded before the inlet-valve has closed, and thus the air compressed by each stroke will fill a smaller volume when it has cooled in the receiver and pipes. This smaller volume at equal temperature and pressure represents a proportionately smaller quantity of work.

Again, we may adopt stage compression with intermediate cooling, such as the West two-stage compressor. In this the air may be compressed to 35 lb. in the low-pressure cylinder, then passed through the intermediate cooler to the high-pressure cylinder for further compression. For pressures of four atmospheres and upwards, the extra first cost, &c., of a stage compressor will pay for itself in a short time, because the loss which arises from heating of the air increases rapidly as the pressure increases.

We cannot afford to use the air without expansion, hence some means must be adopted to use the air expansively without being encumbered with the freezing difficulty. Several methods have been devised of heating the air before it reaches the motor, so as to obtain the necessary expansion and avoid the freezing. When the compressed air comes to be used to drive an engine the air has already cooled down nearly to its former temperature. When it is expanded in the cylinder down to atmospheric pressure its temperature falls very low, and thus its pressure upon the piston falls much more rapidly than it would do if the temperature remained constant. When the air is exhausted its temperature is usually much below the freezing temperature of water, and therefore the moisture in the air is frozen upon the exhaust-valves, and causes much trouble by choking them with ice. The writer considers that the best means to adopt to diminish the loss from this cause would be to provide air-receivers of a large size, both near the air-compressor on the surface and near the engines underground where the air is used; these, together with the air-mains of ample dimensions, would give sufficient time to deposit any moisture held in suspension, and with large and straight exhaust-passages no trouble need be experienced from ice, because if there is no water, or moisture, it is not likely there will be ice.

Diminishing Secondary Losses.

These losses may occur by the suction-valves not being large enough, or the springs upon them being too strong. The negative suction-pressure sometimes amounts to 2 lb. or 3 lb. per square inch—a serious loss of power. Valves actuated mechanically are to be preferred, but these are more suitable for large-size compressors, and are often found to be too great a refinement for small ones. West and Jenkins have a good mechanically actuated valve, and Reidler's and Fowler's are also good valves.

Delivery-valves should be nicely adjusted, capacious and easy, and quick in action. They should open immediately the piston-pressure equals the receiver-pressure, and should close again immediately it becomes less. In badly constructed compressors the delivery-pressure in the cylinders is frequently several pounds below the receiver-pressure; extra work is then required to deliver the air against this resistance. If the delivery-valves do not close immediately the piston-pressure becomes less than the receiver-pressure, then the engine loses the work it has performed. To guard against this the air-compressing cylinder should be frequently indicated, to see that the valves are in good and proper working-order.

Clearance-losses are often very troublesome. The simplest method of reducing clearance-loss, so far as the writer knows, is by means of by-pass grooves in the end of the cylinder, which allow the high-pressure air to pass to the other side of the piston, where it will be a distinct gain. The

air should pass through the grooves at a velocity not exceeding 100 ft. per second. The piston should, of course, work as close as possible to the cover, so as to make the clearance-space as small as possible. Only the best kind of piston-rings obtainable should be used in the air-cylinders. The piston of an air-compressor is more difficult to keep tight than a steam-piston; the moisture from the steam helps to keep the piston-ring tight, but the reverse happens with dry air.

The losses from friction of mechanism depend chiefly upon the accuracy of workmanship, the arrangement of the compressor, the efficiency of lubrication; all of which should be well attended to in the design and future working of the compressor. Equally so, good and reliable workmanship will often result in diminishing the losses from leakage in the air-mains. In bad arrangements great loss will result from leakages at the joints of the air-pipes; and more care is necessary with these than with steam-pipes, because a leakage of steam can be easily seen, whereas small leakages of air cannot be seen. Good joints should be made at first, providing properly for contraction and expansion; and they would give little trouble afterwards. The air-main should be sufficiently large. The loss due to friction in air-mains increases not directly as the velocity, but as the square of the velocity. Should the air-mains be too small it is quite evident the air will be wire-drawn, the pressure diminished, and the greatly increased velocity will produce a greatly increased friction. The delivery in the pipes should be more than equal to the quantity that the engines worked are capable of taking out.

In spite of these losses, compressed air is largely used for underground motive power; it has many advantages over steam under certain conditions, as the latter is not a convenient motive power to convey far into a mine. Compressed air as a motive power can be conveyed to any point in the workings, and the power can be readily split up by means of branch pipes, and carried in small quantities to numerous points. The exhaust air improves the ventilation, although this is hardly appreciable in well-ventilated mines, the cold air cools the mine, and quantities of gas can be cleared away by directing the air on to it.

As may be readily seen, the installation of a compressed-air plant requires a large capital expenditure; but once established it is not expensive to maintain. It requires extensive plant on the surface, a steam-engine being necessary in the first place to produce the compressed air; and to maintain a uniform pressure of air it is necessary that the generating plant should have a good margin of power and capacity. There are circumstances in which no other motive power can be so well applied, but on economical grounds, wherever practicable, steam, or some other force, should be employed direct.

If steam is not found advisable, and compressed air is preferred, then a good and large plant should be put down; the first cost of this should not be considered too much, while, on the other hand, the work to be done should be well considered, and a plant put down to do more than that work. The plant should be perfect in every possible item, and, in order to minimise the losses, only reliable and good workmanship employed, and sound material used.

A knowledge of the laws which govern the changes in the temperature, pressure, and volume of air should be of immense service to would-be users of compressed air:—

Let P, V, and T = the initial pressure, volume, and absolute temperature respectively of a given weight of air,

and p, v, and t = the final pressure, volume, and absolute temperature respectively of a given weight of air;

Then—(1.) At constant temperature $PV = pv$.

(2.) At constant pressure $\frac{V}{v} = \frac{T}{t}$

(3.) At constant volume $\frac{P}{p} = \frac{T}{t}$

If air be compressed or expanded adiabatically the following formulæ hold good:—

$$(4.)\ \frac{p}{P} = \left(\frac{V}{v}\right)^{1\cdot408}$$

$$(5.)\ \frac{t}{T} = \left(\frac{V}{v}\right)^{0\cdot408} = \left(\frac{p}{P}\right)^{0\cdot29}$$

The units of work U required to compress a volume of air V to a volume of air v, or to compress a volume of air V from P to p, are:—

First, adiabatically—*i.e.*, without loss of the heat due to compression,

$$(6.)\ U = \frac{PV^{1\cdot408}}{0\cdot408}\left(\frac{I}{v^{0\cdot408}} - \frac{I}{V^{0\cdot408}}\right)$$

Second, isothermally—*i.e.*, at constant temperature,

$$(7.)\ U = PV \text{ hyp. log. } \frac{V}{v}$$

When air is compressed adiabatically the rise in its temperature is an exact measure of the work done upon it, and so the units of work required to compress it can be calculated from the increase of temperature. This rise in temperature $t - T$ is given by (5); and the units of work = this quantity × weight of the air in pounds × specific heat of air at constant volume expressed in foot-pounds—viz., 130·2. Thus, if W = weight of the air in pounds,—

$$(8.)\ U = (t - T)\ W\ 130\cdot2.$$

In the following appendix will be found the annual reports of Inspectors of Mines, Wardens, and other officers; the questions used at the recent examinations of candidates for certificates of competency as mine-managers and battery-superintendents, together with a list of persons holding such certificates; and the usual schedules.

I have, &c.,

JOHN HAYES,

Inspecting Engineer.

The Hon. the Minister of Mines.

APPENDIX.

REPORTS OF INSPECTORS OF MINES.

Mr. James Coutts, Inspector of Mines, to the Under-Secretary for Mines, Wellington.

Sir,— Inspector of Mines' Office, Thames, 13th March, 1902.

I have the honour to furnish herewith the returns and report on the gold-mining industry in the Hauraki district for the year ended the 31st December, 1901.

Although mining operations in this district have caused no excitement worthy of notice by any new or important discoveries being made, still it is pleasing to find (in reviewing the returns) there is a considerable increase in the output of gold as compared with previous years. This is due to the splendid returns obtained from month to month from the Waihi Company's mine. The yield of gold from the localities of Thames and Coromandel shows a slight decrease, but there is always a hope that something rich or important will be discovered at either of those places at any time which would be the means of causing an impetus to the mining industry, and again bring them to the front, thereby giving employment to hundreds of men as in the past.

Waihi Gold-mining Company's Mine.—The operations in this company's mine have not only been directed to taking out the quartz in sight, but extensive development-works have been carried out to further prove the value of this magnificent property, which appears to increase in value the more it is opened up. The ore-bodies are maintaining their size as they are followed down, and, although the quartz apparently becomes more mineralised, it is considered there will be no great difficulty with the mineral in the treatment and extraction of the precious metals. The bullion returns are sufficient to show that, if this is not the greatest gold-producer in the world, it is by far the largest in New Zealand. The following is a summary of operations carried out in the mine during the year ended the 31st December, 1901:—

No. 6 Level.—In the month of August last operations were commenced at this level, which is 110 ft. below No. 5, by excavating two large chambers, one on each side of the shaft. The north-west crosscut was driven 304 ft., and at 60 ft. from shaft quartz came to hand, having a course of 19 degrees magnetic, and a dip of 1 in 10 W.N.W. This proved to be a large body of oxidized ore extending diagonally across the course of drive for 68 ft. from point of intersection until the country was reached on northern side. This lode embraces (it is believed) the junctions of Welcome, north and south branches, also Magazine and Regina lodes. From 128 ft. to 172 ft., a distance of 44 ft., a conglomerate of quartz and country was passed through. Then quartz came to hand again, striking in the same diagonal course across the drive. This body proved to be a mass of rubbly ore 88 ft. in width. After this 13 ft. of oxidized andesite interlaced with veins of quartz was passed through, which gave place to solid quartz again at 273 ft. The latter was penetrated 31 ft. up to end of year. This lode, from its appearance and dip, is believed to be the Martha. The west crosscut from north-western chamber was driven 65 ft., and intersected south section of Welcome lode at 47 ft.; here the lode is 8 ft. wide, and it has been driven on west 15 ft. The south-east crosscut was driven a total length of 181 ft. At 160 ft. the Empire lode was intersected; the lode is 8 ft. wide, course 94 degrees, dip 1 in 4 south. The Magazine lode was driven 181 ft. east of No. 2 shaft, north-west crosscut, on course of lode.

No. 5 Level.—During the year a distance of 1,205 ft. was driven on course of the Martha lode, made up as follows: 101 ft. west of No. 2 shaft, 468 ft. west of No. 1 shaft, and 636 ft. east of same. The different widths of lode at intervals of 50 ft. are given as follows: East of No. 2 shaft —Crosscut 77 ft., full width 62½ ft.; crosscut 128 ft., full width 60 ft.; crosscut 178 ft., full width 59 ft.; crosscut 230 ft., full width 73 ft.; crosscut 278 ft., full width 62 ft.; crosscut 328 ft., full width 45 ft.; crosscut 378 ft., full width 37½ ft.; crosscut 429 ft., full width 40 ft.; crosscut 479 ft., full width 45 ft. No. 1 shaft, north-west crosscut, full width 33 ft. East of No. 1 shaft—Crosscut 50 ft., full width 33 ft.; crosscut 100 ft., full width 53 ft.; crosscut 150 ft., full width 53 ft.; crosscut 200 ft., full width 43 ft.; crosscut 250 ft., full width 44 ft.; crosscut 300 ft., full width 36 ft.; crosscut 350 ft., full width 37 ft.; crosscut 400 ft., full width 35 ft.; crosscut 453 ft., full width 36 ft.; crosscut 500 ft., full width 31 ft.; crosscut 550 ft., full width 25 ft.; crosscut 600 ft., full width 31 ft. At the beginning of the year the level on the north section of the Welcome lode stood at 88 ft. west of No. 2 shaft. Since that time it has been extended a further distance of 567 ft., while the south section was driven on 236 ft., making a total of 803 ft. Crosscuts through lode in the north section give following widths: Distance from No. 2 shaft 200 ft., width 25 ft.; 323 ft., width 17 ft.; 403 ft., width 30 ft.; 461 ft., width 36 ft.; 519 ft., width 24 ft.; 577 ft., width 14 ft.; 651 ft., width 14 ft. As the Empire lode now embraces the late Albert lode, the whole may be dealt with as one continuous body extending from A Pass west to 10 ft. east of No. 4 shaft, south-east crosscut, a distance of 794 ft., which has been all developed during the year. The width of lode can be seen from the following statement (all measurements taken from No. 2 shaft, south-east crosscut, on original section of Empire lode): 131 ft. east, 24 ft. wide; 184 ft. east, 16 ft. wide; 236 ft. east, 25 ft. wide; 294 ft. east, 32½ ft. wide; 347 ft. east, 22½ ft. wide; 397 ft. east, 29 ft. wide; 447 ft. east, 33 ft. wide; 497 ft. east, 21 ft. wide. No. 4 shaft—South-west crosscut, 28½ ft. wide; south-east crosscut, 8 ft. wide. The south-east crosscut from No. 2 shaft was advanced from 373 ft. to 976 ft., or home to No. 5 shaft; while driving this crosscut two important lodes were intersected.

The Princess lode has been driven on to Empire junction, a distance of 284 ft. from No. 2 shaft, south-east crosscut; the average width is about 3½ ft. The south-east crosscut, No. 4 shaft, was driven from No. 4 to No. 5 shaft, a distance of 375 ft., and connected with crosscut coming from No. 2 shaft. At 79 ft. from starting-point the Empire lode was met. The No. 1 shaft, north-west crosscut, was driven 123 ft. At 24 ft. the Magazine lode, 12 ft. wide, was cut; at 48 ft. in Regina lode 9 ft. wide, and again at 90 ft. the Martha lode came to hand. At the beginning of year the level on the Magazine lode stood at 455 ft. east of No. 2 shaft; it has since been extended 148 ft., or 25 ft. east of No 1 shaft. The average width along this distance is 8 ft. On the Regina lode 248 ft. has been driven; that is 200 ft. west and 48 ft. east of No. 1 shaft, north-west crosscut. Owing to the lode being wider in many places than the level could command, it was cut through as follows: No. 1 shaft—North-west crosscut, 9 ft. wide; distance west, 51 ft., 6 ft. wide; 100 ft., 10 ft. wide; 150 ft., 9½ ft. wide; 199 ft., 8 ft. wide.

No. 4 Level.—In the Prince lode a distance of 102 ft. was driven west of old south-east crosscut. At the starting-point it was 5 ft. wide, but proved to be very irregular as the level advanced west. On the Princess lode the level was only extended 40 ft. during the year, which makes 338 ft. west on course of reef from old south-east crosscut. On the Royal lode 306 ft. was driven early in the year. The old south-east crosscut was advanced during year 240 ft., making the total length from No. 2 shaft 1,633 ft.

Surface-works.—Driving through country, in connection with the drainage and facilitating filling-in material, 1,557 ft. have been cut. On the Martha lode the surface cutting on new intermediate level has been extended from 20 ft. west of Bull's Pass to 139 ft. The lode at starting-point was about 9 ft. wide; at present face it is 22 ft. wide and 40 ft. in height. From this cut 4,797 tons of a fair class of free-milling ore have been supplied.

Mine-developments and Dead-work Footage. — The following figures show the amount of shaft-sinking that has been done: No. 1 was 410½ ft. at beginning of the year; sinking was stopped in March last and resumed on the 9th December, making the total depth 478 ft., 67½ ft. having been sunk during the year. The depth last year of No. 2 was 534¼ ft.; sinking was commenced on the 25th March and stopped on the 16th July, 108¾ ft. having been sunk: total depth, 643 ft. In No. 4 sinking was stopped on the 25th April at a total depth of 450 ft., 97 ft. having been sunk. In No. 5 sinking was stopped on the 20th July at a total depth of 456 ft., 192½ ft. having been sunk during the year. The filling-shaft was sunk from No. 4 to No. 5 level, a depth altogether of 574 ft., 89 ft. having been sunk during the year. The total sunk in all shafts during the year was 554¾ ft. 4,766 ft. was driven in country; 6,447 ft. was driven in course of lode; 1,618 ft. crosscut in lodes; and winzes sunk, 3,737 ft.: making a total of 16,568 ft., which, added to the shafts sunk (554¾ ft.), makes a total of 17,122¾ ft. The total depths of the five shafts are as follows: No. 1 shaft, 478 ft.; No. 2 shaft, 643 ft.; No. 3 shaft, 348 ft.; No. 4 shaft, 450 ft.; No. 5 shaft, 456 ft. The filling-shaft has also been deepened 89 ft. during the year, making a total depth of 574 ft. from the surface. At the No. 5 shaft the new Hathorn-Davey pump and two Babcock and Wilcox boilers have been erected, and the necessary building, flue, and chimney and pump column obtained. Two safety-cages and poppet-head pullies have also been procured, and are in use. A capstan engine was obtained for this shaft from Messrs. A. and G. Price, Thames. A change-house has been erected between the No. 4 and No. 5 shafts.

Product.*—A total of 159,325 tons (dry weight) has been treated during the year, being 47,313 tons in excess of the total of 112,012 tons which was treated during the preceding year. Of this total, 95,829 tons has been dry-crushed, and 63,496 tons wet-crushed. A considerably larger tonnage as compared with last year has been obtained from the Empire reef, and a somewhat greater tonnage from the Martha, Welcome, and Regina reefs. On the other hand, a smaller tonnage has been supplied from the Victoria reef. The product has been 483,113 oz. of bullion, exclusive of concentrates and pan-tailings shipped to Australia. The value of the product, computed on the usual basis of gold valued at £4 4s. and silver at 2s. per ounce, was as follows: 483,113 oz. bullion (excluding concentrates), £431,601 0s. 8d.; 356,851 tons of concentrates (assay-value), £20,825 14s. 4d.; net out-turn of pan-tailings, £704 17s. 6d.: total, £453,131 12s. 6d.

Reduction-works, &c.—The respective tonnages crushed at the mills were as follows: Waihi mill (dry crushing), 45,389 tons; Victoria mill (dry crushing), 50,440 tons; wet crushing, 63,496 tons: total, 159,325 tons. The total average number of stamps running during the year, exclusive of Sundays and the period at Christmas during which the mills were closed down, was 276·710. The total average duty per stamp per diem was 1·96 tons. Wet crushing, Victoria mill (100 stamps): Eighty-five stamps were started on the 11th January, the remaining fifteen stamps being got to work on the 15th January. Early in the year twenty head of stamps were put on to mineralised ore, the product passing over six Union vanners. Later on in the year two more Union vanners were erected, and an additional ten heads of stamps were employed in crushing mineralised ore. A Blake-Marsden stone-breaker which was in stock was erected in the wet-crushing stone-breaker building, in addition to the two Gates's crushers already erected. A small Dehne press was obtained from the Sulphide Corporation (Limited), New South Wales, and one was ordered and obtained from J. Martin and Co., of Gawler, South Australia, fitted with fifty frames, 36 in. square; cakes, 3 in. thick. This has proved satisfactory. An order was placed with J. Martin and Co., of Gawler, for three new filter-presses, which have now come to hand. A contract was let to A. and G. Price for six agitators, a collecting-vat, and a sump, all of which have been delivered and erected. A second pressure-tank was also obtained from R. H. Yeoman. A chain elevator for raising the ore from the stone-breakers to the mill ore-bins was obtained from England. A con-

*There is a crushing included in the above product sent in in the month of January, and does not appear in the returns.—J. Coutts.

tract was let for the supply of four sand-pumps for raising the pulp from the mortar-boxes to the trestle launder. An elevator-wheel 25 ft. in diameter, for lifting the slimes into the slime-tanks, has been constructed at Waikino. During the year the permanent rolling-stock has been increased by the addition of twelve side-tip ore-trucks, six coal-trucks, four goods-trucks, and two pairs of bogies. There has been an average of 1,079 men employed. The sum of £165,000 was paid in dividends for the last year, making a total of £795,629 4s. 3d. since the commencement of the mines.

Union-Waihi Gold-mining Company (Limited).—This mine was vigorously worked up to the end of September by the company, but as the quartz operated on was barely sufficient to pay expenses, and the company having previously found a large sum of money to purchase the Waihi Silverton Mine and crushing plant, the capital became exhausted, and they found it was necessary to apply for six months' protection to give time, and thereby enable the directors to find ways and means to further carry on contemplated works. The Waihi Company holds a large interest in the above-named mine, and it is now rumoured they have taken the property over, and no doubt in a short time further development will be proceeded with to prove the value of the reefs at lower levels. The following is a summary of operations carried out: In the two sections of the property a total of 238 ft. of shaft-sinking has been made. The No. 1 shaft, which stood at 612 ft. at the commencement of the year, has been sunk 55 ft., making a total depth of 667 ft. The Silverton shaft has been deepened 183 ft. The depth of this shaft at the commencement of the year was 367 ft. Its present depth is 550 ft. During the year a total of 19,418 tons has been crushed at the mill. This tonnage has been obtained from the various reefs in the following proportions*: Union reef, 16,150 tons; Amaranth reef, 1,337 tons; Silverton reef, 1,931 tons: total, 19,418 tons. The above figures are based on dry weight after deducting the percentage of moisture contained in the ore. The product was 22,685·7 oz. of bullion, valued here at £27,996 10s. 4d., which is equal to an average value of £1 4s. 9d. per ounce. The weight of bullion produced is equivalent to 13 cwt. 3 qr. 15 lb. The value has been computed on the basis of gold at £4 4s. and silver at 2s. per ounce. The mill comprises a total of forty stamps. An average of 36·87 stamps was employed full time, the daily average duty per stamp being 1·84. Steam-power was required for 133½ days, the water-power during the drier months of the year being of very little assistance. Coal has been used for steam purposes. With the exception of a short period, when 30-mesh screens were used on the mortar-boxes, the ore was crushed through screens of 40-mesh. The total value actually recovered from the commencement of milling in September, 1900, to the end of September, 1901, was as follows: Gold, £26,697 5s. 3d.; silver, £1,299 5s. 1d.: total, £27,996 10s. 4d. The actual yield per ton was £1 8s. 10d. Of the total value of bullion recovered, 31·8 per cent. was obtained from the plates and 68·2 per cent. by the subsequent cyanide treatment. For the period ending the 23rd March, however, the plates were in use for only nine days, and treated 670 tons. During that period 1,750 tons of ore was treated, so that 1,080 tons was not passed over the plates. Details of the saving by amalgamation (plates) were as follows: Gold, 2,094·58 oz.; value, £8,797 4s. 8d. Silver, 1,132·34 oz.; value, £113 4s. 10d. Total value, £8,910 9s. 6d. The following is the tonnage treated and bullion produced from the 30th September to the end of the year 1901, prior to which the mill had been stopped: For period ending the 2nd November, 2,134 tons; bullion recovered, 3,152 oz.; value, £3,677 4s. 3d. For period ending the 31st December, 549 tons; bullion recovered, 3,486·5 oz.; value, £4,303 14s. 7d. Total, 2,683 tons; bullion recovered, 6,638·5 oz.; value, £7,980 18s. 10d. Regular stoping has been carried on on the Union lode, and about 2,000 fathoms of ore-ground has been stoped out. From No. 3 shaft at No. 1 level the Mascotte lode has been driven on west 204 ft. from the shaft. The second contract for sinking the Silverton shaft was finished on the 23rd July, making a total depth below No. 4 level of 215 ft. A chamber was then opened out at a point 200 ft. below No. 4, leaving 15 ft. for the pump-sump. Here a second drawing-lift was placed, which pumps the water up into a cistern at No. 4 level, and from this cistern the No. 1 drawing-lift pumps to the plunger cistern at No. 2 level. The country formation passed through in sinking this 215 ft. is a highly mineralised andesite, and the crosscut to the lode is being driven through the same kind of formation. The following is a summary of the work done: Shafts sunk, 238 ft.; crosscuts driven, 861 ft.; drives (footage), 1,660 ft.; rises, 438 ft.; winzes, 218 ft.; new pump and pit work put in from No. 3 to No. 5; new pump and pit work from No. 4 to No. 6 (Silverton section).

Waihi Grand Junction Gold-mining Company (Limited).—This mine has been steadily worked, although in the early part of the year there was a large quantity of water to contend with, which greatly retarded the work in the Grand Junction section. The main shaft has been sunk a further distance of 136 ft., making it a total depth of 635 ft. Sinking has been stopped for some time, the company having decided to direct operations to opening up and developing the reef at the 500 ft. level, where it was intersected some time ago; but owing to the large quantity of water coming out of the reef they were then unable to proceed with this work. Since operations were again resumed here the reef has been cut through at the end of the crosscut, and found to be 24 ft. in width at this place. It has been driven on in a north-easterly direction for a distance of 134 ft. This is being extended with all possible speed to a point underneath a level that has been driven from No. 2 shaft at a depth of 336 ft., where a rise will be put up to connect with the level named, for an outlet and for the purpose of ventilating the mine. The reef has also been driven on for a distance of 96 ft. to the western side of the crosscut. Here it is compact, the quartz having a promising appearance, and said to carry a fair value. The south crosscut at the 500 ft. level has been extended a further distance of 694 ft., making a total distance of 947 ft. This is nearly up to the company's boundary, and in conse-

* There is a crushing included in the above product sent in in the month of January, and does not appear in the returns.—J. Coutts.

quence has been stopped; but the management does not think this level was deep enough to intersect the Empire or other reefs (in their trend from the Waihi Company's mine) they were driving for. The West C shaft, which is on the western side of the Waihi Company's mine, has been sunk a further distance of 306 ft., making it a total depth of 516 ft. At this depth a level has been driven in a northerly direction 335 ft., where it is expected the reef will shortly be met with, when it will be driven upon and developed. A south crosscut has also been driven at the same level for a distance of 176 ft., but nothing of any importance has yet been discovered. There has been an average of sixty-five men employed in this mine during the year.

Waihi Extended Gold-mining Company.—In the early part of the year sinking operations were in hand, but, owing to the surface-drainage of the water being more than the buckets could contend with, it was found necessary to procure a 4 in. Tangye pump, driven by steam, to enable the work of sinking to be continued until a depth of 300 ft. from the surface was reached. At this depth two crosscuts were driven—one in a south-eastern direction for a distance of 128 ft., the other north-west, 276 ft. in a good channel of andesite country. These crosscuts were put in with a view of intersecting some of the reefs that traverse the Waihi Company's property, but, owing to the thickness of the rhyolite and pumice sunk through in the shaft before the andesite was reached, crosscutting to discover reefs at this depth was rather shallow; therefore nothing of any importance was met with beyond small quartz stringers and indications of reef-formations. One of these formations was driven on for 30 ft., but as no improvement took place all work at this level was suspended, and sinking operations in the shaft again resumed, a contract being let for sinking 100 ft., 84 ft. of which was completed up to the end of the year. It is the company's intention to sink the shaft to a depth of 500 ft. before again opening out, and at this depth it is anticipated something of importance will be met with in the shape of compact payable reefs. An average of sixteen men has been employed during the year.

Pride of Waihi Gold-mining Company.—This property comprises an area of 100 acres, and adjoins the Waihi Extended Mine. The mine was under protection the first half of the year. Since then four men were employed in driving a crosscut drive from the Waihi Extended Company's shaft. As driving here was not as satisfactory as could be desired, the sinking of the shaft was again commenced, but only a depth of 35 ft. was attained, when it was found the water was too much to contend with by hand-labour, and sinking has been suspended for a time pending arrangements being made by the company to erect machinery to cope with the water.

Waihi Consols Gold-mining Company.—Six men were employed up to the 16th April in driving a surface-level near the Waihi Company's property on the Martha Hill. A distance of 300 ft. was driven, and a winze sunk on a flat leader to a depth of 35 ft., but as the water was too much to contend with by hand-labour this work was discontinued. Since then boring operations have been carried on almost continuously, four holes having been put down a total depth of 670 ft. The present borehole is down 130 ft., and the intention is to extend this hole down to a depth of 1,000 ft. if possible. An average of five men has been employed.

Waihi Gladstone Gold-mining Company.—Prospecting and developing work has been steadily carried on in this mine during the year. The No. 2 shaft, to the west of No. 1 workings, has been sunk to a depth of 148 ft., and a crosscut drive has been driven at this depth to intersect the main reef, which has been opened up and driven on to a considerable extent from the No. 1 shaft, at the No. 1 and No. 2 levels. The reef in those levels varies from 4 ft. to 6 ft. in width, and the greater portion is said to be payable ore. A trial parcel of 2 tons of general ore was lately treated at the Thames School of Mines, which gave a return of 7 oz. 3 dwt. of gold; value, £4 15s. 2d. An average of eight men has been employed.

Waihi Consolidated Company.—This property has been held under option by Mr. Ziman, who did a good deal of boring with a diamond drill. Several holes were put down (varying from 200 ft. to 600 ft. in depth) for the purpose of locating the continuation of the reefs worked by the Waihi Company, but so far without success. On account of the broken nature of the country penetrated every hole was stopped, as they could proceed no further owing to the holes getting too small, &c., and in consequence the solid or gold-bearing country has not been met with in any of the holes. Three men were employed.

Waihi South Gold-mining Company.—Very little work has been done in this mine during the year, pending arrangements being made by the directors for the erection of a more powerful plant to contend with the water.

There has only been a very limited amount of prospecting done in the neighbourhood of Waihi outside of the claims already mentioned.

Waitekauri Gold-mining Company (Limited).—In the Golden Cross section a depth of 710 ft. has been reached, 200 ft. having been sunk during the period under review. The main crosscut from the shaft is in 210 ft., and the intersection of the reef is daily expected. When this level has been satisfactorily developed a block of ground on the reef 200 ft. in height will be available. At No. 5 level the reef has been explored for a distance of 343 ft., and the block opened up has produced a large tonnage of payable ore. Stoping operations at Nos. 3 and 4 levels continues with satisfactory results. The work at No. 2 level has been principally confined to prospecting large blocks of ore left at the sides of the level. As a result thereof, a considerable quantity of payable ore has been forthcoming. At No. 1 level ore has also been obtained along the side of the level, and at present there is every indication that the ore-reserves will be considerably increased. The main drive north on the reef has been extended 172 ft.; this was undertaken as a prospecting-work, and the value of the reef has been proved for the full distance driven. The grade of the ore is low, but improves in value as it is driven on north. The Golden Cross low-level tunnel—after having been extended a distance of 2,610 ft.—has been discontinued. The following is a summary of work done in this section: Shafts sunk during the year, 200 ft.; winzes sunk during the year, 162 ft.; rises put up, 581 ft.; driving on reef, 1,058 ft.; crosscutting done, 431 ft.; stoping done

on reef, 446,199 cubic feet. In the Te Ao Marama section the shaft has been sunk 130 ft., making the total depth 570 ft. A further 30 ft. of sinking is necessary to reach the Komata low level, where a connection can be effected. From the shaft driving on two of the reefs in this section has been prosecuted. The Komata low-level tunnel was undertaken with the object of establishing a connection between the Komata and Te Ao Marama section and the company's mill at Waitekauri, and also with a view to the discovery of new lodes *en route*. 1,363 ft. has been driven during the year, making a total distance of 3,439 ft., and about 750 ft. of driving is yet necessary to get under Te Ao Marama shaft. In view of the probability that some more advantageous method of working the Komata section will present itself, the extension of this tunnel has been suspended. The Grace Darling low level has been extended 91 ft.; total length, 116 ft. As this work did not reveal anything of a payable nature, driving has been discontinued. In the old Waitekauri Mine an average of eight men has been continuously employed, and five heads of stampers are now constantly engaged in dealing with the ore obtained from small blocks. The following is a summary of works carried out in this section: Winzes sunk, 73 ft.; rises put up, 110 ft.; driving done, 715 ft.; stoping on reefs, 6,300 cubic feet. An average of 285 persons has been constantly employed during the year.

New Zealand Jubilee Gold-mine (Limited).—In this mine a considerable amount of work was done during the early part of the year in the upper levels—viz., the Moonstone and Horn levels—consisting principally of driving and crosscutting. As there were no fresh discoveries of any importance met with in those workings, it was decided (in view of the promising results obtained in the low-level tunnel) to temporarily suspend work in the upper levels and confine operations to the thorough exploiting of the deep-level portion of the mine. The result of this work will be looked forward to with some interest, as it is on these the ultimate success of the mine depends. The low-level tunnel has been extended a distance of 850 ft. in a southerly direction during the year, making the total distance from the mouth of the tunnel to the face 2,810 ft. At a point 2,380 ft. in from the mouth of the tunnel the two reefs known as the Point and Butler's were intersected, and the drive was then extended on the course of Butler's or Hanging-wall reef. Some highly encouraging results were met with; assays as high as £18 16s. per ton are said to have been obtained from general samples taken over 4 ft. to 5 ft. in width of the reef. The ore is a heavily mineralised sulphide, containing copper, lead, iron, zincblende, &c. At 110 ft. south of the point of intersection a break was met with, which had the effect of throwing the reef slightly out of its course. Since picking it up again a further distance of 315 ft. has been driven on the reef, which carries values throughout varying from 12s. to £4 4s. per ton, and in places it is 20 ft. in width. The intention is to open up an intermediate level between the low and the Horn levels (a distance of 260 ft. vertical), and the levels will be connected. This will insure good ventilation, and give facilities for working out the blocks of ground between the levels. The present low-level tunnel will also be extended indefinitely towards and under the old Waitekauri Company's ground, in order to ascertain whether the rich runs of gold formerly worked in the upper levels hold down. The results of this work should prove the capabilities of the mine. At a recent reconstruction of the company in London a further sum of £6,000 odd was raised, and it is the intention of the directors to devote this money entirely on the development-works mentioned. Should they turn out as satisfactorily as anticipated, further capital will require to be raised in order to erect machinery to treat the ore. An average of nineteen men has been employed.

New Waitekauri Extended Mines (Limited).—The above company was reconstructed in the early part of the year with a working capital of £30,000, the intention being to prove the reef at a depth below No. 3 or lowest level. Operations were commenced in April to cut out a large chamber in the low-level crosscut close to the reef to install boiler-power, winding and pumping plant capable of sinking to a depth of 500 ft., the smoke to be carried away by a rise already constructed to the surface. To expedite matters and to make use of the water-power at hand a single-drum water-hoist was erected, and two small plunger pumps were put in, and driven by a Pelton wheel. A commencement was made with the sinking of a main shaft, 6 ft. by 15 ft. 6 in. in the clear, 40 ft. west of the reef. This shaft had attained a depth of 76 ft. when cable instructions arrived to close down, pending an amalgamation scheme with the Waitekauri Gold-mining Company, which was subsequently carried into effect; and therefore all work for the present will be concentrated in the Waitekauri Company's mine, and the Extended property tested by means of levels from the shaft, which has already attained a depth of 700 ft. An average of forty men was employed by this company during the year.

Waitekauri Cross Gold-mining Company.—Work in this mine was at a standstill during the first six months of the year. On resuming operations a rise was commenced from the adit level to connect with the surface. This rise was vertical, and carried up in two compartments, one being for a ladder-way and the other a mullock-pass. The height of this rise was 80 ft. to the surface. This work was said to be a preliminary step towards the construction of a main vertical shaft. Early in December communication between the two points named was effected, and a section of 25 ft. of the main shaft completed. The shaft is 14 ft. by 6 ft. in the clear, and is divided into three compartments, and substantially constructed with 9 ft. by 9 ft. sets and 9 ft. by 2 ft. planking, all heart of kauri. The intention is to sink this shaft to a depth of 500 ft. before opening out to intersect the reef, which varies at the upper level from 6 ft. to 50 ft. in width. The company previously tried to open up and develop the mine through an underlie shaft sunk on the reef from the adit level mentioned, and on the top of the shaft an electric plant for pumping and winding was erected. This, however, did not prove a success, hence the reason of trying another mode of opening up the mine.

Alpha Gold-mining Company.—Operations in this mine have been principally confined to extending the No. 4 level main crosscut, which has been advanced during the year a distance of 437 ft. Several leaders have been intersected in this drive, but apparently of poor value. The

main reef has also been driven on a distance of 157 ft., and on reaching a point 20 ft. ahead of the present face it is intended to rise up and connect with the workings at No. 3 level, where some fair ore was obtained. This rise will prove the value of the block and improve the ventilation. An average of four men has been employed.

Young New Zealand Gold-mining Company.—The work in this mine has been confined to enlarging and retimbering the main low level, also extending it a further distance of 200 ft., now making the total length of this tunnel 800 ft.; and it is expected that another 60 ft. of driving will bring it underneath the place where a rich chute of ore was worked on the surface levels. Five men were employed.

Hamua Claim.—Three men have been employed in this mine prospecting and driving on small leaders which have been intersected at different levels. From these 1¼ tons of ore was obtained, and treated for a return of gold valued at £29 15s. 7d.

Burbank Mine.—A large amount of work has been done in this mine. Six men have been constantly employed in driving a low level to intersect the Te Ao Marama reefs that are supposed to strike into this property, but so far nothing of importance has been met with.

A little prospecting has also been done on the Starlight, Eclipse, and Waitekauri King, but without success.

Ohinemuri Syndicate, Owharoa.—Operations in this property for most of the year were confined to extending the Elliott low-level tunnel, which has been driven a total distance of 2,764 ft.; but, as nothing encouraging was met with in this drive, all work was stopped at the end of the year, and a large portion of the ground held by the syndicate was surrendered. Six men were employed.

Rising Sun Gold-mining Company.—This mine has been continuously worked during the year, four men being employed. The work consisted in prospecting and opening up the reefs which have been intersected in the different levels. The quartz is said to give high values, but no crushings have taken place during the period under review.

Woodstock Gold-mining Company (Limited), Karangahake.—A very large amount of work has been done by this company in improvements and development-work. The 4 ft. main water-power pipe-line extension has been completed, connecting the new dam with the old pipe-line, a distance of 1,800 ft. A new water-power plant has been installed, and consists of two Pelton type wheels—one 11 ft. 8 in. diameter, and the other 11 ft. 4 in. diameter—the main driving-pulley for the air-compressors being 12 ft. 3 in. in diameter and 38 in. face for a 36 in. (10-ply) Balata belt, and the mill is driven by a 32 in. face 7 ft. 6 in. diameter pulley and a 30 in. (8-ply) Balata belt. Two air-compressors have also been installed—one an Ingersoll-Sergeant compound, rope-driven, low-pressure cylinder 24¼ in. diameter, high-pressure cylinder 15¼ in. diameter, 18 in. stroke, ordinary capacity 1,170 cubic feet free air per minute; and the other a Schram single-compressor cylinder 14 in. diameter, 24 in. stroke. The compressed-air pipe-line erected during the year is of 8 in. diameter wrought-iron welded pipes with loose flanges, and is about 2,300 ft. in length, connecting the compressors and the shaft-chamber. At each end of this pipe-line there is a receiver, and in the chamber a porcupine reheater. The reheater is enclosed in brickwork, requires very little fuel, and entirely prevents any trouble from freezing at the pumps. The shaft has been sunk a further distance of 212 ft., making a total depth of 252 ft. A chamber has been cut out at this depth, and No. 6 level driven a distance of 28 ft. Two winzes are being sunk from No. 5 level on the reef to connect with No. 6 level: one is down 66 ft., and the other down a depth of 10 ft. These winzes will open up blocks of ground and insure good ventilation at No. 6 level. A considerable amount of ore has been opened up by the recent developments, which will keep the mill going for some time. Since the end of the year the mine has been closed down for want of funds, but it is said the company has been reconstructed, and it is expected the contemplated works will soon be in full swing. Ninety-two men were employed by this company.

Talisman Consolidated (Limited).—On the Talisman main reef, No. 4 level has been continued in a southerly direction as a crosscut to intersect the Dubbo reef in the Bonanza section of the company's property, which it enters from the Earl of Glasgow section of the property of the New Zealand Crown Mines (Limited). On intersecting the Dubbo reef it was driven on southwards for a distance of over 500 ft., the ore-body being from 2 ft. to 3 ft. in width in the neighbourhood of the present face. This drive is being continued with a view to reaching a promising shoot of ore intersected by a crosscut in the Royal Mail section of the company's property, about 200 ft. south of the present face in the No. 4 level. The Nos. 5, 6, and 7 levels have been continued in a southerly direction on the Talisman reef for varying distances, and the crosscut at No. 8 level (which will intersect the reef at a depth of 200 ft. below No. 7 level) had attained a total distance of 1,000 ft. at the end of the year. The reef is expected to be cut at this level by the end of February, when driving on the reef will at once be commenced. On the Dubbo reef three adit levels have been driven in a northerly direction up to the Crown Mines boundary, and ore from the stopes above these levels has been forwarded to the company's mill for treatment. The reef in these upper levels has proved to be very variable and small, but it is expected a larger and more regular ore-body will be found at depth. During the year under review the Adeline Reefs and Adeline Reefs Extended Claims were acquired by the company. The area of these claims is 103 acres, so that the total area of the company's mining property is now 372 acres. The new claims are immediately contiguous to the company's property, being bounded on the west by the Victor and Waihou Special Claims. Gold-bearing reefs exist on the new claims, and it is proposed to develop them in due course by means of crosscuts from the Dubbo reef. On the 31st July, 1901, the company's new fifty-stamp wet-crushing and cyaniding plant, erected on the site acquired from the Talisman Extended Company, was formally opened, but, owing to necessary adjustments of the steam-power plant, regular crushing operations did not commence until the second week in September. The returns to date have been extremely disappointing

in comparison with the results obtained with the old dry-crushing plant and of the assays obtained from the mine-manager's samples; but a gradual improvement is expected to take place, and it is anticipated that a large body of profitable ore will be developed at No. 8 level. The new battery, which was erected from designs by Mr. Alfred Harper Curtis, Assoc.M.Inst.C.E., mining engineer, representative in New Zealand of Messrs. Bewick, Moreing, and Co., London, is a wet-crushing and cyaniding plant consisting of four rock-breakers of Blake type; thirty heads of 1,050 lb. stamps, and twenty heads of 950 lb. amalgamated copper plates for recovery of the coarser gold; classifiers for separation of sands and slimes; spitzkasten for thickening the slimes prior to treatment in agitators; fifteen 6 ft. Union and Frue vanners for concentrating; ten steel vats, 22 ft. diameter by 10 ft. deep, for cyaniding coarse sands; six steel vats, 22 ft. diameter by 5 ft. deep, for cyaniding fine sands; four wooden and two steel vats, 22 ft. diameter by 5 ft. deep, fitted with agitators for treatment of slimes with cyanide; also the usual sumps, storage-tanks, pumps, precipitation-boxes, and other accessories. The concentrators, pumps, and agitators are operated by water-power; the breakers and stamps are operated by steam-power; the plant for generating the steam consisting of two Babcock-Wilcox boilers, and the engine being a Wheelock-Corliss single-cylinder horizontal engine of 245 indicated horse-power, with automatic expansion gear and Blake condenser. 11,252 tons of ore was treated during the year for 20,705 oz. of bullion, valued at £17,256 13s. 3d.; and an average of 180 men was employed.

New Zealand Crown Mines Company (Limited).—This mine still continues to be one of the best gold-producers in this district, and is being extensively opened up at various levels. The large underlay shaft has been sunk a further distance of 147 ft. during the year, making the total depth now 372 ft. below the No. 6 Waitawheta level. At this depth the No. 4 B level chamber is being opened out, and when completed the main levels will be extended north and south on the reef, and thereby open up large blocks of ground, as there is 120 ft. of backs between this level and No. 3 B level. The reef (which varies from 4 ft. to 12 ft. in width) has been driven on at No. 3 B level a distance of 1,076 ft. south, and 340 ft. north; and at No. 2 B level it has been driven on a distance of 1,730 ft. south, and 284 ft. north. Stoping operations are being vigorously carried on over the back of this level, where a large amount of payable ore is obtained. A considerable amount of driving, rising, and stoping is in progress in the upper workings above No. 6 Waitawheta level, where there is also a large tonnage of quartz produced. The Waitawheta Tunnel has been driven on the reef a total distance of 2,894 ft. It is at present being extended on the eastern branch with very good results, and at this place the reef is intact for some distance upwards, so that the prospects are exceedingly encouraging, the recent developments showing that there is a likelihood of the mine producing payable ore for an indefinite period. As the mine is well equipped with pumping and winding machinery, there should be no difficulty in obtaining an increased supply of ore to keep the additional twenty heads of stamps (in the course of erection) constantly going. Auxiliary steam-power is being erected, which will be used to assist in driving the plant when the water runs short in the summer months. The tram-line between the mine and the mill is being widened, and relaid with heavier rails, with the intention of running a small locomotive on it to bring the ore from the mine to the battery. The quantity of ore treated was 32,028 tons for 35,660 oz. 14 dwt. of bullion, valued at £66,203 17s. 9d.; and £10,000 was paid to the shareholders in dividends. An average of 240 men was employed.

Comstock United Mine.—An option was held over this property by a syndicate, who directed the operations to extending the low-level tunnel a distance of 650 ft., making it a total distance of 1,100 ft. This work was done for the purpose of intersecting a large reef which is said to exist in this end of the ground, but, not being successful in cutting the reef within the distance named, the men were discharged; but the manager is sanguine that the reef will be met with should the drive be extended a few feet further. Six men were employed in this mine.

Leap Year Mine.—A considerable amount of work has been done on this property by two men. The work has consisted in prospecting and driving on a reef that was discovered about 3 ft. in width. Assays of the quartz are said to have given results varying from £2 8s. 3d. to £27 16s. per ton, but in this instance (as in many others) it will require capital to develop the property.

Waiorongomai.

Empire and New Find Mine.—In the early part of the year operations were directed to stoping on the reef in the Empire section, but, as the chute of payable quartz had been worked out above the level, a winze was sunk about 20 ft. on the reef and stoped up to the level. As the quartz had to be raised to the level with a windlass—thereby increasing the cost of getting it—the manager decided to extend the low level under this place, which has now reached within a few feet of a point immediately under the winze sunk on the reef. Twenty men were employed for most part of the year, but lately they were all discharged, and the owner has been granted six months' protection over the property. 1,289 tons of quartz was treated at the battery for a return of 851 oz. 18 dwt. of gold, valued at £2,384 16s. 5d.

There has been a little prospecting done in the Loyalty and Cadman Claims, but otherwise very little work has been done outside those named in this locality. No returns.

Te Aroha.

The Tui ground, which was abandoned for some time, has recently been taken up by a syndicate, who are testing the reef with a view to raising capital to treat the large bodies of complex ore that traverse this ground and some of the adjacent country.

Komata.

Komata Reefs.—This mine has been steadily worked during the year, operations being principally directed to driving and stoping on the reef at the No. 4 and intermediate levels.

The battery (which was erected for dry crushing) has been remodelled and converted into an up-to-date wet-crushing plant. The process adopted consists of wet crushing, amalgamation, separation of the slimes from the sands, and concentration of the sands, which are then lifted by a "tailings-wheel" into the sand-vats, and treated by the cyanide process; the slimes are also treated in agitating-vats by the cyanide process, and the concentrates produced are treated in a small agitating plant with strong cyanide-solutions. The process is said to be economical, both as regards cost and the percentage of extraction of the ore treated. Although a considerable amount of gold has been obtained from this mine, yet it has been disappointing, the ore not yielding the results anticipated; but, as the Te Ao Marama section of the Waitekauri Gold-mining Company has been taken over by this company, which adjoins this ground, the prospects of the company appear more encouraging, as rich ore was obtained in the upper levels of the section mentioned. 9,200 tons of ore was treated at the company's mill for a bullion return of 11,216 oz. 11 dwt., valued at £11,289 6s. 6d.; and seventy-six men were employed.

Byron Bay.—Prospecting operations have been carried on in this ground intermittently with four men, and the prospects met with are said to be most encouraging.

Maratoto.

Hikutaia Gold Syndicate.—This syndicate has resumed operations after a cessation of work for some nine months. An addition of five heads of stamps has been made to the crushing plant, which has been kept steadily working since the month of November. It is stated that six men breaking quartz in the mine can supply sufficient quartz to keep the battery running full time. Although the ore is low grade, it is easily got, and can be put into the mill at a small cost; and the supervisor is confident, even with the small plant, it can be made to pay working-expenses. Twenty men are now employed.

Maratoto Gold-mining Company.—Operations in this mine for some time past have been confined to driving a low-level crosscut for the purpose of intersecting the Maratoto and Pay Rock reefs, which are opened up to some extent in the No. 1 and No. 2 levels. The ore at those levels was rather poor to pay, as it contained a fair amount of silver, but not enough gold. As it was worked upon it was found the reef would improve in value at deeper levels, hence the reason of opening up the reefs at the level named. No returns. Six men are employed.

Khartoum Syndicate.—For the last three months prospecting operations have been carried on in this mine with four men, who have been successful in discovering two distinct reefs, one of which varies from 1 ft. to 3 ft. in thickness, and is said to carry a fair amount of bullion. So far it has not been proved to be any great depth below the surface. A crosscut is now being driven from the side of hill to intersect the largest reef at a depth of 150 ft. below the surface. Four men are employed.

Whangamata.

Mananu Gold-mining Company.—The principal work carried on in this mine for the greater part of the year was confined to stoping out the Studholme reef above No. 1 level, and it was from here the bulk of the quartz was obtained to keep the stamps running. This block of ground is nearly exhausted, and the company's operations for some time past have been directed to timbering the No. 2 level and making preparations for stoping out the aforenamed reef above No. 2 level. The reef varies in size from 18 in. to 5 ft. 6 in. in width, and it is estimated there is something like 5,000 tons of payable ore in sight between those levels. At No. 3 level a crosscut has been driven a distance of 69 ft., where the Studholme reef was intersected and driven on for a short distance in a southerly direction; but as the air was very light in this drive it was stopped, pending the erection of a small furnace as a means of procuring the necessary ventilation. Two men have been employed driving on the reef at the Fulchar drive, but assays made of the stone from time to time have not given results as expected. The Nos. 2, 3, and 4 levels have been connected by rises to give better facilities for getting the ore from the mine to the battery. An additional ten heads of stampers have been erected, and auxiliary steam-power—which consists of an 80-horse-power slide-valve engine, with tubular boiler, 16 ft. long and 5 ft. in diameter—will be complete in a few weeks, when the mill will again be in full swing. 2,219 tons of ore was treated at the company's mill during the year for 3,440 oz. of bullion, valued at £7,558 13s. 11d.; and an average of forty men was employed.

Whangamata Proprietary.—As far as this property is concerned, all work was suspended in August last, when protection for six months was obtained. Previous to that date mining-work was confined to the sinking of a winze some 100 ft. in depth from the floor of the lowest or No. 3 level. The reason for suspending operations was that the future development of the mine must consist of deep sinking by the aid of a large pumping plant, which has already been ordered, and is now in Auckland. Such deep sinking, however, will necessitate heavy expenditure quite beyond the present resources of the company. A reconstruction scheme has been formulated which will provide ample fresh working capital, and this scheme now only awaits a favourable market opportunity for completion. In the early part of the year 150 tons of ore was treated for 255 oz. of bullion, valued at £224. An average of eleven men was employed.

Tairua.

Chelmsford Gold-mining Company.—During the period under review a large amount of work has been done on this property. The ten-stamp battery in the course of erection in the early part of the year was completed, and crushing was commenced in the month of May. The mode of treatment is wet crushing, amalgamation, and cyaniding. The quantity of water to run the plant (from where it was first lifted from the creek) was not sufficient in dry weather, and it was found necessary to extend the race a further distance of two miles to pick up the tributaries. Since this has been completed there has been ample water to keep the mill continuously running. In the

mine, the only reefs at present being worked are the Nos. 1 and 2 reefs, which are operated upon from No. 1 level. The No. 1 reef is also being opened up from No. 2 level, which is about 130 ft. below the outcrop. Those reefs vary in width from 1 ft. to 6 ft., and are encased by a decomposed andesite formation, strongly interlaced with iron-oxide seams. During that portion of the year in which the mill has been running, 1,365 tons of ore has been crushed wet and passed over the amalgamated plates, thereby saving the coarser gold, the tailings being treated by the cyanide process, the whole yielding bullion to the value of £1,431. The slimes are saved for further treatment. The company intends putting up a filter-press to treat the slimes, the loss of which is something considerable on the value of the ore. An average of twenty-three men has been employed.

Broken Hills Gold-mining Company.—The work in this mine during the year has been mostly confined to developing the property at the deeper levels. The main low-level crosscut has been extended a further distance of 164 ft. and the Blucher reef intersected, where it has been driven on east and west, and a rise put up on the reef to connect with the No. 3 eastern level, 230 ft. above the low level. This rise is a means of giving excellent ventilation and facilities for working the large block of ground out, and is used for passing the quartz down, where it is trucked direct into the battery by a ground-tramway 18 chains in length, lately constructed, on which it is intended to use a small locomotive engine to convey the ore from the mine to the mill. The water-race, on which a large amount of trenching had been done by the original company, has now been completed, and it is expected sufficient water will be available most of the year, and will be used as a motive power to run the twenty-stamp battery, which will reduce the cost of treatment, and thus enable the steam-power to be dispensed with that was previously doing this work. As the work in the mine was mostly directed on developments, only a limited amount of ore was treated. 480 tons was treated for 1,039 oz. of bullion, valued at £1,792 19s. 9d. Forty men were employed.

Taniwha Claim.—This ground was worked by three men. At the time of my visit operations were confined to working on a body of quartz and stringers on the top of a spur, and extending a crosscut to intersect the leaders about 50 ft. below the outcrop. The prospects met with on the outcrop were exceedingly encouraging, as a trial parcel of 19 cwt. from here (treated at the Thames School of Mines) gave a return of 34 oz. 3 dwt. of gold, valued at £82 5s. This being highly satisfactory to the shareholders, they decided to erect a small crushing plant, which, I am informed, is in course of erection.

There has been a little prospecting done on the Gem, Mysotis, and Golden Hill Claims, but nothing of importance has been reported to have been discovered in these claims, although several pieces of ground have been pegged out in the immediate neighbourhood.

Neavesville.

Prospecting operations have been intermittently carried on in this locality, from which small returns of gold have been obtained, but nothing of importance discovered.

Puriri.

Miner's Right Claim.—This claim has been continuously worked during the year with four men, who directed their attention to extending a low level to get underneath former workings. They have also been stoping out small leaders that traverse the claim and carry a fair amount of payable gold. 42 tons of quartz was crushed from this mine for 38 oz. 14 dwt., valued at £97 14s. 4d. The same party have the Union Jack Claim, which adjoins the abovenamed claim, and from this 52 tons of ore was crushed for a return of 97 oz. 4 dwt. of gold, valued at £245 3s. 2d.

Puriri Gold Estates (Limited).—There was a little work done on this property in the early part of the year, and 135 tons of ore was crushed for 51 oz. 9 dwt., valued at £129 18s. 10d. The returns being very discouraging, the mine was closed down, and work has not again been resumed.

Omahu.

Sheet Anchor Mine.—In February last an option was taken over this property by an Auckland syndicate, who have had six men continuously employed driving a low-level crosscut, which has now been driven a distance of 900 ft. This tunnel was put in with the object of intersecting the lode formation that Tillsley Bros. had previously worked with encouraging results in the upper workings. Although several small leaders have been cut in this level, yet nothing of what might be considered payable ore has been met with; but the intersection of the main ore-body is daily expected, the syndicate being sanguine that when the lode is met with the success of the undertaking will be assured.

Klondike Mine.—Operations in this mine for some time past have been directed to driving a low level, which is in a distance of 116 ft. It is expected it will have to be extended a further distance of 200 ft. to intersect the reef-formation that has been opened up on the outcrop, and from which encouraging prospects were obtained. The shareholders are at present making a road into the mine for the purpose of getting in a five-stamp battery before the winter sets in. They intend to erect the plant nearly on the claim, and when this is accomplished they are confident the mine will pay, as the quartz can be mined and crushed at a small cost. An average of two men has been employed.

Hape Creek.

Fortuna Mine.—This mine was protected for a time, but protection is now granted subject to the ground being let on tribute above water-level. Six men are engaged in working blocks of ground on tribute. They have crushed 113 tons of quartz for a return of 96 oz. 18 dwt. of gold, valued at £272 16s. 11d.

Ethel Reefs.—This mine has been under protection, and little or no work has been done on the property during the year.

UNA HILL.

Occidental and Thames Special Claims.—There has been no work done on this ground by the company during the year, but an average of five men has been engaged in tributing. Eight loads of quartz was treated for 28 oz. 2 dwt. of gold, valued at £80 8s. 9d. The management is endeavouring to raise fresh capital for carrying on development-works in the North Star low level, with a view to intersecting the Lord Nelson reef. As soon as the necessary money is forthcoming driving on behalf of the company will be commenced.

KARAKA CREEK.

New Gloucester Mine.—This mine has been steadily worked during the year with four men, the operations being chiefly directed to driving and stoping on Cowling's leader in the Nos. 1 and 2 levels. The leader is heavily mineralised, and varies from 2 in. to 6 in. in thickness. In breaking down the leader a little picked stone is occasionally obtained. 44 tons of quartz was treated for a return of 101 oz. 15 dwt. of gold, valued at £306 5s. Gloucester Extended ground, which adjoins the New Gloucester, has been worked with two men, who have directed their attention to driving on the Lincoln lead, from which 2 tons of quartz was broken out and treated for a return of 8 oz. 3 dwt. of gold, valued at £49.

Claremont.—This is a small holding of 1 acre, and is owned by George Bryant, who works the ground on his own account. We are informed rich patches of specimens are obtained where the leaders junction with what is termed "flinties" in the Karaka; but although we have made frequent visits to this mine, yet we have not been fortunate enough to see any gold in the mine, and the work done appears to be very limited for the large amount of specimens treated. 1,140 lb. of stone was treated for 450 oz. of gold, valued at £1,210 10s.

May Queen Extended.—Operations in this mine during the greater part of the year were confined to driving on the Hokianga reef north and south of the crosscut from the shaft. As the reef did not produce as good quartz as expected, and the funds running short, development-work here was discontinued. The work was then directed to repairing the Adelaide low level for the purpose of extending a crosscut to ascertain whether the Adelaide reef makes on the southern side of the break. 120 loads of quartz was treated for 58 oz. 14 dwt. of gold, valued at £167 18s. An average of eight men was employed.

Thames-Talisman.—The work carried on in this mine up to the end of July was extending the Cumberland low level to intersect the main reef, which was met with at a distance of 740 ft. from the mouth of the drive. The reef is from 1 ft. to 2 ft. in thickness, and has been driven on for some distance on each side of the crosscut. It did not turn out as well as expected, and six months' protection was applied for and granted; but work has again been resumed, and the manager contemplates rising on a junction and driving on the reef towards the Grand Trunk shaft. Fourteen loads of quartz was treated for a return of 6 oz. 3 dwt. of gold, valued at £17 1s. 7d. Eight men were employed.

GRAHAMSTOWN.

Thames-Hauraki.—This mine has been under protection, and in consequence no work has been done on the property during the year, pending negotiations for the reconstruction of the company to raise further capital to enable the work of sinking the shaft to be proceeded with (as previously arranged) for the purpose of proving the value of the reefs in this part of the district at greater depth.

May Queen-Hauraki.—The work carried on in this mine has entirely been done by tributers, some of whom have done fairly well. Their attention has been chiefly directed to driving and stoping on the various reefs above No. 6 level in the Saxon, May Queen, and Cardigan sections, which were previously opened up by the company, but no important discoveries have been made. 1,340 tons of quartz and 286 lb. of picked stone was broken out and treated for 3,503 oz. 3 dwt. of gold, valued at £9,600 12s. 7d. There has been little or no development-work done by the company, but it is fully expected that before long the company will again resume operations, and, it is to be hoped, will direct their attention to proving the value of the property at depth. An average of four wages-men and forty-five tributers has been employed.

Victoria Gold-mining Company.—The most of the work in this mine has been done by tributers, who have been prospecting and trying various leaders and the reefs from the No. 3 level of the Prince Imperial shaft to the surface. Unfortunately they have not been successful in finding payable ore, and the work accomplished as a whole has not been of a remunerative character. An average of six men has been employed. They have sent to the mill for treatment 123 tons of quartz for a return of 54 oz. 16 dwt. of gold, valued at £150 3s. 8d. Boring operations on behalf of the Victoria Company (with the assistance of a Government subsidy) have been in progress on the Favourite foreshore section during the last six months, to ascertain if there exists any auriferous country on the west, or what is known as the "seaward side of the slide," and at what depth. One of the bores was put down through made or broken country to a depth of 518 ft., but the country penetrated near the bottom of the hole was of a loose or "sliding" nature; and, as the hole had been reduced to a small diameter through obstacles in the shape of boulders having been met with from time to time, it was deemed advisable to discontinue it, as the borehole would have to be enlarged from the top downwards, and in consequence it has been decided to select a new site for another bore.

WAIOTAHI CREEK.

Waiotahi Mine.—Work in this mine is being continued as usual on various leaders above No. 3 level. Although there is still a fair amount of gold produced from this mine for the number of men employed, and enough money is left after the working-expenses are met to pay the usual dividends, yet there is no new or fresh development-work being done to prove the value of this

property at a depth. 1,096 tons of quartz was treated for 1,508 oz. 11 dwt. of gold, valued at £4,109 6s. 1d. An average of sixteen men was employed.

Fame and Fortune.—This mine is under partial protection, and has for some time past been worked by tributers, pending Mr. Kersey Cooper's arrival from England, where he has been for some months past negotiating for further capital to prospect and develop the mine. Lately the work has been carried on principally from the Balmoral level, where the hanging-wall portion of the Golden Age reef is being operated on both above and below the level. Although the prospects at times are encouraging, yet sufficient payable ore has not been obtained to compensate the men for the work accomplished by them. Foxe's leader is also being operated on in the higher workings, where a little gold is occasionally seen. 25 tons of quartz has been treated for 94 oz. 10 dwt. of gold, valued at £258 12s. 3d. An average of nine men has been employed.

Nonpariel Mine.—This mine has been steadily worked by tributers, their operations being directed to the Liverpool Boys and Wade reefs. Through the blocks on the reefs becoming exhausted over the back of the main adit level, winzes were sunk and the reef in places blocked out to a depth of 90 ft. below the level; but, as most of the stuff broken out had to be raised by hand-labour (thereby considerably increasing the cost of getting) the ore obtained below the level had to be fairly good to pay under the conditions named. 256 tons of ore was treated for 330 oz. 9 dwt. of gold, valued at £935 10s. 4d. An average of six men was employed.

There are still a few men employed on the West Coast, Little Muriel, Ballarat, and Little Maggie Claims, but the returns of gold from those mines have been very small.

Moanataiari Creek.

Kuranui-Caledonian.—This mine has been entirely worked by tributers for the last twelve months. No work of any kind has been done by the company in developing the mine, but from information received it is probable that operations will again be resumed by the company. The tributers have been engaged in working on the various leaders that traverse the property on the hanging-wall side of No. 1 reef, and from No. 3 level upwards. As in gold-mining in general, some have been fairly successful and others quite the reverse. 425½ tons of quartz and 932 lb. of picked stone has been treated for 1,524 oz. 5 dwt. of gold, valued at £4,154 18s. 4d.; and an average of forty-five tributers and three wages-men was employed.

Moanataiari Company.—There is very little new to report from this mine, as the company has done no work on their own account during the year. The upper section of the mine has been thrown open for tributers. A number of miners have consequently availed themselves of the opportunity, and have directed their attention to working on small leaders (all of which contain more or less gold), and with a fair amount of success. The management is still awaiting instructions from England as to future operations. 1,254 tons 14¾ cwt. was crushed for 2,262 oz. 8 dwt. of gold, valued at £6,251 12s. 8d.; and two wages-men and sixty-four tributers were employed.

New Whau Company.—Operations in this mine were carried on by the company in the early part of the year. The work consisted in prospecting and developing the Sons of Freedom reef at the various levels; but, as the ore obtained was poor and the company's funds exhausted, protection was applied for and granted, to give time to raise money for carrying out contemplated works. Latterly there has been a party of tributers working in the ground, but so far they have not been successful in discovering anything payable.

Alburnia Company.—This mine still continues to be worked by a few tributers. The company apparently have not been successful in raising the necessary capital to develop the mine, which was anticipated would be forthcoming long before this. The tributers are at present working at the surface-levels, where some leaders are being operated on, and from which 37 tons of ore has been treated for 45 oz. 6 dwt. of gold, valued at £122 6s. 2d. An average of five men was employed.

Golden Drop Claim.—This mine has been steadily worked during the year with two men, who have directed their attention to extending the main level a further distance of 300 ft. on small leaders which consistently carry a little gold, and at times small patches of picked stone are obtained. 5 tons of quartz was crushed for 15 oz. 10 dwt. of gold, valued at £39 5s.

A little work has been carried out in this locality on the Tudor and Sea-horse Claims, but nothing of importance discovered.

Kuranui.

Kuranui Mine.—This company's prospects are more encouraging than they have been for some considerable time past, as some leaders have been met with at their low level which promise to pay for any outlay that may be incurred in opening them up. A survey lately made shows there should be 180 ft. to drive on the principal leader before the boundary is reached, and there is 80 ft. of backs. As this is situated near the place where the rich gold was obtained by the old Kuranui Company, the manager believes something good will be found here. The low level is 40 ft. below the tunnel level, but a rise is being put up to make a connection some 20 ft. to the east of the Deep Lead shaft. When this is accomplished it will give good ventilation, and the company will then be in a better position to develop these leaders. 69 tons of quartz was treated for a return of 58 oz. 8 dwt. of gold, valued at £142 10s. 9d.; and an average of seven men was employed.

Tararu Creek.

Tararu Creek Mine.—This mine (which was closed down during the greater part of the year) was sold by public auction, and purchased by the present owner, A. Trower. Operations were again resumed in the month of October. At present the work consists of developing the mine and making some alterations in the battery, in which an additional boiler is to be placed in position as

a motive power to run the stamps when short of water in the summer months. At the battery level a crosscut is being driven easterly, at a point 2,700 ft. in from the mouth of the tunnel, for the purpose of intersecting the Day Dawn and other parallel reefs that may exist in this locality. About 800 ft. in from Dunedin main reef the level is being driven on to the south to prospect the unexplored portion between the main pass at battery level and the Sunbeam rise. The Sunbeam surface-workings are being reopened and the old rise repaired, with a view to more thoroughly testing the reef in this section of the mine. Thirty men have been employed since the month of October.

Eclipse Mine.—A large amount of work has been done in this mine during the period under review, which has chiefly consisted in driving and stoping on No. 1 and cross reefs from the No. 1 or 150 ft. level upwards. The reef has varied from 3 ft. to 8 ft. in thickness, the whole of which is sent to the mill for treatment. The ore is not what may be considered rich, but, as it is conveyed over an aerial tramway a distance of 7,400 ft. from the mine to the battery, and there treated at a small cost (as the motive power to drive the mill is water lifted out of the creek and carried along the company's own race), a good margin of profit is left. The workings in the mine are satisfactorily timbered throughout, and the ventilation is good. 3,994 tons of ore was treated for 2,191 oz. 13 dwt. of gold, valued at £6,165 5s. An average of twenty-four men was employed.

Respecting the other mines in this locality, only a limited amount of work has been done in the Iron Cap, Chicago, Argosy, and Argosy Extended.

Puru.

Puru Consolidated.—This mine has been worked on tribute during the year by Messrs. Tettley and party, who have a twelve-months take of the mine, with the right to use the company's battery for crushing at a small cost per ton. The work in the mine has consisted in driving, stoping, and rising on the main reef at and from the No. 3 level upwards. This level has been driven a distance of 142 ft., and is now in a total distance of 684 ft. A rise was put up on the reef to a height of 70 ft. to connect with No. 2 level. This has opened up a good block of ground, and as an upcast has given good ventilation. 171 tons of ore was treated for 97 oz. 13 dwt. of gold, valued at £254 12s. 2d. An average of six men was employed.

A little prospecting has been done in the neighbourhood of this mine, but no important discoveries have been reported.

Waiomo.

Monowai Mine.—Operations in this company's mine have been steadily carried on during the year, and with most encouraging results. The main reef has been driven on at No. 3 B level for a distance of 150 ft. on a rich chute of ore. Stoping is being carried along the back of the level, and a rise has been put up from this level to the surface, and has given good ventilation. It is also used for passing the stuff through to fill in the stopes. 2,845 tons of ore was broken out of the reef at this level for a total value of £4,055 11s. 7d. The ore, being of a complex nature, requires special treatment, and only a small percentage of bullion is obtained at the company's mill. The ore is passed through the stamps in the ordinary wet process, and the tailings from the boxes are then put over Frue vanners. The concentrates obtained from here are shipped to New South Wales for treatment. The results being highly satisfactory, the directors have given instructions to the manager to carry out a scheme of development which consists in driving a low level to open up a large block of ground on the reef, and when connected with the upper workings will give better facilities for getting the ore from the mine to the mill, as an aerial tramway is to be erected to convey the quartz from this level to the sea-beach, where a battery is to be constructed. The concentrates had for some time to be carted to the Thames, adding considerably to the cost; but this has now been done away with, as the company has constructed a wharf on the beach at Waiomo Flat, where it is shipped to Auckland, and there transhipped for Sydney. The manager is sanguine that when the works mentioned are completed the mine will be made to pay handsomely. Forty men have been employed.

Broken Hills Mine.—Operations in this mine have been confined to extending the low level for the purpose of intersecting the Monowai reef, which has been opened up at the surface-workings. So far no discovery of any importance has been reported from this mine. Two men were employed.

Victory Claim.—This mine is situated about 400 yards above the Monowai battery, and is being worked by Millar and party, who have discovered a reef which has given encouraging results. The ore is of a complex nature, similar to that at the Monowai Mine, and requires different treatment from that adopted on the Thames. I am informed a test parcel of 1 ton of the ore selected and sent to New South Wales for treatment gave a value to the amount of £70. Two men have been employed.

There has been a little work done in the Hector McDonald and other mines in this locality lately taken up, but no fresh discoveries made.

Tapu.

Bullion Mine.—This mine was sold in the early part of the year, and purchased by James Hawkes. A portion was let on tribute to Plimmer and party, who are operating on a leader in one of the surface levels, and have met with a fair amount of success. 24½ tons of ore was treated for 198 oz. 13 dwt., valued at £566 1s. 4d. Four men were employed.

Mahara Royal.—There has only been a caretaker on this property; his work consisted in grinding tailings and looking after the battery, &c. No work has been done in the mine during the year.

COROMANDEL.

Hauraki Mine.—This mine has produced a large amount of gold during the last seven years, but it is to be regretted that of late the monthly returns are gradually diminishing, and in consequence the services of a number of miners working here have been dispensed with. One of the principal works carried on in the mine was in making a connection from the Hauraki shaft with the low level of the Union Beach section, thereby enabling the manager to stop the pumping-engine on the Union Beach shaft, the engine on the Hauraki shaft being capable of pumping the incoming water from both sections. Driving and stoping were carried on on the various leaders at Nos. 1, 2, and 3 levels, from which all the stone treated was obtained, and a good deal of work of a prospecting nature was done at No. 4 level, 400 ft. below the surface; but not meeting with success the water was allowed to rise in the shaft to No. 3 level. The payable reefs in the upper levels becoming exhausted, the water below No. 3 level was again pumped out, and prospecting operations at No. 4 level once more resumed. 1,030 tons 6 cwt. of ore was treated at the company's mill for a return of 1,984 oz. 5 dwt. of gold, valued at £6,089 5s. 8d. An average of fifty men was employed.

The Kapanga, Blagrove's Freehold, Kathleen, Golden Pah, Hauraki Main Lodes, and Hauraki South have all been closed down.

Bunker's Hill.—In the early part of the year the company's operations were directed to stoping and sinking on the 4 in. leader above and below the No. 3 level, where 82 tons of general quartz and 163 lb. of picked stone was obtained. This was treated for a return of 228 oz. 17 dwt. of gold, valued at £640 7s. 9d. This mine has always been noted for being patchy; but, as sufficient picked stone of a payable quality was not forthcoming to meet current expenses, the funds became exhausted, and after an unavailing struggle against the inevitable the directors obtained protection in order to give the shareholders an opportunity of deciding what was best to be done with the mine, which was consequently closed down for the time being. Six men were employed.

Hauraki Freeholds (Limited).—The development-work carried out in this mine for the year ended the 31st December, 1901, has been of a most disappointing nature, nothing new having been discovered in the south-west crosscut, which was driven for the purpose of prospecting this portion of the mine at No. 1 level. Although 500 ft. was driven on the course of the Hauraki North reef underneath the old run of gold, yet nothing payable was met with. A total of 1,620 ft. of crosscuts, 550 ft. driven on the course of the reefs, 40 ft. of sinking, and 70 ft. of rising was done, and the quantity of quartz treated was 3 tons for 9 oz. 8 dwt., valued at £26 18s. 2d. An average of twenty-one men was employed.

Kathleen Crown Mine.—Prospecting operations have been carried on throughout the year by surface-tunnelling above the creek-level and at different heights in the main spur of the property. Several reefs have been intersected and operated upon, and test parcels of ore have been crushed with a view to determining their productiveness preparatory to the erection of a battery plant on the ground. Owing to the large area of the property and the limited number of hands employed, only a small section of the ground has been operated on. The reefs are all gold-bearing, and the country-rock penetrated is of a very congenial class of sandstone. It is anticipated that with further developments the mine will produce payable returns. 59 tons of ore was treated for a return of 51 oz. 1 dwt. of gold, valued at £153 11s. 6d.; and fifteen men were employed.

Hauraki No. 2 Mine.—This mine has been steadily worked during the year with two men, the operations being confined to the surface levels, where a good deal of driving has been done on several leaders, some of which are carrying a little gold. So far nothing payable has been met with, and no crushings have been made.

Trig Hill Mine.—Operations were carried on in the early part of the year by Moore and Verran (tributers), who had previously done a good deal of prospecting; but not meeting with stone of a payable quality, work was stopped after treating 2½ tons of ore at Coromandel public battery for a return of 1 oz. 7 dwt. of gold, valued at £3 14s. 3d.

TOKATEA.

Royal Oak of Hauraki (Limited).—The operations during the year have been principally confined to opening out and proving the block of ground between Nos. 5 and 3 levels, on the No. 1 reef or Tribute lode, and a considerable amount of success has been met with, as a strong run of gold was cut, which has yielded very good results. The work done has consisted in driving 804 ft. on the reef at intermediate levels, 97 ft. of crosscutting, 342 ft. of uprises, and 1,852 ft. of stoping. A large quantity of timbering has been done, in the shape of repairs to the adit levels on the Tokatea main reef, at Nos. 5 and 7 levels, and the work of repairing No. 6 level is now in progress. This work alone has cost £700. When the opening-up of the blocks of ground now in hand is completed a further scheme of development-work will be submitted for the consideration of the directors. 618 tons 3 cwt. of ore was treated for a return of 3,693 oz. 2 dwt. of gold, valued at £9,256 11s. 5d.; and an average of forty-five men was employed.

Hauraki Mines (Limited).—This mine is situated on the Tokatea Range, and adjoins the Royal Oak and Harbour View Mines. The mine was protected in the early part of the year, but operations were again resumed in the month of May at the Nos. 2 and 3 levels. The No. 3 level is 400 ft. below the top of the range, and is in a distance of 750 ft. An intermediate drive between Nos. 2 and 3 levels has been driven on the Foot-wall leader for a distance of 115 ft., and stoping above this level is now being proceeded with. The leader has been a consistent gold-producer at the higher levels, and is still carrying gold downwards, specimen stone occasionally coming to hand. The cross-reef is also being worked above No. 2 level, on which a rise is being put up preparatory to stoping. The prospects met with on this leader are most encouraging. A crushing

of 2 tons of general ore and 2 cwt. of selected stone was treated for a return of 76 oz. 5 dwt. of gold, valued at £217 5s. 2d.; and an average of six men was employed.

West Tokatea Mine.—Operations in this mine have been principally confined to driving and stoping on the No. 3 leader at the No. 2 level. The leader varies from 2 in. to 6 in. in thickness, and has been driven on a distance of 327 ft. at this level. In breaking down the leader a little picked stone is occasionally obtained. The small three-stamp battery that was in course of erection at the latter end of the previous year has been completed, and crushings have since been intermittently carried on. A portion of this mine was let on tribute, and some of the tributers were successful in getting nice little patches of picked stone near the surface. 63 tons of ore was treated for the company and the tributers for 234 oz. 11 dwt. of gold, valued at £667 15s. 4d. An average of six men was employed.

Harbour View Mine.—This mine was worked for a short time by tributers in the early part of the year, but as they were not successful in getting anything payable they gave it up. Owing to the company not being in a position to work the ground for want of funds, and not employing men on it for a time, another party applied for the ground in the Warden's Court, and got it forfeited.

New Tokatea.—Work in this mine is carried on by J. Kennedy and party, their attention being directed to prospecting and driving on some of the small leaders which have been intersected in the different levels, and from which 1 ton of ore was crushed for a return of 5 oz. 10 dwt. of gold.

New Hauraki Gold Properties.—There has been a large amount of money expended in development-works in this mine, but unfortunately with no success, and in consequence it has been closed down, and is now in liquidation.

Buffalo Mine.—This mine has been worked during part of the year by A. Ross and party, who have been principally engaged in prospecting on small leaders. From 2 tons of ore and 1 lb. of picked stone a return of 8 oz. 13 dwt. of gold was obtained.

Works of a prospecting nature have also been carried on in the following claims in this locality, all of which have had small returns of gold: East Tokatea, Last Chance, Josephine, Golden Lead, Royal, Golden Spark, and Old Britannia.

Waikoromiko.

Four-in-hand.—Operations in this mine have been steadily carried on during the year, and with very satisfactory results. 793 tons of ore was broken out and treated at the company's mill for the good return of 1,421 oz. 15 dwt. of gold, valued at £4,112 15s. 4d., which left a good margin of profit after all expenses were paid, and enabled the directors to pay to the shareholders £2,250 in dividends, making a total of £4,500 in dividends since commencing work. In the mine work has chiefly been confined to driving and stoping on the Four-in-hand reef at Nos. 1 and 2 levels, also intermediate level. The reef varies from 16 in. to 3 ft. in thickness, and, as will be seen by the returns, the stone is of very good quality. In the Cuirassier section an adit level has been driven in from the side of the hill, where the Cuirassier reef has been intersected at a deeper level than those previously opened up by the original owners, who obtained several good returns. The manager is sanguine of again picking up the chute of gold at this level. An average of sixteen men was employed.

A limited amount of prospecting-work has been done by several parties from time to time in this locality, but no fresh discoveries reported.

Kennedy Bay.

Macoronic Mine.—This mine has been steadily worked during the year. Six different reefs or leaders have been intersected in this property, and some of them which give encouraging prospects are now being operated on with a view to proving more fully the value of the property. Some of the shareholders contemplate erecting a small battery on the ground if the ore continues to be as good as that already tried. 8 tons of general ore was treated for 6 oz. of gold, valued at £16 4s.

Baden Powell Mine.—This mine was worked for a short time in the early part of the year by W. McNeil, who had a crushing of 90 lb. of picked stone for a return of 40 oz. of gold, valued at £110.

Cabbage Bay.

Extended Quartz Claim.—This mine has been steadily worked with two men. The work has consisted chiefly in prospecting on small leaders varying from 1 in. to 1 ft. in thickness. 1 ton of quartz was treated for a return of 5 oz. 14 dwt. of gold, valued at £15 13s. 4d.

Tiki.

Progress-Castle Rock Mine.—Operations in this mine have during the year been directed to driving and stoping on Reynold's reef, which is about 1 ft. thick, and is carrying that class of mineral which is considered a good indication for a patch of gold, but so far only little dabs of the precious metal have been seen in breaking the quartz out. With a view to proving the reef at a lower level, a crosscut is to be started 70 ft. lower than the present level. 73¾ tons of ore was treated for 182 oz. 15 dwt. of gold, valued at £434 11s.

Aiken's Freehold.—Two men have been constantly employed in prospecting on this property, on which a good deal of work has been done, but so far the reefs operated on have proved to be lower grade. 15½ tons was treated at the Coromandel public battery for a return of 3 oz. 4 dwt. of gold.

Prospecting-work has also been carried on in the Prospero and Pukewhau Mines, with two men in each, but no important find has been reported. No returns.

OPITONUI.

Kauri Freehold Gold Estates (Limited). — During the year ended the 31st December, 1901, this company's work has been mainly development, opening up the lower levels of the Rangatira and Maiden Mines, and up to August no stoping was done, except leading stopes over the levels for the purpose of testing the blocks and having them ready for stoping. Since August, crushing has been carried on with from one to two shifts only per day at the battery, pending the opening-up of the low levels in the Maiden section of the mine. In this section the main shaft has been sunk to Nos. 3 and 4 levels, 120 ft. and 225 ft. respectively below No. 2 level. The total depth of the shaft from surface is 387 ft., including the sump 17 ft. below No. 4 level. Chambers have been cut at Nos. 3 and 4 levels in readiness to commence driving on the reef. At the No. 4 level a large compound duplex Dow pump has been fixed, with steam-cylinders 14 in. and 24 in. diameter, and water-plungers 10·5 in. diameter, stroke 18 in. These are capable of raising 900 gallons of water a minute when working at eighty strokes per plunger per minute. The pump is supplied with a Worthington condenser. During the year No. 2 level has been full of water, a dam having been fixed in the crosscut from the shaft to keep the water in the mine while the sinking was in progress. It is expected work will be resumed in this level at the end of January. In the No. 1 level the principal work for the year has been driving and stoping on the Geraldine reef. This has proved rather poor, but appears to be improving in depth, there being a marked improvement going downwards from the No. 2 adit level to the No. 1 level. In the Rangatira section the No. 3 level has been opened during the year, showing a greater length and width of gold-bearing stone than in any of the upper levels. Stoping has been carried on with fair results in the blocks over the Nos. 2 and 3 levels. A Dow pump, exactly the same as that already described at the Maiden, has been obtained for this section, but it is not yet in position, being intended to fix it at No. 4 level. A large Babcock and Wilcox boiler of 159 indicated horse-power has been erected on the surface, and a new smoke-stack 100 ft. high put up. In Lanigan's and Hilda sections very little work has been done for the year, a few men being kept working in the extension of No. 1 level and in stoping above the No. 1 level, also above the Hilda No. 2 adit. At the battery considerable additions have been made, rendering the treatment very complete. The slimes separated in the spitzkasten from the battery-pulp, and those overflowing from the receiving-vats in the cyanide plant, are elevated into a pair of settling-tanks, where the slime is precipitated with the help of lime. From these settlers the sludge is run out into a pair of agitating-tanks provided with paddles, which keep the slime in a constant state of agitation. From these it passes into a mentejus, from which it is forced by compressed air into a pair of fifty-chamber Dehore filter-presses, each capable of handling about 4 tons of dry slime at a charge. At first the slimes were treated with cyanide-solution in the agitators, the filter-presses then serving simply to separate the gold-solution; but latterly it was found best to use no cyanide in the agitation, but simply to separate the surplus water from the slimes in the filter-presses, and then treat the cakes in presses themselves with cyanide-solution followed by washing. The exhausted cakes of slimes dropped out of the presses are removed by sluicing. In order to increase the output of the stamps, 20-mesh woven-wire screens are now used, and the coarsest sand resulting is separated from the tailings in spitzlutten and elevated to a Huntington mill, where it is reground to pass through a 30-mesh screen. When the coarse screens are on the battery and the Huntington mill is working, the output of the stamps rises to slightly over 4 tons per stamp per day. During the year 9,015 tons of ore was crushed and treated at the company's mill for 6,269 oz. 9 dwt. of bullion, valued at £11,719 12s. 4d. 180 men were employed.

KUAOTUNU.

Kuaotunu Syndicate Mine (formerly the Mariposa and Kapai-Vermont).—Operations in this mine were resumed in the month of March, 1901, after a stoppage of over twelve months. During this time an amalgamation of the Mariposa and Kapai-Vermont properties had been arranged and sufficient capital raised to enable work to be proceeded with. Through the long stoppage the water had risen up to the top of the shaft and filled all the workings and surrounding country below the main level, which involved a considerable amount of expense and trouble to unwater the mine. However, after three months' hard pumping and baling with tanks, this was successfully overcome, and the No. 5 (the lowest) level freed of water, and is now drained off to its normal quantity, the pump and appliances being quite capable of coping with it. As soon as the face of the No. 5 level was clear of water, operations to extend the south drive on the lode were started, and have since been driven on 713 ft. The lode for the first 300 ft. was small and low grade, since which it has opened out, and varies in size from 3 ft. to 8 ft. thick, carrying more or less gold. So far the chute of gold-bearing ore is about 350 ft. in length, and the prospects in the end of the south face are still fairly good. The manager is of opinion still better ore will be found further south. The No. 3 winze has also been sunk from No. 4 level a further distance of 53 ft., making it a total depth of 120 ft., where it connects with No. 5 level, and by this means gives good ventilation to all the workings below No. 4 level. An intermediate level has also been driven south on the lode from No. 3 winze a distance of 53 ft., midway between Nos. 4 and 5 levels. There has only been a limited amount of ore crushed. The principal object has been to get the mine well opened up to test the value of the lode at the No. 5 level, this being the deepest workings in this district. 650 tons of ore was treated for 381 oz. 15 dwt. of bullion, valued at £857 12s. 5d.; and twenty-eight men were employed.

Waitaia Mine.—Work in this mine has been carried on during the year with very satisfactory results. The company, in the month of October, obtained a lease of the Irene Company's crushing plant on very favourable terms. This has enabled them to have more regular crushings than previously, and, as the reefs have been opened up to a considerable extent at the different levels, there should be very little difficulty in obtaining sufficient ore to keep the mill going for

some time to come. The operations in the mine are principally confined to stoping over the Nos. 3, 4, and 5 levels, where the reef varies in size from 1 ft. to 4 ft. in thickness. 545 tons of ore was crushed for a return of 920 oz. 5 dwt. of gold, valued at £2,723 13s. 4d. Fifteen men were employed.

Irene Mine.—This mine is still worked on tribute by White and party, whose operations during the early part of the year were confined to extending the drive on the reef at No. 2 level, and timbering the same preparatory to stoping, which is at present being carried on. The reef varies from 4 ft. to 7 ft. in thickness, but only a portion of it is saved for the mill. 209 tons of quartz was broken out and treated for 256 oz. 6 dwt. of gold, valued at £537 9s. 5d.; and four men were employed.

Great Mercury Mine.—This mine is worked by Carroll and party, who had a renewal of their tribute in the mine and the use of the battery on terms for the treatment of their quartz. The work in the mine has chiefly been confined to stoping on the Try Fluke and Hanging-wall reefs at the No. 2 level on the western side of the property, where it is connected by a short self-acting incline tramway to the main line at No. 3 level. 595 tons of ore was treated for 421 oz. 10 dwt. of gold, valued £851 10s. Seven men were employed.

Handsworth Mine.—This property comprises 5½ acres, and is owned by Louis Woodcock, who has steadily worked the ground with two men during the year, with highly payable results. Stoping is still being carried on over the back of the low level on No. 2 reef. 58 tons of ore was treated for a return of 425 oz. 16 dwt. of gold, valued at £1,053 3s. 7d. As the gold mentioned is only that obtained from the copper plates, there must be a large percentage left in the tailings, which are saved for treatment, and will be put through as soon as the berdans are erected.

Juno Mine.—This mine was worked on tribute up to the month of August by Campbell and party, who crushed 3 tons of quartz and 13 lb. of picked stone for 46 oz. 14 dwt. of gold, valued at £126 4s. As the leader was very small it would not pay them to work, and in consequence they gave it up. Two men was employed.

Aorere Claim.—Two men are employed in extending the No. 2 level crosscut for the purpose of intersecting the Waitaia reef. This drive is now in a considerable distance, and the reef may be cut any day. No returns

A little prospecting is being done in this locality, but no new discoveries have been reported.

Gumtown.

Welcome Jack Mine.—Operations in this mine are at present confined to stoping out blocks of ground on two leaders that have been intersected by an adit level driven from the side of the hill. The leaders vary in size from 6 in. to 9 in. in width; there is also another leader striking parallel to those mentioned which the manager intends shortly to operate on. Although the leaders are small, the ore is high grade, and the manager is sanguine it will pay handsomely when the mine is more fully developed. The company's crushing plant consists of a five-stamp mill with two berdans. The ore is calcined before treatment, and is conveyed from the mine to the mill by means of an aerial tramway 750 ft. in length. 123 tons of ore was treated for 282 oz. 4 dwt. of gold, valued at £539 11s. 5d. An average of twelve men was employed.

Kapowai Mine.—It is to be regretted that this mine has not turned out as well as was at first anticipated. A crushing plant has been erected consisting of eight stamps and five berdans, together with a Tangye engine of 12-horse power. In the mine the work done has only been very limited, and confined to rising and stoping on a reef-formation at a surface level. The reef is only a series of red-iron seams which contains the gold, and is not well defined. After crushing 276 tons 10 cwt. of quartz for a return of 233 oz. of gold, valued at £547 11s., the battery was stopped, and only two men left to do a little prospecting.

Big Beetle Mine.—This mine was protected the first six months in the year, and when it expired work was again resumed with three men, who have since driven on the reef a distance of 165 ft. A winze has been sunk to a depth of 50 ft., and a rise put up 25 ft.; also a little stoping and prospecting has been done. 20 tons of quartz was broken out of the main reef (which is about 18 in. in width) and treated at the Kapowai battery for a return of 46 oz. of gold, valued at £135 2s. 9d. The ore being of high value, the shareholders contemplate erecting a small crushing plant on the ground for their own use; and if the quartz already crushed is a fair sample, and has not been specially selected, the mine should pay well.

Golden Reefs.—Two men are employed on this ground driving on a lode formation which varies from 1 ft. to 3 ft. in width, and from which 30 tons of ore was treated for 17 oz. of gold, valued at £44 10s.

Prospecting-work has also been carried on in the Perseverance, Ascetic, and Prince Edward Claims, with two men in each, but no fresh discoveries have been reported from any of them.

Mahakirau.

Nil Desperandum.—This mine has been steadily worked during the year by Prescott and party, who directed their attention to driving and stoping on a small leader near the surface, from which they crushed 6 tons 1 cwt. of stone for 127 oz. 5 dwt. of gold, valued at £332 3s. As the mine is a considerable distance away from the public crushing plant, and the stone has to be packed on horses, it thereby adds greatly to the cost, and in consequence some of the men have decided to give it up, as it will not pay them to work.

There has been a limited amount of prospecting done in this locality, but nothing worthy of notice reported.

GREAT BARRIER.

Barrier Reefs Mine.—Operations in this mine were steadily carried on up to the month of November, but the blocks of ground opened up on the reefs becoming exhausted from the low level upwards, a number of the men were discharged. The battery was stopped, and only a limited number of men were kept on in the mine, pending a reconstruction of the company for the purpose of raising further capital to open up and develop the mine at deeper levels, which will probably necessitate the erection of pumping and winding machinery. During the year the low-level crosscut has been extended a distance of 39 ft. southwards, where a large lode 43 ft. thick was intersected, some of the stone being of a very promising character for gold and silver. 100 ft. has also been driven eastward on the course of the main reef, and a total of 220 ft. at the No. 2 and intermediate levels, together with 100 ft. of uprises. Stoping: There has been 695 ft. on the course of the lode, by 330 ft. in height, blocked out on the main lode (the average width of it being about 15 in.), which produced 13,537 tons of quartz for 15,734 oz. of bullion, valued at £23,503. The average number of men employed in the mine and battery was 112, but five men were only employed at the end of the year.

New Great Barrier Mine.—This ground, formerly known as the "Original Great Barrier," on which a good deal of work was done by the previous owners, has been taken up and worked during the past nine months by a syndicate, who have employed from two to three men in prospecting and opening up the reef, which averages 14 in. in thickness. A parcel of 4½ tons was broken out at the No. 1 level and forwarded to New South Wales for treatment: this gave a return of bullion valued at £33. The gold contained in the ore is from 5 dwt. to 7 dwt. per ton, the principal value being silver. The work in the mine has been chiefly confined to the No. 1 level, which has been extended a distance of 103 ft., and a rise put up on the reef to a height of 40 ft. It is intended to connect this rise with a surface drive, which has been extended 40 ft. to where it will come through; this, when completed, will give good ventilation, and will partly prove the value of a large block on the reef over the level.

TAURANGA-TE PUKE.

Te Puke Gold Reefs.—There has only been a limited amount of work done in this mine during the year, three men being employed in prospecting the reef at No. 1 level near the top of the hill, and from which 5 tons of ore was broken out and treated for 31 oz. 18 dwt. of gold, valued at £86 14s. 11d. This property is still under offer on the London market, and the shareholders are sanguine it will eventually be floated into a company.

Clark's Freehold.—Very little work has been done on this property during the year, but negotiations are now on foot with the representative of a French syndicate to give them an option over the property till the end of the year, the syndicate to spend at least £100 per month developing the property. If the terms offered are acceptable an expert will be sent to report. The option has to be open to the middle of May next.

FATAL ACCIDENTS.

Name.	Name of Mine.	Cause.	Date.
James Ellery ...	New Zealand Crown Mines	Killed by balance-beam of pump ...	30th April.
William Ready ...	Waihi Company's mine	Killed in boiler-shed by a truck with firewood	4th July.
Leonard Roberts	Royal Oak Mine ...	Killed by falling down a pass ...	16th October.
James Carter ...	Waihi Company's mine	Killed by a fall of rock	17th October.
Jeremiah Sullivan	Waihi Company's mine	Killed by falling down No. 2 shaft from No. 6 to No. 7 level	12th November.

There were twenty-eight other accidents reported to this office, and, being of a more or less serious nature, the cause of each was inquired into, and with the exception of slight accidents they were duly reported on. There is only one case that requires special comment here—viz., that of James Marshall, who was injured in the Waihi Company's mine on the 3rd December by an explosion of gelignite, and died a few weeks after the accident occurred.

I have, &c.,
JAMES COUTTS,
Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

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

SIR,— Inspector of Mines' Office, Westport, 15th April, 1902.

I have the honour to report as follows on the gold-mines in the Marlborough, Nelson, and West Coast districts for the period ending the 31st December, 1901:—

QUARTZ-MINING.

BLENHEIM.

Wellington Mine.—The mining development of this property is carried out in a haphazard and slipshod manner. Rising on No. 2 level 165 ft. is the only work in progress. Two men employed.

Jubilee.—Since this company resumed operations development has been chiefly confined to driving a low level on No. 2 reef. Several parcels of outcrop stone yielded 136 oz. 6 dwt. 10 gr., valued at £502 6s. 3d. The aerial tramway has been generally overhauled. Working-conditions of the mine are good, and it is well ventilated. Ten men employed.

Luck at Last.—This recently opened property employs two men driving on a very large low-grade formation, but the manager anticipates a payable run as developments extend.

Baden-Powell Syndicate (Thomas Fowler, secretary).—A winze is sunk to a depth of 30 ft. on a 4-yard formation. The contract is let for 60 ft.

HAVELOCK.

Golden Bar.—Inquiries in respect of road-construction have recently been made to facilitate the transit of milling machinery. Water-race construction and preparing timbers for battery-foundation are the only works at the mine. The machinery awaits transport from Havelock Wharf.

COLLINGWOOD.

Golden Ridge (Taitapu Gold Estates; Mr. James Carrol, late of Crœsus, Paparoa, mine-manager).—Mining developments are confined to the low level, while a new roadway connecting the Ant-hill section of the mine with the aerial terminal is under construction to facilitate transit to the mill. Twenty-three men employed.

Golden Blocks, Taitapu.—Developments are kept well in advance in order to avoid shortage of ore-reserve. The low-level crosscut is now driven 510 ft., and according to the favourable country indications the main ore-body is early expected. Stone for milling purposes stoped between Nos. 1 and 2 levels yielded 3,081 oz. 10 dwt., valued at £12,122 8s. 1d., from 2,364 tons. The mine and battery works are kept in good order. Thirty men employed.

WESTPORT.

Britannia.—The lucrative returns maintained from No. 1 reef during the year have encouraged the company to extend developments on the north section of their property, where a reef recently discovered—4 ft. to 5 ft. in width—promises to give fair average yields. Eight men employed.

Stony Creek.—This property, formerly owned by the old Republic Company, was recently acquired by a local syndicate, who work under the title of "The Stony Creek Gold-mining Company." Since possession was taken the several works have undergone a general overhaul, and the discovery of a fresh ore-body has strengthened the position. Battery operations are hampered owing to scarcity of water, but steps are being taken to remedy this defect. So far returns are not yet to hand. Fourteen men employed.

The *Mokihinui Reefs* have recently attracted the prospectors' attention, but beyond the old known bodies there are no fresh disclosures to note.

LYELL.

Alpine Extended.—Active developments in No. 7 and No. 11 have been steadily pushed since operations were resumed at the commencement of the year. But, with the exception of a small leader which yielded 30½ oz. to 4 tons stone, No. 7 has unearthed no fresh discoveries of importance. However, a high-grade ore-body, varying in width from 2 ft. 6 in. northward to 12 ft. southward, was struck while extending No. 11 south. Unfortunately the stone pinched out in the south face, but continues strong in the north one, which runs almost parallel with the main drive. Driving continues in the south face, but the higher values of this new ore-body will depend on deeper sinking.

Tyrconnel.—Kelly and party continue to work this property as a private concern, with highly payable results. The mine is kept in a workmanlike manner and well ventilated.

BOATMAN'S.

Kirwan's Reward.—Practically developments of importance are nil, except quarrying the large bodies of quartz located on the crown of the hill, which, according to the volume of broken stone in sight, assures the investor that profitable returns will continue for a considerable time to come. Twenty-two men find employment in quarrying the stones and clearing the surface *débris*.

Welcome.—During the past year only a small amount of exploratory work has been done, as all practical effort failed to trace the stone down to the low-level tunnel, Specimen Hill. Therefore all that remained was to mine and mill the quartz in sight, which amounted to about 240 tons. The company erected a very rough five-stamp mill, and a free-gold yield of £1,923 13s. 9d. was obtained, besides several pennyweights being left in the tailings. To make the quartz-treatment complete a small cyanide plant consisting of two 20 ft. diameter by 5 ft. wooden treatment-tanks was erected, together with an additional stamp. These tanks were nearly finished at the end of the year. Meanwhile stoping was continued by eight wages-men, it being the intention of the company to take out all payable quartz in sight.

REEFTON.

Wealth of Nations.—Attention has been chiefly directed to develop the bottom or 800 ft. level, the face of which at the end of the year was standing at 547 ft. north of the shaft. While driving this distance ore-bodies of considerable magnitude were met with, including one of very strong medium grade, 12 ft. in width, at 142 ft. from the shaft. Rising at 500 ft. to connect with the 700 ft. level, a very nice quartz band 3 ft. in width, carrying very fair gold, was followed the whole distance. Extending north towards the Energetic shaft, the battery level was driven 156 ft., leaving 192 ft. yet to connect. The total footages amount to 591 ft. of driving and 156 ft. of sinking and raising. The necessity for sinking a main shaft has been rendered urgent owing to the present

undesirable method of raising and lowering men and material through a blind incline shaft, hoisting being actuated by overshot motive power, situated about 1,800 ft. from the seat of operations, a system of hoisting which is not only tedious and expensive, but must be considered as diverging slightly from the strict rules of safety. However, after much discussion, the company has ultimately decided to remove the obstacle by reopening and sinking the old Energetic shaft to a total depth of 1,212 ft. Bullion-value from 12,015 tons milled quartz was £16,448 4s. 5d., and from extractive concentrates £875 4s. 1d.; while 7,205 tons of coarse sands yielded £4,390 3s. 5d., at a cost of 3s. 5·456d. per ton treated. Electric-light installation from a Crompton dynamo is the only mechanical addition.

Golden Fleece.—Since mining and milling were commenced in November, 1900, operations have been carried on continuously, with satisfactory results. The winding-shaft was sunk 150 ft. from No. 10 or adit level, and opened at No. 11 level, driving north and south on a strong body of stone, on which the necessary connections were made to No. 10 level to provide ventilation. Stoping has been generally carried on throughout the mine from No. 5 to No. 10 levels, together with other extensive developments in driving, rising, and sinking, which in all have produced 14,987 tons of quartz, giving a bullion-value of £28,612 2s. 2d., besides sulphurets sold for smelting to the value of £2,070 5s. 9d.; also 11,170 tons of coarse sands under cyanide treatment yielded a bullion-value of £5,416 14s. 4d., at a cost of 2s. 4·202d. per ton, giving a profit of 7s. 4·182d. The mechanical and other equipments being in good order, no particular alteration has been necessary. The Perseverance tunnel was generally overhauled its full length, and the south drive extension of 72 ft. exposed a small ore-body of no particular value.

Golden Treasure.—This property is practically abandoned, as the hoisting plant was recently removed, preparatory to placing it on the Energetic shaft.

Progress Mines.—The various departments in connection with the mining, milling, chemical and metallurgical ore-treatment on this property were satisfactorily and continuously carried on during the year; whilst mine-development (from Nos. 2 to 10 levels), comprising 3,326 ft. of driving and 492 ft. of rising and sinking, have partially exposed ore-reserves in excess of previous tonnages as compared with the preceding year, notwithstanding that the output milled was 55,207 tons. Milling-stone was generally stoped from No. 3 downwards under favourable conditions, leaving the exhausted ground well secured and filled in. The chief surface improvements were the erection of a red-pine head-gear framing of increased strength on B shaft in place of the former white-pine one, and an ore-bin of about 100 tons capacity was recently built at A shaft to faciliate tipping and loading operations. Also, head-gear and a small Ledgerwood hoist were installed at C shaft to open and unwater the workings. The adit eastward was repaired to the face, and driving commenced for the Union stone, whilst the adit westward was extended 100 ft. Aerial transport has worked satisfactorily at a minimum cost of 4¼d. per ton. The gross milled tonnage, 55,207 tons, gave a total bullion-value from amalgamation, chlorination, and cyanide of £97,680 13s. 10d. Coal for steaming purposes is mined from the company's own leases, which show a good reserve of fair quality in sight. According to notes received from Mr. Spencer, general manager, working-costs, compared with previous year, show a decrease of 2·845d. per milled ton; but, unfortunately, general charges show a distinct increase of 7·39d., which is largely attributable to increased local taxation.

Keep-it-Dark.—Operations were continuous, and the mined stone for milling and cyanide extraction was chiefly stoped from Nos. 2 and 3 levels, the ore showing no particular change either in body or value. Driving, rising, and sinking were practically confined to No. 3 level, from which the necessary connections for ventilation, ore, and filling-in passes are satisfactorily connected with No. 2 level, and thence direct to the surface. In view of working the deeper levels of the property on improved modern lines, the company decided to abandon all operations hitherto connected with the inside shaft, and carry out all future developments from deeper sinking of the main shaft. Consequently, steam-power for hoisting purposes has displaced the old overshot water-wheel. Sinking has proceeded satisfactorily, under favourable natural conditions, to a further depth of 150 ft., where a large securely timbered chamber is built (formerly the entrance to No. 4 level) preparatory to deeper sinking. The gross milling output, 12,685 tons, yielded 2,907 oz.; from amalgamation and cyanide, 1,627 oz.: showing a total value of £16,663 9s. 1d.

New Scotia.—Since the present company reopened this property the head-gear, winding-ropes, chains, and cages have been completely renewed. Mining operations have been confined to driving No. 1 level east towards the Gallant block, and unwatering the shaft to No. 2 for deeper development. The Gallant adit was also cleared out and repaired to the reef, from which a parcel of stone was milled, with very unfavourable results. The cyanide treatment of the battery-tailings sands gave a very satisfactory yield of £3,532 15s. 1d. The whole plant is in good order and condition.

Big River.—Although the higher levels of this property have yielded considerable wealth, it would appear, from the continued unsuccessful efforts made to extend prospecting operations in the present workings, that the rich auriferous belt peculiar to the locality is confined to a very limited radius from the shaft. However, the company has finally decided to sink the main shaft and prove the deeper levels, which work is now proceeding.

Big River No. 2.—After a lengthened period of unsuccessful surface prospecting and driving, operations are meantime abandoned.

Last Chance.—Fleming and Morris continue to work the thin leaders in the old property in a very careful and workmanlike manner, with varied results.

Golden Lead.—In order to facilitate aerial transport and prove the deeper leads of this section of the property, the company are driving No. 2 low-level adit at a vertical depth of 150 ft. below No. 1. So far the values met with are not important. Two men employed.

New Inkerman Mines.—Since Mr. G. Dixon, late attorney, left for England, the charge of these properties has been directly under the care of Mr. G. Boyd, late of Progress Mines and Consolidated Goldfields of New Zealand; but so far developments are not important. Practically the whole work of the year continues of a prospecting character, crushing being confined to one small parcel in the early part of the year. A rise to connect No. 5 level with the old surface-workings has been cut the whole way in a fine body of quartz. Also, driving is continued from the winze at 226 ft. below No. 5 level to cut the lode in depth, as it showed fair size, and was driven on for about 300 ft. Twenty-five men are employed under authority from the Warden.

Paparoa Ranges.

Paparoa Mount (formerly Cræsus, Paparoa).—Mining operations have been chiefly confined to driving a low level in the western slope. Stone crushed in the commencement of the year valued at £414 2s. 2d. Owing to the dense fog during Mr. Richards's last visit to the locality, he was unable, after three hours' search, to find the mine. Hence shortness of my information.

Taffy.—Operations are abandoned at this property.

Garden Gully.—The low-level adit is driven and timbered 160 ft. under contract. Preparations are being made to erect a ventilating-fan.

General Remarks.

According to the statistical returns to hand for 1901, the favourable anticipations expressed in my report of last year are fully verified. The output of quartz gold from the Westland Mining District is the largest yet recorded for any similar period. This result is chiefly due to the substantial increases from the Progress Mines and the Consolidated Goldfields of New Zealand over the preceding year. Keep-it-Dark and Kirwan's Reward show a fair increase, while the marked advance in productiveness shown by the Taitapu and Westport Mines is encouraging, and likely to continue. In view of the general and projected deep-level developments, coupled with the largely developed ore-reserves in sight, continuance of similar returns are not only anticipated, but with the scientific modes of ore-treatment now established in the Reefton district increase of output is practically insured.

ALLUVIAL AND HYDRAULIC MINING.

Mahakipawa.

King Solomon Mine.—Although the persevering and expensive efforts made to unwater this property have proved utterly fruitless, we must commend the pluck and energy displayed by the company with the object of unearthing the precious metal. Negotiations are in progress for the sale of the property.

Wakamarina Gorge Claim.—The works on this claim are suspended, and under the charge of Charles Dimante.

Ericon Hydraulic Sluicing Company.—This company have suspended operations. No person in charge.

Twelve miners make a living prospecting and otherwise in this district.

Takaka.

Sheepy Flat.—Two men are cutting a deep-level drainage-race, of which 12 chains is open channel, and 300 ft. of close driving is anticipated before payable ground is reached. Should prospecting prove successful a large area awaits development, as the syndicate has obtained the freehold rights of the district.

Takaka Hydraulic Sluicing Company (Charles Campbell, manager).—The elevator is being re-erected on another part of the claim, the former site having proved disappointing. The full water-supply is expected early on the works. Sixteen men employed.

Wangapeka and Sherry.

For some months past this once important alluvial-mining district has enjoyed quite a revival, and several tail and water races are being cut. Also good results are obtained from a few driving-out claims.

A few men are prospecting and working single-handed in some of the shallow creeks, with poor results. Dredging has so far made no move in this district.

Collingwood.

Parapara Hydraulic Sluicing Company.—Prior to Mr. Peters (late manager) leaving the company's service early in May, operations had extended directly through the Hit or Miss Valley. It was evident then that sluicing could not be continued until the main pipe-line was shifted from the broken and loose hillside and relaid in the bed of the valley, a work which incurred considerable expenditure. However, these works are most substantially completed, and the powerful jets maintained command a newly opened face of coarse sandstone boulders at the lower end of the claim, hydraulic winches being used to lift the large stones.

Quartz Ranges.—Present operations are of a varied character. Washbourne's Face, operated on by two nozzles, is the most important, and late results are considered satisfactory. Debtor's Face also employs one nozzle. Other works are chiefly developing. Sixteen men employed. Plant and works are kept in good order.

Rocky River.—All works are suspended in this district.

Slaty River Sluicing Company.—Sixteen men employed in dam-construction for water-conservation. No other developments.

Duggan's Flat.—Three miners employed sluicing. No returns to date.

The Karamea district has not been visited.

Westport District.

Wellington Old Diggings, Buller River.—Sluicing operations have been suspended during the greater part of the year.

Mackle and party continue sluicing the tailing-deposits from the old Caledonia Claim, with favourable results.

The terraces and tributaries of the German Creek still afford employment to about twenty miners.

Greenhill Sluicing Company, Fairdown.—Hydraulic sluicing was continued in the commencement of the year, for a gold-yield of £260 ; but operations are now suspended, pending reconstruction of the company.

Waimangaroa River.—Profitable results are obtained by the parties who continue to tunnel the banks of the river.

Halligan and Party (five).—This sluicing and elevating claim, now skirting the Fair Maid Terraces, affords payable results. The plant is in good order.

Moran and Party (four).—Since developments were completed the results from this claim show signs of improvement.

Gould and Party (four) continue sluicing as usual, with poor results.

Carmody and Party (five).—Profitable returns are still being obtained from this sluicing and elevating claim. Working-conditions of the property are satisfactory.

Shamrock Claim.—This property is shut down and flooded. The owner made application for a subsidy to drive a low-level drainage-tunnel from the Dirty Mary Creek, but, as construction of the race was likely to benefit the owner only, assistance was not granted.

Virgin Flat Gold-mining Company.—After very considerable expenditure, extending over a period of three years, on gigantic and substantially built water-race and tail-race developments, sluicing was commenced in full swing in the early part of the year, giving a gold-yield of £588 7s. 7d.

Cement-crushing.

Piper Flat Company.—This company had suspended operations when visited.

New Venture.—The present syndicate of eight working-men recently bought this property from the old Venture Company, and continue operations with fair results. It is very regrettable that, under the existing mode of treatment, gold-extraction from these rich auriferous cemented sands is so far very unsatisfactory.

Millikin and Party (eight).—Operations were confined to sluicing the south end of the claim. Battery-work suspended.

Golden Sand.—This company resumed operations in the commencement of the year, and carried out extensive alterations in connection with the battery and tables, but returns not meeting anticipations all work was shut down.

Charleston.

Powell's Sluicing and Elevating Black-sand Claim, Nine-mile Beach.—The owners still meet with very profitable returns, the yield being 525 oz. 3 dwt. 15 gr., valued at £1,973 7s. 9d.

A number of beach-combers continue to make a fair living in the locality.

Lyell.

Neville and Perkins's Newton Flat Hydraulic Sluicing and Elevating Company.—This company employ about forty men ditching and tunnelling in connection with a large water scheme from the Newton River. As the various works are well advanced, it is anticipated that sluicing will commence early.

Murchison.

The Glenroy, Horse Terrace, and Matakitaki districts employ in all about thirty-four Europeans, and approximately thirty-two Chinese, working in parties of from two to four men. Boring and sinking for dredging purposes forms quite an industry.

Boatman's.

A few aged miners are making a bare living along the left-hand branch of Boatman's Creek.

Ahaura.

In the Ahaura, Orwell Creek, Callaghan's, and Nelson Creek districts mining has practically given place to the dredging industry, with exception of a few old resident fossickers and Chinese who earn a bare living by scratching the beds and banks of the creeks.

Bellhill.—Sluicing has been almost continuous with improved productive capacities, chiefly due to the increased water-supply and other developments recently carried out by the present company.

Healey's Gully (Owners, Republic Sluicing Company).—The effective hydraulic capacities of this property have been largely improved by a series of continuous alterations and improvements recently made in connection with the water-race. Sluicing is well maintained, while returns show a total output of 269 oz. 1 dwt., valued at £1,053 16s.

Three Jacks Claim (three).—This claim gives very satisfactory results when water is plentiful.

Montgomery Terrace Sluicing Company.—This recently developed property employs five men hydraulic sluicing, while a large staff of men are employed constructing an extensive water-supply scheme under contract.

Grey River Sluicing Company.—Shrives and party continue to work this claim very successfully, with profitable returns. Gold-value was £749 8s. 9d.

Upper Blackball Creek.—This locality afforded profitable employment to six parties ground-sluicing the creek-bed at low water.

Roaring Meg.—This company has made no further effort to develop the property.

GREY VALLEY.

Sulky Gully (Owners, Wills and King).—A party of Chinese continue to work this claim under sub-lease rental, but so far returns are unfavourable.

Waiwhero Sluicing Company.—Water-race and other important developments in connection with this extensive section of the company's holding are scientifically and substantially completed. Sluicing has been almost continuous, with a gold-value of £5,305 18s. Twenty-five men employed.

Barrytown No. 1.—Mr. Alexander MacKay, Greymouth, continues operations on a large scale on the "blow-up" (or hydraulic elevating) principle, with profitable results. Gold-value, £3,404 13s. 9d. Twenty men employed.

A few hatters make a fair living on the beach terraces where water is available.

KUMARA.

On a recent official inspection of the various sludge-channels and deep levels connected with the mining operations of this district it was gratifying to note that the working and maintenance conditions of such were found in a satisfactory state of efficiency.

Waimea Hydraulic Sluicing and Elevating Company.—Sluicing and elevating operations have recently been commenced on the flat sections of the freehold and other mining properties acquired from Mr. Looker. Attention is also directed to the terraces, where a plant is under construction.

Wheel of Fortune.—Mining operations are suspended pending arrival of two up-to-date elevating plants from England. Lake Mudgie is being enlarged for water-conservation, and the drainage-tunnel is undergoing extensive repairs.

HOKITIKA.

Humphrey's Gully.—Completion of the extensive developments in water-supply, saving-tables, electric-light and hydraulic installation has enabled the company to commence sluicing operations on a gigantic scale. The extended water-supply scheme is capable of keeping three nozzles operating continuously night and day on the face, which rises to a height of 300 ft. Safety and economy are practically secured by the use of powerful hydraulic winches in keeping the faces clear of heavy timber and stones.

Craig's Freehold.—Chesterman and Buckland are the responsible tributers for the respective sections of this property. Buckland's party have recently opened out a virgin section adjoining the original north workings. Strict attention is observed in timbering and ventilation. Gold-value, £1,513. Twelve men employed.

Kanieri Water-race.—Tunnelling and other preparatory works connected with this extensive water-supply scheme are being actively pushed forward. Siphon and pipe ironwork ordered from Belgium will be placed in position directly on arrival.

Stenhouse, Crawford, and Noble.—Continuance of payable returns is assured with the large auriferous-ore reserve in sight. Various applications have recently been made in close proximity to the drainage-tunnel.

ROSS.

Ross United.—This property continues to drag wearily on under the tribute system, with no definite improvement. The gold-yield was valued at £1,222 5s.

Mont d'Or.—Credit is due this energetic company for the legitimate and enterprising system by which developments and all working appliances are kept in advance. The returns (£3,557 19s. 6d.) show a decrease of £1,748 12s. 6d. as compared with the previous year.

WAIHO.

Westland Hydraulic Sluicing Company.—Beyond a few minor works in road-construction and otherwise, developments are not important. Sinking and boring for dredging purposes employ about twenty men in the flat.

Okarito Forks.—This locality affords a living to six men, and a few more up near the lake.

Wataroa.—Arthur and party are still working in the gorge, but non-construction of the Bluff Road is the cause of much waiting.

Lake Ianthe and Duffer's Creek.—Three men find a living in each district, so far; but prospects look bad when Chinese cannot live.

Five-mile and Waikupuku.—Eleven beach-combers make a fair living, and at Oamaru four miners are having a good time in the terrace about four miles inland.

Sinkings and borings for dredging prospects have been put down in several parts of this region.

DREDGING.

Although dredge-construction makes satisfactory progress in point of volume, it unhappily occurs that the variable ratios of success, as indicated by the number of suspensions and liquidations officially catalogued in the mining returns, definitely show that the factor of profit in favour of the investor cannot be regarded as either universal or constant; but, speaking impartially on the merits of our best-designed and most-fully-equipped West Coast dredges, it is gratifying to state that the returns obtained therefrom compare favourably with those in other parts of the colony.

A study of the various causes and conditions of recent failures that have come directly under our notice suggests a few practical precautions useful to the mining investor as a means of protecting him against the evils of haphazard speculation, tending also to minimise loss in future operations, and quite indispensable if gold-dredging is to figure as a legitimate industry in the mining records of New Zealand. These requirements are as follows: (1.) Prior to dredge-construction it is essential that the deep and coarse auriferous-gravel deposits peculiar to our river-bed and lake-bed formations should be systematically prospected by shaft-sinking in preference to the undesirable system of boring hitherto practised. (2.) It is also necessary to provide an increased ratio of strength in steam-power and working mechanical parts, combined with greater gold-saving-table capacity, with effective clean-water supply, as the shortage of these essentials not only involves the most ruinous monetary results incidental to the industry, but incurs extraordinary expenditure in repairs and loss of time, which, with properly equipped dredges, would otherwise go into the pockets of the investor.

It is pleasing to note that the bonus of £2,000 promised by the Hon. the Minister of Mines, with the object of encouraging the invention of such appliances as will successfully save gold from black sand in New Zealand, has already stimulated scientific research in this direction, and that samples of these sands sent from the Charleston Mining District have been forwarded to eminent Continental schools for experimental treatment. If the results are economically successful, it will be the means of inaugurating a new era in the history of New Zealand mining.

With regard to the working-conditions of modern dredges, comfort and safety to workmen have received the engineer's attention, and the strict observance with respect to the equipment appliances and fencing, in compliance with Regulation 83, have minimised the risk of accident. Nevertheless, six accidents—two of them fatal—have been reported from this district; but all of these except Stringer's case, which was a pure accident, were clearly due to rashness and carelessness on the part of the persons injured.

ACCIDENTS AND FATALITIES.

QUARTZ-MINES.

Taitapu Golden Ridge.—(27/3/1901): Patrick Ryder (miner) had his leg broken by a falling prop in the working-face.

Golden Fleece Mine, Reefton.—(3/6/1901): Whilst Adolph Peterson (miner) was working on No. 2 stopes he sustained serious spinal injuries, which terminated fatally on the 14th September.

DREDGING.

Fatal.

Mokoia.—(22/4/1901): William Tomitily, transport boatman, was drowned while crossing the river with Tobin and King at change of shift, the boat capsizing by some unknown cause. Verdict, "Accidental death."

Golden Point, Wakamarina.—(9/9/1901): A watchman named Martin Eliott was dragged round the main driving-shaft and killed. Verdict, "Accidental death; no blame attachable to any one."

Non-fatal.

Waipuna.—(23/2/1901): Alfred Ahearn (not an employee) lost two fingers by the winch cog-wheels.

Mokoia.—(20/5/1901): William King had his leg broken by jumping into a coil of rope while it was being tailed out. Blame was not attachable to any person.

Wareatea.—(30/10/1901): Alfred Stringer had his leg broken whilst hauling in a large stone off the buckets.

Pactolus, Nelson Creek.—(29/11/1901): Whilst James Smeaton was climbing up the gantry he overbalanced and grasped the ladder-line while it was in motion, severely crushing his left hand in the block, and necessitating amputation of three fingers.

PARTICULARS of DREDGES at WORK or in COURSE of CONSTRUCTION, furnished by the Inspectors of Mines for the Marlborough, Nelson, and West Coast Districts, up to 31st December, 1901.

Name of Company or Dredge.	Locality of Operations	Stage of Operations.	Name of Dredgemaster.	Name of Engineer in Charge.	Designed by	Name of Secretary.	Date of Inspector's Visit, and Notes.
Top Valley Creek.							
Omdurman	Top Valley	Working	C. Nicholson	W. Ensor	F. W. Marchant	E. Bucholz	14/9/01: Light-lines, boat-hooks, and bow-fencing required.
Wakamarina River.							
Golden Point	Wakamarina	"	W. D. Turnbull	A. Murray	Cutten Bros.	Louis Bright	16/9/01: Fencing wanted on cog-wheels and main shaft.
Whangapeka.							
Whangapeka and Sherry	Whangapeka	Building	J. Denford	J. Denford	R. Sheriff	W. Bell	24/9/01: Erecting machinery.
Westport.							
Stony Creek	Fairdown	Erecting machinery	Not appointed	G. Griffiths	E. Roberts	A. M. Boulton	Not visited.
Wareatea	"	Working	D. Mitchell		Cutten Bros.	C. H. Statham	30/10/01: Now standing.
Fairdown	"	Pontoons launched			F. W. Payne	J. A. Sligo	30/10/01: Building at a standstill.
Buller River.							
El Dorado	Berlin's	Building			Cutten Bros.	S. J. Branigan	Erecting machinery.
Rocklands	Rocklands	Working	W. J. Inwood	H. Batchelor	J. Bishop	J. W. Jack	6/12/01: Rules posted, and fully equipped.
Premier	White Cliffs	"	A. Smith	R. Lawrence	Cutten Bros.	J. M. Butt	6/12/01: Rules posted. Bow-fencing required.
Welcome	Inangahua Junction	Started work	C. G. Morel		"	E. MacRae	Not visited. Regulations sent.
Buller Junction	Three-channel Flat	Working	S. Smeaton	H. Findlayson	"	P. N. Kingswell	6/12/01: All regulations complied with.
Old Diggings	Berlin's	"	D. Logan		"	T. H. Lee	Operations now suspended.
Mokoia	Three-channel Flat	"	W. L. Cookston		"	D. Crawford	7/12/01: Rules posted. Dredge fully equipped.
Four-river Plain	Murchison	Standing	J. Bunting		J. Bishop	J. W. Jack	27/9/01: Standing. J. Bunting in charge.
Kohikohi	Upper Buller	Working	E. Mills		"	H. J. Logan	24/9/01: Light-lines, boat-hooks, and fencing at various parts of machinery and pontoons required.
Buller Dredges	"	Standing	D. Clark		Cutten Bros.	P. N. Kingswell	27/9/01: Standing. Thomas Bell in charge.
Boatman's.							
A1	Redman's Creek	Working	R. Liddicoat		"	W. Rollitt	"
Reeves's Proprietary	Boatman's Creek	"	R. Scott		"	H. A. Bruce	"
Grey Valley.							
Great Lead	Grey River	Building	H. Orkney		F. W. Payne	R. T. Wheeler, jun.	11/10/01: Pontoons built and ready for machinery.
Totara Flat	Duffer's Creek	Working	B. Naylor	W. Campbell	J. Bishop	G. Ross	6/10/01: Light boat not arrived; otherwise fully equipped.
Golden Banner	Grey River	Contract let			F. W. Payne	R. A. Mathewson	11/10/01: Pontoons ready for machinery.
Daylight	Ahaura River	Building			Cutten Bros.	G. Blyth	"
No Town	No Town Creek	Ready to start	A. Cowans	G. Dixon	"	W. Holsted	13/12/01: Nearly ready to start operations.
Caledonia	Grey River	Working	J. C. Ray	J. Stewart	F. W. Payne	A. T. Finch	Now standing.
Maori Gully	Stillwater Creek	"	H. Dimond		E. Roberts	F. W. Ponsonby	11/12/01: Boat-hooks, lines, and buoys required.
Callaghan's	Callaghan's Creek	Ready to start work	D. Clark		Cutten Bros.	P. N. Kingswell	14/10/01: Pontoons ready for erection of machinery.
Ruby Creek	Grey River	Working	W. Cormack	J. Roberts	J. Bishop	G. Rosa	"
Mosquito	Mosquito Creek	"	C. H. Fleming		McGeorge Bros.	C. D. Morpeth	11/10/01: Not yet started work. Rules sent.
Stony and Mosquito	Nelson Creek		Not appointed			A. Peroth	"
Erickson's Reward	Orwell Creek	"	G. Cunningham	J. McNaig	E. Roberts	J. A. Sligo	12/10/01: Fencing required on ladder-way to well-hole.
Orwell Creek	"	"	A. E. Morel	J. Simpson	"	"	12/10/01: Regulations sent. Various fencings required.
Grey River Consolidated	Grey River	"	D. Marshall		"	H. F. M. Mercer	11/10/01: Master promised to comply with regulations.
Ahaura	Ahaura River	"	N. K. Sligo		"	"	12/10/01: Light-lines, boat-hooks, and well-hole fencing required.
Moonlight	Moonlight Creek	Building pontoons			F. W. Payne	D. Leslie	15/10/01: Nothing further done.
Trafalgar	Nelson Creek	"			"	J. A. Sligo	14/10/01: Pontoons ready for machinery.
Westland	Grey River				"	"	"
Watterson's Consols	Ahaura River	Building		T. Tymons	E. Roberts	"	12/10/01: Pontoons built, ready for machinery.
Victory	Nelson Creek	Building pontoons			F. W. Payne	"	14/10/01: Pontoons ready for launching.
Pactolus	"	Working	J. Cowan	J. Cowan	Cutten Bros.	P. N. Kingswell	13/12/01: Dredge fully equipped, and regulations strictly observed.

PARTICULARS of DREDGES at WORK or in COURSE of CONSTRUCTION, furnished by the Inspectors of Mines for the Marlborough, Nelson, and West Coast Districts—*continued*.

Name of Company or Dredge.	Locality of Operations.	Stage of Operations.	Name of Dredgemaster.	Name of Engineer in Charge.	Designed by	Name of Secretary.	Date of Inspector's Visit, and Notes.
Nelson Creek	Nelson Creek	Working	A. R. Edmonds	A. Warne	Cutten Bros.	W. Holsted	13/12/01: Dredge fully equipped, and regulations strictly observed.
Ford's Creek	Ford's Creek	Beached	G. Buchan	H. Green	"	K. S. Ramsay	Beached.
Grey River	Grey River	Working	C. Curtis	C. Curtis	F. W. Payne	G. S. Cray	Operations are recently suspended.
Grey River Extended	"	Standing	A. Crompton		"	T. Callender	Not visited since work was resumed under new company.
North Beach	North Beach	Working	S. C. Fache	A. Latimer	Cutten Bros.	L. G. Reeves	10/10/01: Equipments not satisfactory.
Duke of Wellington	Grey River	Building			E. Roberts	D. Leslie	15/10/01: Pontoons ready for machinery.
Aldinga	Nelson Creek	Building pontoons			F. W. Payne	"	14/10/01: Pontoons nearly ready for launching.
Garibaldi	Moonlight Creek	Ready for machinery			E. Roberts	"	Ready to start; erecting machinery.
Kangaroo	Red Jack's Creek	Building pontoons			J. Bishop	J. M. Butt	14/12/01: Pontoons nearly ready for machinery.
Shellback	Caledonia Creek	"	William Cormack	C. Clark	E. Roberts	J. A. Dugan	14/12/01: Ready to start work. Rules served.
Red Jack's	Red Jack's Creek	Working	E. Swan		Cutten Bros.	E. Morton	14/12/01: Fencing at well-hole and boat-hooks required.
Saltwater Creek.							
Leviathan	Saltwater Creek	"	D. Sutherland	H. E. Judd	F. W. Payne	H. F. M. Mercer	4/11/01: Require winch-wheels covering, light-line and buoys for bow, hooks for boat and punt, and gangway over well-hole.
New River.							
Maori Queen	New River	"	J. Mailer	A. Cowie	Cutten Bros.	B. Tyerman	12/12/01: Generally overhauled and fairly well equipped.
Maori King	"	Building			E. Roberts	W. K. Middleton	12/12/01: All work suspended at present.
Marsden No. 3	"	"			Cutten Bros.	G. H. McLean	12/12/01: Standing.
Marsden No. 1	"	Standing	G. L. Tacon in charge		"	H. A. Bruce	Now working under new owners.
New River	"	"			J. Bishop	E. A. Wicks	12/12/01: Standing.
Cornwall	"	Erecting machinery			A. C. McGeorge	G. Duncan	12/12/01: Erecting machinery.
Teremakau and Tributaries.							
Teremakau	Teremakau River	Ready for machinery			Cutten Bros.	W. T. Monkman	14/6/01: Pontoons floated.
Greenstone Three-mile	Greenstone Creek	Working	J. G. Donaldson	C. Morrish	"	N. O. White	12/12/01: Hooks and light-lines required in boat.
Greenstone Creek	"	"	W. Robertson		"	F. H. Labatt	12/12/01: Master promised to provide certain requirements.
Greenstone Gold	"	Ready for machinery			Leslie Reynolds	D. Larnach	28/10/01: Pontoons floated and ready for machinery.
Greenstone Junction	"	Working	J. Bennet		Cutten Bros.	W. Bernard	12/12/01: Everything in a satisfactory condition.
Stafford-Waimea	Waimea Creek	"	F. Sutherland		F. W. Payne	C. C. Richards	25/10/01: Boat and light-lines and bow-fencing required.
Hauhau Creek.							
Hauhau	Blue Spur, Hokitika	"	J. W. Cox	R. Williams	J. Bishop	J. W. Jack	22/10/01: Boat-hooks and well-fencing required.
Hokitika.							
Perry's Reward	Tucker Flat	Standing			E. Roberts	J. D. Lynch	22/10/01: Standing.
Woodstock	Hokitika River	Building			F. W. Payne	James Bond	22/10/01: Erecting machinery.
Hokitika River	"	Working	D. McGregor	D. McGregor	Cutten Bros.	W. Rollitt	22/10/01: Regulations all complied with.
Mahinapua Dry Dredge	Lake Mahinapua	Standing	J. Howat in charge		J. Bishop	J. W. Jack	22/10/01: Standing.
Great Woodstock	Shenandoah Creek	Placing machinery on pontoons			F. W. Payne	W. E. C. Reid	22/10/01: Erecting machinery.
Commissioner's Flat	Kanieri	Building pontoons			E. Roberts	H. A. Bruce	Pontoons nearly ready for launching.
Ross.							
Totara	Totara River	Standing	J. Crombie in charge		Cutten Bros.	G. Ross	8/10/01: Still standing.
Day Dawn	Donnelly's Creek	Placing machinery on pontoons			"	W. Holsted	8/10/01: Erecting machinery.
Prince of Wales	Donaghue's Creek	Ditto			F. W. Payne	T. W. Bruce	8/10/01: Erecting machinery.
Kohinoor	Mikonui River	"		D. C. McMath	J. Bishop	G. Ross	Now working and well equipped.
Okarito	Okarito Lagoon	Nearly completed		G. H. McKenzie	G. H. McKenzie	G. C. Carter	28/11/01: Building operations suspended.
Shenandoah	Kanieri	Building					6/12/01: Erecting machinery.

HÆMATITE-PAINT WORKS.

Washbourne Bros.' Parapara Hæmatite-paint Works.—The output of dry paint was 75 tons, showing an increase of 15 tons on last return. This energetic company has also recently started the grinding of hæmatite in oil, and 4 tons of the paint thus prepared, and put up in drums and small tins, has already been put on the market with success. About 2 tons of Kanapa knife-polish has been manufactured during the year, and the sale of this article promises to increase. This company's paint is meeting with a ready demand in the Australian States, and efforts are being made to open a market for it in India.

I have, &c.,
R. TENNENT,
Inspector of Mines.

The Under-Secretary, Mines Department, Wellington.

Mr. E. R. GREEN, Inspector of Mines, to the UNDER-SECRETARY, Mines Department, Wellington.

SIR,— Office of Inspector of Mines, Dunedin, 7th April, 1902.

I have the honour to submit the following report on the quartz-mines, alluvial mines, and gold-dredges visited during the year ending the 31st December, 1901 :—

QUARTZ-MINING.

SHOTOVER.

Achilles Gold-mines, Bullendale (F. J. Donnal, superintendent; J. Edwards, manager).—(22/4/1901): The incline shaft has been extended to No. 7 level, which has been driven 218 ft. east and 150 ft. west. At 25 ft. from the shaft a winze has been sunk 50 ft. on No. 7 level east, and at 140 ft. west a winze is down 25 ft. No. 6 level has been driven 579 ft. east and 408 ft. west, a total distance of 987 ft. on the north lode (hanging-wall). Almost all recent work has been done on the hanging-wall, north lode. The main or south lode lies on the foot-wall. The lode formation is 90 ft. wide, and quartz in sight runs from 5 ft. to 10 ft. in thickness, averaging 7 ft. Very little crosscutting has been done during the past year, the work, as stated, being confined to the north lode. Large bodies of stone have been exposed, but almost the whole of it, after careful assay, proved too poor in quality to pay expenses. The mine is standing in first-class working-order, timbering good throughout, and air-supply adequate, with the exception of No. 7 level, where the water had risen in the winze and closed the return for air; this is temporary. Owing to recent heavy rains the water-race to power-house had broken away, and pumping in the mine had to be discontinued till repairs were effected. Forty men employed. Owing to the capital of the company being exhausted, and no promising stone in sight in the mine, the superintendent has received instructions from the London board of directors to suspend operations on the 16th May next. All hands have received notice to that effect.

Shotover Gold-mining Company, Skipper's (J. E. Davis, manager).—(24/4/1901) : Low-level tunnel on west bank of Shotover River driven through hard schist to cut reef formerly worked at higher levels by the Nugget and Cornish and Gallant Tipperary Companies. The reef was struck at 1,100 ft., and at 1,300 ft. the hanging-wall came in regular and well defined, making 3 ft. of good stone, with pug on foot-wall. At 1,312 ft. a shot put in on foot-wall side exposed stone showing gold freely. The level is now 1,330 ft. from entrance ; 6 ft. of good quartz is showing in the face, gold being visible in the stone. One rise is up 54 ft., on stone all the way. Mr. Davis is confident that a permanent block of stone is being opened up. Air good in mine; a small fan driven by a Pelton wheel, using a quarter-head of water, is used for ventilation. 800 ft. of galvanised-iron air-pipes 9 in. in diameter, balance 6 in. in diameter, are taken to bottom of rise. Good air will be obtained when communication is made with the high-level workings. The battery (which was formerly the Nugget and Cornish battery) consists of twelve heads of stamps, driven by a Pelton wheel, water for which is brought from Ballarat Creek. The race is two miles long ; the pressure-pipes are carried over the Shotover River ; the line is 500 ft. in length, reduced from 2 ft. diameter at the head to 9 in. at the battery ; vertical pressure, 250 ft. Seven men employed.

MACETOWN.

Glenrock Consolidated (Limited).

Premier Mine, Macetown.—(W. Patton, manager).—(26/4/1901): The face of the main incline is now 1,370 ft. from the top of the incline. The bunch of good stone recently worked in Nos. 23 and 24 rises has given out, and prospecting is being conducted in the hope that it may make again. Rises Nos. 26 and 27 are up in mullock, giving no signs of encouragement. Air good, and timbering well up to the faces. The sets in main incline are deteriorating very rapidly, and a shift of two men is kept constantly repairing and renewing. The timber used (white-birch) is very short-lived owing to dry rot. The return airway through the passes between the heads of the rises is small in area, and travelling through it is somewhat difficult. There is a heavy pressure on the ground, and, despite filling and liberal use of timber, the passes cannot be maintained full size. A new electric motor has just been landed, and is to be fitted up as a duplicate in the event of the old motor breaking down, the commutator being much worn. The concentrates are treated by cyanide.

New Indian Glenrock (Wynaad) Company (Limited).—(22/11/1901) : The main incline face is now at 1,459 ft. from the top of the incline, or 2,959 ft. from daylight. The chute or shoot being worked is almost finished, and prospecting and crosscutting works are being vigorously prosecuted. The extension of the incline is shortly to be proceeded with. Timbering throughout the mine well attended to, frequent renewal being required. Air good in the travelling-ways and stopes. A

small fall in the return airway is being cleaned up, otherwise the return is in good condition. Mr. Patton informs me that the main system (reef-formation) is 70 ft. in width between the walls, and carries three distinct reefs within, each having its own hanging- and foot-wall. The following report from the manager (Mr. Patton) gives particulars of the work, &c., for the last year:—

The incline-work has been carried on almost continuously during the year, one shift of two men being employed. During the twelve months 120 ft. has been driven. The tunnel measured 1,465 ft. on the 31st December. The cost of driving this 120 ft., including all expenses, came to £384 1s. 11d., or an average of £3 4s. per foot to drive and timber. The country driven through has been very hard up till the last two months, when an improvement set in, but no gold-bearing stone has as yet been discovered, the line of gold-bearing stone still being on a higher level. The tunnel has been continued at the same grade as usual (1 in 4), which so far has proved to be well under the stone. In addition to this 120 ft. drivage, a sump has been sunk 12 ft. and timbered throughout. Work in the incline face was unavoidably stopped during its construction. There has been a very great increase in the quantity of water, which has hindered the work considerably. Stoping-work has been carried on continuously during the year between passes Nos. 21 and 28. The stopes are almost worked out down to No. 26 pass. The reef has been of a very broken nature all through, and at times very difficult to trace, as it has a peculiarity of cutting out on one wall and making on another, which generally causes a very great delay in breaking stone. The reef in stopes between passes Nos. 26 and 28 is not well defined. The block of stone which we have been following during the year ran out between passes Nos. 27 and 28, but, after a considerable amount of crosscutting and prospecting, has been discovered in a crosscut between the incline and what was the bottom of the old reef, so that now, to all appearance, the top of the reef is almost where the bottom of the old block was. This disturbance in the reef has caused a delay of three months in opening stoping-ground. The new make of stone was first discovered in a crosscut from No. 28 pass, and, finding that we had not got the bottom of the stone, it was necessary to cut down the floor of the crosscut so as to follow the stone down. This work is being pushed ahead, and it will be necessary to find the bottom of the reef before we can start our opening tunnels. The delay will be considerable owing to the hard nature of the country. The new make of stone, from what we have seen of it, looks promising, and I have good hopes that when opened up it will prove profitable. This, however, will cause a further delay of three months before a fair quantity of stoping-ground is opened up. The number of blocks of stone discovered in stoping between passes Nos. 20 and 28 are as follows: No. 1 block, between passes Nos. 20 and 23; No. 2 block, between passes Nos. 23 and 26; No. 3 block, between passes Nos. 26 and 28; and No. 4 (the new make lately discovered in No. 28 pass). The ventilation tunnel, which last year was started from No. 20 pass, has this year been connected with the top of the old lower stopes at No. 16 pass, thus causing a circulation of air all through the mine, except on calm hot days, when the air is a little lighter. Another cause for inferior ventilation on hot days is the great distance the air has to travel. It requires constant care and attention to keep this air-passage open, and a large amount of timber is sometimes required in repairing, in the old high level especially, and also the incline tunnel, so that at present the mine is much more expensive to work than it was a few years ago. During the year the mill ran ninety-two days (twenty-four-hour day) twelve hours and a half. The greater part of the time fifteen heads of stamps were kept running. The supply of stone being limited, only one shift of eight hours daily could be kept going. The mill returns show a falling-off as compared with those of 1900. This is accounted for by the irregular nature of the reef and the frequent breaks. The gold from the concentrates treated by cyanide shows a decrease on that obtained last year (1900). From 38 tons treated bullion valued at £461 3s. 10d. was obtained. The financial result of the year's operations has not been as satisfactory as I could have wished. The mine has paid its way from start to finish, and remitted £450 to the London office. In addition to this, we have spent £384 1s. 11d. on Mine-development Account, or the driving of the incline, and £49 11s. on New Plant Account, both of which works are chargeable to capital. On Mining Account—that is, rising, crosscutting, and stoping—the sum of £2,131 2s. has been spent to obtain 2,099 tons, or an average of £1 0s. 3d. per ton. 2,110 tons of quartz was milled at a cost of £486 10s. 5d., or an average of 4s. 7d. per ton. 38 tons of concentrates was treated by cyanide at a total cost of £72 4s. 11d., or an average of £1 18s. per ton. This average is in excess of last year's, and is accounted for by extra expense having been incurred in erecting a new precipitating-vat, and building to cover same. It has cost £323 1s. for mine-maintenance—that is, driving for ventilation, keeping the air-passage and high-level adit (part of which is kept open for ventilation) and the main low-level adit and incline in repair. The total expenditure on revenue account for the year, all charges, amounts to £4,432 11s. 6d., an average of £2 2s. 2d. per ton mined. The total expenditure on the mine for the twelve months amounts to £4,866 4s. 5d., or an average of £2 6s. 2d. per ton mined and milled; on Insurance Account, £59 10s. 9d.; and on Rents, Rates, and Licenses Account, £78 1s. 4d.: or a total of £137 12s. 1d. was expended during the year.

The Westralian and Tipperary Mines at Macetown are still closed down.

Cromwell.

Cromwell Proprietary Gold-mining Company, Bendigo.—(5/12/1901): The mine has been standing during the year, but it is understood that negotiations are pending for working the property on an extended tribute, and the mine may be expected to soon again be placed on the list of gold-producing mines.

Bendigo Tailings Syndicate, Cromwell (S. E. Brent, secretary; G. E. Thomson, A.O.S.M., manager).—(5/12/1901): The company has been formed for the purpose of treating the tailings from the Cromwell Proprietary Gold-mining Company's battery. Experimental plant has been erected which is capable of treating 25 tons of tailings per week by the cyanide process, and with

which it is intended to cyanide about 1,200 tons of tailings near the battery. Should satisfactory results be obtained, a larger plant will be erected for the treatment of about 10,000 tons of tailings (estimated) now lying on the Lower Bendigo Flat.

OPHIR.

Clyde Enterprise Quartz Prospecting Company, Black's (J. Crombie, manager).—(7/6/1901): Area of claim, 50 acres, taken up under prospecting license. An old shaft originally sunk 100 ft. deep has been put in repair, and a platform put in at 70 ft. in order to drive towards the reef, which is expected to be met with about 6 ft. in. The country-rock stands well without timber. Three men employed.

ROUGH RIDGE.

Rough Ridge Quartz Reef, Rough Ridge (F. H. Perry).—(12/6/1901): No work has been done on this reef for some time. A few tons of mixed stone are stacked in the paddock behind the battery ready for trial crushing.

BALD HILL FLAT.

White's Reef, Bald Hill Flat (R. T. Symes).—(10/6/1901): Mr. Symes perseveres in looking for the main lode. The formation continues in regularity, and is 40 ft. between the walls. The level is now driven 400 ft. to the face. An uprise is driven 50 ft. to the intermediate level, providing good ventilation. Occasional veins of quartz are met with which carry good gold, and the owner is thereby encouraged to continue prospecting in the hope that the stringers of quartz will come together and good stone make in the solid spur, towards which the low level is being steadily advanced. Levels and rises well timbered. Stopes all carefully filled with material run in from the surface.

Excelsior, Bald Hill Flat (F. W. Gray).—(11/6/1901): The old mine on the south side is now abandoned. A shaft 40 ft. deep, 4 ft. by 3 ft., has been sunk on the reef-formation, which here runs from 8 ft. to 16 ft. in width. The gold is carried in veins of decomposed quartz, from 2 ft. to 3 ft. wide, with bunches up to 9 ft. in width. The level face is 100 ft. from shaft. Timber good.

WAIPORI.

O.P.Q. (Waipori) Gold-mines, Waipori (A. E. Inder, general manager).—(23/12/1901): The mine has been standing for some time, pending instructions from the London board of directors. The water is kept pumped out, and repairs effected throughout the mine where necessary. The levels and travelling-ways have been retimbered, and are in good order. Black's tunnel is kept in repair as a future road for conveying timber to the stopes from the 80 ft. level.

Bella Reef, Lammerlaw Range, Waipori (Stewart, McKeich, and Party).—(18/5/1901): Work has been suspended at this mine for some considerable time, pending its flotation into the hands of a larger syndicate. The stone being poor, and containing much antimony and arsenic, the present battery appliances are proving inadequate. Assays of tailings show that a large percentage of gold is being lost from the tables. Copper plates are being replaced by blanketing. (28/11/1901): The level has been extended to 800 ft. at the face. There is said to be 5,000 tons of stone in sight, but the trial crushings made have not returned working-expenses, and it is now feared that the stone is too poor to pay. Ladders are required in the far-in passes to provide second outlet to the surface. Ventilation excellent; a "digger's regulator" is being used on the upcast rise to reduce air-current. The reef in its course crosses a deep gully, and danger might arise from waterspouts which occur in the Lammerlaw Ranges, or from water-races breaking away, if the stone be taken out to the surface in the gully. I pointed this out to both Stewart and McKeich, and they appeared to realise the danger.

Cox's Reef, Lammerlaw Range, Waipori.—(18/5/1901): Not working for a considerable time. Not visited.

TUAPEKA.

Grey's Gully Reef, Tuapeka.—(26/10/1901): William Hogg and party are engaged prospecting on a reef in Grey's Gully. The drive is in about 100 ft., and has exposed a small block of stone underfoot. A crosscut to the hanging-wall met with no stone. The quartz is evidently not of a permanent character. (26/12/1901): The reef is now abandoned.

WAITAHUNA.

Table Hill Quartz-mining Company, Table Hill, Waitahuna (C. F. Meyer, general manager).—(22/5/1901): At present engaged driving a level to cut the line of reef behind the old workings. This level is dry and well timbered, and has been advanced about 2 chains. Three men are employed at present. At the time of my visit no work was going on, owing to the manager having met with an accident on the previous day while heating water for thawing dynamite which had been previously used for that purpose (for particulars, see appendix, "Accidents"). A ten-head stamper battery driven by water-power is on the ground.

MILTON.

Canada Quartz Reef, Milton (J. Lawson, proprietor).—(23/5/1901): Private enterprise, worked by Mr. Lawson. When I visited the mine I found two men engaged pumping water at the mouth of the old adit, one of whom informed me that Mr. Lawson intends to sink a dip drive through the old stopes at an angle of 1 in 3, with the object of picking up the solid reef beyond the old workings. The mouth of the drive where the men were at work was entirely unsupported by timber, and several tons of rock which had recently slipped down from the hillside was lying where it fell on the out-bye side of the man pumping. The timbering of the drive (which was in 25 ft.) was altogether inadequate, and, as there was no supply of timber on the surface, I cautioned the

men against continuing work in the drive until adequate timber was provided. Mr. Lawson was away from the mine, and I subsequently wrote him on the 27th May, pointing out that the timber used in the drive was inadequate, and requiring him to have an ample supply kept on the ground, as the proposed drive through the old workings will in all probability require to be close-timbered. Three men employed.

MACRAE'S.

Bonanza Quartz-mine, Macrae's (L. O. Beal, owner; T. Kinvig, manager).—(1/11/1901): Work is being pushed on in the top level on the foot-wall, where some good stone has been obtained. The quartz is trucked 250 ft. from the face, dropped down a pass 200 ft., and trucked 1,550 ft. along the low level to an aerial tramway, which conveys it to the battery. In common with other batteries in the district, scarcity of water is retarding crushing operations. Throughout the mine, in the levels and passes, the timber is in a good state, all the travelling-ways are in good order, and the ventilation is good. When the upper-level stone is stoped back a good chute of stone will remain in the 60 ft. level ready for future requirements. A solid block of stone is being left overhead under the creek-bed for safety in the event of heavy rain or floods. Mine well conducted. Rules posted, and explosives carefully handled. Crushing plant consists of a 3 ft. Huntingdon mill, with pyrites grinding-pan.

H. N. Mills and Sons, Macrae's.—(19/6/1901): Quartz continues to be taken from Griffiths Bros.' private property, a small royalty per ounce of gold won being paid. Until a few months ago all the stone was taken from a "blow" on the surface, but, this being now worked out, a drive has been put in, and the reef found near the surface. I observed a certain amount of carelessness in the manner in which dynamite and detonators were lying exposed at the mouth of the drive, to which I drew Messrs. Mills' attention, and warned them to be more careful in future. (2/11/1901): A quantity of surface-stone from the reef near Golden Point is being put through the battery, from which fair returns are being obtained.

W. and G. Donaldson, Golden Point Company, Macrae's.—(19/6/1901): Until quite recently all the stone was obtained from surface-workings. A drive recently put in is now 200 ft. to the face, and the reef is being driven to at several points. The timber used is light, and not of a durable quality. This mine continues to produce a quantity of scheelite, which is found associated with the gold-bearing quartz.

Ounce Reef, Macrae's (J. Williams, manager).—(19/6/1901): The surface-stone having given out, a drive has been put in about 80 ft., and quartz stoped out above and below. The reef lies flat, and consequently the stone requires a deal of handling in the passes. The width between the walls of the reef is from 3 ft. to 4 ft., the hanging-wall being broken and heavy. (1/11/1901): J. Roberts, manager. The battery is idle through scarcity of water both for driving and for the tables. The stone in the face continues to carry fair gold, but is pinching somewhat. Three men employed.

Golden Bar Gold-mining Company, Macrae's (J. H. Cunningham, manager).—(19/6/1901): A party of working shareholders are busy erecting a ten-head battery, and bringing in water for the steam-boiler and tables. There is a large body of low-grade stone in sight, which can be mined easily, and the battery should be kept going continuously for some time. (1/11/1901): A. Phelan, manager. Since last visit a portable engine and boiler have been placed in position for driving stamps; but owing to scarcity of water the battery is at present idle. Six men are getting out quartz by stripping off 5 ft. to 6 ft. of overburden.

Alfred Davies, Stoneburn.—(19/6/1901): Low-grade stone taken from the surface on freehold land. The five-head battery is driven by water-power, and, owing to the scarcity of water, crushing is somewhat intermittent. (1/11/1901): A good-sized dam for water-storage is being built. One man taking out quartz. Stripping, 3 ft. Average width of lode, 3 ft. Water-supply still short.

HYDE.

Mount Highlay Quartz-mining Company, Hyde (T. Brown, mine-manager).—(22/5/1901): The incline is down about 170 ft. Two levels on each side are driven about 50 ft. in stone from 6 ft to 9 ft. thick, which is all taken out and put through the battery. Not much filling is used, and a section of worked ground where not fallen is all standing on timber, which, however, is plentifully used. The ground is good, standing, and strong. The battery is stopped for water in dry weather, and work in the mine is not constant for that reason. The stone is easily got. The battery paddock is full, and many tons are lying in the mine ready for filling away. The self-acting incline tramway to battery is having a new rope put on. Nine men employed.

A few Chinese working on the Mareburn, same as last year.

BAREWOOD.

Barewood Gold-mining Company, Barewood.—(21/5/1901): The Anglo-Continental Company's No. 3 shaft at Scott's Gully had been sunk on the reef to 200 ft., from which point levels were driven 120 ft. east and 150 ft. west. Payable stone was found on the foot-wall at 50 ft. west, but no rises were put up on that level. At 130 ft. from surface (below which the shaft and levels are now standing full of water) levels had been driven 100 ft. east, off which two rises had been put up, stone taken out, and stopes filled up. The west 130 ft. level had been driven 40 ft. and then stopped. The shaft is 14 ft. by 4 ft., divided into three compartments, two for winding and one for ladder-way. Mr. Walters, acting for the Barewood Gold-mining Company, had the water pumped out to the 130 ft. level, and the west level was continued. After driving 30 ft., or at 70 ft. from the shaft, a body of stone 4 ft. wide was struck, which has been driven on 30 ft., and the stone at the face shows 6 ft. wide, of good quality, and gold-bearing throughout. A rise is up 14 ft. in the stone, and an underlay shaft at surface is down 30 ft. in similar stone, proving the existence of a good block. The stone on the foot-wall gives very good crushing results, and is payable throughout, thus giving the mine a new lease of life. Extensive prospecting on surface on outcrop proves permanence

of payable stone. A battery, five head of stamps, 700 lb. weight each, has been erected. An 8-horse portable Marshall engine is used for motive power, and the plant is in good working-order. (21/5/1901): Water is scarce in dry weather, and the battery is consequently not kept going full time. Twelve men employed. Treatment of the concentrates by cyanide is under contemplation.

James Hunter, Sutton.—(22/5/1901): Shaft sunk 60 ft. on a reef 3 ft. to 4 ft. wide. Trial crushings of the stone realised at the rate of 13 dwt. to 18 dwt. of gold per ton at the Dunedin School of Mines battery. A low level is now being driven on the reef towards the shaft from a deep gully. (Not visited; information from Mr. Hunter.)

HYDRAULIC AND ALLUVIAL MINING.

Sutton.

Hibernia Sluicing Company, Sutton (Donald Ross, manager).—(20/5/1901): Area of claim, 20 acres, of which about 2½ acres have been worked during the past five years. The face is from 30 ft. to 37 ft. high. A cut 10 chains long by from 2½ chains to 3 chains wide has been taken up on top of the false bottom. The deposit is mainly light gravels, interlaminated with bars of sandy clay. The wash on the false bottom runs from 5 ft. to 7 ft. in thickness, and carries numerous pebbles of rounded white quartz, with unusually large quantities of black sand and small "maoris." The reef can be seen cropping up on each side of the cut, and the manager is now preparing to sluice the false bottom, which is expected to be 20 ft. deep in the centre of the gutter. The gold, which is fine but "shotty" in character, is easily saved at the head of the tail-race in a run of boxes 66 ft. long by 2 ft. 9 in. wide. Angle-iron ripples are used, with cocoanut-matting beneath. The tail-race from the lower end of the boxes to the tunnel-mouth, some 7 chains, was recently washed up for only 4 oz. of gold after a run of eighteen months. The basin being rock-bound on the river side of the claim, and water for elevating not being available, a tail-race tunnel 377 ft. long was brought in from high-water mark on the Taieri River, and was driven 111 ft. in very hard blue reef. Then an uprise at an angle of 1 in 1½ was put up 27 ft. to softer strata, in which the tunnel was continued for 266 ft., when it struck the old river-bed in the claim. The tailings run freely, a block in the tunnel being unknown. Water is brought in eight miles from the Sutton Stream in an open race. There are two siphons across the Sutton—one being 3 chains, the other 4 chains long—and 40 chains of pipes 18 in. in diameter carry the water across the valley of the Taieri River into the claim. Water is plentiful, and work carried on all the year round. Six men employed.

Milton.

Canada Alluvial, Milton.—(23/5/1901): Five men fossicking on old diggings.

Manuka Creek.

Stewart's Sluicing Claim, Manuka Creek.—(23/5/1901): A ground-sluicing claim worked by one man. Owing to the small quantity of water available (viz., two heads), work is intermittent. The water is stored in a small dam and conveyed to the nozzle through 260 ft. of pipes. The material operated on is very free, and is discharged into a gully leading down to the Manuka Creek. For some time there has been friction between the claimholder and farmers lower down on account of the dirty water from the claim.

At the time of my visit the pipe-line was being shifted so as to drive the tailings into an adjoining gully.

Waitahuna.

German Flat Hydraulic Sluicing and Elevating Company, Waitahuna (A. Sutherland, manager).—(24/5/1901): A private company, consisting mainly of working shareholders. As the gold is not distributed over the whole area of the claim, the workings are confined to a narrow strip of deep ground. The face varies from 12 ft. to 18 ft. in depth. Pressure, about 150 ft. Height of lift, 20 ft. The material is discharged over 60 ft. of boxes provided with ripples and cocoanut-matting. A race from Bungtown Creek, four miles long, brings about thirteen heads of water to the claim. The pressure-pipes range from 24 in. to 7 in. in diameter. Four men employed.

Upper German Flat Hydraulic Sluicing and Elevating Company, Waitahuna.—(24/5/1901): Sluicing claim, worked by a party of working shareholders. Claim flooded out at the time of my visit, and the men being engaged on the race I did not see them. Three men employed.

Quilter and Sons, Waitahuna Gully.—(21/5/1901): Small private hydraulic-sluicing plant in Waitahuna Gully. Head-race ten miles long, carries two heads to the storage-dam, from which four heads are brought to the claim. Pressure-pipes, 500 ft.; pressure, 75 ft. Height of lift, 20 ft., with 42 ft. of boxes provided with riffles and cocoanut-matting for gold-saving. Present claim is about worked out. Three men employed.

Thomson and Party (Norwegian Company), Waitahuna Gully (C. Thomson, manager).—(21/5/1901): Hydraulic sluicing and elevating claim. Race, forty miles, brought from the Waitahuna heights. Five heads of water are in use on the claim, with a pressure of 300 ft. The material is lifted 26 ft., and discharged over 120 ft. of boxes fitted with angle-iron ripples and perforated plates on cocoanut-matting. This company has 6,000 ft. of pressure-pipes, varying from 22 in. to 7 in. The bottom is very hard schist, which is also uneven. I understand this company has not much ground left for working. Five to ten men employed.

Sailors' Gully Hydraulic Sluicing Company, Waitahuna Gully (A. Barr, manager).—(22/5/1901): This company is treating old worked ground, with occasional patches of solid. The ground averages about 6 ft. in depth. Water is brought in about twenty miles from the Waitahuna heights. Pressure, 200 ft.; and height of lift, 20 ft. Six to seven men usually employed. The rock bottom is very hard and uneven.

WETHERSTONE'S.

Golden Crescent Hydraulic Elevating Company, Wetherstone's (W. Smythe, manager).—(17/5/1901): Adjoining top end of Golden Rise Claim. Opening out new workings on the side of the flat. Working on a false bottom of cement.

Golden Rise Hydraulic Elevating Company, Wetherstone's (F. Whelan, manager).—(17/5/1901): Elevating old ground on Wetherstone's Flat. During the past year the plant has been shifted about half a mile lower down the flat, the top end of the claim being worked out. Average depth of ground is 14 ft.; false bottom of cement. Head-race to dam, seven miles; race from dam to penstock, five miles. Five heads of water at the claim, for which 4,000 ft. of pipes, varying from 18 in. to 9 in., are in use. Height of lift, 24 ft.; pressure, 300 ft., vertical head. Material passes over 96 ft. of boxes fitted with angle-iron ripples and perforated plates on top of cocoanut-matting for gold-saving. Five men usually employed.

TUAPEKA.

Blue Spur and Gabriel's Gully Consolidated Gold-mining Company (J. H. Jackson, general manager; J. Uren, mine-manager).—(26/10/1901): Work is being conducted on the usual lines, which have proved satisfactory in the past. Great care is exercised in regard to the safety of the men employed. On the Blue Spur side of the cement-deposit operations have been carried right back to the boundary. Thirty-five men are engaged.

Local Industry Gold-mining Company, Gabriel's Gully (S. Johnstone).—(26/10/1901): The upper claim being nearly worked out, the water-race is being extended in readiness to have the plant removed to command ground lower down the gully.

Kitto and Party's Hydraulic Sluicing and Elevating Company, Munro's Gully.—(26/10/1901): The claim is held and worked by a private party of shareholders. Elevating is still being conducted in the old Blue Spur tailings, which will probably last about another year, when operations will be started in the cement. Elevating, 75 ft.; length of run of boxes, 120 ft. Seven men engaged.

Mills and Party's Hydraulic Sluicing and Elevating Company, Munro's Gully.—(26/10/1901): The company is working old alluvial diggings ground previously turned over in Tuapeka Creek. Owing to shortage of water-supply only two men are presently engaged on day-shift.

WAIPORI.

Golden Key Hydraulic Elevating Company, Mitchell's Flat, Waipori (J. Gare, manager).—(17/5/1901): Private enterprise, consisting of four working shareholders. The water and ground were previously held by the Golden Key Gold-mining Company, and abandoned by them. 600 ft. of pipe-line, working under a low pressure. Height of lift, 10 ft., the material being carried over 45 ft. of boxes provided with Venetian ripples and perforated plates for saving the gold. The ground worked consists of 15 ft. of clay and about 6 in. of wash, lying on rock bottom. Four men employed.

Farrell's Deep Lead, Waipori (George Gare, manager).—(20/5/1901): Working terrace ground on private property leased from Mr. Cotton under arrangement of acreage rent and royalty on gold won. The races total about fifty miles in length, and carry about eight heads of water to the claim. The bottom is very uneven, and the face—which averages about 12 ft.—is intersected by hard bands. Height of lift, 30 ft.; length of boxes, about 48 ft., with Venetian ripples. An elevator is also in position for working the deep ground out toward the river. Five men employed.

Lammerlaw Creek Hydraulic Gold-mining Company, Waipori (W. E. S. Knight, manager).—(18/5/1901): A claim on the Lammerlaw Creek above its junction with the Nardoo Creek. Race, sixteen miles, carrying eight heads of water. With 250 ft. pressure, the material is lifted 27 ft., and discharged over 54 ft. of tables provided with Venetian ripples and perforated plates. Six men are usually employed on the claim, but this number is increased when cleaning up the bottom, which is all picked and scraped. The face consists of 10 ft. of clay and 18 in. of wash.

Sew Kew and Party, Lammerlaw Creek, Waipori.—(18/5/1901): Claim adjoining upper end of Lammerlaw Creek Claim. Worked by a party of Chinamen. Race, seven miles from Timber Gully. Pressure, 180 ft.; height of lift, 20 ft.; length of boxes, 46 ft.; length of pressure-pipes, 2,080 ft., varying from 11 in. to 7 in. in diameter. Three men usually employed; working two shifts daily. The water-supply being limited, it is stored the remaining eight hours. Six men employed.

Bakery Flat Sluicing Company, Upper Waipori (J. T. Johnston, manager).—(18/5/1901): This company has in use a total length of seventy miles of races. Five heads of water are brought in from Deep Creek, a distance of twenty-six miles, the remainder coming from Burnt Creek. The water is conveyed across Stony Creek by a siphon 680 ft. in length. This company also has a temporary lease of the Bella Reef race, carrying five heads of water. The number of heads of water in use varies from ten to thirty. The face is about 16 ft. deep, with 2 ft. of wash on the bottom. Pressure, 300 ft. vertical; lift, 30 ft. There are in use 3,000 ft. of pressure-pipes, varying from 15 in. to 9 in. in diameter. Gold-saving appliances, 60 ft. of boxes fitted with ripples and perforated plates on cocoanut-matting. Eight men employed.

O'Brien and Party, Golden Point, Upper Waipori (J. Claffey, manager).—(18/5/1901): This company a short time ago shifted the plant about two miles further down the river, and up to the present have little more than one paddock taken out. Five heads of water are brought from Stony Creek, a distance of eight miles. Face consists of 10 ft. of river-gravel, with a 2 ft. layer of clay on the top. The material is elevated 22 ft., under 160 ft. pressure. Pressure-pipes have a total length of 2,200 ft., and are reduced from 15 in. to 7 in. diameter at the claim. The boxes have the ordinary Venetian ripples and matting for saving the gold. Five men employed.

Post-office Creek Gold-mining Company, Verterburn, Waipori (J. R. Parker, manager).—(20/5/1901): This company is at present working terrace ground on the Verterburn, half a mile above the old claim. The area of the claim is 59 acres. One race, carrying four heads of water, is eight miles long, and another, one mile and a half, carries three heads. Pressure-pipes consist of 1,000 ft. of 15 in. diameter, 100 ft. of 11 in., and 100 ft. of 9 in. pipes; pressure, 130 ft.; height of lift, 18 ft. Working on false bottom. Five men usually employed.

Pearsall and Munro, Verterburn, Waipori.—(20/5/1901): A private hydraulic-sluicing plant. Race, seven miles, carrying five heads of water. 1,600 ft. of pressure-pipes; height of lift, 23 ft. Face consists of 5 ft. of overlying clay and 30 ft. of gravel. Four men employed.

Fortification Hydraulic Sluicing Company, Red Swamp, Lammerlaw Ranges.—(18/5/1901): A prospecting plant on the Fortification Creek, a branch of the Teviot Creek. The claim includes the upper end of a large flat. Water-rights consist of one right to twelve heads from the Teviot, and in another right to seventeen heads from the same creek. The claim is situated below the Government dam-site on the Teviot Swamp. The water is brought in four miles and a half. Pressure, 500 ft. Pipe-line consists of 200 ft. of 13 in. pipes and 800 ft. of 9 in. pipes. The sinking plant consists of a small jet swivel pump, with a 9 in. dirt-pipe, the jet being $1\frac{3}{4}$ in. and throat $4\frac{1}{2}$ in. A small hydrant with $1\frac{1}{2}$ in. tip is used. Up-to-date sinking has been carried on down to 15 ft., but nothing payable has been met with. On account of its altitude this claim will be closed down about four months during the winter.

Beaumont.

Champion Hydraulic Sluicing and Dredging Company, Beaumont (J. Fahey, manager).—(28/5/1901): Water is brought in four miles and a half from Little Beaumont River. Pressure, 450 ft.; height of lift, 48 ft. The material is discharged over 150 ft. of boxes provided with perforated plates, angle-iron ripples, and cocoanut-matting for gold-saving. The depth of the ground is between 40 ft. and 45 ft. About 20 ft. of the top material is sand. This is stripped off well back from the working-paddock. Eight men are employed, working two shifts. On account of the large quantity of timber in the claim, work is not carried on during the night. The long run of boxes, embracing several drops and turns, has resulted in the saving of a class of fine gold which would be otherwise lost. The ground near the river being too deep, and the drainage too heavy for hydraulic elevating, the company intends to put a dredge on to work that portion of the claim.

Island Block.

Island Block Sluicing and Elevating Company (W. Lake, manager).—(29/5/1901): This claim is being worked by hydraulic sluicing and elevating. The depth of ground is about 40 ft. On account of the surface being very flat the material has to be elevated over 60 ft. to get fall for the tailings. A second lift is also used at the tail to run the tailings away. Water is obtained from the Tallaburn and Fruidburn Creeks, and stored in large dams. There are six miles and a half of races, which convey the water to a penstock having an altitude of 700 ft. above the claim. The pipe-line, which is over two miles long, has been considerably shortened lately, and taken a more direct route to the claim. As the lead joints in the main line were not a success, flanged joints have been substituted. The working-pressure at the claim is 210 lb. per square inch. The bottom is a very uneven schist rock. Thirteen men are employed about the claim. Since my visit a change in the management has taken place, Mr. James Nicholson succeeding Mr. Lake as manager.

Edie and Kirkpatrick's Claim, Tallaburn—(29/5/1901): Ground-sluicing claim on Currie's Flat. Water is brought in four miles from the Tallaburn Creek. 400 ft. of tunnelling was required in the construction of the race. The water is conveyed across the Clutha River in 70 chains of siphon-pipes. Twenty Government heads are brought in. The pressure available on Currie's Flat is 340 ft. The pressure-pipes vary from 19 in. to 11 in. in diameter. Average height of the face is 45 ft., with about 6 ft. of wash on the bottom. The tail-races are provided with over 300 ft. of boxes fitted with perforated plates and cocoanut-matting underneath for saving the gold. Average number of men employed, seven. This flat will be worked out in a short time.

Miller's Flat.

Golden Run Hydraulic Sluicing Company, Miller's Flat (P. McLoughlin, manager).—(29/5/1901): Water is brought on the claim from a distance of seven miles. Pressure available on claim, 225 ft. Ground, 45 ft. to 50 ft. deep. Material is elevated 70 ft. Pipes vary from 13 in. to 7 in. in diameter. This company has also a dredge at work on a portion of their claim. I warned the manager that for safety the sides of the paddock required to be sloped back where they were overhanging. Fourteen men employed.

Roxburgh.

Roxburgh Amalgamated Mining and Sluicing Company, Roxburgh (J. Waight, manager).—(30/5/1901): A claim of 100 acres, opposite the Town of Roxburgh. Forty-five heads of water brought in from Teviot Creek; 550 ft. pressure. The working-pressure at the claim is 200 lb. per square inch. Two lifts are in position and working, while a third lift is being placed in position. The material is lifted 53 ft. through the first elevator and passed over 140 ft. of boxes. From the tail of these boxes the tailings are lifted a second time a height of 20 ft. After being lifted through the second elevator the stuff passes over 120 ft. of boxes, and is lifted away from the tail through a 20 ft. lift. The main line is 75 chains in length, consisting of 22 in., 18 in., 15 in., and 11 in. diameter pipes. Face, 55 ft. high. The gold-bearing wash averages about 5 ft. in thickness. This

claim is conducted on systematic and economic lines. The average quantity of material shifted during the past eleven months is 35 yards per hour. Work is carried on continuously day and night, the electric light being utilised for night-work. Eighteen men employed.

Hercules Sluicing Claim, Roxburgh (J. Ewing, proprietor; D. Robertson, manager).—(30/5/1901): This claim has two water-rights, one race bringing in eleven heads to an altitude of 480 ft., the other carries thirty heads to an altitude of 520 ft. above the claim. The pressure-pipes vary from 18 in. to 9 in. diameter. The depth of the ground is about 55 ft. At the time of my visit the claim was flooded owing to the high state of the Clutha River. The bottom is very rough, and the heavy stones are lifted out by means of cranes.

Coal Creek.

Pleasant Valley Gold-mining Company, Coal Creek (R. George, manager).—(31/5/1901): Race, seven miles from Elbow and Shingle Creeks; pressure, 220 ft. Water-supply varies from six to ten heads, according to the season. The face is about 40 ft. high, and consists of large boulders, with very little wash. A crane is used to lift the stones away from the working-face. Total area of the claim, 11 acres. The company are at present ground-sluicing, but will require to elevate to work the top end of the flat. Six men employed.

Bald Hill Flat.

Carroll and Lynch's Sluicing Claim, Bald Hill Flat.—(1/6/1901): Water is brought in from Gorge Creek, a distance of six miles. Six heads are at present available, but the supply varies according to the season; pressure, 180 ft. The top material is sluiced off, and the rest is elevated about 20 ft. As in all the claims in this neighbourhood, iron boxes are used, and they are found to be more economical than wooden boxes. The wash is full of stones, which require a great deal of handling. The false bottom is a sandy clay. Five men employed.

Mitchell Bros., Bald Hill Flat.—(1/6/1901): A claim of 2 acres, which is worked systematically by ground-sluicing. The gold is saved in a tail-race paved with stones.

Ewing's Sluicing Claim, Bald Hill Flat (A. MacPherson, manager).—(1/6/1901): Six heads of water are brought in from Coal Creek and Butcher's Creek, the race being four miles in length; pressure at claim, 160 ft. vertical. The face is 20 ft. high. The material consists mainly of water-worn schist and quartz gravels, which is elevated 20 ft. and run through iron boxes. A nozzle is in position at the tail of the boxes, being required to blow away the tailings.

Last Chance Hydraulic Sluicing and Elevating Company, Bald Hill Flat (J. McNeish, manager).—(1/6/1901): This claim adjoins Carroll and Lynch's. Seven heads of water are brought in twenty miles from Shingle Creek; pressure, 300 ft. Face, 30 ft. in depth. Nine men employed. (12/12/1901): Shifting pressure-pipes to command ground ahead.

Livingstone.

F. Christian, Hydraulic Claim, Livingstone.—(27/6/1901): Mr. Christian now owns the Mosquito Company's water-race. The race is brought in twenty-five miles from the Forks, on the southern branch of the Maerewhenua River, with a right to twelve heads of water. Plant in use, 1,700 ft. of piping, ranging from 18 in. to 9 in. in diameter. Pressure, 200 ft. vertical head; elevator lifting 20 ft. Three men at work.

The Pipe Company, Livingstone.—(27/6/1901): Five parties of working miners banded together to put a siphon over the head of Golden Gully. Three heads of water are bought from Mr. Christian, and one head and a half from Mr. Cook. F. Botting and party have a small hydraulic-elevating plant working under a low pressure. The other members of the Pipe Company are engaged ground-sluicing.

On the west bank of the Maerewhenua River, on the Livingstone goldfield, a few parties are engaged ground-sluicing and driving out the wash; but owing to the intermittent water-supply their work is somewhat irregular. The Mountain Hut Water-race is now being constructed to bring water to this ground.

Naseby.

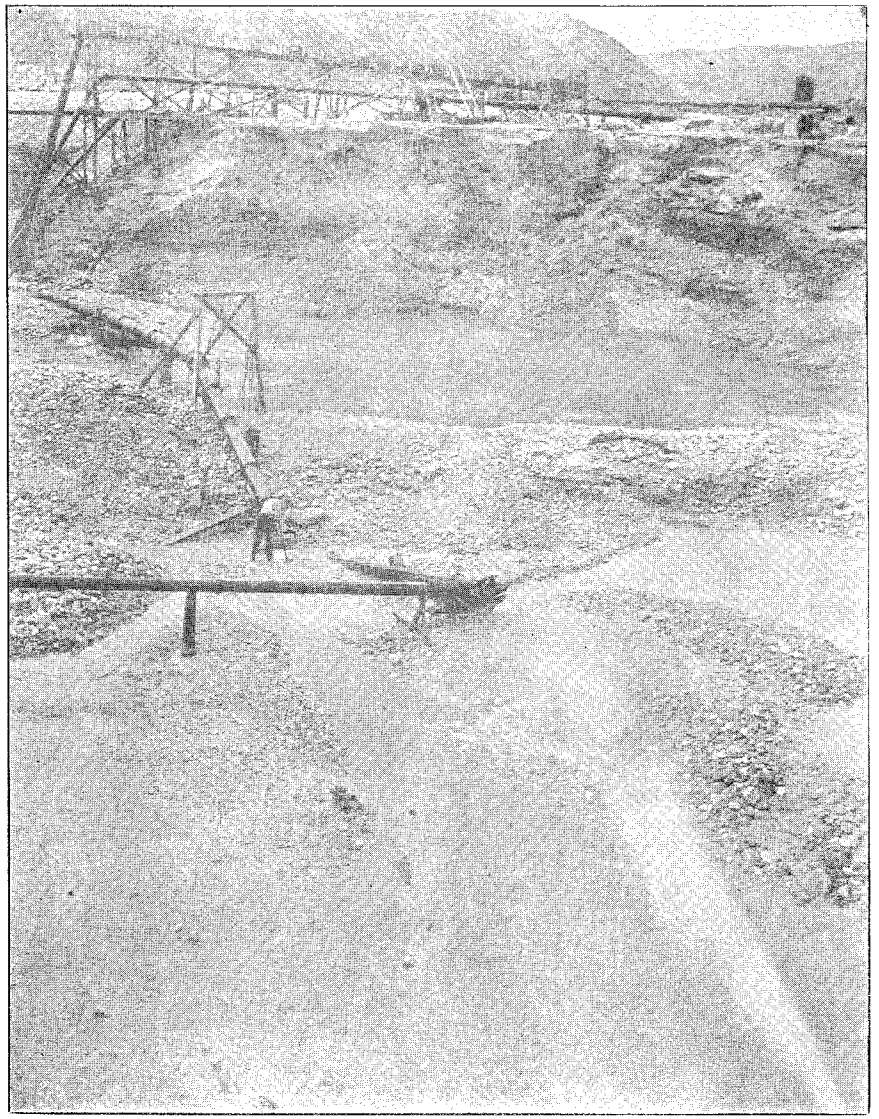
John Hore and Sons, Lower Main Gully, Hogburn Creek.—(13/6/1901): No. 1 Claim: Special claim of 40 acres. Depth of ground, 10 ft. to 15 ft.; wash, 6 ft. Four heads of water are brought in from the Government water-race. 1,800 ft. of pipes, reduced from 19 in. to 15 in. to 11 in., are in use, and a pressure of 200 ft. vertical is obtained. Three men employed.

No. 2 Claim: Elevating, 22 ft.; face, 7 ft. to 10 ft. in depth; average depth of wash, 3 ft. This ground is being worked for the first time, there being six to seven years' work ahead. Four heads of water brought in from Government water-race; pipe-line, 750 ft.; pipes, 19 in., reduced to 11 in. diameter; pressure, 120 ft. Three men employed.

No. 3 Claim: Elevating claim (formerly the "dead level"). Six heads of water are brought by private race from the Little Kyeburn Stream; pipe-line, 750 ft.; pipes, 19 in. to 11 in. diameter; pressure, 165 ft.; face, from 10 ft. to 25 ft., mainly old tailings from Surface Hill, with from 2 ft. to 3 ft. of wash on the bottom, being portions of unworked ground in the early days, which, owing to the depth of the ground, could not then be worked, appliances not being able to cope with the water; elevator lifting 30 ft. Area of claim, 14 acres. Three men employed.

No. 4 Claim, Milkman's Gully: Face, from 15 ft. to 20 ft. in depth; wash, 2 ft.; elevating, 22 ft. Plant consists of 2,700 ft. of pipes, reduced from 19 in. to 11 in. diameter. Water, four heads obtained from Government water-race. Three men employed.

W. Guffie: 15 acres of the claim unworked. The ground is from 10 ft. to 13 ft. in depth; wash, 6 ft. The "red wash" in this claim is patchy, but when met with is found to carry good gold. Four heads of water are brought in from the Government water-race; 1,600 ft. of pipe-line, pipes reduced from 19 in. to 13 in. diameter; pressure, 125 ft. vertical. Three men employed.



Champion Hydraulic Company's Claim, Beaumont, Otago, showing means adopted to convey alluvial wash from low dip to Main Elevator.

Main Elevator of Champion Hydraulic Company's Claim, Beaumont, Otago

Naseby Gold-dredging Company (H. Ravenwood, manager).—(13/6/1901): A dredge was placed on the claim and worked, but, the method of work having proved a failure, the dredge was sold and removed, and the ground is being treated by hydraulic elevating. 60 acres of this special claim are still unworked. Four heads of water brought in from the Government water-race. The pipe-lines are 3,000 ft. in length; sizes of pipes, 19 in. to 11 in. diameter; pressure, 130 ft. The face is 18 ft. deep, and the elevator is lifting 29 ft. The boxes are 48 ft. long by 3 ft. wide, angle-iron ripples and matting being used for gold-saving. Ten men employed.

Reed Bros. (J. W. Reed, manager).—(13/6/1901): Elevating claim; maiden ground. Face, 7 ft. to 10 ft.; wash, 3 ft.; elevator lifting 16 ft. Four heads of water brought in from the Government water-race; pipe-line, 600 ft. in length; pipes, 19 in. to 11 in. diameter; pressure, 160 ft. Three men employed.

Ah Fong and Party.—(13/6/1901): Elevating claim of 18 acres. Four heads of water brought in from the Government water-race. Elevator lifting 20 ft. Three men employed.

Lock Lung and Party, Hogburn Creek, Naseby.—(13/6/1901): Elevating claim; face principally old tailings from Surface Hill. One head and a half of water purchased from Hewitt's private water-race comprises the water-supply.

S. Hewitt, Spec Gully.—(13/6/1901): Special claim of 15 acres; ground-sluicing. Water brought in by the Undaunted Race from Undaunted Creek. Three men employed.

W. Hendrickson, Spec Gully.—(13/6/1901): Ground-sluicing with one head of water obtained from Government water-race.

Ah Wah, Spec Gully.—(13/6/1901): Claim, 10 acres; elevating, 15 ft.; depth of ground, 12 ft. Supplied with water from the Hit or Miss Race; pressure, 150 ft. Three men employed.

Spec Gully.—(13/6/1901): About thirty Chinese miners are employed ground-sluicing and fossicking at the head of Spec Gully. They are supplied with water from the Hit or Miss Race. Also about fifteen fossickers buying water from the Government water-race.

Ah Won and Party, Home Gully.—(13/6/1901): Elevating claim; area, 20 acres. Supplied with four heads of water from Government water-race. Four men employed.

L. Hore, Enterprise Gully.—(13/6/1901): Ground-sluicing with one head and a half of water from Government water-race. Two men employed.

Matthew Young, Enterprise Terrace.—(13 6/1901): Face, 38 ft.; wash, 5 ft. Water brought in six miles from the East Eweburn Creek. Claim, 6 acres. Three men.

A. and J. Brown, Enterprise Terrace.—Ground-sluicing with two heads and a quarter of water obtained from the Government water-race. Pressure being low, the nozzle-man stands close up to the face. I warned Mr. Brown that a good deal of risk was being incurred, and that great care would be required to avoid an accident. Two men employed.

Enterprise Mining Company, Enterprise Gully (William Newman, manager).—(13/6/1901): Ground-sluicing; face, 30 ft. to 35 ft. in depth, mostly stripping; 1½ ft. to 2 ft. of wash on clay, false bottom; pipe-line, 1,500 ft., reduced from 13 in. to 7 in. in the claim. The 7 in. pipes (black iron) have been in use for twenty-five years, and are still in good condition. The race is brought in fourteen miles from the West Eweburn Creek, and carries five heads of water. Three men employed.

Henry Moore, Enterprise Gully.—(13/6/1901): Special claim of 8 acres. Supplied with four Government heads of water. The elevator pipe-line is 500 ft. in length, pipes reduced from 19 in. to 11 in. in diameter; nozzle pipe-line, 400 ft., pipes reduced from 11 in. to 7 in.; face, 13 ft.; wash, 2 ft. Two men employed.

R. Moore, Enterprise Gully Spur.—(13/6/1901): Ground-sluicing shallow ground.

Inder and Brown, Enterprise Gully (J. Marslin, manager).—(13/6/1901): Claim, 21 acres; face, 17 ft.; wash, 5 ft. to 6 ft. Four heads of water brought in from Government water-race; pipe-line 500 ft. in length, pipes reduced from 19 in. to 11 in. diameter at the claim; pressure, 120 ft.; elevating, 23 ft. 12 acres of claim unworked. Working "red wash." Three men employed.

Beck and Hewitt, Coal Pit Gully.—(13/6/1901): Special claim, 20 acres. Four heads of water brought in by the Band of Hope Water-race ten miles from the East Eweburn Creek. Face, 12 ft.; wash, 3 ft.; elevating, 18 ft. Four men.

R. Baxter, Coal Pit Gully.—(13/6/1901): 10 acres of claim remain unworked; face, 8 ft.; wash, 2 ft.; elevating, 16 ft. Service pipe-line, 600 ft.; pipes, 15 in. reduced to 9 in. diameter. The nozzle-line, 720 ft. of pipes 7 in. diameter. Two heads and a half of water, bought from the Government water-race; pressure, 100 ft. Two men.

M. Lennane, Coal Pit Gully Spur.—(13/6/1901): Ground-sluicing. Water brought in six miles from Butcher's Gully; 500 ft. of pipes 7 in. diameter on the claim. One man.

M. Young, jun., and J. Beck, Coal Pit Gully.—(13/6/1901): Ground-sluicing. Two men employed.

L. H. C. Hore, Wet Gully.—(13/6/1901): Elevating claim; 3 acres remain to be worked; face, 12 ft.; elevating, 20 ft. Water from Government water-race.

About fifteen fossickers, mostly Chinese, find employment cradling on the Naseby Diggings, adjacent to the town.

Cutten and Inder, Little Kyeburn.—(14/6/1901): A new water-race is being brought in over the Pig and Whistle for the purpose of working a claim taken up on the flat.

Isaac Parfitt, Little Kyeburn.—(14/6/1901): Special claim, 10 acres; elevating; water-supply obtained from a small private water-right; ground shallow. One man employed.

M. and J. Brown, Upper Kyeburn.—(14/6/1901): Claim at the head of School Flat. Messrs. Brown have bought the Little Kyeburn dredge and the old Golden Treasure dredge-buckets, which together are being erected on framework, the object being to work the claim by a stationary bucket-ladder driven by Pelton wheel 4 ft. diameter. Heavy stones are to be trucked away, and

the finer material will be elevated and washed in the tail-race in the usual manner. Water is brought in fourteen miles from the Little Kyeburn Creek. The race carries twelve heads of water. 3,000 ft. of piping are in use, sizes ranging from 13 in. to 7 in. diameter. 400 ft. head of pressure is obtainable. The plant is at present at work ground-sluicing on the face of Brown's Terrace. Four men employed.

Philip Beer and Party, Upper Kyeburn.—(14/6/1901): Claim situated in Red Gully. Water-race, five miles, carrying four heads, is brought in from Timber Creek; also race, four miles in length, brings four heads of water in from Main Creek. The men are at present erecting an elevating plant. Three men.

William Bertram, Rip and Tear Terrace, Upper Kyeburn.—(14/6/1901): Ground-sluicing. Five heads of water brought in from Main Gully. Two men.

William McLelland, Rip and Tear Terrace, Upper Kyeburn.—(14/6/1901): Ground-sluicing. Water brought in from Main Gully. Three men.

Stewart and Sons, Upper Kyeburn.—(14/6/1901): Ground-sluicing. Water brought in from high level and German Creek. Four men.

Gee Wee and Party, German Creek, Upper Kyeburn.—(14/6/1901): Ground-sluicing. Two men.

Sun Tye and Party, Upper Kyeburn.—(14/6/1901): No. 1 Claim: Ground-sluicing at Dinah's Creek. No. 2 Claim: Ground-sluicing, Monk's Terrace. Four men.

Mount Buster Gold-mining Company, Mount Buster, Naseby (R. Lawer, manager).—(14/6/1901): The claim is at an altitude of 4,000 ft. above sea-level. The water-rights of the Mount Kyeburn north race six miles, south race five miles, Mount Domett race six miles, and Mount Buster race six miles have been amalgamated, and are all held by the company. There are between 5,000 ft. and 6,000 ft. of 11 in. pipes in use as siphons and fluming in the several races. On the claim, 600 ft. of 9 in. pressure-pipes, constructed of galvanised iron, have been in use twenty-seven years, and are still in good order. In the claim the face averages about 90 ft. in depth. The overburden of 80 ft. of white quartz gravel carrying no gold is run down the side tail-race; the wash runs from 7 ft. to 10 ft. in depth, and rests on a soft false bottom about 2 ft. in thickness, which lies on the upturned edges of decomposed schist. Frost sets in usually about the month of May, and work is generally resumed in the month of September in each year. Six men employed.

The "Maori bottom," or main false bottom, of the Naseby goldfield has been proved to contain a payable layer of auriferous wash on the banks of Main Gully.

Several small claims in the vicinity of the rifle range, Main Gully, are now being opened up, with encouraging results.

Idaburn.

Wheeler and Party's Sluicing Claim, Idaburn.—(12/6/1901): Ground-sluicing and elevating. Two men at work.

Blackstone Hill.

Robert Johnstone, Blackstone Hill.—(12/6/1901): Ground-sluicing. One head of water is brought in from the Government water-race. The face consists of 20 ft. of clay overlying 8 ft. of auriferous-quartz drift. Three men at work.

C. Rose, Blackstone Hill.—(12/6/1901): Ground-sluicing at Pennyweight Flat. Water-supply obtained from Government water-race.

Blackstone Hill.—(12/6/1901): McLennan and mate are working on Sam the German's Flat, Blackstone Hill. Ground-sluicing, with payable results.

St. Bathan's.

Shamrock Gold-mining Company, Hawkdun Station, St. Bathan's (J. Mooney, manager).—(11/6/1901): Two claims are being worked. Area, 15 acres. Twelve heads of water are brought in twelve miles from the Manuherikia River; eight heads are used in the elevating claim, and four heads for ground-sluicing in No. 2 claim. A pressure of 200 ft. vertical is obtained, and the elevator is lifting 12 ft. Ten men employed.

Garty and Gallagher's Claim, Surface Hill, St. Bathan's.—(11/6/1901): Area of claim, 6 acres. Two heads of water are purchased from the Scandinavian Company and stored. The claim is worked eight hours daily, six heads of water being available. The ground is becoming too deep for the pressure and quantity of water obtainable.

Scandinavian Gold-mining Company.—(11/6/1901): This company owns three water-rights: (1.) Scandinavian Race: Twenty-five miles from the Manuherikia River, with the right to twenty-five heads. An elevator lifting 83 ft. is supplied from this race, the pressure available being 400 ft. vertical. The pressure-pipes are reduced from 22 in. to 9 in. diameter. (2.) Otago Race: Forty-five miles long from the Manuherikia River. Eighteen heads of water; pressure, 170 ft.; pressure-pipes, 16 in. to 9 in., supplying an elevator which lifts 44 ft. (3.) Muddy Creek Race: Sixteen miles long; carries fourteen heads of water, which is used as flushing-water for the Muddy Terrace Channel. The face is composed of fine quartz drift, about 150 ft. of which overlies 20 ft. of gold-bearing wash. The upper layers of the drift are ground-sluiced. No. 2 elevator elevates about 80 ft. of overburden, carrying a little gold, and is used to strip the ground ahead of No. 1 elevator. The boxes are 25 ft. in length, fitted with perforated plates and matting. 200 oz. have already been washed up, and 600 oz. additional are expected at the end of the season. Twelve men are employed.

St. Bathan's Claim.—(11/6/1901): Ground-sluicing old worked ground. Five heads of water are used ten hours daily. The water is being supplied from the claim at Surface Hill. 6 acres have been cleaned up, and 380 oz. of gold obtained, and 200 oz. are expected next washing. Six men are employed.

Kildare Hill Deep Claim, St. Bathan's (John Ewing).—(11/6/1901): No work has been done here for some time.

Eagle and Gray's, St. Bathan's.—Ground-sluicing. (11/6/1901): Not working on the occasion of present visit. Water is brought in seven miles from Mount St. Bathan's. Four heads are available.

United M. and E. Company, St. Bathan's (P. T. O'Regan, manager).—(11/6/1901): Water is brought on to the claim by three races: (1.) The Rocks Gorge Race, twelve miles long, carrying eight heads; this is the old Enterprise race. (2.) A race from Mountain Creek, ten miles, carrying ten heads. (3.) The Blue Duck Race from Dunstan Creek, five miles long, carrying six heads of water. After the top material is ground-sluiced away the rest is elevated 82 ft. in two lifts. Pressure available, 380 ft. vertical. Seven men employed.

Vinegar Hill Claim, St. Bathan's (John Ewing).—(6/2/1901): Not working. Nothing has been done for some time past in the Deep Claim, but the plant is in position. (10/6/1901): The Deep Claim under Vinegar Hill is now in operation, having recently been restarted. Eight to twelve men employed.

CAMBRIAN'S.

Shepherd's Flat Claim, Cambrian's (John Ewing).—(6/2/1901): The Vinegar Hill Claim water is being used, and one elevator is being kept working constantly. The ground being treated is very stony, entailing much labour in raising and stacking, but the claim is worked in a safe manner. (10/6/1901): Work on the flat has been confined to a narrow strip, following a good run of gold up one side. The stone transit is not in use now. Mr. Ewing also has a plant erected further down the flat for testing the ground, but very little has been done.

Morgan and Hughes, Shepherd's Flat, Cambrian's.—(6/2/1901): Ground-sluicing. The face is high, and not sufficient batter kept on it for safe working. The material treated is stony, and a large amount of hand-labour is required to dispose of the blocks met with in the claim.

Fordham and Gay's Hydraulic Sluicing Claim, Cambrian's.—(10/6/1901): The ground is about 20 ft. deep. 8 ft. is first sluiced off, and the rest elevated. Water is brought from Shepherd's Flat Creek, the supply being somewhat variable. Pressure, 127 ft. Length of pressure-pipes, 600 ft.; elevating, 20 ft. Three men employed.

MATAKANUI.

Ewing and McConochie's Sluicing Claim, Tinker's (J. Naylor, manager).—(8/6/1901): The water-right consists of eight heads brought in from Thomson's Gorge; pressure, 500 ft.; elevating, 27 ft. 20 ft. of the top material, being non-auriferous, is sluiced off, and the remaining 25 ft. is elevated and passed over 48 ft. of iron boxes provided with angle-iron ripples and matting. The top material is very rough, but the lower layers are free from large stones. A nozzle is always in position to blow away the accumulated tailings at the end of the boxes. The water-supply varies with the season, and for that reason the number of hands employed is not regular. Four men employed at present.

Undaunted Gold-mining Company (Limited) (T. C. Donnelley, manager).—(8/6/1901): Four races are brought in, giving an average of twelve heads of water. The race from Chatto Creek is twenty miles in length, and three races are brought in from Thomson's Creek. The first water-right from Thomson's Creek gives 400 ft. head of pressure in the claim, and is used for elevating the material to a height of 48 ft. The ground being worked, it is understood, is paying very well.

Sugar-pot Elevating and Sluicing Company (C. Huddlestone, manager).—(8/6/1901): Race four miles from Thomson's Gorge, carrying four heads of water, the supply, however, being variable and inadequate for the work in hand. Elevating, 27 ft.; but, as only a 5 in. throat can be used, a great deal of sorting and picking stones is necessary; the stones being trucked away from the elevator. For last year the material treated averaged 2s. 2d. per cubic yard in value. Five men employed.

J. Symes and Son's Sluicing Claim.—(8/6/1901): Right to eight heads of water from several gullies along the Dunstan Range. 1,000 ft. of pressure-pipes, reduced from 13 in. to 7 in. diameter, are in use, a vertical pressure of 200 ft. being available. At present work consists of sluicing material away to make room for conveying the pipe-line to better ground. Two men employed. Owing to the free nature of the quartz drift this party has been unable to open up a paddock in their present position.

Matakanui Gold-mining Company (G. Sutherland, manager).—(8/6/1901): Ten heads of water are brought in fourteen miles from Lauder Creek; pressure, 200 ft.; lift, 20 ft.; depth of ground, 20 ft.; pressure-pipes, 15 in., 11 in., and 7 in. diameter. The company has recently taken up this claim, and is opening out the first paddock on a flat spur in the middle of the claim. Six men employed.

Drybread Diggings, near Matakanui.—(8/6/1901): Two parties (H. Glassford and Wilson) are engaged ground-sluicing. The former has a small water-right from the Lauder Creek.

Devonshire Diggings, near Matakanui.—(8/6/1901): Nothing doing at present.

SPRINGVALE.

Springvale Sluicing Claim, Springvale (J. Gartley, manager).—(7/6/1901): Ground-sluicing. Race, sixteen miles, brought in from intermediate gullies in the Leaning Rock district. Fourteen heads of water available, with a pressure of 100 ft. vertical at the claim. 40 chains of pressure-pipes are in use, reduced from 13 in. to 11 in. to 9 in. in diameter. A channel is being brought up from the river to work deep terrace ground.

ALEXANDRA.

Tucker Hill Sluicing Company, Alexandra (J. Gartley, manager).—(6/6/1901): Area of claim, 12 acres. Operations are being carried on by ground-sluicing. Six heads of water are

brought in twenty miles, from Campbell and Speargrass Creeks. 1,600 ft. of pressure-pipes are used in the claim. The dam having carried away, work in the claim was suspended at the time of my visit. Five men employed.

CLYDE.

Anderson and Keliher, Sluicing Claim, Clyde.—(5/6/1901): Having worked the flat, which proved highly payable, work is now carried on in the gullies leading into the flat, several of the gullies having been turned over by fossickers with good results. A variable water-supply is brought in eight miles from Leaning Rock Creek. Work is being carried on at present with three heads of water. The false bottom consists of pipeclay overlying a seam of coal.

Buckley and Party, Shepherd's Flat, Fraser River.—(6/6/1901): Race five miles in length from Rough Creek, a tributary of the Fraser River. 200 ft. of 7 in. pressure-pipes are in use in the claim. The party was formed to work in the bed of the Fraser River, but work has been confined to ground-sluicing on the terrace.

Hookey and McConnell, Fraser River.—(6/6/1901): A tail-race is being brought up in rock, the object being to divert the stream, and work in the river-bed, which is known to carry good gold, but has hitherto proved unworkable, water being too deep. Rough gold is found in the crevices of the reef, which is carefully picked up to a depth of from 6 in. to 1 ft.

CROMWELL.

Edwards and Party, Quartz Reef Point.—(6/12/1901): Sinking and driving out alluvial wash on the terrace. Three men employed.

Bruce and Party, Quartz Reef Point.—(6/12/1901): Ground-sluicing. Three men.

Nicoll and Party, Quartz Reef Point.—(6/12/1901): Ground-sluicing. Three men.

CARDRONA.

Loft, Miller, and Party.—(3/12/1901): Sinking and driving out the wash in a claim near the township.

Scurr and Fleming.—Ground-sluicing on Criffel Face.

Henderson, Little, Patton, and Others.—Sluicing on Branch Creek.

ARROWTOWN.

King Edward Hydraulic Sluicing and Elevating Company, Arrowtown (lately Arrow Flat Gold-mining Company), (A. C. Buckland).—(22/11/1901): This plant was not in operation at the time of my visit.

ARROW RIVER.

Arrow Big Beach Hydraulic Sluicing Company (James Campbell, manager).—(25/4/1901): Present work consists of taking out a paddock on a high reef next to the terrace, and working tailings originally worked in the early sixties. Own water-supply short, and at present getting water from the Arrow Flat Hydraulic Company, which is not now at work. The race brought in from Bracken's Gully is four miles long. Pipe-line, 600 ft., reduced from 16 in. diameter at the head to 9 in. at the bottom. Giant nozzle used with different size jets. Elevator at present working 35 ft. The boxes are 96 ft. long, 3 ft. wide at the head, and taper down to 2 ft. 6 in. Angle-iron ripples are used, with sacking on the bottom. Six men employed. (22/11/1901): Race, three miles long, carrying six heads of water for working the elevator only; pressure, 500 ft.; lift, 45 ft. The run of boxes for gold-saving is 120 ft. in length, and is provided with Venetian riffles and cocoanut-matting. Work is being carried on in the bed of the Arrow River, and operations are greatly hampered by freshes and floods. Seven men employed.

Arrow Falls Sluicing Company (J. A. Millar, manager).—(26/4/1901): The stone centre wall and crane travelling-way are now extended through the narrow gorge, and are entering the flat where the claim widens out. Eight men employed. (21/11/1901): This company is engaged ground-sluicing the river-bed. The work is all done by hand-labour, ten men being employed. The centre wall, being brought up as the work advances, is now 15 chains long by 12 ft. in depth. A 3-ton jib crane is used for raising the stones. This claim has experienced many difficulties, but is now in good working-order.

MACETOWN.

Anderson and Party, Eight-mile Hill.—(26/4/1901): Driving into terrace. Three men employed.

Reid Bros. — (26/4/1901): Ground-sluicing terrace ground. Three men employed. (22/11/1901): Water is brought across the Arrow River by a siphon consisting of 3,000 ft. of 9 in. pipes, giving pressure of 80 ft. on the claim.

Thomson Bros.—(26/4/1901): Ground-sluicing. Three men employed.

William Lake, Twelve-mile.—(26/4/1901): Working on low terrace and creek-banks. One man employed.

John Clayton, Homeward Bound Hill.—(26/4/1901): Small tunnel driven into hillside under a slip, where a lead of gold is expected to be found. One man employed.

MOONLIGHT.

Moonlight No. 1 Sluicing Company, Moonlight (G. Heideman).—(19/11/1901): Ground-sluicing terrace ground on Moonlight Terrace; face, 80 ft. Material consists of bands of rough and fine gravel. Race, four miles, carrying eighteen heads of water. The bottom is very rough and dipping in towards the terrace. On this account the race is being extended to command ground where the dip of the bottom will be more favourable. Nine men and one race-man employed, and in addition three men are engaged extending the race.

Moonlight No. 2 Sluicing Company, Moonlight (P. Sanders).—(19/11/1901): The ground previously being worked became too deep and heavy for the water-power, and a start has now been made to open up on the Moonlight side of the terrace.

ARTHUR'S POINT.

Arthur's Point Hydraulic Sluicing and Elevating Company, Arthur's Point, Shotover River (H. Angelo).—(20/11/1901): A party of four working tributers are working this claim with satisfactory results.

UPPER SHOTOVER.

William Smith and Sons, Shotover.—(23/4/1901): River and beach claim above outlet of Skipper's Creek. By the aid of the suction pump the party has been enabled to bottom on ground, the upper part of which had been previously worked with results mainly satisfactory. Sheet iron has been used successfully for facing wing dams when shifting the current, and the pump has operated successfully, elevating water, drainage, and material at depths to 20 ft. in places. Water taken from Hardy's Gully and stored in a good dam on the terrace; 1,400 ft. of pipe-lines, in sizes from 11 in. down to 7 in., conveys water to the claim under a pressure of 300 ft. Successive floods and rises in the river have interfered with work by filling up paddock, and work has to be suspended while the river is up. Three men employed.

Rogers and Johnston, Shotover.—(23/4/1901): River and beach claim similar to Smith and Sons' claim. Smith jet pump used. Pipe-line, 1,000 ft. from dam to paddock; 500 ft. 11 in., 100 ft. 9 in., and 400 ft. 7 in. diameter pipes in use. The river is wing dammed; depth of sinking, from 14 ft. to 21 ft. to bed-rock. The boxes are fitted with Venetian spaced ripples 2 in. apart, with scrub beneath, for gold-saving. Water used is the second right from Ballarat Creek, and is stored in a dam on terrace, which holds sufficient for one shift of work. Two men employed.

William Palmer, Shotover.—(23/4/1901): River and terrace claim. Water in short supply. The race, being on a bad sideling, is frequently carried away. A supply of pipes on the ground, but not in use, however. One man employed.

Peat and Schusted, Shotover.—(23/4/1901): Water, second right from Sandhills Creek. The race is two miles in length over broken ground, and 2,300 ft. of 8 in. pipes, are used for fluming the race. The pressure-line is 1,300 ft. long, 8 in. by 7 in. pipes, under 300 ft. head of pressure. The claim is river and beach, and Smith's jet pump is to be used. Two men employed.

R. Lee and Party, Monk's Terrace, Shotover.—(23/4/1901): The company recently leased the Shotover Quartz-mining Company's water-right from Sandhills Creek. The pipe-line is 2,600 ft. in length; 300 ft. 11 in. diameter; 700 ft. 9 in., 1,000 ft. 7 in., and 600 ft. 6 in. pipes convey the water from the race to the dam. The race is two miles long, and the water is siphoned across the Shotover River, a pressure of 70 ft. head being obtained in the claim. A tail-race (low level) was blasted out of the rock, and the claim is just starting in working-order. Six men employed.

William McLeod, Shotover.—(23/4/1901): Ground-sluicing. One man. Two Chinese ground-sluicing in the neighbourhood.

Sandhills, Shotover (Strahle and Helms).—(23/4/1901): River and beach claim. The upper layers have been worked, but the bottom is original ground, which runs from 6 ft. to 16 ft. in depth. Water brought in from Rapid Creek. The pipe-line is 800 ft. in length; pipes, 7 in. diameter; vertical head of pressure, about 250 ft. Smith's jet pump used. Two men employed.

Anderson and Hood, Coolgardie Company, Shotover.—(23/4/1901): River and beach claim. Smith's jet pump used. Water brought in from Moonstone Creek; pressure-line, 800 ft. of 7 in. pipes; ground, from 7 ft. to 10 ft. in depth. Strenuous efforts have been made to bottom on a bend of the river, where good gold is expected to be found, but the high river has filled the paddock up several times, and the work of opening up had to be repeated after each rise. Two men employed.

Muddy Creek Sluicing Company, Shotover.—(23/4/1901): A Dunedin syndicate holds the claim, which is partly river and partly terrace, and, having bought the Electric Dredging Company's pipes, it is expected that a start will shortly be made to bring water in to work the claim.

Dwan, Costello, and Cummings, Shotover.—(23/4/1901): Ground-sluicing, Moonstone Terrace, on false bottom; face, about 300 ft. high. Water brought in from Moonstone Creek; race, one mile long. Three men employed.

James E. Davis, Guy's Terrace, Shotover.—(23/4/1901): 30 ft. of wash on the terrace; only partly worked owing to shortage of water. Mr. Davis is bringing in a race three miles long through hard country from Maori Gully.

William Crozier, Upper Shotover.—(23/4/1901): Ground-sluicing at mouth of left-hand branch. Small quantity of water used with canvas hoses. One man; also two Chinese working on right-hand branch.

William Tobin Keating, The Branches, Upper Shotover.—(23/4/1901): Ground-sluicing on a terrace on the left branch. Three men. Mr. Keating states that he knows of a reef lying under Mount Aurum lode formation, 9 ft. between the walls, carrying quartz 4 ft. wide.

SHOTOVER.

Mrs. Stevenson, Aspinall's Terrace, Skipper's Point.—(24/4/1901): The claim is situated just below the junction of Skipper's Creek with the Shotover River, and was noted for its richness in days gone by. The old river-beds were originally driven out by the early miners, and the old sets of timber can be seen in the face, as the whole of the alluvial formation is now being sluiced away down to bed-rock. Two ancient river-beds are exposed in the claim, one of which was probably the old Shotover River, and the other Skipper's Creek. The junction was therefore some distance down-stream from present junction. Water is brought in from Brown's Creek. A race one mile long conducts water to a dam on top of the terrace. The pressure-line from dam to nozzles is 800 ft. long; 100 ft. of 13 in. diameter, 400 ft. of 11 in., and 300 ft. of 9 in. pipes, under a vertical head of 200 ft. The tail-race tunnel is 450 ft. in length, having a fall of 1 in 8 to 1 in 10. The tunnel was blocked only on one occasion several years ago. Since that time the tunnel is examined daily before sluicing is started, and if stones are found in the tunnel they are removed, thus

reducing liability to block. The gold is saved in the open tail-race leading to the tunnel. Longitudinal steel rails and Aspinall's patent heart-shaped riffles are used; that they are effective is proved by the tunnel having been washed up several times when the quantity of gold won did not pay for the labour expended. Two men employed.

Skipper's Sluicing Company, Londonderry Terrace, Skipper's (William McPherson, manager).—(24/4/1901): The tunnel tail-race being blocked, all hands were employed laying pressure-pipes down the first rise to enable water being turned on to the block. The water was turned on and the block successfully removed during the afternoon shortly after my visit. The manager intends to reduce the several right angles in the tunnel rises, and, the paddock (as now opened up) being large enough to enable stones being stacked, it is anticipated that the liability to block will be minimised. The face of the claim (which is about 140 ft. in vertical height) will also be given more batter by running top stuff off first. The water-supply is brought in from Skipper's Creek, the race being five miles in length. Six deep intervening gullies necessitated siphons being used, the longest of which, over Skipper's Creek, is 1,760 ft. in length, the diameter of the pipes being 28 in. Two storage-dams have been made, from which the water is taken into the claim by 1,000 ft. of 11 in. pipes; vertical pressure, 150 ft. Two 5 in. nozzles are used alternately in breaking down the face. The gold-saving boxes are laid in the tunnel tail-race. They are 350 ft. in length and 3 ft. wide. Longitudinal iron rails set in frames, and held in position by side pieces, are laid on top of scrub in the boxes for gold-saving. Six men employed.

Robert Johnston, Pleasant Creek Terrace, Skipper's.—(24/4/1901): A large paddock has been sluiced away on the stony end of the claim. Water-supply being plentiful, the whole of the terrace is being sluiced away. Water is turned over the working-face from an iron box shoot, and, having a fall of 100 ft., good work is done thereby. Canvas hose is used in the claim, the owner preferring it to iron pipes, being more easily handled. The hose is well tarred before use, and is said to last from three to four years. Two men employed.

Davis Bros., Stony Creek Terrace, Skipper's.—(24/4/1901): Terrace claim on west bank of Shotover River; face, 150 ft. high. Alluvial deposit being sluiced away to the reef up the ancient river-bed. Water-supply obtained from Stony Creek. 1,000 ft. of iron pipes in use. Four men employed.

E. Sainsbury, Maori Point.—(25/4/1901): Ground-sluicing. Water brought in from Maori Gully; race, two miles long; 100 ft. of 11 in. and 200 ft. of 9 in. diameter pipes laid over the face. Two men employed.

J. Quin, Wire Rope Terrace, Maori Point.—(25/4/1901): Driving out a bit of old ground left in former years, not being then considered rich enough to work. One man employed.

Maori Point.—(25/4/1901): Two Chinese are bringing in water from Wire Rope Gully, intending to sluice Boomerang Terrace, which was only partly worked in former days. Two men employed.

J. S. Collins and Son, Maori Point, near Deep Creek.—(25/4/1901): Sluicing claim on Blue Jacket Terrace; also Smith's jet pump in the river-bed claim when favourable. Water brought in from Quin's Creek. The race is one mile long, and 1,500 ft. of pipes 9 in. in diameter are laid to the river claim and siphoned across the Shotover. A vertical pressure of 375 ft. is obtained. The river claim averages 12 ft. in depth, and coarse gold is found principally in wash in crevices from 3 ft. to 6 ft. deep in places by 18 in. to 5 ft. wide and up to 90 ft. in length. Messrs. Collins are well satisfied with their recent returns. Three men employed.

John McCorron and Party, near Long Gully, Shotover.—(25/4/1901): River and beach claim. River wing-dammed, and Californian pump used for unwatering paddock. Three men employed.

Thomson and McLeod, Mouth of Long Gully, Shotover.—(25/4/1901): River and beach claim. A new race just finished is two miles long; will carry water from Long Gully Creek to the river-bank above claim. Smith jet pump to be used; pipes now being laid. Two men employed.

Ward and Smith, below Long Gully, Shotover.—(25/4/1901): River claim. Smith jet pump used. 1,000 ft. of 9 in. and 7 in. diameter pipes; pressure, 200 ft. head. Two men employed.

Reisster and Price, Shotover.—(25/4/1901): Turning and wing-damming river-bed. A water-wheel pump is used in the paddock. Four men employed.

J. McCormack, Shotover.—(25/4/1901): Beach-combing. One man.

Lynch, Kelly, and Party, Shotover.—(25/4/1901): Turning and wing-damming river. Spear and Californian pump used. Four men employed.

Durie, Shotover.—(25/4/1901): One man.

J. Kapatzo, Moke Creek.—(25/4/1901): One man.

Smith Bros., Shotover.—(25/4/1901): Turning and wing-damming river. Californian pump used. Three men employed.

A. Murdoch, Deep Creek, Shotover.—(25/4/1901): Canvas hose turning water over the faces. One man.

John Bolderson, Deep Creek, Shotover.—(25/4/1901): Canvas hose turning water over the faces. One man.

Nevis.

Our Mutual Friend Hydraulic Sluicing and Elevating Company, Nevis (Masters and Adie).—(30/4/1901): Elevating 35 ft., and following lead into flat on reef-bottom. Care exercised in working where face high on the edge of the terrace. Four men. (28/11/1901): Six heads of water used for working the elevator, which is lifting 40 ft. The run of boxes for gold-saving is 108 ft. in length.

Keep-it-Dark Gold-mining Company, Galvin's Terrace, Nevis (J. H. Robertson, manager).—(1/5/1901): Not working at present, awaiting the arrival of a Tangye pump from Dunedin, the water-inflow being too heavy for the pump in use. The shaft is 90 ft. deep to bottom of wash. No driving has yet been done.

Robertson and Party, Nevis.—(30/4/1901): Eight heads of water are brought in three miles. The bottom (reef) has ceased dipping, and is running level under the terrace. Face, 30 ft. high; elevating, 40 ft. Four men employed.

Upper Nevis.

O'Connell and Graham, Hydraulic Sluicing Claim, Upper Nevis.—(28/11/1901): Elevating, 35 ft. Working on main bottom, which is dipping steeply towards the river. Pipe-line, 1,200 ft.; pipes reduced from 18 in. to 13 in. diameter; pressure, 400 ft. vertical head. Eight men employed.

Undaunted Company, Nevis River.—(28/11/1901): This company has been formed for the purpose of confining and turning portions of the river in the gorge near Scotchman's Creek. The fluming is in position ready for the river being turned into it, and is 5 chains in length by 12 ft. wide by 4 ft. deep, with $\frac{1}{4}$ in. fall to the foot.

McMillan's Sluicing Claim, Upper Nevis.—(28/11/1901): Ground-sluicing; face, 35 ft.; pressure available, 50 ft. vertical. Four men employed.

McDonald's Hydraulic Sluicing and Elevating Company, Upper Nevis.—(28/11/1901): Race, four miles; twelve heads of water brought in. Pipe-line, 2,000 ft. of 13 in. and 900 ft. of 9 in. diameter pipes; elevating, 30 ft.; depth of ground, 14 ft. A new race is to be constructed to give a pressure of 375 ft. vertical in the claim.

Waikaia.

Argyle Sluicing Company's Claim, Waikaia (J. Stewart).—(15/11/1901): Ten heads of water are brought in nine miles from Argyle Creek. The pressure-line to the claim consists of one mile of 15 in. pipes; pressure, 330 ft. vertical head; depth of ground, 35 ft.; elevator lifting 32 ft. Venetian riffles and perforated plates, with cocoanut-matting underneath, are laid in the boxes for gold-saving. Nine men employed.

Winding Creek Hydraulic Sluicing Claim, Waikaia (Robert Hay, manager).—(15/11/1901): The length of water-races combined is twenty-six miles; but at present insufficient water is coming to hand to work the elevating plant, the lift being 75 ft. Six men are engaged ground-sluicing. The lower part of the claim was driven and blocked out by miners in the early days.

Gow's Creek Gold-mining Company, Waikaia.—(15/11/1901): Thirty men are at work on the water-race being brought in from Gow's Creek to work the ground. The race will be about three miles in length, and the company holds a first right to thirty heads of water from the creek.

Piano Flat Gold-mining Company, Upper Waikaia.—(15/11/1901): The race is cut, but there is no plant on the ground as yet.

Nokomai.

Lion Hydraulic Sluicing and Elevating Company, Nokomai (D. McGregor).—(15/11/1901): Race, twenty-nine miles, brought in from the Nevis River. Owing to its high altitude there is a scarcity of water during the winter months, the country being frozen up. During the working season the water-supply is about twenty-five heads. This is brought on to the claim at an elevation of 800 ft. As the ground is 85 ft. deep, and deepening towards the flat, the high pressure will be all required. Pressure-elevator lifting 103 ft. For gold-saving Venetian riffles, perforated plates, and cocoanut-matting are used in a box run 80 ft. in length. Sixteen men, including six race-men, are employed.

Victory Hydraulic Sluicing and Elevating Company, Nokomai (W. Franz).—(16/11/1901): The claim is situated in Victoria Gully. Owing to poor water-supply preventing constant work, this season is being devoted to the erection of a dam for storage of water.

Nokomai Gold-mining Company (Limited), Nokomai, No. 1 Claim (W. Robinson, manager).—(16/11/1901): Race, eighteen miles, carrying eighteen heads; pressure, 540 ft. vertical; elevating, 70 ft.; depth of ground, 45 ft. Sides of paddock are well battered for safety of workmen. Ten heads of water are picked up from the creek, and are used for pumping water out of back paddocks.

Nokomai Gold-mining Company (Limited), Nokomai, No. 2 Claim (A. Copland, manager).—(16/11/1901): Race, five miles, carrying sixteen heads, which command the claim at an elevation of 250 ft. The ground from the surface to the bottom is heavy and rough. The bottom has been driven on and blocked out in the past. Height of lift, 45 ft. The company's engineer, Mr. L. O. Beal, is at present engaged selecting a site for a large storage-dam on Donkey Flat. Seven Europeans and five Chinese employed.

Nokomai.—(16/11/1901): Three men are ground-sluicing in Dalton's Gully, Nokomai. Water-right consists of four heads from Fiery Creek. The water is taken across the Mataura River to the opposite range by means of a siphon about a mile in length.

Orepuki.

The season having been a good one for water, work has been regular throughout the year. The area of gold-bearing ground is gradually becoming restricted as the claims are worked out. No doubt the water will be diverted, and other payable areas of auriferous ground found in the direction of Pahia and Round Hill.

Beach-combing is still continued, and the claimholders obtain fair returns.

A dredging-machine tried on the beach for elevating the auriferous black sand has not proved a success. Three parties of miners at Papatotara, South Waiau, are reported to be obtaining good returns.

Round Hill.

The claims in this district continue working steadily.

The Round Hill Gold-mining Company is putting down a winch plant, driven by a small Pelton wheel, for the purpose of hauling logs and large stones out of the paddock, and which is expected to be an improvement on the old system of chopping up and burning buried timber.

Ourawera Gold-mining Company.—A hand-winch has been erected for log-hauling purposes.

Smith Gold-mining Company.—Work is being continued up the bed of the Ourawera Creek. A drive is being put into the terrace with the object of proving whether payable layers of wash are contained in the formation.

GOLD-DREDGING.

WORKING DREDGES INSPECTED.

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Date of Visit.
CLUTHA RIVER.				
Lioness, Rankleburn.. ..	Lioness Gold-dredging Company ..	J. Templeton ..	Erecting machinery	15/7/01.
			Light-lines and two boat-hooks required; main and pump driving-belts require fencing; regulations not posted	18/9/01.
Paul's Beach, below Beamont..	Paul's Beach Gold-dredging Company	William McLelland	Company notified on 30th July, 1901, to replace second boat, which had been lost; 200 ft. of light-line required, and three boat-hooks missing	16/7/01.
		J. Herbert ..	Life-saving appliances out of place	23/8/01.
			Two boat-hooks missing	18/10/01.
Golden Reward, below Beaumont	Golden Reward Gold-dredging Company	J. Cummings ..	One life-buoy and three boat-hooks required	23/8/01.
			Shifting dredge to lower claim; appliances in fair order	19/10/01.
Golden Gravel, Beaumont ..	Golden Gravel Gold-dredging Company	T. Barnes ..	Erecting machinery	28/5/01.
			Dredge and life-saving appliances in good order	17/7/01.
			Dredge and appliances in good order	19/10/01.
Golden Run, Miller's Flat ..	Golden Run Gold-dredging Company	P. Brandt ..	Life-saving appliances not in proper order on dredge	29/5/01.
			Hand-rail and foot-plank required as approach to elevator; otherwise in good order ..	18/10/01.
Pringle's, Miller's Flat ..	Pringle and party	J. Pringle ..	Dredge and appliances in fair order	29/5/01.
			Stopped by flood; appliances in good order	18/10/01.
Golden Gate, Miller's Flat ..	Golden Gate Gold-dredging Company	D. Ballantyne ..	100 ft. light-line required for the boats; otherwise in good order	29/5/01.
			Shifting to bottom of claim; dredge and appliances in good order	18/10/01.
Otago, Miller's Flat	Otago Gold-dredging Company ..	R. Williamson ..	Dredge and life-saving appliances in good order	30/5/01.
			" "	17/10/01.
Golden Treasure, Miller's Flat	Golden Treasure Gold-dredging Company	T. Cornish ..	Light-lines and boat-hooks required; life-buoys need repairing	30/5/01.
			Dredge and life-saving appliances in good order	17/10/01.
Majestic, above Miller's Flat ..	Majestic Gold-dredging Company ..	W. Williamson ..	Boat-hooks and light-lines require renewal	30/5/01.
			Dredge and life-saving appliances in good order	17/10/01.
Golden Bed, Ettrick	Golden Bed Gold-dredging Company	A. Maitland ..	Boat-hooks and light-lines required on the dredge; also a buoy and boat-hook in the boat ..	30/5/01.
			Life-saving apparatus out of order. The company was notified to provide a suitable boat in place of the second boat, which was too small	22/8/01.
Ettrick, Ettrick	Ettrick Gold-dredging Company ..	T. Thompson ..	Erecting machinery	18/7/01.
			Four life-buoys, with 15 in. inside measurement, were too small. I pointed this out to the dredgemaster, and the buoys were returned, and replaced with proper ones	14/12/01.
Excelsior, Ettrick	Excelsior Gold-dredging Company ..	J. Wallace ..	Erecting machinery	18/7/01.
			Screen and elevator driving-gear requires to be guarded; bar across coal-door needed; otherwise appliances in good order	12/10/01.
Gibbs's Beach, Moa Flat ..	Gibbs's Beach Gold-dredging Company	T. Kitto	Ready to start	30/5/01.
			Dredge and appliances in good order	18/7/01.
Moa Flat, Moa Flat	Moa Flat Gold-dredging Company ..	T. Thompson ..	Longer handles required for the boat-hooks. Company notified on 28th June, 1901, that the second boat was too small for river-work	30/5/01.
			New boat provided; dredge closed down	22/8/01.
Gold Queen, Dumbarton Rock	Gold Queen Gold-dredging Company	C. Olsen	Dredge and life-saving appliances in good order	18/7/01.
Gold King, Dumbarton Rock ..	Gold King Gold-dredging Company ..	G. Magnus ..	Ready to start. Some of the after driving-gear requires to be guarded; also main and pump driving-belts to be fenced; hatchway to be cut aft for access behind the pump	16/10/01.
Endeavour, Dumbarton Rock ..	Endeavour Gold-dredging Company ..	A. Rennie ..	Main and pump belting requires to be fenced off	22/8/01.
			Bar required across the coal-door	17/10/01.
Teviot, Roxburgh	Teviot Gold-dredging Company ..	J. Roy	Regulations not posted; only one boat; no life-saving apparatus; new dredge just starting	31/5/01.
			Life-saving appliances now in good order	21/8/01.
		P. McVicar ..	Visited dredge in connection with fatal accident on 23rd September, 1901, and found dredge and life-saving appliances in good order. A. McCormack, fireman, was killed on 23rd September, 1901, caught by elevator driving-shaft while oiling, machinery being in motion	25/9/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
CLUTHA RIVER—*continued.*				
Gold-deposit, Coal Creek Flat ..	Gold-deposit Gold-dredging Company	J. Guyton ..	Ready to start; only one boat provided	21/8/01.
		S. Coard	Platform required around tailings-chute; light-lines and boat-hooks required; also runner on the boat-line and a gangway across the well. Company was notified on 15th October, 1901, that the second boat was unfit for river-work. Dredge on the point of closing down owing to high river	11/10/01.
Long Valley, Coal Creek Flat ..	Long Valley Gold-dredging Company	W. Woodhouse ..	One buoy required; main and pump driving-belts to be fenced off	19/7/01.
			Belts not fenced; elevator is being replaced by stone-chute	11/10/01.
Coal Creek–Alexandra Gorge (Clutha River).				
Sixteen-mile Beach	Sixteen-mile Beach Gold-dredging Company	R. F. Kitto ..	Shifting to the claim; regulations not posted; otherwise in good order. This dredge has since been wrecked, and almost entirely lost, on 29th October, 1901, only the engines being recovered	1/6/01.
Fourteen-mile Beach ..	Fourteen-mile Beach Gold-dredging Company	G. P. Blue ..	Boat-hook in boat too short; otherwise dredge and appliances in good order	3/6/01.
Golden River	Golden River Gold-dredging Company	G. Taylor ..	Getting ready to start	20/7/01.
			Hatchway to be cut aft for access to pump; screen driving-belt to be guarded, also the main and pump driving-belts; boats to be provided with life-saving apparatus	20/8/01.
			Screen driving-belt not yet fenced	10/10/01.
Golden Falls	Golden Falls Gold-dredging Company	S. Hoy	Shifting down river to claim. Company notified second boat unsuitable for river-work ..	3/6/01.
River Molyneux	River Molyneux Gold-dredging Company	C. Weaver ..	Ready to drop down the river six miles to the claim. Found dredge not well equipped with life-saving apparatus, and had her properly equipped before starting; hatchway to be cut for access behind the pump	22/7/01.
			Dredge and appliances in good order	19/8/01.
First Chance	First Chance Gold-dredging Company	A. McLean ..	Dropping down river to claim; dredge well equipped	3/6/01.
			Pump-belt and main rope-drive require fencing	22/7/01.
			Dredge and life-saving appliances in good order. A. McLean, dredgemaster, fell overboard on 3rd October, 1901, and was drowned	5/10/01.
Bendigo	Bendigo Gold-dredging Company ..	T. McMath ..	Shifting to claim; boats equipped and dredge furnished with life-saving apparatus ..	20/8/01.
			Forward railing weak; runner required to replace shackle on coal-boat line; fence-bar required across side opening	7/10/01.
Sailor's Bend	Sailor's Bend Gold-dredging Company	J. Dewar	Sleeve required on projecting end of engine-shaft	3/6/01.
			Dredge and appliances in first-class order, and regulations observed	7/10/01.
Manuherikia	Manuherikia Gold-dredging Company	L. Anderson ..	Main driving-belt requires to be fenced	3/6/01.
			Dredge and appliances in excellent order, and regulations observed	8/10/01.
Moa	Clyde Dredging Company	W. Nicholson ..	Repairing on this date	3/6/01.
			Dredge and appliances in fair order; second boat laid up for repairs	8/10/01.
Alexandra.				
Molyneux Hydraulic ..	Molyneux Hydraulic Gold-dredging Company	C. Simonsen ..	Regulations not posted; light-lines and boat-hooks not in place	6/6/01.
			Dredge and appliances in good order	9/10/01.
Alexandra Eureka	Alexandra Eureka Gold-dredging Company	N. Bradley ..	" "	4/6/01.
			Dredge repairing, but appliances in good order	8/10/01.
Golden Beach	Golden Beach Gold-dredging Company	J. Percy	Sleeve required on engine-shaft; elevator driving-belt requires fencing	4/6/01.
			Light-lines under required length	8/10/01.
Ngapara No. 1	Ngapara Gold-dredging Company ..	A. Schumann ..	Dredge and appliances in fair order	6/6/01.
			Repairing, but all in good order	9/10/01.
Enterprise No. 1	Enterprise Gold-dredging Company ..	J. T. Ryan ..	Regulations not posted; life-saving apparatus requires renewal	6/6/01.
			One life-belt useless; otherwise in good order	9/10/01.
Enterprise No. 2	Enterprise Gold-dredging Company ..	G. MacGregor ..	Sleeve required on engine-shaft; life-saving apparatus not in good condition	22/7/01.
			Undergoing repairs	9/10/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
CLUTHA RIVER—*continued.*				
Alexandra—continued.				
Earnscleugh No. 1	Earnscleugh Gold-dredging Company	J. Fouhy	Life-saving appliances not on board. This was attended to at once; runner required for boat-line	3/6/01.
			One life-buoy requires recovering; otherwise appliances in good order	9/10/01.
Earnscleugh No. 2	Earnscleugh Gold-dredging Company	"	Undergoing repairs	3/6/01.
			Dredge and appliances in good order	9/10/01.
Chicago	Chicago Gold-dredging Company	J. McDonald	Life-saving appliances require renewal. While running a head-line the line fouled, the boat swamped, and the crew (five men) were thrown into the river. Having life-belts on and boots unlaced, in case of emergency, all the men got out safely. Date of accident, 20th April, 1901.	6/6/01.
			Well-gangway required; engine to be railed in	9/10/01.
Glasgow	Sandy Point Gold-dredging Company	W. Hansen	Railing required forward	3/6/01.
			Set-screws on collar on screen driving-shaft to be guarded	9/10/01.
Perseverance No. 1	Perseverance Gold-dredging Company	S. Cameron	Light-lines and boat-hooks required	3/6/01.
			Dredge and appliances in good order	17/8/01.
Perseverance No. 2	Perseverance Gold-dredging Company	"	Undergoing extensive overhaul	17/8/01.
Below Clyde.				
Dunstan Lead	Dunstan Lead Gold-dredging Company	D. Brigans	Getting ready to start	23/7/01.
			Sleeve required on engine-shaft, also on winch-engine shaft; guard required round winch engine	28/9/01.
Matau	Matau Gold-dredging Company	H. Sanders	Regulations to be posted in a more conspicuous place; dredge and appliances in good order	22/7/01.
Unity	Unity Gold-dredging Company	T. Barry	Light-lines not in place; fencing required below tables; also guard on feed-pump, and ladder up the gantry	23/7/01.
			Repairing; life-saving appliances not yet up to the mark	17/8/01.
At Clyde.				
Vincent	Vincent Gold-dredging Company	J. Hewitt	One life-buoy, 100 ft. light-line, and one boat-hook required	23/7/01.
Vincent Extended	Vincent Extended Gold-dredging Company	J. von Haast	Dredge and life-saving appliances in first-class order	24/7/01.
Clyde–Cromwell Gorge.				
Cairnmuir	Cairnmuir Gold-dredging Company	D. McMath	Dredge and life-saving appliances in first-class order	24/7/01.
			Dredge closed down; appliances in good order	17/8/01.
Leaning Rock	Leaning Rock Gold-dredging Company	D. Murray	Ready to start, but not yet equipped with life-saving appliances	17/8/01.
Monte Christo	Monte Christo Gold-dredging Company	T. Keen	Light-lines and two boat-hooks required. Company notified that second boat, lately belonging to the Golden Falls, was unsuitable for river-work, and that a suitable boat would have to be provided	17/8/01.
Boundary Creek	Boundary Creek Gold-dredging Company	A. Gibson	Dredge and appliances in good working-order	17/8/01.
		J. Rogers	Repairing; dredge and appliances in good order	7/12/01.
Half-way House	Half-way House Gold-dredging Company	A. Young	Belt-drive and bevel gear for screen require to be guarded	24/7/01.
		"	Dredge and appliances in good order	17/8/01.
		F. Williams	Dredge and appliances in good order; closed down temporarily	7/12/01.
Kelly and Casey	Kelly and Casey Gold-dredging Company	T. Brown	Screen driving-gear requires to be covered; hand-rail required across the tables	24/7/01.
			Dredge and appliances in good order; rules observed	16/8/01.
Great Central	Great Central Gold-dredging Company	J. Robertson	Gangway required across the well	24/7/01.
			Dredge and appliances in good order; not working	6/12/01.
Alpine Consols	Alpine Consols Gold-dredging Company	J. MacConnell	Dredge appliances in good order; regulations complied with	24/7/01.
			" "	7/12/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
CLUTHA RIVER—*continued.*				
Clyde-Cromwell Gorge–continued				
Alpine No. 2	Alpine No. 2 Gold-dredging Company	A. Johnston	Dredge and appliances in good order, and rules observed	26/7/01.
			"	7/12/01.
Hartley and Riley	Hartley and Riley Gold-dredging Company	G. McLay	Dredge and appliances in good order; regulations complied with	31/7/01.
Junction-Electric No. 2, Cromwell	Junction-Electric Gold-dredging Company	A. Ross	Dredge and appliances in fair order	16/8/01.
Above Cromwell.				
Royal Maori	Royal Maori Gold-dredging Company	F. Kitto	Gangway required across well-hole, also some fencing aft; runners to be provided for boat-lines	30/9/01.
Rise and Shine	Rise and Shine Gold-dredging Company	D. Cormack	Getting ready to start; to be provided with life-saving appliances	7/12/01.
Point d'Or	Point d'Or Gold-dredging Company	M. Murray	Requires new second boat; otherwise appliances in good order	6/12/01.
Below Albertown.				
Upper Clutha	Upper Clutha Gold-dredging Company	A. Gibson	Getting ready to start; no boats on the claim; no life-saving-appliances on board	2/12/01.
Prince Albert	Prince Albert Gold-dredging Company	J. Parsons	Company notified on 6th December, 1901, that second boat unfit for river-work, and that a proper boat should be provided. Two buoys and three boat-hooks required	15/10/01; 2/12/01.
KAWARAU RIVER.				
Above Cromwell.				
Central Electric	Central Electric Gold-dredging Company	J. Ledingham	One boat-hook short; otherwise regulations well observed	26/7/01.
		J. Sanders	Shifting up stream; appliances in good order	4/12/01.
Electric Extended	Electric Extended Gold-dredging Company	A. Bremner	200 ft. light-line required; otherwise dredge in good order	30/7/01.
Junction-Electric No. 1.	Junction-Electric Gold-dredging Company	A. Hedley	Second boat unfit for river-work; has since been replaced by one more suitable. Appliances in fair order	16/8/01.
Cromwell	Cromwell Gold-dredging Company	N. P. Kloogh	Dredge and appliances in first-class order, and regulations well observed	30/7/01.
Electric (Lady Ranfurly)	Electric Gold-dredging Company	J. Steel	Main rope-drive to be guarded; otherwise dredge in good order	30/7/01.
Kawarau Gorge.				
Magnetic	Magnetic Gold-dredging Company	W. Kitto	Dredge and appliances in good order and condition	31/7/01.
Second Magnetic	Second Magnetic Gold-dredging Company	J. F. Kitto	Railing required across the tables; appliances in good order	31/7/01.
Upper Magnetic	Upper Magnetic Gold-dredging Company	J. Rae	Dredge and appliances in good order	31/7/01.
			"	26/11/01.
Meg and Annie	Meg and Annie Gold-dredging Company	D. J. McIntosh	Well-fencing pulled down; hand-rails required on well-gangway	31/7/01.
		J. McDonald	Working with only one boat; three boat-hooks missing; well-fencing down; regulations not posted; gangway required over well	26/11/01.
Gibbston.				
Merrimac	Merrimac Gold-dredging Company	D. McLean	Dredge and appliances in good order, but boating-work difficult; gorge narrow, and river very rapid	1/8/01.
Galvanic	Galvanic Gold-dredging Company	Position vacant	This dredge refitting after being sunk	31/7/01.
Eclipse	Eclipse Gold-dredging Company	R. Woods	An additional life-belt required; otherwise dredge and appliances in good order	1/8/01.
			Dredge and appliances in good order	25/11/01.
Above Kawarau Bridge.				
Kawarau Bridge	Kawarau Bridge Gold-dredging Company	J. H. Robertson	Gangway required over well-hole, and hand-rail across tables; light-lines and boat-hooks required	2/8/01.
			Not quite up to regulation mark yet	15/8/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
KAWARAU RIVER—*continued.*				
Above Kawarau Bridge—contd.				
Arrow Junction	Arrow Junction Gold-dredging Co.	J. Highet	Well-gangway required; also some light-lines	2/8/01.
Kia Ora, below Frankton	Kia Ora Gold-dredging Company	G. S. Morris	Getting ready to start; life-saving appliances ordered, but not on board	21/11/01.
DART RIVER.				
Dart River, 25 miles above Glenorchy	Dart River Prospecting Company	J. Hay	Port side rail required forward; hand-rail to be fixed for ladder-way to the boxes; life-belts not on board; three boat-hooks required	6/8/01.
CARDRONA VALLEY.				
White Star, below Branch Creek	White Star Gold-dredging Company	M. Murray	Dredge and appliances in good order	27/4/01.
Cardrona No. 1	Cardrona No. 1 Gold-dredging Company	F. C. McClure	Face, 23 ft.; fly-wheel of engine requires fencing; appliances and dredge in good order	27/4/01.
Tacon's Cardrona	Tacon's Cardrona Gold-dredging Company	James Lowe	Fly-wheel of engine requires to be fenced; otherwise dredge in good order	27/4/01.
NEVIS RIVER.				
Nevis.				
Success	Success Gold-dredging Company	D. McIntosh	No life-buoys, light-lines, or boat-hooks on board	1/5/01.
			Standing	27/11/01.
Carrick	Carrick Gold-dredging Company	J. Thomson	No life-buoys on board; fencing good; dredge in good order	1/5/01.
			No life-buoys, light-lines, or boat-hooks on board	27/11/01.
Nevis	Nevis Gold-dredging Company	J. Mitchell	In good order; fencing excellent	30/4/01.
			Repairing; dredge recently raised after being sunk	27/11/01.
Ngapara No. 2	Ngapara Gold-dredging Company	J. McLean	Only one buoy on board; otherwise dredge in good order	30/4/01.
			Only one buoy on board; light-lines and boat-hooks required	27/11/01.
Ngapara No. 3	Ngapara Gold-dredging Company	E. McDonald	Boat being built; dredge in good order	30/4/01.
		J. McLean	Boat not in paddock; boat-hooks required	27/11/01.
Remarkables	Remarkables Gold-dredging Company	C. Robertson	No boat; gangway required forward; port stern to be fenced; regulations to be posted; belting to be fenced	27/11/01.
BANNOCKBURN.				
Shepherd's Creek, Shepherd's Creek	Shepherd's Creek Gold-dredging Company	F. Woodhouse	Repairing	25/7/01.
			Guard required round winch engine; no boat in paddock	30/11/01.
Bannockburn Creek, Bannockburn Creek	Bannockburn Creek Gold-dredging Company	G. S. Morris	Dredge just started; no life-saving appliances on board; elevator-gangway requires hand-rails on outside	1/5/01.
			Dredge and appliances in fair order	25/7/11.
MANUHERIKIA RIVER.				
Golden Link, Alexandra	Golden Link Gold-dredging Company	W. Poulter	Railing required forward; otherwise dredge and appliances in good order	3/6/01.
			Dredge and appliances in good order	22/7/01.
Manorburn, above Alexandra	Manorburn Gold-dredging Company	H. Leicester	"	6/6/01.
Morning Star, above Alexandra	Morning Star Gold-dredging Company	W. Mason	Being raised after sinking	6/6/01.
			Fencing to be kept in repair; life-buoy to be renewed; devoid of life-lines and boat-hooks. Regulations posted, but defaced; new copy required	29/7/01.
Olrig, Springvale	Olrig Gold-dredging Company	E. A. Johnston	Boat not in paddock; otherwise dredge and appliances in good order	7/6/01.
LINDIS RIVER.				
Pioneer-Eureka	Pioneer-Eureka Gold-dredging Company	James Watson	Prospecting-dredge on Lindis River; new dredge to be put on if ground proves payable	29/4/01.
		J. Everitt	Life-buoys, light-lines, and boat-hooks required; well-hole to be fenced; bevel gearing on elevator to be guarded; fencing required round unprotected parts of pontoons. Secretary was notified on 15th October, 1901, to attend to above	3/10/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
MATAKANUI.				
Blue Duck, Matakanui ..	Blue Duck Gold-dredging Company ..	F. Williams ..	Regulations not posted; some fencing required forward	8/6/01.
BALD HILL FLAT.				
Bald Hill Flat Freehold, Bald Hill Flat	Bald Hill Flat Gold-dredging Company	J. Baker	Regulations not posted; screen driving-gear to be fenced	1/6/01.
NASEBY.				
Naumai, Upper Kyeburn ..	Naumai Gold-dredging Company ..	J. Brown	Boat not in paddock; otherwise dredge and appliances in good order	14/6/01.
		J. McLelland ..	Boat too large for paddock; wrote manager in reference to boat under date 4th November, 1901; otherwise dredge and appliances in good order	31/10/01.
TUAPEKA.				
Evans Flat, Evans Flat ..	Evans Flat Gold-dredging Company	T. Gillespie ..	Starting to shift dredge to lower claim	19/9/01.
Lawrence, Tuapeka Flat ..	Lawrence Gold-dredging Company ..	A. N. Wakefield ..	Light-lines required; otherwise in good order	19/9/01.
Reliance, Tuapeka Flat ..	Reliance Gold-dredging Company ..	J. Hughes ..	Sleeve required on engine-shaft; ladder-way to boxes to be altered; handles to be provided for boat-hooks; light-lines missing	13/7/01
Tuapeka, Tuapeka Flat ..	Tuapeka Gold-dredging Company ..	R. Montgomery ..	Repairing tail-boxes; appliances in good order	19/9/01.
			Gangway required forward; three boat-hooks missing	20/10/01.
Gabriel, Tuapeka Flat ..	Gabriel Gold-dredging Company ..	S. P. Uren ..	150 ft. of light-lines required, also two boat-hooks; main driving-belt to be fenced ..	19/9/01.
Happy Valley, Wetherstone's	Happy Valley Gold-dredging Company	J. Donaldson ..	Ready for work; dredge and appliances in good order; punt required	17/5/01.
			No boat provided; one boat-hook required	13/7/01.
Imperial,, Wetherstone's ..	Imperial Gold-dredging Company ..	J. Scott	Dredge and appliances in good order	21/9/01.
Havelock, Waitahuna ..	Havelock Gold-dredging Company ..	D. Rowe	Light-lines (150 ft.) required; otherwise regulations complied with	20/9/01.
McCormac, Waitahuna ..	McCormac Gold-dredging Company ..	W. Williamson ..	Dredge and appliances in good order	20/9/01.
Manuka, Waitahuna ..	Manuka Gold-dredging Company ..	G. Hunter ..	150 ft. of light-lines required	20/9/01.
Waitahuna Gully, Waitahuna	Waitahuna Gully Gold-dredging Company	H. McAra ..	Getting ready to start; appliances in fair order	24/5/01.
			Caretaker in charge; dredge in good order	20/9/01.
GLENORE.				
Gold Bank, Glenore	Gold Bank Gold-dredging Company ..	A. Thomas ..	Dredge and appliances in good order	20/9/01.
Stirling, Glenore	Stirling Gold-dredging Company ..	J. Nelson ..	Two boat-hooks and some light-line required	20/9/01.
WAIPORI.				
O'Brien's Patent, Lammerlaw Flat	W. O'Brien and party	W. O'Brien ..	Dredge in good order and working satisfactorily. O'Brien's Patent Hydraulic Pioneer dredge	18/5/01.
Upper Waipori, Waipori ..	Upper Waipori Gold-dredging Company	William Redpath ..	Dredge and appliances in fair order	21/5/01.
Waipori Consolidated, Waipori	Waipori Consolidated Gold-dredging Company	T. Jefferson ..	Gangway required forward; otherwise dredge and appliances in fair order	21/5/01.
Success, Waipori	Success Gold-dredging Company ..	W. Hanley ..	Dredge and appliances in good order	20/5/01.
Perseverance, McNeil's, Waipori	Perseverance Gold-dredging Company	T. Aitken ..	"	20/5/01.
Empire No. 1, Waipori ..	Empire Gold-dredging Company ..	G. Larking ..	Repairing; gangway required forward	20/5/01.
Golden Shore, Waipori ..	Golden Shore Gold-dredging Company	R. Allen	Dredge very well equipped and regulations attended to	20/5/01.
Empire No. 2, Waipori ..	Empire Gold-dredging Company ..	A. Dalziel ..	Regulations not posted; otherwise dredge and appliances in good order	20/5/01.
Waipori Gold King, Lower Waipori River	Waipori Gold King Gold-dredging Company	J. Maxwell ..	Dredge not quite ready to work; life-saving appliances not in position on board the dredge	30/5/01.
Enfield, Verterburn ..	Enfield Gold-dredging Company ..	H. Quertier ..	Lengthening ladder; appliances in good order..	20/5/01.
Big Flat, Verterburn ..	Big Flat Gold-dredging Company ..	A. Young ..	Appliances in good order	23/12/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
SHAG RIVER.				
Incholme, Inch Valley	Incholme Gold-dredging Company	J. Guyton	Dredge and appliances in fair order	20/6/01.
Inch Valley, Inch Valley	Inch Valley Gold-dredging Company	A. Louden	Regulations not posted; dredge and appliances in fair order	20/6/01.
		J. Black	Two boat-hooks missing	2/11/01.
Inchdale, Inch Valley	Inchdale Gold-dredging Company	P. Brennan	Set-screws on winch-shaft to be cut off; guard-rail to be erected behind winch; main and pump driving-belts to be fenced off; gangway required forward; bevel gear on vertical driving-shaft to be boxed in	2/11/01.
Dunback, Dunback	Dunback Gold-dredging Company	J. McNeil	No life-saving appliances; gangway required forward; set-screws on collar on winch-shaft to be cut off	20/6/01.
			Bar required across coal-door and after-well	2/11/01.
POMAHAKA RIVER.				
Greenvale, Pomahaka	Greenvale Gold-dredging Company	Not appointed	Almost ready to start	28/8/01.
Ardmore, Kelso	Private syndicate	G. Reid	Appliances in fair order. Company notified on 13th September, 1901, that there was not sufficient freeboard on this dredge, to which the manager replied that the matter was receiving attention	28/8/01.
MATAURA RIVER.				
Mataura Consolidated, Mataura Island	Mataura Consolidated Gold-dredging Company	P. Bushbridge	Fencing required fore and aft and around well-hole; well-gangway to be provided with hand-rails; three life-belts and one buoy which were perished to be replaced by suitable ones; regulations not posted on the dredge; three boat-hooks missing; second boat unfit for river-work; double pulley runners to be provided for boat-lines. Company notified on 22nd November, 1901, to have these deficiencies attended to	23/10/01.
Central Mataura No. 1, Gore	Central Mataura Gold-dredging Company	W. Shore	Dredge standing; appliances in fair order	13/8/01.
Central Mataura No. 2, Gore	Central Mataura Gold-dredging Company	"	Dredge and appliances in very good order	13/8/01.
WAIKAKA RIVER.				
Sheddon's Freehold, Waikaka Valley	Sheddon's Freehold Gold-dredging Company	W. H. Patterson	Dredge and appliances in fair order	3/9/01.
Lilliesleaf, Waikaka Valley	Lilliesleaf Gold-dredging Company (private)	R. F. White	"	30/8/01.
Waikaka, Waikaka	Waikaka Gold-dredging Company	J. Walker	Getting ready for work	2/9/01.
Gleniti, Waikaka	Gleniti Gold-dredging Company	A. Rennie	Repairing	31/8/01.
Patterson's Freehold, Waikaka	Patterson's Freehold Gold-dredging Company	J. Patterson	Dredge and appliances in good order	31/8/01.
Celtic, Waikaka	Celtic Gold-dredging Company	H. May	Light-lines and boat-hooks required; main and pump belts require fencing	31/8/01.
Perry's Pioneer, Waikaka	J. R. Perry	H. Parsons	Dredge and appliances in good order	30/8/01.
LITTLE WAIKAKA RIVER.				
Premier Waikaka, Waikaka	Premier Waikaka Gold-dredging Company	T. Lukin	Repairing	2/9/01.
Little Waikaka, Waikaka	Little Waikaka Gold-dredging Company (private company)	J. Brownlie	Dredge and appliances in good order	2/9/01.
Ibbotson's, Waikaka	Ibbotson and party	T. Maslin	Gangway required forward; otherwise in good order	2/9/01.
Globe, Waikaka	Globe Gold-dredging Company	G. Lee	Repairing	2/9/01.
Waikaka United, Waikaka	Waikaka United Gold-dredging Company	W. Wilson	Dredge and appliances in good order	2/9/01.
Waikaka Queen, Waikaka	Waikaka Queen Gold-dredging Company	J. Wallace	Belt and rope drives awkwardly placed; otherwise dredge in good order	2/9/01.
Waikaka Forks, Waikaka	Waikaka Forks Gold-dredging Company (private company)	H. S. Molineaux	Repairing	2/9/01.

WORKING DREDGES INSPECTED—*continued.*

Name of Dredge.	Owners.	Dredgemaster.	Remarks.	Dates of Visits.
WAIMUMU STREAM. *Waimumu.*				
Victoria-Waimumu	Victoria-Waimumu Gold-dredging Company	H. Quertier	To be provided with life-saving appliances	11/9/01.
Treasure, Waimumu	Private	F. Browne	Life-buoys and light-lines required	11/9/01.
Waimumu Queen	Waimumu Queen Gold-dredging Company	E. Reid	Gangway required forward, also handles on boat-hooks	11/9/01.
Waimumu Extended	Waimumu Extended Gold-dredging Company	G. Pettigrew	Gangway required forward	11/9/01.
Waimumu	Waimumu Gold-dredging Company	T. Styles		11/9/01.
Waimumu Central	Waimumu Central Gold-dredging Company	D. Caithness	In good order	11/9/01.
Spec Gully (late Naseby)	Spec Gully Gold-dredging Company	G. Bennett	Gangway required forward; life-buoy and boat-hook required	11/9/01.
CHARLTON CREEK. *Charlton.*				
Charlton Creek	Charlton Creek Gold-dredging Company	C. Bennett	Excellent order; best-equipped dredge in the district	4/9/01.
Central Charlton	Central Charlton Gold-dredging Company	J. McCorkindale	Light-line and boat-hooks required	4/9/01.
Lady Charlton	Lady Charlton Gold-dredging Company	G. Bichan	Light-lines and boat-hooks required; gangway required forward; winch friction-shaft should be guarded.	4/9/01.
WAIKAIA RIVER.			Rail broken at bows; otherwise dredge in good order. Visited in connection with drowning accident 18th October, 1901. James Reid was drowned in the dredge paddock (see appendix, "Accidents")	21/10/01.
Mystery Flat, Waikaia	Mystery Flat Gold-dredging Company	E. Lawson	Getting ready to start; dredge provided with life-saving appliances	18/11/01.
Gold Creek, Chatton	Gold Creek Dredging Company (private)	W. Robins	Light-lines and boat-hooks required	3/9/01.
WAIAU RIVER.				
Belmont, Waiau	Belmont Gold-dredging Company (private)	D. O'Leary	Two life-buoys missing; life-belts to be renewed; boat not equipped; 200 ft. heaving-line and three boat-books required: to which the proprietor's attention was directed by letter dated 27th November, 1901.	8/11/01.

SUMMARY OF DREDGES IN SOUTHERN MINING DISTRICT.

	At 31st March, 1901.	At 31st December, 1901.
Working—		
In Otago	99	115
In Southland	26	32
	125	147
Building—		
Otago		26
Southland		4
		30
Standing—		
Otago		24
Southland		1
		25
Removing—		
Otago		18
Southland		1
		19
Total for Otago and Southland		221
Increase of working dredges—		
Otago		16
Southland		6
Total		22

The owners of all dredges working on the Clutha, Kawarau, Shotover, Dart, Lower Manuherikia, Pomahaka, Waikaia, Mataura, and Waiau Rivers have received notice that the river on which the dredge is working is deep and swift-flowing, and that the requirements of clause 2, Regulation 83, of "The Mining Act, 1898," must be complied with.

Four fatal accidents (involving the loss of five lives) and five non-fatal accidents were reported to me during the year. As usual, a proportion of the accidents occurred while oiling, machinery being in motion; of these, Arthur Cormack was killed on the Teviot dredge and Albert Shirley sustained a fractured leg on the Little Waikaka dredge.

Herbert Blatch and H. Ferris, Dunstan Lead dredge, Alexandra, were drowned owing, presumably, to mismanagement of the coal-boat. Had the men stuck to the boat instead of jumping into the river they would in all probability have been saved.

Archibald McLean, dredgemaster, First Chance dredge, Alexandra, and James Reid, winchman, Lady Charlton dredge, Gore, were drowned. The Coroner's jury in each case brought in a verdict that there was no evidence to show how the accident occurred.

REMARKS.

The question of reducing working-costs is receiving attention from dredge-designers and others. Two prominent innovations have been introduced during the year. Mr. William O'Brien, of Waipori, has successfully applied hydraulic power to replace steam on two dredges at Waipori, and is engaged fitting up three other dredges with similar motive power.

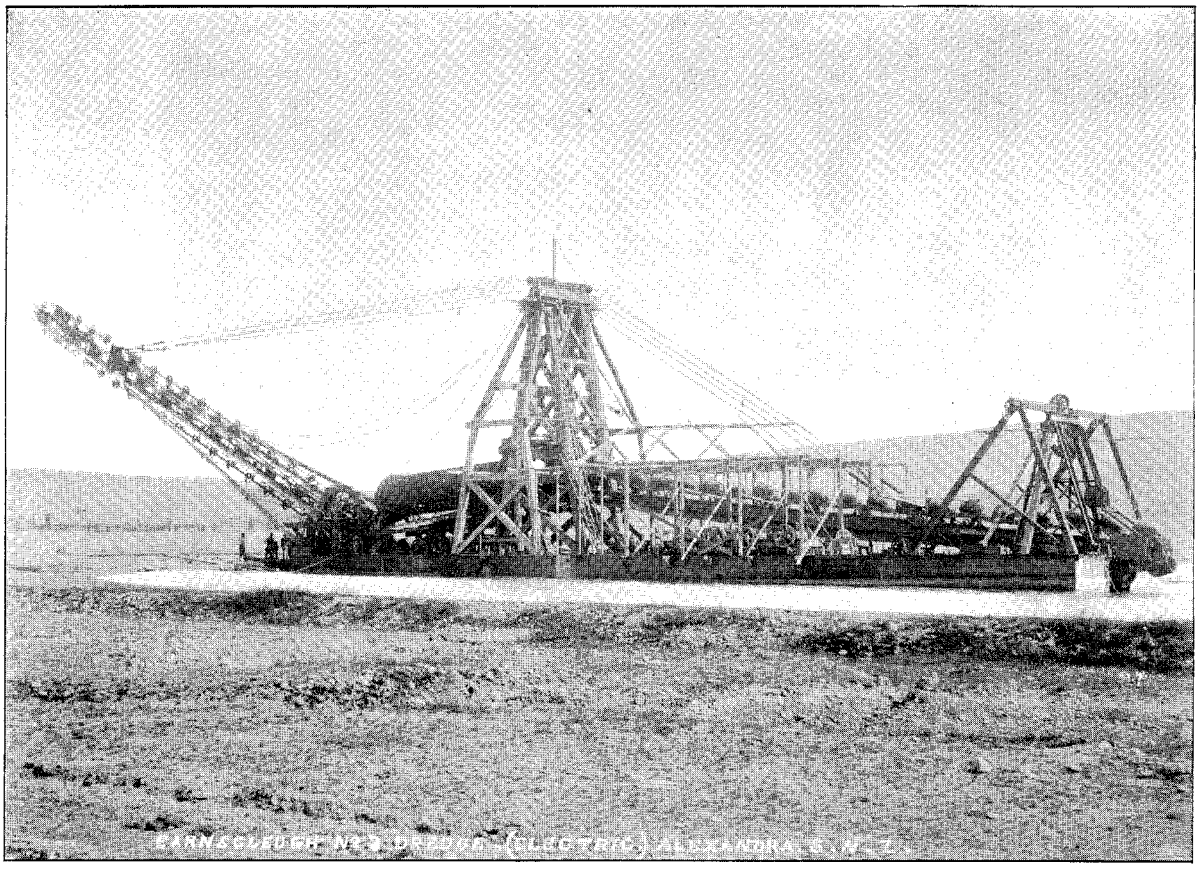
Messrs. Payne and Peck, dredge-designers, Dunedin, have invented a revolving elevator which discharges tailings from the screen chute to some distance from the dredge, at the same time stacking the tailings to a considerable height. It is believed that by its adoption this elevator will replace the costly and cumbrous travelling elevator at present used in deep ground; that wear-and-tear will be decreased, and first cost lessened.

The Ngapara dredge has been fitted with the elevator, and the owners of the Glasgow (Sandy Point) dredge have decided to give the elevator a trial on their machine.

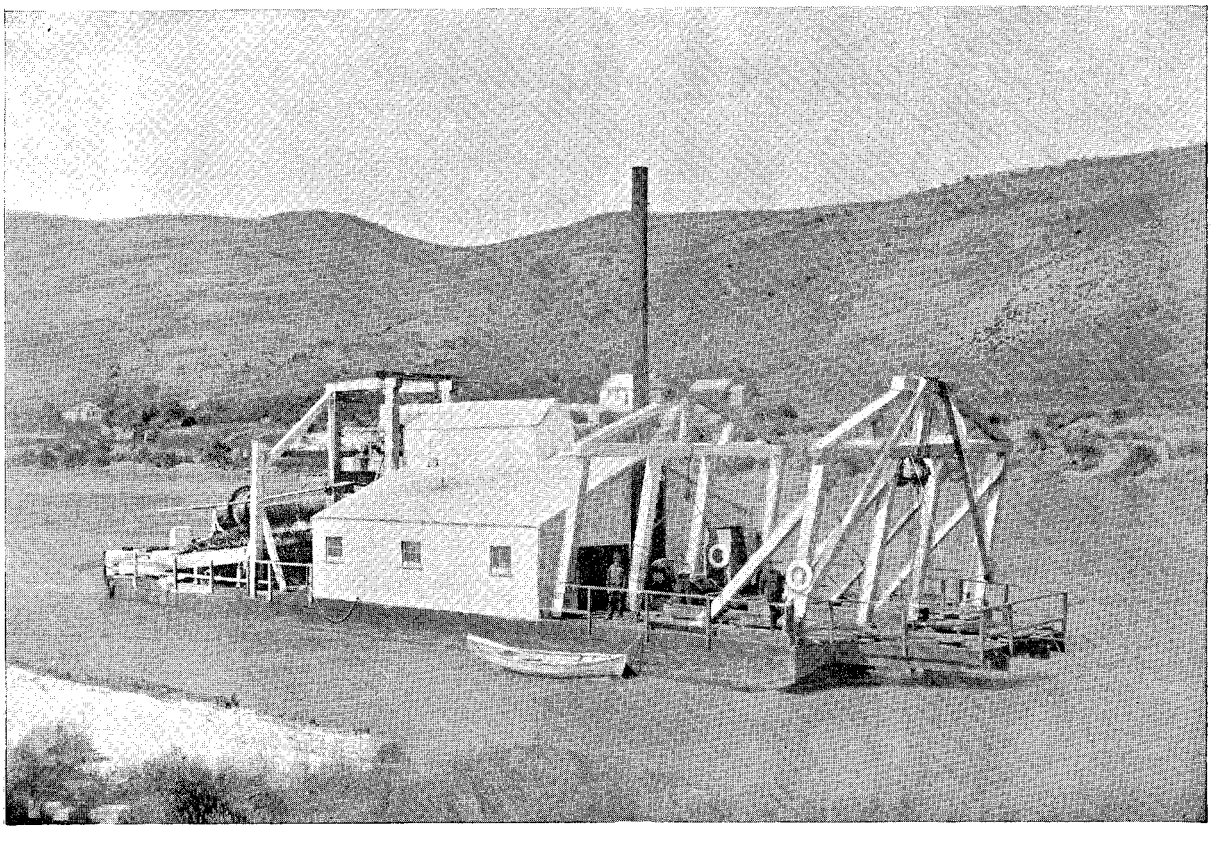
OTHER MINERALS.

ANTIMONY.

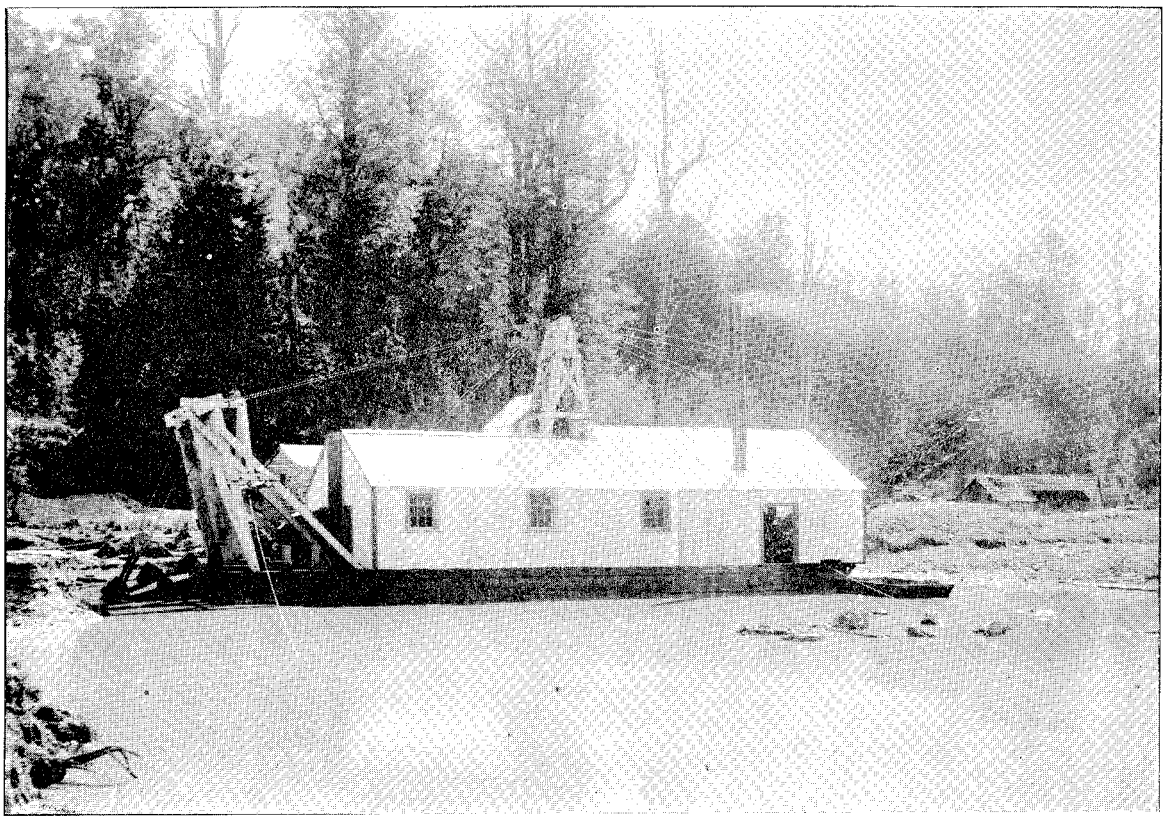
Antimony Exploration Syndicate, Alexandra (Robert Blair, manager; William Stewart, secretary).—(7/6/1901): No. 2 shaft is sunk 54 ft. to the level. The crosscut at 3 ft. from shaft struck lode formation, which is 15 ft. between the walls; the antimony lode here is from 9 in. to 3 ft. in width. The level is driven on the lode a distance of 55 ft., giving about 150 ft. of backs in sight. 29 tons first-grade and about 200 tons of second-grade ore have been taken out, and are now lying in the paddock. The course of the lode formation is due east and west. Further prospecting has proved the lode to continue west, and at 500 yards from No. 2 shaft No. 3 shaft is sunk, cutting the lode at 40 ft. Surface-trenching on the outcrop proves the continuance of the lode between the shafts. Trial shipments have been sent to Melbourne with a view to obtaining the actual value of the metal. If satisfactory returns are received it is intended to erect smelting-works on the ground.



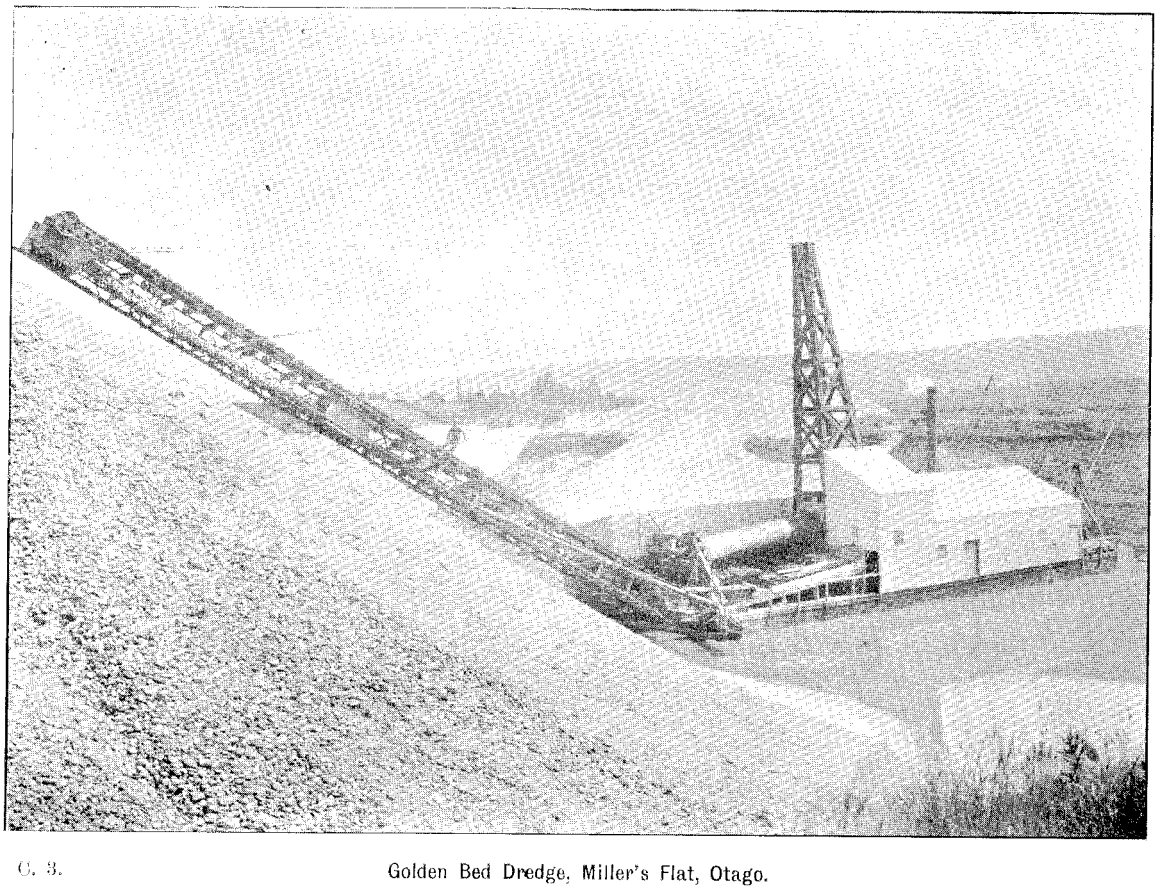
Earnscleugh No. 3 Dredge, Alexandra, Otago, in course of erection. This Dredge to be driven by electric power.



Majestic Dredge, Miller's Flat, Otago.



Red Jack's Dredge, near Ngahere, West Coast.



Golden Bed Dredge, Miller's Flat, Otago.

SCHEELITE.

This mineral continues to be produced by Messrs. Donaldson, Golden Point, Macrae's. The occurrence of the mineral associated with gold-bearing quartz is known at the other quartz-mines in the Macrae's district, but no efforts are being made to recover the scheelite, owing (it may be) to the percentage contained in the stone being too low to recoup the expense of erecting the necessary concentrating plant at the present market price of the mineral.

CINNABAR.

Waitahuna.—The level to the main lode has been completed in "hard" country, the lode being struck at 231 ft. Pending the construction of a company to provide funds for development, the mine has been locked up and no further work done.

ACCDIENTS.

QUARTZ-MINES.

Non-fatal.

Two slight accidents were reported to me during the year, neither of which happened underground.

20/5/1901.—William Baird, mine-manager for the Table Hill Quartz-mining Company, was heating some water (in which dynamite had previously been thawed) in a tin on the smithy fire for the purpose of thawing dynamite when an explosion occurred and inflicted slight injuries to Baird's abdomen and hands. The tin was not suitable for the purpose, and I wrote the general manager of the company drawing his attention to paragraph (*n*) of subsection (2) of section 206 of "The Mining Act, 1898."

17/7/1901.—Thomas Harrison, Barewood Quartz-mine, was leaning over the cam-shaft talking to the battery-feeder when he got caught by the crank on the end of the shaft. Nature of injuries: Fractured forearm.

HYDRAULIC AND ALLUVIAL MINES.

Fatal.

Loo Sok, a Chinese miner, was found dead under a fall of dirt in the face of his claim, at Ophir, on the 2nd December, 1901.

Non-fatal.

D. O'Brien Waipori, while working alone in his claim on the 4th February, 1901, was caught by a fall from the face. Nature of injuries: Fracture of one leg and several ribs.

GOLD-DREDGES.

Fatal.

23/9/1901.—Arthur Cormack, fireman, Teviot dredge, Roxburgh, was caught by the clothing on a coupling on the elevator-shaft while oiling, machinery being in motion.

26/9/1901.—Herbert Blatch and H. Ferris, engineer and fireman respectively on the Dunstan Lead dredge, Alexandra, were drowned. Coal-boat swamped owing to boat taking too much sheer, and the crew jumped into the river. The two other members of the crew got ashore safely.

8/10/1901.—Archibald McLean, dredgemaster, First Chance dredge, Alexandra, was making the dredge snug preparatory to handing her over to a caretaker when he by some means fell into the river. The jury brought in a verdict "that there was not sufficient evidence to show how it happened."

18/10/1901.—The body of James Reid, Lady Charlton dredge, Gore, was found in the paddock. After an exhaustive inquiry the Coroner's jury brought in a verdict "that James Reid was drowned in the Lady Charlton paddock, but there was no evidence to show how it happened."

Hugh Cox was drowned in the paddock of the Happy Valley dredge while attempting to rescue a foal on Sunday, the 11th March, 1901; but, this not being a mining accident, I have not included it in the above list.

Non-fatal.

5/2/1901.—Albert Shirley, fireman, Little Waikaka dredge, fractured a leg. He was oiling top tumbler while machinery in motion.

6/3/1901.—Arthur Lister, fireman, Manuka dredge, sustained a crushed hand with loss of thumb. He was cleaning top tumbler bearings, the machinery being in motion.

29/6/1901.—William Morrison, engineer, Central Electric dredge, Cromwell, was adjusting brasses when a wedge he was driving sprung, struck his right eye, and cut it out.

13/8/1901.—John Watt, Waimumu Extended dredge, Gore, was pressing the stern line into the lead with his foot, when his foot got caught and bruised, but no bones were broken.

27/9/1901.—William Patterson, Waipori King dredge, Berwick, while stepping ashore from the boat at midnight, fell and sustained fracture of three lower ribs.

I have, &c.,

E. R. GREEN,

The Under-Secretary, Mines Department, Wellington. Inspector of Mines.

WARDENS' REPORTS.

Mr. Warden Bush to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Thames, 1st March, 1902.

At the commencement of 1901 it was hoped that the year would disclose such an advancement in the Upper Thames portion of the goldfield as hitherto had not obtained during its history, but unfortunately the miners' dispute arose, which unsettled mining business all over the field, more especially at Waihi, where it originated. With the award of the Arbitration Court, however, the mining dispute gradually was lost sight of, and a better and more hopeful feeling prevailed over the whole district than was the case for months previously. Notwithstanding this dispute, the gold-return for this portion of the district for 1901 shows an increase over the previous year of £143,284. In 1895 the gold-return was £169,134, only about £25,000 more than the increase of this year's output, the total for which is £635,004.

The Waihi Company's return for February was £41,090 from 12,939 tons, making a total of £205,506 since the commencement.

The New Zealand Crown Mine Company's (Karangahake) return for February was £6,388 from 2,560 tons, making a total of £40,862 since commencement of crushing. The crushing-power in the latter case is limited to sixty head of stamps, while that of the Waihi Company is 290.

The Waihi Company have recently taken over the Waihi Union Company's properties; as this includes the Silverton battery, this company will no doubt utilise that to supplement their crushing-power. This company has been engaged as actively as in past years in its mining operations, meeting with fair success in discovering new lodes, as well as the continuance of those being already worked at deeper levels. The company's works are steadily increasing in magnitude both at Waihi and Waikino, where the main reduction-works are erected. These works give every indication of becoming one of the largest in the world. The company finds employment for some fifteen hundred men.

The Waihi Grand Junction Company have stuck pluckily to their development at great cost; something amounting to £100,000 has been spent without any return. The water has been one of its main difficulties, but from all appearances there seems some prospect of that being kept under now. Good prospects have been obtained at some places in this mine, and it is expected when the water difficulty is overcome the shareholders will receive some benefit for their patience and pluck.

The Waihi Extended, the Waihi Consols, the Waihi South and Consolidated are endeavouring to turn their properties into gold-mines, but find it very heart-breaking work, especially as it is so difficult to procure outside assistance in the shape of working capital, without which little or nothing can be done with this class of property in country of the nature where they are situated, where the reefs are several hundred feet below the surface.

Besides these, there are several other properties recently taken up which are under protection to enable the holders to raise capital to work with.

Nothing worthy of note has been done by the Waihi Beach Company on its properties so far.

The claims taken up beyond Waihi, towards Katikati, have all been surrendered or abandoned.

Owharoa.

The Rising Sun plucky owners are still working away on their claim with a reduced number of men. They have worked the ground for some years with no payable result so far, but I hope before long to be able to report that something remunerative has been discovered on this property, from which very good prospects have been obtained.

The Ohinemuri Syndicate have surrendered the bulk of their properties, and are working those retained with a reduced number of men. This company have obtained no gold worth mentioning for a considerable time, during which they have spent a considerable sum of money.

The Waihi Gladstone has been worked for some years with a lesser number of men, but so far nothing to remunerate the owners for their expenditure has been discovered.

Karangahake.

The New Zealand Crown Mines Company's property here may, I think, at the present time be called the premier mining property in this locality. This company last year took some ground on the opposite side of the Ohinemuri River to that on which the Crown Mine itself is situated, which it is intended to work from a shaft now some 300 ft. below the Ohinemuri River. A tunnel is now being driven through the Woodstock ground to enable this ground to be reached as quickly as possible. It is to be hoped that this venture of this company may meet with such a reward as persons laying out their money in such large prospecting-works deserve. Should these prospecting-works result in unearthing something fairly good, the future not only of Karangahake, but also of Paeroa and surrounding country, would be assured. An engine is being erected at the Crown Company's reduction-works to supplement the water-power during the dry season, the want of water at such season very much hampering its milling operations.

The Talisman Consolidated have completed their new battery of fifty stamps, which has been crushing for some months, but, unfortunately, they appear to have got into a poorer class of ore; I shall therefore not be surprised to hear that for a time they will require to shut down the battery, and carry on development-works only, with a view to discovering more payable and richer ore at lower depths. It seems to me there are two ore-zones in the Karangahake district, one which may be termed the "surface zone" and the other the "deep-level zone." The lodes in the surface zone appear to get very poor below 400 ft., but at 700 ft. and deeper become of greater

value. The Talisman Mine seems to have got to this portion, and it will require some months to enable it to make another start at crushing. This is unfortunate, as this is one of our most energetic companies.

The Woodstock is another unfortunate company. The quartz is very hard to work, consequently expensive. A reconstruction, however, has recently taken place, which no doubt will put life into the mining operations of this company, which it is to be hoped will lead to more permanent benefits being secured to it in return for the capital expended so far without any return.

Outside of these properties there is little or no mining being carried on at present. The Waverley, the Imperial, and one or two other mining properties are in existence, but are in a languishing state for want of capital to develop them.

Waitekauri.

The Waitekauri Company have during the past year surrendered a considerable portion of their unused area, but it has amalgamated with the Waitekauri Extended Company. I trust this union may prove beneficial to both the owners and the district. I am sorry to record that the yield of gold from this company's property has not been so frequently notified as last year, but the December return was £2,998 from 1,613 tons of ore.

The Waitekauri Cross have recently commenced operations again, which it is hoped will lead to a good body of ore being discovered. Some rich discovery in one of these languishing mines is very much required just now to give a fillip to mining.

The New Alpha, the Young New Zealand, and New Zealand Jubilee are not doing very much, endeavouring to find something payable.

Maratoto.

The Maratoto Company and the Hikutaia Syndicate are still carrying on mining operations, but not on a very extensive scale. The latter syndicate are securing a little gold, but their crushing plant is small and the ore low grade. The ore at present coming to hand is said to be of better value.

Komata.

The Komata Reefs Company's property produced bullion to the value of £11,092, but the mill was not working the whole time. This, however, is not up to expectations. Some new properties have been taken up in this locality, which are reported as showing fair prospects; but with respect to them it is the old cry, "without capital to develop, nothing can be done."

Wharekiraupunga.

The Royal Standard, a property on which a large sum was spent, and which at one time promised to be the making of the country surrounding it, has so far proved an absolute disappointment. This is now owned by Captain Hodge, of Coromandel, who is making every effort to secure capital to work it with. He evidently considers the property worth spending money on.

Coromandel.

Mining throughout the past year has continued much the same as during the previous year, the area worked and men employed being practically the same.

Kauri Block.

The Hauraki Mine is working steadily, but with reduced number of men.

Bunker's Hill Mine is under protection.

The Hauraki Freeholds is also under protection.

The Hauraki No. 2 is being prospected and developed, with latterly a small show of gold in defined leaders.

The old Central Claim, on the north side of the Coromandel Wharf, has lately been taken up as the Mermaid Sea-beach Claim, and vigorous operations have commenced.

Freehold Land.

In the Kathleen Crown Mine developing-work is being pushed on, and the ground systematically prospected.

Driving Creek.

The Royal Oak of Hauraki Mine is being steadily worked, and has shown very regular crushing results during the year, averaging about £1,300 per month.

The New Four-in-hand has also continued a gold-producer, though lately it is not doing quite so well.

The Hauraki Mines (Limited) have carried on developing and prospecting work consistently.

The West Tokatea Mine has now been largely developed, with encouraging results. It is suggested that more men will shortly be employed.

Tiki.

In the Progress-Castle Rock good work has been done, and a quantity of payable ore is on hand.

Kennedy Bay.

Work here is exceedingly quiet.

Matamataharakeke.

Prospecting continues very encouraging.

Mahakirau.

Several good prospects have been found, a few small returns being obtained.

KUAOTUNU.

The amalgamation of Try Fluke, Try Fluke Extended, and Kapai-Vermont Claims, spoken of in my last report, has now been accomplished, but is of recent date, and the new owners have not had sufficient time to carry out to any extent their lower-levels-development scheme.

The Waitaia Gold-mining Company have continued crushing with regular results.

The Handsworth Claim has given very consistent returns.

The Irene Special Quartz Claim, worked by a party of tributers, continues to give fair returns.

KAPOWAI BLOCK.

The Kapowai Gold-mining Company's battery is now completed, and we may look for regular returns from this comparatively new district.

OPITONUI.

There is nothing new to report in this district, the crushings of the Kauri Freeholds being much as they were last year. It is rumoured that this company intends reducing the number of workmen at present employed, which is to be deplored.

The public battery in Coromandel continued to work satisfactorily throughout the year, and has been, as anticipated, of great service to persons wishing to test their ore before erecting a battery.

TE AROHA DISTRICT.

Practically the only mining in this district has been at Waiorongomai. A certain amount of prospecting has been done at the Tui Mine, and some of the ore has been sent away for treatment, but nothing further has been done.

At Waiorongomai Mr. Hardy's mines, the Premier Special Quartz Claim (late Empire Special Claim, New Find Nos. 1 and 2 Special Claims), and the Big Blow Special Quartz Claim are the only ones that have been worked to any extent. At the Premier Mine a low level has been extended 300 ft., and a rise 85 ft. high made; while 945 tons of ore has been sent to the battery for a return of 580 oz. 12 dwt. of bullion, valued at £1,490 13s. 7d. In the low level have appeared bands of the white, curly, gold-bearing quartz which in the upper workings formed a compact mass 15 ft. ahead of the face of the drive. Assays of these bands show a value of £2 0s. 5d. per ton. The ore is more refractory in silver-sulphide than in the upper level, but samples in bulk passed over vanners readily yield concentrates containing gold 2 oz. 18 dwt. 20 gr., silver 56 oz. 5 dwt. 8 gr., valued at £17 7s. 9d. per ton, which can be profitably shipped to the smelter. The proprietor has treated Premier ore-concentrates by berdanning with lime. This extracts some free gold and amalgam, but leaves a residue containing gold 5 dwt., and silver in the form of sulphide 23 oz. 3 dwt. 18 gr., valued at £3 6s. 4d. per ton. Cyanide treatment fails to give good results, due to the presence of copper; but retreatment by hydraulic ejector and over vanner, I am informed by Mr. Hardy, produces a concentrate profitable for smelting as under: Wilfry concentrator—Gold, 4 oz. 8 dwt. 4 gr.; silver, 83 oz. 15 dwt 20 gr.: value per ton, £26. Union concentrator—Gold, 3 oz. 5 dwt. 8 gr.; silver, 86 oz. 3 dwt. 3 gr.: value per ton, £21 13s. 6d.

At the Big Blow portion of the property an immense amount of surface excavation has been done, exposing a fine reef for a length of 50 ft. In the floor the reef is 3 ft. wide, making strong and compact towards a junction with the mother lode at the Big Buck reef. Similar junctions at the New Find, Colonist, and Premier Claims produced a rich deposit of gold and silver. About 30 tons of a highly mineralised quartz has been paddocked.

Mr. Hardy states that the bulk ore is worth about £3 per ton, but it can be sorted out at the mine to produce £10 per ton, and that samples had been treated by vanner, producing concentrates worth £25 per ton for gold and silver, and £1 12s. for copper, and that experiments have been made upon 5,000 tons of tailings lying near the battery. The value of these by 120 assays has been found to be 19s. 6d. per ton, and a profitable method of treatment has been devised by passing the materials by hydraulic ejector on the vanners. This produces concentrates containing gold 2 oz. 12 dwt. 6 gr., and silver 43 oz. 18 dwt. 17 gr., valued at £24 16s. 7d. per ton, suited for shipment to smelter. A third vanner 6 ft. wide, by Gates, has been installed in the battery to expedite the treatment of the said tailings.

The only other claim working in this locality is the Cadman Special Quartz Claim. Two men have been employed on this, but I understand the work they have been engaged on has been principally of a prospecting character.

TAPU.

Bullion Mine.—This mine has been worked on tribute, four men being employed. Work has been carried on upon a leader, from which good returns have been obtained. For the year 24 tons of ore was treated for a return of 198 oz. 13 dwt., valued at £566 1s. 4d. The mine is now owned by Mr. James Hawkes, who purchased it at public auction early in the year. The old company has been wound up.

Mahara Royal (Limited).—This mine has been under protection for most of the year. The company spent £35,000 in developing the property and erecting machinery, but the results have not been payable, and now, owing to its connection with the Standard Exploration Company (Limited), the working capital has been withdrawn. It is anticipated that if the affairs of the Standard Company are satisfactorily arranged work will be resumed.

WAIOMO.

Monowai Mine (Monowai Gold-mines, Limited).—This mine has been vigorously worked during the whole year, forty men being employed. The ore, being very complex, is concentrated at the company's battery, and the concentrates shipped to Newcastle, and there treated with highly payable results. The directors are so pleased with the prospects that they have decided to erect a plant of their own on the beach at the mouth of the creek, and to connect it with the mine by means of an aerial tramway, the site for which has been surveyed and plans prepared. A wharf has been erected at Waiomo, and the concentrates are now shipped direct to Auckland, instead of being carted to Thames, as in the past. The return for the year was £4,055.

Broken Hill Mine.—Two men have been employed in putting in a drive to intersect the Monowai lode. The ore from this mine is of the same class as the Monowai, and requires the same treatment, but the company are not in a position to concentrate and ship ore as the Monowai Company does. Negotiations are pending for amalgamation with the Monowai.

Victory Mine.—This is a small claim not far from the Monowai. A reef which the holders claim is the Monowai has been worked with encouraging results, the ore being similar to the Monowai, and requires a similar treatment. A parcel was sent to Newcastle for treatment, and gave a return of £70. This was considered to be highly satisfactory.

Several parties are engaged in prospecting the vicinity, and several reefs have been discovered, but all more or less complex. If a suitable plant is erected I have no doubt this locality would be well worked.

PURU.

The Puru Consolidated has been worked on tribute. A good block has lately been opened up, and it seems as if the tributers are to be rewarded for their labour.

TARARU.

Eclipse Mine (Eclipse, Limited).—This mine has been well worked, twenty-four men having been employed, and 3,994 tons of ore treated for a return of 2,191 oz. 13 dwt. bullion, valued at £6,165 5s. The ore is low grade, but with economic treatment it pays well. The mine is connected with the battery by an aerial tramway 7,400 ft. in length.

Tararu Creek Mine.—This mine was sold by auction on the 16th September last by order of the mortgagee, Mrs. A. Trower, and bought in by her. Shortly after operations were resumed, and a crosscut from the battery level, about 2,700 ft. from the mouth, commenced for the purpose of intersecting the old Day Dawn reefs. About 800 ft. in from the Dunedin main reef a level is being driven southwards through new country towards the Sunbeam rise. It is intended to more thoroughly test the reefs in the old Sunbeam Claim, and for that purpose the old workings are being cleaned out and repaired. In the battery a new boiler is being fixed up, so that in summer, when water is short, the driving-power can be replaced by steam.

THAMES.

Kuranui Mine (Kuranui Gold-mines, Limited).—This company have had seven men at work during the whole year. Several leaders have been found which will probably pay to open up. The principal leader is 180 ft. from the boundary, and has 80 ft. of backs. Near where this leader is rich gold was obtained by the old company. A rise of 80 ft. for ventilation purposes has been put up from the low level to the tunnel-level, some little distance to the east of the Deep Lead shaft. When this rise is completed the mine can be more easily developed. Gold to the value of £142 10s. 9d. has been won from 69 tons of quartz.

New Alburnia (New Alburnia Gold-mining Company, Limited).—This mine is being worked by tributers, who have been taking out some small leaders in the surface levels. They crushed 37 tons for £122 6s. 2d. Efforts are being made to raise more capital for this property, but so far without success.

New Whau Mine (New Whau Gold-mining Company).—The ore obtained from this mine was so poor that the six-month protection was applied for and granted, pending the raising of more capital, and to let the directors consider future operations. A few tributers have been working, but have not been able to find anything payable.

Moanataiari Mine (New Moanataiari Gold-mines, Limited).—This company have employed two wages-men during the year, and let the upper portion of the mine out on tribute. A large number of miners have been employed in working on small leaders, and returns have been fairly remunerative. These men crushed 1,254 tons 14 cwt. for a return of 2,262 oz. 8 dwt. of gold, valued at £6,251 12s. 8d. The directors in England have not yet made up their mind as to future operations.

Kuranui-Caledonian Mine (Kuranui-Caledonian Gold-mining Company, Limited).—This mine has also been worked by tributers. The company has not been doing anything towards developing the mine, but I am led to understand that it is intended within a short period to resume operations. The tributers have been working on the many small leaders on the hanging-wall side of the reef, generally with fair results. They crushed 425½ tons of general dirt and 932 lb. of picked stone for a return of 1,524 oz. of gold, of the value of £4,154. An average number of forty-five men has been employed.

Fame and Fortune Mine (Fame and Fortune Gold-mines, Limited).—This mine has been worked by tributers for some time past. They have been employed on the Golden Age reef, both above and below the Balmoral level. The ore obtained has not been of sufficient value to reimburse the men for their outlay and labour. In the higher levels Fox's leader has been worked, and gold seen occasionally. Mr. Edward Kersey Cooper went to England some months ago for the purpose of raising more capital to further prospect the property, but I have not heard whether he has been successful or not. He is expected back in about two months.

Waiotahi Mine (Waiotahi Gold-mining Company).—This well-known mine continues to give payable returns, due, no doubt, to the careful and systematic manner in which it is managed. An average of sixteen men has been employed; and 1,096 tons of quartz crushed for a return of 1,508 oz. 11 dwt. of gold, valued at £4,109 6s. 1d.

Victoria Mine (Victoria Gold-mining Company, No Liability).—Boring operations were going on for some months on the seaward side of the slide, and a bore put down to a depth of 518 ft. The country through which the bore traversed was loose and full of boulders, making the work tedious and unprofitable, for now it is found that a new site will have to be selected. A few tributers have been working in other parts of the mine, but have not met with much success.

May Queen-Hauraki Mine (May Queen-Hauraki, Limited).—The company have not done anything further towards developing this property, no doubt due to the stoppage of the Thames-Hauraki pump. The mine has been well worked by tributers, some of whom have had handsome and continuous returns, particularly McConnell and party. The tributers have been engaged on the reefs and leaders in that block of ground above the No. 6 level, and in the Saxon, May Queen, and Cardigan sections, which had been previously opened up by the company. I am informed that in a short time the company will resume work, directing its operations to developing the low levels. I hope this is true, for a great deal depends on the testing of the reefs at the low levels.

Thames-Hauraki Mine and Pump.—This property has been under protection for the whole year, pending the reconstruction of the Standard Exploration Company (Limited), of which the company is an offshoot.

May Queen Extended Mine.—This company has been working on the Hokianga reef, north and south, but the reef did not turn out as well as was anticipated, and work in this portion of the mine ceased. The old Adelaide low level was then repaired, and the crosscut extended to ascertain if the reef existed on the south side of the break. The drive has not yet reached the point where the reef should be, if it does extend on that side.

Claremont, Karaka Creek.—This is a most valuable little mine (1 acre), owned and worked by Mr. George Bryant. It is situated some two or three miles up Karaka Creek, a locality celebrated for its specimens, which are found where the reef is intersected by what are called "flinties." The licensee obtained 1,140 lb. of stone, which he crushed in his own battery, yielding the handsome return of £1,210 10s. The Inspector of Mines has visited the mine on several occasions, but he informs me he has never been fortunate enough to visit when the specimens are showing.

New Gloucester Mine (New Gloucester Gold-mining Company, Limited).—This claim has been worked with four men, who have been employed on Cowling's leader driving and stoping. A few pounds of picked stone was obtained. 44 tons of quartz crushed for a return of 101 oz. 1 dwt.; value, £306 5s. 10d.

Occidental Mine (Occidental Gold-mining Company, No Liability).—No work has been done by the company during the year. Five tributers have been employed, who crushed eight loads of quartz for a return of 28 oz. 2 dwt. Efforts are being made to raise more capital to further prospect this mine, more particularly in the North Star section, at a lower level than that in rise.

Ethel Reefs Mine (Ethel Reefs Gold-mining Company, Limited).—This ground has been under protection pending the raising of further capital. I am informed that the directors have not been successful in doing so, and have decided to abandon the ground. This company spent a lot of money in opening up and prospecting their property, but the reefs were all too small to pay to work on a large scale.

Fortuna Mine (Fortuna-Hauraki Gold-mines, Limited).—The company, having spent most of its capital without any payable results, obtained permission to work with a reduced number of men. Six tributers have been employed, and have crushed 113 tons of ore, which yielded 96 oz. 18 dwt. of gold; value, £272 16s.

Puriri.

Miner's Right Mine (George Greenaway and party).—The owners of the claim have been working steadily during the whole year. They have taken out several small leaders, and have been extending the low level for the purpose of getting under the workings of the upper level, when it is expected good payable ore will be found. They crushed 42 tons for 38 oz. 14 dwt.; value, £97 14s. 4d. The same party own the Union Jack Claim adjoining, and have had a crushing of 52 tons for a return of 97 oz. 4 dwt.; value, £245 3s. 2d.

Puriri Gold Estates Mine (Puriri Gold Estates, Limited).—The results from this mine have been very unsatisfactory. Early in the year 135 tons of quartz was taken out and crushed for a return of 51 oz.; value, £129 13s. This did not pay expenses, so the mine was closed down.

Omahu.

Shcet Anchor Mine (Tilsley and party).—An Auckland syndicate have had an option over the property. A low-level tunnel has been put in 900 ft., the object being to intersect the reefs worked on the surface by the licensees, which gave very good returns. The lode may be met with any day now. Six men have been employed.

Klondike Mine (Odlum and party).—A low-level tunnel to intersect the lode which was opened up at the surface is being driven. It is now in 116 ft., but it is estimated that it will be 200 ft. more before the formation will be met with. Some very good returns were obtained from small parcels of ore taken from the surface. An Auckland syndicate have undertaken to erect a five-stamp battery on receiving a half-interest in the property, and are now engaged in making a road for the purpose of bringing up the machinery. If this property turns out well I have no doubt more land will be taken up and prospected. It is said there are other reefs seemingly as good as the Klondike in the vicinity. The country is new and well worth trying.

NEAVESVILLE.

A little prospecting has been going on, but nothing of any importance has been discovered.

The Golden Belt is held by a syndicate who are trying to raise capital to erect machinery and further develop the mine. I hope they will be successful, for there are many reefs in this locality which I think are well worth opening up and testing.

TAIRUA.

Tairua Broken Hills (Tairua Broken Hills Gold-mining Company, Limited).—During the year this property has been well opened up at the deeper levels. The main low-level crosscut has been extended 164 ft., and the Blucher reefs intersected. A rise has been put up on the reef to connect with the No. 3 level (230 ft. above the low level). Good ventilation is thus provided, and the company can now vigorously and systematically work the block of ground between the levels, in which good payable ore exists. Tenders have been called for driving and stoping, and it is expected that in a few weeks the battery will be kept going continuously. A ground-tramway 18 chains long has been constructed. This connects the mine with the mill, and it is intended to use a small locomotive to take the quartz to the mill. The water-race has been completed, and now the battery will be run by water-power instead of by steam; thus the cost of treatment will be reduced.

PAKIRARAHI.

Chelmsford Mine (Chelmsford Gold-mining Company, Limited).—This mine is situated upon the Kauri Timber Company's freehold property, and is held under license issued under section 56 of "The Mining Act, 1898." The battery has been completed, and commenced running in May. Since then 1,365 tons of quartz has been put through for a return of £1,431, and a large quantity of slimes saved for future treatment. These slimes contain a large percentage of the value of the ore, and when treated should add considerably to the returns. It is intended to erect a filtering-press to treat these slimes.

WHANGAMATA.

Whangamata Proprietary (Whangamata Gold Corporation, Limited).—The upper portion of this mine having been worked out, operations were suspended and protection obtained. The future developments of the mine must be at deep levels, and for this purpose heavy pumping machinery and more capital will be required. The machinery has been obtained, and is now in Auckland, but the capital is next to be found. A scheme of reconstruction has been decided upon, and, if successful, ample capital will be produced for vigorously developing the lower levels. Good returns were obtained from the upper levels, and there is no reason to suppose the reefs do not continue down. In the early part of the year 150 tons of quartz was crushed, and yielded 255 oz. of bullion, of the value of £224.

Mananu Mine (Mananu Gold-mining Company, Limited).—The prospects of this mine are very favourable. It is estimated that 5,000 tons of payable ore are in sight between No. 1 and No. 2 levels. The work of the year has been driving and stoping on the reef (Studholme's) above No. 1 level, and it is from this reef that the bulk of the ore treated has been won. Preparations have also been made for taking out the block between No. 1 and No. 2 levels. An extra ten head of stamps are being erected and auxiliary steam-power supplied, which should be completed in a few weeks. When everything is in working-order the returns should show an appreciable increase on last year's. During the year 2,219 tons of ore was treated for a return of 3,440 oz. of bullion; value, £7,558.

GREAT BARRIER ISLAND.

Barrier Reefs Mine (Barrier Reefs Gold-mining Company, Limited).—This mine has now been shut down, and the company (after attempting to reconstruct) has gone into voluntary liquidation. Up to November work had been going on steadily, but then the ore gave out from the lower levels upwards, and the battery was stopped. Any future works must be at the deeper levels, and for this purpose large and expensive pumping machinery must be provided. Up to November the average number of men employed was 112.

The total output of gold from the Hauraki Gold-mining District for 1901 was £758,600 14s. 11d. This is an increase over the year 1900 of £123,666 15s. 8d. Of the total output, the Upper Thames produced £635,004 17s. 2d.; Thames County, £54,504 2s. 3d.; Coromandel County, £69,091 15s. 1d.

The only thing unsatisfactory with these figures is the fact of the reduced amount of gold coming forward from the mines in the Thames and Coromandel Counties. Taken, however, as a whole, remembering that the mining industry was for some months very much disorganized owing to the miners' dispute, it is a matter for congratulation that the returns are as good as they are.

The Thames-Hauraki Company, whose properties some year and a half ago were taken over by the Standard Exploration Company, has carried on no operations during the past year, owing to the Standard Company (which was connected with other larger financial companies) being compelled to go into liquidation in consequence of having to fall with these larger concerns, which were forced to do the same. Communications have, however, recently been received from the Official Receiver in London, stating that the Standard Exploration Company's reorganization scheme had passed shareholders' meeting, and that application for the Court's approval was pending. Further information on the subject is expected by mail. In the meantime there are no funds available even to pay the drainage assessment, for which the Drainage Board has judgments recorded in the Warden's Court. Should the scheme under consideration be approved, no doubt further capital will be forthcoming to continue the work of sinking on this property. The works upon which this company are engaged are of such a costly nature that no one could carry them on unless backed

by a very large working capital. The protections are subject to tributes being let beyond a few chains of the main shaft.

The Thames Drainage Board still appear to have some difficulty in making an assessment which is considered fair by all the companies within its area. The task of making the assessment is somewhat a difficult one, as so many points have to be considered. As the Board is at present constituted, I think, entirely of persons connected with the various mines within its area, the difficulty is much greater than it would probably be if the assessment were left to some person in no way connected with either of the mines. As far as I have been able to judge from the appeals from time to time brought before me in the Warden's Court, there is a desire on the part of the Board to assist struggling companies as much as possible, but such a system of assessment cannot be satisfactory to companies which are fortunate enough to pay their way. I think the time has come to remodel the regulations under which the Board exercises jurisdiction, in which a more definite method of making the assessment should be laid down, to which the Board should be compelled to adhere. This would very much strengthen the hands of the Board, and do away with the mutual arrangement and give-and-take system which appears to have prevailed during the past. What is required is a scheme by which all the mines affected shall be equally assessed for their fair proportion. There should be no appearance of unfortunate mines being more liberally treated than the fortunate ones, otherwise a mine, through judicious and inexpensive management, which secured something for its shareholders might be assessed to make up the amount which less fortunate mines should have been loaded with, the positions of some of which might have been different if the management had been less expensive and in better hands. It must be borne in mind that the successful mine is paying wages all the time, while the others are either worked by tributers or with as small a number of men as possible. I believe the mining industry would be much more successful here if the management of the mines was in the hands of thoroughly practical and qualified men as managers, instead of in the hands of legal managers in Auckland, some of whom probably never did a day's mining in their lives. There should be no suspicion that a successful mine was being made to suffer for this mismanagement.

I have, &c.,
R. S. Bush, Warden.

Mr. Warden Roberts to the Under-Secretary for Mines.

Sir,— Warden's Office, Tauranga, 31st January, 1902.

I have to report that during the year ended the 31st December, 1901, little has been done towards developing the mining industry in the Tauranga portion of the Hauraki Mining District, owing, no doubt, to lack of capital. Two properties only have been continuously prospected—viz., the Te Puke Gold Reefs Company and the Sisters Special Claim.

In the early part of the year an option (which has not yet expired) was taken over the Te Puke Gold Reefs Company's property by a Mr. Thompson, of Auckland. It is understood that negotiations are in a forward state for securing ample capital to develop the mine and erect machinery. The holder of the option has had four men employed opening up and developing the great lode 60 ft. wide, with most encouraging results. The foot-wall of the lode in the top level has been driven on for 125 ft. to the south, giving rich stone. A sample of 5 tons of selected ore was sent to the Thames School of Mines for treatment, 2 tons of which gave a return of £42 9s. 10d. a ton, the other 3 tons giving a return of £29 4s. 6d. a ton—being an average of £34 6s. per ton for the 5 tons. Shortly before Christmas another large lode immediately to the west of the great lode was intersected that proved to be 17 ft. or 18 ft. through, and showing stone of a kindly and promising description. The recent development-works will no doubt enhance the value of the property.

The Sisters Special Claim, situated on Native land, has been continuously prospected, and the works have resulted in the discovery of some very promising reefs, the last one found being a fine body of stone in good country, and a level is now being put in to cut and prove it at a lower level.

I have, &c.,
The Under-Secretary for Mines, Wellington. J. M. Roberts, Warden.

Mr. Warden Heaps to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Nelson, 31st March, 1902.

I have the honour to forward herewith goldfields statistics for the districts under my charge, and to report generally on the condition of the mining industry in my district for the period from the 31st March, 1901, to the 31st December, 1901.

Generally there has been progress not by leaps and bounds, but steady development of the mining industry in the district, as will be seen by the returns appended. The industry is more and more being absorbed into companies which pay such fair wages that individual and small party mining is fast becoming a thing of the past. A wages-man can earn from £2 5s. to £3 a week, while he can live well enough in camp for 12s. per week.

Dredging.

Two or three dredges are in course of erection in the district, and it will be some time yet before any areas will be proved by dredging, but I hope by this time next year there will be good accounts to give of the dredging industry in the district.

Hydraulic Sluicing.

Generally speaking, a good deal of developing-work has been done and some encouraging practical results obtained since last report, which will be noticed under the head of localities where it has taken place, the principal of which is—

Collingwood.

Twelve special claims and five extended claims were registered, comprising 628 acres 3 roods 37 perches. The surrenders during the year aggregated 216 acres and 10 perches. The returns from the Golden Blocks Mine at Taitapu have continued satisfactory month after month, the yield averaging over 200 oz., so that over 8,000 oz. must have been produced since crushing commenced in November, 1898, being considerably over 1 oz. to the ton of ore crushed. The gold is valued at £4 an ounce. Over 7,000 ft. of driving has been done up to date.

Taitapu Gold Estates (Limited).—At their Ant-hill Mine up to the beginning of May last 616½ tons of ore was crushed, with results which would have been extremely satisfactory had not the cost of conveyance of the ore to the battery been so heavy as it was with the means at command. On account of this operations since May have been confined to opening up the reef, with the result that a large amount of payable stone has been proved, and it is now intended to resume crushing as soon as improved means of ore-transport are devised and adopted. During the first half of the year a party under an expert foreman were boring in the alluvial deposit at the mouth and some way up the various rivers on the estate, with the result that encouraging prospects were obtained in the bed of the Anatori River and on the flat at the edge of the Otuhi Lake, but these have not been sufficiently good to warrant the company in starting dredging operations. Just before the Christmas holidays a pack-horse load of prospects from a lode situated on a branch of the Anatori River was brought into the battery, and on treatment yielded 2½ oz. to the ton. There is now a party of men driving a short tunnel, but they have not yet cut the lode. An average of twenty-two men has been employed during the year, whose wages have been: For first-class miners, 9s. per day; others and surface-men, 8s. 6d. About 1,100 ft. has been driven during the year in prospecting tunnels, winzes, and uprises in the Ant-hill Mine.

Collingwood Goldfields (Limited).—This company is still employing considerable labour, but I am not in possession of any particulars from the works.

Parapara Hydraulic Sluicing and Mining Company (Limited).—I understand that the returns from the operations of this company have not come up to expectations, and that for a time work was suspended pending consulting shareholders. The rate of wages paid by the company came under the review of the Conciliation Board, and their award was confirmed by the Arbitration Court. This doubtless has had some influence on the plans of the directors, who have expended great energy and capital in the development of their various properties, for which they are now applying for extended protection pending reconstruction and decision as to future plans. The company has always found the ground extremely difficult to work, consequent on the wash being found in patches only, and having to contend with dangerous slips. It has until recently employed continuously twenty men, and often more, and has provided constant work. Meanwhile work has been resumed, but on a smaller scale for the present, and ground which was being worked has had to be abandoned, as well as all the plans for opening there, and a new face on entirely other ground has had to be opened with a view to prospecting thoroughly.

Slate River Hydraulic Sluicing Company (Limited).—This company has been forming a dam on a large scale. An action brought against the company by the original contractor went against the company, and operations were suspended for a short time. Operations have now been resumed, and sufficient work has, I understand, been done to enable sluicing to commence, and I hear results have been encouraging. The material and machinery for two dredges have arrived, and the work of erection commenced. In a short time dredging operations will be commenced, both on the Aorere and Kaituna Rivers.

Coal.

Three coal-mining leases of a total area of about 700 acres have been registered. Of the older coal-mining leases, three are paying royalties, and when the wharf and tramway are completed at Puponga the output will be more satisfactory, as there is plenty of coal of good quality in view there. Prospecting by steam-boring has also been done at Puponga with some success; but I should like to be able to report more definitely as to the output and the immediate prospects of getting a steady supply of coal to market from this part of the district. At Pakawau I hear that an outcrop of superior coal has been discovered, and application is in for a lease of 500 acres contiguous to what is known as Caldwell's. An influential syndicate has been formed to develop it if granted.

Takaka.

During the year nineteen applications for mining privileges were made—sixteen granted, two withdrawn, and one refused.

The only part of the district where there is much activity in mining is at the Bubu. The Takaka Sluicing Company (Limited) have bought up Mr. Whelham's freehold property, and have brought in a race, capable of carrying twenty heads of water, from the right-hand branch of the Bubu River at a cost of £2,500, and have started sluicing on two faces. They have only had one cleaning-up, but, from what I can learn, the shareholders are satisfied with their prospects. If the company continue to get payable results from their properties at the Bubu, I am informed that they intend bringing in fifty heads additional from the Anatoki River at a cost of £20,000. This race has been surveyed and granted, and when complete will command all the terraces between the Bubu and the Anatoki, and so open up a quantity of new ground known to be auriferous. The only other claim at the Bubu is under protection.

At the Anatoki what has been known as Jackson's Claim has been idle on account of the death of the owner, and is, I understand, for sale. At Sheepy Flat, Baird and Co. are still bringing

up a tail-race from the Anatoki River for working their claim. During progress a little gold is being got, which only part pays expenses. The shareholders seem very confident of getting payable gold when they reach their ground. There are only two old men fossicking in other parts of the Anatoki. All the dredging claims taken up in the Takaka, Anatoki, and Bubu Rivers have been abandoned.

MOTUEKA.

The following licenses have been issued during the year, viz.: Two for prospecting for asbestos, two tail-races, one main tail-race, one water-race, one extended claim, and one drainage area, all in the Mount Arthur Table-land district.

WANGAPEKA.

Blue Creek and Rolling River.—With the exception of a party of two, who are prospecting for a reef near the old machine-site at Blue Creek, only three men have been working in the vicinity during the past year, and their returns are reported to be very small.

Wangapeka River.—The Wangapeka Dredging Company's new dredge is now nearly completed, and in a few months the question will be settled as to the fitness of the river for dredging purposes. The company have called for tenders for cutting firewood for the use of the dredge, and have also erected huts for the men to be employed in working the dredge. Nothing has yet been done on Mr. Tinlin's property.

Sherry.—Gardiner's party are still working on private property at the Sherry, and are reported to have been on payable gold during the year; but, owing to their ground dipping, have had to deepen their tail-race, which is not yet completed.

Tadmor Hill.—No one is now working on the old diggings at Tadmor Hill. Some prospecting has been done during the year, but nothing remunerative has been discovered.

Baton.—These diggings have been deserted during the year. The men previously working there have found employment on the railway-extension works in Motueka Valley.

I have not heard of any prospecting being carried on in the vicinity of the Crow Diggings during the year.

I have, &c.,

The Under-Secretary for Mines, Wellington. WILSON HEAPS, Warden.

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

SIR,— Warden's Office, Greymouth, 20th March, 1902.

I have the honour to present my report on the mining industry in the several centres under the jurisdiction of the Wardens' Courts over which I preside.

REEFTON–INANGAHUA DISTRICT.

From the opening of the district to the 31st December last 976,771 tons of quartz has been crushed, from which 617,833 oz. of gold has been obtained, representing a value of £2,433,298, out of which £734,917 has been distributed in dividends. The total amount of alluvial gold for the same period is approximately estimated at 148,572 oz., representing a value of £554,420. The total production of the district is, as far as can be ascertained, 766,405 oz. of gold, of a value of £2,987,718.

The two following tables show the calls made, dividends declared, &c., by the various companies in the district during the year 1901, and the comparative returns for each year since 1880:—

No. 1.

GOLD RETURNS, &c., for the Year ending 31st December, 1901.

Company.	Calls.	Dividends.	Quartz crushed.	Yield of Gold.	Value.
	£ s. d.	£ s. d.	Tons.	Oz. dwt. gr.	£ s. d
Progress Mines	..	27,500 0 0	55,207	23,399 1 5	95,131 12 0
" (sulphates)	..	..	..	..	2,549 1 10
Consolidated Goldfields of New Zealand:					
Wealth of Nations	..	22,499 18 0	12,015	5,221 17 5	20,838 17 10
" (sulphates)			..	..	764 15 9
Golden Fleece			14,809	8,880 8 1	34,217 12 6
" (sulphates)			..	..	1,594 11 5
Welcome	..	..	240	496 15 3	1,923 13 9
Kirwan's Reward	..	4,200 0 0	2,821	2,299 13 0	9,171 11 9
Victoria Range	833 6 8	..	..	..	..
Keep-it-Dark	..	4,000 0 0	12,442	4,489 1 0	16,669 10 9
New Inkerman Mines	..	..	81	43 17 3	172 2 4
Big River	2,100 0 0	..	75	30 6 0	120 13 10
New Scotia	1,500 0 0	..	*	1,101 3 9	3,139 9 10
Snowy Creek	1,200 0 0	..	20	3 4 0	12 10 0
Golden Lead	600 0 0	..	..	..	..
Private company—Last Chance	..	..	160	102 0 0	413 2 0
	6,233 6 8	58,199 18 0	97,870	46,067 6 2	186,719 5 7
Dredging Companies—					
Al	..	425 0 0	..	907 12 6	3,576 5 7
Reeves's Proprietary	..	610 0 0	..	787 13 20	3,141 3 8
Alluvial	..	..	..	3,608 0 0	14,002 0 0
Totals	6,233 6 8	59,234 18 0	97,870	51,370 12 4	207,438 14 10

* 5,350 tons of tailings.

No. 2.

STATEMENT showing the COMPARATIVE RETURNS from the REEFTON QUARTZ-MINES for the past Twenty-one Years, ending the 31st March each Year, and a similar Return for the Year ending the 31st December, 1901.

Year ending 31st March.	Calls made.	Dividends declared.	Quartz crushed.	Yield of Gold.	Value of Yield.
	£ s. d.	£	Tons.	Oz. dwt. gr.	£ s. d.
1881	10,218 17 6	19,650	25,926	17,597 14 10	68,630 13 10
1882	25,504 3 4	37,643	14,894	20,154 0 0	78,600 12 0
1883	64,345 0 0	32,600	18,928	19,194 0 0	74,856 12 0
1884	49,456 0 0	16,500	23,433	16,547 0 0	64,533 6 0
1885	29,333 0 0	34,100	34,349	23,997 0 0	93,588 6 0
1886	24,565 0 0	14,500	27,198	14,591 0 0	56,904 18 0
1887	21,596 0 0	33,450	23,930	21,143 0 0	83,171 15 5
1888	30,432 0 0	17,550	24,403	16,775 0 0	66,030 11 5
1889	38,919 0 0	16,688	28,564	18,663 0 0	72,720 18 0
1890	27,531 0 0	18,250	32,394	17,780 0 0	69,676 12 1
1891	20,404 0 0	27,325	39,643	23,347 0 0	91,998 8 10
1892	25,956 0 0	30,743	35,562	23,390 0 0	95,885 5 1
1893	18,800 0 0	16,900	37,693	20,171 0 0	80,894 5 1
1894	14,350 0 0	18,832	34,518	18,413 0 0	73,752 14 11
1895	10,153 0 0	11,012	26,602	13,426 10 0	53,509 5 1
1896	8,418 0 0	25,925	29,816	22,025 0 0	87,935 18 4
1897	9,033 6 8	4,900	13,270	8,365 4 20	33,824 7 1
1898	7,859 3 4	50	9,751	4,266 7 1	18,253 7 3
1899	5,920 6 8	900	42,305	21,487 18 15	87,587 1 0
1900	10,747 8 9	47,050	58,277	26,693 3 18	108,455 17 8
1901	5,826 9 7	35,300	82,618	33,979 5 5	134,557 7 11
Year Ending 31st December, 1901.					
Year ending 31st Dec., 1901	6,233 6 8	58,199	97,870	46,066 16 12	186,719 6 7

New Inkerman Mines (Limited).—Mr. E. W. Boyd, legal manager of the above company, reports as follows: Practically no crushing has been done during the year; a small test parcel of 81 tons, which yielded 43 oz. of gold, was the total put through the battery. The whole attention has been given to the development of the ore-body below and above No. 5 level, with fairly satisfactory results. The winze has been sunk a further distance of 100 ft. vertical, making a total of 200 ft. Total footage for the year: Driving, 737 ft.; crosscutting, 149 ft.; stopes, 37 ft.; sinking, 115 ft.; uprising, 126 ft.: total, 1,164 ft.

Last Chance (private company).—Messrs. Fleming and party supply following particulars of work done: (1.) Work done on the sandstone-formation block: Driving tunnel 150 ft.; stoping same 30 ft. in depth; put up a rise 30 ft. to connect with airway; crushed 150 tons of stone from this block. (2.) Work done on leader stone: Driven tunnel 150 ft.; stoped same 25 ft. in depth. Extended No. 2 tunnel 40 ft. Future operations: Driving and stoping, should results warrant same.

Kirwan's Reward Gold-mining Company (Limited).—Mr. P. N. Kingswell, legal manager of the company, furnishes the following report: During the last twelve months the developments have been most satisfactory. A very large quantity of payable ore has been opened up, and future prospects are very encouraging. Owing to the large quantity of ore opened up, it is intended forthwith to increase the present battery from ten to fifteen heads. This is estimated to cost about £750, and, besides reducing the cost of production proportionately, will insure regular monthly dividends being paid. Tenders are now being called for driving a prospecting-tunnel a distance of 200 ft. on a reef-track in the Earl Brassey Claim. This reef-track carries stone of low grade for a depth of 1,000 ft. down the sideling, and it is hoped that this tunnel will prove a solid and better-quality lode further south and under the crown of the hill. With the exception of about eight weeks' stoppage last winter owing to an exceptionally heavy fall of snow, and through one of the main passes carrying away, necessitating the erection of an incline tram, the battery has worked almost continuously, and for the year 2,821 tons has been milled, yielding 2,299 oz. 13 dwt. of gold. This enabled the company, after prospecting and opening up the mine and setting aside £600 towards cost of additions to battery, to pay four dividends amounting to 1s. 6d. per share during the year. The shareholders are to be congratulated on possessing an exceptionally valuable property, and one that, it is believed, will pay for many years to come.

Victoria Range Gold-mining Company (Limited).—Mr. P. N. Kingswell, legal manager, reports as follows: The work done by this company during the year ending the 31st December, 1901, has consisted of driving a prospecting-tunnel a distance of 502 ft. This is a low-level tunnel driven into the Victoria Range, and it was expected that some of the outcrops on the surface would have been cut, but so far no stone was met with.

Keep-it-Dark Quartz-mining Company (Limited).—Mr. W. Hindmarsh, legal manager, supplies the following report on the year's operations:—Mine department: The quartz crushed during the year has been stoped out of Nos. 2 and 3 levels, and the reef in these levels has continued fairly regular. The stone being worked is fully 220 ft. long in No. 3 level, and there is also a block

of quartz on this level 42 ft. in length, on which no stoping has yet been done. In No. 2 level the reef is somewhat shorter, being 185 ft. in length. From the stopes in No. 2 level up to the floor of No. 1 level there is yet a height of 42 ft. of reef to be stoped out; and from the stopes in No. 3 level up to No. 2 there yet remains 56 ft. perpendicular to be worked, which will be ample to keep the battery going until other levels are opened up. A winze has been sunk from the floor of No. 3 level 92 ft. in solid stone all the way. At that level the reef turned off very flat, and sinking was discontinued until No. 4 level is driven, when the reef can be followed at much less expense. A contract has been entered into with Messrs. Anderson, King, and party to sink the main shaft 250 ft. The contractors have been two months at work, and have sunk 67 ft. The bottom of the shaft is now 97 ft. below the floor of No. 3 chamber, and it is the intention of the company to open out No. 4 chamber at 150 ft. below No. 3. During the twelve months 12,685 tons of quartz has been raised from the mine and sent to the battery at a cost of £6,748 5s. 8d. This amount includes all contracts and development-work in the mine, extending levels, crosscuts, and all repairs to old adits and levels. It also includes sinking of winze, but does not include sinking of main shaft. The cost per ton was 10s. 7½d. The winding-engine which was ordered last year from Messrs. Fowler and Sons, of Leeds, England, arrived here in June last. It was at once conveyed to the site and erected in position. The engine is a good one, and is doing the required work very satisfactorily. The water-wheel which was used for winding is now out of use, but will be available for working a pump, should it be found necessary in the future to place one in the mine. Immediate use will be made of the wheel in driving a dynamo to light the battery, cyanide plant, brace, and all surface-works. Battery department: The battery has been running steadily for the year, with the exception of two or three small stoppages on account of slips on the head-race. 12,685 tons has been crushed, giving a return of 2,907 oz. 12 dwt. 3 gr. of melted gold, being just a small fraction over 4 dwt. 14 gr. per ton. The battery expenses for the year, which include wear-and-tear and all renewals of plant, and also the upkeep of head-race and tail-race, amount to £1,384 5s. 11d., being just a shade over 2s. 2d. per ton. Cyanide department: The whole of the tailings as run from the battery have passed through the leaching-vats. On the whole, the extraction has been fair, though on several occasions the percolation has been bad—notably in frosty weather during the winter months. The sand, being run into the vats with water as it leaves the battery-tables, requires to be turned over in the vats to assist the percolation, and occasionally when the sand in the bottom of the vats is very wet the turning is of very doubtful benefit. It has been decided to erect settling-tanks, into which the sand will be run from the elevating-wheel; it will then, after draining, be trucked into the leaching-vats in a dry state. This method will insure a freer percolation, and will not increase the working-expenses. The overflow from the vats passes over canvas tables, and upwards of 30 tons of sulphides, the product of these tables for the year, was last month shipped to Melbourne for treatment, the assay-value being £18 per ton. There is still a loss caused by the coarser pyrites escaping in the residue, and in order, as far as possible, to prevent this loss it is intended to put down canvas tables at the tail of the battery streaks, so that all the sand will pass over them before it is lifted into the settling-tanks. The total amount of gold obtained by the cyanide process during the year is 1,627 oz. 16 dwt. 15 gr., value £5,317 19s. 11d., being an extraction value of 8s. 4½d. per ton on the gross tonnage crushed. The working-expenses for the same period, including wages, cyanide, zinc, royalty, and all alterations and additions to plant, have been £2,446 7s. 3d., being 3s. 10¼d. per ton, thus leaving a profit on the year's work of £2,871 12s. 8d., or a profit of about 4s. 6½d. per ton on the gross tonnage. Owing to the low grade of the quartz operated on, and the cost of the winding-engine, the company has been unable to declare the usual monthly dividends, but trusts that the incoming year will make good the deficiency.

New Scotia Mine.—Mr. T. H. Lee supplies the following report: During the year 173 tons of quartz was treated at the crushing-battery for 17 oz. 10 dwt. 6 gr. gold, valued at £63; and at cyanide plant 5,350 tons of sand was cyanided for 1,011 oz. 3 dwt. 9 gr. of bullion, valued at £3,139 9s. 10d. In the Gallant section of the mine a considerable quantity of prospecting was done from the No. 1 level, and a trial crushing of 173 tons was put through the battery from a block of stone disclosed over level, but the results from battery were found to be too poor to warrant further work. The yield from the tailings produced from such crushing was, however, payable. At present No. 1 level of Drake is being extended north from main shaft to intersect the Gallant big blow, and about 150 ft. further extension should bring the face under the perpendicular of the reef showing on the surface. This drive will intersect lode about 400 ft. below its outcrop on surface. Driving has been slow owing to hard ground. In Happy Valley section the extension of the No. 2 level from main shaft has been commenced south along this line of reef. This work will test ground some 300 ft. deeper than was previously worked. The ground showing in face is very promising. The cyanide plant has been shut down, all the sands stored on the tailings-dump having been treated.

Snowy Creek United Mine.—Mr. T. H. Lee supplies the following report: In this mine operations have been confined to prospecting on the surface and above the level of the creek in which the first outcrop was found. Surface results did not discover anything permanent, so a drive was put in on the north side of creek at back of the old winze. This intersected the original reef-track, and it is now being extended north on line of lode with fair indications. Before cutting this line, however, a reef about 5 ft. was intersected, which carried a little gold. It is about 12 ft. to the east of old line of reef. Later on a prospecting-drive will be carried along north on this to thoroughly develop it and ascertain its value.

Golden Lead Mine.—Mr. Lee supplies the following report: The company's No. 2 level was being extended at the beginning of the year, and this work was continued until the following June. Some crosscutting was then done in the level, and the leader that was followed in the earlier

portion of drive was again intersected. In order to save a long and expensive shoot to convey the ore from the mouth of this level to a suitable place at which the loading-station of the aerial line could be re-erected, and to convey material to the battery, it was decided that a new level should be driven into line of lode. This level (No. 4) is now in progress, and to date about 275 ft. has been driven. It is anticipated that the lode will shortly be cut here, after which the aerial line will be shifted to mouth of this level, and the lode in both levels will be worked from No. 4. This will greatly facilitate operations in the mine, and also minimise the outside handling.

Lord Edward Mine.—The late legal manager, Mr. Lee, reports: This mine was sold in August, 1901, to the adjoining company, the Big River Gold-mining Company (Limited), and is now being developed from the latter's main shaft. The Lord Edward Company has therefore been wound up.

Big River Mine.—The legal manager, Mr. T. H. Lee, reports as follows: During the year 75 tons of quartz was produced from some stone found in the No. 1 intermediate level, which yielded 30 oz. 6 dwt. gold, valued at £120 13s. 10d. Operations in the mine have been confined to No. 1 intermediate level, Nos. 2 and 6 levels. In No. 1 intermediate 80 ft. of driving has been done; a small payable block of stone was cut, which has been risen on and taken out. The drive was then extended a short distance on reef-track, but nothing payable was found. Over No. 2 level two rises were carried up on stone, one 34 ft. and the other 75 ft., but as the stone ran out operations were discontinued. In No. 6 level a large amount of prospecting, consisting altogether of about 772 ft. of crosscutting and driving, has been done, but without anything of a permanent character being disclosed, although indications at different places were very favourable. At present a drive is being carried on in this level in a north-westerly direction with two men. Owing to the failure to strike any extent of payable stone in the upper levels, it has been decided that the mine shall be explored at a greater depth. With this object the sinking of the main shaft is to be commenced early in the new year, and it is intended to sink it 150 ft. deeper before opening out for a new level.

Mr. E. W. Spencer, engineer for the Consolidated Goldfields of New Zealand (Limited), submits the following reports:—

Wealth of Nations.—In this mine our attention has been almost entirely restricted to the bottom level, as far as development-work is concerned, with the result that at the end of the year the 800 ft. drive was cut 547 ft. north of the shaft. Along this distance a considerable amount of quartz was encountered, for at 142 ft. from the shaft we struck a very strong body of stone, which at this point was 12 ft. in width, but of only medium grade. This drive was connected to the winze from the 700 ft. level at 500 ft. from the shaft, the drive at this point following a very nice band of stone 3 ft. in width, carrying very fair gold. The battery level at the Wealth has been extended north towards the Energetic shaft 156 ft., having 192 ft. more to go to connect. The total footages driven during the year amount to 591 ft., and 156 ft. of sinking and rising has been done. This mine has been very seriously handicapped during recent years by the awkward means of raising ore through a blind incline shaft, operated by means of an overshot water-wheel situated some 1,800 ft. away from the shaft. Hoisting a skip from the bottom level by this means occupies about eight minutes for each complete trip, allowing just time to fill and empty the skip, hence making it necessary to hoist on two shifts when one should be sufficient with efficient means. To overcome these obstacles permission was received from London last September to start a new main shaft to handle the output of this mine with, so a start was then made to retimber the Energetic shaft from the bottom (about 40 ft. above the Wealth of Nations battery level) up to the surface. At the end of the year 70 ft. had been stripped and retimbered from its original size of 9 ft. 3 in. by 4 ft. 6 in. to its new size of 13 ft. 2 in. by 6 ft. 2 in. There are in all 362 ft. to retimber; then the brace of the shaft will be lifted 12 ft., a temporary hoist installed, and sinking started. By the time this shaft reaches the present bottom of the Wealth of Nations it will be 1,212 ft. deep. During the past year 12,015 tons of quartz has been milled for a return of 3,987 oz. 9 dwt. 8 gr. bullion, valued at £16,448 4s. 5d., and concentrates to the value of £875 4s. 1d. have been extracted; 7,206 tons of coarse sands have been cyanided, yielding bullion to the value of £4,390 3s. 5d., at a cost of 3s. 5·456d. per ton treated. During the year the battery has been lit with electric light supplied from a Crompton dynamo. Besides this no alterations have been made in the equipment, the other machinery having given satisfaction.

Golden Fleece.—During the year a considerable quantity of development-work has been done, amounting in all to 1,730 ft. of driving and crosscutting and 300 ft. sinking and rising, besides which the shaft has been sunk 150 ft.—that is, from No. 10 or the low level down to No. 11, a vertical distance of 125 ft., *plus* sump-room. Stoping has been carried on throughout the mine from No. 5 level downwards to No. 10, and producing in all 14,807 tons of quartz, yielding 7,227 oz. 19 dwt. 20 gr. of bullion, valued at £28,612 2s. 2d., besides which sulphurets to the value of £2,070 5s. 9d. have been sold; also 11,170 tons of coarse sands have been cyanided, yielding bullion to the value of £5,416 14s. 4d., at a treatment-cost of 2s. 4·202d. per ton, leaving a profit of 7s. 4·182d. No alterations have been made in the equipment during the period under review, the whole of the machinery doing good work.

Percival.—Early in the year the Perseverance tunnel was repaired for its full length, and the south drive extended 72 ft., exposing a small body of quartz of no particular value.

Golden Treasure.—No work has been done on this property, with the exception of removing the hoist from the Treasure shaft preparatory to placing at the Energetic shaft.

Welcome Gold-mining Company (Limited).—During the past year only a small amount of exploratory-work has been done, as all attempts at tracing the stone down to the low-level tunnel, Specimen Hill, failed; so all that remained to be done was to pull out and mill the quartz. About 240 tons was stoped by the company and stacked at grass; then tenders were called for letting the

mine on tribute, but apparently the public had small faith in the value of the quartz, so the company put up a very rough five-stamp mill, and crushed the 240 tons for a free-gold yield of £1,923 13s. 9d., besides several pennyweights being left in the tailings. After this crushing was finished tenders were again called with a view to tributing the mine, but although many favourable tenders were received none were accepted; so in order to make the treatment of the quartz complete a small cyanide plant consisting of two 20 ft. diameter by 5 ft. wooden treatment-tanks were erected, and one sump of the same dimensions. These tanks were nearly finished at the end of the year. Meanwhile stoping was going on in the mine by eight men. It is our intention to take out all payable quartz in sight.

Progress Mines of New Zealand (Limited).—In the mine, development-work comprising 3,326 ft. of driving and crosscutting and 492 ft. of sinking and rising has resulted in the opening up of large ore-reserves, so much so that the tonnage in sight at the end of the year exceeds that exposed at the corresponding period of the previous year by about 4,000, notwithstanding the fact that 55,000 tons has been milled. Developments have been carried on from No. 2 to No. 10 levels, but the principal ore-reserves opened up by such are on Nos. 5 and 8 east, where large tonnages have been partially exposed. Stoping likewise has been carried on in a general manner from No. 3 level downwards under the same conditions as heretofore. On surface a new head-gear of red-pine has been erected at B shaft, and at A shaft an ore-bin of (approximately) 100 tons has been built, into which trucks are tipped as they come from the mine. At C shaft a small Lingerwood hoist has been installed and head-gear erected. The adit level has been repaired up to the face on the eastern side, and driving for the Union stone commenced. On the western side of the shaft the adit has been extended 100 ft. The aerial line has given very little trouble during the past twelve months, and the cost of transportation has been reduced to 4½d. per ton. 55,207 tons of quartz has been milled during the year, yielding by amalgamation bullion to the value of £81,394 2s. 5d.; also 931 tons of concentrates, a portion of which was shipped to the smelter, but 738½ tons was chlorinated at the works, yielding bullion to the value of £9,284 7s. 8d. At the cyanide-works 14,988 tons has been treated for a return of £4,585 10s. 11d., or 6s. 1·427d. per ton. Of this amount, 3s. 0·246d. is consumed in working-expenses, leaving a profit of 3s. 1·181d. per ton. These works have been enlarged by the addition of two 25 ft. diameter by 6 ft. steel tanks. The whole of the coal required for the hoisting-engines has been mined from the company's own leases, the workings of which are in a satisfactory condition, and show a good reserve of fair-quality coal in sight. The working-costs show a slight decrease as compared with the previous year of 2·845d. per ton. The cost of mining, milling, and transportation all stand at a lower figure than for 1900, but general charges, unfortunately, show a distinct increase, attributable largely to the increased local taxation, which now amounts to 7·39d. per ton milled. The works throughout have been maintained in good order, and a prosperous year for 1902 is anticipated.

Reeves's Proprietary Gold-dredging Company (Limited).—Mr. H. A. Bruce, secretary, supplies the following: Considerable difficulties have been met with in working the claim, the dredge, through the roughness of the ground met with, being unable to cope with same without continuous alterations and breakages, which necessitated considerable delays and the outlay of a large amount of the dredge's earnings in repairs and reinstatements. However, the dredge is now working much more satisfactorily, nearly all the wearing-parts having been renewed and strengthened, and a good run is expected without further mishap. The ground has proved, so far as worked, uniformly good, and compares well with other good claims on the West Coast; and, had it not been for its excessive roughness and consequent breakages to machinery, would have paid very handsomely. The balance-sheet shows that the whole of the previous year's expenses, £1,392 8s. 5d., including flotation of the company, have been wiped off, and the sum of £1,464 3s. 8d. off the first year's expenses account, leaving a debit to Profit and Loss Account of £1,100 11s. 2d. The whole of the liabilities have been paid, and there remains a cash balance in the bank of £115 19s. 10d. The amount of gold won since commencement of operations, November, 1900, to 30th November, 1901, is 709 oz. 13 dwt. 13 gr.; value, £2,829 2s. 1d. In accordance with the resolution passed by the shareholders on the 28th October last, an option has been granted over the claim and property to Mr. A. P. Harper. Mr. Harper has left for England, and will place the company's property upon the market there. This option does not prevent the directors from purchasing a suitable dredge should the chance occur, as, in the event of the company being floated in London, the new company is to take over any dredge or dredges purchased during the term of option, provided the same have been submitted to their engineer and approved of by him as suitable for working the claim. Since the closing of accounts the returns for the two weeks ending the 6th and 13th December have been 26 oz. and 36½ oz. respectively.

Alluvial Mining.

Except in the Riding of Antonio's and at Boatman's, alluvial mining is very slight. The Chinese are still numerous at Blackwater, although gradually decreasing in numbers. An equal number of Europeans also are occupied in sluicing and driving there. No new finds of gold are reported.

At Antonio's Flat and Creek Chinese and Europeans are also to be found mining, but, as in other places, the numbers are growing less year by year.

At Boatman's and at Soldier's Creek about forty miners are employed.

During the last two years the returns from alluvial mining have greatly decreased, owing, no doubt, to the assistance derived from the old-age pension by the old miners who came to the Coast during the first "rushes," and who never changed their occupation.

LYELL AND MURCHISON.

In this district, though a large amount of work has been done in the dredging industry on the various claims, and though in many instances the returns obtained have not been equal to expectations, the results, on the whole, can be said to be fairly satisfactory. In some cases the unsuitability of the dredges employed fully accounts for failure to give payable returns. During the year 134 applications for ordinary mining privileges and fifty-one applications for special claims were received at the Lyell Court, which includes the whole for both Lyell and Murchison districts.

Four-river Plain Gold-dredging Company.—This company's claim is situated on the Upper Buller, near the mouth of the Matakitaki River. After working a few months with extremely disappointing results the company went into liquidation, and the dredge has now been sold.

Buller Dredges (Limited).—This company's claim is also on the Upper Buller, above Fern Flat. The dredge has been working for about three years, and for a time gave highly payable results, but on getting further up the river the ground became very poor, and the company ceased operations early in the year, and have now sold the dredge.

Fern Flat Gold-dredging Company.—This company has recently been formed to work a claim on the Buller River at Fern Flat. The company has bought the dredge belonging to the Buller Dredges Company, and intends carrying out extensive alterations to the machinery. The dredge should be working in a few weeks.

Mokoia Gold-dredging Company.—This company's ground is situated on the Buller River, about seven miles below Lyell. During the year the dredge has been working steadily, and has given payable returns.

Buller Junction Gold-dredging Company.—This company's claim is situated near the Inangahua Junction, and about two miles below the Mokoia Company's ground. This dredge has been a success from the start, and, working splendidly all the year, has paid handsomely.

Welcome Gold-dredging Company and *Premier Gold-dredging Company.*—Both of these claims are situated just below Inangahua Junction. Both dredges have just started work, and are said to be on payable ground, but no returns are yet available.

Rocklands Beach Gold-dredging Company.—This dredge is working near Rocklands, about six miles below Inangahua Junction. During the year the dredge has worked badly, and has lost much time from various causes. The returns obtained have been unsatisfactory.

El Dorado Gold-dredging Company.—This company's ground is immediately below that of the Rocklands Beach Company. The pontoons are completed, but no machinery is yet to hand.

Old Diggings Gold-dredging Company.—This ground adjoins the El Dorado Company, and is situated at the Old Diggings, near Berlin's. The company purchased a very old dredge, with the result that it has met with a series of breakdowns from the day that it started to work. The ground is reported to be good.

Feddersen Gold-dredging Company.—This company has two special claims on the Buller River, about three miles below Lyell. A start has been made with the building of the pontoons.

Kohikohi Gold-dredging Company.—This company's claim is situated on the Matakitaki River, near Murchison. The dredge commenced work a few weeks ago, and has obtained very profitable returns, but has lost a good deal of time through breakages.

Amikitea Gold-dredging Company.—This company's ground adjoins that of the Kohikohi Company. The company have purchased the Four-river Plain Company's dredge, and expect to commence operations in a few months. The ground has been prospected, and reported to be very good.

It may be noticed that out of the eleven dredging claims not in liquidation or abandoned only two are nearer Murchison than Lyell, and these are registered in three offices situate in Wellington, managed by a directorate there.

Quartz-mining.

Very little has been done in quartz-reefing during the year, the Alpine Extended Company's mine at Lyell being the only mine in active operation. About fifteen men are employed by the company, and lately a payable body of stone has been obtained in the No. 11 level.

Alluvial.

There has not been much interest taken in alluvial mining during the past year. In the Maruia and Upper Matakitaki districts a few individual miners manage to get a fair living. On the Buller but very little gold is now obtainable, and only a few Chinese are able to obtain a bare existence. At Newton Flat, twelve miles from Lyell and thirty-three miles from Murchison, the Neville and Perkins Hydraulic Sluicing Company have recently brought in fifty heads of water from the Newton River with which to work a large flat there, but the company has not yet commenced operations. At Lyell a project is on foot to bring in sixty heads of water from New Creek with which to work some flats and high terraces on the north bank of the Buller River, five miles below Lyell. The necessary water-rights have been secured, and a Wellington syndicate has the matter in hand.

ADDISON'S.

Addison's Long Tunnel Company.—This company has employed five men continuously during the past year. A great deal of prospecting has been done on the outside lead, which becomes poorer towards its northern end. The company is now working north of the rig on the main lead, with fair returns. A tunnel is also being driven 1,500 ft. southward to secure sufficient fall to work the southern portion of the claim.

Golden Sand Claim.—A considerable amount has been spent in repairs and improvements. A new tunnel 200 ft. long has been driven on the water-race and secured; other portions of the race have been cleaned and newly timbered in places. The dam has also been strengthened

and the face risen about 4 ft. New tramway-bridges have been erected, and 18 chains of new line constructed. The old amalgamating-tables have been removed and replaced by new ones 60 ft. in width, and consisting of thirty copper plates of the best quality procurable. A stone-breaker has also been added to the plant to facilitate the working of stony patches, which occur in different parts of claim. A trial crushing of 410 yards was completed on the old tables, which showed a return of 4s. 6d. per yard, but owing to the state of the tables a considerable quantity of the cement did not get fair treatment. Crushing operations will be commenced shortly, when it is intended to give the battery a three-months' run before making a final clean-up, and much better results are expected when the new tables and plates are in good working-order. New assay plant and balances have been procured, and will be in use as soon as a suitable building has been erected for their reception.

Virgin Flat Gold-mining Company.—Nine men are employed upon this claim, and sluicing operations have been carried on almost continuously for the past ten or eleven months. During that time about 2 acres of ground, averaging 16 ft. in depth, has been sluiced away. The washdirt is treated at the tables nearly three-quarters of a mile by tunnel from the face. The cement met with is broken up at the face, and gets ground to powder during its passage through the tunnel. The tables are the largest in the locality, measuring 150 ft. by 24 ft.

Neil and Party.—A new tunnel 1,600 ft. long has just been driven, the last section of which is now being boxed, and a new water-balance is being erected.

McCann and Party.—After two years' dead-work this party is sluicing. During the past year they have driven 600 ft. of tunnel through gravel, which has been boxed and blocked throughout. A shaft 40 ft. in length, to reach the washdirt, has been cut, and a new set of tables 60 ft. in width has also been constructed.

Senior and Party.—A new battery of ten heads of 600 lb. stampers, with self-feeding apparatus, has been constructed, together with an additional water-wheel to increase the driving-power.

Gould and Party.—This party has driven a branch tunnel 300 ft. in length to give them sufficient fall to work the southern end of their claim.

Wareatea.

Fairdown Gold-dredging Company (Limited).—Pontoons had been constructed and floated in an excavation upon the claim, and a dredge purchased, when the directors heard that the adjoining claim had been "salted." It was then resolved to reprospect the claim, and the result was so unsatisfactory that the directors decided either to secure another claim or sell the dredge and pontoons.

Wareatea Gold-dredging Company (Limited).—After considerable prospecting had been done on this claim with highly satisfactory results a dredge and pontoons were procured, and dredging operations commenced in September. After working for some weeks with very poor results further prospecting was done. In places where previously from 10 dwt. to 15 dwt. per yard were obtained only a few colours were procured, the gold appearing to be different in sample from that obtained previously. Five bores and three shafts were put down with equally unfavourable results. Further operations were then abandoned, and the company is now in voluntary liquidation. There was some talk of instituting prosecutions against alleged "salters," but so far nothing has been done in this direction.

Island Creek Gold-dredging Company.—The career of this company corresponds very closely with that of the Wareatea Company. Highly favourable results of prospecting operations induced the directors to build a dredge and all other necessary plant to work their claim. At first the poor returns were attributed to defects in the plant; but when these defects were remedied, at considerable expense, it was found that the ground was still very poor and quite unpayable. The gold obtained by prospecting was different also from that won by the dredge. Many shareholders are in favour of prosecuting alleged "salters," but no steps have been taken in the matter.

Waimangaroa.

Britannia Gold-mining Company (Limited).—This company has had a fairly successful year. 696 tons of quartz has been crushed for 1,111 oz. of gold, worth from £3 16s. to £4 0s. 3d. per ounce. Prospecting is now being vigorously prosecuted, and indications are all in favour of the reef being met in the various drives at an early date. Timber is very difficult to get, and owing to the loose nature of the ground the large quantity required makes it a heavy item in the working-expenses. The construction of a further section of the new road near the claim would open up a good supply of mine-timber, which would be available for other claims besides the Britannia. The company uses a two-head Hendy battery with 850 lb. stamps, and finds it a highly suitable machine. The shareholders are now in the happy position of having received back the money invested by them, and a substantial profit in addition.

Stony Creek Gold-mining Company (Limited).—This company was incorporated in October last with a capital of £12,000 divided into 12,000 shares at £1 each, and all shares were promptly subscribed. The company was formed to work several reefs at Stony Creek prospected and driven on by Mr. William Silke and a small Westport syndicate. The company took over the old Republic Company's battery and aerial tramway, and at considerable expense put them in good working-order. At the present time 150 tons of quartz has been broken out ready for crushing, and there is a good show of stone considered payable in sight. The stone already taken out prospects ½ oz. to the ton, and there is apparently a promising future in store for the company.

Old Diggings.—During the past year A. G. Hill and party have taken up a special claim in this locality, and pushed on energetically with preliminary works. Water-race, tail-race, &c., have been completed, and sluicing operations are carried on whenever the water in the Buller River

is low enough to allow tailings to discharge from the race. They frequently have to submit to periods of enforced idleness through freshes and floods in the Buller River; but despite this heavy handicap their average earnings have been about £4 per man per week since they commenced sluicing.

Peterson and party have a good claim about half a mile lower down the river than Hill and party's. They have constructed a tail-race about 500 ft. long at a lower level than Hill's race, and they are consequently thrown idle whenever the Buller River rises a couple of feet.

Kennedy's Claim adjoins Hill and party's. The ground is considered fairly rich, but, like nearly all the other claims in this locality, much time is lost through the Buller River rising and blocking up the outlet from the tail-race.

Fitten and party's claim is next up the river. Their tail-race being at a higher level and their water-supply larger than some of the adjoining claims, they are less liable to stoppages, and are consequently getting a good return for their labour and outlay. The ground in this locality is undoubtedly rich, and I think would pay handsomely if worked by means of elevating plant.

Ahaura District.

Noble's, Duffer's, and Half-ounce Creeks.

The population in the above districts remains about stationary. There has been no new find in alluvial mining during past twelve months. There have been three dredges built and working in Grey River. Two have closed down—one apparently for good, the other in order to finance. The one at work (Great Lead Gold-dredging Company's dredge) has done about a week's work, therefore nothing can be said as to prospects of success or otherwise. There are also two dredging companies floated to work at Duffer's and Sullivan's Creek, a tributary of Duffer's Creek.

Orwell Creek.

The population at Orwell Creek remains about same—a slight increase consequent on the two dredges at work. Erickson's Reward has been giving moderate returns for some time (20 oz. to 30 oz.), and is likely to improve, as layer of pug seems to get thinner towards upper boundary of claim. Orwell Creek dredge has been at work about two months, but so far has not reached bottom. Depth reached, about 48 ft.; maximum depth of ground, 60 ft.

There has been no new find in respect to alluvial ground.

Ahaura.

Several new claims have been opened along north bank of Ahaura River, mostly by Chinese, with very good results. There is a large area of ground along the banks of river of payable nature if water for sluicing purposes were available.

A dredge has been at work in river for about six months past, with variable results. The dredge lacked power, and has sunk in flood. Watterson's Consols Company's pontoons also sank. Whether any way damaged is not ascertained at present.

The population remains about stationary.

Nelson Creek.

There has been no new find in alluvial ground in this district during past twelve months. There is a considerable amount of sluicing carried on, water at all times being plentiful.

There are now five dredges built—viz., Nelson Creek, Pactolus, Victory, Aldinga, and Trafalgar. The two first named have so far given the best yields obtained on the West Coast. The contracts for erecting machinery on the others have been let, and the whole are expected to be at work within the next three months.

Moonlight.

The population in this district continues about the same.

No new ground of any extent has been opened during the past year. The projected water-races to be constructed by the Shetland Terrace Sluicing Company should make a great change for the better, and open up a considerable area of ground for working.

There are two dredges being built in the creek. The contract for erection of machinery on one has been let.

Sluicing is still carried on extensively at Healey's Gully, and when the new water-race now under construction by the Montgomery Terrace Sluicing Company is completed a large area of ground will be commanded by same and worked.

Blackball.

There is a slight increase of population in this district, mostly located at the township.

There has been no new find in respect to alluvial.

There has been one dredge working at the foot of Blackball and Ford's Creeks, but only indifferent success has been met with. It has been contended that this is mostly through the want of power in engine and the shortness of ladder to reach the bottom.

No Town and Red Jack's Creek.

There have been no new finds in these districts.

There is one dredge working in each creek. The No Town has only just commenced work, and therefore it is premature to speak with any certainty about it. The dredge at Red Jack's Creek has been working for about seven weeks past, and the returns have not been good. Considering locality, should be much better.

The following shows the condition of the dredges in the district: Waipuna—Mosquito, working; Grey Consolidated, temporarily stopped; Waipuna, closed down; Great Lead and Totara Flat, working. Orwell Creek—Erickson's Reward and Orwell Creek, working. Ahaura—

Ahaura River, stopped temporarily; Watterson's Consols, pontoons only. Moonlight—Garibaldi, machinery being erected; Moonlight, pontoons building and machinery obtained; Caledonia, working; Shellback, machinery erecting. Nelson Creek—Pactolus, Nelson Creek, Victory, Aldinga, and Trafalgar, machinery in course of erection. Red Jack's (Red Jack's Gold-dredging Company), working. No Town (No Town Gold-dredging Company), working. Blackball (Ford's Creek Gold-dredging Company), stopped.

GREYMOUTH DISTRICT.

In this section of my district, from information which has been kindly furnished me, I gather that the returns from the river-dredges have been disappointing during the past year. The Grey River dredge, which at one time gave promise of yielding profitable returns to shareholders, has been working throughout the year, but the returns have been barely sufficient to cover the working-cost, and the directors of the company have recently decided to lay the dredge up. The operations of this company have made it manifest that river-dredging on the West Coast will be attended with greater difficulty and cost than most people have reckoned on. Frequent stoppage of work through the river being in fresh or flood has involved considerable expense in protecting the dredge from damage by collision with drifting timber, whilst useful work when the dredge has been able to work has been hampered by the difficulty of extracting submerged trees, which have been deposited on the river-beaches during floods, and subsequently covered by drift shingle.

The Dobson No. 2 Company's dredge was employed during the early part of last year in working a stretch of the Grey River near Dobson Township, but the returns proved unprofitable, and the company has abandoned work and gone into liquidation.

The Dobson No. 2 dredge has been purchased by the Grey River Extended Gold-dredging Company, and this company has lengthened the ladder of the dredge, and restarted work on the Dobson Company's claim, but sufficient time has not elapsed to show whether there is any probability of profitable returns being obtained under the altered conditions.

On the New River the New River Company's dredge is still working, but the results have not been profitable, and the directors have in hand a proposal to overcome the company's financial difficulties by a scheme of reconstruction.

Higher up the river the Marsden No. 1 Company's dredge worked unprofitably for a brief period, and, owing to the fact that the company was in financial difficulties from the start, no adequate test of the company's claim had been secured when the company was compelled to suspend its operations and go into liquidation. The dredge has been purchased by a private party for about £800, and during the last week or two work on the company's claim has been resumed by the new owners, who hope to be able to secure profitable results under the altered conditions.

Two miles higher up the river, and in proximity to the Marsden Township, a dredge owned by the Marsden No. 3 Gold-dredging Company is in course of construction, but the work has been interrupted owing to the necessity of providing further capital.

The only other dredge on the New River is the one owned by the Cornwall Gold-dredging Company, which recently made a start on a claim some two miles above the Marsden Township. The results so far have been sufficiently good to cover the working-cost and leave a margin of profit, but it is somewhat premature as yet to give any opinion concerning the probability of the company's operations being attended with success; all that can be said is that the prospects are encouraging.

At the junction of the New River with Maori Creek, near the Township of Dunganville, a dredge belonging to the Maori Queen Gold-dredging Company, of Wanganui, has been working with indifferent success during the greater part of the year under review; but owing to financial embarrassment work has recently been stopped, and the company has gone into liquidation. Those connected with the management of the company are of opinion that the failure is largely due to the inefficiency of the dredge, and a proposal is on foot to reconstruct the company, and provide further capital to cover certain proposed alterations. Under existing conditions the machine is only able to lift about one-third of the maximum working quantity which it was supposed to be able to lift, and, as the results under such conditions have almost covered the working-cost, it follows that treatment in greater bulk without additional working-cost may enable the new company to make a substantial profit where the previous company failed.

The marine deposits in proximity to the ocean beach are being worked in this district by the Leviathan Gold-dredging Company and by the North Beach Gold-dredging Company, and dredges belonging to the Stony and Mosquito Lead Company and the Leviathan Freehold Company are in course of construction.

The operations of the Leviathan Company are connected with a claim which is situated about three miles south of Greymouth. For the greater part of the year the company's operations were not attended with profit, and owing to financial stress additional capital had to be raised by the issue of preference shares. Since the issue of these shares was effected the results have been very satisfactory, and at the time of writing there is reasonable evidence that profitable returns will be forthcoming for a considerable period, and redeem the outlay in this enterprise.

The North Beach dredge is working a claim some two miles north of the Cobden Township, and, although the dredge is engaged in treating material which has been worked by miners in the early days of the Coast, the returns have averaged about 30 oz. a week during the past few months, with a reasonable prospect of this average being improved on in the near future.

The Stony and Mosquito Lead and the Leviathan Freehold Companies' dredges will be completed within three or four months from now, and will be set to work virgin ground in proximity to the Leviathan Company's claim. Prospecting operations carried out on these claims serve to show that there is a probability of rich returns being obtained.

Taking the past operations as a guide, it is evident that the marine deposits on the fringe of the ocean will likely afford better results to dredging companies than river claims. For one thing, work on the beach claims can be prosecuted almost continuously, whilst in the rivers there is frequent interruption from flood, and also many other disadvantages to contend with. Even on the beaches it cannot be said that there is any warrant for the outlay of large sums of money in providing dredging machinery, but there is a reasonable prospect that dredges which have proven unprofitable on the rivers might with advantage be removed, and, with certain alterations, be set to work with profitable results on auriferous marine wash which can be found in many places along the coast-line in this locality.

Waiwhero Sluicing and Dredging Company (Limited), Barrytown.—Since the date of last report this company has been in full work with continuous sluicing, excepting when water was shut off for repairs, shifting plant, and other dead-work. The amount and value of gold won for the year ending the 31st March, not including a return yet to come in, was 1,416 oz. 9 dwt., at £4 per ounce, valued at £5,665 16s. The amount expended by the company in wages for the year ending the 27th February last was £3,855, much of which was for dead-work. The gold is fine, and occurs in black-sand gravel, but there is no difficulty in saving it, as the washing is cheaply and effectively performed on the excellent tables in use.

Coal-mining and Timber.

Coal.—Brunner Colliery: 1899, 103,085 tons; 1900, 125,403 tons; 1901, 127,016 tons. Blackball Colliery: 1899, 65,300 tons; 1900, 82,516 tons; 1901, 79,152 tons.

Timber.—Quantity exported: 1898, 11,783,292 superficial feet; 1899, 15,116,175 superficial feet; 1900, 14,549,433 superficial feet; 1901, 16,939,982 superficial feet.

General.

The following is a return of cases disposed of in the Magistrate's and Warden's Courts at Greymouth for the year ending the 31st December, 1901: Civil, 212; criminal, 324; Warden's, 22.

The revenue for the year amounted to £5,700 13s. 10d., made up as follows: Warden's Court, £5,248 0s. 4d.; Magistrate's Court, £397 13s. 6d.; licensing fees, £55: total, £5,700 13s. 10d.

The particulars of revenue collected in the Warden's Court at Greymouth for the year ending the 31st December, 1901, are as follows: Miners' rights, £231 15s.; water licenses, £1 7s. 6d.; rents, £2,054 15s. 11d.; fees and fines, £78 10s.; miscellaneous, £2,881 11s. 11d.: total, £5,248 0s. 4d.

Dredging Claims.

Table A (appended) gives the number of prospecting licenses and special claims granted and expired or surrendered in my district for the year ending the 31st December, 1901.

As to prospecting licenses, it will be seen that 660 expired by effluxion of time during the year ended the 31st December last, and that they covered an area of 47,831 acres; while in the year 1901 the renewals and new grants only totalled 219, with an area of 15,837 acres. That shows a reduction of the number of prospecting licenses by no less than 441, and of the prospecting areas by 31,994 acres.

As, however, nearly all the special dredging claims have been granted out of prospecting areas, the above result of the numbers of prospecting licenses and areas expired may be reduced by the number of special dredging claims granted and the areas of those claims. There were 111 new special claims granted, with a total area of 7,495 acres; and, if these are taken from the net reduction of prospecting licenses and their areas, the actual total abandonment of prospecting licenses during the year 1901 may be put at 330, with areas to the extent of 24,499 acres.

The figures of acreage are not absolutely exact, since the surveyed areas of special claims do not entirely coincide with those of prospecting areas. The variance is trifling, and the above figures contribute one substantial testimony to the evidences of the decline of the boom of 1900.

Besides the above abandonment, it will be seen by the table that fifty special dredging claims were surrendered, with an area of 2,575 acres. Some of these surrenders were made for rearrangement or amalgamation in other special claims.

Table B (appended) shows that there were in my district, in the year 1901, thirty-one companies having dredges actually at work on their claims, two of which companies are now in liquidation. The total share capital taken at par on which these companies would have to pay dividends is £296,269, and besides this there is a debenture debt of £19,965.

The minimum normal annual working-expenses and repairs of an ordinary effective dredge, I am advised by a competent authority, should be put at £2,400; and this, with, say, the sum of £200 for office and directors' expenses, would make the total expenses £2,600 for the year, which for thirty-one dredges would make £80,600 a year. So that the thirty-one dredges would need to obtain 20,150 oz. a year, taking the ounce at a value of £4, to pay normal expenses, without paying any interest or paying off any capital.

I endeavoured to arrive at some average from B return of the full number of weeks per year a dredge might be expected to work, taking the week to consist of the full number of 128 hours. But owing to the want of details in the returns of some dredges I could only take fifteen dredges, and those fifteen excluded the Mokoia, from which I had no return of hours worked. Besides this, the greater number of the fifteen dredges had only begun to work during the year, and the first five months of working would hardly give a fair test of what the dredge would do when in full working-trim, both as to machinery and crew. I therefore abandoned the idea of drawing conclusions based on those data as unreliable and unfair to the industry.

Since the 31st March, 1902, however, a return of the yield and number of weeks' dredging of dredges at work in the district has been published in the Greymouth *Evening Star*. I have no

reason to doubt the accuracy of the statement. It accounts for twenty-five dredges, but affords no indication of the proportions won by individual dredges, nor of the number of hours worked by each individual dredge.

There is one result which may be worth noting—that is, that it indicates that the average working-time of these dredges would be forty-two weeks a year. I should imagine this to be rather a high average, and much higher than that of dredges working on the Clutha River. It is certain that claims which lie in the beds of the large rivers must incur a loss of time from floods, to which the great majority of the Grey district claims are not liable.

I give hereunder the Greymouth *Evening Star* return, and also a return of some individual dredges, kindly furnished me by the secretaries of some of the most successful dredges, for the same period.

Evening Star *Return of the West Coast Dredging for the First Quarter of 1901–2.*

The following is a comparative statement showing the number of working dredges, the total yield of gold per week, with average yield per dredge per week, for the first quarter of 1901 and 1902:—

1901.				1902.			
Week.	Dredges working.	Total Yield.	Average per Dredge.	Week.	Dredges working.	Total Yield.	Average per Dredge.
		Oz. dwt. gr.	Oz. dwt. gr.			Oz. dwt. gr.	Oz. dwt. gr.
Jan. 5 ...	...	...	...	Jan. 4 ...	5	72 12 0	14 10 9
„ 12 ...	1	14 7 12	14 7 12	„ 11 ...	14	408 15 0	29 3 22
„ 19 ...	5	149 0 0	29 16 0	„ 18 ...	21	612 6 0	29 3 2
„ 26 ...	5	60 2 0	12 0 9	„ 25 ...	18	494 7 0	27 9 0
Feb. 2 ...	3	82 17 0	27 12 8	Feb. 1 ...	20	515 1 0	25 15 1
„ 9 ...	6	152 10 0	25 9 6	„ 8 ...	24	602 17 12	25 2 11
„ 16 ...	7	223 13 0	31 16 0	„ 15 ...	25	739 10 0	29 11 2
„ 23 ...	5	146 0 0	29 4 0	„ 22 ...	24	692 15 3	28 9 0
Mar. 2 ...	6	136 9 0	22 15 15	Mar. 1 ...	24	617 8 9	25 14 10
„ 9 ...	6	87 1 0	14 10 3	„ 8 ...	23	628 15 23	27 6 18
„ 16 ...	4	83 9 0	20 17 6	„ 15 ...	18	502 15 12	27 18 14
„ 23 ...	6	120 4 6	20 0 16	„ 22 ...	23	596 16 12	25 18 23
„ 30 ...	7	107 1 14	15 3 2	„ 29 ...	25	632 11 6	25 6 12

Time.	Yield of Gold.	Number of Weeks Dredging.	Average per Dredge per Week.
	Oz. dwt. gr.		Oz. dwt.
Quarter, 1902	7,116 13 5	261	27 5
Quarter, 1901	1,353 4 22	61	22 2
Increases	5,763 8 7	200	5 3

Returns of Seven Dredges given by Secretaries for Quarter ended the 31st March, 1902.

	Gold. Oz.	Value. £
Nelson Creek	901	3,515
Pactolus	798	3,141
A1	323	1,291
Buller Junction	237	917
Reeves's Proprietary	215	852
Leviathan	436	1,744
North Beach	301	1,204
Total	3,211	£12,664

I think it will be apparent from the latter return that no advantage is obtained by averaging the returns of dredges, but that averages are apt to be misleading. On the other hand, it is important to note the total return of gold won, and the amounts won by the several dredges. Those returns do prove that gold is in the district in considerable quantities; that in some cases the claims are very rich, and in some other cases in payable quantities. As to the actual or apparent failure of some dredges, and the unsatisfactory returns of some others, it must not be taken as conclusive evidence that gold is not found in payable quantities on their claims. Without naming particular dredges, it is certain that the cause of failure has been either the ill design or the ill construction of the dredge—want of adaptation to the heavy work required of it. In other cases there has been inefficient management.

I append a list of companies on the Coast which have gone into liquidation. They are thirty-two in number, and of these the first eighteen are in my district. Those marked with an asterisk (nine in number) had dredges constructed:—

List of West Coast Dredging Companies in Liquidation.

Name.	Locality.	Name.	Locality.
Buller Dredges Co.* ..	.. Buller River.	Wicklow Gold-dredging Co.	.. Grey River.
Clifton Gold-dredging Co. ..	.. New River.	Yellowstone Gold-dredging Co.	.. New River.
Crown Diamonds Company..	.. Grey River.	Auckland Back Lead Co. ..	.. Waimea Creek.
Dobson No. 2 Gold-dredging Co.*	.. Grey River.	Blake and Auckland Lead Co.	.. Chesterfield.
Four Rivers Gold-dredging Co.*	.. Buller River.	Brandy Jack's Co.	.. Greenstone.
Golconda Gold-dredging Co.	.. Cameron's.	Foley's Extended Gold-dredging Co.	.. Greenstone Creek.
Golden Banner Gold-dredging Co.*	.. Grey River.	Fox's Creek Gold-dredging Co.	.. Arahura.
Golden Grey Gold-dredging Co.	.. Grey River.	Greenstone Gold-dredging Co.*	.. Greenstone Creek.
Island Creek Gold-dredging Co.*	.. Westport.	Kohinoor Extended Gold-dredging Co.	Ross.
Jones's Flat Gold-dredging Co.	.. Grey River.	Mahinapua Gold-dredging Co.*	.. Hokitika.
Lee's Ferry Gold-dredging Co.	.. Grey River.	Mikonui Gold-dredging Co. ..	.. Ross.
Marsden Lead Gold-dredging Co.	.. New River.	Perry's Reward Gold-dredging Co.*	.. Hokitika.
New Marsden Gold-dredging Co.	.. New River.	Princess of Wales Gold-dredging Co.	.. Ross.
Ngahere Gold dredging Co. ..	.. Grey River.	Reefton United Gold-dredging Co.	.. Ross.
Ponsonby Gold-dredging Co.	.. Grey River.	Ross Flat Gold-dredging Co.	.. Ross.
Waipuna Gold-dredging Co.*	.. Grey River.	Tucker Flat Gold-dredging Co.	.. Hokitika.

The total nominal share capital of these dredging companies in liquidation in my district is £149,000. It is impossible without further information to ascertain how much of this capital was paid up. In those cases where no dredge was built it may be, I think, assumed that the shareholders have lost all that they have paid. In the cases where dredges were built the loss must be considerable, the value to be obtained for the dredge being often the only asset.

In order to furnish some standard of the conditions which would make a dredging claim a thoroughly sound investment, it is well to take the case of a company with a capital of £10,000. Then assume that it has a claim which is of such extent and has such other conditions and circumstances as will justify the ascription to it of a life of ten years' steady working before it is exhausted. The minimum ordinary working-expenses and repairs of such a dredge, with the office expenses, are £2,600 a year. The interest on a mining venture, with all its risks, should not be less than 20 per cent. Given, then, a life of ten years, the investor should look for a return of his principal in ten years, with interest at 20 per cent. Then, supposing that the company paid off one-fortieth of the capital every quarter from the first start of the dredge, the amount required to pay off the principal, with interest at 20 per cent., would be £2,025 a year. That makes, with the £2,600 expenses, a total net sum of £4,625 a year—say, 1,156 oz. a year, or something under 100 oz. a month. It does not appear that any company has set itself to deal with the capital and interest on such a plan. There are great fluctuations in gold returns of most dredges from quarter to quarter: fluctuations arising not only from interruptions by weather and mechanical defects, but also by the varying depths and character of the ground worked and the ever-changing value of the wash dealt with. These fluctuations have no doubt deterred companies from ever making the attempt so to deal with their output on such a plan. With returns of such richness as the Nelson Creek and Pactolus dredges have hitherto yielded, such a scheme would be hardly necessary. In less profitable claims it may by argued that the shareholders are an ever-shifting body, and look for profits more from the market prices based on the fluctuations of weekly returns than through the administration of the returns of the claim throughout its life. In fact, the majority of shareholders are speculators rather than investors. Still, it must always be remembered that some shareholders must be left with shares on hand when the claim is worked out.

It seems to me at least worthy of notice that, if a dredge could produce annually 1,200 oz. for ten years, it could pay off in ten years the whole capital and 20 per cent. interest. Unfortunately we have almost always to deal with the "madness of the market." What this can do was shown in the case of the Hartley and Riley dredge, where, with a paid-up capital of £6,500, the £1 shares were forced up to £25, thus making the capital to be recouped to shareholders who bought at that price £162,500, with yearly interest calculated at 20 per cent. to be added. It does not need, however, such extreme cases as this to point a moral. There are £1 shares now changing hands at £2, £3, and £4, thus doubling, trebling, and quadrupling the capital to the buyers, and with a £10,000 share capital there would be £20,000, £30,000, or £40,000 to be recouped to the buyers; and this, with interest on the purchase-price of the shares at 20 per cent., would require from 200 oz. to 400 oz. a month to put the buyer in the sound position of the hypothetical case of the shareholders of a £10,000 company with £1 shares at par which is stated above.

It would require far more elaborate and extensive returns of dredging claims on both coasts than are at present available to enable any one to say if any, or how many, dredges have up to the present realised the conditions of such a dredging claim as I have set up in my hypothesis. The various tables above given should, I think, furnish material for reflection to the investing public. The large returns made by some of the dredges have, I think, revived somewhat a tendency to renewed speculation. In the interests of the public, no less than of the industry itself, it is still necessary to urge prudence and caution. The list of abandoned licenses and of companies in liquidation are so many danger-flags hung out to warn the public to go cautiously.

As I have before said, it does not follow that every claim abandoned or every company wound up was necessarily abandoned or wound up because there was not payable gold in the claim. But owing to the "madness of the market" the industry was thrown into a wild confusion. Schemes ill-officered and ill-found were everywhere wrecked, and the first thought of those involved was to escape to land with as little loss as might be. We must all hope that the widespread suffering is passing away, and that nothing will be done to induce a recurrence of the causes of it.

The problem to be solved on this coast was a new one, and it is, I think, rather surprising that so much success has been achieved in so short a time. Experience is being continually gained and a better understanding as to the conditions on which success depends. There is no reason

why a solid and healthy enterprise should not be built up if the investing public will only insist on the fullest guarantees that all the known conditions of success are complied with before they provide the capital for any new enterprise.

I have, &c.,
ROBERT S. HAWKINS, Warden.

The Under-Secretary, Mines Department, Wellington.

A.—NUMBER OF PROSPECTING LICENSES AND SPECIAL CLAIMS GRANTED AND EXPIRED OR SURRENDERED DURING 1901.

—	Prospecting Areas expired during Year ending 31st December, 1901.		Prospecting Areas granted during Year ending 31st December, 1901.		Special Claims surrendered during Year ended 31st December, 1901.						Special Claims granted during Year ended 31st December, 1901.					
					Dredging.		Sluicing.		Reefing.		Dredging.		Sluicing.		Reefing.	
	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.	No.	Area.
		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.		Acres.
Greymouth ...	60	3,921	53	4,050	17	974	8	63	...	...	27	1,880	3	31	...	...
Ahaura ...	359	28,910	104	7,421	19	780	9	99	1	100	44	3,263	16	382	...	...
Reefton ...	88	5,842	24	1,942	1	12	7	147	18	807	6	338	...	...	6	406
Westport ...	94	5,980	10	775	3	244	5	226	2	107	9	721	3	39	5	256
Lyell ...	7	255	6	300	5	182	...	...	1	49	13	699	1	10	...	...
Murchison ...	46	2,443	20	1,253	5	383	1	20	...	..	10	415	7	279	...	...
Charleston ...	6	480	2	96	...	...	4	55	...	...	2	179	7	225	...	...
	660	47,831	219	15,837	50	2,575	34	610	22	1,063	111	7,495	37	966	11	662

B.—LIST of COMPANIES having DREDGES ACTUALLY at WORK on their Claims on the 31st December, 1901.

Name of Gold-dredging Company.	Present Capital at Par of Company on which Dividends payable.	Borrowed on Debenture, Overdraft, or otherwise.	Location of Dredge.	Date of Completion of Dredge.	No. of Hours worked from Date of starting to the 31st December, 1901.	No. of Ounces of Gold won to the 31st December, 1901.	Amount paid or declared in Dividends to Shareholders.
	£	£				Oz. dwt. gr.	£ s. d.
Maori Gully	8,900	..	Maori Gully	Dec. 7, 1901	67	Nil	Nil
Grey River	8,500	..	Grey River	Sept. 1, 1900	6,048	1,274 11 14	..
Ruby Creek	9,860	1,200	"	Oct. 18, 1901	..	3 9 0	..
North Beach	8,025	1,000	North Beach, Greymouth ..	Aug. 8, "	1,873	283 15 12	..
Leviathan	15,000	1,570	Near Greymouth	Dec. 5, 1900	4,750	865 10 9	..
Maori Queen	9,750	1,450	Maori Creek	April 13, 1901	3,023	292 15 13	..
Ahaura River	8,538	760	Ahaura River	June 14, "	2,482	304 13 20	..
Erickson's Reward ..	10,000	1,645	Orwell Creek	April 6, "	2,600	340 0 0	..
Caledonia	10,000	200	Above junction of Ahaura and Grey Rivers	Dec. 3, "	412	5 12 0	..
Ford's Creek	7,702	2,000	Junction of Ford's and Blackball Creeks	Dec., 1900	4,680	223 9 15	..
Great Lead	7,500	420	Grey River	Dec., 1901	..	..	..
Grey River Consolidated	10,000	690	"	June 10, "	2,430	255 17 12	..
Mosquito	10,000	..	Between Noble's and Napoleon Hill, Westland	Dec. 10, "	..	..	..
Orwell Creek	12,000	1,222	Orwell Creek	Oct. 23, "	960	..	..
Pactolus	9,375	..	Nelson Creek	Feb. 25, "	4,714	1,299 13 15	..
Red Jack's	9,000	1,025	Red Jack's Creek	Oct. 12, "	..	154 12 12	..
Totara Flat	8,940	2,000	Totara Flat	Nov. 15, "	..	6 0 0	..
Waipuna	6,000	1,900	Upper Grey River	June, 1900	3,120	934 16 4	..
Wareatea*	8,250	..	Fairdown, near Westport ..	Oct. 7, 1901	335	2 19 0	..
Welcome	9,900	..	Inangahua Junction, Buller River	Dec. 31, "	..	..	..
Rocklands Beach ..	10,854	238	" "	Feb., "	4,492	179 0 0	..
Reeves's Proprietary ..	12,200	..	Boatman's Creek, near Capleston	Nov., 1900	4,734	829 3 1	†610 0 0
A1	8,500	..	Cronadon, Reefton	June 6, 1901	3,439	907 12 6	425 0 0
Buller Junction ..	9,375	..	Buller River	Jan. 28, "	4,419	1,169 2 11	937 10 0
The Premier (Buller) ..	10,600	..	"	Nov. 30, "	170	5 10 0	..
Old Diggings	9,000	566	"	Aug., "	846	79 1 3	..
Mokoia	9,000	131	On Buller River	Oct., 1900	..	1,046 15 23	Nil
Kohikohi	12,000	1,000	Matakitaki River	Sept. 4, 1901	1,130	213 14 0	"
New River	7,000	948	New River (seven miles from Greymouth)	March, "	..	199 9 18	"
Nelson Creek	8,500	..	Nelson Creek	Jan. 1, "	5,043	2,061 1 18	2,550 0 0
No Town Creek ..	12,000	..	No Town Creek	Dec. 31, "	..	..	Nil
	296,269	19,965	..	..	61,767	12,938 6 14	4,522 10 0

* In liquidation. † Payable in January, 1902.

C.—List of Companies having Dredges in Course of Construction on 31st December, 1901.

Name of Gold-dredging Company.	Present Capital at Par of Company on which Dividends payable.	Borrowed on Debenture, Overdraft, or otherwise.	Location of Dredge.	Condition of Works.
	£	£		
Aldinga	9,000	2,000	Nelson Creek	Pontoons completed; machinery delivered; erection of dredge in progress. Expect start early April next.
Blackwater River ..	10,000	..	Blackwater River	In negotiation for purchase of dredge.
Callaghan's Creek..	9,375	..	Callaghan's Creek	Dredge almost completed. Starting work early next month.
Garibaldi ..	8,000	2,500	Moonlight Creek	Pontoons launched; machinery delivered and in course of erection. Expect to commence work early in April.
Kangaroo Creek ..	9,500	..	Kangaroo Creek (above junction with Red Jack's Creek)	Pontoons floated; machinery in course of erection. Expect to work by end of April, 1902.
Moonlight ..	10,000	..	Moonlight Creek	Pontoons partly built; machinery delivered; work delayed on account of calls not being paid. Expect to go on in about two months' time.
Trafalgar.. ..	9,000	1,750	Nelson Creek (next below Pactolus)	Erecting machinery.
Victory	9,000	..	Nelson Creek (between Aldinga and Nelson Creek Claims)	Started erecting machinery.
Duke of Wellington	8,500	2,500	Grey River (below Moonlight Creek)	Pontoons commenced; machinery ready to go forward. Waiting result of debentures before proceeding to erect.
Maori King ..	7,000	..	New River, Dunganville ..	Machinery very nearly finished; engine and boilers in Dunedin; timber for pontoons stacked on claim to dry. Tenders not called for building pontoons or the erection of machinery.
Stony and Mosquito Lead	12,000	..	South Beach, Greymouth ..	The frame of the pontoon is ready to receive the sheeting; will probably be launched within four weeks; the machinery is nearly all on the ground. The company will likely start dredging during coming May.
Leviathan Freehold	14,000	700	Adjoining Leviathan Gold-dredging Company's claim, about four miles from Greymouth	Pontoons in course of construction; machinery in course of delivery. Operations will commence about May.
Fairdown ..	8,000	..	Fairdown Creek (adjoining Wareatea and Island Creek Claims)	Pontoons floated; no machinery on ground except boiler; the claim has been further tested since registration, and proved worthless.
Greymouth Lagoons	9,135	..	On Blackwater Creek.. ..	Pontoons in course of construction; machinery being delivered; some on company's ground at present.
El Dorado ..	10,000	..	On Buller River (between Old Diggings and Rocklands Claims)	Pontoons launched; machinery finished. Should be at work shortly.
Feddersen ..	11,000	..	On Buller River, Horse-shoe Bend	Pontoons and machinery in course of construction.
Sullivan's Lead ..	12,000	..	Sullivan's Creek, near Grey River	Pontoons in course of construction; machinery in course of delivery. Dredge will be working in course of few months.
Watterson's Consols	10,000	1,350	Ahaura River	Pontoons floated; machinery delivered.
Marsden No. 3 ..	8,000	..	Marsden, near Greymouth ..	Pontoons floated, and machinery nearly all erected, but stopped for want of funds.
Amikitea.. ..	12,500	..	Adjoining Kohikohi Claim, near Murchison	Pontoons building; machinery all on claim.
	196,010	10,800		

Mr. Warden Macfarlane to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Hokitika, 26th March, 1902.

I have the honour to forward the statistical returns for the twelve months ended the 31st December, 1901, together with my report on mining matters generally in the district under my charge.

Hokitika District.

Aside from dredging operations, which may be said to be still in the initiative stage, the returns from ordinary mining operations have been fairly satisfactory. The exceptional rainfall during 1901 has enabled many of those connected with hydraulic mining to prosecute their work with few, if any, stoppages. In the larger undertakings—such as those at Humphrey's Gully, Kumara, Goldsborough and Stafford, and the Waiho Hydraulic Sluicing Companies—the rainfall does not materially affect them, seeing that they have gone to great expense in utilising large streams forming their source of supply by the construction of costly races, pipe-lines, and dams; but to those who are dependent on dams, drainage areas, and small streams, the fact of a wet or dry season makes all the difference between steady work and generous returns and enforced idleness with its accompanying reduced wages. A very considerable amount of the gold obtained is derived from claims dependent on this uncertain supply.

To the ample rainfall of last year is mainly due the prosperous condition of the Back Creek and Seddon's-terrace Claims. Nevertheless, the district is heavily handicapped owing to the want of a plentiful and continuous supply of water not only to further supply the claims already opened,

but to enable those who have no water to open up the large areas of ground now unoccupied, but known to be payable if water in quantity was available. The Kanieri Lake Water-race Company have done a good deal of work in this connection, but, as a considerable amount of additional capital is required to carry out the undertaking, it may be some time before the work is completed. If completed, the output of gold would be increased in a marked degree, and employment given to hundreds of men. The claims about Kanieri Forks are giving good returns, and their prosperous condition is due to the fact that they have a continuous supply of water from a pipe-line from the Kanieri Race.

What is known as Craig's Claim, situated on the sea end of Brighton Terrace, consists of 460 acres of freehold land. A very large amount of gold was taken out of this ground—over thirty thousand pounds' worth. This property changed hands some time ago, and I am informed by the secretary that the company was registered under the Companies Act, capital £30,000, to be worked by dredges. In the meantime the claim is being worked on tribute. The gold won by them for the twelve months ending the 31st December, 1901, was 335 oz. 7 dwt. 20 gr.; capital called up, 4s. per share on 13,000 shares, £2,600. The intention to work the flats by dredging has been abandoned for the present, and negotiations are now going on to write down the capital to £10,000, and subsequently work the terraces by means of sluicing and driving. Four new tributing parties, consisting of six men each, are now at work driving, with every prospect of making good wages.

Prospecting during the Year.

A considerable amount has been spent on prospecting, mostly under the auspices of the Rimu Miners' Association, and in a lesser degree under the supervision and control of Mr. A. H. Richards, the Assistant Inspector of Mines. The subsidies granted by the Government to and expended by the association have not, so far as we know, shown payable results. From what appears in the papers, we learn that so-many feet of tunnelling has been driven and so-many shafts sunk, that the work has been measured and passed, and the men paid—results nil—but no particulars to guide future prospectors.

On the subsidised tunnels driven by Johnston and Stewart, Seddon's Terrace; Stenhouse and Co., Hauhau; and Roosvelt and Co., Kellett's Terrace, Blue Spur, under the immediate supervision and control of the Assistant Inspector of Mines, who examines and passes the work when properly done, and pays the amount due on the subsidies to the men direct without passing through the hands of the association, which appears to be a grievance with them, but the men who do the work are better pleased—on the above tunnels Mr. Richards reports as follows: In the case of Johnston and Stewart payable gold was struck some time ago through a jump-up from the tunnel, as they are driving under the washdirt. The tunnel is still being driven, and there is every likelihood that it will open up payable ground at the back. Stenhouse and party's tunnel on the Hauhau has been completed. In driving they struck wash that will go from £2 to £2 10s. per week per man; they are at work blocking back. Roosvelt and party, on Kellett's Terrace, Blue Spur, have driven over 1,000 ft. to drain the terrace to the south of the No. 1 Hauhau lead that crosses the Blue Spur Creek. They expect to pick up the two lost leads that were lost where they cross the Blur Spur Creek, with a reasonable hope of success, seeing that the same leads have been found to the north. The party worked on the No. 1 lead, knowing the country well, and, being old and experienced miners, are very hopeful of succeeding in finding the lost leads. If they do succeed the discovery will be one of considerable importance.

It would appear from the meagre return from the expenditure of the prospecting vote that more careful inquiry into the merits of each case should be exercised before recommending grants, and a strict supervision over the work afterwards. Quarterly reports at least of work done, and also full particulars of the nature of the country passed through, with exact return of gold (if any), furnishing a record that may be of use to future prospectors.

Mr. E. W. Spencer, engineer to the Humphrey's Hydraulic Sluicing Company (Limited), has kindly supplied the following particulars of the work done and results obtained during the year: "In the early part of the period under review our energies were concentrated on the race-construction principally, endeavouring to get the race-extension complete to the river. One of the tunnels (No. 16) was the cause of much delay, as very bad ground was encountered, necessitating close timbering for some considerable distance. At the head-works, also, progress was exceedingly slow on account of the heavy nature of the work required to stand against the rush of waters descending the Arahura River in time of flood. The climatic conditions were also very much against us, inasmuch as the men could not put in anything approaching full time, the months of May and June being especially bad, causing a large number of slips, &c., on portions of the race considered as finished. However, early in October I was able to report to London that the water was satisfactorily running over the new portion of the race. Since that date about six men have still been employed repairing any doubtful places, putting in a little timber, cutting by-washes, and generally making things more secure. At the claim considerable alterations have been made, consisting of replacing the 24 in. tail-boxes by 36 in. boxes; gold-saving tables have also been erected, presenting 1,660 square feet of surface for the retention of the fine gold. To insert these tables it was necessary to lift the boxes above the tables 10 ft., so as to give sufficient head-room. The separating-boxes were designed to work with perforated plates 6 ft. by 4 ft. by ½ in., with ½ in. perforations; but these in actual work, using forty heads of water, proved too expensive, lasting only a short period (approximately three months), so they were gradually substituted by cast-iron grizzly bars 3 in. by 1½ in. by 48 in., placed crosswise ¼ in. apart. These are effecting a very fair separation of the fine stuff from the coarse gravel, and the pulp as it falls into the separator-box is divided, half going to the right- and half to the left-hand side. The portion flowing from either side is again subdivided into twelve equal parts, flowing over twelve tables, placed in two rows of six each, back to back. The tables have a fall of 6 in. in 4 ft. The surface of the tables, which are planed kauri,

is covered with one thickness of hessian, and then cocoanut-matting on top of hessian. Each table is 8 ft. wide by 8 ft. long, fed by a V-shaped box tapering from 1 ft. to 8 ft. The pulp as it goes on to the table passes through a riffle with a diving-board in it, and at the end of the first 4 ft. passes through a second riffle. All the tables discharge into launders, so arranged that the whole stream of pulp again converges immediately under the separating-box whence it left the coarse gravel; the latter, falling over a steeply inclined shoot into the main tail-race, has no opportunity of coming to rest before it is carried away by the rush of water and pulp which has passed over the tables, the boxes at this point having a steeper grade (8 in. to 12 ft.) to enable the pulp to get well under way and thus prevent a block in the tail-race. Just below the tables, when the pulp is moving at a good speed, the grade on the tail-race is reduced to 6 in. to 12 ft.; that is about as flat as it will be possible to run the boxes on account of the class of material treated. The first half of the tables started work about the 20th June, and the second half about a month later; since when 262 oz. 10 dwt. 18 gr. of gold has been recovered from all sources. Of this amount, 71 oz. 7 dwt. 18 gr. has been collected on the tables, representing 27 per cent. of the gross yield. This high percentage is largely due to the fine class of gold met with in the gravel sluiced, practically no coarse gold occurring at all. For the year 1901 379 oz. 19 dwt. 7 gr. of gold was obtained, valued at £1,488 11s. 10d. This was all won from No. 1 face on Humphrey's Gully, and is the result of using water obtainable from Mount Brown downwards (very little water having been taken from the river in 1901). The claim is well lit with two Jandus arc lamps of 800-candle power each, besides a quantity of incandescent lamps ranging from 100- to 16-candle power each. A small rough sawmill has been erected, and is of great service for cutting the timber required for tail-race boxes, &c., and has already paid for itself twice over. At the close of the year preparations were being made for the systematic opening-up of No. 2 face (on the right-hand side of Humphrey's Gully–Guileri's claim). This is where the best results were obtained by prospecting some few years back, and we confidently look forward to meeting better ground here than we have been sending away during the period under review.. A small four-roomed house has been built for the convenience of the manager and engineer, in such a spot that the works are easily visible from the residence. No sluicing operations whatever have been carried on in McDonald's Gully during the past year. The expenditure incurred during that period on water-race and claim amounts to £5,793 4s. 10d., and on property to £1,685 7s. 4d."

The most notable feature in connection with the above report is the fact that by the addition of suitable gold-saving tables as supplementary to the ordinary wood- and stone-paved sluice-boxes 27 per cent. of the gold won was recovered from these tables. This gold under the old method went into the tailings-heap, and was lost to the company. Yet not one in four of those who call themselves mine-managers will admit the fact, or, if admitting it, take the necessary steps to prevent this waste—so clearly demonstrated by the above-named company—but grub along in the old fashion, to the manifest loss of the shareholders of the company they represent. This company is now opening out new and richer ground that I trust in the near future will enable them to rank in the list of dividend-paying claims.

On the Hokitika, Kanieri, and Arahura Rivers and flats large areas were taken up as prospecting areas, of which a considerable number have since been converted into special claims; but a much larger number has been allowed to lapse. The bulk of the special claims are under option and have been sent Home for flotation, and I am informed that a mining engineer and expert is now on his way out to examine and report on the option so held.

The Hokitika Company's dredge is the only one at work in this district. This is a powerful and well-appointed dredge, and is on good gold; but the company had to borrow money, having underestimated the cost, and this has not yet been liquidated, hence the absence of dividends. The tightness of the wash and the number and large size of the boulders met with prevents the working of the ground in as rapid a manner as could be wished. Operations have been confined to the north bank of the river, where a large amount of tailings has to be dealt with, as well as the large boulders found in the untouched wash. They have not yet tried the middle nor the south side of the river, and it is premature to give an opinion as to how the venture will turn out. It is possible the ladder may have to be lengthened before reaching the bottom.

Perry's Reward dredge, imported from Otago and erected on Tucker Flat, was at work, but, not being able to contend with the cemented wash, has been shut down for some time.

The Lower Woodstock dredge has just been completed, and is to start to work in a few days.

The Shenandoah and Commissioner's Flat dredges are nearing completion, and should start soon.

The Hauhau dredge at Blue Spur is working steadily, and I understand is on payable gold. This dredge is the smallest, but works well, although hampered for room and bothered with buried timbers.

The Mahinapua dry dredge has not yet started work; the machinery is said to be unsuitable for the work, and I see by the papers that the company have gone into liquidation. This dredge was on one of the old beach leads, but failed in getting a start. Insufficient capital is one of the reasons for the winding-up.

Stafford and Goldsborough Sub-districts.

The returns from the ordinary sluicing claims in the above-named districts have been fairly satisfactory, and about the same number of men are engaged in this work.

The Stafford-Waimea Gold-dredging Company bought a second-hand dredge in Otago, and had it erected on their claim on the Waimea Creek. This dredge has been at work for some time with varying success. The company has been somewhat unfortunate in meeting with heavier ground and more buried timber than was expected. Through this a number of breakages have occurred, and considerable time has been lost. A much stronger dredge is required for the work; there is every indication that the ground is payable, but stronger machinery is required.

The Waimea Hydraulic Sluicing Company is another company that has come into existence during the year. This company has laid pipes from the Government water-race above Goldsborough to their claim at the back of the township. They are washing away the terrace by sluicing, and the flat by hydraulic lift, or blow-up. It is too soon to judge of the success or otherwise of their venture; but the returns are encouraging. They are using from twelve to fifteen heads of water.

The Waimea Middle Branch Flat is showing more activity than has been apparent for a number of years. Besides the mining that has been carried on heretofore, other parties have opened out into the main drainage-channel. The Government race having been extended to this ground, a good deal of gold may be looked for from this locality during the current year.

I am indebted to Mr. J. Park, solicitor for the Wheel of Fortune Company (Limited), for the following particulars: The claim consists of some 98 acres, situated at Piper's Flat and Ballarat Hill. It is a British company, registered under the English Companies Act. The company has spent some £5,000 in opening up, and has satisfied itself that the ground is sufficiently auriferous to warrant it putting on adequate machinery to work the claim. A large dam at Lake Mudgee has been bought, and this has now been enlarged to a great extent, and will, when completed, be one of the largest dams in Westland. From this dam it is proposed to draw thirty heads of water per day to work two elevators on the claim. For this purpose six miles of water-race is being enlarged to 6 ft., and a new tail-race tunnel is to be driven to carry the water away from the paddock. It is expected that the new elevators will be at work by the end of April, as the buckets and machinery are shipped from London, and should arrive here during March.

Kelly's Terrace Tunnel.—The following is the report sent to me by Mr. A. H. Richards, Assistant Inspector of Mines, on the above-mentioned work: The total length of this tunnel from starting-point at Flowery Creek to Hinemoa shaft is 5,817 ft. The present prospectors have driven 252 ft. beyond the shaft in various directions. At present they are in a nice body of washdirt worth from 18 gr. to 1 dwt. per load—not payable. Further encouragement should be given to this party. All their work is very creditably done and carefully timbered, so as not to cause any difficulty or damage to the main tunnel. The party consists of six men. I saw them each this day. They have great hope of picking up something good if they persevere, which they are determined to do, for another two months or more. I may add that this is one of a number of drainage-tunnels subsidised by the Government. A large amount has been expended on the work, and so far with very meagre results. The present prospectors are not receiving any subsidy, but they have the prior right to peg off an acre per man within the 50 acres reserved.

Kumara Sub-district.

This district carries a fair number of miners. The sluicing claims about Dillmanstown are in some instances giving fair returns, but a number of them, as they work back, find the ground getting poorer. In the neighbourhood of the No. 3 channel some good ground has been opened, and a number of new claims pegged off. This is said to be a new run of gold in the back terrace; but to enable the men to work an extension of the No. 3 channel is absolutely necessary, and I understand the necessary steps are being taken to obtain a subsidy from the Government.

The workings on both banks of the Greenstone Creek have benefited by the wet season. The large races projected have not yet passed the promoters' stage.

The dredges at work on the Greenstone Creek are the Greenstone Junction, the Three-mile, and the Greenstone Creek, and the Greenstone Gold is now in course of construction. The Junction has had a fairly successful run since the repairs were completed, and the company is now out of debt, having paid off over £2,000. This dredge has been hindered by tailings and buried timber, an overburden of some 20 ft. to 25 ft. having to be disposed of before reaching the pay-dirt. The prospects of the company are exceedingly good, and it ought soon to rank in the dividend list. The upper dredge has been fairly successful, being out of debt, but no dividends so far.

The Greenstone Creek, or what is known as the "Bun Tuck," has had much to contend with, and has not yet reached the paying stage.

The plant built for the Teremakau Gold-dredging Company is still lying where it was built, and I see by the paper the company have gone into liquidation.

Ross Sub-district.

With the exception of the dredging departures, mining matters are much the same as last year. The Mont d'Or still continues to pay dividends to the fortunate shareholders. The primitive appliances used by this company for saving the gold should be superseded or supplemented by up-to-date tables, whereby the fine gold now being run into the tailings-heap could be saved, and put into the pockets of the shareholders. Both washdirt and gold are very similar to that found at Humphrey's Gully, and I have no doubt the same saving—viz., 27 per cent.—would be effected if suitable tables were added to the present plant.

The Ross United Company is in liquidation, and the whole of the property is to be sold in April. Some six or eight men are still working some of the old ground on tribute, making small wages. Several attempts have been made by the old company to put this property on the market; but even with the promise of a £15,000 subsidy from the Government they failed in their efforts. The terms were not acceptable to the investing capitalist, the loading of some 30,000 paid-up shares to the shareholders in the old company being considered too heavy. This, with labour troubles, where about three hundred men would be employed, has proved a fatal bar to the flotation of any company. The sale will remove the heavy burden, and the buyers will then have a free hand to develop this most valuable property. The reopening of this mine and the early completion of the Ross and Hokitika Railway means a very large increase of population and wealth to Ross, and consequent prosperity to Westland.

Other mining ventures in this district are the dredges. The Kohinoor is the only one at work, having just started. This is one of the most powerful dredges on the Coast, and is at present opening out the claim at the mouth of Redman's Creek. The prospect obtained by boring with the Keystone borer (6 in. pipes) showed very rich wash on the 37 ft. bottom, and it was to work this that the present dredge was built; but the borer proved that what the old miner considered the main bottom was only a false bottom, the bore going down 26 ft. through very rich wash before the bedrock was reached. This will necessitate the building of a more powerful dredge, as the present plant can only work to 45 ft. or 50 ft. This deep ground is in the bed of the Mikonui River, the ground in Redman's Creek being only 40 ft. This the present dredge will be able to work, leaving the deeper ground for a more powerful plant.

The Prince of Wales dredge at Donohue's is not yet out of the hands of the contractor, but good progress is being made with the erection of the machinery. This claim is already opened up, and the dredge will get to work on a good face as soon as she starts. The Day Dawn dredge, in Donnelly's Creek, after having their pontoon built for some time, are at a standstill for want of the machinery—insufficient capital. However, I understand they have got over their financial difficulties, and the erection of the plant will now be proceeded with.

The Totara dredge has ceased working for some time, and is now for sale. As this was a private company, I cannot say how much gold was won; but I understood that when the machine was at work they were on fairly good gold, but the plant was unable to deal with the washdirt in a satisfactory manner, a more powerful plant being necessary.

A special claim on the Alymer lead has part of their plant on the ground, and are about calling for tenders for the erection of same. This being a beach claim, there will be less difficulty in dealing with the auriferous wash.

On the south side of the Mikonui River, what is known as McLeod's Terrace has been taken up as a special sluicing claim, 100 acres. This terrace, lying on the western slope of Mount Rangitoto, has been known to carry gold, and has been prospected by various parties many years ago, but the difficulty of getting water on to the ground was the great drawback. Some time ago McLeod and party, on behalf of a Wanganui syndicate, undertook to prospect the ground, and for this purpose drove a tunnel 154 ft. into the terrace. This tunnel was driven through what appears to be glacial silt, distinctly laminated, and standing at an angle of 43 degrees. At 154 ft. they struck the washdirt, and out of a 6 ft. jump-up washed 2 yards of dirt, giving a return of 22 gr. of gold. A shaft was also sunk about 28 ft. on the south-west side of the claim, with similar results. The washdirt is similar to that found on the Mont d'Or, Ross, and is favourably situated for sluicing, there being plenty of fall and tailing-room in the bed of the Mikonui River. Prospects can be got on the surface, but before going to great expense it would be wise to sink a few more trial shafts and prove the ground thoroughly. The company propose taking eighty heads of water from the Waitaha River. Length of race, from nine to ten miles. A portion of the race has been surveyed, but unforeseen difficulties have arisen that may modify their plans. This is a very promising piece of country, and will warrant further expenditure.

Nothing is being done in quartz-mining. The last work done in this direction was the driving of a tunnel in one of the spurs of Mount Greenland by the late well-known prospector Antonia Zala, who had been at work for a number of years, but without results.

Okarito Sub-district.

The principal mining operations going on in this district are on the Westland Dredging and Sluicing Company's claims on the Waiho. The company's claims consist of about 170 acres, situate near the Waiho River. The company is registered in England under the English Joint-stock Companies Act. During the year the company has spent £2,000 in race-extensions and race-improvements, and in providing plant for an efficient hydraulic elevator to work the flat on the banks of the river. Want of steam communication to carry this plant to Okarito has hindered operations in this direction very considerably, otherwise this plant might now be at work. In sluicing the company has found great difficulty in coping with the large stones and boulders. To deal with these a derrick has been ordered from a pattern by Mr. Mace, of Collingwood. From practical experience of the working of these derricks (which are operated by the Pelton wheel), it is confidently expected that this serious stone difficulty will be got over, and the remaining wash will then be easily dealt with by the water, and the result should be a handsome return of gold as indicated by the prospects obtained in the face. Owing to the difficulties of transit the elevation plant will be some time yet before it is ready to commence work. A small sawmill plant has been erected to cut timber required by the company, the whole plant being worked by water.

A small dredging plant has been placed on the Okarito Lagoon for prospecting purposes; but work has been suspended owing, I understand, to financial difficulties.

On the Five-mile a special claim of 100 acres has been taken up on the north end of the beach. The water from Alpine Lake, 310 ft. above sea-level, is to be brought down two miles and a half in pipes, and hydraulic elevators erected. This should prove a payable venture if properly handled.

Other dredging claims are held further south, and some of them are under option to investors. A few men are still working on the beaches and in the back gullies, but nothing new has been found.

There are several claims on the Saltwater, and a Wanganui company is calling tenders for the erection of a suitable plant to work same. The engine and boiler are already on the ground.

There is very little to report from the extreme south. The means of communication are so uncertain and the want of tracks is so well known that many men, who would otherwise be glad to go out prospecting if any such inducements were held out to them, under present circumstances prefer to take their chances in the older and more settled districts.

The tourist traffic connected with the Franz Joseph, the Balfour, and Cook Glaciers exists more in the imagination than in reality, and will continue to be so until some of our most important rivers are bridged and better access provided.

The timber business in Westland promises to develop into a large and profitable industry. To the number of sawmills already in existence a number of others are being added. Leases have been granted by the Hokitika Harbour Board for mill-sites near the mouth of the river, the timber to supply the mills being obtained from Crown lands and the Board's reserves, will be floated across the lake and down the creek to the river-bank, in front of the mills, when it will be hauled up on to the skids and cut up in the mill. The timber thus cut will be shipped direct from the mill's landing-stage, thus saving extra handling and railage to Greymouth. This will give employment to a large number of men, and will be a great benefit to the business-people of the town. Direct shipment from the port means a larger profit to the sawmillers, and an increase of work to the men who are engaged in loading and unloading the vessels.

A large busines is being done in silver-pine railway-sleepers, mostly hand-sawn, and men are making over the average rate of wages at this work; and it would materially increase their profits if the sleepers and telegraph-poles could be shipped direct from this port instead of sending them by rail to Greymouth.

Generally speaking, Westland has had a fairly prosperous year, and I anticipate that the current year will show in gold returns and timber-getting a very marked increase in both. The gold purchased by the Westland banks for 1901 was as follows: Kumara, 6,540 oz., value £25,586; Hokitika, 7,200 oz., value £28,350; Ross, 1,515 oz., value £5,917: total, 15,255 oz., value £59,853.

Sawmill licenses issued over 2,582 acres; length of lease, forty-two years; certificate of registration issued over 2,511 acres 2 roods 30 perches (for one year, renewable) in connection with the above licenses.

I have, &c.,
D. Macfarlane, Warden.

The Under-Secretary, Mines Department, Wellington.

Mr. Warden Keddell to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Oamaru, 23rd May, 1902.

I have the honour to report, with respect to the gold-mining industry in that portion of the Naseby district known as Livingstone or Maerewhenua, that very little mining has been done during the past twelve months ending the 31st December, 1901. My report for the first portion of that year, dated the 15th June, comprehended all that could be said of the yield up to the date, though the report was for the year ending the 31st March.

There has occurred since June last no noticeable event worthy of record.

The Mountain Hut Race Company are working still, and the race slowly approaches completion, and it is confidently assumed, when that event comes off, that the field will improve in yields.

The failure of the dredges has had a most dispiriting influence on the industry, and it is much to be regretted that the abortive attempts at this branch of mining—dredging—should so affect the enterprise of the miners.

The dredge on the Maerewhenua was thoroughly unsuitable, but, nevertheless, after its failure, though its incompetence is well known, it will be a long while before a further effort is made to test the ground.

I have, &c.,
Jackson Keddell, Warden.

The Under-Secretary, Mines Department, Wellington.

Mr. Warden Carew to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Dunedin, 28th January, 1902.

I have the honour to enclose herewith the statistical returns for the Hindon portion of the Otago Mining District, made up to the 31st December, 1901.

The only gold-mining operations of importance during the past year have been those conducted by the Deep Stream Amalgamated Hydraulic Sluicing Company (Limited) and by Walter and party. The company, as its name suggests, carries on sluicing operations, and employs, when sufficient water is available, an average of sixteen men. The gold won by the company during the year was 772 oz., and two dividends of 6d. per share were paid. Walter and party hold and mine a special quartz claim at Barewood, and report that they employ twelve men in all, and crushed 1,787 tons of quartz for 910 oz. of gold.

A few old miners obtain a little gold by fossicking about the old workings.

I have, &c.,
The Under-Secretary for Mines, Wellington. E. H. Carew, Warden.

Mr. Warden McEnnis to the Under-Secretary for Mines, Wellington.

Sir,— Warden's Office, Naseby, 12th April, 1902.

In forwarding the mining statistics for the Mount Ida district for the year ending the 31st December, 1901, I have the honour to add a few general remarks, as follows:—

At Hogburn Creek, Naseby, ten small claims are being worked on the "Maori bottom," as it is called here, being a lower depth than has hitherto been worked, seemingly with satisfactory results, about fifteen men being employed. I do not think a large area is likely to be worked, for as the lead goes into the terrace bars of clay are met with, and the deep ground is more expensive

to work, thereby making the results poorer. The working on "Maori bottom," as described, is the only new departure from the old systems—chiefly hydraulic elevating—in vogue in this district.

The water season was fairly good until June; then, generally speaking, until about the 1st December very dry weather prevailed, especially in the spring months, when the weather was unusually dry, with cold harsh winds, lessening, as a matter of course, the water-supply. However, a full supply of water is expected by the miners here next spring-time. It is to be hoped that their expectations will be realised.

At Patearoa and Serpentine the usual state of mining matters exists, and those engaged in mining appear to be doing fairly well.

At Hyde the same state of things prevails. Twelve to sixteen men are employed at quartz-mining at Mount Highlay, but nothing good has as yet been found. Nevertheless there are several who have still faith in Mount Highlay as a quartz district.

At Kyeburn the miners are jogging along the same as usual, and seem contented with their earnings. The Naumai dredge—the only one in this vicinity—has not been a success so far, and is now closed down and the company in liquidation; but I have been informed that a syndicate of local men has been formed to purchase the dredge and claim and have another try, with, it is to be hoped, better success.

At St. Bathan's there are some good claims. The Scandinavian Company, employing sixteen men, has, I have been informed, obtained upwards of 5,000 oz. of gold during the year.

The Shamrock Claim, too, has been doing well.

The United M. and E. Company has a good water-supply, and is elevating wash from a depth of 82 ft. This, I think, is the greatest depth at which elevators work in Mount Ida district. The company employs six men, and is obtaining very satisfactory results.

Vinegar Hill Gold-mining Company.—A new company formed of the mining properties of Messrs. Morgan and Hughes and the trustees of the late James Nicolson. Capital, £6,000, divided between those parties. The ground held by the company is good, and evidently the company has a prosperous future before it.

Besides these principal claims there are some smaller ones—sluicers and fossickers—and all seem content with their earnings.

At Matakanui (Tinker's) mining affairs seem to be much us usual, the only thing of any importance occurring there being the amalgamation of properties owned by Messrs. Ewing and McConnochie and the Sugar-pot Company, and forming same into a company, with a capital of £15,000, divided amongst themselves. It is intended to work the ground by means of hydraulic elevating.

At Macrae's a dredge was built during the year and put on some ground near the township; but after ten weeks' working it was found that the ground would not pay, and the dredge has since been closed down. There is very little mining now in this once prosperous goldfield, merely a few Europeans and some Chinese, whose earnings are small. The prospects of quartz-mining, however, are rather cheering. I have been favoured by Mr. Griffen, mining agent at Macrae's, with the following notes on quartz-mining in the Macrae's district:—

H. Mills and Sons' Quartz Claim, Macrae's.—This party have an eight-head stamper at work. Their mine is on private property, and they pay a royalty to the owner on the gold obtained. During the year they crushed 2,000 tons of stone for a yield of 327 oz. 13 dwt. 11 gr. gold.

Donaldson Bros., Golden Point, Macrae's.—This mine is worked by tunnelling and driving on the lead about 3 ft. thick, and the stone carried to the mill by means of an aerial tramway, and treated by a five-head battery and Huntingdon mill. In addition to quartz in this claim there is some alluvial gold and scheelite. The claim is believed to be paying well, but the shareholders do not care about publishing results.

Bonanza Mine, Macrae's.—This mine is owned by Mr. L. O. Beal, and a good deal of work towards developing the mine has been done during the year. This mine uses an aerial tramway, a Huntingdon mill, a rock-grader, and an amalgamating-pan, all gold being saved by the amalgamation process. This mine, too, is said to be paying well, but yield of gold not ascertained.

Ounce Mill, near Dunback Hill.—This mine is owned by Spiers and Ross, and an eight-head battery is in use. The stone has to be carted about three-quarters of a mile to the mill. Party believed to be doing fairly well.

Golden Bar Mine, Dunback Hill.—This mine was originally taken up by a Dunedin syndicate, who spent a considerable amount of money in prospecting the reef. Had various trial crushings, and eventually found that the mine did not pay, so abandoned it.

In February, 1901, a party of six miners took up 10 acres on line of reef, and started to work prospecting. Made roads, races, and dams. Took out trial crushings, with results of 5 dwt. to the ton. Next they purchased a battery of ten heads of stampers, erected it, hired a traction-engine, started crushing in August last, and have crushed 900 tons of stone up to the end of year, with a result of 5½ dwt. to the ton. Since then they have purchased a 12-horse-power engine and dispensed with the traction-engine. The reef averages from 6 ft. to 8 ft. in width, and is as yet all worked on surface of the ground. This syndicate has spent about £1,800 on mine, but it would seem there is a prosperous future ahead of it.

The Dunback dredge as yet has not been a success. It has been shut down for some time past, but it is expected that it will start to work soon again, with better results it is to be hoped.

Gold to the value of £48,021 15s. 6d. has been purchased by the banks in this district during the year.

Statements showing total revenue under the various heads is also forwarded herewith.

Courts at the appointed places have been held regularly during year.

I have, &c.,

The Under-Secretary, Mines Department, Wellington. J. McEnnis, Warden.

STATEMENT showing REVENUE RECEIVED in NASEBY DISTRICT during the Year ending the 31st December, 1901.

	£	s.	d.
Miners' rights (190 at 10s., twenty-seven at 5s.; Consolidated—two at £1, one at £1 10s., one at £3, one at £4)	112	5	0
Water-race licenses (150 at 2s. 6d., eight at 5s.)	20	15	0
Registrations (five at 1s.)	0	5	0
Application fees	30	7	0
Rents and royalties	615	0	9
Warden's Court fees and fines	5	8	0
Miscellaneous receipts	55	16	9
Total	£839	17	6

STATEMENT showing REVENUE RECEIVED in BLACK'S SUB-DISTRICT during the Year ending the 31st December, 1901.

	£	s.	d.
Miners' rights (fifty-four at 10s., and seven at 5s.)	28	15	0
Water-race licenses (eight at 2s. 6d., and two at 5s.)	1	10	0
Registrations (at 1s.)	3	1	0
Application fees (thirty-six)	3	12	0
Rents and royalties	186	18	9
Warden's Court fees and fines	9	9	6
Miscellaneous receipts	1	7	0
Total	£234	13	3

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

SIR,— Warden's Office, Queenstown, 25th March, 1902.

I have the honour to forward herewith the annual statistical returns, and to submit the following report on mining matters in the sub-districts under my supervision, for the year ended the 31st December, 1901.

QUEENSTOWN AND ARROW.

Dredging.

Dredging in this district has proved singularly unfortunate. There is not at the present time one dredge that is paying its way. The Dart Company's dredge on the Dart River, at the head of Lake Wakatipu, ceased operations towards the end of the year, and the company went into liquidation. The dredge proved unsuitable, and the company was subjected to many delays and inconveniences, so that in the end they were compelled to suspend operations before they had the opportunity of properly testing the ground. A new company has been formed to acquire the claim and dredge, and operations will shortly be resumed. The claim is certainly worthy of a good trial.

There are no dredges at present at work on the Shotover River. The Arthur's Point Company's dredge, after a very unsatisfactory career for several months, is now closed down permanently, and will probably be removed from the claim. Only a very small portion of the claim was dredged, and that proved almost worthless. The company, finding itself in financial difficulties, discontinued operations, leaving the nature of the other portion of the claim undetermined. It is not likely the claim will be again worked.

Further up the river the pontoons of the Moke Creek dredge are completed. The machinery is not yet erected, but it should not be long before this is done and the dredge at work. The river-banks and bottom are rocky, and this may interfere with the successful dredging of this claim; otherwise, from its position and the past known auriferous nature of the surrounding country, it should prove a payable investment.

The Maori Point Company has purchased the Tacon's Cardrona dredge, which has been carted over piecemeal from Cardrona Valley. The re-erection of the machinery is now going on at Deep Creek, and the dredge will soon be at work. At the Lower Shotover the Shotover Company's dredge, which has been lying idle for many months, has been taken to pieces, and is now being removed to Gore. On the Upper Kawarau the Galvanic, Eclipse, Kawarau Bridge, Arrow Junction, and Kia Ora dredges were completed and began operations during last year, but so far the results obtained have been unsatisfactory. The Arrow Junction dredge has had by far the best returns, but not sufficiently good to prevent the company from going into liquidation. The dredge and claim have been acquired by the United Morven Company, who are about to resume operations. The Merrimac and Metallic dredges have also been completed, but have not been working. The former has been sold to the Golden Molyneux Company for removal to its claim between Alexandra and Roxburgh. The Metallic Company, having built their dredge on the banks of the Kawarau River, outside their own claim, found it impossible, after many attempts, to get it over the natural obstacles in the river, and were obliged to abandon the undertaking. The dredge has been sold, and is now being removed to Island Block.

On the lower parts of the Kawarau, within this sub-district, matters remain in much the same condition as they were left at the time of my last report.

Alluvial Mining.

The past season has been an unusually good one for alluvial mining, the frequent rains having supplied abundance of water. The majority of these claims are situated on the Upper Shotover, and I am able to record for most of them a very successful year.

The claims of Aspinall and Stevenson, Davis and party, R. Johnson, and the Londonderry Company have been yielding very profitable returns throughout this period; while the claims of Ward and Smith, Smith and Son, Schusted and party, and others have all done well. Davis and party have a second claim, which they are about to develop in a very systematic manner, and are now bringing in a water-race at a cost of £1,500. At the Sandhills Lee and party have been to a large expense in preparatory work. The returns so far have not been large, but during the ensuing year I expect to hear of a good yield of gold from this claim.

On the Lower Shotover Tyrrell and party have been continuously working with their hydraulic-elevating plant, and have had some very good returns.

On the whole the present condition of alluvial mining in the Shotover is generally prosperous.

On the Arrow River the King Edward Company has taken over the late Arrow Flat Company's claim, situated in the bed of the Arrow River, close to Arrowtown. This is the tenth company that has in the course of many years essayed to work this ground. The company possesses a hydraulic plant, and has about six miles of water-race, carrying fourteen heads of water, boxed and piped one-half of the distance, and giving a pressure of 500 ft. at the claim. Rich gold is known to exist at a considerable depth, and large sums of money have been spent in endeavouring to "bottom," but with indifferent success. The present company, with very inadequate plant and much broken time, can obtain, when able to work, from 25 oz. to 36 oz. each washing-up. The gold is very fine.

The Big Beach Hydraulic Sluicing Company's claim is situated three miles up Arrow River from the township. The ground at this part of the river, when worked by miners in the early days, was exceedingly rich. The present company has been fairly successful, and has every prospect of remunerative work for years to come. The last washing-up for four weeks was 36 oz., the two previous ones 25 oz. and 27 oz. The company has two dams or reservoirs, by means of which they are able to work continuously.

The Arrow Falls Company, after years of patience and hard work, are about to reap the fruits of their labour. They have recently met with some good returns, and there is every reason to expect their continuance for many years. The claim is worked in shifts of eight hours, about ten men being employed.

Above this claim on the hillside is the once famous Bracken's Gully. Here two parties of miners are holding most of the water for sluicing at an altitude of 2,000 ft. above the Arrow River. These parties have been working for the past thirty years. The present method of working is by pipes with a heavy pressure, enabling them to turn over large areas of ground. Washing up once a year. The returns are very good.

Quartz-mining.

The only quartz-mines at work in the district are the Shotover Company's mine on the Upper Shotover and the Indian Glenrock Company's mine at Macetown, on the Arrow River. The Achilles Mine at Bullendale, on Skipper's Creek, has been shut down for several months, the returns from the mine not being sufficient to defray expenses. The funds at the disposal of the company have become exhausted, and they are endeavouring to raise sufficient additional capital to enable them to resume operations.

The Shotover Company has been at work during the whole year, employing from seven to nine men. The low-level tunnel is in a distance of 1,400 ft., and the reef now in hand promises well. The company contemplates shortly building a larger and more complete battery. It is also their intention to apply cyanide to the extraction of the gold, and a small experimental plant is now in course of construction to test the value of the ore when treated by this process.

The Indian Glenrock Company has been regularly carrying on operations throughout the year, but there is no change of any importance to report. The returns from the mine suffice, with economical management, to cover all expenses, but the net profits are very small.

CROMWELL.

Dredging.

In the Kawarau River below the Victoria Bridge, and above the gorge, the only dredge which has been successfully at work is the Meg and Annie, the returns from which, with the exception of a short time during which it was working at the lower end of the claim, have been invariably good. Arrangements have been made for the removal of the Upper Magnetic dredge to the Annie Queen Claim (next above the Meg and Annie), where there is every reason to believe it will be more profitably employed than on its own claim. In the vicinity, but some distance lower down the river, the Gentle Annie dredge is nearing completion. The Grand Junction pontoons are finished and launched, and in condition to receive the machinery, a greater part of which is lying on the ground. The operations of the Upper Magnetic dredges have proved quite unsuccessful.

The unusally high river prevailing during the greater part of last year has seriously interfered with the working of the gorge dredges, and operations have been almost entirely suspended. It is extremely unfortunate that the condition of the river has prevented these claims from being worked, as most of the dredges have been completed during the past twelve months, and high expectations were entertained of their success. The loss occasioned by this enforced idleness has been most serious to the companies concerned, and, though the majority have so far managed to tide over this trying period, more than one has been driven into liquidation. The probabilities are in favour of there being a low river during the coming autumn and winter, and unless public opinion is altogether at fault these gorge claims will give a good account of themselves during the ensuing year.

The dredges working that portion of the Kawarau River between the Kawarau Gorge and the Township of Cromwell, not being so much affected by the high river as those in the gorges, have been more constantly employed, and the results of their operations for the past twelve months are on the whole satisfactory. This is especially the case with respect to the Electric and Cromwell Companies, whose dredges have maintained very handsome returns for the greater portion of the year.

The only dredges that have been anything like constantly employed between Cromwell and Clyde are the Junction Electric and the Hartley and Riley. Both of these dredges have done good work, and have given excellent returns. The latter especially has kept to its work in a remarkable manner, even when the river was running very high, and other dredges had been compelled to suspend operations.

Most of the dredging claims taken up in the Upper Clutha have been surrendered, but attention has again lately been directed to this portion of the river, and the results of the dredging by the new companies which are just starting to work, or where dredges are nearing completion, will be looked for with great interest. The exceedingly good returns during the last few months of the Royal Maori dredge, working in the Clutha River above Cromwell. have created fresh confidence in this locality, and afford great encouragement to the Rise and Shine Company, whose fine dredge is now complete and ready to begin operations. This company has a very valuable property in their special claim. Trials made by boring and otherwise have demonstrated the auriferous nature of the claim, and it possesses the great advantage of being so situated as to provide ample dredging-ground at any state of the river. The results of this company's operations are regarded as of great interest to the community at large, for its success will lead to the working of the Clutha River above Cromwell with better and more efficient dredges than have been employed in the past. Two dredges, the Prince Albert and the Upper Clutha, have lately commenced operations on the Upper Clutha near Albertown, but it is too early yet to form an opinion of their prospects.

The pontoons of the Golden Standard Company's dredge, built for their claim at Luggate, were constructed at the head of Lake Wanaka, and after many difficulties were floated down the Clutha River to the claim. Unfortunately, the expenses were so much greater than anticipated that the company was forced into liquidation, and beyond bringing the pontoons to the claim nothing was done.

At Cardrona the only dredges that have been working are the White Star and the Cardrona No. 1. The returns from the former were encouraging, but not sufficiently large to save the company from liquidation. The dredge, however, will not be removed from the claim. Another company is being formed to take over the claim and dredge, and operations will again be resumed, and, I think, with a strong probability of success. The Cardrona No. 1 Company's dredge did not earn sufficient to defray expenses, and the company has been wound up and the dredge sold for removal to Victoria. The Lady Cardrona dredge is being removed to Waikaka. The Tacon's Cardrona dredge has been dismantled and removed to Deep Creek, on the Shotover River. The Rolling Stone Company's dredge has been standing idle during the whole year. Le Franchi's Company has acquired the pontoons of the late Cardrona Valley Company, and is re-erecting same on its own claim. This dredge will be worked by water-power, O'Brien's patent being used for the purpose.

Cardrona as a dredging-field has proved a sore disappointment, but there is reason to believe that if the dredges had been constructed so as to be able to dredge at much greater depths than those at present on the ground the result would have been different.

At the Nevis the Success, Carrick, Nevis, and the two Ngapara dredges have been at work, but have been securing only moderate returns.

Alluvial Mining.

Alluvial mining in this district is growing less each year. At Bannockburn Aitken and party still continue to carry on somewhat extensive operations—sluicing the Pipeclay Terrace—but the returns are gradually but surely diminishing. Carroll and Son, who a few months back purchased the All Nations Water-race, are terrace-sluicing for fair returns. At Quartz Reef Point, on the eastern side of the Clutha River, a few miles from Cromwell, several small claims are still at work. Some of these have been in existence for years, but none of the men enaged are making more than a fair living. The ground is of a gravelly nature—the wash about 12 ft. deep. There is a small group of alluvial mines in the Kawarau Gorge, one or two of which have been worked very profitably by their owners. Robertson Bros. have discovered what is believed to be a new lead close to the foot of the mountain, and at a considerable height above the river. Very little work has yet been done, but the prospecting so far carried on by them seems to indicate that the wash is more than payable.

There are other small parties employed in various parts of the district, but the returns are poor.

Quartz-mining.

The only quartz-mine in this sub-district is the Bendigo Mine, the property of the Cromwell Proprietary Company. This once-famous mine will probably resume operations within a short time. The mine has been let on tribute to Mr. Leo Salmond, who is sanguine of securing the necessary capital to work the undeveloped portions of the mine. I understand that it is the intention to drive a low-level tunnel which will prospect the claim at a greater depth than before attempted. There are strong indications that the reef so profitably worked in the upper levels extends downwards to this point, and if this proves to be so this old mine will enter upon a new era of prosperity. The company has sold the battery-tailings—the accumulation of years—to a syndicate which has been formed for the purpose of extracting the gold therefrom by the cyanide process. This is a new industry in this district, and the venture, there is every reason to believe, will prove a success.

Clyde and Alexandra.

Dredging.

Dredging still constitutes the chief form of mining in this part of the district. There are a few claims worked by means of hydraulic sluicing, and a fair number of men are apparently profitably employed in the surrounding gullies and terraces. Year by year, however, they are slowly but surely diminishing in number. This is to be accounted for by the decreasing area of available land, and in some measure to the fact that the old pioneer miner is dying out, and the younger men seem disinclined to follow the precarious occupation of their fathers. Dredging affords by its greater certainty of steady income a much more attractive occupation to the younger generation, who prefer a regular wage to the uncertain result of striking out on their own account.

I think, however, that alluvial mining will continue to exist for many years. There are terraces and gullies yet unworked which will as time goes on yield profitable employment to miners. This applies more particularly to a large stretch of country on the Galloway side of the Manuherikia River, where at the present time it is very difficult to obtain sufficient water for cradling purposes. It is hoped that the water-race now nearly completed by the Alexandra Bonanza Company will supply a long-felt want. The race under construction, assisted by the reservoir proposed to be formed, will bring in at least forty heads of water, and, as it is possible the company may not at all times require the whole of it in its sluicing operations, a few heads may be available for distribution at a reasonable rental. If so, I have no doubt that there is ground in the locality sufficient to profitably employ at least fifty men.

The Alexandra Bonanza Gold-dredging and Sluicing Company, which holds a large special claim in the Manuherikia Valley, a few miles above Alexandra, has during the past year been engaged in an enterprise of some magnitude. It is at present constructing the water-race previously alluded to, capable of carrying from forty to fifty sluice-heads of water. The race is about twenty miles in length, and is 8 ft. wide by 2½ ft. deep, and runs from a dam in the Greenland Swamp over a great portion of the Galloway Run to the terrace which it is intended to work. The dam at the head of the race will be very extensive, covering some 12,000 or 13,000 acres. The total cost of dam and race will be about £12,000. The race is now nearing completion, but it will be some months yet before the dam is ready. As soon as water is available it is the intention of the company to vigorously push on operations on the claim. At Tucker Hill, near Alexandra, Rivers and party have been successfully carrying on operations on their claim. This claim has been in existence for some years, and is worked by means of a water-race some ten miles in length, heading from the locality of Mount Campbell.

The unusually high level of the Clutha River for a lengthened period has here, as in other portions of the district, operated to the detriment of the dredging industry. The present condition of the river is generally regarded as abnormal; but the fact is dredging in the gorges has only recently been attempted, and in consequence the rise and fall of the river is more closely watched now than formerly. Closer observation in the past would probably have disclosed the fact that the present state of the river is only a repetition of what has frequently happened before, and a recurrence of which must always be regarded as a not unlikely contingency.

Apart, however, from the condition of the river, a very serious obstacle, in my opinion, to gorge-dredging was caused by defects in the dredges themselves. In the hurry and bustle of the "boom," and the anxiety on the part of the shareholders to get a dredge on the claim, no sufficient effort was made to ascertain the depth of the ground to be dredged, in consequence of which there are several incapable dredges that cannot properly work the claims, no matter what condition the river is in.

Despite all the drawbacks and disappointments, there are many dredges doing remarkably well in this portion of the district. That part of the river which lies between Clyde and Alexandra has not been so adversely affected by the continuous high river as the narrower and more confined portions running through the gorges, and in this dredging has been more regularly carried on. The Perseverance and Earnscleugh dredges, as well as those of the Enterprise, Manuherikia, Alexandra, Eureka, Molyneux Hydraulic, and Chicago Companies, have maintained fairly steady work through the year, with very satisfactory returns. Several new dredges began operations during the year; amongst others, the Dunstan Lead, between Clyde and Alexandra, a very large and complete dredge—the largest yet on the river. Among the gorge dredges the Monte Christo, near the Clyde end of the Cromwell Gorge, promises to be most successful. It started with some splendid returns, but after a few months' operations had to close down owing to the increasing river. Of the two remarkably fine dredges being constructed to work the Earnscleugh Flat, the Fraser River dredge is lying incomplete, and all work has been abandoned. The company having called up all their capital, the property was sold by the mortgagee, and the purchaser has not so far done anything towards its completion, although from first to last some £18,000 has already been expended upon it. The Earnscleugh No. 3, a very fine-looking and powerful dredge—to be worked by electricity—is still in process of construction; but the progress is slow, and it will be some months yet before work on the claim can be commenced. In the early part of last year the Golden Falls Company's dredge was completed and a trial made. This dredge was a reversion to the old-time current-wheel as the motive power. It was believed that with the improvements which years of experience had suggested, and with more powerful and efficient gear than formerly, this system could be made effective and thus save a large expenditure in working-expenses. The result has proved a disappointment, and it is unlikely that any new dredges will be built on this principle.

An entirely new kind of elevator for removing the tailings resulting from the working of the dredge has been introduced during the course of the year. It is the invention of Messrs. Payne and Peck, of Dunedin, and consists of a rapidly revolving apparatus against which the tailings are directed by means of a shoot. They are struck by the rapidly revolving beaters and flung to a considerable distance. This form of elevator has been applied to the Ngapara dredge, near Alex-

andra, and is working most satisfactorily. It is in contemplation to provide the City of Glasgow dredge, a large and powerful dredge working a bank claim, with this elevator. If it proves a success here it will no doubt lead to its adoption on other dredges, as it is much cheaper and less cumbersome than those at present in use.

I append hereto a list showing the returns of fifty dredges, working in various parts of the district, for the year ended the 31st December, 1901, with the average for each working-week and the dividends paid. Some of the dredges commenced operations late in the year, and it is fairer, therefore, to take the average for each working-week. The capital of the forty-seven companies, with fifty dredges, aggregates £442,076. The dividends actually paid amount to £45,358, or 10¼ per cent. per annum upon the whole capital. Looking at these figures, and considering the adverse conditions prevailing last year, we cannot fail to regard hopefully the success of this industry.

Roxburgh.

Dredging.

With a few exceptions, dredging has proved disappointing in this portion of the district. No doubt the high state of the river and the large amount of drift to be contended with have to a considerable extent contributed to this unsatisfactory position, and, with a fairly long winter and a low river, I have no doubt that the returns will increase, and public confidence be re-established.

Alluvial.

The Roxburgh Amalgamated Company at Roxburgh East and the Golden Run at Miller's Flat are the two most important sluicing claims now at work in this end of the district. Both have been obtaining payable returns. There are a number of smaller claims working along the banks of the river, but their profits are not large.

Bald Hill Flat.—This once-prosperous locality is undergoing what it is to be hoped is only a temporary depression. Two or three sluicing claims which a year or two ago were being worked to advantage have now ceased operations. Of the claims still working, the Last Chance Company (late Hesson and others) has probably done the best. The Bald Hill Flat dredge worked for a few weeks on a portion of its claim adjoining Kemp's freehold, but the ground proved to be not payable, and the company went into liquidation. The dredge has been sold for removal.

Quartz.

Nothing worth reporting has been discovered during the past year. Both White's and the Excelsior reefs are still being persevered with, but, so far as I can learn, with not very good results.

General Remarks.

The result of the year's operations, so far as dredging is concerned, it must be admitted, has on the whole been disappointing. The season has been a particularly unfavourable one for this industry. The Clutha and Kawarau Rivers have been for a great portion of the year unusually high, and have not permitted the ordinary amount of work to be carried on. As a necessary consequence of the enforced suspension of dredging operations, the return of gold for the year is not nearly so large as it was confidently expected to be. Several companies which held what were considered to be payable claims have gone into liquidation during the year, in some instances after the dredge had been completed and all necessary preparations made to work the claim. The experience of the past year has shown that it is a dangerous policy to limit the capital of the company to an amount which is only, and in some cases barely, sufficient to put a dredge upon the claim. The fate of too many companies shows either a want of foresight on the part of the management, or grievous miscalculation as to the cost of erecting and equipping the dredges. If the dredge is not fortunate enough to at once get gold, operations have to be suspended for want of the necessary funds to continue, and unless financial assistance is obtained—latterly a very difficult matter—the company is inevitably forced into liquidation. The directors would almost seem, in many cases, to have proceeded upon the assumption that gold is to be found everywhere along the bed of the river, and that it was only necessary to start the dredge working to at once secure payable returns. The consequences have proved disastrous to the companies concerned, and the pity of it is that in several instances it seems evident that, but for the want of the necessary capital to enable the company to carry on for some time unremunerative operations while testing the claim, ventures now abandoned would have in the end proved payable. We should have been spared, moreover, the unsatisfactory experience of companies only just commencing operations being unable to pay the wages of their employees. In other cases sufficient care does not appear to have been exercised by those whose duty it was to do so to ascertain the depth of the river and drift to be dredged, and the dredge, when completed and started, has proved to be unsuitable for the work it has had to do. The consequence has necessarily been great delay and expense to the shareholders, and in some cases absolute loss.

The result of dredging operations in the gorges so far seems to point to the conclusion that anything like constant work on these claims cannot under ordinary conditions be looked for with any confidence for more than five or six months in the year. Among the inconveniences arising from this fact will undoubtedly be the difficulty of inducing competent men to accept positions on these dredges unless compensated for loss of time by a much higher rate of wage.

During the past year thirty-six mining companies possessing claims in this district have been wound up, but against this must be recorded the fact that several new companies have been registered—in many cases to acquire and work the claims lately owned by the liquidated companies.

Although the output of gold for the year has fallen short of well-founded expectations, there is, considering the unfavourable conditions obtaining during a great portion of the time, no reason to feel discouraged at the result of the year's operations. The total yield, notwithstanding the fact that so many dredges had to suspend operations for long periods, only falls short of that of

last year by an amount of between 4,000 oz. and 5,000 oz. The total yield of gold, as far as can be ascertained from reliable sources, was—for the year 1900, 71,579 oz.; and for the year 1901, 65,963 oz.

There is every probability that there will be a marked increase at the end of this year. Public confidence in dredge-mining has no doubt been recently injuriously affected by the want of success attending the operations of many of the new companies which came into existence during the last two or three years, but the steady and satisfactory returns from so many dredges now at work in various parts of the district are a convincing proof of the value and possibilities of this class of mining.

RETURNS of FIFTY DREDGES, showing the AVERAGE for EACH WORKING-WEEK and the DIVIDENDS PAID, for the Year ended 31st December, 1901.

Name of Company.	Average Return per Working-week.	Number of Weeks working.	Amount of Gold won.	Number of Shares.	Dividends paid.
	Oz.		Oz. dwt. gr.		£ s. d.
Matau	27	41	1,111 10 0	7,000	1,750 0 0
Monte Christo	72	10	723 1 0	10,000	1,430 0 0
Unity	33	20	659 17 0	10,500	...
Dunstan Lead	19	9	174 15 0	17,500	...
Leaning Rock	50	3	151 0 0	12,700	...
Perseverance No. 1	62	41	2,563 15 13	14,000	1,400 0 0
Perseverance No. 2	33	14	472 17 21		
Earnscleugh No. 2	61	37	2,279 19 12	11,000	275 0 0
Earnscleugh No. 1	31	30	925 17 11		
Manuherikia	67	31	2,080 1 14	12,000	2,400 0 0
Golden Beach	35	32	1,110 1 6	13,000	1,300 0 0
Alexandra Eureka	27	38	1,034 12 0	12,000	1,500 0 0
Enterprise No. 1	26	36	932 13 3	7,000	2,625 0 0
Enterprise No. 2	27	33	890 17 10		
Clyde (Moa)	48	19	923 16 8	4,000	700 0 0
Molyneux Hydraulic ...	13	45	868 2 6	6,000	300 0 0
Olrig	20	42	864 4 9	7,000	...
Chicago	22	35	762 0 21	5,000	750 0 0
Sailor's Bend	71	10	715 18 0	8,000	...
Golden Link	15	38	594 1 20	7,000	...
Fourteen-mile Beach ...	48	10	483 5 14	16,000	...
Golden River	167	2	335 14 0	40,000 at 5s.	...
First Chance	22	8	179 12 0	11,000	...
Bendigo	19	4	76 3 0	11,000	...
Golden Gate	32	47	1,489 17 13	2,500	2,500 0 0
Otago	24	42	1,018 19 4	4,500	500 0 0
Golden Bed	24	37	886 16 0	13,000	...
Golden Treasure	21	39	821 3 3	2,876	1,653 14 0
Golden Run	31	23	724 0 0	11,000	...
Majestic	21	28	589 3 0	6,500	...
Gold Queen	21	19	404 18 0	10,000	...
Teviot	19	12	234 10 20	10,000	...
Endeavour	26	9	240 5 6	11,000	...
Long Valley	16	10	164 4 3	9,000	...
Gold King	15	4	61 9 0	10,500	...
Electric	143	36	5,143 8 10	26,000	14,300 0 0
Cromwell	92	24	2,213 7 6	7,000	4,375 0 0
Junction-Electric No. 1 ...	57	32	1,824 4 0	26,000	3,900 0 0
Junction-Electric No. 2 ...	110	7	774 2 0		
Hartley and Riley	40	30	1,205 0 6	7,000	1,625 0 0
Electric Extended	55	21	1,161 2 0	10,000	1,000 0 0
Meg and Annie	38	26	937 10 14	7,000	800 0 0
Alpine No. 2	39	17	674 11 14	6,500	275 0 0
Magnetic	26	23	609 0 0	7,000	...
Royal Maori	56	10	560 18 0	8,000	...
Alpine Consols	38	14	535 10 13	7,500	...
Ngapara No. 3	15	32	495 18 7	7,000	...
Central Electric	32	15	483 12 4	7,000	...
Nevis	19	19	374 3 0	4,500	...
Second Magnetic	20	18	372 7 0	9,000	...
			44,913 18 3	472,076	45,358 14 0

I have, &c.,

The Under-Secretary for Mines, Wellington. F. J. BURGESS, Warden.

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

SIR,— Warden's Office, Lawrence, 28th February, 1902.

I have the honour to forward you herewith statistical returns for the year ended the 31st December, 1901, and submit the following report on the several mining districts under my charge for the same period:—

BLUE SPUR.

The Blue Spur and Gabriel's Gully Consolidated Gold Company (Limited) has been subject to frequent stoppages during the last winter and spring, owing to the numerous heavy falls of snow, the first one taking place on the 22nd April, 1901, and the last on the 17th December of the same year. The yield of gold for the period mentioned was 1,400 oz., valued at £5,460.

Messrs. Kitto and party and Mills and Browne are still working in the vicinity of Munro's Gully, with fair returns.

WETHERSTONE'S.

Messrs. Smyth, Adams, and Doulan are still working on Wetherstone's Flat by means of hydraulic elevating and dredging. Being a private company, the returns are not made public, but are said to be very satisfactory.

Golden Crescent Sluicing Company (Limited).—This is the adjoining claim, and is doing very well, having paid 4s. 6d. in dividends for the half-year ending the 31st December, 1901.

Happy Valley Dredging Company (Limited).—This dredge has started to work since my last report on the freehold formerly belonging to Messrs. Pope and others on Wetherstone's Flat, and has been getting from 15 oz. to 20 oz. per week for some months.

TUAPEKA FLAT.

The following four dredges — viz., the Gabriel's Gully, the Tuapeka, the Reliance, and the Lawrence — have been working steadily throughout the year on the Tuapeka River, yielding fair average returns. The Reliance Dredging Company perhaps deserves special mention. The dredge started work since the last report, the company paid off a debt of many hundred pounds out of gold won, and up to date 2s. in dividends has been paid.

The Evans Flat Dredging Company worked out the whole of its claim at Evans Flat, and has shifted the dredge on to a new claim situate on the Tuapeka River, about ten miles below the Lawrence Township. The dredge is now being rebuilt, and should commence work in about six weeks' time.

DREDGES ON THE CLUTHA RIVER.

Since the last report several up-to-date dredges have been completed to work claims on the Clutha below the Beaumont, but owing to the unusual high state of the river during the last nine months the dredges have not been able to work to advantage for any length of time. Then, again, between the Beaumont and Miller's Flat several new dredges are being built, and should be at work during the coming winter.

WAITAHUNA.

There is nothing new to report in this locality. Four dredges are working, but as they are all privately owned the returns are not made public.

At Waitahuna Gully Messrs. Thomson and party and the Sailor's Gully Gold-mining Company (Limited) are still working their hydraulic-sluicing claims, with fair returns.

WAIPORI.

This locality maintains its prosperity. I do not think it possible to point to a single failure in any claim that has been taken up for dredging purposes. About a dozen dredges are now at work, giving employment to eighty or ninety men. Those owned by public companies are all yielding good returns, and those owned privately are also said to be doing very well.

The old Jutland Flat dredge has been sold during the year to a new company called "The Jutland Hydraulic Dredging Company." A new dredge of very large dimensions is being built; it is to have 4 ft. buckets, and be worked by water-power, known as "O'Brien's Patent Hydraulic System," which means a great saving in the cost of working. Under O'Brien's patent the cost of working a dredge per week is from 6 oz. to 7 oz., in place of 12 oz. to 14 oz. per week by steam, coal being a very costly item at Waipori.

O.P.Q. Gold-mines.—This reefing claim is owned by a London syndicate, and they have spent an enormous amount of money in developing the mine and procuring very costly machinery, and in doing so just about exhausted all the available capital; but, of course, they expected the returns from the mine would be sufficient to carry on, as the claim was in proper working-order and yielding good returns, with about seventy hands employed; but unfortunately very severe winter weather set in, with heavy falls of snow, said to be the severest winter in the locality for the last twenty-four years, and it continued for several months, entirely stopping all work at the mine, and all hands, except the manager and a few others to look after the machinery, were thrown out of employment. As good yields of gold were obtained while the mine was being worked, it is to be hoped that satisfactory financial arrangements will be made for carrying the work on again.

The principal hydraulic claims in this district are worked by Messrs. W. J. Farrell, Gare and party, Caudwell and Knight, Claffey and party, and the Bakery Flat Sluicing Company (Limited).

GORE.

Since the last report, in April last, several new dredges have commenced working, and only one—the Premier at Waikaka—ceased operations. The returns obtained from the dredges at Waikaka, Charlton, and Waimumu for the nine months ended the 31st December, 1901, have been very satisfactory, and the outlook in every respect appears bright; but I might mention that at

the two latter places the industry is considerably hampered on account of the Waimumu and Charlton Streams not having been declared sludge-channels.

In two cases, farmers in the vicinity have obtained injunctions against two of the companies, and many others are threatened with proceedings. Under these circumstances it is to be hoped that a settlement of the water difficulty between the miners and farmers will be arrived at as soon as possible.

I regret having to report that most of the claims granted on the Mataura River, near Gore, have been surrendered, and only those acquired by the Central Mataura Company are now held. This company had two dredges at work, but a few months ago one of them sank at its moorings and is a total wreck.

There are now in this district thirty dredges, the capital value being about £120,000. Nearly all are in active work, and give employment to about 250 men.

TAPANUI.

There is nothing new to report in this sub-district, except that the large dredge, the property of the Greenvale Dredging Company, mentioned in the last report as just about to commence operations on the Pomahaka River, did start a few months ago. The claim has proved a failure, and the company goes into liquidation.

The Ardmore dredge (owned privately) is still working away near the Pomahaka River, doing, I understand, fairly well.

WAIKAIA.

I have to report that, as far as hydraulic sluicing is concerned, this sub-district keeps on a very even tenor; but dredging, so far, has been a failure.* For the nine months ending the 31st December last, no less than twenty-seven special-claim licenses were surrendered and the claims given up.

The Argyle Hydraulic Sluicing Company has done very well during the last nine months, having obtained gold to the value of £2,480.

It is estimated on good authority that at least 3,000 oz. of gold (valued at £11,625) has been obtained in the Waikaia and Nokomai districts for the period mentioned.

The Gow's Creek Gold-mining Company has had a bigger undertaking than it anticipated in bringing in the water-race from Gow's Creek. It is 5 ft. wide on the bottom, and for chains in many places had to be cut out of solid rock; in other places very high fluming had to be put up, the total cost being about £4,000. The work has just been completed, and operations in the claim will be commenced next week.

There are about 150 Europeans at work on this field, and about fifty Chinese.

The Mystery Flat Dredging Company's dredge has recently started, and gives promise of turning out a success, having obtained 72 oz. of gold for one week's work. The above dredge is the only one at work in the district.

The total revenue collected at the Warden's office at Waikaia for the nine months ended the 31st December last amounted to £331 6s. 6d.

I have, &c.,
G. CRUICKSHANK, Warden.

The Under-Secretary, Mines Department, Wellington.

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

SIR,— Warden's Office, Riverton, 12th March, 1902.

OREPUKI.

The year 1901 has been rather uneventful so far as mining for gold in Orepuki proper is concerned. The nature of the workings is such that startling events or developments are not looked for, but, upon the whole, results have been satisfactory. The area available is getting quickly less, and, as I pointed out last year, new ground is being looked for.

The beach at Orepuki still supports a number of men, but the Patriotic Elevating Claim has been shut down owing to the difficulty in contending with the tides. A dredge has been at work on the beach, but so far with very indifferent results.

The principal claims are located on Klondike Spur, which has proved very rich. Property-holders in that locality are taking the gold from under their freehold sections, and some of them have had handsome returns.

The population is about the same as last year; but other industries are coming in, which will gradually take the place of mining in years to come.

Residence areas are in brisk demand, and applicants are getting their grants and settling, with every appearance of becoming permanent residents.

ROUND HILL.

From March of last year the water-supply at Round Hill has been phenomenal for sluicing purposes. The quantity of material passed through the elevators has been very great. The Round Hill Mining Company have been fairly successful, working patches of ground in the vicinity of the claims. The Ourawera Company have been very successful during the year. The Smith Gold-mining Company have been adding to their plant by way of pipe-lines, while they have held their own during the year just closed. With increased plant they are expecting and hoping for increased results during the ensuing year.

The number of hands at work is about the usual average. Owing to plenteous water-supply work, of course, has been more constant than usual.

WEST WAIAU.

A party of speculators in West Waiau have lately consolidated their rights and put their races in good working-order. Although their yield has not been very startling, yet with steady

*See remarks on Mystery Flat dredge.

work and yields the partners do not feel despondent. There are those who prophesy that a bright future lies before West Waiau. If patience and perseverance will bring prosperity about, Messrs. Shaw, Hinchy, and party may yet have success crown their efforts.

Referring to dredging on the Waiau River, considerable money has been invested in dredging claims; but up to the present time little or no success has resulted. In fact, judging by the number of claims surrendered during the past year, it would appear that a want of confidence in the Waiau now prevails. Possibly in the near future some new method of prospecting may be developed and gold yet found in abundance.

PRESERVATION.

During the past year various claims have revived, although we do not hear of dividends having been paid; yet there are those who find it pays them to continue operations. Reefs have in the past proved themselves to be very faulty in this part of my district.

I have, &c.,
S. E. McCARTHY, Warden.

The Under-Secretary, Mines Department, Wellington.

WATER-RACES.

Mr. ALEXANDER AITKEN, Manager, Government Water-races, to the UNDER-SECRETARY for MINES, Wellington.

SIR,— Kumara, May, 1902.

I have the honour to forward the following report on the working of the Waimea–Kumara water-races for the financial year ended the 31st March, 1902:—

WAIMEA RACE.

The total sales of water from this race for the year ended the 31st March, 1902, amounted to £729 6s. 3d., and the expenditure for maintenance and repairs during the same period was £838 18s. 7d., showing a debit balance of £109 12s. 4d. on the year's transactions.

The average number of miners supplied with water for sluicing from the race was 28·75, and the approximate quantity of gold obtained by them was 2,150 oz., the value of which was £8,385.

The sales of water are £169 5s. 10d. greater than during the preceding year, and the quantity of gold obtained was 433 oz. more, having a value of £1,688 14s.

The number of miners employed in sluicing with water from the race was about two less than during the preceding year.

The expenditure on maintenance and repairs during the year was £44 12s. 4d. greater than during the preceding year, but that is more than compensated for by the increase of £169 5s. 10d. in sales of water.

Water was plentiful during the year. The miners had very few stoppages; they have been perfectly satisfied in respect to the supply. There is still a great extent of ground unworked in the district, which, although poor, will all be sluiced, as the miners of the place are satisfied to work ground that was not considered payable some years ago. The earnings of the miners using water from the race must have been much better during the past year than formerly, and all of them seem satisfied with the results of their washings.

At the request of the Waimea Hydraulic Sluicing Company (Limited) considerable repairs were effected on the race during the year for the purpose of increasing its carrying-capacity, and the race is now not only carrying a much larger quantity of water, but is throughout in a good state of repair.

The Waimea Hydraulic Sluicing Company has made a start to work the ground held by it; but, like in all new undertakings, unforeseen difficulties have considerably retarded the progress of the company. The plant placed on the ground by the company is a good one, and is thoroughly up to date. The cost must have exceeded £3,000. Should the operations of the company fail to be a financial success it will be no fault of the plant, as everything in connection with it works in a most satisfactory manner.

The following tabulated statement shows the receipts and cost of maintenance of the Waimea Race for the year ended the 31st March, 1902, together with the approximate quantity and value of gold obtained by parties using water from the race:—

Month.	Sales of Water.	Cash received for Sales of Water.	Expenditure.	Outstanding Moneys at the End of each Month.	Number of Men employed.	Approximate Quantity of Gold obtained.	Value of Gold obtained.
1901.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ s. d.
April	52 5 5	54 0 9	73 7 4	23 10 5	29	156	608 8 0
May	71 18 9	70 9 3	61 6 0	23 10 6	23	216	842 8 0
June	60 3 4	59 19 6	54 9 2	23 11 10	26	180	702 0 0
July	54 19 2	54 19 9	69 14 2	23 11 10	27	165	643 10 0
August	62 15 0	62 4 0	55 19 2	23 13 0	30	189	737 2 0
September	49 17 6	49 13 4	67 11 8	23 13 0	28	150	585 0 0
October	58 14 7	58 17 6	82 1 8	23 3 0	36	177	690 6 0
November	56 13 4	44 6 9	69 19 2	32 10 10	27	171	666 18 0
December	28 4 3	39 5 7	68 14 10	23 0 6	30	87	339 6 0
1902.							
January	47 15 10	43 15 10	64 4 2	25 15 6	24	144	561 12 0
February	91 10 10	84 2 1	85 1 6	33 9 3	29	230	897 0 0
March	94 8 3	89 16 4	86 9 9	37 19 11	36	285	1,111 10 0
Totals	729 6 3	711 10 8	838 18 7	..	28·75 (average)	2,150	8,385 0 0

Branch Race to Callaghan's and Middle Branch.

The total sales of water from this race during the year amounted to £203 12s. 6d., and the expenditure for maintenance and repairs for the same period was £145 13s. 2d., leaving a credit balance of £57 19s. 4d. on the year's transactions.

The average number of miners supplied with water for sluicing from this race during the year was eight, and the approximate quantity of gold obtained by them was 510 oz., having a value of £1,989.

The sales of water are £21 17s. 6d. more than during the preceding year, and the approximate quantity of gold obtained was 35 oz. more, having a value of £136 10s.

The average number of miners employed was slightly greater than during the preceding year.

The expenditure on maintenance and repairs was £8 1s. 10d. less than during the preceding year.

In Callaghan's very little has been done during the year, and no new ground has been opened up; but there is still a prospect of new developments taking place, as there is a very large area of auriferous ground in the locality on which little or no prospecting has been done.

Parties of miners who have been engaged in prospecting have been supplied with water to test the ground on which they were working, but this was mostly in wet weather and when all paying parties had been fully supplied.

The race to the middle branch of the Waimea Creek (which is a portion of the Callaghan's branch race) has been extended a distance of 34 chains during the year, and no further extension of this race will be required in the future. The 34 chains of race referred to are altogether on private property, and the owners have executed the necessary deeds to occupy the ground required for the race without compensation. A right to construct this race has also been granted by the Warden, and duly registered in the Warden's office at Goldsborough.

The dam in the Middle Branch has been fairly tested by floods, and the by-wash has been enlarged as a safeguard against heavy rains. The embankment of the dam has been raised a little during the year, and the men employed on the race will occupy their spare time in adding to it, till the full height has been attained. All the platforms, from which the screws which regulate the outlet-gates of the dam are worked, have been constructed so as to allow the embankment of the dam to be raised 5 ft. higher than at present, which will give ample storage-room for night-water.

Two claims in the Middle Branch Flat have started to sluice into the Waimea Main Tail-race with water supplied from the dam and races, and two more will start at once, so that a fair revenue may be expected from this source during the current year.

The following tabulated statement shows the receipts and cost of maintenance of the Callaghan's branch race for the year ended the 31st March, 1902, together with the approximate quantity and value of gold obtained by parties using water from the race :—

Month.	Sales of Water.	Cash received for Sales of Water.	Expenditure.	Outstanding Moneys at the End of each Month.	Number of Men employed.	Approximate Quantity of Gold obtained.	Value of Gold obtained.
1901.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ s. d.
April	16 10 0	..	12 0 0	16 10 0	8	41	159 18 0
May	16 10 0	33 0 0	10 0 0	..	8	40	156 0 0
June	20 0 0	30 15 0	11 5 0	..	8	50	195 0 0
July	10 15 0	..	10 0 0	..	8	27	105 6 0
August	18 15 0	18 15 0	18 10 0	..	8	47	183 6 0
September	..	..	14 0 0	..	..	..	..
October	12 0 0	12 0 0	16 0 0	..	8	30	117 0 0
November	..	..	10 0 0	..	..	..	..
December	21 12 6	21 12 6	10 0 0	..	7	55	214 10 0
1902.							
January	29 12 6	11 10 0	13 8 2	18 2 6	8	75	292 10 0
February	13 15 0	18 2 6	10 10 0	13 15 0	4	35	136 10 0
March	44 2 6	54 10 0	10 0 0	4 7 6	13	110	429 0 0
Totals	203 12 6	200 5 0	145 13 2	..	8 (average)	510	1,989 0 0

Waimea Main Tail-race.

The Waimea Main Tail-race has been extended a further distance of 602 ft., out of a total distance of 660 ft. authorised. The full distance will be driven, boxed, and blocked by the end of May, and three more parties will then be enabled to construct their private tail-races to connect with it. The Waimea Main Tail-race has the lowest gradient of any in the district—3 in. to the 12 ft. box—yet it works well, and fully comes up to expectation. It now serves two parties at a time, and when a few slight alterations are made at the point where the private tail-races join the main tail-race it is expected to serve three.

Kelly's Terrace Drainage-tunnel.

This tunnel has been driven during the year a further distance of 557 ft., and its total length is now 5,817 ft. The tunnel at its present termination struck the Hinemoa shaft, and drained the ground where payable gold was supposed to exist, but no payable gold was struck there.

The contractors for driving the tunnel, however, had made an arrangement with the trustees of the drainage-tunnel that they were to continue prospecting in the locality of the head of the tunnel, and should they succeed in striking payable gold they would have the right to mark out and occupy a claim of 7 acres, out of a reserve of 50 acres which the Warden had exempted from occupation for that purpose. All of the contractors did not continue to prospect the ground, but some of them, along with other miners, did a considerable amount of prospecting, and succeeded in obtaining prospects that they consider payable. Since then the party of prospectors have marked out a 7-acre claim, and are sinking a shaft to work their ground. Several other claims have been marked out and applied for.

Kumara Race.

The total sales of water from the Kumara Race for the year amounted to £2,250 12s. 2d., and the expenditure for maintenance and repairs during the same period was £1,706 10s., showing a credit balance of £544 2s. 2d. on the year's transactions.

The average number of miners supplied with water for sluicing from the race was 46·08, and the approximate quantity of gold obtained by them was 4,504 oz., having a value of £17,565 12s.

The sales of water are £69 1s. 2d. greater than during the preceding year, and the approximate yield of gold is 627 oz. more, having a value of £2,445 6s.

The expenditure on maintenance and repairs is £371 6s. 10d. less than during the preceding year, and all the races and pipe-lines have been kept in an efficient state of repair.

The most of the ground sluiced away during the year was poor, and several claims were abandoned on that account; but other ground formerly abandoned has again been taken up, with fair prospects of payable returns.

All the races, tunnels, and pipe-lines have been maintained in an efficient state of repair, and no accident or breakages, except of a minor nature, occurred during the year.

The reduction in the price of water has had a beneficial effect, and kept many claims going that would otherwise have had to be abandoned, and the revenue has not suffered by the reduction.

The supply of water has been at all times ample for all requirements, and for the first time since the race was constructed the water has not been short for a single day throughout the year. During the year water was running to waste over the dams ninety-nine days, and during that time 204½ days' water for the whole field was lost for want of storage-room. The miners observed twenty-one holidays during the year.

The attached table shows the number of days in each month on which water was running over the dams, and quantity lost, and also the number of holidays on which no water was used for sluicing:—

Month.	Water running over Dam.	Quantity of Water lost.	Holidays.	No Water for Channel.	Dams empty.
1901.	Days.	Days.	Days.	Days.	Days.
April	8	15¼	8	...	...
May	11	12	...	...	...
June	9	17½	...	...	...
July	2	1¼	...	...	...
August...	4	2½	...	...	...
September	7	14	...	...	...
October	14	42	...	...	...
November	13	39	...	...	...
December	13	24	6	...	...
1902.					
January	7	19	6	...	...
February	7	14	...	...	...
March	4	4	1	...	...
Totals	99	204½	21	...	...

Besides the sales of water above referred to, water to the value of £111 2s. 1d. was supplied to claims having a succession of poor washings. Full inquiry was made in each case before any concession was made.

Flushing-water was supplied to each of the channels without charge, in accordance with authority from the Department, to the following extent: No. 2 channel, ten sluice-heads; No. 3 channel, twenty-three sluice-heads; No. 4 channel, ten sluice-heads; No. 5 channel, twenty sluice-heads. In no case was less than the above quantities supplied, and, as water was plentiful during the whole year, quantities much in excess of the above were supplied instead of letting it go to waste, which would benefit no one.

Washing-up water was supplied to miners using water from the race free of charge, and the Borough of Kumara was supplied with water for fire purposes.

The following tabulated statement shows the receipts and cost of maintenance of the Kumara Race for the year ended the 31st March, 1902, together with the approximate quantity and value of gold obtained by parties using water from the race:—

Month.	Sales of Water.	Cash received for Sales of Water.	Expenditure.	Outstanding Moneys at the End of each Month.	Number of Men employed.	Approximate Quantity of Gold obtained.	Value of Gold obtained.
1901.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ s. d.
April	203 18 9	256 16 7	136 12 5	490 11 0	54	405	1,579 10 0
May	236 8 2	256 0 6	136 5 8	468 3 7	62	472	1,840 16 0
June	199 19 2	244 18 7	134 8 1	427 7 11	60	400	1,560 0 0
July	209 17 9	150 14 5	145 9 5	482 8 9	52	420	1,638 0 0
August	174 8 7	162 10 0	147 9 11	494 6 1	49	350	1,365 0 0
September	172 4 10	139 12 0	152 13 9	526 18 11	47	345	1,345 10 0
October	215 9 6	203 12 0	128 8 11	538 16 5	40	432	1,684 16 0
November	213 17 1	66 2 6	146 6 4	686 11 0	43	428	1,669 4 0
December	167 15 7	209 10 0	168 3 4	644 16 7	37	336	1,310 8 0
1902.							
January	127 11 6	95 0 0	139 5 6	677 8 1	39	256	998 8 0
February	161 15 10	57 0 0	128 7 1	782 3 11	35	324	1,263 12 0
March	167 5 5	127 8 6	142 19 7	822 0 10	35	336	1,310 8 0
Totals	2,250 12 2	1,969 5 1	1,706 10 0	..	46·08 (average)	4,504	17,565 12 0

Waimea–Kumara Water-races.

The following tabulated statement shows the revenue, cost of maintenance, approximate quantity and value of gold obtained, and number of men employed on claims using water from the Waimea–Kumara and Callaghan's Races for the year ended 31st March, 1902:—

Month.	Sales of Water.	Cash received for Sales of Water.	Expenditure.	Outstanding Moneys at the End of each Month.	Number of Men employed.	Approximate Quantity of Gold obtained.	Value of Gold obtained.
1901.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ . d.
April	272 14 2	310 17 4	221 19 9	530 11 5	91	602	2,347 16 0
May	324 16 11	359 9 9	207 11 8	491 14 1	93	728	2,839 4 0
June	280 2 6	335 13 1	200 2 3	450 18 11	94	630	2,457 0 0
July	275 11 11	205 14 2	225 3 7	506 0 7	87	612	2,386 16 0
August	255 18 7	243 9 0	221 19 1	517 19 1	87	586	2,285 8 0
September	222 2 4	189 5 4	234 5 5	550 11 11	75	495	1,930 10 0
October	286 4 1	274 9 6	226 10 7	561 19 5	84	639	2,492 2 0
November	270 10 5	110 9 3	226 5 6	719 1 10	70	599	2,336 2 0
December	217 12 4	270 8 1	246 18 2	667 17 1	74	478	1,864 4 0
1902.							
January	204 19 10	150 5 10	216 17 10	721 6 1	71	475	1,852 10 0
February	267 1 8	159 4 7	223 18 7	829 8 2	68	589	2,297 2 0
March	305 16 2	271 14 10	239 9 4	864 8 3	84	731	2,850 18 0
Totals	3,183 10 11	2,881 0 9	2,691 1 9	..	81·5 (average)	7,164	27,939 12 0

The following statement shows the claims that have been sluicing on the Kumara goldfield during the year ended the 31st March, 1902; also the number of men in each claim, fall and width of boxes in each tail-race, number of sluice-heads used in sluicing, number of cubic yards sluiced away per hour, and race from which the water used was supplied:—

Name of Party.	Number of Men employed in each Claim.	Fall to 12 ft. in Tail-race.	Width of Boxes in Tail-race.	Number of Sluice-heads used in sluicing.	Auriferous Wash sluiced away per Hour.	Race from which the Water is supplied.	Remarks.
		In.	In.		Cub. yd.		
No. 2 channel—							
Dillon and party ...	4	7	24	12	84	Kumara Race	Sluiced six months.
No. 3 channel—							
Light and party ...	5	6	22	10	60	"	
Neame and party ..	3	5	22	9	45	"	
Rochford and party ...	4	8	22	10	80	"	
Rochford and party ...	3	4½	22	10	45	"	Late Neville's. Sluiced five months.
Williams and party ...	3	6	22	10	60	"	
Neame No. 2	2	5	22	10	50	"	Sluiced one month.
No. 4 channel—							
Cullen and party ...	6	7	24	11	77	"	Sluiced ten months.
Long Tunnel Company..	8	7	26	22	154	Private race	
No. 5 channel—							
Burger and party ...	5	8	24	10	80	Kumara Race	
Thomson and party ...	4	8	24	10	80	"	
Morgan and party ..	3	8	24	10	80	"	
Thorn and party ...	4	8	24	10	80	"	
Candy and party ...	4	8	26	10	80	"	
Giffney and party ...	5	7	26	11	77	"	
Private races—							
Lee and party ...	3	8	24	12	96	"	Sluiced four months.
Pascoe and party ...	6	7	26	16	112	"	
Bowden and party ...	3	8	24	10	80	"	Sluiced one month.
Roberts and party ...	3	8	22	8	64	"	Sluiced two months.
Moynihan and party ...	10	8	24	22	176	Private race	
Arnerich and party ...	3	8	24	15	120	"	
Carlssen and party ...	5	8	24	14	112	Kumara Race	Sluiced seven months.

Kumara Deep Level.

No work of any kind has been done in connection with the Kumara Deep-level Tunnel during the year, except keeping the mouth clear for the free discharge of drainage-water.

Wainihinihi Race.

The dam at the head of this race has stood the test of very severe floods without showing any signs of weakness, and is perfectly watertight, so that the whole of the water in the river is picked up by the race, except in flood-time, when there is more water than the race will carry. A slip from the mountain above the race came down and crossed the race, but no portion of the race was carried away; it was only filled with *débris* on the track of the slip. The race has been cleared out and covered to prevent any damage from a recurrence of slip.

Portions of the race where the ground was bad have been timbered, and the by-wash which takes the water during floods has been completed, and acts well. The whole of the race is in good condition, and the supply of water has been of great service during dry weather. The supply, however, has sometimes been very limited, as the whole of water available in the creek has more than once during the year been less than fifteen sluice-heads.

I have, &c.,

ALEX. AITKEN,

The Under-Secretary, Mines Department, Wellington. Manager, Water-races.

[For table showing the result of working the Kumara Water-race for nineteen years, see page 128A.]

Mr. R. MURRAY, Manager, Government Water-races, Naseby, to the UNDER-SECRETARY, Mines Department, Wellington.

SIR,— Naseby, 17th May, 1902.

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, 1902:—

MOUNT IDA WATER-RACE.

The total sales of water from this race during the year amounted to £1,210 15s., a falling-off of £341 19s. as compared with last year. The expenditure on maintenance and repairs for the same period was £1,396 15s. 9d., an increase of £150 3s. 9d. The total cash received was £1,208 0s. 10d. On account of payment in advance, free water to the value of £51 6s. 11d. was supplied. Free water to the value of £2 4s. 2d. was supplied to assist in opening up new claims, and free water for washing up was also supplied to the value of £86 4s. 7d. The total value of water supplied from this race during the year amounted to £1,350 10s. 8d. The average number of miners supplied with water was 58·4, an increase of ten over that of last year. This increase is principally due to the discovery last November of a layer (6 ft. thick) of payable wash in the "Maori bottom" in Main Gully, immediately above the Town of Naseby. The approximate quantity of gold obtained by parties using water from this race was 1,889 oz., valued at £7,272 13s.

From the 1st April to the 23rd May, the weather being so dry and the reservoir empty, there was barely sufficient water to keep the miners going on half-time. A heavy fall of snow on the 22nd May so increased and kept up the supply that there was plenty to meet the demand until the 25th June, when all mining was suspended on account of the hard frost.

The winter was a very long one, with hard frost and very little snow, lasting from the 25th June to the 24th August (fifty-four days). On this date a thaw set in, and on the 26th I started to clean out the race with all the strength available. Having got as far as the reservoir on the 3rd September, the water was turned on to the miners, enabling them to make a start. The cleaning-out was completed on the 13th October.

On account of hard frost setting in several weeks before any snow fell, it penetrated deeply into the banks of the race, especially the high, clayey gravel sidelings; thus, when the thaw set in, it loosened and brought down a heavy lot of stuff into the race, making the cleaning-out in many places very heavy. The snowfall on the range supplying the race was less last winter than it was for nine years previously. It was practically gone by the end of August, and in consequence of the weather from this date to the 19th November keeping dry there was barely a half-supply, the reservoir having run dry on the 27th September.

Heavy rain set in on the 19th November, raining almost daily, and on the 15th December a thunderstorm broke along the race from Coal-pit Gully as far as Pearce's Gorge, filling up the race in this and Johnstone's Creek, Wedderburn West Sideling, and a large amount from Coal-pit to Home Gully Dam. Again, on the 10th January, the rainfall was so heavy from Johnstone's Creek upwards that large quantities of shingle were carried down the creeks off the mountain-range and along the race sidelings. Assistance had to be sent to the two upper maintenance men, as they were unable to cope with the effects of the flood.

On the 19th March heavy rain set in, continuing for five days, when on the 22nd and 23rd there was an extraordinary flood in the creeks from Hill's Creek downwards, especially in the East Eweburn, which was dangerous to cross. The ground became so saturated that a large number of slips into the race took place, the worst being in Coal-pit Gully, where the material is of a sticky lignite clay, hard to shift; while on both sides of the Wedderburn Creek a large amount of *débris* was brought down.

Only three small breaks occurred during the year.

The large amount of extra labour that had to be employed during the last four months, and the dryness of the period during the whole of April to the 23rd May, and from the beginning of Sep-

tember to the 19th November, accounts for the heavy increase—£150 3s. 9d.—in the expenditure over that of last year, and the reduction in the price of water is largly responsible for the falling-off in the revenue this year.

The number of days on which no water was supplied to the miners was: Winter, fifty-four; Christmas holidays, one; New Year, one; while cleaning out slips, seven: a total of sixty-four days.

The parties working in the "Maori bottom" are, I believe, earning about wages. They are very much handicapped for the want of sufficient pressure, the ground being very light.

Two new elevating claims have been taken up during the year—one of 5 acres in Milkman's Gully, and one of 18 acres at the bottom of Mulholland's Gully. There are fifteen elevating claims at work in the district, eleven of which are supplied from the Government race; all, I believe, doing fairly well.

Blackstone Hill Water-race

The total sales of water from this race during the year amounted to £74 9s. 6d. The total cash received was £78 4s. 6d. The total cost of maintenance and repairs was £13 5s. The approximate quantity of gold obtained was 125 oz., valued at £481 5s.

A good side-trimming was given this race during the dry weather in April; further slight repairs during the season had to be given to it on account of rabbit-burrowing. It, like the Mount Ida Race, suffered from the want of water during the dry season.

There have been only two parties—R. Johnstone and C. Rose—using water from this race during the year.

I have, &c.,

The Under-Secretary, Mines Department, Wellington. R. Murray, Manager.

WATER-CONSERVATION.

Mr. T. Perham, A.M.Inst.C.E., to the Under-Secretary for Mines, Wellington.

Sir,— Mines Department, Wellington, 21st May, 1902.

I have the honour to forward my report, for the year ending the 31st March, 1902.

North Island.

Domestic Water-supplies, Thames-Hauraki Goldfields.

Several plans and reports in connection with the above water-supplies have been revised and recorded. The Mackaytown reticulation extension by means of smaller pipes has been approved, and is being carried out. With regard to Waikino and Golden Cross supplies, no further action has as yet been taken.

An examination and report was made early in the year on an encroachment by the sea upon the foreshore at Tapu, Thames, and also an exhaustive examination and survey in relation to the silting-up of the junction of the Ohinemuri and Waihou Rivers by the slime or fine tailings from the mines at Waihi, Karangahake, and Waitekauri, and copies have been supplied to the local bodies interested.

South Island.

The West Eweburn Storage-reservoir, near Naseby, is now completed and in full working-order, securely fenced, and a commencement has been made towards planting the reserve with suitable trees.

The weeping has entirely ceased, and the water-level risen to 57 ft., or within 8 ft. of the by-wash, in spite of the water being constantly drawn on for mining purposes since the caulking of the eastern wing was completed. In this connection Mr. Hayes, Inspecting Engineer, who has recently visited the dam, reports: "The grouting recommended in the joint report of Mr. Perham and myself appears to have been well done, but its efficiency will not be fully proved this season owing to the reservoir being largely drawn upon for supply purposes. The present level of the water has, however, enabled me to see clearly that some of the soakage observed at the time referred to in a former report is due to percolation down a spur from a higher level than the top of the dam, and is not, in this part at least, due to any weakness in the dam itself."

I have before reported on this percolation down the spur mentioned above. It is entirely separate from the constructed portion of the dam proper. Since the stripping of that end of the water-face and the subsequent grouting, all weeping at the junction has entirely ceased. The water-race manager reports: "The dam has been severely tested lately by heavy floods in the creek, and by the water being also intermittently drawn off for exceptional mining purposes." I am of opinion there will be no further trouble now that the seepage has been stopped, and the bank settled down and become well consolidated. In my last year's report I mentioned that this weeping is no sign of weakness in the construction of the dam, as it is well known that all earthen dams, especially of this magnitude, sometimes take years before they completely tighten up.

A re-examination and survey has been made of the locality of the proposed wrought-iron pipe-siphon across the Wedderburn Valley to cut off about four miles and a half of very treacherous country through which the race runs. For the length named the race is liable to damage owing to continuous slips and consequent erosions. Amended plans and estimates have been formed, and a contract for 39 chains of 27 in. pipes let to a Dunedin firm; but owing to the plate iron not being obtainable in the colony the work of construction cannot be commenced until next spring.

Full working-plans of the proposed irrigation reservoir in the Idaburn Gorge are completed, and plans for a reservoir on Hill's Creek, five miles from the township of that name, are in course of preparation. This will form a valuable addition to the Mount Ida Water-race for

mining purposes, and the proposed reservoir will, if constructed, serve hereafter for irrigating the upper portion of the Ida Valley.

In connection with dredging operations on the Charlton Creek at Gore, and on the Waimumu Creek at Mataura, channels have been laid out and the necessary plans prepared for relieving the creeks of the flood-waters, and disposing of the tailings into the Mataura River. Arrangements have been made between the miners and the farmers of the district of a satisfactory nature, and the construction of both channels will probably be commenced at an early date.

Several claims having recently been taken up and worked on the Naseby side of the Hogburn Gully (in the "Maori bottom"), it has become necessary to increase the water-storage in Home Gully for working those parts of the field hitherto supplied direct from the Mount Ida Water-race. A moderate supply of water and an excellent site has been secured for a new dam in Home Gully; a survey has been made, plans prepared, and tenders called for.

REPORTS, ETC., FOR OTHER DEPARTMENTS.

Beyond finally deciding the amount of indebtedness of the Wairoa Harbour Board to the contractors on the construction of training-walls, &c., in the Wairoa River, no other work has been taken outside this Department.

I have, &c.,

T. PERHAM, A.M.Inst.C.E.,
Engineer, Water-conservation.

The Under-Secretary, Mines Department, Wellington.

MINE-MANAGERS' AND BATTERY-SUPERINTENDENTS' EXAMINATION PAPERS.

QUESTIONS USED IN EXAMINATION OF MINING MANAGERS FOR CERTIFICATES.

SUBJECT A.—*The Laying-out and Construction of Shafts, Chambers, Main Drives or Levels, Adits, Uprises, and Stopes.*

1. A lode dips at an angle of 30° eastward, the outcrop of which is visible on the surface. State where you would sink a vertical shaft in relation to the lode, and give reasons for your answer.

2. An adit-level is driven 300 ft. to cut a vertical reef, and, allowing a fall of 1 in 12 in the drive, a straight line from mouth of adit to outcrop of reef is 500 ft. What depth would you require to sink a shaft from the outcrop to connect with the adit?

3. A drive is 6 ft. 6 in. high, 4 ft. 6 in. wide at the bottom, and 3 ft. 6 in. at the top, the whole being solid quartz. How many feet of driving would be required to provide ore for a forty-stamp battery for twenty-eight days, working full time—capacity per stamp 1 ton per eight-hour shift, and assuming 180 lb. as the weight of a cubic foot of quartz?

4. Compare the relative merits of rectangular and vertical shafts. Give an estimate of cost for sinking 100 ft. of each, having approximately equal areas.

5. Define the terms "winze," "stope," "pass," "adit," "drive," and "crosscut." What is the use of a pass, and what distance would you have them apart if you were working a 4 ft. reef?

SUBJECT B.—*On the Timbering of Shafts, Adits, Main Drives or Levels, Passes, Stopes, and generally on the Systems of Timbering Mine, and also in Filling up Old Workings.*

1. Give the dimensions of timber for a main adit in heavy ground—(*a*) if for a double line of rails, (*b*) for a single line of rails. State how you would make each set, and what provision you would make if the ground was liable to swell. Give your reasons fully.

2. How far apart do you consider it most economical to have passes, and how would you timber them in heavy ground? Give dimensions of passes and size of timbers. Give your reasons fully.

3. State how you would timber a shaft with formed sets if the shaft were 12 ft. by 6 ft. in the clear: give the dimensions of timber you would use, and show by sketch how you fit the timber, and the distance you would place the sets apart if the ground was heavy.

4. How would you secure the ground in stoping out a lode 6 ft. wide—(*a*) timbering the stope, (*b*) to secure the ground after being stoped out—if the ground were liable to crush, and the lode underlying at an angle of 40°?

5. Describe how you would secure the timber in the main adit so as to prevent more than two sets of laths coming down in the event of a cap breaking; also give your reasons why all empty spaces should be filled up on the top of the laths.

SUBJECT C.—*The Ventilation of Mines, and Composition of Gases.*

1. Under what conditions is CH_4 likely to be found in metalliferous mines? How would you detect it? State generally what you know about this gas.

2. Give the compositions, gravities, and characteristics of CO and CO_2. Describe the conditions under which they are likely to be found in mines.

3. If in reopening an old filled-up shaft the men became overpowered by CO_2, what steps would you take to promptly rescue them? Safety of rescues must be taken into consideration.

4. Explain the various methods for obtaining positive ventilation and the reason for splitting the air-currents.

5. A fan is exhausting 150,000 cubic feet of air per minute; water-gauge reading, 3 in.; engine cylinder, 24 in. diameter by 36 in. stroke; piston-rod (one side only), $3\frac{1}{2}$ in. diameter; revolutions, sixty per minute; mean steam pressure, 40 lb. per square inch. Allowing for 15 per cent. of the steam-power being absorbed by frictional resistances, &c., what percentage of useful effect does the fan yield?

SUMMARY showing the RESULT of WORKING the KUMARA WATER-RACE for Nineteen Years, from 1st April, 1883, to 31st March, 1902.

Water supplied.	Year.	Rate per Sluice-head per Week.	April.	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	Total Value of Water sold.	Total Value Free for Assistance.	Total Value Free for Deviations.	Total for Construction of No. 3 Channel.	Total Value Water supplied.	Average Number of Sluice-heads supplied Daily.	Expenditure.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		£ s. d.
Water sold ..	1883–84	3 0 0	371 16 5	465 2 1	700 2 6	583 9 7	702 7 6	626 16 3	808 10 5	777 3 9	774 17 11	698 2 6	1,064 0 0	774 6 0	8,346 14 11	..	..	..	..	..	..
Free	1883–84	..	46 2 6	44 5 0	183 11 8	108 19 2	108 0 0	85 7 6	244 7 6	172 18 9	63 12 6	103 9 2	86 5 0	139 3 4	..	1,386 2 1	..	..	..	..	..
			417 18 11	509 7 1	883 14 2	692 8 9	810 7 6	712 3 9	1,052 17 11	950 2 6	838 10 5	801 11 8	1,150 5 0	913 9 4	..	..	..	..	9,732 17 0	46·35	2,153 5 5
Water sold ..	1884–85	3 0 0	580 4 4	937 19 4	667 3 11	906 16 10	882 6 10	997 1 5	919 12 3	1,126 11 10	819 17 3	289 4 2	756 9 2	821 0 10	9,704 8 2	..	..	..	..	..	..
Free	1884–85	..	92 5 0	56 19 7	78 18 9	55 13 9	149 0 10	18 11 3	145 13 4	69 3 9	39 15 0	26 12 6	45 3 9	2 16 8	..	780 14 2	..	..	..	..	..
			672 9 4	994 18 11	746 2 8	962 10 7	1,031 7 8	1,015 12 8	1,065 5 7	1,195 15 7	859 12 3	315 16 8	801 12 11	823 17 6	..	..	..	..	10,485 2 4	49·92	1,656 0 1
Water sold ..	1885–86	2 10 0	665 16 0	796 6 9	893 5 3	745 19 7	773 19 10	943 13 5	953 15 6	997 7 8	697 13 5	686 4 0	708 15 8	935 19 7	9,788 16 8	..	..	..	..	..	..
Free	1885–86	..	24 13 9	9 2 0	..	..	23 15 0	31 3 4	22 1 3	18 11 10	18 7 2	49 1 4	1 5 0	13 2 6	..	221 3 2	..	..	..	..	..
			690 9 9	805 8 9	893 5 3	745 19 7	797 14 10	974 16 9	975 16 9	1,015 19 6	716 0 7	735 5 4	710 0 8	949 2 1	..	..	..	..	10,009 19 10	57·20	1,454 19 5
Water sold ..	1886–87	2 10 0	758 0 4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Water sold ..	1886–87	2 0 0	..	19 10 8	488 3 9	315 7 11	599 5 0	643 7 11	682 8 9	686 7 5	562 0 10	345 12 7	673 0 0	747 9 2	6,470 14 4	..	..	..	..	..	..
Free	1886–87	..	..	776 0 11	242 0 11	40 13 9	120 9 7	83 15 10	74 5 0	45 9 2	32 15 0	46 8 9	49 16 8	36 3 4	..	1,547 18 11	..	..	..	..	..
			758 0 4	795 11 7	730 4 8	356 1 8	719 14 7	727 3 9	706 13 9	731 16 7	594 15 10	392 1·4	722 16 8	783 12 6	..	..	..	..	8,018 13 3	56·19	1,398 18 10
Water sold ..	1887–88	2 0 0	535 5 10	679 7 8	167 10 10	656 4 7	684 16 1	694 5 0	591 12 1	710 0 0	535 10 10	519 15 5	670 17 6	734 4 5	7,169 10 3	..	..	..	..	..	..
Free	1887–88	..	26 11 8	40 19 2	15 13 9	23 10 0	47 7 11	4 11 8	34 16 8	42 10 0	27 10 0	28 6 8	19 11 8	15 17 3	..	347 6 5	..	..	..	..	..
			561 17 6	720 6 10	183 4 7	679 14 7	732 4 0	698 16 8	626 8 9	752 10 0	553 0 10	548 2 1	690 9 2	750 1 8	..	..	..	..	7,516 16 8	53·68	982 12 0
Water sold ..	1888–89	2 0 0	490 6 8	338 7 7	532 1 1	626 19 10	667 8 3	542 8 4	702 12 6	664 1 7	395 12 3	465 2 1	623 18 4	667 8 4	6,716 6 10	..	..	..	..	..	..
Free	1888–89	..	107 17 3	90 18 0	87 1 4	75 1 10	32 10 0	16 9 5	38 1 4	13 0 0	34 9 2	58 6 8	90 10 10	74 13 4	..	492 0 0	227 0 0	..	..	..	..
			598 3 11	429 5 7	619 2 5	702 1 8	699 18 3	558 17 9	740 13 10	667 1 7	430 1 5	523 9 7	714 9 2	742 1 8	..	..	..	..	7,435 6 10	53·10	1,024 1 9
Water sold ..	1889–90	2 0 0	401 13 4	495 16 4	256 16 8	377 16 3	353 4 2	237 7 11	318 10 10	293 8 4	159 18 9	219 15 10	248 19 7	186 16 8	3,550 4 8	..	..	..	..	..	..
Free	1889–90	..	45 15 0	55 3 4	43 0 0	92 15 0	105 15 0	93 1 8	41 10 0	103 18 4	105 13 4	48 17 6	54 8 4	71 5 0	..	396 2 6	465 0 0	..	..	..	..
Free, No. 3 Channel	1889–90	..	..	..	..	..	122 19 1	335 1 3	330 11 8	275 8 0	97 13 4	6 0 0	221 18 1	102 11 5	..	..	..	1,492 2 10	..	..	..
			447 8 4	550 19 8	299 16 8	470 11 3	581 18 3	665 10 10	690 12 6	672 14 8	363 5 5	274 13 4	525 6 0	360 13 1	..	..	..	..	5,903 10 0	42·16	1,424 13 3
Water sold ..	1890–91	2 0 0	300 12 6	355 11 11	368 3 2	423 9 0	622 17 11	666 7 1	720 16 1	701 5 10	578 1 8	546 17 11	691 17 11	689 11 8	6,665 12 8	..	..	..	..	..	..
Free	1890–91	..	113 5 0	119 14 2	70 7 11	71 17 6	82 9 7	110 16 8	93 13 9	106 0 10	57 5 5	113 6 8	133 2 6	130 5 10	..	409 5 5	793 0 5	..	..	..	..
Free, No. 3 Channel	1890–91	..	272 11 11	247 3 6	246 17 10	115 2 11	32 2 2	..	..	..	..	..	..	..	..	..	..	913 18 4	..	..	..
			686 9 5	722 9 7	685 8 11	610 9 5	737 9 8	777 3 9	814 9 10	807 6 8	635 7 1	660 4 7	825 0 5	819 17 6	..	..	..	..	8,781 16 10	62·72	1,766 4 3
Water sold ..	1891–92	2 0 0	616 5 10	655 4 11	542 9 1	179 11 11	426 16 1	769 15 5	784 13 8	642 4 2	469 10 0	291 3 9	543 7 6	724 8 8	6,645 11 0	..	..	..	..	..	..
Free	1891–92	..	143 11 5	191 16 8	44 3 6	..	82 16 11	151 14 7	118 10 1	233 1 8	213 11 3	137 0 10	64 11 8	28 9 2	..	996 4 5	413 3 4	..	..	..	..
			759 17 3	847 1 7	586 12 7	179 11 11	509 13 0	921 10 0	903 3 9	875 5 10	683 1 3	428 4 7	607 19 2	752 17 10	..	..	..	..	8,054 18 9	57·53	1,584 10 11
Water sold ..	1892–93	2 0 0	495 17 1	505 12 11	493 5 10	495 13 6	602 2 8	635 1 3	571 1 8	458 7 1	382 2 1	390 19 2	450 7 6	308 10 0	5,789 0 9	..	..	..	..	..	..
Free	1892–93	..	44 18 9	80 2 6	72 4 2	61 2 1	43 5 10	38 2 6	44 0 10	66 2 6	157 6 8	94 4 2	77 10 10	64 2 6	..	444 15 8	398 7 8	..	..	..	..
			540 15 10	585 15 5	565 10 0	556 15 7	645 8 6	673 3 9	615 2 6	524 9 7	539 8 9	485 8 4	527 18 4	372 12 6	..	..	..	..	6,632 4 1	47·35	1,782 11 0
Water sold ..	1893–94	2 0 0	451 16 5	480 13 7	541 11 11	542 9 6	575 10 5	486 9 2	539 8 4	402 11 11	451 5 5	303 0 10	415 5 5	392 1 8	5,582 4 7	..	..	..	..	..	..
Free	1893–94	..	101 5 2	119 5 7	99 4 6	110 7 1	92 9 10	147 16 2	112 11 0	164 18 5	82 0 4	112 3 10	132 15 10	70 6 10	..	1,306 0 3	39 4 4	..	..	..	..
			553 1 7	599 19 2	640 16 5	652 16 7	668 0 3	634 5 4	651 19 4	567 10 4	533 5 9	415 4 8	548 1 3	462 8 6	..	..	..	..	927 9 2	49·48	1,917 8 5
Water sold ..	1894–95	2 0 0	477 1 8	437 17 4	501 3 4	482 1 3	513 7 11	413 0 5	213 19 2	375 7 6	428 8 9	298 2 5	198 7 1	308 2 11	4,646 19 9	..	..	..	..	..	..
Free	1894–95	..	76 11 8	98 12 8	103 1 3	92 17 11	83 5 0	122 17 6	96 4 2	105 6 8	81 11 8	74 14 2	72 17 6	86 12 6	..	1,054 12 8	40 0 0	..	5,741 12 5	41·01	1,976 17 7
			553 13 4	536 10 0	604 4 7	574 19 2	596 12 11	535 17 11	310 3 4	480 14 2	510 0 5	372 16 7	271 4 7	394 15 5	..	..	..	..	..	..	..
Water sold ..	1895–96	2 0 0	277 5 10	379 15 0	349 12 1	322 15 10	345 1 8	354 1 8	351 16 8	336 5 5	331 0 0	315 15 5	336 3 4	406 18 4	4,106 11 3	..	..	..	..	..	..
Free	1895–96	..	95 3 4	96 1 8	139 19 2	81 16 3	76 19 7	77 10 10	110 9 7	114 12 1	67 3 4	92 8 4	90 18 11	86 16 3	..	1,129 19 4	..	..	..	..	..
Free, No. 4 Channel	1895–96	..	..	..	..	..	5 12 6	39 14 2	62 7 6	56 9 2	65 4 7	32 10 0	36 1 3	34 15 10	..	..	..	332 15 0	5,569 5 7	39·78	1,943 8 7
			372 9 2	475 16 8	489 11 3	404 12 1	427 13 9	471 6 8	524 13 9	507 6 8	463 7 11	440 13 9	463 3 6	528 10 5	..	..	..	..	..	..	..
Water sold ..	1896–97	{2 0 0 / 1 10 0}	286 13 4	307 0 0	166 9 6	387 13 8	318 10 7	310 7 4	356 16 4	322 8 10	144 13 3	319 1 3	284 1 3	299 1 8	3,502 17 0	..	..	..	..	..	..
Free	1896–97	..	100 5 0	99 4 10	22 18 2	31 1 10	12 19 4	22 16 10	13 18 4	12 11 3	12 18 9	51 18 9	58 16 2	39 19 9	..	479 9 0	..	..	..	..	..
Free, No. 4 Channel	1896–97	..	15 0 0	14 16 8	4 0 10	18 0 0	7 0 0	18 0 0	9 0 0	12 0 0	7 0 0	6 0 0	10 0 0	13 0 0	..	..	..	133 17 6	4,116 3 6	40·41	1,786 15 9
			401 18 4	421 1 6	193 8 6	436 15 6	338 9 11	351 4 2	379 14 8	347 0 1	164 12 0	377 0 0	352 17 5	352 1 5	..	..	..	..	..	..	..
Water sold ..	1897–98	..	243 11 2	240 5 1	204 19 1	210 11 1	266 15 6	147 4 8	296 9 10	213 1 9	255 19 11	208 16 2	415 13 9	185 15 3	2,889 3 3	..	..	..	..	..	..
Free	1897–98	..	29 1 3	39 16 3	18 1 10	29 5 0	29 0 0	51 5 0	49 14 4	52 10 0	38 2 6	29 1 3	..	48 15 0	..	414 12 5	..	..	..	..	..
Free, No. 4 Channel	1897–98	..	..	..	..	..	..	..	..	..	2 10 0	14 0 0	17 0 0	..	..	33 10 0	..	..	3,337 5 8	..	1,841 0 0
			272 12 5	280 1 4	223 0 11	239 16 1	295 15 6	198 9 8	346 4 2	265 11 9	296 12 5	251 17 5	432 13 9	234 10 3	..	..	..	..	..	..	..
Water sold ..	1898–99	..	160 6 6	194 11 5	171 13 0	226 15 6	224 0 6	251 9 1	202 2 11	233 18 5	258 15 4	196 19 9	320 17 10	270 4 2	2,711 14 5	..	..	..	..	..	..
Free	1898–99	..	28 15 0	59 1 3	30 7 6	42 3 9	45 13 9	54 7 6	33 15 0	37 10 0	28 8 1	28 2 6	37 10 0	44 1 3	..	469 15 7	..	..	..	..	..
Free, No. 4 Channel	1898–99	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3,181 10 0	..	2,174 3 11
			189 1 6	253 12 8	202 0 6	268 19 3	269 14 3	305 16 7	235 17 11	271 8 5	287 3 5	225 2 3	358 7 10	314 5 5	..	..	..	..	..	..	..
Water sold ..	1899–1900	1 10 0	227 5 6	312 9 1	251 19 9	244 19 2	196 14 3	157 7 1	218 13 4	129 12 10	177 13 11	122 1 4	193 0 2	226 19 3	2,458 15 8	..	..	..	..	..	..
Free	1899–1900	..	44 7 6	52 9 0	46 17 5	55 18 9	43 7 7	40 6 3	46 2 6	44 7 6	46 17 6	41 5 0	45 0 0	42 15 0	..	549 14 0	..	..	..	..	..
Free, No. 5 Channel	1899–1900	..	..	..	..	..	..	..	..	..	..	..	36 11 2	93 14 11	..	..	..	130 6 1	3,138 15 9	43·60	1,904 7 9
			271 13 0	364 18 1	298 17 2	300 17 11	240 1 10	197 13 4	264 15 10	174 0 4	224 11 5	163 6 4	274 11 4	363 9 2	..	..	..	..	..	..	..
Water sold ..	1900–1901	{1 10 0 / 1 0 0}	108 8 6	259 2 0	167 4 3	220 5 9	265 12 4	220 6 10	235 19 2	143 2 5	111 0 1	122 2 7	196 2 1	132 5 0	2,181 11 0	..	..	..	..	..	..
Free	1900–1901	..	34 7 6	49 6 3	35 18 1	41 5 0	44 4 4	53 8 8	61 14 4	51 3 8	50 17 5	12 15 8	..	..	..	435 0 11	..	..	..	..	..
Free, No. 5 Channel	1900–1901	..	68 18 2	14 1 3	47 10 0	78 18 1	21 14 4	4 4 5	4 4 4	26 11 3	11 17 6	1 12 1	13 8 1	12 16 8	..	..	..	305 16 2	2,922 8 1	45·91	2,077 16 10
			211 14 2	322 9 6	250 12 4	340 8 10	331 11 0	277 19 11	301 17 10	220 17 4	173 15 0	136 10 4	209 10 2	145 1 8	98,926 17 2	12,894 6 11	2,375 15 9	3,308 15 11	117,505 15 9	..	30,849 15 9
Water sold ..	1901–1902	1 0 0	203 18 9	236 8 2	199 19 2	209 17 9	174 8 7	172 4 10	215 9 6	213 17 1	167 15 7	127 11 6	161 15 10	167 5 5	2,250 12 2	..	..	..	..	..	..
Free	1901–1902	..	8 12 6	15 15 0	12 15 0	7 17 6	7 12 1	6 5 0	9 7 6	7 3 9	5 6 3	19 17 6	10 10 0	..	..	111 2 1	..	..	2,361 14 3	48·0	1,706 10 0
			212 11 3	252 3 2	212 14 2	217 15 3	182 0 8	178 9 10	224 17 0	221 0 10	173 1 10	147 9 0	172 5 10	167 5 5	101,177 9 4	13,005 9 0	2,375 15 9	3,308 15 11	119,867 10 0	..	32,556 5 9

6. Show by arrows, &c., how you would conduct air through the workings shown on accompanying sketch, ventilation to be by some power which will prevent the reversals of current which occur when natural ventilation is relied on. State what power you would adopt, and show where you would apply it. (Note.—Levels connected to main shaft by crosscuts.)

SUBJECT D.—*Tapping Water in Mines, and the Mode of constructing Dams in Underground Workings to keep the Water back.*

1. If you were driving in the direction of old workings known to contain water in large quantity, what precautions would you adopt? Explain fully.
2. Describe the construction of a suitable dam to be built in a tunnel 6 ft. wide by 7 ft. high, and to resist water having a pressure due to a vertical head of 170 ft. Give leading dimensions and state total pressure on the dam.
3. Explain how you would construct a water-tunnel in ground subject to swell.
4. What methods are adopted in shafts to obviate feeders of water having to be pumped? Particularise as far as possible.

SUBJECT E.—*On Blasting and the Use of Explosives.*

1. What explosives do you consider the best to use in crosscutting in hard rock? Give your reasons fully.
2. What is the relative strength of dynamite, rackarock, compressed powder, and blasting-gelatine in comparison with the ordinary blasting-powder?
3. What method would you use to thaw dynamite when in a frozen condition, and at what temperature does it freeze?
4. What explosive do you consider the best to use in wet and hard ground? Give your reasons fully.
5. If a shot were to miss fire, what precautions would you take, and how would you proceed to disintegrate the rock that the miss-charge was in?

SUBJECT F.—*A Knowledge of Arithmetic, and the Method of keeping Mining Accounts.*

1. The wages of 9 men and 5 boys for 48 hours in doing a certain piece of work was £36. Assuming that 4 boys did as much as 3 men, how much did each receive, and how long would it have taken 5 men and 3 boys to do the same work?
2. The excavation for a battery on the side of a hill was 90 ft. long. At one end the width was 30 ft., and the height of the bank measured on a slope of 1 in 4 was 21 ft.; at the other end the width was 13 ft., and the height of the bank on a slope of 1 in 4 was 9 ft. 2½ in. How many cubic feet were there in the excavation?
3. How many cubic feet of timber are there in two poppet-head legs, each 90 ft. long, 2 ft. 4 in. in diameter at the one end and 1 ft. 3 in. at the other?
4. The distance between two levels vertically is 100 ft. A quartz lode is lying on an angle of 45 degrees, the average thickness of the lode is 6 ft. 5 in. at one end of a block 150 ft. in length, and 3 ft. 9 in. at the other. At 75 ft. from either end the lode has an average thickness of 7 ft. 7 in. How many tons of quartz are there in the block between the two levels, allowing 16 cubic feet to a ton?
5. A bar weighing 415 oz. bullion contained gold of 2251 fine and silver 5632 fine. Taking pure gold at £4 4s. an ounce, and silver at 2s. 3d. per ounce, required the value of the gold and silver.

SUBJECT G.—*A Knowledge of Part V. of "The Mining Act, 1898."*

SUBJECT H.—*Pumping Appliances and the Drainage of Mines.*

1. Describe the leading features of a large steam-pump to be placed underground, and to work against a vertical head of 800 ft. Economy of steam and accessibility of parts most liable to derangement to be fully considered.
2. What is a pulsometer? Explain its action, uses, and limits of application.
3. In sinking a shaft, a considerable amount of water is met with, and has to be raised in tanks. Describe how this may be effected without the tanks dipping into the water, or being filled by baling.
4. An ordinary bucket pump working sixteen hours daily has a diameter of 18 in. and a travel of 88 ft. per minute. It has to be replaced by a steam-pump capable of raising the water in twelve hours. Assuming the latter to have two double-acting rams, and to work at a speed of 100 ft. per minute, what will be the diameter of the rams?

SUBJECT I.—*The Haulage in Shafts and on Underground Planes; also the Strength of Haulage Ropes and Chains.*

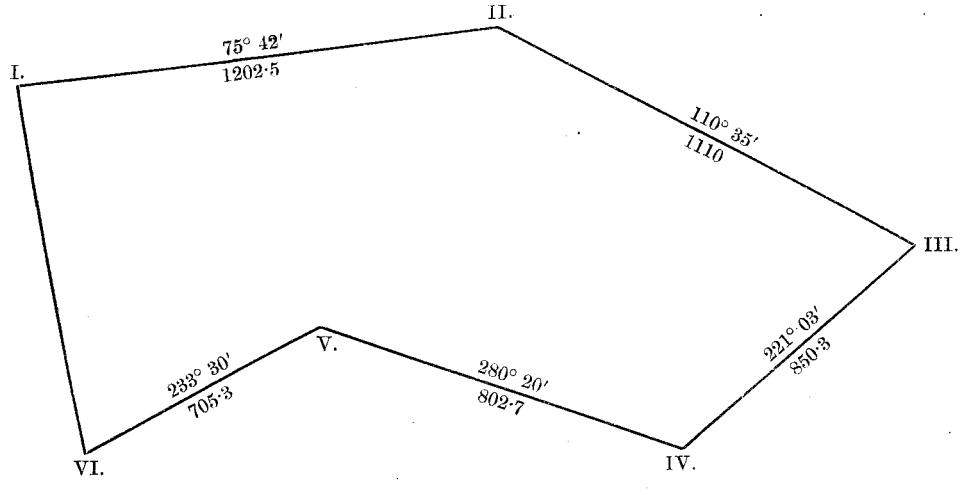
1. Give diameter of cylinders, length of stroke, and diameter of drum (on first motion) required to raise 500 tons per shift from a depth of 800 ft. Boiler pressure 80 lb. per square inch.
2. Explain how (at deep shafts) the weight of winding-ropes is balanced, and also the advantages and disadvantages attending any system of balancing.
3. Sketch the ground plan and general arrangements of an endless-rope tramway, and explain its leading features. Give reasons for and against the rope being placed (*a*) under, and (*b*) over, the trucks, and show how you would secure the trucks to the rope when the tramway has undulating gradients.
4. Give in detail the particulars of steam plant required to haul 20 tons per hour up an incline 75 chains long with one line of rails only, and having a gradient of 1 in 3.

SUBJECT J. — *The Effect that Faults, Slides, and Mullock-bars have on Lodes, and how to ascertain the direction of Slides and Heavals.*

1. Are breaks, slides, and faults, from your own experience, frequent in New Zealand mineral lodes? and give examples fully described.
2. When a "throw" cuts off a lode having a N. and S. course, how would you proceed to prove and overcome it in the working of the mine?
3. What is a "heave," and how does it affect a "lode fissure"?
4. What is the difference between a "slide" and a "fault," and when they are encountered in underground workings by what signs are they to be distinguished from each other, and from "throws" and "heaves"?

SUBJECT K.—*A knowledge of Underground Surveying, and of making Plans of the Underground Workings, showing the Dip or Inclination and Strike of the Reefs or Lodes.*

1. State what instruments and implements are used in ordinary surveying.
2. What is a vernier? Describe how it is constructed.
3. Find the bearing and distance of the line VI–I; co-ordinate and tabulate the traverse; compute the area. Distances given in links.



4. Describe the adjustments of a plain theodolite.
5. Explain the respective merits of a plain and a transit theodolite.
6. Describe the adjustments of a "Dumpy level."

SUBJECT L. — *A knowledge of the different Rocks where Gold, Silver, Tin, Copper, Zinc, Lead, and Antimony are found, and the Formation of Lodes and Leads.*

1. What metallic ores have been found in New Zealand?
2. Give their chemical composition.
3. If they occur in "lodes" or "veins," what rocks do they intersect?
4. Give an example of the considerations which would guide you in reporting on a proposed mining venture.

QUESTIONS USED IN EXAMINATION OF BATTERY SUPERINTENDENTS FOR CERTIFICATES.

SUBJECT A.—*The Different Modes of Reducing and Pulverising Ores.*

1. State where, and by whom, and in what capacity you were employed in crushing-batteries. Give the dates that you were employed at a cyanide plant where auriferous and argentiferous ores were subjected to cyanide treatment.
2. Describe the mode of pulverising ore by stamps, Blake-Marsden crushers, Huntingdon mills, and Krupp mills. Give the dimensions, speed, and capacity of each, and the horse-power required to work them.
3. Describe how you would construct the foundation for a stamp mill. How would you fix the mortar-box to the foundation? Give the dimensions of the framing for stamps having a weight of 1,000 lb.
4. If you were using a Pelton water-wheel for driving twenty heads of stamps, having a weight of 1,100 lb. each, with a drop of 7 in., making 100 blows per minute, show by calculation the diameter of the nozzle you would use to give the necessary horse-power, with the head of water on the nozzle giving a pressure of 60 lb. per square inch.
5. Describe how you would fix the dies in the mortar-box, and what height you would place the screens about the dies for dry and also wet crushing, and give the reason for same.
6. Give the maximum number of drops per minute that stamps having a drop of 8 in. can be safely worked at without falling on the cams, and show by calculation how you arrive at the result.

SUBJECT B.—*Amalgamating-machines.*

1. How is amalgamation effected in the mortar-box of a stamp mill? Describe fully.
2. State what amalgamating-machines you have used; their action, speed, capacity, and horse-power required to work them.
3. Give the dimensions of a settler, its use, and the number of revolutions per minute as being the most economical speed that it should be worked at.
4. Give the speed and capacity of a combination pan, McKay pan, and Watson-Denny pan; the quantity of pulverised ore that each would treat in twenty-four hours, and the horse-power required to work them.

SUBJECT C.—*Quicksilver, and the Methods of using it in connection with the Extraction of Gold and Silver from Ores.*

1. State the quantity of quicksilver you would use for amalgamation in a combination pan, Watson-Denny, and in a McKay pan, and state your reasons for same.
2. Describe how you would coat copper plates with quicksilver; how you would remove the bullion from the plates, and how you would keep the quicksilver in a lively condition.
3. What effect has ore containing lead, antimony, and copper on quicksilver?
4. State how you would remove all base metal and impurities from quicksilver. Describe fully.
5. Describe fully the method you would adopt in cleaning up, and how you would separate the bullion from the quicksilver and put in a marketable condition.

SUBJECT D.—*Cyanide, Chlorination, and other Chemical Processes of recovering Gold and Silver from Ores.*

1. Give a sketch of cyanide plant with four percolating-vats, showing all dimensions, and the relative position in which you would place sumps and all appliances for a complete plant.
2. State how you would ascertain the strength of KCN solution, and also the strength of the solution that is most economical to use with ore you are treating.
3. How many tons of a solution containing 12 per cent. of KCN would you require to make up 40 tons of a sump solution containing 0·012 of KCN to a 0·25 solution?
4. How many pounds of crude salt containing 65 per cent. of KCN would be required to make up 14 tons of a stock solution containing 15 per cent. of KCN?
5. If there were 50 tons of a sump solution containing 0·01 per cent. of KCN, how many pounds of crude salt containing 75 per cent. of KCN would be required to make up a 0·3-per-cent. solution?
6. How many tons of 0·9 per cent. KCN solution would be required to make up the strength of 30 tons of sump solution containing 0·12 per cent. of KCN to a 0·3-per-cent. solution?
7. If dry pulverised ore had a weight of 100 lb. per cubic foot, show by calculation the number of tons of 2,240 lb. there would be in a vat 30 ft. in diameter and filled with ore to a depth of 4 ft. 7½ in.
8. A sump 26 ft. 4½ in. in diameter and 6 ft. deep: show by calculation the number of Imperial gallons it would contain.
9. Describe fully the remedies you would apply if any of the workmen were suffering from cyanide poisoning.
10. How is chlorination effected? Describe fully the process which ores containing gold are subjected to.
11. Describe the process of making chlorine solutions, and how these are used to extract the gold from auriferous ores.
12. Describe the difference between a Newberry-Vautin chlorination and a plant required to chlorinate ores by the Plattner process.
13. Describe fully how gold is precipitated from cyanide and also from chlorine solutions.
14. Describe fully how you would recover gold from chlorine solutions, and also bullion from cyanide solutions, and put it in a marketable condition.

SUBJECT E.—*The Sampling and Testing of Ores.*

A hundredweight of lode stuff is sent to a mill for valuation: describe in detail how you would proceed in order to make a report on its value—giving reference to your own experience.

SUBJECT F.—*Knowledge of Arithmetic and Method of keeping Battery Accounts.*

1. If 700 oz. of bullion contained gold 0·2354, and silver 0·5345, find what would be its value, taking pure gold to be worth £4 4s. per ounce and silver 2s. 4d. per ounce.
2. The wages in a battery for one month where 23 workmen were employed amounted to £275. There were four divisions of the men, A, B, C, D: 9 men in A division got twice as much as the 7 men in C division; 4 men in B division got £25 less than the men in C division; and 3 men in D division got one-half as much as the men in C division. How much did each man receive?
3. A round spar 70 ft. in length was 25½ in. diameter at the one end and 13¼ in. at the other. Give its measurement in cubic feet.
4. Show how you would enter the following accounts in journal, cash-book, and ledger. The goods received were—H. Jones, 10 shoes for stamps, £21 8s. 1d.; 500 lb. KCN., £29 3s. 4d.;

420 lb. quicksilver, £52. J. Robertson, 20 tons coal, £20; assay material, £34 6s. 8d. P. Brown, advertising tenders, £4; stationery, £7 15s. The amount paid as wages was £234 3s. 4d.; J. Robertson, £65; H. Jones, £60; and P. Brown, £7 5s.

5. A circular brick chimney-stack was 60 ft. in height. The outside diameter at bottom was 8 ft., and at the top 4 ft. The wall was 18 in. thick for 25 ft. up from the bottom, 13½ in. thick for the next 25 ft., and the upper portion the wall was 9 in. in thickness. How many bricks would it require to build it, allowing each brick to be 9 in. long, 4½ in. wide, and 3 in. thick?

SUBJECT G.—*A Knowledge of Part V. of "The Mining Act, 1898."*
Oral.

LIST OF MINE-MANAGERS AND BATTERY-SUPERINTENDENTS WHO HAVE OBTAINED CERTIFICATES UNDER THE MINING ACTS.

As there have been several inquiries made as to the names of persons who hold certificates as mine-managers and battery-superintendents, the annexed is a complete list of those holding certificates at the date of this report, taken from the register:—

THE MINING ACT.

FIRST-CLASS SERVICE CERTIFICATES.

Issued under "The Mining Act, 1886," without Examination.

Adams, H. H., Waiorongomai.
Anderson, P., Thames.
Andrews, R., Coromandel.
Andrews, T., Thames.
Barclay, T. H., Thames.
Bennett, J., Alexandra.
Benney, J., Coromandel.
Black, T., Waiomo.
Bollersley, N., Boatman's.
Bradbury, M., Reefton.
Bray, John, Lyell.
Burch, W. H., Thames.
Byrne, J. F., Stafford.
Cameron, A., Macetown.
Cameron, E., Te Aroha.
Chapman, J. A., Dunedin.
Clarke, G. S., Thames.
Comer, R., Thames.
Conradson, M., Lyell.
Corin, W., Thames.
Cornes, C. A., Karangahake.
Coutts, J., Thames.
Crawford, T. H., Thames.
Crowley, C., Reefton.
Cummings, W., Reefton.
Davis, J. E., Queenstown.
Davey, C., Ross.
Donald, J., Cromwell.
Dryden, S., Thames.
Dunlop, T. A., Thames.
Edwards, J., Skipper's.
Elliott, J., Macetown.
Evans, F., Skipper's.
Evans, J. H., Skipper's.
Fitzmaurice, R., Reefton.
Frewen, J. B., Queenstown.
Gavin, T., Te Aroha.
Gilbert, J., Reefton.
Gilmour, T., Thames.
Giles, G. F., West Wanganui.
Glass, W. M., Naseby.
Goldsworthy, J., Waiorongomai.
Greenish, J., Reefton.
Greenville, W., Ohinemuri.
Hall, J. P.
Hansen, P. C., Thames.
Harris, J., Owen's Reefs.
Harrison, R. H., Coromandel.
Hicks, T. B., Thames.
Hilton, G. P., Bendigo.
Hodge, F., Coromandel.
Hollis, W., Thames.
Hunter, R., Thames.
James, F., Thames.
Jamieson, A., Coromandel.
Jenkins, M., Wakatipu.
Johnstone, H., Bluespur.
Julian, J., Boatman's.
Kelly, J., Lyell.
Kerr, J., Thames.
Lawn, E., Black's Point.
Lawn, H., Boatman's.
Lawn, J., Reefton.
Littlejohn, W., Karangahake.
Lowe, E. W., Thames.
Malfroy, J. M. C., Ross.
Martin, W. G., Thames.
McCallum, J., Reefton.
McCullough, R., Thames.
McGruer, G. N., Karangahake.
McIlhaney, J., Thames.
McIntosh, D., Bluespur.
McKay, J., Ross.
McKenney, J., Reefton.
McKenzie, W., Thames.
McLeod, G., Coromandel.
McLiver, F., Thames.
McLiver, H., Thames.
McMaster, J., Reefton.
Moore, H. W., Thames.
Moore, J. H., Thames.
Morgan, R., Otago.
Morrisby, A. A., Glenorchy.
Nasmyth, T., Reefton.
Newman, W., Naseby.
Northey, J., Thames.
O'Sullivan, D. E., Thames.
Polton, A., Karangahake.
Porter, J., Waipori.
Purvis, G., Ross.
Quinn, E., Te Aroha.
Radford, T., Thames.
Ralph, J. G., Thames.
Ranger, J., Reefton.
Rasmussen, C. L., Mokihinui.
Rasmussen, C. P., Mokihinui.
Reid, P., Coromandel.
Resta, L., Macetown.
Roberts, E., Ross.
Rooney, F., Reefton.
Scott, T., Waiorongomai.
Searight, A., Reefton.
Senior, J., Thames.
Smith, J. E., Thames.
Stone, F., Karangahake.
Steedman, J. B., Thames.
Sturm, A., Waipori.
Taylor, N., Thames.
Todd, C., Heriot.
Treloer, J. S., Reefton.
Tripp, R. S., Arrowtown.
Vivian, J. G., Thames.
Vivian, S., Reefton.
Waite, C. D., Thames.
Waite, E., Thames.
Walker, J. W., Thames.
Watson, T., Reefton.
Wearne, J. E., Endeavour Inlet.
Wearne, T., Endeavour Inlet.
Wilcox, J., Thames.
Williams, J., Skipper's.
Wright, G., Boatman's.
Wylie, W., Ross.
Young, G., Skipper's.

First-class Mine-managers' Certificates, issued after Examination, under "The Mining Act, 1886," and Amendment Acts.

Adams, B., Thames.
Baker, W., Thames.
Black, G., Reefton.
Caples, P. Q., Reefton.
Carter, J., Thames.
Casley, G., Reefton.
Cochrane, D. L., Reefton.
Colebrook, J. D., Coromandel.
Coombe, J., Reefton.
Crawford, J. J., Thames.
Cummings, W., Reefton.
Donaldson, W., Otago.
Fleming, M., Thames.
Gardner, W. P., Reefton.
Harris, W., Thames.
Horn, G. W., Thames.
Horne, W., Coromandel.
Hornick, M., Thames.
Hosking, G. F., Auckland.
Kruizenza, W., Reefton.
Lawn, T., Reefton.
Logan, H. F., Wellington.
Mangan, T., Thames.
Mouat, W. G., Dunedin.
Truscott, G., Thames.
Watkins, W. E., Reefton.
Wilkie, J., Reefton.

First-class Mine-managers' Certificates, issued on Production of Certificate from a Recognised Authority outside the Colony, under "The Mining Act, 1886," "The Mining Act, 1891," and "The Mining Act, 1898."

Argall, W. H., Coromandel.
Beckwith, L. H., Wellington.
Datson, J., Manaia.
Griffiths, A. P., Auckland.
Griffiths, H. P., Auckland.
Hailey, R. C., Dunedin.
McKenna, Thomas, Dunedin.
Williams, W. H., Auckland.

First-class Mine-managers' Certificates, issued after Examination, under "The Mining Act, 1891."

Agnew, J. A., Thames.
Annear, William, Reefton.
Bennett, E. P., Thames.
Boydell, H. C., Coromandel.
Bradley, R. J. H., Te Puke.
Bray, E., Thames.
Bruce, Malcolm, Thames.
Carroll, J., Lyell.
Cartwright, E., Thames.
Crabb, J., Reefton.
Dobson, J. A., Auckland.
Evans, H. A., Wellington.
Fahey, P., Reefton.
Flannigan, Francis, Reefton.
Gilmour, J. L., Thames.
Hodge, J. H., Thames.
Hughes, D., Thames.
James, T., Thames.
Keam, P. E., Thames.
Lane, J., Reefton.
Lawn, C. H., Capleston.
Linck, F. W., Thames.
Marshall, F., Reefton.
Morrison, R., Thames.
McDermott, J., Thames.
McDermott, G., Thames.
McDermott, W., Thames.
McGregor, W. T., Thames.
McKenzie, H. J., Coromandel.
McPeake, J., Thames.
O'Keeffe, M. D., Thames.
Paul, Matthew, Thames.
Paltridge, Henry, Thames.
Prince, F. H., Reefton.
Robertson, D. B., Stafford.
Ross, Richard, Thames.
Russell, Murray, Dunedin.
Shepherd, H. F., Thames.
Stanford, W. J., Macetown.
Steedman, J. G., Thames.
Sutherland, Benjamin, Reefton.
Tierney, R., Thames.
Vialoux, F., Coromandel.
Warne, George, Thames.
Waters, D. B., Skipper's.
Watt, J., Thames.
White, G. H., Thames.
Whitley, A., Thames.
Williams, C., Capleston.

First-class Mine-managers' Certificates, issued after Examination, under "The Mining Act, 1898."

Arscott, R., Waihi.
Barker, B., Thames.
Bennie, Boyd, Waihi.
Bolitho, Soseph, Reefton.
Bower, J. W., Coromandel.
Carter, R. P., Waihi.
Cooper, J. H., Thames.
Cooper, Thornhill, Waihi.
Docherty, W. H., Coromandel.
Ellery, John, Reefton.
Evered, N. J., Waihi.
Fry, S., Waimangaroa.
Hooker, John, Coromandel.
Irwin, Samuel, Waihi.
Johnson, J. H., Coromandel.
Langford, G. S., Waihi.
McConachie, W., jun., Waihi.
MacDuff, R. B., Thames.
MacLaren, J. A. J., Coromandel.
Morrison, William, Waihi.
Stewart, F., Waihi.
Thomson, Thomas, Waihi.
Tucker, E. S., Coromandel.
Turnbull, E. V., Coromandel.
Turner, C. E., Murchison.
Webber, J. H. A., Reefton.
Weir, Thomas, Waihi.
Whyte, N. McG. H., Waihi.

First-class Mine-managers' Certificates, issued under Section 313 of "The Mining Act, 1891."

Edwards, George, Westport.
Hornibrooke, H. P., Coromandel.
Martin, James, Reefton.
Rickard, John, Thames.
Snow, Thomas, Huntly.
Thomas, James, Thames.
Trelease, J. H., Thames.
Williams, John, Kuaotunu.
White, John S., Karangahake.

First-class Mine-managers' Certificates of Competency granted to Holders of Provisional Warrants under Section 32 of "The Mining Act Amendment Act, 1896."

Alexander, Thomas, Deep Creek.
Argall, A. E., Coromandel.
Battens, H., Coromandel.
Begley, Thomas, Reefton.
Bennett, Charles Henry, Kuaotunu.
Bunney, Joseph, Waihi.
Campbell, Alexander, Cullensville.
Carlyon, Samuel, Coromandel.
Cornes, C. A., jun., Karangahake.
Daldy, Edward Arthur, Coromandel.
Draffin, Samuel, Waitekauri.
Farmer, C. S., Waitekauri.
Goldsworthy, Thomas, Tokatea.
Goldsworthy, William, Karangahake.
Govan, Joseph, Thames.
Harvey, A. G., Coromandel.
Howard, Samuel, Karangahake.
James, Robert, Thames.
Jamieson, John, Reefton.
Johns, Thomas, Waihi.
Kennerley, W. H., Thames.
Langford, James, Coromandel.
McCombie, John, Karangahake.
MacDonald, H., Coromandel.
McEnteer, James, Tararu.
McFarlane, Charles M., Tokatea.
McLean, Benjamin J., Waitekauri.
McLean, Charles, Thames.
McLean, James, Tararu, Thames.
Meehan, James, Westport.
Moorecraft, Walter, Coromandel.
Morgan, William, Owharoa.
Moyle, Thomas, Thames.
Patton, William, Macetown.
Pearce, Francis, Reefton.
Potter, William H., Thames.
Rabe, Henry, Karaka.
Rillstone, Charles, Waipori.
Somervell, John, Thames.
Stackpole, Robert, jun., Karangahake.
Thomas, Archelaus, Tapu, Thames.
Turnbull, Thomas A., Whangamata.
Willets, Henry, Thames.
Wilson, James R. S., Kuaotunu.

First-class Mine-managers' Certificates, issued to Inspectors of Mines, by virtue of Office under the Mining Acts, 1886, 1891, and 1898.

Binns, G. J., Dunedin.
Cochrane, N. D., Westport.
Gordon, H. A., Wellington.
Gow, J., Dunedin.
Green, E. R., Dunedin.
Hayes, J., Dunedin.
McLaren, J. M., Thames.
Tennent, R., Westport.
Wilson, G., Thames.

SECOND-CLASS SERVICE CERTIFICATES AS MINE-MANAGERS.

Issued under "The Mining Act, 1891."

Adams, W. J., Thames.
Agnew, J. A., Coromandel.
Allen, Richard, Reefton.
Argall, A. E., Coromandel.
Bennett, C. H., Coromandel.
Begley, Thomas, Reefton.
Beard, W. T., Reefton.
Bone, William, Reefton.
Bowler, John, Thames.
Blair, Thomas, Kuaotunu.
Bray, Edwin, Reefton.
Brownlee, Thomas James, Thames.
Brokenshire, James, Thames.
Bolitho, James, Reefton.
Brown, John, Macrae's.
Bremner, John, Coromandel.
Borlase, J. H., Capleston.
Bunny, Joseph, Thames.
Byrne, John, Karangahake.
Caird, Alexander McNeil, Reefton.
Campbell, J., Kuaotunu.
Climo, Noah, Coromandel.
Comer, George, Thames.
Cowan, Hugh, Kuaotunu.
Corbett, T., Paeroa.
Comer, W. W., Thames.
Crabb, Thomas, Reefton.
Daniel, P. F., Greymouth.
Dobson, John Allen, Kuaotunu.
Edwards, George, Westport.
Ellery, John, Reefton.
Flannigan, Francis, Reefton.
Foster, Thomas, Wellington.
Gale, C. W., Coromandel.
Gill, George, Thames.
Glasgow, T. M., Thames.
Goldsworthy, Henry, Thames.
Govan, Joseph, Thames.
Griffin, Patrick, Thames.
Grimmond, Joseph, Ross.
Goldsworthy, William, Mauku, Auckland.
Gemmings, Charles, Thames.
Gribble, James, Norsewood.
Guthrie, John, Wellington.
Guy, Robert, Kuaotunu.
Harvey, William, Reefton.
Hardman, James Edward, Thames.
Harris, R., Thames.
Hetherington, William, Thames.
Hicks, W., Thames.
Hill, Alex. Grey, Waikakaho.
Hore, John, Wellington.
Hollis, Fred. J., Waihi.
Hornibrook, H. P., Kuaotunu.
Jamieson, John, Reefton.
Johnstone, William, Collingwood.
Jobe, James, Thames.
Johns, Thomas, Thames.
Kendall, Henry, Thames.
Kerr, George, Kamo.
Kirker, Thomas, Thames.
Laughlin, David, Thames.
Law, John, Thames.
Lough, H., Thames.
Loughlin, S., Thames.
McLean, James, Thames.
McLean, Alex., Coromandel.
McLean, Charles, Thames.
McCormick, Charles, Coromandel.
McQuillan, John, Reefton.
McNeill, Daniel, Thames.
McNeill, George, Upper Kuaotunu.
McCombie, John, Karangahake.
McEwen, James, Reefton.
McLoghry, Archibald, Karangahake.
Mackay, William, Nenthorn.
Martin, James, Reefton.
Meagher, John, Karangahake.
Mills, George, Thames.
Mayn, John, Coromandel.
Martin, David, Black's Point.
Morgan, William, Upper Thames.
Moorecroft, Thomas, Thames.
Milne, John, Thames.
Moyle, Thomas, Thames.
Naysmith, James, Reefton.
Newdick, Alfred, Thames.
Notman, Alexander, Reefton.
O'Keefe, M. W. D., Thames.

SECOND-CLASS SERVICE CERTIFICATES AS MINE-MANAGERS—*continued.*

Issued under "The Mining Act, 1891"—continued.

Page, John, Lyell.
Parkiss, Jos. W., Reefton.
Potts, W. H., Thames.
Primrose, J., Kuaotunu.
Pettigrew, Robert, Sydney.
Peebles, Alexander, Kuaotunu.
Phillips, W. H., Thames.
Pollock, John, Thames.
Rabe, Henry, Thames.
Reid, Thomas Groat, Thames.
Rickard, John, Thames.
Richards, A. H., Kuaotunu.
Radford, Thomas, Thames.
Rogers, Charles Henry, Reefton.
Rogers, William Henry, Kumara.
Ross, J., Thames.
Rowe, James, Thames.
Shaw, James, Karangahake.
Sligo, Alex., Nenthorn.
Thomas, James, Thames.
Thomas, A., Thames.
Thomson, John, Dunedin.
Tregellas, James, Reefton.
Tregoweth, William, Thames.
Wells, Charles Lewis, Thames.
Willets, Henry, Thames.
Williams, James, Thames.
Williams, John, Thames.
Whisker, Charles, Thames.
White, John S., Karangahake.
Wilson, James R. S., Kuaotunu.
Wilson, J. G., Thames.
Woodcock, James, Thames.
Worth, Robert, Waihi.

Second-class Mine-managers' Certificates, issued after Examination, under "The Mining Act, 1891."

Benney, J., jun., Paeroa.
Christie, William, Waitekauri.
Draffin, S., Waitekauri.
Dunkin, T., Coromandel.
Evans, H. A., Skipper's.
Gatland, V. Y., Coromandel.
Mathewson, A., Hyde.
McNeil, A. H., Coromandel.
White, F. H., Kuaotunu.
White, G. H., Thames.

Second-class Mine-managers' Certificates, issued after Examination, under "The Mining Act, 1898."

Bennie, Boyd, Coromandel.
Cahill, T. M., Upper Kuaotunu.
Carroll, John, Upper Kuaotunu.

Second-class Mine-managers' Certificates, issued under Section 313 of "The Mining Act, 1891."

Connon, William, Thames.
Coran, Henry, Thames.
Edwards, E., Coromandel.
Kelso, Archibald, Coromandel.
McCormick, W. J., Waitekauri.

Second-class Mine-managers' Certificates of Competency granted to Holders of Provisional Warrants under Section 32 of "The Mining Act Amendment Act, 1896."

Allen, W. J., Coromandel.
Barney, Montague T., Waitekauri.
Brownlee, Henry, Thames.
Collins, Charles, Waitekauri.
Curtis, Charles, Taylorville.
Davis, James, Coromandel.
Gardner, James, Waimangaroa.
Howe, Albion S., Waitekauri.
Johnson, Frank H., Collingwood.
Kirwan, William, Reefton.
McDonald, John, Tairua.
McInnes, John, Puriri.
Martin, William, Tararu, Thames.
Murphy, Joseph, Coromandel.
O'Brien, John, Westport.
Prescott, Arthur J., Coromandel.
Radford, Samuel, Waihi.
Ruffin, Richard, Manaia, Coromandel.

BATTERY-SUPERINTENDENTS' CERTIFICATES.

Issued under "The Mining Act 1891 Amendment Act, 1894," without undergoing Examination.

Adams, H. H., Waihi.
Aitken, R. M., Reefton.
Banks, Edwin Gripper, Waihi.
Barry, Hubert Percy, Waihi.
Goldsworthy, Henry, Kuaotunu.
Goldsworthy, John, Kuaotunu.
Greenway, H. Howard, Auckland.
Heard, G. St. Clair, Waihi.
Hope, John S., Waitekauri.
Hutchison, William, Karangahake.
Margetts, Frederick Ernest, Kuaotunu.
McKenna, T. N., Tararu.
McLellan, William, Waitekuri.
Mellett, Richard Sheridan, Waitekauri.
Napier, James, Karangahake.
Noble, James R., Karangahake.
Park, James, Thames.
Shepherd, Henry Franklin, Waihi.
Sims, C. F., Tararu.
Walker, James A., Kuaotunu.
Wilson, Arthur E., Waihi.
Wilson, James Kitchener, Auckland.

Battery-superintendents' Certificates, issued after Examination, under "The Mining Act 1891 Amendment Act, 1894."

Adams, A. A., Thames.
Allen, F. B., Thames.
Allom, H. O., Thames.
Ansley, Comyn, Paeroa.
Ansley, Walter, Thames.
Banks, J. H., Waihi.
Bowers, W., Thames.
Brown, A. E., Thames.
Clarke, R., Waitekauri.
Clarke, W. J., Waihi.
Day, A. T., Thames.
Dixon, Clement, Waihi.
Doveton, G. D., Thames.
Fleming, G. C. S., Thames.
Gray, J. W., Waihi.
Hayward, F. W., Komata.
Jackson, J. H., Paeroa.
Jones, Achison, Waihi.
Kidd, F. D., Thames.
Lee, J. W., Reefton.
Macdonald, W., Waihi.
McKenzie, H. J., Thames.
McMicken, S. D., Thames.
Morgan, P. G., Thames.
Morrin, W. S., Thames.
Noakes, H. L., Waihi.
Raithby, R. W., Reefton.
Robinson, J. R., Waitekauri.
Stafford, B. H., Waihi.
Taylor, C. H., Tararu.
Thorpe, A. H., Thames.
Vercoe, R. B., Thames.
Wingate, H. M., Maratoto.
Winslow, G., Thames.
Williams, A. G. R., Thames.

Battery-superintendents' Certificates, issued after Examination, under "The Mining Act, 1898."

Adams, J. H., Thames.
Allen, D. V., Thames.
Auld, James B., Crushington.
Baker, W. H., Thames.
Banks, Ernest J., Thames.
Barrett, J. J., Karangahake.
Bishop, T. O., Reefton.
Bradley, R. J. H., Karangahake.
Browne, E., Waitekauri.
Burns, William, Waiomo.
Bush, E. F., Parawai.
Bush, H. R., Thames.
Campbell, Colin, Thames.
Carpenter, W. E., Karangahake.
Coote, J. M., Thames.
Corbett, G. L., Waitekauri.
Couper, J., Thames.
Croucher, Herbert, Waihi.
Crumpton, H., Maratoto.
Donnelly, Thomas, Waihi.
Draffin, Eugene, Kuaotunu.
Ellis, L. L., Waitekauri.
Empson, J. B., Karangahake.
Evans, W. B., Reefton.
Fletcher, H. T., Katikati.
Fraser, J. M., Reefton.
Grayden, J., Waitekauri.
Grayden, Peter, Thames.
Grumitt, P. H. (Oamaru), Thames.
Gwilliam, Ben., Karangahake.
Hargraves, E. P., Waihi.
Haszard, T. R. C., Waitekauri.
Hay, Adam, Karangahake.
Hogg, Bain, Karangahake.
Kidd, R. B., Waitekauri.
Kingsford, A., Karangahake.
Launder, G. H., Waitekauri.
Lawless, L. J., Paeroa.
Maltman, Albert, Reefton.
McEwin, J. A., Reefton.
Montgomery, A. E., Opitonui.
Moyle, W. T., Upper Tairua.
Pond, H. C., Auckland.
Quick, J. N., Thames.
Reid, J. E., Great Barrier.
Reynolds, E. A., Auckland.
Rosewarne, R. H., Thames.
Royse, W. G., Reefton.
Sanford, A. G., Waihi.
Stephens, H., Dunedin.
Thomson, G. W., Bendigo.
Thurlow, J. R., Coromandel.
Tomlinson, A., Karangahake.
Tomlinson, W. F., Dunedin.
Ulrich, Herstall, Whangapoua.
Watson, A. B., Waitekauri.
Watson, A. P., Crushington.
Watson, T. R., Reefton.
Williams, A. C. Waihi.

NUMBER of MACHINES employed in QUARTZ-MINING in the AUCKLAND DISTRICT, and the VALUE thereof, for the Year ended the 31st December, 1901.

Mining District.	Machinery employed in Quartz-mining.									
	Steam-engines employed winding, crushing, &c.		Crushing-machines.	Stamp-heads.	Water-wheels.	Whims.	Whips and Pulleys.	Derricks.	Berdans.	Approximate Value of all Mining Plant included in this Return.
	Number.	Aggregate Horse-power.								
										£
Ohinemuri ..	60	4,390	17	639	18	1	..	..	54	374,470
North Hauraki ..	48	1,708	19	193	2	..	..	..	61	154,750
South Hauraki ..	37	1,172	35	463	53	..	1	..	192	181,735
Te Aroha ..	1	..	1	10	1	..	..	..	2	2,750
Great Barrier Isl'd	4	125	1	20	..	..	..	..	3	11,125
	150	7,395	73	1,325	74	1	1	..	312	724,830

STATEMENT showing the Whole of the QUARTZ-CRUSHING MACHINES and APPLIANCES for treating Auriferous and Argentiferous Ores in the HAURAKI MINING DISTRICT for the Year ended the 31st December, 1901.

Locality where Machine is situated.	Name of Machine.	Name of Owners.	Number of Rock-breakers.	Number of Stamps.	Number of Ore-crushers.	Number of Berdans.	Number of Pans.	Number of Settlers.	Number of Mortars.	Number of Retorts.	Number of Furnaces for Gold melting or retorting.	Number of Furnaces for Assay Purposes.	Number of Plants for Cyanide Process.	Number of Concentrating Plants.	Driven by Steam-power.	Driven by Water-power or Hand-power.
Coromandel County.																W. H.
Coromandel ..	Kapanga ..	Kapanga Gold-mining Co.	..	10	..	2	..	..	1	2	1	..	..	..	1	..
" ..	Telephone ..	Hauraki Gold-mining Co.	..	15	..	8	..	..	2	3	1	..	..	..	1	..
" ..	Corby	Scotty's Gold-mining Co.	..	9	..	8	..	..	1	2	1	..	..	..	..	1
" ..	Hauraki Associated	Hauraki Mines (Limited)	..	12	..	4	..	..	2	2	1	1	..	..	..	1
" ..	Success	Hauraki Properties Gold-mining Co.	..	10	..	4	..	..	1	1	1	..	..	..	1	..
" ..	Tokatea	Royal Oak of Hauraki Gold-mining Co.	1	15	..	8	..	..	1	1	1	..	..	..	..	1
" ..	West Tokatea ..	West Tokatea Gold-mining Co.	..	3	..	2	..	..	1	1	..	..	..	..	1	..
" ..	Progress-Castle Rock	Progress-Castle Rock Gold-mining Co.	1	2	..	2	..	..	2	1	..	..	..	..	1	..
" ..	Four-in-hand ..	Four-in-hand Gold-mining Co.	..	10	..	2	..	..	1	1	1	1	..	..	1	..
" ..	Vizard's	Cabbage Bay Extended Gold-mining Co.	..	4	..	1	..	..	1	1	1	..	..	..	..	1
" ..	Public battery ..	School of Mines Board in trust	..	5	..	2	..	..	1	1	1	..	..	..	1	..
Opitonui ..	Opitonui ..	Kauri Freehold Gold Estates Gold-mining Co.	2	40	..	..	..	5	2	2	2	2	1	2	1	..
" ..	Owera	Ditto	..	16	..	4	..	..	2	2	1	..	..	..	1	..
Kuaotunu ..	Try Fluke ..	Kuaotunu Syndicate ..	..	16	..	3	..	2	2	2	1	1	1	..	1	..
" ..	Kapai-Vermont ..	" ..	1	..	*1	1	..	1	1	1	1	1	1	..	1	..
" ..	Great Mercury ..	Great Mercury Gold-mining Co.	..	10	..	1	..	1	4	2	1	1	1	..	1	..
" ..	Irene	Irene Gold-mining Co. ..	..	10	..	2	..	1	2	1	1	1	1	..	1	..
" ..	Handsworth ..	Louis Woodcock ..	..	3	..	1	..	..	..	..	..	..	..	..	1	..
Mahakirau ..	Mahakirau ..	New Zealand Government plant	..	3	..	1	..	1	1	1	..	..	..	..	1	..
Thames County.																
Gumtown ..	Welcome Jack ..	Welcome Jack Gold-mining Co.	..	5	..	2	..	1	1	1	..	..	..	..	1	..
" ..	Kapowai ..	Kapowai Gold-mining Co.	..	8	..	3	..	1	1	1	..	..	..	..	1	..
Tapu	Bullion	Bullion Gold-mining Co...	..	15	..	4	..	3	3	1	..	..	..	..	..	1
"	Mahara Royal ..	Mahara Royal Gold-mining Co.	..	20	..	18	..	2	2	1	1	..	..	..	..	1
Waiomo	Monowai ..	Monowai Amalgamated Gold-mining Co.	1	10	..	1	1	2	1	2	1	1	1	1	1	1
Puru	Puru	Puru Consolidated Gold-mining Co.	..	10	..	2	..	1	1	..	..	..	..	..	..	1
Tararu	New Alburnia ..	New Alburnia Gold-mining Co.	..	20	..	7	..	2	1	3	1	..	..	..	..	1
"	Tararu ..	Tararu Creek Gold-mining Co.	..	30	..	6	..	3	2	1	..	..	..	..	1	1
"	Berry	Charles Berry ..	..	1	..	3	..	1	2	1	..	..	..	..	..	1
"	Eclipse	Eclipse Gold-mining Co...	..	10	..	3	..	..	1	2	..	..	..	..	..	1
"	Chicago	Chicago Gold-mining Co.	..	10	..	..	1	1	..	..	..	..	..	..	..	1
Karaka	Claremont ..	George Bryant	..	1	..	1	..	..	1	3	..	..	..	..	..	1
"	Junction ..	McGregor and Taylor ..	..	5	..	1	..	..	1	1	..	..	..	..	..	1
Hape	Anchor	Ethel Reefs Gold-mining Co.	..	4	..	1	..	..	1	1	..	..	..	..	1	1

* Otis mill.

STATEMENT showing the Whole of the QUARTZ-CRUSHING MACHINES and APPLIANCES for treating Auriferous and Argentiferous Ores in the HAURAKI MINING DISTRICT for the Year ended the 31st December, 1901—*continued*.

Locality where Machine is situated.	Name of Machine.	Name of Owners.	Number of Rock-breakers.	Number of Stamps.	Number of Ore-crushers.	Number of Berdans.	Number of Pans.	Number of Settlers	Number of Mortars.	Number of Retorts.	Number of Furnaces for Gold melting or retorting.	Number of Furnaces for Assay Purposes.	Number of Plants for Cyanide Process.	Number of Concentrating Plants.	Driven by Steam-power.	Driven by Water-power or Hand-power.
Thames County—ctd.																W. H.
Hape	Fortuna ..	Fortuna Gold-mining Co.	..	5	..	..	..	..	1	1	1	1	1	..	..	1
Kerikeri	Kerikeri ..	Fleming	..	4	..	1	..	..	1	1	..	..	..	..	1	..
Puriri	Puriri	Puriri Gold Estates Gold-mining Co.	..	8	..	2	..	..	1	1	..	..	..	..	..	1
"	Hit or Miss ..	John McInnes and party	..	6	..	2	..	..	1	1	..	..	..	..	1	1
Tairua	Bonnie Scotland..	..	..	20	..	6	..	..	1	1	..	..	..	..	..	1
"	Ajax	..	..	12	..	4	..	..	1	1	..	..	..	..	1	1
"	Cannon's ..	..	..	4	..	1	..	..	1	1	..	..	..	..	1	1
"	Broken Hill ..	Broken Hill Gold-mining Co.	1	20	..	6	..	..	1	1	..	1	1	..	1	1
Whangamata ..	Luck at Last ..	Whangamata Proprietary Gold-mining Co.	2	..	*2	6	..	..	1	1	1	1	1	..	..	1
" ..	Mananu ..	Mananu Gold-mining Co.	1	10	..	1	..	..	1	1	1	..	..	..	..	1
Ohui	Ohui	J. Mackay	..	2	..	1	..	..	1	1	..	..	..	..	..	1
Omahu	Sheet Anchor ..	Tillsley Bros.	..	2	..	1	..	..	1	1	..	..	..	..	1	..
Thames Borough ..	Kuranui ..	Kuranui Gold-mining Co.	..	20	..	6	..	..	2	1	..	..	..	..	..	..
" ..	New Moanataiari..	New Moanataiari Gold-mining Co.	..	60	..	21	4	..	2	6	3	..	1	1	1	1
" ..	Judd's	Charles Judd	..	..	..	2	9	..	..	..	1	..	..	..	..	1
" ..	Comer's ..	Kuranui-Caledonian Gold-mining Co.	..	20	..	5	9	..	2	1	1	..	..	..	..	1
" ..	May Queen ..	May Queen Gold-mining Co.	..	33	..	8	3	..	2	3	2	..	..	..	..	1
" ..	Cambria ..	Moanataiari Gold-mining Co.	..	21	..	13	1	..	2	5	1	..	..	..	..	1
" ..	Waiotahi ..	Waiotahi Gold-mining Co.	..	21	..	5	..	..	2	2	1	..	..	..	1	..
" ..	Fame and Fortune	Fame and Fortune Gold-mining Co.	..	21	..	16	..	..	1	1	1	..	..	..	..	1
" ..	School of Mines ..	School of Mines Board in trust	..	2	..	1	1	1	3	3	1	4	1	..	..	1
" ..	May Queen Extended	May Queen Extended Gold-mining Co.	..	23	..	14	..	..	2	4	1	..	..	..	..	1
" ..	Fairmile ..	W. Manning	..	..	..	1	..	..	1	1	1	1	..	..	..	1
" ..	Bank of New South Wales	Bank of New South Wales	..	..	..	..	..	..	1	..	..	..	..	..	..	1
" ..	Bank of New Zealand	Bank of New Zealand ..	..	..	..	..	..	..	2	..	1	3	..	..	..	1
Ohinemuri County.																
Paeroa	Bank of New Zealand	Bank of New Zealand ..	1	..	..	..	..	..	2	1	1	1	..	..	..	1
Karangahake ..	Crown	New Zealand Crown Mines Gold-mining Co. (Ltd.)	2	60	..	1	..	..	2	2	1	1	1	..	1	1
" ..	Woodstock ..	Woodstock Gold-mining Co.	2	40	..	1	..	..	2	2	1	1	1	1	1	1
" ..	Talisman ..	Talisman Extended Gold-mining Co.	7	70	..	5	..	..	..	..	..	..	..	..	..	..
Komata	Komata.. ..	Komata Reefs Gold-mining Co.	2	20	..	4	..	..	2	2	1	1	1	1	1	1
Waitekauri ..	Waitekauri ..	Waitekauri Gold-mining Co.	2	40	1	6	..	..	3	1	4	2	1	1	1	1
" ..	Golden Cross ..	Ditto	1	10	..	2	..	..	2	2	1	1	1	..	1	..
" ..	Grace Darling ..	"	..	10	..	3	..	..	1	2	1	1	1	..	1	1
" ..	Jubilee	Jubilee Gold-mining Co.	..	10	..	5	2	1	1	2	1	1	1	..	1	..
" ..	Mangakara ..	Reginald Smith ..	..	9	..	3	..	..	1	2	..	..	..	..	..	1
" ..	Alpha	Alpha Gold-mining Co...	1	20	..	..	..	..	1	1	1	1	1	..	1	..
Maratoto	Waitekauri Extended	Waitekauri Extended Gold-mining Co.	1	40	..	3	..	..	2	2	1	1	1	..	..	1
Owharoa	Owharoa ..	Ohinemuri Gold Syndicate	..	15	..	1	2	..	1	2	1	..	..	..	1	..
"	Maratoto ..	Maratoto Gold-mining Co.	..	10	..	2	..	..	2	1	1	1	1	..	1	..
"	Hikutaia Gold Syndicate	Hikutaia Gold Syndicate	1	5	..	3	..	..	1	2	1	1	..	..	1	..
Waihi	Waihi	Waihi Gold-mining Co...	2	90	..	1	..	..	3	6	1	1	1	..	1	1
Waikino	Victoria	" ..	4	200	..	12	..	..	3	4	4	..	1	..	1	1
Waihi	Union-Waihi ..	" ..	2	40	..	2	..	..	2	2	1	1	1	..	1	1
Piako County.																
Waiorongomai ..	Waiorongomai ..	E. H. Hardy	1	10	..	2	..	..	1	1	1	1	..	..	..	1
City of Auckland.																
Auckland ..	Fraser's	Fraser Bros.	..	..	1	2	2	2	2	1	1	..	..	..	1	..
" ..	Bank of New Zealand	Bank of New Zealand ..	..	..	..	1	1	2	6	4	2	..	..	..	..	1
Great Barrier Island	Barrier Reefs Gold- and Silver-m. Co.	Barrier Reefs Gold- and Silver-mining Co.	1	20	..	3	..	2	3	2	1	1	1	1	1	..
			40	1,375	5	293	36	36	123	128	63	37	25	8	44	45 5

* Krupp mill.

STATEMENT showing the Whole of the QUARTZ-CRUSHING MACHINES and APPLIANCES for treating Auriferous Ores in the MARLBOROUGH, NELSON, and WEST COAST MINING DISTRICTS for the Year ended the 31st December, 1901.

Locality where Machine is situated.	Name of Machine.	Name of Owner.	Number of Rock-breakers.	Number of Stamps.	Number of Ore-crushers.	Number of Berdans.	Number of Pans.	Number of Settlers.	Number of Mortars.	Number of Retorts.	Number of Furnaces for Gold-melting.	Number of Furnaces for Assay Purposes.	Number of Plants for Cyanide Process.	Number of Plants for Chlorination.	Number of Concentrating Plants.	Driven by Steam-power.	Driven by Water-power or Hand-power.
Marlborough County.																	W. H.
Top Valley	Jubilee	Jubilee Gold-mining Co.	..	10	..	1	..	..	..	1	..	..	..	..	..	1	..
"	Wellington	Wellington Gold-mining Co.	..	10	..	..	..	..	..	..	..	..	..	..	..	..	1
Collingwood County.																	
West Wanganui, or Taitapu	Taitapu	Taitapu Gold-mining Co.	2	20	..	4	..	1	1	2	1	1	..	..	..	..	1
Ditto	Golden Blocks	Golden Blocks Gold-mining Co.	..	8	..	..	..	1	1	2	..	..	..	..	..	1	..
Greymouth County.																	
Paparoa Ranges	Taffy	Taffy Gold-mining Co.	..	5	..	1	..	..	..	1	..	..	..	..	..	..	1
"	Crœsus (Paparoa)	Crœsus (Paparoa) Gold-mining Co.	..	10	..	1	..	..	1	1	..	..	..	..	..	..	1
Lower Paparoas	Julian	Julian Gold-mining Co.	..	5	..	..	..	..	1	1	..	..	..	..	..	..	1
Buller County.																	
Lyell	Alpine Extended	Alpine Extended Gold-mining Co.	..	20	..	4	..	1	1	2	..	..	1	..	..	..	1
"	Crœsus	Crœsus Syndicate	..	10	..	2	..	..	1	1	..	..	..	..	..	..	1
Stony Creek, Westport	Britannia	Britannia Gold-mining Co.	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1
Waimangaroa	Republic	Republic Gold-mining Co.	..	10	..	2	..	..	2	2	..	..	..	..	..	..	1
Inangahua County.																	
Reefton	Progress	Progress Mines of New Zealand	3	65	..	1	..	..	2	2	1	1	1	1	1	..	1
"	Wealth of Nations	Consolidated Goldfields of New Zealand	..	20	..	1	..	..	2	2	..	..	1	..	..	..	1
"	Golden Fleece	Ditto	1	20	..	..	..	..	..	..	..	..	1	..	1	1	..
"	Keep-it-Dark	Keep-it-Dark Gold-mining Co.	..	20	..	4	..	1	1	2	..	..	1	1	..	..	1
"	New Inkerman	New Inkerman Mines	..	15	..	3	..	..	..	1	1	1	..	..	1	1	..
Merrijigs	Golden Lead	Golden Lead Gold-mining Co.	..	10	..	..	..	..	..	1	..	..	..	..	..	..	1
"	New Scotia	New Scotia Gold-mining Co.	..	10	..	1	..	..	1	1	..	..	1	..	..	1	..
"	Last Chance	Last Chance Syndicate	..	5	..	..	..	..	1	1	..	..	..	..	..	1	..
Big River	Big River	Big River Gold-mining Co.	..	10	..	4	..	..	2	2	1	1	1	..	..	..	1
"	King George	St. George Gold-mining Co.	..	5	..	..	..	..	1	1	..	..	..	..	..	..	1
Capleston	Welcome	Consolidated Goldfields of New Zealand	..	10	..	2	..	..	1	2	..	..	..	..	..	..	1
Bourke's Creek	Gardiner's	W. P. Gardiner and Sons	..	..	..	12	..	..	1	2	..	..	..	..	..	..	1
			6	300	..	43	..	4	20	30	4	4	7	2	3		17

STATEMENT showing the QUANTITY of QUARTZ CRUSHED and GOLD OBTAINED in the AUCKLAND DISTRICT for the Year ended the 31st December, 1901.

Locality and Name of Mine.	Average Number of Men employed—Wages-men or Owners.	Quartz crushed.	Gold obtained.		Estimated Value of Gold or Bullion.
			Amalgamation.	Cyanide.	
GREAT BARRIER ISLAND.		Tons. cwt. lb.	Oz. dwt.	Oz. dwt.	£ s. d.
Barrier Reefs	120	13,537 0 0	3,687 0	12,047 0	23,503 0 0
New Great Barrier	2	4 10 0	..	..	33 0 0
	122	13,541 10 0	3,687 0	12,047 0	23,536 0 0
COROMANDEL COUNTY.					
Cabbage Bay—					
Extended Quartz Claim	2	1 0 0	5 14	..	15 13 4
Kennedy Bay—					
Macoronic	6	8 0 0	6 0	..	16 4 0
Baden Powell	1	0 0 90	40 0	..	110 0 0
	7	8 0 90	46 0	..	126 4 0
Waikoromiko—					
Four-in-hand	16	793 0 0	1,421 15	..	4,112 15 4
New Trilby	2	0 0 15	14 7	..	39 8 3
Lillies	2	1 3 0	8 10	..	23 7 6
Royal Ophir	1	0 3 14	4 6	..	11 16 6
	21	794 6 29	1,448 18	..	4,187 7 7
Tokatea—					
Royal Oak	45	618 3 8	3,693 2	..	9,256 11 5
Hauraki Mines (Limited)	6	2 2 0	76 5	..	217 5 2
West Tokatea	5	63 0 0	234 11	..	667 15 4
East Tokatea	1	0 10 0	2 5	..	6 3 9
Last Chance	2	0 10 0	1 10	..	4 4 0
Josephine	2	3 15 0	4 4	..	11 15 2
Golden Lead	2	8 0 0	8 10	..	24 16 0
Golden Spark	1	1 0 9	3 3	..	8 16 5
Old Britannia	1	1 5 0	5 16	..	16 4 9
	65	698 5 17	4,029 6	..	10,213 12 0
Kapanga—					
Kapanga	4	15 10 0	66 5	..	185 10 1
Scotty's	6	8 0 0	14 2	..	40 17 9
New Hauraki Gold Properties	2	10 0 0	19 18	..	55 16 3
Kathleen Crown	15	59 0 0	51 1	..	153 11 6
Buffalo	2	2 0 1	8 13	..	25 5 10
	29	94 10 1	159 19	..	461 1 5
Hauraki Block—					
Hauraki	50	1,030 6 12	1,984 5	..	6,089 5 8
Bunker's Hill	6	82 0 0	228 17	..	640 7 9
Hauraki Freehold	21	3 0 0	9 8	..	26 18 2
	77	1,115 6 12	2,222 10	..	6,756 11 7
Tiki—					
Progress Castle Rock	4	73 3 18	182 15	..	434 11 0
Aitken's Freehold	2	15 10 0	3 4	..	8 12 10
	6	88 13 18	185 19	..	443 3 10
Opitonui—					
Kauri Freehold Gold Estate	180	9,015 0 0	..	6,269 9	11,719 12 4
Kuaotunu—					
Waitaia	15	545 0 0	920 5	..	2,723 13 4
Irene	4	209 0 0	..	256 6	537 9 5
Kuaotunu Syndicate (late Mariposa)	28	650 0 0	273 0	108 15	857 12 5
Great Mercury	7	595 0 4	..	421 10	851 0 0
Handsworth	3	58 1 2	425 16	..	1,053 3 7
Juno	2	3 0 13	46 14	..	121 8 5
	59	2,060 1 19	1,665 15	786 11	6,144 7 2
Mahakirau—					
Nil Desperandum	3	6 1 0	127 15	..	332 3 0
Sundries	6	99 9 44	94 18	..	154 9 4
Totals, Coromandel County	455	13,980 13 6	9,986 14	7,056 0	40,554 5 7
THAMES COUNTY AND BOROUGH.					
Tapu—					
Mahara Royal	1	*267 0 0	85 10	..	287 10 9
Bullion	4	24 10 84	198 13	..	566 1 4
	5	291 10 84	284 3	..	853 12 1

* Tailings.

STATEMENT showing the QUANTITY of QUARTZ CRUSHED and GOLD OBTAINED in the AUCKLAND DISTRICT for the Year ended the 31st December, 1901—*continued*.

Locality and Name of Mine.	Average Number of Men employed—Wages-men or Owners.	Quartz crushed.	Gold obtained.		Estimated Value of Gold or Bullion.
			Amalgamation.	Cyanide.	
THAMES COUNTY AND BOROUGH—*continued*.					
		Tons cwt. lb.	Oz. dwt.	Oz. dwt.	£ s. d.
Waiomo—					
Monowai	40	*2,845 0 0	..	..	4,055 11 7
Puru—					
Puru Consolidated	4	171 0 10	97 13	..	254 12 2
Tararu—					
Tararu Creek	3	†153 0 0	..	398 19	354 19 4
Eclipse	24	3,944 0 0	2,191 13	..	6,165 5 0
	27	4,097 0 0	2,191 13	398 19	6,520 4 4
Kuranui—					
Kuranui	7	69 0 0	58 8	..	142 10 9
Moanataiari—					
Moanataiari (tributers)	66	1,254 14 101	2,262 8	..	6,251 12 8
Kuranui-Caledonian (tributers)	48	425 8 36	1,524 5	..	4,154 18 4
Alburnia (tributers)	5	52 0 0	76 7	..	210 9 1
New Whau	2	37 0 0	45 6	..	122 6 2
Golden Drop	2	5 0 0	15 10	..	39 5 0
	123	1,774 3 25	3,923 16	..	10,778 11 3
Waiotahi—					
Waiotahi	16	1,096 0 0	1,508 11	..	4,109 6 1
Nonpariel	6	256 1 100	330 9	..	935 10 4
Fame and Fortune	8	25 0 0	94 10	..	258 12 3
Ballarat	2	14 0 0	25 11	..	68 19 9
West Coast	2	12 0 0	10 19	..	29 11 3
	34	1,403 1 100	1,970 0	..	5,401 19 8
Grahamstown—					
May Queen	49	1,340 2 62	3,503 3	..	9,600 12 7
Victoria	6	123 0 0	54 16	..	150 3 8
	55	1,463 2 62	3,557 19	..	9,750 16 3
Karaka—					
May Queen Extended	8	120 0 0	58 14	..	167 18 0
Claremont	1	0 10 20	450 0	..	1,210 10 0
Thames Talisman	6	14 0 0	6 3	..	17 1 7
Gloucester	4	44 0 0	101 15	..	306 5 0
Gloucester Extended	2	2 0 0	8 3	..	34 9 0
	21	180 10 20	624 15	..	1,736 3 7
Una Hill and Hape Creek—					
Thames Special	3	8 0 0	28 2	..	80 8 9
Fortuna (Hauraki)	6	113 0 0	96 18	..	272 16 11
	9	121 0 0	125 0	..	353 5 8
Kerikeri—					
Horseshoe	1	0 0 8	4 3	..	10 7 6
Challcotte	1	0 0 12	38 15	..	96 17 6
	2	0 0 20	42 18	..	107 5 0
Puriri—					
Puriri Gold Estates	2	135 0 0	51 9	..	129 18 10
Miner's Right	4	42 0 0	38 14	..	97 14 4
Union Jack	2	52 0 0	97 4	..	245 3 2
	8	229 0 0	187 7	..	472 16 4
Whangamata—					
Whangamata Gold Corporation	11	150 0 0	..	255 0	224 0 2
Mananu	40	2,219 0 0	758 12	2,681 8	7,558 13 11
Broken Hills	40	480 0 0	488 0	551 0	1,792 19 9
Chelmsford	23	1,365 0 0	526 3	272 16	1,431 13 11
	114	4,214 0 0	1,772 15	3,760 4	11,007 7 9
Gumtown—					
Welcome Jack	12	123 0 0	282 4	..	539 11 5
Kapowai	6	276 10 0	233 0	..	547 11 0
Big Beetle	4	20 0 0	46 8	..	135 2 9
Golden Reefs	2	30 0 0	17 0	..	44 10 0
	24	449 10 0	578 12	..	1,266 15 2
Sundries	10	193 1 44	210 10	..	568 7 0
Tailings	6	6,369 0 0	688 7	..	1,858 11 11
Totals, Thames County and Borough	489	23,870 0 29	16,313 16	4,159 3	55,128 10 6

*Quartz crushed and concentrated; treated in New South Wales. † Tailings.

STATEMENT showing the QUANTITY of QUARTZ CRUSHED and GOLD OBTAINED in the AUCKLAND DISTRICT for the Year ended the 31st December, 1901—*continued.*

Locality and Name of Mine.	Average Number of Men employed—Wages-men or Owners.	Quartz crushed.	Gold obtained.		Estimated Value of Gold or Bullion.
			Amalgamation.	Cyanide.	
OHINEMURI COUNTY.					
Waihi—		Tons cwt. lb.	Oz. dwt.	Oz. dwt.	£ s. d.
Waihi	1,079	154,159 0 0	..	460,985 0	433,451 2 4
Waihi Union	180	18,746 0 0	..	23,868 0	28,972 11 1
	1,259	172,905 0 0	..	484,853 0	462,423 13 5
Waitekauri—					
Waitekauri	285	24,629 0 0	..	..	42,558 1 1
Karangahake—					
New Zealand Crown	240	32,028 0 0	..	35,660 14	66,203 17 9
New Zealand Talisman	180	11,252 0 0	..	20,705 5	17,256 13 3
Woodstock	92	3,517 0 0	..	6,129 0	4,476 2 9
	512	46,797 0 0	..	62,494 19	87,936 13 9
Komata—					
Komata Reefs	76	9,200 0 0	..	11,216 11	11,289 6 6
Maratoto	4	127 0 0	30 0	..	75 0 0
Sundries	4	6 3 4	31 9	..	39 5 9
Totals, Ohinemuri County	2,140	253,664 3 4	61 9	558,564 10	604,322 0 6
PIAKO COUNTY.					
Waiorongomai—					
Empire and New Find	15	1,289 0 0	851 18	..	2,384 16 5
TAURANGA COUNTY.					
Te Puke—					
Te Puke	3	5 0 0	..	31 18	86 14 11
Grand totals	3,224	308,350 6 39	30,900 17	581,858 11	726,012 7 11

Number of men employed in prospecting and development-work in the whole district from which no returns of gold have been obtained, 310.

BATTERY RETURNS from QUARTZ-MINES in the MARLBOROUGH, NELSON, and WEST COAST MINING DISTRICTS for the Year ended the 31st December, 1901.

Name and Locality of Mine.	Quartz crushed.	Yield of Gold.	Approximate Total Values.
Marlborough District—	Tons.	Oz. dwt. gr.	£ s. d.
Jubilee	307	136 6 10	502 6 3
Collingwood District—			
Aorangi	2,364	3,081 10 0	2,122 8 1
Golden Ridge	616	429 0 0	1,575 11 10
Westport District—			
Britannia	696	1,111 4 9	4,342 10 0
Stony Creek	..	..	..
Cascade Creek	..	..	..
Reefton District—			
Alpine Extended	268	124 10 3	458 10 10
Welcome	240	496 15 13	1,923 13 9
Kirwan's Reward	2,822	2,289 13 0	9,171 11 9
Victoria Range	..	..	..
Progress Mines	55,207	23,399 1 5	97,680 13 10
Golden Fleece	14,807	8,880 8 1	35,908 13 6
Wealth of Nations	12,015	5,221 17 5	21,479 7 10
Keep-it-Dark	12,442	4,489 1 0	16,663 9 1
New Inkerman	149	145 7 1	565 6 9
New Scotia	5,523	1,124 6 9	3,532 15 1
Golden Lead	..	..	..
Last Chance	160	102 5 0	414 2 3
Big River	75	30 6 0	120 13 0
Snowy Creek	20	3 4 12	10 0 0
Paparoa Ranges—			
Croesus	272	102 1 3	414 2 2
Taffy	..	16 3 0	65 16 3
Totals	107,983	51,132 19 23	196,951 12 3

BATTERY RETURNS from QUARTZ-MINES in the SOUTHERN DISTRICT for the Year ended the 31st December, 1901.

Name and Locality of Mine.	Quartz crushed.	Yield of Gold.	Value.
	Tons cwt. qr.	Oz. dwt. gr.	£ s. d.
Achilles Gold-mines (Limited), Bullendale ...	377 0 0	76 18 12	296 3 0
Glenrock Consolidated (Limited), Macetown ...	2,148 0 0	1,329 10 22	5,001 1 9
New Star, Preservation Inlet	15 10 0	11 13 0	44 15 6
Golden Site Extended, Preservation Inlet ...	42 10 0	9 11 14	36 11 6
Alpha, Preservation Inlet	770 0 0	163 14 8	579 15 8
Lawrence Bros., Bannockburn	86 0 0	37 4 11	142 18 0
Shotover, Skipper's	1,241 0 0	327 17 0	1,233 18 11
F. W. Gray, Bald Hill Flat	115 0 0	184 0 13	708 8 0
R. T. Symes, Bald Hill Flat.	98 0 0	96 10 0	371 10 6
F. H. Perry, Rough Ridge	4 0 0	0 2 12	0 9 8
Bonanza, Macrae's	175 10 0	114 9 17	440 16 6
W. and G. Donaldson, Macrae's	800 0 0	201 14 1	775 15 6
H. N. Mills and Sons, Macrae's	1,824 0 0	321 2 0	1,236 4 0
Ounce Reef, Macrae's	385 0 0	195 3 0	751 6 0
Golden Bar, Stoneburn, Dunback	580 0 0	132 0 0	508 4 0
J. Davies, Stoneburn	75 0 0	10 10 0	40 8 0
Mount Highlay, Hyde	1,324 0 0	217 6 4	835 9 0
A. Parker, Hindon	11 0 0	1 15 0	6 14 6
Barewood, Nenthorn	1,271 0 0	649 0 0	2,498 13 0
O.P.Q. (Waipori), Waipori	3,196 0 0	1,133 16 6	4,358 8 6
Bella Reefs, Waipori	53 8 0	7 9 0	28 17 6
Table Hill, Waitahuna	160 0 0	12 15 17	48 2 6
Totals	14,751 18 0	5,234 3 17	19,944 11 6

STATEMENT of VALUE of GOLD WON from QUARTZ CRUSHED for ALL DISTRICTS for Year ended the 31st December, 1901, and Nine Months ended the 31st December, 1900.

Mining District.	Nine Months ended the 31st December, 1900.	Year ended the 31st December, 1901.
	£	£
Hauraki	457,037	726,012
Marlborough, Nelson, and West Coast	106,807	196,952
Otago and Southland	16,947	19,944
Totals	580,791	942,908

GROSS TOTALS and VALUE of GOLD PURCHASED by BANKS for Nine Months ended the 31st March, 1902.

Bank.	Gold won.	Value.
Hauraki Mining District.		
	Oz. dwt. gr.	£ s. d.
Bank of New Zealand	51,652 4 0	100,661 0 0
Bank of New South Wales	4,182 18 0	8,363 5 4
National Bank of New Zealand ...	1,198 0 0	3,293 0 0
Totals	57,033 2 0	112,317 5 4
Marlborough, Nelson, and Westland Mining Districts.		
Bank of New Zealand	29,548 13 15	115,333 3 5
Bank of New South Wales	10,604 3 5	42,073 0 8
National Bank of New Zealand ...	24,145 18 0	93,043 11 7
Union Bank of Australia	1,455 0 0	5,716 0 0
Private buyers	75 14 0	278 3 11
Totals	65,829 8 20	256,443 19 7

GROSS TOTALS and VALUE of GOLD PURCHASED by BANKS for Twelve Months ended the 31st March, 1902—*continued*.

Bank.	Gold purchased.	Value.
Otago and Southland Districts.		
	Oz. dwt. gr.	£ s. d.
Bank of New Zealand	85,056 3 0	326,472 2 4
Bank of New South Wales	16,088 5 1	62,255 0 7
National Bank of New Zealand ...	26,522 19 11	102,703 6 5
Bank of Australasia	5,739 5 0	22,917 0 0
Totals	133,406 12 12	514,347 9 4
Grand totals	256,269 3 8	883,108 14 3

SUMMARY OF WORKS CONSTRUCTED.

The following statement shows the whole of the different classes of works constructed by the Department, either by direct grants or by subsidies to local bodies, during the last twenty years (the votes for this purpose having been under the control of the Hon. the Minister of Mines), for the purpose of opening up the mineral belts throughout the colony, and also for the development of the mining industry:—

Nature of Works.	Total Cost of Construction, or Amount authorised to be expended.	Expenditure, by way of Subsidy or otherwise, by Mines Department.	Amount of Liability by Mines Department on Works in Progress.
UP TO YEARS 1882-83 AND 1883-84.	£ s. d.	£ s. d.	£ s. d.
Water-races	29,252 1 11	14,853 9 5	14,398 11 6
Roads on goldfields	21,437 11 2	13,089 16 0	8,347 15 2
Roads and tracks undertaken by County Councils, subsidised by Mines Department	52,841 17 0	21,844 16 7	10,207 15 9
Works undertaken by prospecting associations, subsidised by Mines Department	13,216 13 4	3,350 0 0	3,400 0 0
Construction of drainage and sludge channels, subsidised by Mines Department	5,750 0 0	2,468 15 4	781 4 8
	122,498 3 5	55,606 17 4	37,135 7 1
1884-85.			
Water-races	4,846 1 9	14,596 2 9	4,648 11 6
Roads on goldfields	13,667 10 1	9,630 9 6	12,384 15 9
Roads and tracks undertaken by County Councils, subsidised by Mines Department	13,566 14 1	6,293 16 6	12,739 17 6
Roads to mines, other than gold, subsidised by Mines Department	4,594 10 0	111 19 0	2,888 1 0
Works undertaken by prospecting associations, subsidised by Mines Department	850 0 0	108 0 0	3,692 0 0
Construction of drainage and sludge channels, subsidised by Mines Department	4,050 0 0	1,050 0 0	1,931 4 8
Diamond and other drills	3,600 0 0	1,858 0 0	..
	45,174 15 11	33,648 7 9	38,284 10 5
1885-86.			
Water-races	3,660 4 9	6,063 2 3	6,964 4 4
Roads on goldfields	27,543 18 8	12,360 14 9	27,567 19 8
Roads undertaken by County Councils, subsidised by Mines Department	14,773 2 3	13,043 15 9	12,477 9 2
Roads to mines, other than gold, subsidised by Mines Department	1,551 19 10	4,327 0 10	490 12 8
Works undertaken by prospecting associations, subsidised by Mines Department	11,860 18 0	1,999 5 7	6,389 5 9
Construction of drainage and sludge channels, subsidised by Mines Department	10,051 14 9	3,994 16 6	6,995 9 9
Schools of Mines	2,160 9 7	1,260 9 7	900 0 0
	71,602 7 10	43,049 5 3	61,785 1 4
1886-87.			
Water-races	..	1,928 14 4	3,466 0 8
Roads on goldfields	12,453 3 5	22,229 16 1	17,791 7 0
Roads and tracks undertaken by County Councils, subsidised by Mines Department	12,613 4 8	7,415 19 6	10,455 1 5
Roads to mines, other than gold, subsidised by Mines Department	..	306 1 0	110 13 1
Works undertaken by prospecting associations and companies, subsidised by Mines Department	15,671 19 6	4,521 7 3	4,618 4 7
Construction of drainage and sludge channels, subsidised by Mines Department	5,549 14 6	6,207 18 0	672 6 10
Diamond and other drills	422 15 6	422 15 6	..
Schools of Mines	3,183 7 1	3,383 7 1	700 0 0
	49,894 4 8	46,415 18 9	37,813 13 7

SUMMARY OF WORKS CONSTRUCTED—*continued.*

Nature of Works.	Total Cost of Construction, or Amount authorised to be expended.	Expenditure, by way of Subsidy or otherwise, by Mines Department.	Amount of Liability by Mines Department on Works in Progress.
1887–88.	£ s. d.	£ s. d.	£ s. d.
Water-races	6 6 6	6 6 6	..
Roads on goldfields	6,860 4 3	17,281 11 3	7,370 0 0
Roads and tracks undertaken by County Councils, subsidised by Mines Department	2,998 15 0	8,012 5 2	3,942 4 2
Roads to mines, other than gold, subsidised by Mines Department	..	14 5 4	..
Works undertaken by prospecting associations and companies, subsidised by Mines Department	6,456 8 0	2,703 19 3	924 8 0
Construction of drainage and sludge channels, subsidised by Mines Department	..	1,110 4 11	2,054 10 6
Schools of Mines	1,859 3 7	2,221 19 4	337 4 3
Aids to treatment of ores	1,200 0 0	390 18 3	209 1 9
	19,380 17 4	31,741 10 0	14,837 8 8
1888–89.			
Roads on goldfields	10,253 5 3	4,304 3 9	13,218 11 6
Roads and tracks undertaken by County Councils, subsidised by Mines Department	7,318 1 0	2,466 16 8	5,195 6 1
Works undertaken by prospecting associations and companies, subsidised by Mines Department	474 0 0	236 0 0	687 8 0
Construction of drainage and sludge channels, subsidised by Mines Department	..	54 10 6	..
Wharves, contributions by Mines Department	589 19 5	96 6 0	343 13 5
Aids to treatment of ores, subsidised	..	209 1 9	..
Schools of Mines	895 16 10	1,188 6 10	44 14 3
	19,531 2 6	8,555 5 6	19,489 13 3
1889–90.			
Roads on goldfields	3,834 9 7	9,148 5 9	8,005 5 4
Roads and tracks undertaken by County Councils, subsidised by Mines Department	8,507 15 8	3,451 17 11	5,928 1 3
Works undertaken by prospecting associations and companies, subsidised by Mines Department	..	..	663 0 0
Water-races	2,200 0 0	719 0 0	681 0 0
Wharves	..	150 0 0	193 13 5
Schools of Mines	1,040 0 8	1,034 0 11	50 14 0
Aids to treatment of ores	142 8 9	142 8 9	..
Tracks to open up mineral lands	1,000 0 0	207 3 6	792 16 6
Diamond drills	425 14 5	425 14 5	..
	17,150 9 1	15,278 11 3	16,314 10 6
1890–91.			
Roads on goldfields	8,811 14 4	10,815 14 8	5,201 5 0
Roads and tracks undertaken by County Councils, subsidised by Mines Department	2,703 5 0	2,252 5 5	5,027 8 4
Works undertaken by prospecting associations and companies, subsidised by Mines Department	..	..	663 0 0
Water-races	5,542 19 8	6,234 4 6	..
Wharves	..	39 9 9	..
Schools of Mines	3,847 10 0	3,898 4 0	..
Tracks to open up mineral lands	..	78 4 7	419 19 5
	20,905 9 0	23,318 2 11	11,311 12 9
1891–92.			
Roads on goldfields	14,226 5 1	8,460 0 3	11,767 9 10
Roads and tracks undertaken by County Councils, subsidised by Mines Department	3,162 0 0	1,720 18 6	4,937 10 2
Works undertaken by prospecting associations and companies, subsidised by Mines Department	1,455 5 5	336 15 9	1,663 0 0
Water-races	2,256 13 6	2,256 13 6	..
Wharves	..	..	..
Schools of Mines	1,370 19 9	1,370 19 9	..
Tracks to open up mineral lands	40 0 0	41 16 0	418 3 7
	22,511 3 9	14,187 3 9	18,786 3 7
1892–93.			
Roads on goldfields	15,199 2 4	17,325 10 0	9,628 6 10
Roads and tracks undertaken by County Councils, subsidised by Mines Department	550 0 0	1,033 0 0	4,831 9 10
Works undertaken by prospecting associations and companies, subsidised by Mines Department	970 4 9	865 4 3	1,768 0 6
Water-races	3,811 1 10	3,811 1 10	..
Wharves	..	..	..
Schools of Mines	1,232 4 4	1,232 4 4	..
Tracks to open up mineral lands	..	..	419 19 5
Artesian-well boring, Maniototo Plains	550 0 0	281 3 6	268 16 6
	22,312 13 3	24,548 3 11	16,916 13 1

SUMMARY OF WORKS CONSTRUCTED—*continued.*

Nature of Works.	Total Cost of Construction, or Amount authorised to be expended.	Expenditure, by way of Subsidy or otherwise, by Mines Department.	Amount of Liability by Mines Department on Works in Progress.
1893–94.	£ s. d.	£ s. d.	£ s. d.
Roads on goldfields	18,418 19 2	15,056 0 11	13,013 18 5
Roads and tracks undertaken by County Councils, subsidised by Mines Department	5,038 11 6	2,718 17 8	5,576 10 7
Works undertaken by prospecting associations and companies, subsidised by Mines Department	2,245 19 4	1,709 18 5	1,027 7 11
Water-races	5,271 17 1	5,271 17 1	900 0 0
Drainage-channels	..	..	1,000 0 0
Wharves	..	..	..
Schools of Mines	1,555 19 9	1,555 19 9	..
Tracks to open up mineral lands	..	..	..
Repairing flood damages	500 0 0	500 0 0	..
Artesian-well boring, Maniototo Plains	800 0 0	518 16 6	..
	33,831 6 10	27,331 10 4	21,517 16 11
1894–95.			
Roads on goldfields	20,908 13 7	15,160 3 5	18,752 10 7
Roads and tracks undertaken by County Councils, subsidised by Mines Department	685 18 4	2,295 9 2	1,934 5 7
Works undertaken by prospecting associations and companies, subsidised by Mines Department	10,805 15 4	2,378 13 2	3,006 13 0
Water-races	4,801 19 7	2,427 10 11	2,151 18 8
Drainage-channels	1,521 0 0	673 14 10	3,647 5 2
Wharves	..	..	..
Schools of Mines	999 8 6	999 8 6	..
Tracks to open up mineral lands	..	..	..
Repairing flood damages	..	..	..
Artesian-well boring, Maniototo Plains	505 19 11	505 19 11	..
Diamond drills	..	..	..
	40,228 15 3	24,440 19 11	29,492 13 0
1895–96.			
Roads on goldfields	14,554 0 7	19,970 6 6	14,086 4 8
Roads and tracks undertaken by County Councils, subsidised by Mines Department	4,614 11 1	1,607 8 6	4,290 16 11
Works undertaken by prospecting associations and companies, subsidised by Mines Department	3,477 7 0	1,726 4 8	10,093 3 0
Water-races	6,820 18 3	5,162 9 2	2,515 7 9
Drainage-channels	5,100 0 0	2,240 5 1	2,657 0 1
Wharves	..	..	..
Schools of Mines	999 3 0	999 3 0	..
Tracks to open up mineral lands	..	..	..
Repairing flood damages	..	..	..
Artesian-well boring, Maniototo Plains	..	..	..
Diamond drills	216 1 6	216 1 6	..
	35,782 1 5	31,921 18 5	33,642 12 5
1896–97.			
Roads on goldfields	57,685 9 6	30,720 12 7	35,622 15 3
Roads and tracks undertaken by County Councils, subsidised by Mines Department	11,677 0 0	1,759 6 5	4,079 18 3
Works undertaken by prospecting associations and companies, subsidised by Mines Department	1,570 7 3	1,533 6 7	2,915 14 3
Water-races	3,090 11 1	3,927 18 0	1,678 0 10
Drainage-channels	1,409 0 0	2,149 3 11	2,516 16 2
Wharves	..	..	..
Schools of Mines	1,682 19 5	1,682 19 5	..
Tracks to open up mineral lands	..	..	..
Repairing flood damage	..	..	..
Artesian-well boring, Maniototo Plains	..	..	..
Resumption of land	300 0 0	300 0 0	..
Prospecting deep levels	25,500 0 0	2,697 14 5	22,802 5 7
	102,915 7 3	44,771 1 4	69,615 10 4
1897–98.			
Roads on goldfields	71,318 11 7	37,410 14 3	33,907 17 4
Roads and tracks undertaken by County Councils, subsidised by Mines Department	25,151 9 8	12,158 6 7	9,677 14 0
Works undertaken by prospecting associations and companies, subsidised by Mines Department	3,939 8 1	2,357 15 1	1,581 13 0
Water-races	3,275 8 9	2,272 5 0	1,003 3 9
Drainage-channels	4,481 14 0	1,212 14 9	3,268 19 3
Schools of Mines	1,780 17 3	1,780 17 3	..
Prospecting deep levels	25,500 0 0	21,520 15 0	1,281 10 7
Water-conservation	507 3 9	507 3 9	..
Construction of telephone-lines	60 0 0	50 0 0	..
Compensation proclamation of rivers	5,196 13 10	5,196 13 10	..
	141,211 6 11	84,467 5 6	50,720 17 11

SUMMARY OF WORKS CONSTRUCTED—*continued.*

Nature of Works.	Total Cost of Construction, or Amount authorised to be expended.	Expenditure, by way of Subsidy or otherwise, by Mines Department.	Amount of Liability by Mines Department on Works in Progress.
1898–99.	£ s. d.	£ s. d.	£ s. d.
Roads on goldfields	48,201 0 2	42,358 8 6	39,825 9 0
Roads and tracks undertaken by County Councils, subsidised by Mines Department	21,025 12 0	4,191 7 9	5,914 7 5
Works undertaken by prospecting associations and companies, subsidised by Mines Department	2,936 11 8	2,143 14 1	1,103 13 1
Water-races	3,853 16 5	2,932 12 1	1,719 6 3
Drainage-channels	3,539 7 5	2,426 13 5	3,802 16 4
Schools of Mines	1,450 15 2	1,450 15 2	..
Prospecting deep levels	25,500 0 0	1,281 10 7	..
Water-conservation	12,483 13 1	7,893 19 4	..
Construction of telephone-lines	..	..	..
Compensation proclamation of rivers	676 0 8	676 0 8	..
	119,666 16 7	65,355 1 7	52,365 12 1
1899–1900.			
Roads on goldfields	46,442 15 10	44,258 2 6	42,010 2 4
Roads and tracks undertaken by County Councils, subsidised by Mines Department	4,625 0 0	2,865 7 4	5,011 0 11
Works undertaken by prospecting associations and companies, subsidised by Mines Department	2,549 7 2	1,400 9 6	1,784 3 0
Water-races	7,909 5 11	8,430 14 0	963 11 10
Drainage-channels	1,090 0 0	1,435 7 5	2,627 14 7
Schools of Mines	1,866 13 3	1,866 13 3	..
Prospecting deep levels	..	..	..
Water-conservation	6,925 10 9	6,925 10 9	..
Resumption of land	2,812 7 0	2,812 7 0	..
Compensation proclamation of rivers	811 0 0	811 0 0	..
Aid towards the treatment of ores	915 1 4	915 1 4	..
	75,947 1 3	71,720 13 1	52,396 12 8
1900–1.			
Roads on goldfields	48,835 2 1	44,757 0 1	46,088 4 4
Roads and tracks undertaken by County Councils, subsidised by Mines Department	1,495 8 2	2,882 6 2	3,133 4 10
Works undertaken by prospecting associations and companies, subsidised by Mines Department	2,353 5 10	1,266 11 7	1,033 7 9
Water-races	3,954 1 6	4,251 19 8	50 0 0
Drainage-channels	2,058 0 0	517 0 4	927 7 3
Schools of Mines	1,598 2 1	1,598 2 1	..
Prospecting deep levels	..	..	..
Water-conservation	2,680 19 1	3,787 17 9	..
Resumption of land	..	..	..
Compensation proclamation of rivers	6,083 18 9	6,083 18 9	..
Aid towards the treatment of ores	778 1 0	778 1 0	..
	69,836 18 6	65,922 17 5	51,232 4 2
1901–2.			
Roads on goldfields	80,602 9 4	44,697 10 0	35,904 19 4
Roads and tracks undertaken by County Councils, subsidised by Mines Department	34,216 16 8	2,847 17 3	1,909 0 11
Works undertaken by prospecting associations and companies, subsidised by Mines Department	2,578 10 8	1,509 10 9	1,826 6 2
Water-races	5,860 3 5	6,665 15 1	1,760 16 1
Drainage-channels	1,005 1 8	889 4 6	1,390 3 9
Schools of Mines	2,087 13 8	2,087 13 8	..
Prospecting deep levels	..	..	..
Water-conservation	2,114 12 5	942 13 10	1,171 19 7
Resumption of land	..	..	..
Compensation proclamation of rivers	5,318 2 9	5,318 2 9	..
Aid towards the treatment of ores	77 17 0	27 17 0	50 0 0
	133,861 7 7	64,986 4 10	44,013 5 10
SUMMARY.			
Roads on goldfields	454,507 7 6	418,602 8 2	35,904 19 4
Subsidised roads and tracks	250,284 1 5	101,294 11 5	1,909 0 11
Subsidised roads and tracks other than on goldfields	6,146 9 10	4,759 6 2	..
Prospecting	80,486 15 10	30,147 16 7	1,826 6 2
Water-races	94,391 16 9	91,811 16 1	1,760 16 1
Wharves	435 15 9	285 15 9	..
Schools of Mines	29,611 3 11	29,611 3 11	..
Drainage-channels	39,916 16 8	26,429 9 6	1,390 3 9
Diamond drills	5,170 11 4	3,428 11 4	..
Treatment of ores	3,113 8 1	2,463 8 1	50 0 0
Tracks to open up mineral lands	325 8 1	325 8 1	..
Artesian-well boring, Maniototo Plains	800 0 0	800 0 0	..
Repairing flood damages	500 0 0	500 0 0	..
Prospecting deep levels	51,000 0 0	25,500 0 0	..
Resumption of land	3,112 7 0	3,112 7 0	..
Water-conservation	21,229 5 0	20,057 5 5	1,171 19 7
Construction of telephone-lines	60 0 0	50 0 0	..
Proclamation of rivers	18,085 16 0	18,085 16 0	..
	1,059,177 3 2	777,265 3 6	44,013 5 10

LIST of WORKS on GOLDFIELDS undertaken wholly by the Mines Department, or by Subsidies to County Councils, Local Bodies, and Prospecting Associations, in Progress on the 31st March, 1902.

Locality and Nature of Works.	Total Cost, or Amount authorised.	Amount of Contribution paid by Mines Department.	Amount due by Mines Department on Works still in Progress.
NORTH ISLAND.			
ROADS (SUBSIDISED).			
Coromandel County.	£ s. d.	£ s. d.	£ s. d
Opitonui–Mercury Bay	200 0 0	..	100 0 0
Repairs, bridges, Kuaotunu Main Road	200 0 0	100 0 0	40 0 0
Metalling Waitaia Main Road	80 0 0	..	40 0 0
Coromandel–Mercury Bay	200 0 0	35 0 0	65 0 0
	680 0 0	135 0 0	245 0 0
Thames County.			
Foot-bridge, Pepe Creek	300 0 0	51 18 6	78 1 6
Hape Creek Road	200 0 0	..	100 0 0
	500 0 0	51 18 6	178 1 6
Thames Borough.			
Clearing *débris*, Waiotahi Creek	200 0 0	..	100 0 0
Ohinemuri County.			
Low-level tunnel, Jubilee Mine (E. Kersey Cooper) ..	1,500 0 0	367 10 0	382 10 0
MIDDLE ISLAND.			
ROADS (SUBSIDISED).			
Collingwood County.			
Takaka roads	600 0 0	388 9 5	12 0 7
Collingwood–Kaituna	400 0 0	170 10 5	29 9 7
	1,000 0 0	558 19 10	41 10 2
Grey County.			
Track, Rees Flat to Watterson's Consols Company ..	300 0 0	..	150 0 0
Culverts, Nelson–Grey–Hokitika Road	300 0 0	125 0 0	25 0 0
Protective works, Big Grey Bridge	200 0 0	..	100 0 0
New River Bank Road	300 0 0	..	150 0 0
Widening "Frollis" Track	400 0 0	..	200 0 0
	1,500 0 0	125 0 0	625 0 0
Westland County.			
Improving road, Seven-mile, Taipo	150 0 0	73 3 6	1 16 6
Widening Shallow Rush Track	300 0 0	54 17 3	95 2 9
	450 0 0	128 0 9	96 19 3
Tuapeka County.			
Fitzgerald's Bridge	500 0 0	10 0 0	240 0 0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost, or Amount authorised.	Amount of Contribution paid by Mines Department.	Amount due by Mines Department on Works still in Progress.
WORKS UNDER CONSTRUCTION WHOLLY BY MINES DEPARTMENT.	£ s. d.	£ s. d.	£ s. d.
Opitonui Township Road	100 0 0	..	100 0 0
Four-in-Hand Road	181 18 0	129 18 0	52 0 0
Manaia–Waikawau (repairs)	100 0 0	..	100 0 0
Cabbage Bay Road (repairs)	90 0 0	..	90 0 0
Bridge, Cabbage Bay Township Road	20 0 0	..	20 0 0
Mercury Bay Hospital Road and Path	50 0 0	..	50 0 0
Footbridge, Wakamarina River	50 0 0	..	50 0 0
Repairs, No Town Creek Bridge	75 0 0	..	75 0 0
Paroa–Teremakau	200 0 0	135 0 0	65 0 0
Dredging Titri Canal	30 0 0	12 0 0	18 0 0
Whakapara–Puhipuhi	650 0 0	585 0 0	65 0 0
Tairua–Whenuakite	700 0 0	550 0 0	150 0 0
Cabbage Bay–Port Charles and Cape Colville	2,020 0 0	1,998 13 11	21 6 1
Coromandel–Cabbage Bay	884 0 0	800 0 0	84 0 0
Tokatea–Kennedy Bay	935 0 0	915 1 0	19 19 0
Coromandel–Kuaotunu, *vid* Matarangi	1,593 0 0	1,421 8 6	171 11 6
Tiki–Manaia	1,345 13 0	1,198 9 9	147 3 3
Manaia–Waikawau	4,395 0 0	4,244 0 0	151 0 0
Mercury Bay–Whenuakite and Boat Harbour	500 0 0	400 0 0	100 0 0
Whitianga–Gumtown	650 0 0	400 0 0	250 0 0
Coromandel–Whangapoua	1,103 0 0	1,000 0 0	103 0 0
Extending Wharf Road, Coromandel	1,079 0 0	678 12 6	400 7 6
Kikowhakarere–Cabbage Bay	800 0 0	598 2 0	201 18 0
Whitianga–Kaimarama	696 0 0	453 8 0	242 12 0
Opitonui Road	838 0 0	727 4 6	110 15 6
Ohuka Creek Bridge	470 0 0	..	470 0 0
Four-in-Hand Road	150 0 0	145 3 6	4 16 6
Cabbage Bay–Matamataharakeke	100 0 0	..	100 0 0
Waiwawa River Bridge	500 0 0	..	500 0 0
Gumtown Road	724 0 0	424 0 0	300 0 0
Kapowai Track	489 0 0	389 0 0	100 0 0
Mahaki Goldfield Track	100 0 0	47 0 0	53 0 0
Owera Bridge	350 0 0	..	350 0 0
Waitaia Mine to Battery	200 0 0	..	200 0 0
Kuaotunu–Mercury Bay	1,222 11 6	1,022 11 6	200 0 0
Thames–Waikawau	2,518 11 7	2,223 15 3	294 16 4
Thames–Hikutaia	2,049 0 1	1,861 15 5	187 4 8
Upper Tararu Road	1,482 9 11	1,318 19 2	163 10 9
Tapu Creek and extension	1,503 1 11	1,356 1 11	147 0 0
Turua–Netherton	1,532 0 0	1,435 5 0	96 15 0
Hikutaia–Whangamata "Wires" Track	1,949 9 1	1,656 7 6	293 1 7
Matatoki Road	539 0 0	457 7 6	81 12 6
Wharepoa Settlement Road	1,053 6 11	907 19 5	145 7 6
Neavesville–Upper Landing	300 0 0	287 0 0	13 0 0
Wharepoa Drain	200 0 0	..	200 0 0
Thames to Whangamata	400 0 0	200 0 0	200 0 0
Whangamata–Wentworth	347 0 0	100 0 0	247 0 0
Waiotahi Road	200 0 0	193 16 5	6 3 7
Waiomo Creek Road	607 0 0	400 0 0	207 0 0
Tapu–Gumtown	400 0 0	..	400 0 0
Moanatairi Road	100 0 0	..	100 0 0
Kanaeranga Bridge	400 0 0	..	400 0 0
Waitekauri–Golden Cross	2,335 0 0	1,839 16 0	495 4 0
Waihi–Whangamata	808 0 0	758 16 0	49 4 0
Paeroa–Te Aroha	823 0 0	581 16 2	241 3 10
Komata Reefs–Waitekauri	400 0 0	200 0 0	200 0 0
Hikutaia–Waitekauri	1,019 0 0	1,007 0 0	12 0 0
Hikutaia–Maratoto	200 0 0	172 2 6	27 17 6
Tui-mine Track	400 0 0	194 14 0	205 6 0
Waihi–County Boundary	900 0 0	865 2 7	34 17 5
Karangahake–Rotokohu	300 0 0	297 11 0	2 9 0
Komata Creek Road	200 0 0	50 0 0	150 0 0
Karangahake–Maungakara	150 0 0	132 7 10	17 12 2
Paeroa–Waihi	500 0 0	45 0 0	455 0 0
Karangahake–Mountain Track	100 0 0	30 15 0	69 5 0
Dividing Range Track to Mangakino	100 0 0	20 0 0	80 0 0
Karangahake Hill Track	100 0 0	..	100 0 0
Waitawheta Road deviation	300 0 0	255 2 6	44 17 6
Karangahake Track extension	100 0 0	..	100 0 0
Thompson's Track	4,723 19 11	4,581 19 11	142 0 0
Waihi–Katikati	1,650 0 0	1,400 0 0	250 0 0
Onamalutu–Wakamarina	700 0 0	612 0 0	88 0 0
Rocky Ferry–Kaituna	600 0 0	..	600 0 0
Anatoki Track	250 0 0	115 13 0	134 7 0
Vants to Bubu	200 0 0	100 0 0	100 0 0
Ferntown–Pakawau	473 0 0	456 1 4	16 18 8
Takaka–Collingwood "Inland" Road	3,148 19 11	2,973 11 7	175 8 4
Taitapu Boundary Track	200 0 0	..	200 0 0
Pakawau–Tamatea	200 0 0	73 18 0	126 2 0
Bainham Bridge	200 0 0	..	200 0 0
Salisbury Bridge	325 0 0	..	325 0 0
Motueka River Protective Works.	280 5 8	..	280 5 8

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost, or Amount authorised.	Amount of Contribution paid by Mines Department.	Amount due by Mines Department on Works still in Progress.
WORKS UNDER CONSTRUCTION WHOLLY BY MINES DEPARTMENT—*continued.*	£ s. d.	£ s. d.	£ s. d.
Wangapeka–Baton	600 0 0	400 0 0	200 0 0
Thorpe–Churchill	200 0 0	100 0 0	100 0 0
Riwaka–Kaiteriteri Beach	204 0 0	100 0 0	104 0 0
Canaan Road	300 0 0	250 18 8	49 1 4
Thorpe–Neudorf	100 0 0	..	100 0 0
Chandler's–Wangapeka Junction	200 0 0	151 0 0	49 0 0
Chandler's–Rolling River	200 0 0	..	200 0 0
Table Land Horse-track	40 0 0	..	40 0 0
Millerton Road	1,000 0 0	500 0 0	500 0 0
Lyell Bridge–Ryan's	900 0 0	800 0 0	100 0 0
Granity Creek Southwards	1,450 0 0	950 0 0	500 0 0
Stoney Creek–Waimangaroa	200 0 0	..	200 0 0
Westport–Mokihinui	1,400 0 0	1,150 0 0	250 0 0
Land of Promise Road	500 0 0	400 0 0	100 0 0
Mokihinui end of Westport Road	700 0 0	600 0 0	100 0 0
Costello's Hill Road	750 0 0	650 0 0	100 0 0
Addison's Road–Buller Road	1,000 0 0	750 0 0	250 0 0
Addison's Road	100 0 0	..	100 0 0
Millerton–Mine Creek	345 0 0	145 0 0	200 0 0
Mokihinui–Ngakawau	500 0 0	250 0 0	250 0 0
Waimangaroa–Birchfield	400 0 0	200 0 0	200 0 0
Blackwater track	200 0 0	..	200 0 0
Fairdown–Waimangaroa	450 0 0	350 0 0	100 0 0
Granity Creek–Ngakawau	150 0 0	..	150 0 0
Cascade Creek Road	200 0 0	..	200 0 0
Fairdown Station–Waimangaroa (widening)	200 0 0	..	200 0 0
Reefton–Maruia	3,322 8 0	2,672 0 0	650 8 0
Matakitaki–Glenroy–Maruia	982 0 0	707 15 6	274 4 6
Mangles Valley Road	893 0 0	610 0 0	283 0 0
Blackwater–Big River	450 0 0	300 0 0	150 0 0
Boatman's Valley Road Bridge	250 0 0	..	250 0 0
Warwick–Maruia Bridge	200 0 0	150 0 0	50 0 0
Just in Time Track	100 0 0	..	100 0 0
Victoria Range–Larry's Creek	200 0 0	..	200 0 0
Glenroy River Road	300 0 0	..	300 0 0
Blackball–Healey's Gully	950 0 0	700 0 0	250 0 0
Ten-mile–Paparoa	250 0 0	..	250 0 0
Seven-mile Creek–Nine-mile Bluff	1,000 0 0	400 0 0	600 0 0
Cape Terrace Road	400 0 0	200 0 0	200 0 0
Hatter's Terrace–Bell Hill	500 0 0	250 0 0	250 0 0
Nelson Creek Bridge–Hatter's Terrace	200 0 0	..	200 0 0
Nelson Creek Bridge–Grey Marsden Road	100 0 0	..	100 0 0
Moonlight–Blackball	250 0 0	..	250 0 0
Maori Creek Bridge	80 0 0	..	80 0 0
Eight-mile Creek Bridge (approaches)	150 0 0	..	150 0 0
Nine-mile–Fourteen-mile	100 0 0	..	100 0 0
Kotuku–Bell Hill	250 0 0	..	250 0 0
Moonlight Road	250 0 0	..	250 0 0
Teramakau Bridge to Payne's	100 0 0	..	100 0 0
Brunner–Blackball	450 0 0	200 0 0	250 0 0
Doughboy Road	200 0 0	160 2 9	39 17 3
Milltown Track deviation	400 0 0	342 15 0	57 5 0
Adair's Track (widening)	330 0 0	130 0 0	200 0 0
Seddon's Terrace Track	400 0 0	200 0 0	200 0 0
Bridge on Blue Spur Road	50 0 0	..	50 0 0
Kokatahi Road	255 0 0	155 0 0	100 0 0
Dillman's Road to Nos. 4 and 5 Channels	150 0 0	30 0 0	120 0 0
Tucker's Flat Road	100 0 0	55 15 0	44 5 0
Duffer's Road (widening)	200 0 0	..	200 0 0
Kanieri Lake Road	200 0 0	56 19 10	143 0 2
Road over Three-mile Bluff, Okarito	150 0 0	..	150 0 0
Waipori–Berwick	200 0 0	..	200 0 0
Outram–Waipori	200 0 0	..	200 0 0
Clarendon–Berwick	400 0 0	250 0 0	150 0 0
Lawrence–Waipori	2,000 0 0	1,575 0 0	425 0 0
Lawrence–Roxburgh	225 0 0	..	225 0 0
Waitahuna–Lawrence	350 0 0	200 0 0	150 0 0
Waipori Bush Road	600 0 0	450 0 0	150 0 0
Lawrence–County boundary	725 0 0	250 0 0	475 0 0
Waipori–Outram	200 0 0	50 0 0	150 0 0
Waipori–Waitahuna	450 0 0	150 0 0	300 0 0
Waitahuna–Round Hill	200 0 0	..	200 0 0
Arrowtown–Macetown	1,400 0 0	1,300 0 0	100 0 0
Garston–Nevis (Lake County)	250 0 0	100 0 0	150 0 0
Crown Terrace–Cardrona	300 0 0	150 0 0	150 0 0
Arthur's Point–Moke Creek	150 0 0	110 0 0	40 0 0
Doolan's Coal-pit Road	300 0 0	242 10 0	57 10 0
Cardrona Coal-pit Road	250 0 0	..	250 0 0
Johnston's Creek Road (extension)	450 0 0	..	450 0 0
Parawa Nokomai Bridge	308 0 0	250 0 0	58 0 0
Waimumu Road	200 0 0	..	200 0 0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost, or Amount authorised.	Amount of Contribution paid by Mines Department.	Amount due by Mines Department on Works still in Progress.
WORKS UNDER CONSTRUCTION WHOLLY BY MINES DEPARTMENT—*continued.*	£ s. d.	£ s. d.	£ s. d.
Garvie Burn Road	42 0 0	..	42 0 0
Stoney Ford Bridge–Nokomai	300 0 0	..	300 0 0
Nokomai Saddle Road	150 0 0	..	150 0 0
Waikaia Goldfield Road	150 0 0	..	150 0 0
Waikaia–Whitecombe	100 0 0	..	100 0 0
Waikaka Township–Little Waikaka	150 0 0	..	150 0 0
Waikaka to Coal-pit	100 0 0	..	100 0 0
Top Valley Road	571 5 8	551 5 8	20 0 0
Mokihinui–Little Wanganui	4,516 14 0	3,767 6 5	749 7 7
Beatman's Creek Bridge	150 0 0	3 19 0	146 1 0
Burke's Creek Bridge	200 0 0	..	200 0 0
Big Ohika Creek Bridge	500 0 0	..	500 0 0
Blackwater Bridge	200 0 0	..	200 0 0
Hokitika–Jackson's	2,232 16 1	2,032 16 1	200 0 0
Reefton–Hokitika–Ross	12,852 12 9	12,524 2 11	328 9 10
Solberg's Hill	50 0 0	..	50 0 0
Collingwood Bridge	1,000 0 0	154 11 10	845 8 2
Westport–Waimangaroa	629 14 8	395 11 2	234 3 6
Karamea Bridge (rebuilding)	3,855 9 0	3,465 17 0	389 12 0
Main Grey Bridge (repairs)	1,000 0 0	93 4 10	906 15 2
Moonlight Creek Bridge	300 0 0	19 16 2	280 3 10
Waipuna Bridge	210 0 5	15 15 5	194 5 0
Sawyer's Creek Bridge	300 0 0	246 17 8	53 2 4
Potts Creek Bridge	374 0 0	330 0 9	43 19 3
Taylorville Bridge	420 0 0	378 19 10	41 0 2
Okarito Forks–Waiho	1,537 1 8	693 0 9	844 0 11
	128,159 9 9	92,254 10 5	35,904 19 4
SCHOOLS OF MINES.			
Schools of Mines	20,307 17 9	20,307 17 9	..
School of Mines (Otago University)	9,303 6 2	9,303 6 2	..
	29,611 3 11	29,611 3 11	..
PROSPECTING SUBSIDIES.			
Coromandel County	644 0 0	630 0 0	14 0 0
Coromandel County (J. and M. Fitzgerald)	28 1 0	17 11 0	10 10 0
Buller County (Brand and party)	80 0 0	60 19 9	19 0 3
Golden Basin Prospecting Association	435 0 0	26 11 3	408 8 9
Miners' Association, Havelock (Kearns and McCusker)	50 0 0	37 0 0	13 0 0
Miners' Association, Charleston (Nelson and party)	110 0 0	58 2 3	51 17
Miners' Association, Nelson Creek (O'Brien and party)	11 5 0	..	11 5 0
Miners' Association, Nelson Creek (Kelly and party)	200 0 0	29 15 0	80 5 0
Westland County (Patrick and Moynihan)	200 0 0	96 1 9	28 8 3
Westland County (Case and party)	150 0 0	..	80 0 0
Westland County (Holst and party)	50 0 0	..	28 15 0
Westland County (Smith and party)	50 0 0	..	18 0 0
Westland County (Warren and party)	80 0 0	30 0 0	30 0 0
Victoria Gold Mining Company (prospecting, Thames)	1,000 0 0	74 0 10	925 19 2
Inangahua County (Victoria Range Gold-mining Company)	100 0 0	..	51 5 0
Johnston, Bryan, and party (prospecting Seddon's Terrace)	300 0 0	244 8 0	55 12 0
	3,488 6 0	1,304 9 10	1,826 6 2
WATER-RACES.			
Waimea–Kumara Water-race	46,786 11 3	49,327 5 5	25 13 7
Mount Ida Water-race	9,051 19 9	9,051 19 9	..
Mountain Hut Water-race	5,184 11 9	3,449 9 3	1,735 2 6
	61,023 2 9	61,828 14 5	1,760 16 1
DRAINAGE- AND TAILINGS-CHANNELS.			
Waimea Main Tail-race	1,905 1 8	1,438 19 2	466 2 6
St. Bathan's Channel	3,000 0 0	1,625 0 0	375 0 0
Kelly's Terrace Tunnel	2,667 10 0	1,921 18 9	187 2 3
No. 5 Sludge Channel (extension)	600 0 0	38 1 0	361 19 0
	8,172 11 8	5,023 18 11	1,390 3 9
WATER CONSERVATION ON GOLDFIELDS.			
Engineer's salary and expenses	1,998 13 10	1,998 13 10	..
Reports on Drainage, Ross Flat	284 10 8	284 10 8	..
Coromandel Harbour and Kuaotunu Sludge-channels	80 12 6	80 12 6	..
Eweburn Reservoir	16,361 19 2	16,361 19 2	..
Mackeytown Water-supply	351 0 0	279 0 5	71 19 7
Waitekauri Water-supply	445 2 5	445 2 5	..
Karangahake Water-supply	607 6 5	607 6 5	..
Clyde Water-supply	1,100 0 0	..	1,100 0 0
	21,229 5 0	20,057 5 5	1,171 19 7

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost, or Amount authorised.	Amount of Contribution paid by Mines Department.	Amount due by Mines Department on Works still in Progress.
	£ s. d.	£ s. d.	£ s. d.
AID TOWARDS THE TREATMENT OF ORES.			
Public Crushing-plant (Coromandel School of Mines) ..	855 18 0	805 18 0	50 0 0
Summary of Works.			
Roads (subsidised)—			
Coromandel County	680 0 0	135 0 0	245 0 0
Thames County	500 0 0	51 18 6	178 1 6
Thames Borough	200 0 0	..	100 0 0
Ohinemuri County	1,500 0 0	367 10 0	382 10 0
Collingwood County	1,000 0 0	558 19 10	41 10
Grey County	1,500 0 0	125 0 0	625 0 0
Westland County	450 0 0	128 0 9	96 19 3
Tuapeka County	500 0 0	10 0 0	240 0 0
	6,330 0 0	1,376 9 1	1,909 0 11
Works under construction wholly by Mines Department ..	128,159 9 9	92,254 10 5	35,904 19 4
Schools of Mines	29,611 3 11	29,611 3 11	..
Prospecting subsidies	3,468 6 0	1,304 9 10	1,826 6 2
Water-races	61,023 2 9	61,828 14 5	1,760 16 1
Drainage- and tailings-channels	8,172 11 8	5,023 18 11	1,390 3 9
Compensation, proclamation of rivers	18,085 16 0	18,085 16 0	..
Water-conservation on goldfields	21,229 5 0	20,057 5 5	1,171 19 7
Aid towards the treatment of ores	855 18 0	805 18 0	50 0 0
Total	276,935 13 1	230,348 6 0	44,013 5 10

LIST of WORKS on GOLDFIELDS constructed wholly by the Mines Department, or by Subsidies to County Councils, Local Bodies, and Prospecting Associations, and completed prior to the 31st March, 1902.

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
NORTH ISLAND.						
ROADS (SUBSIDISED).						
Bay of Islands County.	£	s.	d.	£	s.	d.
Tiriwhanga Gorge to Galbraith's Road, Puhipuhi	237	0	0	118	10	0
Air-line Road to battery-site, Puhipuhi	73	0	0	36	10	0
Tiriwhanga Gorge to Puhipuhi	800	0	0	800	0	0
New Bay of Islands Coal Company	500	0	0	250	0	0
Road, Taumarere Railway-station to Puhipuhi	482	0	0	146	0	0
	2,092	0	0	1,351	0	0
Coromandel County.						
Improving road to Iona and Just-in-Time Companies' mines	200	0	0	133	6	8
Making and improving track from Tokatea towards Kennedy Bay	320	0	0	213	6	8
Golden Belt Track	100	0	0	50	0	0
Tokatea Road (repairs)	300	0	0	150	0	0
Making and improving track from Golden Belt to Tiki	239	3	3	159	8	10
Making road from Ring's Bridge to Kapanga Mine	150	0	0	100	0	0
Making road to Kapanga Mine	132	0	0	88	0	0
Temporary track from Tokatea Saddle to Waikoromiko	50	0	0	33	6	8
Continuation of track from Success Company's mine to top of main range	80	0	0	53	6	8
Completion of road from Tokatea Saddle to Tokatea Battery	50	0	0	33	6	8
Widening road from Matawai to Vaughan's claim	357	0	0	238	0	0
Improving track, Mercury Bay to Waitai	100	0	0	66	13	4
Continuation and improving Waikoromiko Track	150	0	0	100	0	0
Emily Battery to Rocky Creek	60	0	0	40	0	0
Track, Bismarck Battery to Kennedy Bay	200	0	0	133	6	8
Road up Manaia	675	10	6	450	7	0
Extension of Vaughan's and Vizard's Tracks	150	0	0	100	0	0
Vizard's towards Marebel	200	0	0	133	6	8
Extending and widening Waitaia Road	100	0	0	66	13	4
Makarau to Waiau	1,600	0	0	1,066	13	4
Waikawau to Tiki	500	0	0	333	6	8
Paul's Creek to Cabbage Bay	200	0	0	133	6	8
Waikawau Creek Track	100	0	0	50	0	0
McLaughlin's Road	100	0	0	50	0	0
Manaia to McGregor's new find	100	0	0	50	0	0
Manaia to Tiki	500	0	0	250	0	0
Old sawmill towards Matawai	200	0	0	100	0	0
Extension of Paul's Creek Track	300	0	0	150	0	0
Matarangi Track	400	0	0	200	0	0
Thames–Coromandel Road, *viâ* Manaia	300	0	0	150	0	0
Harbour View extension	210	0	0	105	0	0
Kapanga to Paul's Creek	200	0	0	100	0	0
Mercury Bay to Kuaotunu	360	0	0	180	0	0
Wainara to Kuaotunu	450	0	0	225	0	0
Sea-beach to Kuaotunu	1,650	0	0	1,450	0	0
Just-in-Time Road, extension to Coromandel	450	0	0	225	0	0
Road, Waikawau Bridge to McLaughlin's	67	10	0	45	0	0
Mercury Bay Road	990	0	0	495	0	0
Bridge to Dugend's store, and widening and metalling road from bridge to Log Hut	450	0	0	300	0	0
Road from junction of Red Mercury battery up Pumpkin Flat to Waitaia	345	0	0	230	0	0
To connect road from Log Hut to commencement of contract of Kuaotunu–Mercury Bay Road	150	0	0	100	0	0
Road, with culverts and bridge, from Kapanga Hill to Scotty's Gold-mining Company's mine	200	0	0	150	0	0
Pumpkin Flat–Just-in-Time Road	310	0	0	170	0	0
Lower road from Great Mercury battery to Kapai low level and battery-site	450	0	0	300	0	0
Road from main road, Kapanga to Success Mine	600	0	0	300	0	0
Cemetery Road and Bridge, Kuaotunu	100	0	0	75	0	0
Road from Coromandel–Kennedy Bay Main Road to Wereroa Creek	300	0	0	150	0	0
Leading Wind Mine Road	100	0	0	50	0	0
Fury's Bridge	450	0	0	225	0	0
Carroll's Bridge	400	0	0	200	0	0
Horne's Bridge	200	0	0	100	0	0
Road from Main Kennedy Bay Road to Monte Carlo and other claims	300	0	0	150	0	0
Castle Rock Mine Road, Tiki	200	0	0	100	0	0
Road between Bismarck Battery and Hauraki Associated Gold-reefs	400	0	0	200	0	0
Bridge, Warekaho Creek	300	0	0	150	0	0
Cabbage Bay to Mines	300	0	0	150	0	0
Two bridges and approaches, Kuaotunu Main Road	300	0	0	150	0	0
Road from Success Road to workings of Karaka Block Syndicate	200	0	0	100	0	0
Widening Waitaia Battery Road	100	0	0	50	0	0
Cabbage Bay–Waitete	240	0	0	120	0	0
Cabbage Bay–Ward's Track	200	0	0	100	0	0
	18,886	3	9	11,320	15	10

List of Works on Goldfields, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
Te Aroha Town Board.	£ s. d.	£ s. d.
Road to connect with railway-station	120 0 0	60 0 0
Lipsey's Bridge	64 0 0	32 0 0
Repairing flood-damages	150 0 0	75 0 0
	334 0 0	167 0 0
Thames County.		
Making new road from Ohinemuri River to Karangahake Quartz-mine	650 0 0	433 6 8
Dray-road to connect Otanui Mines with crushing-battery at Maungawherawhera Creek	710 0 0	473 6 8
Improving roads from Waitekauri Road to Katikati Road	250 0 0	166 13 4
Improving road up Karaka Creek to Lucky Hit Company's mine	263 1 0	175 7 4
Improving road to upper mines, Waitahi	258 18 10	172 12 7
Karangahake to battery	300 0 0	200 0 0
Ralph's Battery, Waitekauri	399 1 0	199 10 6
Otanui Road to mines	299 18 0	199 18 8
Road to Wick's Battery	70 0 0	46 13 4
Rocky Point Road, Tararu	300 0 0	200 0 0
Thames Borough boundary to hæmatite-mine	350 0 0	233 6 8
Widening road from bridge over Hape Creek to Otanui Mines	183 17 0	122 11 4
Track, Karangahake Goldfield	784 1 0	522 14 0
Kauaeranga Valley to Otanui	470 7 0	313 11 4
Tapu Road to mines	81 17 9	54 11 10
Tauranga Road to Karangahake Bridge site	341 5 0	227 10 0
Karangahake Bridge	229 6 6	152 17 8
Track up Maungakerikeri Creek	93 4 4	62 2 11
Thames Borough boundary to Hape Creek No. 2	600 0 0	300 0 0
Upper Karaka Road	179 13 0	119 15 4
Repairing flood-damages, Waiotahi, Moanataiari, Karaka, and Collarbone Roads	350 0 0	175 0 0
Sea-beach to Waiomo	750 0 0	375 0 0
Te Papa Gully Road	75 0 0	37 10 0
New Find to Waiomo Battery	110 0 0	55 0 0
Rocky Point Road	429 11 10	214 15 11
Waiotahi towards Mercury Bay	522 11 0	261 5 6
Te Mata Road	178 17 6	89 8 9
Waiomo Creek to Tapu	1,499 0 0	749 10 0
Alabama Creek Track	100 0 0	50 0 0
Road from Prospectors' Mine, Puriri, to battery	50 0 0	25 0 0
Karaka Creek to Lucky Hit	365 0 0	182 10 0
Bullion Mine, Tapu, to battery	36 5 0	18 2 6
Track to Hikutaia Goldfield	147 15 2	73 17 7
Upper Tararu Road to Sylvia Mine	684 7 0	342 3 6
Road to Puriri Battery	11 13 0	5 16 6
Thames-Waikawau Road	37 10 0	18 15 0
Track from Tararu Creek Road to McDermot's Claim	45 0 0	22 10 0
Track to Try Fluke Claim, Tapu	94 15 0	47 7 6
Waiomo to Puhoi Creek	33 0 0	16 10 0
Waiokaraka Road, Bella Street, and Campbell Street to Moanataiari Creek	200 0 0	100 0 0
Moanataiari Creek Road	100 0 0	50 0 0
Tararu Creek Road and Tararu Road	150 0 0	75 0 0
Hape Creek Road	150 0 0	75 0 0
Omahu-Tairua	100 0 0	42 0 0
Karaka Creek Road	150 0 0	68 4 6
Onetai Valley Road	40 0 0	12 10 0
Townsend's Road	30 0 0	26 12 0
Gumtown-Kapowai	300 0 0	196 9 0
	13,554 15 11	7,782 8 5
Thames Borough.		
Repairing roads	975 19 2	600 0 0
Widening and straightening Karaka Creek	300 0 0	150 0 0
Metalling goldfields roads	800 0 0	672 12 6
Removing *débris*, Karaka Creek	200 0 0	100 0 0
Half-cost damage, Hawk's stable	96 0 0	48 0 0
Repairs, Moanataiari Creek Tunnel	100 0 0	52 0 0
Repairs, Moanataiari and Waiotahi Aqueducts	620 0 0	375 0 0
Repairs, Waiotahi Creek Bridge	50 0 0	25 0 0
Removing *débris*, Karaka and Waiotahi Creeks	350 0 0	275 0 0
	3,491 19 2	2,297 12 6
Ohinemuri County.		
Jubilee Mine Track	118 0 0	59 0 0
Track up Tui Creek	306 0 0	153 0 0
Prospecting-track, Whangamata and Waitekauri	200 0 0	166 13 4
Tramway, Karangahake to Railey's reduction-works	400 0 0	200 0 0
Strengthening bridges, Waihi Road	200 0 0	133 6 8
Paeroa to Hikutaia	400 0 0	200 0 0
Repairs, flood-damages	34 13 8	17 6 10
Hikutaia River to Marototo Mine	180 15 0	90 7 6

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
	£ s. d.	£ s. d.
Ohinemuri County—continued.		
Karangahake through Gorge (bridge and culverts)	200 0 0	100 0 0
Waitekauri Lower Road	360 0 0	189 2 8
Metalling Karangahake Gorge Road	170 0 0	85 0 0
Karangahake and Waihi Road	237 10 0	118 15 0
Karangahake Hill Track	87 4 0	43 12 0
Bridge over Ohinemuri River at Karangahake	12 11 0	6 5 6
Hikutaia–Paeroa Road	500 0 0	250 0 0
Paeroa–Te Aroha Road	200 0 0	100 0 0
Tui Creek Track	129 18 6	64 19 3
Waitekauri to Lowrie's and Birnie's	200 0 0	100 0 0
Road, Karangahake to Waihi	246 12 3	164 8 2
Lower Waitekauri Road	347 13 4	230 16 4
Road, Thames Road to Netherton Punt	60 0 0	50 0 0
Komata Creek Road	600 0 0	300 0 0
Road, Paeroa Bridge to Kuaoti Creek	400 0 0	133 6 8
Punt at south end Netherton–Paeroa Road	275 0 0	175 0 0
Repairs, Waitekauri Township Road	200 0 0	100 0 0
Bridge, Paeroa–Te Aroha Road	60 0 0	30 0 0
Karangahake Bridge	1,032 0 0	512 16 9
Drain along Mill Road, Paeroa	200 0 0	90 2 5
Road, Te Iringa-o-Pirori Block	200 0 0	143 0 0
Road running south on left bank Waihou River	400 0 0	384 19 0
Kaimanawa Road	200 0 0	126 2 6
Mangaiti and Waitoa Road and Punt	200 0 0	119 7 10
Earl of Glasgow Claim Track	400 0 0	300 0 0
	8,757 17 9	4,937 8 5
Waitoa Road Board.		
Drain, Te Aroha West	200 0 0	130 0 0
Piako County.		
Extension and completion of Te Aroha Tramway	18,000 0 0	12,000 0 0
Tramway to Fergusson's Battery, Waiorongomai	1,500 0 0	1,000 0 0
Road, Waiorongomai	497 17 0	331 18 0
Track to claims at Buck's Reef	55 5 6	36 17 0
Track, Fern Spur to Butler's Spur	231 17 9	154 11 10
Tracks up Stony Creek, Te Aroha Goldfield, &c.	54 0 0	36 0 0
Repairs, Upper Premier Track and new track towards Waitawheta	40 0 0	20 0 0
Repairs, Te Aroha–Lichfield Road	302 0 0	125 0 0
Waiorongomai Tramway	263 2 0	175 0 0
Gordon–Waharoa	100 0 0	50 0 0
Te Aroha–Gordon	200 0 0	100 0 0
Murphy's Bridge	24 0 0	12 0 0
Repairs, Waiorongomai Tramway	500 0 0	285 0 0
Waihou Bridge	580 0 0	290 0 0
	22,348 2 3	14,616 6 10
Katikati Road Board.		
Katikati–Karangahake Track	400 0 0	200 0 0
Bridge on branch road to Katikati	68 0 0	34 0 0
Te Aroha Track	39 19 6	19 18 9
	507 19 6	253 18 9
Hutt County.		
Road to connect Otorongo Bay with Albion Company's battery, also to connect Terawhiti Quartz-mine with battery	509 16 6	210 17 0
Road, Makara Junction to Terawhiti	450 0 0	225 0 0
	959 16 6	435 17 0
SOUTH ISLAND.		
ROADS (SUBSIDISED).		
Marlborough County.		
Track, Deep Creek to Dead Horse Creek	68 0 0	45 6 8
Mouth of Gorge to Forks, Cullensville to Mahakipawa Diggings	450 0 0	225 0 0
Formation of road at Cullensville, Mahakipawa	217 4 0	108 12 0
Havelock–Mahakipawa Road	905 0 0	505 0 0
Dead Horse Creek to Sunnyside	75 0 0	50 0 0
	1,715 4 0	933 18 8
Waimea County.		
Road to open up Table Diggings	260 0 0	130 0 0
Punt over Motueka River	100 0 0	50 0 0
Repairing Baton to Table-land Track	40 0 0	20 0 0
Dove River to Baton Saddle, and from Rolling River to Wangapeka Saddle	120 0 0	60 0 0
Repairs, Motueka Bridge	939 8 8	469 14 4
	1,459 8 8	729 14 4

List of Works on Goldfields, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
Collingwood County.	£ s. d.	£ s. d.
Road, West Wanganui	300 0 0	200 0 0
Bridge over Aorere River	173 14 0	115 16 0
Extending Anatoki Bridle-track	160 0 0	80 0 0
Bridge over Takaka River at Pain's Ford	1,597 7 8	798 13 10
Repairs, Silverstream Bridge, and forming and metalling Bainham Road	200 0 0	100 0 0
Kaituna–Ferntown	250 0 0	150 0 0
	2,681 1 8	1,444 9 10
Buller County.		
Deviation of road from Candlelight Flat to Deep Creek, Charleston	370 0 0	246 13 4
Road from Orowaiti Lagoon to North Terrace	256 18 6	171 5 8
Prospecting-track from Razorback to Paparoa Range	100 0 0	66 13 4
Track from Seatonville to Larrikin's	438 9 6	292 6 4
Waimangaroa to Denniston	787 0 0	393 10 0
Road to connect alluvial workings with Charleston Road	400 0 0	266 13 4
Track, Four-mile Creek towards Grey Valley	300 0 0	200 0 0
Road to connect alluvial diggings north of Deadman's Creek	278 0 0	185 6 8
Ngakawau to Mokihinui, *viâ* beaches	100 0 0	66 13 4
Road to connect Ngakawau Railway with Mokihinui Coal Company's workings	193 0 0	128 13 4
Lyell Bluff to Victor Emmanuel Claim	650 0 0	433 6 8
Beach, Little Wanganui to Mokihinui	300 0 0	100 0 0
Cape Foulwind Road	450 0 0	300 0 0
Road up Nile Valley	56 16 4	28 8 2
Denniston extension	850 0 0	425 0 0
Promised Land towards Motueka	380 0 0	190 0 0
Road over Gentle Annie	200 0 0	100 0 0
Extension, Lyell Creek to Low-level Tunnel	60 0 0	30 0 0
Extension of track 50 chains south of Brighton	140 0 0	70 0 0
Continuation of road, Deadman's Creek	437 17 0	218 18 6
Ngakawau Railway-station to Mokihinui	50 0 0	25 0 0
Addison's Flat towards ranges	20 0 0	10 0 0
North Terrace to Oparara Diggings	500 0 0	333 6 8
Extension of Croninville Road	100 0 0	50 0 0
Waimangaroa to sea-beach	80 0 0	40 0 0
Extension of track, Oparara to Fenian Creek	100 0 0	50 0 0
Con's Creek to Beaconsfield	80 0 0	40 0 0
Addison's Flat to Caroline Terrace	200 0 0	100 0 0
Waimangaroa to sea-beach extension	390 0 0	195 0 0
Addison's Flat to Gallagher's Lead	50 0 0	25 0 0
Road to Swanston's Gold-mining Company	50 0 0	25 0 0
Repairs to roads at Lyell	200 0 0	100 0 0
Track, Fairdown from North Terrace	150 0 0	97 8 0
Improving road to Four-mile Creek, Charleston	900 0 0	450 0 0
Bridge, Waimangaroa River	70 0 0	35 0 0
Road to Piper's Flat, Addison's	450 0 0	150 0 0
Lyell Creek to Gibstown	200 0 0	66 13 4
Buller River Footbridge below Lyell	250 0 0	170 0 0
Virgin Flat Road	200 0 0	100 0 0
Orowaiti Bridge	350 0 0	325 0 0
Long Tunnel Road, Addison's	200 0 0	100 0 0
	11,338 1 4	6,400 16 8
Inangahua County.		
Dray-road from Soldier's Creek to Devil's Creek	647 0 0	431 6 8
Dray-road from Inangahua to Rainy Creek Battery	900 10 0	606 6 8
Dray-road from Capleston up Little Boatman's Creek	379 0 0	252 13 4
Dray-road from Capleston up Main Boatman's Creek	697 0 0	464 13 4
Dray-road from Westport Road to Inangahua River	224 5 0	149 10 0
Track from Devil's Creek to Big River	134 3 6	89 9 0
Track from Waitahu River to Capleston	358 0 0	238 13 4
Survey and expenses	250 0 0	166 13 4
Track from Cariboo to Big River	728 0 0	364 0 0
Dray-road up Murray Creek to United Inglewood Claim	3,472 0 0	2,314 17 4
Road from Reefton to Big River, *viâ* Devil's Creek	614 0 0	307 0 0
Road up Big River	922 19 0	615 6 0
Continuation of dray-road up Little Boatman's Creek	169 7 6	112 18 4
Road from Capleston to Larry's Creek	640 0 0	426 13 4
Track to connect Capleston with Lone Star	75 0 0	50 0 0
Crushington to Globe Company's workings	403 0 0	201 10 0
Snowy Creek Track	85 15 0	42 17 6
Reefton to Big River	1,792 0 0	1,194 13 4
Glenroy to Horse Terrace	254 0 0	122 10 0
Devil's Creek to Globe Hill	917 6 2	458 13 1
Extension of dray-road to Boatman's *viâ* Painkiller	53 17 6	26 18 9
Mangles Valley to McGregor's Station	600 0 0	300 0 0
Globe Hill to Merrijigs	1,397 6 0	698 13 0
Larry's Creek to Lyell	1,061 15 0	530 17 6
Widening Larry's Creek Road	118 10 0	59 5 0
Road up Burke's Creek, Little Boatman's	149 0 0	74 10 0
Widening track from Scotia Tunnel, on Big River Road, to Inkermann Mine	200 0 0	80 9 0
Widening track from Fiery Cross Battery to Just-in-Time Shaft	300 0 0	150 0 0
	17,552 14 8	10,530 17 10

LIST of WORKS on GOLDFIELDS, &c.—*continued*.

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
Grey County.	£	s.	d.	£	s.	d.
Road from No Town to Deep Creek	1,100	0	0	550	0	0
Road from Langdon's to Moonlight	1,600	0	0	800	0	0
Contribution from goldfields vote towards main road	2,296	6	6	2,296	6	6
Track, Waipuna to Clarke's River	1,200	0	0	800	0	0
Track, Cameron's to Cape Terrace	700	0	0	466	13	4
Road, Limestone to Maori Creek	800	0	0	533	6	8
Red Jack's to Nelson Creek	601	17	6	401	5	0
Barrytown to Deadman's	2,240	0	0	1,493	6	8
German Gully to Arnold's Flat	120	0	0	60	0	0
Baird's Terrace to Lake Brunner	400	0	0	200	0	0
Hatter's Terrace Road	1,000	0	0	500	0	0
Irishman's to Lake Brunner	2,400	0	0	1,200	0	0
Hatter's Terrace	600	0	0	400	0	0
Track, Baird's Terrace to Irishman's	250	0	0	125	0	0
Deep Creek to Bell Hill	1,331	0	0	665	10	0
Track to Blackball Diggings	790	0	0	395	0	0
Track from Ahaura, Kopara, Reese's Flat, to new rush on banks of Ahaura River	20	0	0	10	0	0
Renewal, bridge over Nelson Creek, Marsden–Dunganville Road	38	0	0	19	0	0
Repairs (corduroying), Cobden–Seven-mile Road	36	0	0	18	0	0
Repairs, Cobden–Point-Elizabeth Road	30	0	0	15	0	0
Extension Ngahere–Blackball Road to Blackball Ferry	50	0	0	25	0	0
Dray-bridge, Ten-mile Creek	688	0	0	344	0	0
Deviation, Moonlight Track	100	0	0	50	0	0
Repairs, bridges, Marsden–Dunganville Road	348	0	0	219	0	0
Seventeen-mile Bluff to Barrytown	80	0	0	40	0	0
Removing rocks, Nine- and Ten-mile Bluffs	100	0	0	50	0	0
Crœsus Battery-site, Paparoa	200	0	0	79	5	0
New River Bridge wing	100	0	0	86	0	0
River View Road	200	0	0	140	0	0
Mosquito Road	500	0	0	252	10	0
Road to Totara Flat Dredge	50	0	0	25	0	0
Maori Gully Bridge	150	0	0	75	0	0
	20,119	4	0	12,334	3	2
Westland County.						
Improving track, Butcher's Creek to Gentle Annie Terrace	225	10	0	163	13	4
Bridle-track to Kanieri Lake	719	11	0	350	5	6
Bridle-track to Eel Creek	168	9	0	84	4	6
Tunnel-track, Galway Beach to Gillespie's Beach	437	5	0	218	12	6
Road from Duffer's Creek, Greenstone Road, to fifteen-mile peg, Christchurch Road	726	9	0	480	4	6
Continuation of track, Back Creek to Eel Creek	249	4	0	166	3	4
Bridle-track, Duffer's Creek, Bowen and Okarito Road, to sea-beach	333	18	0	222	12	0
Ross Borough boundary to Mount Greenland	1,280	15	0	853	16	8
Track, Kanieri Lake to Humphrey's Gully	279	2	0	186	1	4
Track, Larrikin's to Loop-line Dam	449	11	0	299	14	0
Rough Wainihinihi to Upper Dam	450	0	0	300	0	0
Browning's Pass to Reefs	3,311	6	0	2,207	10	8
Okarito Forks to Teal Creek	600	0	0	400	0	0
Road, Christchurch to Baldhill Range reefs	500	0	0	250	0	0
Extension of Tucker's Flat Road to New Rush	170	19	6	85	9	9
Hokitika Borough boundary (Reefton) to Shotover Rush	120	0	0	60	0	0
Track to New Rush, Back Creek	100	0	0	50	0	0
Repairing old track round Wataroa Bluff	50	0	0	25	0	0
New Rush, south side of Hokitika River	37	18	6	18	19	3
Cedar Creek Road to Farmer's Creek	55	7	0	27	13	6
Road to gold discovery near Blue Spur	75	0	0	37	10	0
Widening Seddon's Terrace Track	150	0	0	65	10	0
Branch Road at Seddon's Terrace	38	10	6	19	5	3
Track up Middle Branch, Styx River	30	0	0	15	0	0
	10,558	15	6	6,596	6	1
Taieri County.						
Mullocky Gully to Silver Peak	499	15	0	333	3	4
Lake County.						
Track, Skipper's to Phœnix and Scandinavian Reefs	292	2	3	194	14	10
Track to connect scheelite-mine with Lake Wakatipu	225	0	0	150	0	0
Arrowtown to Macetown, construction	225	0	0	150	0	0
Arrowtown to Macetown, maintenance	150	0	0	100	0	0
Invincible Quartz-reef Track, Rees River	300	0	0	200	0	0
Rees Valley to company's workings	61	7	6	30	13	9
Pack-track, Criffel Diggings	50	6	6	33	11	0
Left-hand Branch Road, Skipper's	63	9	10	31	14	11
Old Morven Ferry Road	289	0	0	144	10	0
Road to workings above Cardrona	70	0	0	35	0	0
Piers, Victoria Bridge	725	0	0	362	10	0
Skipper's Road Saddle to Deep Creek	200	0	0	100	0	0
Road up Dart River	150	0	0	75	0	0
Cutting on Homeward-bound Hill	100	0	0	75	0	0
Skippers Bridge	4,244	0	0	3,244	0	0
	7,145	6	1	4,926	14	6

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
	£ s. d.	£ s. d.
Tuapeka County.		
Making road from top of Terrace to Waipori Bush	300 0 0	200 0 0
Road, Beaumont to Remarkable Bush	300 0 0	200 0 0
Improving road from Waipori Township to antimony-mines, Lammerlaw Ranges	200 0 0	133 6 8
Waipori Township to Waipori Bush	200 0 0	133 6 8
Clutha River to Campbell's	76 9 0	50 19 4
Waitahuna to copper-mine	200 0 0	133 6 8
Road to open up quarry for Waitahuna Bridge	160 9 10	106 19 11
Waipori Road, *viâ* Bungtown	566 8 10	283 4 5
Miller's Flat Bridge	11,242 0 0	6,621 0 0
Shelter-sheds and snow-poles	100 0 0	50 0 0
Waipori Bridge	800 0 0	400 0 0
Metalling, Lawrence–Waipori	550 0 0	341 3 6
	14,695 7 8	8,653 7 2
Cromwell Borough.		
Removal of sand	500 0 0	250 0 0
Wallace County.		
Track, Colac Bay to Round Hill	200 0 0	133 6 8
Pack-track to Round Hill, Colac, and Orepuki	1,050 0 0	500 0 0
Cutting tracks, Longwood	59 6 0	29 13 0
	1,309 6 0	662 19 8
Vincent County.		
Renewal bridge to Bannockburn	1,532 0 0	850 0 0
Maniototo County.		
Road to Serpentine Diggings	136 10 0	91 0 0
Pig and Whistle to Clarke's Diggings	200 0 0	133 6 8
Shepherd's Hut Flat to Vinegar Hill	100 0 0	66 13 4
Kyeburn Peninsula to main road	82 0 0	41 0 0
	518 10 0	332 0 0
Fiord County.		
Dusky Sound, tracks	300 0 0	200 0 0
Waitaki County.		
Road, Naseby to Livingstone	41 12 0	20 16 0
Southland County.		
Improving tracks from Mataura to Nokomai	75 0 0	50 0 0
Improving road, Waikaka to Leatham	150 0 0	100 0 0
Improving road from Waikaka Township to Leatham Creek	30 0 0	20 0 0
Improving road from Waikaka to Waikaka railway-siding	150 0 0	100 0 0
Widening and improving bush-track to Waikawa	150 0 0	100 0 0
Waikaka to Switzer's	150 0 0	100 0 0
Road near Waikaka Township	150 0 0	100 0 0
Waipapa to Six-mile Beach	175 0 0	87 10 0
Repairing bridges, Waikaia Bush	38 13 4	13 4 0
Dray-road to Ferry Terrace, Nokomai	100 0 0	50 0 0
Waikaia to Whitecomb	511 6 8	280 13 4
Parawa to Switzer's, *viâ* Nokomai	150 0 0	75 0 0
Track to Switzer's Freehold Gold-mining Company	175 0 0	175 0 0
Nevis Road	100 0 0	50 0 0
Parawa to Nokomai	150 0 0	75 0 0
Waikaia to Break-'em-All Claim	100 0 0	50 0 0
	2,355 0 0	1,426 7 4
DIAMOND AND OTHER DRILLS.		
Inangahua County Council (diamond)	2,000 0 0	1,000 0 0
Springfield Colliery Company (diamond)	1,250 0 0	625 0 0
Westland County Council (tiffin)	350 0 0	233 0 0
Diamond-drills for prospecting purposes	1,570 11 4	1,570 11 4
	5,170 11 4	3,428 11 4
WHARVES.		
Repairs to wharf, Coromandel	300 0 0	150 0 0
Anikiwi Jetty, Marlborough	135 15 9	135 15 9
	435 15 9	285 15 9
AIDS TO PROSPECTING.		
Construction of low-level tunnel, Terawhiti	750 0 0	150 0 0
Queen of Beauty Company, prospecting deep levels	300 0 0	150 0 0
Caledonian Low-level Company, prospecting deep levels	300 0 0	150 0 0
Red Hill Gold-mining Company, prospecting deep levels	600 0 0	300 0 0
Caledonian Low-level Company, low-level tunnel	2,700 0 0	300 0 0
Lyell Creek Extended Company, low-level tunnel	300 0 0	150 0 0
New Cromwell Gold-mining Company	250 0 0	100 0 0
Deep-level Association, Waipori	450 0 0	300 0 0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
AIDS TO PROSPECTING—*continued.*	£ s. d.	£ s. d.
Little Boatman's deep-level tunnel	600 0 0	300 0 0
Oterongia Prospecting Association	198 17 2	99 8 7
Vincent County	137 9 0	68 14 6
Tapanui Prospecting Association	25 0 0	12 10 0
Tuapeka County	12 0 0	6 0 0
Maniototo County	500 0 0	250 0 0
Pullar, Shelmerdine, and Basan	400 0 0	200 0 0
Royal Oak Association	300 0 0	150 0 0
Star of the East Quartz-mining Company	150 0 0	75 0 0
West Coast Prospecting Association	300 0 0	150 0 0
McBride and party	169 2 2	84 11 1
McLean and party	66 0 0	33 0 0
Deep-level tunnel, Tokatea	700 0 0	350 0 0
Deep-level tunnel, Owharoa	300 8 0	200 5 4
Deep-level tunnel, Tapu	1,200 0 0	600 0 0
Deep-level tunnel, Cedar Creek	1,207 10 0	603 15 0
Manuka Flat Prospecting Association	200 0 0	100 0 0
Red Hill Minerals Company	437 19 10	218 19 11
Tuapeka Prospecting Association	277 0 0	138 10 0
Cardrona Prospecting Association	800 0 0	400 0 0
Cromwell Prospecting Association	500 0 0	250 0 0
Coromandel County	550 0 0	275 0 0
Thames County	309 18 0	154 19 0
Thames Borough	200 0 0	100 0 0
Buller County	146 12 6	73 6 3
Inangahua County	488 7 0	244 3 6
Westland County	1,236 19 4	618 9 8
Grey County	871 15 2	435 17 7
Deep-level Prospecting Association, Waipori	432 9 8	216 4 10
Waipu Prospecting Association	180 0 0	90 0 0
Hokianga County	100 0 0	50 0 0
Vulcan Smelting-works, Onehunga	30 0 0	15 0 0
Ohinemuri County	100 0 0	50 0 6
Waitaki County	29 5 0	14 12 6
Waihemo County	85 9 0	42 14 0
William Fox and party	711 1 8	355 10 11
Kirk and party	176 0 10	88 4 10
Hodge and party	98 13 8	49 6 10
Carey and Hyndman	441 9 4	220 14 0
Don, Boyce, and party	107 16 0	53 18 0
Quentin McKinnon	58 10 0	29 5 0
Bullion Mine deep-level tunnel	300 0 0	150 0 0
Sutherland and party	30 0 0	15 0 0
Inangahua low-level tunnel	6,966 0 0	3,000 0 0
Deep-level tunnel, Manaia	451 4 0	225 12 0
Waimea Miners' Association, prospecting at Callaghan's	50 0 0	50 0 0
Totara Miners' Association, Ross	51 3 6	51 3 6
Ross, Cunningham, and another	9 0 0	9 0 0
Wm. Thompson, stores from Benmore Station	2 1 10	2 1 10
Totara Miners' Association, Ross	8 6 6	8 6 6
Harris, Davidson, and party	27 7 6	27 7 0
Boatman's Tailings Company	150 0 0	150 0 0
Boys's tunnel, Bluespur	94 12 3	94 12 0
Totara Miners' Association (Ross, Montina, and party)	246 10 0	246 10 0
Gillam's Gully Prospecting Association	94 15 0	94 15 0
Deep-level Prospecting Committee, Dillmanstown	407 0 3	407 0 3
Westport Prospecting Association	25 0 0	25 0 0
Te Aroha Prospecting Association	20 12 6	20 12 6
Robert Richie, Kuaotunu	72 3 0	36 1 0
Owharoa Tunnel (Lindsay Jackson)	325 0 0	162 10 0
Coromandel County (£1 for £1)	200 0 0	100 0 0
Mr. G. Rehay, Arahura	98 15 0	49 7 6
Hyndman and party, Callaghan's Flat	552 14 6	276 7 3
Lakes Mapourika, Waiho, and Wataroa Miners' Association	53 12 0	26 16 0
Kumara Miners' Association	22 10 0	11 5 0
Thames Miners' Union	75 15 0	37 17 6
Star of Canterbury Miners' Association	38 5 0	19 2 6
Miners' Association, Rimu	16 0 0	8 0 0
Buller County (Messrs. Negri and others)	27 0 0	13 10 0
Johnson and party, tunnel at Callaghan's Flat	90 0 0	45 0 0
W. L. Webb, Nelson	24 0 0	12 0 0
Kumara Miners' Association (Solberg, Stewart, and party)	64 15 0	32 7 6
Buller County, between head of Fox's River, Brighton, and Deadman's Creek	29 5 0	14 12 6
Welcome United Gold-mining Company, Greymouth	245 12 6	122 16 3
Orepuki Miners' Association	90 0 0	45 0 0
Totara Miners' Association (Gagliardi and party)	12 10 0	6 5 0
Contingencies	484 15 10	242 7 11
Halligan and party, tunnel at Cedar Creek	198 1 10	99 0 11
Totara Miners' Association (Chamberlain and party)	208 10 0	104 5 0
Miners' Association, Greenstone	59 0 0	29 10 0
Westland County (T. Radonicki and party)	40 0 0	20 0 0
Waimea Miners' Association (Lot, Keir, and party)	90 0 0	45 0 0
Cardrona Prospecting Association	140 5 4	70 2 8
Waimea Miners' Association, Stafford	113 1 0	56 10 6

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost	Amount of Contribution paid by Mines Department.
AIDS TO PROSPECTING—*continued.*	£ s. d.	£ s. d.
H. Crossan, Beaumont	28 0 0	14 0 0
Prospecting Association, Westport	39 0 0	19 10 0
Cape Colville Prospecting Syndicate	32 0 0	16 0 0
Port Charles Prospecting Association	28 0 0	14 0 0
Totara Miners' Association, Ross	24 0 0	12 0 0
Lake Mapourika Miners' Association	12 0 0	6 0 0
Lister and Robertson, Karamea	13 0 0	13 0 0
Canada Reefs Tunnel	187 10 0	93 15 0
Otago Miners' Association	600 0 0	291 8 2
Westland County (Goudie and party)	215 19 9	107 19 6
Paparata Road Board	26 0 0	13 0 0
Tauranga County (Te Puke Prospecting Association)	50 0 0	25 0 0
Havelock Miners' Association	78 0 0	39 0 0
Ohinemuri County	200 0 0	6 0 0
Mr. Olderog, Arahura	54 18 0	16 4 0
Miners' Association, Ross (J. Smith and party)	135 0 0	61 7 6
Extension of low-level tunnel, Boatman's	300 0 0	137 7 11
Prospecting-tunnel, south side Inangahua River	60 0 0	25 0 0
Prospecting Association, Mokihinui	40 0 0	15 0 0
Miners' Association, Kumara (John Kane)	9 0 0	1 2 6
Prospecting Association, Invercargill	150 0 0	68 13 6
Miners' Association, Kuaotunu	40 0 0	13 2 6
Miners' Association, Ross (Waylen and party)	50 0 0	16 13 0
Prospecting Association, Coromandel (Leahy and others)	200 0 0	100 0 0
Adit-level, Maungatawhiri Creek (G. B. Osmond)	120 0 0	68 17 0
Bay of Islands County Prospecting, Pokaka	112 13 0	112 13 0
Prospecting Russell's Outcrop	100 0 0	100 0 0
Fox's River Prospecting Association (A. T. Bate, secretary)	19 10 0	19 10 0
Buller County (Newton and party, shaft, Ballarat Terrace)	22 15 0	22 15 0
Buller County (Spence and party)	19 10 0	19 10 0
Wairau Miners' Association	50 0 0	48 4 0
Miners' Association, Nelson Creek (Thrower and Potts)	45 0 0	45 0 0
Miners' Association, Dillmanstown (Turnbull and others)	7 10 0	7 10 0
Miners' Association, Ross (Gagliardi and party)	64 18 0	64 18 0
Miners' Association, Ross (Allen and Son)	40 0 0	20 0 0
Miners' Association, Greenstone (Black and party)	27 0 0	27 0 0
Miners' Association, Cardrona	40 0 0	40 0 0
Miners' Association, Lowburn (E. Murrell)	20 0 0	13 5 0
Puhipuhi Prospecting Association	200 0 0	13 15 0
Thames County (F. and J. Wallis)	97 10 0	35 19 2
Thames County (Sheridan Company's tunnel, Tapu)	180 10 0	30 5 0
Cinnabar Mining Company, Auckland (£1 to £1 10s.)	162 16 9	108 11 2
H. H. Adam's, Waiorongomai	250 0 0	48 3 9
Miners' Association, Ross (Moye and Son)	15 10 0	6 10 6
Westland County (J. Staines)	96 0 0	4 10 0
Westland County (O'Brien and Glynn)	40 0 0	36 10 6
Upper Moutere Road Board	40 0 0	1 16 0
Buller County (Mohan and party)	220 0 0	71 8 6
Buller County (Gardiner and McKay)	56 0 0	24 0 0
Buller County (Negri and others)	43 0 0	29 1 3
Buller County (Scarlett and McHarrie)	39 0 0	18 0 0
Kumara Miners' Association (Scatterini and Anderson)	124 0 0	6 13 6
Kumara Miners' Association (Henley and party)	58 14 0	2 8 0
Kumara Miners' Association (M. Manton)	57 10 0	3 18 9
Kumara Miners' Association (Rogers and Block)	75 0 0	35 6 6
Frying-pan Tail-race	600 0 0	161 11 3
Prospecting Association, Mokihinui (French and others)	58 10 0	11 5 0
Prospecting Association, Westport	432 6 0	197 9 8
Dyer and party, Kuaotunu	120 0 0	37 16 0
Gillam's Gully Prospecting Association (Bramhall and party)	60 0 0	12 3 0
Miners' Association, Riverton	100 0 0	32 0 0
Kennedy-Waikaia Miners' Association, Invercargill	100 0 0	9 0 0
Inangahua District Miners' Association	100 0 0	25 17 6
New El Dorado Sluicing Company, Fat Boys, Criffel	300 0 0	94 4 9
Miners' Association, Greenstone (O'Donnell and party, and J. Pope)	75 0 0	30 4 3
Miners' Association, Tinkers, prospecting Matakanui	6 0 0	3 0 0
Chatterbox Tunnel (G. Clapton)	6 0 0	2 17 9
Port Charles Prospecting Association	20 0 0	11 8 0
Miners' Association, Lake Mapourika	17 4 0	7 13 3
Pitchers and Kitto, Anderson's Flat	100 0 0	20 5 11
Miners' Association, Nelson Creek (Kelly and party)	23 5 0	9 18 0
South British Prospecting Association, Lyell	135 0 0	6 15 0
Miners' Association, Ross (A. Zala)	69 0 0	69 0 0
Miners' Association, Ross (McKay and Muir)	39 0 0	39 0 0
Miners' Association, Ross (McKay and Brown)	13 0 0	13 0 0
Miners' Association, Ross (McEwen and McEchnie)	26 0 0	26 0 0
Miners' Association, Ross (C. Porter)	226 0 0	128 0 0
Miners' Association, Riverton	18 0 0	18 0 0
Katikati Prospecting Association	52 0 0	26 0 0
Cornwall, Walker, and party's tunnel, Boatman's	302 10 0	154 14 0
Miners' Association, Greenstone (Crawford and party)	109 7 6	109 7 6
Mararoa Mining Association	18 0 0	18 0 0
Hororata Prospecting Association	30 15 0	30 15 0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
AIDS TO PROSPECTING—*continued.*	£	s.	d.	£	s.	d.
Paparata Road Board (Parker and Piggott)	32	10	0	32	10	0
New Bay of Islands Coal Company, prospecting Moody's outcrop	200	0	0	173	4	3
Longwood Sluicing Company	300	0	0	150	0	0
Red Jack's Miners' Association (Drummond and McDonough)	28	0	0	28	0	0
Kapanga Gold-mining Company (Limited)	20,600	0	0	1,735	3	11
Kuaotunu Prospecting Association	48	10	0	26	0	0
Te Aroha Town Board	100	0	0	37	17	6
Bombay Prospecting Association	40	0	0	16	7	9
Charleston Miners' Association	110	0	0	33	8	6
Buller County (Reaney and Rasmussen)	120	0	0	30	0	0
Buller County (Samuel and party)	100	0	0	5	11	0
Gold-mining League, Westport (McFarlane and others)	39	0	0	13	10	0
Inangahua County (Gabriel and party)	100	0	0	11	11	0
Miners' Association, Dillmanstown (Black and party)	31	10	0	12	0	0
Tapanui Prospecting Association	40	0	0	18	10	0
Miners' Association, Lowburn (Tilliman and party)	57	10	0	42	9	9
Miners' Association, Upper Waikaia	19	10	0	13	0	0
Main and party's tunnel, Kanieri	200	0	0	188	7	0
Ryan and Son's tunnel, Dillmanstown	42	0	0	21	12	0
R. A. Harcourt's tunnel, Blue Spur	180	0	0	90	0	0
Miners' Association, Ross (Archer and Horseby)	13	0	0	13	0	0
Inangahua County (R. Lees)	2	10	0	2	10	0
Westland County (Rebay and party)	112	0	0	56	0	0
Red Jack's Miners' Association (Drummond and Raynor)	24	0	0	12	0	0
Westland County (McGoveran and party)	50	0	0	37	10	0
Westland County (N. Johnson's tunnel, Fox's Flat)	140	0	0	59	0	5
Miners' Association, Ross (Gagliardi and Son)	70	0	0	17	10	0
Miners' Association, Ross (Marchesi and Scott)	200	0	0	153	15	0
Miners' Association, Greenstone (Dickson and party)	72	0	0	15	18	0
Westland County (Beroz and Mills)	115	0	0	91	9	0
Westland County (Patrick and Moynihan)	86	0	0	45	0	0
Westland County (Ryan and Son)	120	0	0	60	0	0
Westland County, prospecting, Kanieri (£1 for £1)	1,228	15	0	614	7	6
Westland County, prospecting, Rimu (£1 for £1)	3,972	17	0	1,986	8	6
Westland County (Dwyer and party, Blue Spur)	800	0	0	758	6	0
Miners' Association, Waiho (Batson and Snow)	9	0	0	9	0	0
Miners' Association, Nelson Creek (Coll and Moran)	160	0	0	160	0	0
Miners' Association, Nelson Creek (Hurley and party)	164	0	0	82	0	0
Miners' Association, Blackball (Keenan and Falconer)	5	17	0	5	17	0
Miners' Association, Blackball (McKenzie and O'Brien)	43	10	0	43	10	0
Miners' Association, Ross (McLeod and Dunlop)	63	14	6	40	8	6
Miners' Association, Ross (Smith and Regan)	164	2	0	164	2	0
Miners' Association, Greenstone (Candy, Roberts, and Evans)	100	0	0	60	8	6
Buller County (Jeffreys and Walker)	8	0	0	8	0	0
Buller County (Christmas and party)	4	15	0	4	15	0
Buller County (Burkitt and party)	13	0	0	13	0	0
Buller County (Stewart and party)	12	0	0	12	0	0
Buller County (Robertson and Sangwell)	26	0	0	26	0	0
Buller County (Ramsey and O'Connor)	4	15	0	4	15	0
Buller County (Clough and McGonagle)	8	0	0	8	0	0
Buller County (Negri and others)	12	0	0	12	0	0
Buller County (Quinn and party)	34	0	0	18	0	0
Buller County (Murray and Forsyth)	9	0	0	9	0	0
Buller County (Salter and party)	6	10	0	6	10	0
Inangahua County (Z. E. Curnow)	6	10	0	4	15	0
Culley and Hislop, prospecting, Kawakawa	125	0	0	125	0	0
Prospecting Association (Riverton)	25	0	0	25	0	0
Tuapeka County (Gabriel's Gully)	400	0	0	223	10	10
Nobel, Stenhouse, and Crawford's tunnel, New Chum Creek	240	0	0	240	0	0
Holmes and party's tunnel, Tucker's Flat	400	0	0	208	8	0
Deep Levels, Kumara	3,269	0	0	1,197	10	4
Miners' Association, Ross (Moye and Son)	60	0	0	14	19	6
Miners' Association, Ross (Paterson and McGowan)	26	0	0	13	0	0
Miners' Association, Waiho (Nelly and Murray)	26	0	0	12	0	0
Miners' Association, Red Jacks (Drummond and party)	50	0	0	24	0	0
Westland County (Roseveri and party)	160	0	0	80	0	0
Prospecting Mokihinui Mine (Lomas and party)	500	0	0	250	0	0
Towai-Hukerenui Coal Syndicate	200	0	0	35	2	0
Ohinemuri County (P. Prudence)	6	0	0	1	4	0
Westland County (Irwin and party)	100	0	0	35	0	0
Contingencies	217	5	8	217	5	8
	77,018	9	10	28,843	6	9
WATER-RACES.						
Water-main, Bull's Battery	350	0	0	100	0	0
Round Hill Water-race	200	19	0	133	19	4
Tomkiss's Water-race	100	0	0	100	0	0
Cardrona Sludge-channel	100	0	0	50	0	0
New water-mains, Thames Water-race	1,479	10	4	739	15	2
Nelson Creek	957	16	9	957	16	9
Mikonui Water-race	14,279	16	4	14,279	16	4
Brown and party, Kumara	90	0	0	22	10	0
Randall Creek Water-race	222	2	3	222	2	3
Thames Water-race	1,250	0	0	1,250	0	0
Contingencies	659	12	8	659	12	8
Randall Creek Water-race	100	15	0	100	15	0
Quinn's Creek Water-race	70	0	0	70	0	0
Survey, water-race, Ninety-mile Beach	65	6	7	65	6	7
Improving water-supply, Oamaru	1,250	0	0	1,150	7	2
Roaring Meg Water-race (Jones, Baxter, and party)	1,600	0	0	800	0	0
Sulky Gully Water-race	504	0	0	218	0	0
Gentle Annie Creek, Mata (R. Kelly)	200	0	0	40	0	0
Purchase Byrne, O'Hallahan, and Murdoch's water rights	35	0	0	35	0	0
Argyle Water-race	8,453	15	1	8,453	15	1
Bell Hill Sluicing Company	1,000	0	0	500	0	0
Finlay and McLiver's Water-race, at Measletown	400	0	0	34	5	4
	33,368	14	0	29,983	1	8

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
DRAINAGE- AND TAILINGS-CHANNELS.	£ s. d.	£ s. d.
Drainage-channel, Lawrence (total cost, approximate)	3,000 0 0	2,000 0 0
Subsidy towards purchase of Messrs. Laidlaw and Crawford's freehold in Spotti's Creek, to allow tailings to be deposited (Tinker's Diggings)	500 0 0	400 0 0
Damage by floods, Thames	1,000 0 0	500 0 0
Sludge-channel, Smith's Gully, Bannockburn	1,000 0 0	251 1 0
Round Hill Sludge-channel survey	52 19 7	52 19 7
Compensation to J. Costello, damage done by tailings	788 0 0	788 0 0
Long Gully Sludge-channel	150 0 0	100 0 0
New Pipeclay Gully Sludge-channel	4,547 18 0	773 19 0
Kumara Sludge-channel No. 2	2,762 17 2	2,762 17 2
Ophir Tail-race	2,300 0 0	1,150 0 0
Lawrence Drainage-channel	1,150 0 0	1,092 9 0
Tailings-outlet, Maerewhenua	1,595 4 0	1,595 4 0
Ross Sludge and Storm-water Channel	1,675 10 6	1,675 10 6
Kuaotunu Sludge-channel (£1 for £1)	400 0 0	200 0 0
Branch tail-race to No. 4 Channel	100 0 0	100 0 0
Rimu Drainage-channel	500 0 0	191 19 6
Kumara Sludge-channel No. 5	5,006 15 9	5,006 15 9
Kumara Sludge-channel No. 4	1,200 0 0	1,151 10 8
Kumara Sludge-chanel No. 3	58 0 0	58 0 0
Donnelly's Creek Tail-race	1,657 0 0	444 4 5
Muddy Creek Channel	2,000 0 0	1,000 0 0
Drain, Te Aroha West	200 0 0	61 0 0
Jones Creek Storm-channel	100 0 0	50 0 0
	31,744 5 0	21,405 10 7
AID TOWARDS THE TREATMENT OF ORES.		
Testing-plant, School of Mines, Thames	1,200 0 0	600 0 0
Testing minerals, Dunedin Exhibition	142 8 9	142 8 9
Testing-battery, Mercury Bay	915 1 4	915 1 4
	2,257 10 1	1,657 10 1
AID TOWARDS CONSTRUCTION OF TELEPHONE-LINES.		
Bannockburn to Nevis	60 0 0	50 0 0
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT.		
Construction of road, Arrowtown to Macetown	9,270 6 8	9,270 6 8
Road to open up Woodstock Goldfield	1,000 0 0	1,000 0 0
Ahaura to Amuri	2,504 19 7	2,504 19 7
Waikaia Bush Road	1,000 0 0	1,000 0 0
Waitahuna Bridge	750 0 0	750 0 0
Merrivale tracks	500 0 0	500 0 0
Mokihinui to Specimen Creek	1,238 7 5	1,238 7 5
Wilberforce Quartz-reef Road	1,830 17 7	1,830 17 7
Opening Mokau River	552 8 0	552 8 0
Lyell to Mokihinui	5,098 8 6	5,098 8 6
Brighton to Seventeen-mile Beach	1,789 7 2	1,789 7 2
Wangapeka to Karamea	2,000 0 0	2,000 0 0
Hatter's Terrace to Bell Hill	500 0 0	500 0 0
Cedar Creek Road	3,000 0 0	3,000 0 0
Owen Valley Road	2,208 9 2	2,208 9 2
Cobden to Seventeen-mile Beach	3,036 1 4	3,036 1 4
Cedar Creek Road	1,500 0 0	1,500 0 0
Bridle-track to Upper Anatoki	722 8 0	722 8 0
Whangamata Road	141 10 6	141 10 6
Karangahake through Gorge	1,000 0 0	1,000 0 0
Arthur's Point to Skipper's	12,167 4 1	12,167 4 1
Tracks to Coal Island	54 6 3	54 6 3
Grey Valley to Teremakau	900 0 0	900 0 0
Rimu to New Rush	829 17 9	829 17 9
Tapu to Waikawau	750 10 0	750 10 0
Puhipuhi Road	1,396 17 9	1,396 17 9
Jackson's Bay to Cascade and Gorge River district	5,310 10 11	5,310 10 11
Improving roads and tracks, Collingwood to Takaka and Motueka	10,905 8 11	10,905 8 11
Tramway from New Find to Waitekauri	100 0 0	100 0 0
Havelock–Mahakipawa Dray-road	1,311 9 0	1,311 9 0
Mokihinui to Wanganui	200 0 0	200 0 0
Burnett's Face to Coalbrookdale	200 0 0	200 0 0
Deadman's to Christmas Terrace	20 0 0	20 0 0
Low-level Alpine Claim, Lyell	80 0 0	80 0 0
Bowen Road to Salt-water Beach	60 0 0	60 0 0
Repairing damage done by floods, Westland County	100 0 0	100 0 0
Deviation of road at Kanieri Forks	140 0 0	140 0 0
Road up Dart River	200 0 0	200 0 0
Kuaotunu to Mercury Bay	350 0 0	350 0 0
Thames to Manaia	500 0 0	500 0 0
Cobden to Seventeen-mile Beach	400 0 0	400 0 0
Bridge over Mahinapua Creek	503 16 10	503 16 10
Track up Waiho River	105 0 0	105 0 0
Haast Ferry to Glue-pot	126 0 0	126 0 0
Paeroa–Waihi Road	114 0 0	114 0 0
Waitekauri to New Find	250 0 0	250 0 0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT—*continued.*	£	s.	d.	£	s.	d.
Mahakipawa to Waikakaho	183	12	1	183	12	1
Oparara through gorge to gold-workings	150	0	0	150	0	0
Okira Bridge, at Dirty Mary's Creek	100	0	0	100	0	0
Lagoon Bridge	100	0	0	100	0	0
Widening Cape Terrace Road	100	0	0	100	0	0
Deviation, Granville Road	70	0	0	70	0	0
Tucker's Flat Road	247	18	7	247	18	7
Dillman's–Larrikin's Road	125	15	0	125	15	0
Track at Kanieri Lake and McIntosh Falls, Lake Mahinapua	195	4	6	195	4	6
Extension of road, Rimu to Shallow Rush	150	0	0	150	0	0
Gillam's Gully Track	149	16	0	149	16	0
McKay's Creek, Kokatahi Track	100	0	0	100	0	0
Aorere Valley to Karamea and Mokihinui	29,938	1	2	29,938	1	2
Arrowtown to Macetown	450	0	0	450	0	0
Nelson Creek Bridge	100	0	0	100	0	0
Cascade to Barn Bay Road	411	7	0	411	7	0
Repairs to decking, Tapu Wharf	100	0	0	100	0	0
Waitekauri Battery from Junction–Waihi Road	150	0	0	150	0	0
Deep Creek, Wakamarina, to Empire City Company's claim	50	0	0	50	0	0
Track to diggings at Cape Foulwind	497	11	0	497	11	0
Bridge over Fox's River at Brighton	100	0	0	100	0	0
Totara Bridge	255	0	0	255	0	0
Road from Mokihinui Bridge to gold-workings	75	0	0	75	0	0
Clearing two miles of old track from right-hand branch of Kanieri River to Gentle Annie Terrace	13	0	0	13	0	0
Extending horse-track to Blackball Creek	500	0	0	500	0	0
Matawai to Kaimarama	150	0	0	150	0	0
Tiki to Mahakirau	250	0	0	250	0	0
Karangahake Gorge to Waihi	350	0	0	350	0	0
Upper Tararu Road	471	10	3	471	10	3
Red Hill Road	249	8	1	249	8	1
Repairs, Nile Bridge	1,131	2	6	1,131	2	6
Miller's Flat to Skipper's	580	0	0	580	0	0
Cobden to Coal Creek	375	0	0	375	0	0
Track to New Find, Tairua	47	11	6	47	11	6
Cedar Creek Dray-road	466	11	2	466	11	2
Road to Matarangi Goldfield	75	0	0	75	0	0
Repairs, Manaia Track	90	0	0	90	0	0
Upper Township School Bridge	50	0	0	50	0	0
Tiki Bridge across Waiau	256	0	0	256	0	0
Scott's Bridge	175	0	0	175	0	0
Oteau Bridge	150	0	0	150	0	0
Mercury Bay–Kaimarama Road	50	0	0	50	0	0
Stoney Creek Track	15	0	0	15	0	0
Road to mines, Waiomo	50	0	0	50	0	0
Upper Hill Track to branch track, Waiorongomai	30	0	0	30	0	0
Canadian Gully Bridge, and repairs to tunnel on horse-grade, Waiorongomai	70	0	0	70	0	0
Waiorongomai Road	100	0	0	100	0	0
Track from Slate River to Rocky	225	0	0	225	0	0
Pack-track to Killdevil	100	0	0	100	0	0
Repairs, Wangapeka Road towards Crow Diggings	153	0	7	153	0	7
Repairing flood-damages, Grey County	370	0	0	370	0	0
Taipo Track to Seven-mile	194	5	8	194	5	8
Repairs, Totara Bridge	336	0	0	336	0	0
Repairs, Kanieri Lake Road	80	0	0	80	0	0
Mercury Bay to Whenuakite and Boat Harbour	150	0	0	150	0	0
Tiki to Gumtown, *viâ* Kaimarama	160	0	0	160	0	0
Driving Creek to Cabbage Bay, and Driving Creek to Cape Colville	660	0	0	660	0	0
Tiki to Waikawau	600	0	0	600	0	0
Paeroa to Te Aroha	365	0	0	365	0	0
Puriri to east side of range	596	19	6	596	19	6
Onamalutu to Wakamarina Forks	400	0	0	400	0	0
Waimangaroa to Denniston	100	0	0	100	0	0
Road to Lyell's Creek Extended Company's tunnel	200	0	0	200	0	0
Jackson's Bay to Cascade	1,110	8	1	1,110	8	1
Bridge over Ogilvie's Creek	150	0	0	150	0	0
Gillam's Gully Track	220	0	0	220	0	0
Bridge over Kanieri River at Kokatahi	467	10	10	467	10	10
Road to Oparara Diggings	100	0	0	100	0	0
Millerton Road	249	0	3	249	0	3
Waiau to Preservation Inlet	7,961	19	6	7,961	19	6
Hatter's Terrace to Haupiri	1,650	0	0	1,650	0	0
Grey River to Moonlight	530	0	0	530	0	0
Blackball Track	1,185	12	5	1,185	12	5
Ahaura–Kopara Road	400	0	0	400	0	0
Mackley's to Waipuna Terrace	100	0	0	100	0	0
Footbridge over Blackball Creek	150	0	0	150	0	0
Waipapa to Waikawa	200	0	0	200	0	0
Waipapa to Six-mile	100	0	0	100	0	0
Drain at Adamson's	50	0	0	50	0	0
Maruia Track, between Reefton and Maruia	50	0	0	50	0	0
Sledge-track to Langdon Reefs	30	0	0	30	0	0
Track to Blackball Township, repairs	40	0	0	40	0	0
Track, Old Man Range	50	0	0	50	0	0
Road to gold discovery near Blue Spur	45	0	0	45	0	0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT—*continued.*	£	s.	d.	£	s.	d.
Bartlett's Creek Track	200	0	0	200	0	0
Prospecting-track, Brunnerton to Paparoa	125	0	0	125	0	0
Extension Seddon's Terrace Track to new claim	208	10	6	208	10	6
West Tokatea Road	50	0	0	50	0	0
Waitaia Battery Road	150	0	0	150	0	0
Preece's Point Road	150	0	0	150	0	0
Tokatea–Kennedy Bay Road	100	0	0	100	0	0
Main Cabbage Bay Road	50	0	0	50	0	0
Hooker's to Mercury Bay	100	0	0	100	0	0
Opeto Road	100	0	0	100	0	0
Blagrove's Road	400	0	0	400	0	0
Cemetery–Cabbage Bay Road	100	0	0	100	0	0
Rails for Coromandel Wharf	31	5	0	31	5	0
Culverts, Tiki Road	100	0	0	100	0	0
Soldier's Creek Road	198	5	0	198	5	0
Road to Barrytown	300	0	0	300	0	0
Tracks to western sounds	7,307	17	11	7,307	17	11
Road to R. Kelly's claim, Gentle Annie Creek	100	0	0	100	0	0
Waitekauri to New Find	250	0	0	250	0	0
Paeroa Mill Road	50	0	0	50	0	0
Owharoa to Waitawheta	50	0	0	50	0	0
Deviation Road, Earl's Hill	200	0	0	200	0	0
Waihi to Katikati	75	0	0	75	0	0
Bridge over Slate River	50	0	0	50	0	0
Pack-track to Glover's Flat, Lower Anatoki	50	0	0	50	0	0
Clearing Karaka Creek of flood-damage	50	0	0	50	0	0
Track up right-hand branch of Cullen's Creek	25	0	0	25	0	0
Footbridge, Waimangaroa River	50	0	0	50	0	0
Track up Callary Branch, Waiho River	70	0	0	70	0	0
Converting Wilson's Lead Track, Addison's, into a dray-road	400	0	0	400	0	0
Cabbage Bay to mines	400	0	0	400	0	0
Coromandel to Kuaotunu	2,070	0	0	2,070	0	0
Manaia to mines	100	0	0	100	0	0
Whitianga to Mahakirau	300	0	0	300	0	0
Whangapoua Mill Road	100	0	0	100	0	0
Kuaotunu Bridge	200	0	0	200	0	0
Granity Creek to Ngakawau	100	0	0	100	0	0
Crow Diggings Track	527	8	2	527	8	2
Road to diggings, Cape Foulwind	100	0	0	100	0	0
Ngahere to Blackball	600	0	0	600	0	0
Fencing land, Blackball Road	110	0	0	110	0	0
Prospecting-track, Greek's Gully to Kanieri Forks	150	0	0	150	0	0
Repairing Jones's Creek and Donohue's Storm-channels	100	0	0	100	0	0
Deviation, Pleasant Creek Track	130	0	0	130	0	0
Road-works at Ohaeawai	500	0	0	500	0	0
Mahakirau Creek Road	200	0	0	200	0	0
Puriri to mines	100	0	0	100	0	0
Katikati–Waihi Road	150	0	0	150	0	0
Pack-track from Kerikeri	50	0	0	50	0	0
Track to Waitakohe Goldfield	50	0	0	50	0	0
Repairing bridges to mines, Te Puke	250	0	0	250	0	0
Helena Bay to Whakapara Railway-station	100	0	0	100	0	0
Gordon Settlement to Waharoa	600	0	0	600	0	0
Waiorongomai Road	300	0	0	300	0	0
Approach to railway-bridge, Te Aroha	150	0	0	150	0	0
Upper Waitekauri Bridge	250	0	0	250	0	0
Junction Waihi Road to New Find, Waitekauri	328	8	0	328	8	0
Repairing bridges, Doctor's and Staunton's Creeks	200	0	0	200	0	0
Four-mile Bridge	100	0	0	100	0	0
Fox's Bridge	100	0	0	100	0	0
Charleston–Nine-mile Beach	200	0	0	200	0	0
Road, Promised Land–Karamea	550	0	0	550	0	0
Karamea Bridge and approaches	3,565	19	8	3,565	19	8
Approaches, Matakitaki Bridge	279	15	0	279	15	0
Snowy Creek Bridge	300	0	0	300	0	0
Big River Road	4,571	0	0	4,571	0	0
Footbridge across by-wash, Ngahere–Blackball Ferry	210	0	0	210	0	0
Track to Healey's Gully	90	0	0	90	0	0
Track, Lancashire Flat to head of Clearwater Creek	50	0	0	50	0	0
Granville Road	100	0	0	100	0	0
Footbridges, Blackwater and Greenstone	300	0	0	300	0	0
Brown's Terrace to Arnold	200	0	0	200	0	0
Protective works, main Grey Bridge	191	0	0	191	0	0
Extension, Tucker's Flat Road	103	2	6	103	2	6
Butcher's Creek Bridge, Kanieri Lake Road	129	17	6	129	17	6
Kapitea Creek Bridge, Lamplough Track	118	0	0	118	0	0
Widening Milltown Track to Humphrey's Gully	600	0	0	600	0	0
Pack-track, Seddon's Terrace to Eel Creek	246	17	6	246	17	6
New bridge, Kapitea Creek, Loop-line Road	30	8	7	30	8	7
Stribbing's Creek Bridge	70	8	11	70	8	11
Widening Seddon's Terrace Road extension	199	0	0	199	0	0
Compensation, Larrikin's Road	56	0	0	56	0	0
Garston to Nevis	1,965	17	2	1,965	17	2
Nevis Valley Road	400	0	0	400	0	0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT—*continued.*	£ s. d.	£ s. d.
Okarito River Bridge	300 0 0	300 0 0
Drainage, Stafford Township	399 17 5	399 17 5
Wangapeka Track, Rolling River–Kiwi Creek	149 19 10	149 19 10
Tracks, Stewart Island	718 7 8	718 7 8
Widening Lake Mapourika–Waiho Road	782 6 8	782 6 8
Roads, Great Barrier	604 4 2	604 4 2
Riversdale–Waikaia	200 0 0	200 0 0
Prospecting-track, Lyell–Larry's	100 0 0	100 0 0
Track to New Find, Victoria Range	500 0 0	500 0 0
Extending road into bush, Addison's	100 0 0	100 0 0
Clearing rocks and easing curves, Nine- and Ten-mile Bluffs	129 6 11	129 6 11
Repairs flood-damages, South Westland	100 0 0	100 0 0
Hungerford's Bridge	444 11 5	444 11 5
Waitangi Bluff Track	99 18 9	99 18 9
Track from Cedar Creek Road to Ford and Thompson's claim	20 0 0	20 0 0
Repairs Mount Greenland Track	50 0 0	50 0 0
Ross Road, towards Ranges	199 12 6	199 12 6
Repairs pack-track, Cedar Creek	100 0 0	100 0 0
Kinsella's land, taken for Blackball Road	5 11 0	5 11 0
Maratoto to mines	149 5 6	149 5 6
Hatter's Terrace–Haupiri	200 0 0	200 0 0
Upper Waiotahi Road	492 10 0	492 10 0
Inland from Omahu	400 0 0	400 0 0
Gannon's to Painkiller	196 10 6	196 10 6
Netherton Road	28 14 6	28 14 6
Repairs, Tapu Creek Road	66 0 0	66 0 0
Repairs, Karaka Creek Road	40 0 0	40 0 0
Gravelling road through Mr. Adams's property	100 0 0	100 0 0
Gravelling Onamalutu Track	100 0 0	100 0 0
Road to Fenian Creek, Karamea	250 0 0	250 0 0
Westport and Mokihinui Railway-line to Jones's Creek	100 0 0	100 0 0
Footbridge, Notown Creek	50 0 0	50 0 0
Wood's Creek Bridge	80 0 0	80 0 0
Maori Creek Bridge	50 0 0	50 0 0
Main South Road to Mikonui Beach	15 15 0	15 15 0
River-protection works, Te Aroha	200 0 0	200 0 0
Drains, Maratoto	100 0 0	100 0 0
Repairs, Mata Bridge	300 0 0	300 0 0
Roads, Tauranga County	1,226 17 5	1,226 17 5
Re-metalling Wakamarina Road	500 0 0	500 0 0
Pakawau Bush Road	425 0 0	425 0 0
Scott's Creek Bridge	170 0 0	170 0 0
Richmond–Collingwood	250 0 0	250 0 0
Deadman's Creek–Christmas Terrace	250 0 0	250 0 0
Denniston–Cascade Creek	100 0 0	100 0 0
Big Totara River Bridge	450 0 0	450 0 0
Little Totara River Bridge	350 0 0	350 0 0
Twins Road	100 0 0	100 0 0
Track up Four-mile and Nile Rivers	250 0 0	250 0 0
Culverts, Devil's Creek	100 0 0	100 0 0
Moonlight–Paparoa	100 0 0	100 0 0
Footbridges, Cobden–Seven-mile Road	342 10 0	342 10 0
Grey River–Moonlight	500 0 0	500 0 0
Bridge, Brandy Jack's Creek	150 0 0	150 0 0
Track up Ten-mile Creek	100 0 0	100 0 0
Road, Cobden to Warren's and Ten-mile Bluff to Barrytown	500 0 0	500 0 0
Cape Terrace Road continuation	150 0 0	150 0 0
Lake Brunner Road to Maori Creek	150 0 0	150 0 0
Hampden to Horse Terrace	3,450 18 6	3,450 18 6
Track to Adamstown	375 4 0	375 4 0
Brunnerton–Paparoa	50 0 0	50 0 0
Waikupakupa Ocean Beach to Main Road	100 8 0	100 8 0
Totara River to Farmer's Creek	194 13 0	194 13 0
Doughboy Road	300 0 0	300 0 0
Widening and repairing Lamplough Track	145 15 0	145 15 0
Extension, Gillam's Gully Track	100 0 0	100 0 0
Adair's Track, Mahinapua Road	150 0 0	150 0 0
Mahinapua and South Terrace Track	250 0 0	250 0 0
Veronica Creek Track	200 0 0	200 0 0
Waipori–Berwick Road	1,976 18 9	1,976 18 9
Roxburgh-Clyde	500 0 0	500 0 0
Orepuki–Block I., Longwood	500 0 0	500 0 0
Tableland horse-track	199 9 3	199 9 3
Landing Creek Bridge	289 16 6	289 16 6
Walker's Creek Bridge	214 12 2	214 12 2
Greenstone–Teremakau	240 0 3	240 0 3
Bell Hill Road	199 9 4	199 9 4
Bridge over Kanieri River	94 5 0	94 5 0
Main South Road to Mikonui Beach	84 15 0	84 15 0
Deviation, Larrikins Road	1,375 4 2	1,375 4 2
Pine-tree Road	45 10 7	45 10 7
Wire Bridge, German Gully Track	89 19 6	89 19 6
Road-formation, Waitekauri to Cross Road	271 11 11	271 11 11
Bridge, Mariposa Battery Road	24 0 0	24 0 0

List of Works on Goldfields, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
Works wholly constructed by Mines Department—*continued.*	£	s.	d.	£	s.	d.
Crosbie Settlement Road	50	0	0	50	0	0
Waitaia Battery-site to Low Level	50	0	0	50	0	0
Repairs, Tauranga-Te Puke	25	2	6	25	2	6
Rockville-Slate River	51	0	0	51	0	0
Aorere Main Road, gravelling	60	0	0	60	0	0
Ferntown footbridges and gravelling	48	0	0	48	0	0
Swamp Road, Ferntown	30	0	0	30	0	0
Clearing slips, Seventeen-mile Bluff	150	0	0	150	0	0
Clearing slips, Nelson-Grey-Ross Road	115	0	0	115	0	0
Bridges over Raleigh Creek (3)	324	10	0	324	10	0
Hampden Cemetery to School-house, Murchison	345	1	6	345	1	6
Squaretown Bridge over Little Grey River	75	0	0	75	0	0
Berwick-Waipori, repairs	75	0	0	75	0	0
Beaumont-Miller's Flat	250	0	0	250	0	0
Track to Police Station, Seddonville	37	19	2	37	19	2
Improving track, Sealer's Creek	49	12	8	49	12	8
Kiripaka to Coal-mines	80	0	0	80	0	0
Waiorongomai Road	150	0	0	150	0	0
Tiki-Opitonui	250	0	0	250	0	0
Taumatawahine Bridge	300	0	0	300	0	0
Cemetery Road, Kuaotunu	100	0	0	100	0	0
Tiki-Matawai	45	0	0	45	0	0
Puriri-Tairua	1,135	14	6	1,135	14	6
Beach Road, Thames	100	0	0	100	0	0
Puru Creek Road	400	0	0	400	0	0
Tararu Creek Bridge	100	0	0	100	0	0
Turua-Netherton	200	0	0	200	0	0
Te Aroha Bridge	250	0	0	250	0	0
Bartlett's Creek Road	449	4	7	449	4	7
Mount Patriarch Road	200	0	0	200	0	0
Takaka River Footbridge	250	0	0	250	0	0
Karamea Track	250	0	0	250	0	0
Bainham-Upper Aorere	200	0	0	200	0	0
Shaggery Road	100	0	0	100	0	0
Seddonville-Mokihinui Mine	150	0	0	150	0	0
Seddonville-Mokihinui	920	0	0	920	0	0
Mokihinui to Reefs, widening	500	0	0	500	0	0
Mokihinui to Wanganui, improving	600	0	0	600	0	0
Lyell-Victoria Range	450	0	0	450	0	0
Nile Saddle-Maori Creek	150	0	0	150	0	0
Seddonville-Cardiff	100	0	0	100	0	0
Painkiller-Murray Creek	844	7	6	844	7	6
Maruia Road and Track *viâ* Caslani's	188	0	0	188	0	0
Little Grey River Bridge	400	0	0	400	0	0
Improving crossings, Waitahu River and Road, up Kirwan's Creek	450	0	0	450	0	0
Fagan's Creek, Barrytown, to Paparoa	425	0	0	425	0	0
Nelson Creek Bridge	950	0	0	950	0	0
Callaghan's Creek Bridge	250	0	0	250	0	0
Mosquito-Maori Creek	100	0	0	100	0	0
Deviation, Westbrook-Teremakau	450	0	0	450	0	0
Bridge, Cobden-Brunner Road	125	10	0	125	10	0
Moonlight Track, deviation	140	0	0	140	0	0
Totara River to Constitution Hill	123	1	0	123	1	0
Teremakau-Paroa	250	0	0	250	0	0
Back Creek Road, deviation	200	0	0	200	0	0
Blue Spur Creek Bridge	29	8	0	29	8	0
Young Hill Creek Road	150	0	0	150	0	0
Repairs to road between Sections 17 and 45, Waikaka	100	0	0	100	0	0
Skippers-Bullendale	200	0	0	200	0	0
Wangapeka-Wanganui	2,324	17	2	2,324	17	2
Okuru River Ford Track	342	18	8	342	18	8
Gillespie's Bluff Track	151	14	1	151	14	1
Maori River Road	149	19	6	149	19	6
Clifden Bridge, Waiau	1,115	3	0	1,115	3	0
Whangamata Harbour to Wentworth	100	0	0	100	0	0
Waiorongomai-Gordon	150	0	0	150	0	0
Easing grade Kahika Hill	75	0	0	75	0	0
Bartlett's Creek-Cat Point	200	0	0	200	0	0
Bridges, Dead Horse and Walker's Creeks	25	0	0	25	0	0
Black Creek Bridge	75	0	0	75	0	0
Wharton's Dam to Deep Creek	25	0	0	25	0	0
Piano Flat Company's Track	50	0	0	50	0	0
Waikaia-Whitecomb (repairs)	50	0	0	50	0	0
Mangles Bridge	4,323	4	8	4,323	4	8
Karangarua Bridge	448	13	6	448	13	6
Repairs Donnelly's Creek Bridge	440	1	3	440	1	3
Waiau Bridge to Old Mill-site	150	0	0	150	0	0
Donnelly's Bridge	136	10	0	136	10	0
Sullivan's Creek Bridge	164	0	0	164	0	0
Rings Road Bridge	325	0	0	325	0	0
Railway-stations Roads	500	0	0	500	0	0
Matatoke Outfall-drain	100	0	0	100	0	0
Komata Reefs-Paeroa	500	0	0	500	0	0
Grace Darling Road	392	0	0	392	0	0

LIST of WORKS on GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT—*continued.*	£	s.	d.	£	s.	d.
Komata Creek Road	150	0	0	150	0	0
Waitekauri Creek Bridge	160	0	0	160	0	0
Papamoa–Te Puke	275	0	0	275	0	0
Tauranga–Te Puke	400	0	0	400	0	0
Slate River Road	100	0	0	100	0	0
Motupipi Bridge	100	0	0	100	0	0
Tracks, Wakamarina and Mahakipawa	46	16	6	46	16	6
Aorere Bridge	87	8	6	87	8	6
Promised Land–Ohinemuri Creek	400	0	0	400	0	0
Fairdown to Beach	100	0	0	100	0	0
Paparoa River Track	100	0	0	100	0	0
Capleston–Larry's	415	0	0	415	0	0
Blackball–Paparoa	1,686	10	0	1,686	10	0
Paroa–Teremakau	825	0	0	825	0	0
Coal Creek Bridge	538	0	0	538	0	0
Totara Flat Road	100	0	0	100	0	0
Dowling Creek Bridge	175	0	0	175	0	0
Granite Creek Bridge	100	0	0	100	0	0
Blackball Road (improvements)	100	0	0	100	0	0
Sunny Bight Track (widening)	200	0	0	200	0	0
Callery Track and Wire Bridge	400	0	0	400	0	0
Mikonui River approaches	100	0	0	100	0	0
McKay's Creek Bridge	270	12	0	270	12	0
Haast–Blue River Road	100	0	0	100	0	0
Arawata Track	100	0	0	100	0	0
Turnbull and Okuru Rivers Track	100	0	0	100	0	0
Waitahuna–Bruce County boundary	300	0	0	300	0	0
Clyde–Ophir	200	0	0	200	0	0
Nokomai Road	250	0	0	250	0	0
Skipper's–Gallant Tip	100	0	0	100	0	0
Beale's Hill Road deviation	100	0	0	100	0	0
Gore–Waikaka	400	0	0	400	0	0
Riversdale–Waikaia	200	0	0	200	0	0
Charlton Road	200	0	0	200	0	0
Orepuki–Shale-works	200	0	0	200	0	0
Havelock–Mahakipawa	191	5	1	191	5	1
Dee Creek Bridge	538	3	10	538	3	10
Cook's River Flat (widening)	396	13	6	396	13	6
Galway–Bluff Track	147	15	10	147	15	10
Kokotahi Road	451	2	5	451	2	5
Donoghue's deviation	229	18	6	229	18	6
Orepuki–Preservation Inlet	3,388	9	4	3,388	9	4
Mason's Bay Track	150	9	6	150	9	6
Granity Creek Bridge	431	12	0	431	12	0
Mount Hercules deviation (Great South Road)	1,119	4	6	1,119	4	6
Bridles Point–Deedwater	250	0	0	250	0	0
Waitaia Mine to battery	100	0	0	100	0	0
Gumtown Landing to post-office	50	0	0	50	0	0
Repairs, track, Thames Road to McLaughlin's	50	0	0	50	0	0
Maratoto Road	199	13	10	199	13	10
Puriri–Neavesville	349	10	0	349	10	0
Thames River–Whangamata	200	0	0	200	0	0
Cullensville–Waikakaho	55	0	0	55	0	0
Road to Golden Bar Mine	83	3	6	83	3	6
Tuamarina–Kaituna	184	0	0	184	0	0
Neudorf–Ngatimoti	100	0	0	100	0	0
Graham River Bridge	150	0	0	150	0	0
Takaka Bridge protective works	150	0	0	150	0	0
Takaka Hill Road	150	0	0	150	0	0
Cobden–Barrytown (repairs)	1,572	0	0	1,572	0	0
Brown's Terrace–Kotuku	100	0	0	100	0	0
Blackball footbridge approaches	250	0	0	250	0	0
Twelve-mile Bluff–Fourteen-mile Bluff	100	0	0	100	0	0
Cobden–Point Elizabeth	100	0	0	100	0	0
Nelson Creek–Bell Hill	250	0	0	250	0	0
Big River–Slatey Creek	100	0	0	100	0	0
Big River–St. George	249	14	0	249	14	0
Kanieri River Bridge	30	15	0	30	15	0
Arrow–Matatapu	100	0	0	100	0	0
Tiki–Kaimarama	785	10	0	785	10	0
Mahakirau Goldfield Road	198	19	3	198	19	3
Tiki–Te Komumu	250	0	0	250	0	0
Bridles Point–Deepwater	100	0	0	100	0	0
Opitonui Bridge	200	0	0	200	0	0
Blind Bay–Whangaparapara	844	1	5	844	1	5
Omahu–Whangamata	1,539	0	0	1,539	0	0
Upper Landing–Tairua	150	0	0	150	0	0
Karaka Creek Road	100	0	0	100	0	0
Hape Creek Road	100	0	0	100	0	0
Lower Tairua–Broken Hill	150	0	0	150	0	0
Hikutaia–Waihi	3,125	0	0	3,125	0	0
Paeroa–Waitoa	1,835	13	4	1,835	13	4
Waitekauri–Wharekiraupunga	98	8	6	98	8	6

LIST OF WORKS ON GOLDFIELDS, &c.—*continued.*

Locality and Nature of Works.	Total Cost.			Amount of Contribution paid by Mines Department.		
WORKS WHOLLY CONSTRUCTED BY MINES DEPARTMENT—*continued.*	£	s.	d.	£	s.	d.
Roads, Netherton	645	0	0	645	0	0
Mill Road	200	0	0	200	0	0
Waitekauri–Hill Track	100	0	0	100	0	0
Havelock–Tuamarina	529	0	0	529	0	0
Bonny Doon Road	1,385	17	7	1,385	17	7
Repairs, Kaituna Bridge	81	3	6	81	3	6
Lloyd's Valley Road bridges	150	0	0	150	0	0
Bainham–Upper Aorere Valley	100	0	0	100	0	0
Glenrae–Tadmor	100	0	0	100	0	0
Brooklyn Valley Road	100	0	0	100	0	0
Shaggery Road	100	0	0	100	0	0
Wilson's Lead Road	750	0	0	750	0	0
Oparara River Road, Karamea	550	0	0	550	0	0
Bradshaw's Lead Road	200	0	0	200	0	0
Karamea Mud Flat Road	600	0	0	600	0	0
Lyell–Eight-mile (widening)	550	0	0	550	0	0
Fenian Creek Track	250	0	0	250	0	0
Karamea River Protective Works	200	0	0	200	0	0
Coalbrookdale–Cedar Creek	200	0	0	200	0	0
Charleston–Brighton	100	0	0	100	0	0
Nile River Bridge, Charleston	360	0	0	360	0	0
Brighton–Grey County boundary	500	0	0	500	0	0
Deadman's Creek, Brighton	150	0	0	150	0	0
Caroline Terrace Road	100	0	0	100	0	0
Mulliky Creek–Karamea	100	0	0	100	0	0
Lyell–Cedar Creek	150	0	0	150	0	0
Murray Creek–Waitahu	568	16	6	568	16	6
Snowy Creek–Reefs	550	0	0	550	0	0
Black's Point Road (widening)	1,051	3	3	1,051	3	3
Waipuna Road	775	0	0	775	0	0
Blackball Footbridge (Brunner–Moonlight Road)	520	0	0	520	0	0
Barrytown–Paparoa	200	0	0	200	0	0
Eight-mile Creek Bridge	442	16	10	442	16	10
Granville–Grey River	150	0	0	150	0	0
Wataroa Bluff Track	394	4	8	394	4	8
Gillam's Gully Track	400	0	0	400	0	0
Seven-mile Creek–Taipo	750	0	0	750	0	0
Browning's Pass Track	300	0	0	300	0	0
Middle Branch–Styx River	400	0	0	400	0	0
Kumara Beach Road–Teremakau	976	0	0	976	0	0
Lamplough Track	100	0	0	100	0	0
Kanieri Forks Road	250	0	0	250	0	0
Ogilvie's Beach Road	490	1	0	490	1	0
Ross Cemetery Road	200	0	0	200	0	0
Table Hill–Canada Reefs	100	0	0	100	0	0
Lawrence–Clyde	3,900	0	0	3,900	0	0
Beaumont–Rankleburn	250	0	0	250	0	0
Clyde–Queenstown	1,100	0	0	1,100	0	0
Gentle Annie–Clyde	225	0	0	225	0	0
White's Reef–Fraser Basin	100	0	0	100	0	0
Nevis Valley Road	400	0	0	400	0	0
Hawea–Lindis Pass	150	0	0	150	0	0
Cromwell Borough–Lowburn	100	0	0	100	0	0
Alexandra Bridge	750	0	0	750	0	0
Shotover River Track	300	0	0	300	0	0
Dairy Creek–Coal-pits	88	0	0	88	0	0
Queenstown–Gentle Annie	125	0	0	125	0	0
Waimumu Claims Road	200	0	0	200	0	0
Croydon dredging claims	200	0	0	200	0	0
Glenary Bridge	400	0	0	400	0	0
Garston–Nevis (Southland County)	150	0	0	150	0	0
Colac–Round Hill	400	0	0	400	0	0
Picton–Grove	2,251	13	10	2,251	13	10
Ross Creek Bridge	84	18	11	84	18	11
Wangapeka–Kiwi	381	0	0	381	0	0
Larry's Creek Bridge (extension)	627	11	1	627	11	1
Belgrove–Westport–Reefton	9,393	6	11	9,393	6	11
Glenroy Bridge	916	19	8	916	19	8
Warwick–Maruia Bridge	7	15	6	7	15	6
Inangahua Bridge	1,012	9	9	1,012	9	9
Stafford–Awatuna	2,329	3	11	2,329	3	11
Stewart Island Road to Mines	219	8	2	219	8	2
Roads, Preservation Inlet	442	16	8	442	16	8
Tracks, Cromarty	216	6	3	216	6	3
Roads, Stewart Island	113	15	1	113	15	1
Lake Hochstetter Track	178	19	7	178	19	7
Denniston Hill Road	4,671	0	3	4,671	0	3
Ahaura Bridge	3,291	10	11	3,291	10	11
Ahaura–Haupiri	1,247	18	4	1,247	18	4
Ahaura–Orwell Creek	668	9	3	668	9	3
Orwell Creek Bridge	180	9	7	180	9	7
Deadman's Creek Bridge	147	7	4	147	7	4
Saltwater Creek Bridge	105	14	4	105	14	4
Great South Road	18,376	8	3	18,376	8	3
Contingencies	996	1	1	996	1	1
	326,347	17	9	326,347	17	9

List of Works on Goldfields, &c.—*continued.*

Locality and Nature of Works.	Total Cost.	Amount of Contribution paid by Mines Department.
Roads to open up Mines other than Gold.	£ s. d.	£ s. d.
Aniseed Valley to Champion Copper-mine	4,963 10 6	4,116 10 6
Richmond Hill to copper-mine	315 16 0	209 4 0
Track, Ohinemuri Coal-seam	267 3 4	133 11 8
Road, Kanieri Coalfield	600 0 0	300 0 0
	6,146 9 10	4,759 6 2
Tracks to open up Mineral Lands.		
Glory Harbour to Kopack	50 0 0	50 0 0
Port Pegasus Track	155 7 6	155 7 6
Removing snags and felling timber, Mokau River	40 0 0	40 0 0
Ngakawau Footbridge	80 0 7	80 0 7
	325 8 1	325 8 1
Repairing Flood-damages.		
Thames Borough	500 0 0	500 0 0
Artesian-well Boring.		
Maniototo Plains	800 0 0	800 0 0
Prospecting Deep Levels.		
Thames-Hauraki Goldfields (Limited), Queen of Beauty shaft	50,500 0 0	25,000 0 0
Thames-Hauraki Goldfields (Limited), Queen of Beauty shaft, Inspector's fee	500 0 0	500 0 0
	51,000 0 0	25,500 0 0
Resumption of Land for Mining.		
Resumption of J. Holmes's land at Kumara for a tailings-site	300 0 0	300 0 0
Resumption of O'Neil and McCormack's land at Back Creek	562 7 0	562 7 0
Purchase Cassrell and Bennett's leaseholds, Paeroa Township	2,250 0 0	2,250 0 0
	3,112 7 0	3,112 7 0

Summary of Works.

	£ s. d.	£ s. d.
Roads (subsidised)—		
Bay of Islands County	2,092 0 0	1,351 0 0
Coromandel County	18,886 3 9	11,320 15 10
Te Aroha Town Board	334 0 0	167 0 0
Thames County	13,554 15 11	7,782 8 5
Thames Borough	3,491 19 2	2,297 12 6
Ohinemuri County	87,257 17 9	4,937 8 5
Waitoa Road Board	200 0 0	130 0 0
Piako County	22,348 2 3	14,616 6 10
Katikati Road Board	507 19 6	253 18 9
Hutt County	959 16 6	435 17 0
Marlborough County	1,715 4 0	933 18 8
Waimea County	1,459 8 8	729 14 4
Collingwood County	2,681 1 8	1,444 9 10
Buller County	11,338 1 4	6,400 16 8
Inangahua County	17,552 14 8	10,530 17 10
Grey County	20,119 4 0	12,334 3 2
Westland County	10,558 15 6	6,596 6 1
Taieri County	499 15 0	333 3 4
Lake County	7,145 6 1	4,926 14 6
Tuapeka County	14,695 7 8	8,653 7 2
Cromwell Borough	500 0 0	250 0 0
Wallace County	1,309 6 0	662 19 8
Vincent County	1,532 0 0	850 0 0
Maniototo County	518 10 0	332 0 0
Fiord County	300 0 0	200 0 0
Waitaki County	41 12 0	20 16 0
Southland County	2,355 0 0	1,426 7 4
	243,954 1 5	99,918 2 4
Diamond and other drills	5,170 11 4	3,428 11 4
Wharves	435 15 9	285 15 9
Aids to prospecting	77,018 9 10	28,843 6 9
Water-races	33,368 14 0	29,983 1 8
Drainage- and tailings-channels	31,744 5 0	21,405 10 7
Aid towards treatment of ores	2,257 10 1	1,657 10 1
Roads wholly constructed by Mines Department	326,347 17 9	326,347 17 9
Roads to open up mines other than gold	6,146 9 10	4,759 6 2
Tracks to open up mineral lands	325 8 1	325 8 1
Repairing flood-damages	500 0 0	500 0 0
Artesian-well boring, Maniototo Plains	800 0 0	800 0 0
Resumption of land for mining	3,112 7 0	3,112 7 0
Aid towards construction of telephone-lines	60 0 0	50 0 0
Prospecting deep levels	51,000 0 0	25,500 0 0
	782,241 10 1	546,916 17 6

RETURN showing the VALUE of the SALES of WATER, and EXPENDITURE on, and COLLATERAL ADVANTAGES derived from, the Working of the WATER-RACES constructed and maintained by GOVERNMENT during the Year ending 31st March, 1902.

Name of Water-race.	Value of Sales of Water and Channel-fees.	Expenditure on Maintenance.	Profit or Loss.	Cost of Construction.	Total Cost of Construction	Average Number of Men employed.	Approximate Amount of Gold obtained.	Value of Gold obtained.	Average Weekly Earnings of Men after deducting Value of Sales of Water and Channel-fees.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ s. d.	£ s. d.
Waimea	729 6 3	838 18 7	109 12 4*	145,734 9 8		28·75	2,150	8,385 0 0	5 2 1
Kumara	2,250 12 2	1,706 10 0	544 2 2	49,741 12 5	217,441 0 3	46·08	4,504	17,565 12 0	6 8 2
Kumara Sludge-channel	..	..	..	21,964 18 2		..	..	..	..
Nelson Creek	..	..	..	..	90,722 10 8	..	..	..	..
Argyle	..	..	..	..	15,151 15 3	..	..	..	..
Mikonui	..	..	..	..	25,927 4 6	..	..	..	..
Mount Ida	1,210 15 0	1,396 15 9	186 0 9*	70,418 9 10	70,918 4 10	58·4	1,889	7,272 13 0	2 0 0
Blackstone Hill	74 9 6	13 5 0	61 4 6			4·27	120	462 0 0	1 12 9
Callaghan's	203 12 6	145 13 2	57 19 4	6,027 15 6	6,027 15 6	8	510	1,989 0 0	4 6 9
Totals	4,468 15 5	4,101 2 6	367 12 11	293,887 5 7	426,188 11 0	..	9,173	35,674 5 0	..

* Loss on working.

WARDEN'S COURT TABLES.

No. 1.

STATEMENT showing the REVENUE of the GOLDFIELDS collected in the several DISTRICTS of the COLONY of NEW ZEALAND, for the Period from the 1st January to the 31st December, 1901.

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.
Thames ..	326 15 0	9 15 0	2 0 0	1,375 3 8	30 9 0	44 5 0	53 9 0	1,841 16 8
Te Aroha ..	46 5 0	741 10 0	21 10 0	152 10 8	8 14 0	17 11 0	15 7 6	1,003 8 2
Coromandel ..	85 10 0	167 10 0	..	357 13 4	12 11 0	31 13 0	177 5 11	832 3 3
Ohinemuri ..	289 10 0	..	..	3,004 14 2	74 11 0	141 17 0	819 6 6	4,329 18 8
Puhipuhi ..	..	..	..	..	..	..	..	..
Tauranga ..	7 0 0	..	0 7 0	28 4 0	0 9 0	0 15 0	2 3 0	38 18 0
Totals ..	755 0 0	918 15 0	23 17 0	4,918 5 10	126 14 0	236 1 0	1,067 11 11	8,046 4 9
NELSON.								
Collingwood ..	33 15 0	..	..	282 19 8	3 10 0	13 8 0	63 9 6	397 2 2
Westport ..	110 5 0	..	2 15 0	1,184 5 2	0 17 0	51 7 0	265 2 5	1,614 11 7
Charleston ..	56 10 0	..	..	133 19 11	2 3 0	4 17 0	21 4 6	218 14 5
Ahaura ..	160 0 0	..	2 5 0	1,220 11 1	30 10 0	164 2 3	543 13 2	2,121 1 6
Wangapeka ..	12 0 0	..	..	58 1 6	..	..	2 1 6	72 3 0
Reefton ..	119 0 0	..	0 8 6	1,210 9 2	0 14 0	30 13 6	473 1 8	1,834 6 10
Lyell and Murchison	32 5 0	0 2 0	..	548 6 6	0 3 0	7 15 6	94 1 6	682 13 6
Motueka ..	5 15 0	..	..	3 10 8	0 16 0	0 18 0	75 16 6	86 16 2
Totals ..	529 10 0	0 2 0	5 8 6	4,642 3 8	38 13 0	273 1 3	1,538 10 9	7,027 9 2
MARLBOROUGH.								
Havelock ..	31 15 0	0 3 0	2 0 0	291 7 1	3 3 0	49 3 0	11 12 6	389 3 7
Blenheim ..	5 10 0	0 15 0	2 10 0	140 5 9	3 12 0	..	10 3 0	162 15 9
Totals ..	37 5 0	0 18 0	4 10 0	431 12 10	6 15 0	49 3 0	21 15 6	551 19 4
WESTLAND.								
Hokitika and Kanieri	89 10 0	9 15 0	7 15 0	768 11 8	19 1 0	62 11 0	13 2 3	970 5 11
Greymouth ..	231 15 0	..	1 7 6	1,804 15 11	1 5 0	59 5 0	3,130 6 11	5,228 15 4
Ross	41 10 0	0 5 0	0 15 0	438 19 11	7 19 0	0 18 0	4 5 0	494 11 11
Stafford ..	79 15 0	..	37 5 0	302 14 1	9 8 0	24 3 0	0 6 0	453 11 1
Kumara ..	128 5 0	..	..	434 3 7	17 4 0	31 12 0	424 16 7	1,036 1 2
Okarito ..	25 0 0	..	0 5 0	137 8 6	3 1 0	9 16 0	3 1 0	178 11 6
Totals ..	595 15 0	10 0 0	47 7 6	3,886 13 8	57 18 0	188 5 0	3,575 17 9	8,361 16 11
CANTERBURY.								
Ashburton ..	2 10 0	..	..	50 0 0	..	..	0 5 0	52 15 0
OTAGO.								
Tapanui ..	2 0 0	..	..	26 16 0	0 1 0	0 14 0	..	29 11 0
Hindon ..	79 0 0	0 6 0	1 15 0	75 4 3	0 18 0	3 2 0	2 0 0	162 5 3
Naseby ..	113 5 0	7 16 0	22 12 6	617 5 9	13 18 0	37 9 0	40 3 9	852 10 0
Roxburgh / Alexandra / Clyde .. / Black's	149 0 0	10 5 0	13 0 0	2,304 14 3	30 4 0	60 13 6	25 7 3	2,593 4 0
Pembroke ..	6 0 0	..	0 10 0	2 0 0	0 1 0	..	..	8 11 0
Cromwell ..	126 15 0	6 1 0	1 0 0	1,225 2 1	31 1 0	47 15 0	99 5 9	1,536 19 10
Queenstown ..	82 15 0	2 0 0	2 12 6	1,061 9 1	17 8 0	33 8 0	99 4 6	1,298 17 1
Arrowtown ..	56 0 0	2 0 0	3 7 6	742 1 8	11 4 0	17 4 0	27 9 0	859 6 2
Lawrence ..	150 5 0	..	..	1,103 14 10	0 1 0	24 1 0	62 13 9	1,340 15 7
Waikaia ..	..	..	..	286 15 6	..	26 19 0	31 9 9	345 4 3
Orepuki ..	..	..	..	6 11 2	..	20 14 0	12 15 0	40 0 2
Riverton and Longwood	41 5 0	..	..	761 12 1	..	12 9 0	50 6 10	865 12 11
Maerewhenua ..	..	..	..	..	..	..	..	..
Wyndham ..	5 0 0	..	..	152 4 6	0 6 0	1 12 0	4 12 0	163 14 6
Nenthorn ..	..	..	..	..	..	..	..	..
Middlemarch ..	2 0 0	..	..	22 15 7	0 4 0	1 4 0	..	26 3 7
Gore	2 5 0	..	..	270 0 2	1 19 0	5 17 0	6 6 9	286 7 11
Totals ..	815 10 0	28 8 0	44 17 6	8,658 6 11	107 5 0	293 1 6	461 14 4	10,409 3 3
Grand totals ..	2,735 10 0	958 3 0	126 0 6	22,587 2 11	337 5 0	1,039 11 9	6,665 15 3	34,449 8 5

No. 2.

STATEMENT showing the REVENUE of the GOLDFIELDS collected in the several DISTRICTS of the COLONY of NEW ZEALAND, for the Period from 1st January to 31st March, 1902.

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 ..	18 15 0	35 10 6	..	141 1 0	2 5 0	8 16 0	54 2 1	260 9 7
Te Aroha ..	6 0 0	114 0 0	6 10 0	33 13 10	0 17 0	2 8 0	0 4 6	163 13 4
Ohinemuri ..	38 0 0	..	..	1,261 11 2	..	30 7 0	128 4 0	1,458 2 2
Thames ..	83 0 0	0 10 0	0 5 0	344 10 1	11 13 0	10 3 0	67 11 1	517 12 2
Puhipuhi ..	..	..	..	..	..	..	..	..
Tauranga ..	3 15 0	..	0 7 0	4 16 3	0 3 0	0 16 0	1 12 0	11 9 3
Totals ..	149 10 0	150 0 6	7 2 0	1,785 12 4	14 18 0	52 10 0	251 13 8	2,411 6 6
NELSON.								
Motueka ..	0 10 0	..	..	3 15 0	0 12 0	..	..	4 17 0
Collingwood ..	5 10 0	..	..	153 1 10	..	3 0 0	11 6 6	172 18 4
Westport ..	24 15 0	..	0 2 6	222 9 5	0 6 0	14 2 0	15 10 0	277 4 11
Charleston ..	11 15 0	..	..	26 17 9	0 18 0	1 14 0	2 1 0	43 5 9
Ahaura	24 0 0	..	0 17 6	441 3 9	5 13 0	22 7 8	23 6 7	517 8 6
Reefton.. ..	58 0 0	..	0 4 0	692 0 8	..	8 17 6	88 19 8	848 1 10
Wangapeka ..	1 10 0	..	..	..	..	..	..	1 10 0
Lyell and Murchison	14 15 0	0 2 0	..	197 7 6	..	2 9 0	26 14 0	241 7 6
Totals ..	140 15 0	0 2 0	1 4 0	1,736 15 11	7 9 0	52 10 2	167 17 9	2,106 13 10
MARLBOROUGH.								
Havelock ..	3 0 0	..	0 5 0	51 8 10	0 2 0	1 0 0	0 10 0	56 5 10
Blenheim ..	1 0 0	..	..	74 5 10	0 17 0	..	2 5 0	78 7 10
Totals ..	4 0 0	..	0 5 0	125 14 8	0 19 0	1 0 0	2 15 0	134 13 8
WESTLAND.								
Hokitika and Kanieri	25 0 0	..	0 5 0	243 5 5	4 16 0	14 1 0	1 1 5	288 8 10
Greymouth ..	63 0 0	..	..	823 10 1	..	15 1 0	1,353 5 11	2,254 17 0
Ross	10 15 0	..	0 10 0	138 15 1	3 11 6	0 6 0	0 5 0	154 2 7
Stafford.. ..	22 10 0	..	3 15 0	78 7 5	0 10 0	3 14 0	..	108 16 5
Okarito	5 15 0	..	..	17 3 4	0 8 0	3 8 0	..	26 14 4
Kumara ..	50 0 0	..	..	135 19 10	10 8 0	5 14 0	57 7 8	259 9 6
Totals ..	177 0 0	..	4 10 0	1,437 1 2	19 13 6	42 4 0	1,412 0 0	3,092 8 8
CANTERBURY.								
Ashburton ..	0 10 0	..	..	..	..	..	..	0 10 0
OTAGO.								
Middlemarch ..	..	..	..	0 10 0	0 1 0	0 2 0	..	0 13 0
Tapanui ..	0 5 0	..	..	17 9 6	..	..	..	17 14 6
Hindon	6 10 0	..	..	29 17 6	0 2 0	2 2 0	0 10 0	39 1 6
Naseby	17 5 0	2 12 0	3 10 0	146 11 0	..	13 2 0	23 9 3	206 9 3
Black's .. Alexandra Clyde .. Roxburgh	41 0 0	0 5 0	5 10 0	1,000 14 9	8 14 0	16 16 0	5 0 0	1,077 19 9
Cromwell ..	12 15 0	0 1 0	..	371 7 1	12 3 0	8 17 0	14 4 0	419 7 1
Queenstown ..	13 15 0	..	..	166 10 4	2 4 0	8 10 0	1 18 0	192 17 4
Arrowtown ..	55 0 0	..	0 15 0	188 9 5	5 5 0	2 3 0	9 15 6	261 7 11
Lawrence ..	18 15 0	0 1 0	2 5 0	476 12 0	0 1 0	7 4 0	4 9 6	509 7 6
Orepuki ..	..	..	..	2 4 1	..	1 6 0	2 3 0	5 13 1
Riverton and Longwood	5 10 0	..	..	104 0 9	..	2 6 0	7 1 0	118 17 9
Pembroke ..	0 15 0	..	0 10 0	..	0 2 0	..	..	1 7 0
Maerewhenua ..	..	..	..	..	..	..	..	..
Waikaia ..	..	..	..	79 3 9	..	3 8 0	5 12 0	88 3 9
Nenthorn ..	..	..	..	..	..	..	..	..
Wyndham ..	0 10 0	..	0 10 0	13 0 5	0 3 0	0 18 0	..	15 1 5
Gore	0 5 0	..	..	126 17 6	0 5 0	1 18 0	..	129 5 6
Totals ..	172 5 0	2 19 0	13 0 0	2,723 8 1	29 0 0	68 12 0	74 2 3	3,083 6 4
Grand totals ..	644 0 0	153 1 6	26 1 0	7,808 12 2	71 19 6	216 16 2	1,908 8 8	10,828 19 0

No. 3.

COMPARATIVE RETURN of REVENUE derived from the GOLDFIELDS in the several DISTRICTS of NEW ZEALAND during the Years 1900 and 1901, 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.
AUCKLAND—	£	£	£	£	£	£	£	£	£
Year 1901	755	919	24	4,950	127	236	1,068	18,567	26,646
Year 1900	958	1,436	14	3,772	101	74	1,340	16,905	24,600
Increase	..	..	10	1,178	26	162	..	11,662	2,046
Decrease	203	517	..	..	..	..	272	..	..
NELSON—									
Year 1901	530	..	5	4,642	39	273	1,539	..	7,028
Year 1900	765	14	28	3,844	65	260	2,404	..	7,380
Increase	..	..	..	798	..	13	..	..	..
Decrease	235	14	23	..	26	..	865	..	352
MARLBOROUGH—									
Year 1901	37	1	5	432	7	49	22	..	553
Year 1900	47	1	4	320	6	6	10	..	394
Increase	..	..	1	112	1	43	12	..	159
Decrease	10	..	..	..	..	..	..	..	..
CANTERBURY—									
Year 1901	3	..	..	50	..	..	..	..	53
Year 1900	13	..	..	110	..	1	..	..	124
Increase	..	..	..	..	..	..	..	..	..
Decrease	10	..	..	60	..	1	..	..	71
WESTLAND—									
Year 1901	596	10	47	3,887	58	188	3,575	..	8,361
Year 1900	856	1	19	5,543	63	166	2,728	..	9,376
Increase	..	9	28	..	..	22	847	..	..
Decrease	260	..	..	1,656	5	..	..	..	1,015
OTAGO—									
Year 1901	815	28	45	8,658	107	293	462	..	10,408
Year 1900	1,143	88	49	7,109	143	380	1,508	..	10,420
Increase	..	..	..	1,549	..	..	..	..	..
Decrease	328	60	4	..	36	87	1,046	..	12
Total increase	..	..	12	1,921	..	152	..	1,662	755
Total decrease	1,046	582	..	..	40	..	1,324	..	..

No. 4.

COMPARATIVE RETURN of the TOTAL AMOUNTS of GOLDFIELDS REVENUE (exclusive of Gold Duty) collected in the several Districts during the Years 1900 and 1901 and the Quarters ending 31st March, 1901 and 1902 respectively, showing the INCREASE or DECREASE in respect of each District.

District.	Years 1900 and 1901.				Quarters ending 31st March, 1901, and 31st March, 1902.			
	1900.	1901.	Increase.	Decrease.	1901.	1902.	Increase.	Decrease.
AUCKLAND.	£	£	£	£	£	£	£	£
Coromandel	848	832	..	16	226	260	34	..
Te Aroha	967	1,003	36	..	176	164	..	12
Thames	2,006	1,842	..	164	549	518	..	31
Puhipuhi	134	..	..	134	46	..	..	46
Ohinemuri	3,736	4,330	594	..	1,293	1,458	165	..
Tauranga	4	39	35	..	27	11	..	16
NELSON.								
Motueka	59	87	28	..	4	5	1	..
Collingwood	442	393	..	49	116	173	57	..
Westport	1,855	1,615	..	240	613	277	..	336
Charleston	217	219	2	..	61	43	..	18
Ahaura	2,696	2,121	..	575	739	517	..	222
Reefton	1,490	1,834	344	..	680	848	168	..
Wangapeka	28	72	44	..	2	2	..	..
Lyell and Murchison ..	593	683	90	..	234	241	7	..
MARLBOROUGH.								
Havelock	394	389	..	5	158	56	..	102
Blenheim	..	163	163	..	..	78	78	..
WESTLAND.								
Hokitika .. / Kanieri ..	1,215	970	..	245	364	288	..	76
Greymouth	5,011	5,229	218	..	1,041	2,255	1,214	..
Ross	804	495	..	309	155	154	19	..
Stafford and Goldsborough	726	454	..	272	154	109	..	45
Okarito	569	179	..	390	34	27	..	7
Kumara	1,051	1,036	..	15	400	259	..	141
CANTERBURY.								
Ashburton	124	53	..	71	1	1	..	..
OTAGO.								
Hindon	224	162	..	62	53	39	..	14
Naseby	1,029	853	..	176	194	206	12	..
Alexandra .. / Black's .. / Clyde .. / Roxburgh ..	2,922	2,593	..	329	963	1,078	115	..
Cromwell	1,725	1,537	..	188	506	419	..	87
Arrowtown	387	859	472	..	72	212	140	..
Queenstown	1,071	1,299	228	..	383	193	..	190
Pembroke	15	9	..	6	2	1	..	1
Lawrence	1,173	1,341	168	..	510	509	..	1
Waikaia	451	345	..	106	93	88	..	5
Tapanui	35	30	..	5	11	18	7	..
Orepuki, Preservation, Longwood, and Riverton	908	906	..	2	255	225	..	30
Wyndham	132	164	32	..	48	15	..	33
Middlemarch	50	26	..	24	1	1	..	..
Gore	298	286	..	12	148	129	..	19
Totals	35,389	34,448	2,454	3,395	10,292	10,877	2,017	1,432
Net decrease ..	..	..	..	941	..	..	..	..
Net increase ..	..	..	..	..	..	..	585	..

* Fees for miners' rights reduced from 10s. to 5s.

No. 5.

RETURN of GOLD DUTY credited to LOCAL BODIES for the Year ended 31st December, 1901, and Quarter ended 31st March, 1902.

Local Body.	For the Year ended 31st December, 1901.	For the Quarter ended 31st March, 1902.
COUNTIES—	£ s. d.	£ s. d.
Coromandel	1,054 4 10	249 16 5
Ohinemuri	15,849 0 8	2,832 18 10
Piako	66 3 7	1 7 6
Tauranga	2 4 5	2 3 5
Thames	926 15 6	230 18 9
Whangarei	0 0 3	..
BOROUGHS—		
Thames	668 19 5	140 1 0
Waihi	..	1,313 4 0
Totals	18,567 8 8	4,770 9 11

The Treasury, Wellington, 11th June, 1902.

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, 1901.

PRODUCE OF THE GOLDFIELDS IN		DURING THE QUARTER ENDED 31ST DECEMBER, 1901.		ENTERED FOR EXPORTATION TO THE 30TH SEPTEMBER, 1901.		TOTAL ENTERED FOR EXPORTATION FROM NEW ZEALAND TO THE 31ST DECEMBER, 1901.	
County or Borough.	District.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		Oz.	£	Oz.	£	Oz.	£
County of Tauranga	Auckland	22	94				
" Thames		2,363	9,866				
" Ohinemuri		48,041	168,772				
" Coromandel		4,472	18,898				
" Piako		205	863				
Borough of Thames		1,347	5,687				
Great Barrier Island		1,020	3,616				
		57,470	207,796	2,749,962	10,305,070	2,807,432	10,512,866
	Wellington	..	..	188	706	188	706
County of Marlborough	Marlborough	..	..	87,053	339,075	87,053	339,075
County of Collingwood	Nelson	1,868	7,742				
" Waimea		73	310				
		1,941	8,052	1,684,267	6,676,307	1,686,208	6,684,359
County of Buller	West Coast	2,905	11,630				
" Inangahua		15,238	60,915				
" Grey		8,190	32,727				
" Westland		5,440	21,760				
Borough of Kumara		..	..				
" Hokitika		126	504				
" Ross		518	2,072				
		32,417	129,608	4,624,461	18,398,674	4,656,878	18,528,282
County of Ashburton	Canterbury	6	22	91	358	97	380
County of Taieri	Otago	386	1,563				
" Tuapeka		8,975	36,222				
" Vincent		10,963	43,925				
" Maniototo		1,795	7,197				
" Waihemo		961	3,879				
" Waitaki		374	1,516				
" Lake		1,407	5,707				
" Wallace		2,887	11,616				
" Waikouaiti		..	..				
" Bruce		511	2,052				
" Clutha		..	..				
" Fiord		26	104				
" Southland		4,778	19,351				
" Stewart Island		..	..				
		33,063	133,132	5,793,336	22,960,259	5,826,399	23,093,391
	Unknown	..	..	207	824	207	824
Totals		124,897	478,610	14,939,565	58,681,273	15,064,462	59,159,883

* Gold duty abolished in the South Island on the 31st March, 1891, by "The Gold Duty Abolition Act, 1890."

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, 1901 and 1900.

PRODUCE OF THE GOLDFIELDS IN THE DISTRICT OF	DURING THE QUARTER ENDED—				TOTALS FOR YEAR 1901.		TOTALS FOR YEAR 1900.	
	31st March, 1901.	30th June, 1901.	30th September, 1901.	31st December, 1901.	Quantity.	Value.	Quantity.	Value.
	Oz.	Oz.	Oz.	Oz.	Oz.	£	Oz.	£
Auckland	34,979	47,555	51,964	57,470	191,968	695,551	166,342	605,398
Marlborough	56	..	77	..	133	513	535	2,147
Nelson	3,578	556	1,137	1,941	7,212	28,138	3,718	14,605
West Coast	35,865	21,742	23,262	32,417	113,286	454,006	73,923	295,733
Canterbury	5	7	4	6	22	83	23	90
Otago	40,800	32,335	36,742	33,063	142,940	575,492	129,075	521,629
Totals for 1901	115,283	102,195	113,186	124,897	455,561	1,753,783	..	..
Totals for 1900	95,923	83,380	105,326	88,987	..	..	373,616	1,439,602

Department of Trade and Customs,
Wellington, 4th February, 1902.

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, 1902.

PRODUCE OF THE GOLDFIELDS IN		DURING THE QUARTER ENDED 31ST MAR., 1902.		ENTERED FOR EXPORTATION TO THE 31ST DECEMBER, 1901.		TOTAL ENTERED FOR EXPORTATION FROM NEW ZEALAND TO THE 31ST MAR., 1902.	
County or Borough.	District.	Qu'ntity	Value.	Quantity.	Value.	Quantity.	Value.
		Oz.	£	Oz.	£	Oz.	£
County of Tauranga ..	Auckland	22	90				
" Thames ..		2,319	9,494				
" Ohinemuri ..		25,869	91,036				
" Coromandel ..		2,498	10,528				
" Piako ..		14	57				
Borough of Thames ..		1,018	4,226				
" Waihi ..		13,132	45,155				
		44,872	160,586	2,807,432	10,512,866	2,852,304	10,673,452
	Wellington ..	..	..	188	706	188	706
County of Marlborough	Marlborough ..	200	800	87,053	339,075	87,253	339,875
County of Collingwood ..	Nelson	573	2,293	1,686,208	6,684,359	1,686,781	6,686,652
" Waimea ..		..	..				
County of Buller ..	West Coast	3,073	12,313				
" Inangahua ..		10,405	41,621				
" Grey ..		7,584	30,338				
" Westland ..		4,946	19,783				
Borough of Kumara ..		..	..				
" Hokitika ..		49	194				
" Ross ..		963	3,853				
		27,020	108,102	4,656,878	18,528,282	4,683,898	18,636,384
County of Ashburton ..	Canterbury ..	2	7	97	380	99	387
County of Taieri ..	Otago	215	875				
" Tuapeka ..		6,147	24,877				
" Vincent ..		7,513	30,017				
" Maniototo ..		2,607	10,486				
" Waihemo ..		889	3,598				
" Waitaki ..		416	1,662				
" Lake ..		1,294	5,267				
" Wallace ..		1,607	6,440				
" Waikouaiti ..		..	..				
" Bruce ..		377	1,520				
" Clutha ..		4	16				
" Fiord ..		..	..				
" Southland ..		3,954	16,005				
" Stewart Island		..	..				
Borough of Mataura ..		1,037	4,148				
		26,060	104,911	5,826,399	23,093,391	5,852,459	23,198,302
	Unknown ..	..	..	207	824	207	824
Totals		98,727	376,699	15,064,462	59,159,883	15,163,189	59,536,582

*Gold duty abolished in the South Island on 31st March, 1891, by "The Gold Duty Abolition Act, 1890."

No. 9.

COMPARATIVE RETURN for the QUARTERS ended 31st MARCH, 1902, and 31st MARCH, 1901.

District of	Quarter ended 31st March, 1902.		Quarter ended 31st March, 1901.	
	Quantity.	Value.	Quantity.	Value.
	Oz.	£	Oz.	£
Auckland	44,872	160,586	34,979	127,639
Marlborough	200	800	56	205
Nelson	573	2,293	3,578	13,313
West Coast	27,020	108,102	35,865	143,786
Canterbury	2	7	5	19
Otago	26,060	104,911	40,800	165,138
Unknown	..	..	..	..
Totals	98,727	376,699	115,283	450,100

Department of Trade and Customs,
Wellington, 28th April, 1902.

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 December, 1901.

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.
		£ s. d.	£ s. d.	£ s. d.	
AUCKLAND—	Thames	2 16 0	0 5 6	£3 to £4	..
	South Hauraki	2 13 0	..	..	..
	Ohinemuri	4 4 0	0 6 0	..	No public batteries; no water sold.
	Te Aroha	£2 10s. to £3.	7s. to 8s.	..	..
	Puhipuhi	..	..	..	None sold on field.
	Tauranga	..	..	..	No mines crushing.
MARLBOROUGH—	Havelock	3 17 0	..	..	..
	Blenheim	3 15 0	1 0 0	..	..
NELSON—	Wangapeka	£3 10s. to £3 16s.	..	..	..
	Motueka	3 13 0	..	..	..
	Charleston	3 19 0	0 1 6	2 5 0	..
	Inangahua	£3 18s. to £4 4s.	..	..	..
	Collingwood	3 16 0	..	..	..
	Takaka	3 14 6	..	..	..
	Westport	3 19 0	..	..	..
	Murchison .. Lyell	3 18 0	0 10 0	..	..
WESTLAND—	Hokitika, Kanieri, and Waimea ..	3 18 0	..	2 10 0	40 in.
	Totara and Ross	3 18 0	..	..	..
	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 18s. to £3 19s.	0 12 6	0 10 0	Sluice, 20in. by 2in.
	Okarito	3 18 0	..	..	..
OTAGO—	Hindon	3 16 6	..	..	..
	Tuapeka	3 17 6	..	3 0 0	..
	Longwood	3 10 6	..	..	..
	Preservation and Waiau ..	£3 16s. 6d. to £3 18s. 6d.	..	..	..
	Orepuki and Round Hill ..	3 18 6	..	..	..
	Arrow (Wakatipu Goldfield) and Queenstown	3 17 6	8s. to 10s.	5s. to 7s.	..
	Mount Ida .. Macrae's, Hyde .. Hamilton, Serpentine	£3 17s. to £3 17s. 6d.	..	1 0 0	40 in. by 1 in.
	Macrewhenua	3 17 0	..	1 0 0	20 in. by 2 in., 4 in. pressure.
	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 Black's	3 17 6	..	..	Water used by owners.
	Gore	4 0 0	..	..	..

No. 11.

RETURN showing the AVERAGE PRICES of PROVISIONS and LIVE-STOCK for the Year ending 31st December, 1901.

Mining District.	Beer.	Brandy.	Bread—Wheaten.	Butter—Fresh.	Butter—Salt.	Cheese.	Coffee.	Flour.	Grain—Wheat.	LIVE-STOCK.					MEAT.			Milk.	Rice.	Salt.	Sugar.	Tea.	Tobacco.	Wine.
										Cattle—Horned.	Goats.	Horses.	Sheep.	Swine.	Beef.	Mutton.	Pork.							
	Per. hhd.	Per gall.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per 100 lb.	Per Im. bushel.	Per head.	Per head.	Per head.	Per head.	Per head.	Per lb.	Per lb.	Per lb.	Per qt.	Per lb.	Per lb.	Per lb.	Per lb.	Per lb.	Per gallon.
AUCKLAND—			d.							£		£			d.	d.	d.	d.	d.	d.	d.			
South Hauraki	90/	27/	1½	/9	/6	/6	1/10	10/6	4/	6	12/	9	15/	40/	5	4	6	3	3½	1	3	2/6	6/	15/–20/
Ohinemuri	96/	23/	1½	1/	/10	/7	1/10	10/6	4/6	7–10	..	10	10/	20/	5½	4	6	3	3	1	3	1/10	8/	16/6
North Hauraki	90/	25/	1½	1/	/7	/7	2/	11/	3/6	6	10/6	9	12/6	20/	5	4	6	4	3	1	3	2/	6/	17/6
Tauranga	84/	32/	1½	/8–1/	..	/5–/8	1/8	9/	3/	4–8	..	3–30	8/–12/	8/–30/	4–7	4	4–6	3	3	1	3	1/–2/6	5/6	25/
Te Aroha	90/	40/	1⅓	1/	/8	/6	2/	10/	3/	8	10/	20	10/	15/	4	4	4	3	2	1	2½	1/6	5/	30/
Puhipuhi	150/	40/	3	1/	/10	/6	2/	13/	4/	7	10/	7	10/	30/	5	3	6	4	4	1	3	2/	6/	10/
MARLBOROUGH—																								
Blenheim	90/	27/6	1	1/	/10	/6	1/9	8/3	3/	7	..	10–25	14/	30/–40/	4½	3½	5	4	3	1	3	2/	5/3	16/6
Havelock	90/	28/	2	1/	/10	/8	2/	11/3	4/6	2–6	..	5–40	6/–12/	..	6	6	5	4	3	1	2½	2/	6/	20/
NELSON—																								
Wangapeka	..	..	2	/8	/7	/8	1/8	11/	2/8	4–5	..	15–30	12/6	15/–40/	4	4	5	4	4	1	3	2/6–3/	7/–8/	..
Collingwood	105/	50/	2	/10	/6	/8	1/10	8/	3/6	4	..	10–25	7/	15/	4	3	5	4	3½	1	3	2/4	6/	16/
Takaka	90/	26/	2	/7	/6	/7	1/9	8/	3/3	3–6	..	10–50	12/–15/	35/ cwt.	3	2½	4	3	3	1	3	1/–1/9	6/	7/
Inangahua	90/	25/	1¾	1/	/10	/8	2/	9/	4/	7/10/0	10/	7–70	18/	50/	6	6	5	5	3	1	3	2/	5/6	15/–20
Lyell .. }	110/	26/	2½	1/2	/11	/8	2/	12/6	6/6	5/10/0	7/6	2	16/6	40/	5	5	6	6	4	2	3	2/	6/	20/
Murchison .. }																								
Westport	85/	30/	1¾	1/1	/9	/6	2/	9/6	..	7	15/	30	20/	40/	6½	6	6	4	3	1	3	1/9	6/	25/
Charleston	81/	26/	1½	1/	1/	/7	2/	10/6	5/	5	5/	15/	12/	40/	4½	4	6	6	4	1	3	1/10	6/	16/
Ahaura	96/	25/	1½	1/3	1/	/9	1/6	15/	5/	6–9	20/–30/	10–60	10/–22/6	30/–120/	5	5	6	6	4	2	3½	2/	6/6	18/
WESTLAND—																								
Stafford .. }	50/	30/	1½	1/	1/	/8	1/9	12/	5/	8	5/	17	20/	40/	6	5	6	4	3	¾	3	2/	6/	24/
Waimea .. }																								
Hokitika and Kanieri ..	80/	25/	1¾	1/	/10	/8	1/3	15/	4/	4–7	..	6–20	12/–16/	60/–100/	6	6	7	4	3	2	2	2/	5/6	16/
Ross	110/	24/6	1½	1/3	1/	/8	1/6–2/	19/6	6/	7–10	5/	10–60	17/6	50/	5–8	5–7	8	5	3	3	4	2/–2/6	6/	15/
Okarito	..	39/	3	1/3	1/3	/9	1/9	15/	7/	6	..	15	12/6	..	5	5	..	6	3	1½	4	2/6	6/6	30/
Kumara	85/	23/6	2	1/3	1/	/8	1/6	15/	5/	5–10	10/	8–30	18/	40/–100/	6	6	7	6	3	2	3	2/–3/	6/–8/	22/
Greymouth	90/	25/	1½	1/	1/	/7	1/9	9/6	3/3	4–8	..	9–45	13/	21/–67/	4–7	3–5	6	4	3	1½	2½	2/	5/	16/6
OTAGO—																								
Hindon	..	..	1¼–1½	1/2	/6–/8	/8	2/3	10/	1/11–2/6	5–8	..	12–40	12/–16/	17/–30/	6	4½	5–6	4	2½	1½	3½	2/3	5/6	..
Tuapeka	90/	26/	1½	1/2	/10	/6	1/10	8/	2/6	5	..	10–30	10/	20/–40/	5	3	6	3	3	1	3½	2/	5/6	18/
Tapanui	..	..	1¼	/9	/6	/6	2/	9/	2/	1–10	..	5–40	5/–22/6	10/–40/	6	4	6	3	4	1	3½	1/10–3/	6/	18/
Cromwell	100/	27/	2½	1/3	1/	/8	1/9	8/6	2/6	9	..	10–60	20/	40/	7	6	4	4	3	1½	3½	2/	5/6	18/
Clyde .. }																								
Alexandra .. }	120/	28/	1¾	1/	1/	/9	1/9	12/	5/	50/–120/	..	7–40	5/–20/	40/	5	4	7	5	2	1½	3	2/	5/–7/	22/
Roxburgh .. }																								
Black's .. }																								
Queenstown	90/	30/	1¾	1/	/10	/8	1/9	10/	2/6	50/–60/	..	25	10/	30/	6	4	6	4	3	1	3	2/	6/6	20/
Wyndham	100/	28/	1½	1/	/8	/6	1/9	8/6	2/6	5	10/	10–45	12/	50/	4–6	2½–3	5	4	3	1	3	1/8–2/6	5/	22/6
Arrow (Wakatipu Goldfield)	90/	30/	1¾	1/	/10	/8	1/9	10/	2/6	3	..	25	10/	30/	6	4	6	4	3	1	3	2/	6/6	20/
Mount Ida .. }	100/–130/	30/–40/	1½–1¾	1/–1/3	/10-1/3	/6–/8	1/6-2/6	8/–10/	3/–3/6	6–6/10/0	10/	10–40	10/–14/	59/–60/	5–6	4–6	6	4	3	1½	2½–4	1/3–2/	5/–6/	21/–24/
Nenthorn .. }																								
Waikaia	90/	30/	1¾	1/	/10	/9	2/	13/	3/4	4–7 10 0	..	10–27	10/–13/	20/–48/	4–7	4–7	6	4	4	2	4	2/–3/6	6/	20/
Orepuki and Longwood ..	90/	33/	2	/10	/10	/6	2/	9/	3/	5–12	25/	8–20	8/–20/	20/–40/	6	5	7	3	2½	1	3	1/–2/6	5/6	27/–60/
Maerewhenua	..	..	1¾	/9	/9	/8	2/	14/	3/9	3/10/0	..	15	6/–8/	30/	4	3	3½	3	3	1½	3	2/	6/	..
Gore	100/	28/	1¼	/8	/6	/6	2/	8/	2/	6	..	25	12/	40/	3	3	3¾	3½	2	1	3½	2/4	5/6	18/

No. 12.

TABLE showing the AVERAGE RATE of WAGES per WEEK for the Year ending 31st March, 1902.

Mining District.	General Managers.	Legal Managers.	Mining Managers.	Engineers.	Engine-drivers.	Stokers.	Blacksmiths.	Carpenters.	Miners.	Labourers.	Boys.	Chinese.	Agricultural Labourers.	Domestic Servants.
AUCKLAND—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
North Hauraki ..	6 0 0	2 5 0	4 0 0	3 0 0	2 15 0	2 8 0	2 14 0	2 14 0	2 8 0	2 5 0	1 10 0	..	1 16 0	10/
South Hauraki ..	£500 to £1000	£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	2 2 0	5/ to 30/	..	1 16 0	5/ to 10/
Te Aroha	10 0 0	..	5 0 0	..	..	..	3 0 0	2 18 6	2 8 0	2 8 0	..	..	..	..
Ohinemuri	£150 to £1200	£1 to £2	£4 to £8	£4 to £6	£2/8 to £3	2 8 0	3 0 0	3 0 0	£2 7 to £3	2 2 0	1 10 0	..	1 0 0	5/ to 12/6
Tauranga	..	..	3 0 0	..	..	..	£2 8 to £2 14	3 0 0	2 8 0	1 16 0	10/ to 15/	..	1 0 0	7/6 to 10/
MARLBOROUGH—														
Havelock	..	2 0 0	3 10 0	2 14 0	2 8 0	..	2 14 0	2 14 0	2 8 0	2 2 0	..	..	1 16 0	12/
Blenheim	..	..	£3 to £4/10	..	..	2 14 0	2 14 0	£2 14 to £3	2 8 0	2 8 0	0 10 6	..	£1 to £1 5	10/ to 12/6
NELSON—														
Collingwood	..	1 10 0	5 0 0	..	3 0 0	2 8 0	3 0 0	3 0 0	£2 14 to £3	£2 8 to £3	£1 16 to £2 2	..	..	8/ to 12/
Takaka	..	..	4 10 0	..	2 10 0	..	2 10 0	2 14 0	2 8 0	2 2 0	15/ and found	..	2 2 0	8/
Inangahua	..	£1 to £2	£4 to £10	4 0 0	4 0 0	3 0 0	£3 10 to £4	£3 10 to £4	£2 17 to £3	2 11 0	1 10 0	..	£1 to £1 5	5/ to 15/
Charleston	..	..	5 0 0	5 0 0	3 12 0	3 0 0	3 10 0	3 10 0	3 0 0	2 14 0	15/ and found	..	£1 5 & found	10/ and found
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 0 0	..	..	10/–15/ found
Lyell	..	..	4 10 0	4 0 0	3 10 0	2 15 0	3 10 0	3 5 0	2 15 0	2 0 0	1 0 0	0 15 0	..	10/
Ahaura	£6 to £8	2 0 0	£3/10 to £4	£3 10 to £4	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	..	..	..	3 15 0	3 10 0	2 15 0	3 5 0	3 0 0	2 15 0	2 0 0	1 0 0	0 15 0	..	10/
WESTLAND—														
Waimea and Stafford ..	6 0 0	..	5 0 0	3 10 0	2 10 0	2 0 0	3 0 0	3 0 0	2 10 0	2 10 0	0 10 0	2 0 0	..	12/
Hokitika and Kanieri ..	4 10 0	1 15 0	£4 to £5	4 0 0	3 10 0	2 10 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 0 0	2 10 0	4 0 0	3 12 0	3 0 0	2 10 0	1 10 0	..	..	8/
Kumara	6 0 0	2 0 0	4 0 0	3 10 0	3 0 0	..	£3 to £3 10	£3 to £4	3 0 0	2 8 0	1 0 0	..	..	7/ to 15/
Greymouth	..	£1 to £2	£4 to £6	£3 to £5	3 0 0	2 10 0	£3 to £3 15	10/ to 14/ a day	£2 10 to £3	7/ to 10/ a day	8/ to 20/	20/–30/ found	£1 to £2 found	5/ to 15/
Okarito	..	..	4 0 0	4 0 0	..	..	3 0 0	3 0 0	2 14 0	2 10 0	..	..	2 0 0	12/
OTAGO—														
Hindon	..	1 10 9	6 0 0	6 0 0	2 14 0	..	..	..	£2 8 to £2 14	£1 16 to £2 8	..	..	..	..
Tuapeka	5 0 0	2 0 0	3 10 0	£4 to £5	2 10 0	2 2 0	2 14 0	3 0 0	2 2 0	2 0 0	0 10 0	1 0 0	1 0 0	10/ to 12/
Tapanui	5 0 0	..	4 0 0	5 0 0	2 8 0	..	2 8 0	2 8 0	2 8 0	2 8 0	1 0 0	1 0 0	1 2 6	10/ to 20/
Cromwell	6 0 0	..	4 10 0	4 0 0	3 0 0	2 10 0	3 10 0	3 10 0	3 0 0	2 8 0	1 5 0	1 0 0	25/ and found	8/ to 15/
Clyde ..														
Alexandra ..														
Black's ..	4 10 0	1 10 0	4 10 0	4 0 0	3 0 0	..	4 0 0	4 0 0	£2 8 to £3	2 8 0	1 0 0	1 5 0	£60 & found	7/6 to 15/
Roxburgh ..														
Waikaia	..	2 0 0	4 0 0	3 0 0	2 10 0	2 10 0	3 0 0	3 0 0	2 8 0	2 2 0	1 0 0	1 0 0	1 0 0	12/6
Orepuki and Longwood	5 0 0	£40 per ann.	3 0 0	3 0 0	1 10 0	2 5 0	2 10 0	3 0 0	2 2 0	1 16 0	0 15 0	1 10 0	2 5 0	12/6
Arrow	6 0 0	..	4 10 0	4 0 0	3 0 0	2 10 0	3 10 0	3 10 0	3 0 0	2 8 0	£1 to £1 5	1 0 0	£1 5 to £1 10	8/ to 15/
Queenstown	6 0 0	..	4 10 0	4 0 0	3 12 0	2 10 0	3 10 0	3 10 0	3 0 0	2 8 0	£1 to £1 5	1 0 0	£1 5 to £1 10	10/ to 15/
Mount Ida	..	..	4 0 0	4 0 0	3 12 0	2 14 0	2 14 0	3 0 0	2 8 0	2 2 0	10/ to 15/	£1 to £1 5	£1 and found	7/ to 12/
Gore..	4 0 0	..	4 0 0	2 8 0	2 8 0	2 8 0	2 8 0	2 8 0	2 8 0	2 8 0	..	..	20/ to 30/	22/
Wyndham	..	..	..	..	2 10 0	2 10 0	2 0 0	3 0 0	8/ a day	7/ a day	0 15 0	..	1 15 0	8/ to 20/

No. 13.

NUMBER of MACHINES employed in ALLUVIAL and QUARTZ-MINING, and the VALUE thereof, for the Year ending 31st December, 1901.

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.		Puddling-machines.	Whims.	Whips or Pulleys.	Sluices, Toms, and Sluice-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.	Berdans.	
	No.	Aggregate h.p.													No.	Aggregate h.p.								
																								£
AUCKLAND—																								
Ohinemuri ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	60	4,396	17	639	18	1	..	1	..	374,470
North Hauraki ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	1,200	6	350	12	..	..	..	29	38,000
South Hauraki ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37	1,172	35	463	..	..	1	..	192	181,735
Te Aroha	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	65	1	10	3	..	..	..	..	5,000
Totals ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	114	6,833	59	1,462	33	1	1	1	221	599,205
MARLBOROUGH—																								
Wakamarina ..																								
Cullen's Creek ..	2	16	..	..	..	26	1	..	2	1	.	..	..	..	..	..	..	..	..	..	..	..	..	3,000
Waikakaho ..																								
Blenheim ..	..	..	..	..	..	60	2	..	2	1	..	..	..	3	2	20	2	10	..	..	..	..	1	12,000
Totals ..	2	16	..	..	..	86	3	..	4	2	..	..	..	3	2	20	2	10	..	..	..	..	1	15,000
NELSON—																								
Wangapeka ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Collingwood ..	..	..	1	..	..	..	..	4	..	..	..	2	..	..	2	50	2	28	1	..	..	..	..	52,000
Takaka	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inangahua ..	2	24	..	..	..	..	..	..	..	2	..	..	..	..	27	758	22	440	22	2	3	..	65	216,362
Charleston ..	..	..	..	..	..	95	6	71	..	..	..	..	24	..	..	..	..	..	..	..	..	..	..	800
Lyell	..	..	..	..	..	85	..	5	..	5	..	..	..	1	..	..	2	30	..	..	..	..	..	28,500
Murchison ..	..	..	..	..	..	508	1	7	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	18,000
Westport	..	..	..	..	..	47	4	26	..	..	..	..	22	..	..	..	6	42	6	..	..	..	..	11,000
Ahaura	..	..	..	..	..	100	..	100	1	12	2	1	4	8	1	18	4	22	..	..	1	..	..	22,000
Totals ..	2	24	1	..	..	835	11	216	2	21	2	3	50	9	30	826	36	562	29	2	4	..	65	348,662
WESTLAND—																								
Stafford	..	..	..	3	6	8,000	6	100	4	1	6	..	..	..	..	..	..	..	3	1	..	..	..	48,000
Ross	2	24	..	..	2	60	1	20	..	2	..	..	..	..	..	..	1	6	1	..	..	..	..	26,000
Hokitika and Kanieri	5	..	3	..	..	..	11	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	12,560
Greymouth ..	..	..	..	..	..	1,570	..	560	28	7	84	..	..	..	..	..	..	..	..	..	..	..	..	62,240
Kumara	3	45	..	..	..	150	2	90	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	20,000
Totals ..	10	69	3	3	8	9,780	20	770	32	16	90	..	..	..	..	..	1	6	4	1	..	..	..	168,800
OTAGO—																								
Tapanui	..	..	..	..	..	25	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2,000
Hindon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	16	5	31	..	..	..	..	..	710
Tuapeka	..	..	..	..	..	560	..	25	..	23	..	..	..	..	2	16	3	15	2	..	..	..	..	100,000
Cromwell	4	49	..	..	..	..	..	5	..	24	1	..	..	..	2	23	7	34	1	..	..	..	..	141,500
Clyde and Alexandra																								
Roxburgh ..	2	12	..	..	2	1,200	2	17	3	56	..	1	..	2	..	..	2	15	1	..	1	..	..	500,000
Black's																								
Orepuki, Waiau, and Preservation	8	110	..	..	..	275	..	8	1	1	..	..	..	..	3	32	4	20	2	..	..	..	..	12,300
Waikaia (Switzers)	..	..	..	..	..	280	..	50	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	26,000
Arrow	1	6	..	..	..	250	..	50	5	9	..	..	..	..	1	4	4	40	3	..	..	..	..	25,000
Queenstown ..	..	..	..	..	..	400	..	50	2	2	..	..	..	..	1	8	5	75	..	..	..	..	..	45,000
Naseby																								
Kyeburn and Clarke's																								
Hamilton's and Sowburn																								
Hyde and Fullerton's																								
Macrae's, Strath Taieri, and Shag Valley	3	32	24	..	..	189	7	68	2	2	..	..	38	..	2	54	13	83	10	1	1	..	..	44,000
Serpentine ..																								
St. Bathan's, Ida Valley, &c.																								
Gore	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	120,000
Wyndham ..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1,500
Totals ..	18	209	24	..	2	3,179	9	273	15	151	1	1	38	2	13	153	43	313	19	1	2	..	..	1,018,010

SUMMARY.

Auckland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	114	6,833	59	1,462	33	1	1	1	221	599,205
Marlborough ..	2	16	..	..	..	86	3	..	4	2	..	..	..	3	2	20	2	10	..	..	..	..	1	15,000
Nelson	2	24	1	..	..	835	11	216	2	21	2	3	50	9	30	826	36	562	29	2	4	..	65	348,662
Westland	10	69	3	3	8	9,780	20	770	32	16	90	..	..	..	..	..	1	6	4	1	..	..	..	168,800
Otago	18	209	24	..	2	3,179	9	273	15	151	1	1	38	2	13	153	43	313	19	1	2	..	..	1,018,010
Totals ..	32	318	28	3	10	13,880	43	1,259	53	190	93	4	88	14	159	7,832	141	2,353	85	5	7	1	287	2,149,677

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 December, 1901.

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.	
				£		£		£		£		£	£
AUCKLAND—													
Hauraki North ..	7	7	18	5,400	1	25	2	400	..	..	..	..	5,825
Hauraki South ..	19	25	160	58,000	7	360	70	770	2	5,000	..	..	64,130
Te Aroha ..	2	2	20	3,000	..	..	..	..	..	..	..	..	3,000
Ohinemuri ..	14	8	99	14,550	1	1,000	7	3,000	..	..	..	..	18,550
Totals ..	42	42	297	80,950	9	1,385	79	4,170	2	5,000	..	..	91,505
MARLBOROUGH—													
Blenheim ..	20	14	93	..	8	..	6	..	..	..	..	..	..
Havelock ..	19	26	47	2,300	8	150	3	80	1	25	..	..	2,555
Totals ..	39	40	140	2,300	16	150	9	80	1	25	..	..	2,555
NELSON—													
Wangapeka, Baton, and Sherry	1	2	1	150	1	80	..	..	..	..	1	50	280
Collingwood ..	98	120	948	127,056	66	8,000	73	15,000	..	..	..	..	150,056
Inangahua ..	491	392	3,581	161,386	542	52,395	613	23,178	..	..	..	..	236,959
Charleston ..	109	131	484	32,094	121	10,487	299	8,947	..	..	86	380	51,908
Westport ..	235	147	1,162	17,348	190	24,747	399	16,150	..	..	..	..	58,245
Lyell	88	91	198	8,900	18	710	22	2,300	..	..	..	..	11,910
Murchison ..	197	153	768	4,235	67	2,130	52	3,325	..	..	..	..	9,690
Ahaura	792	100	3,278	198,766	826	90,360	730	20,731	..	..	..	..	309,857
Motueka ..	7	11	31	1,220	5	275	3	80	..	..	..	..	1,575
Takaka	7	5	45	2,250	6	100	8	160	..	..	6	..	2,510
Totals ..	2,025	1,152	10,496	553,405	1,842	189,284	2,199	89,871	..	..	93	430	832,990
WESTLAND—													
Hokitika & Kanieri	306	202	643	150,600	125	3,100	310	3,100	..	..	..	..	156,800
Ross	143	115	550	59,905	160	1,500	76	2,050	..	..	6	700	64,155
Kumara ..	188	107	441	30,050	189	3,700	67	4,650	11	7,000	30	600	46,000
Greymouth ..	464	408	1,834	12,920	804	18,943	1,014	13,588	..	..	..	..	45,451
Okarito	20	15	150	13,350	19	900	15	570	..	..	..	..	14,820
Stafford.. ..	200	300	400	30,000	200	9,000	300	5,000	10	2,000	2	4,100	50,100
Totals ..	1,321	1,147	4,018	296,825	1,497	37,143	1,782	28,958	21	9,000	38	5,400	377,326
OTAGO—													
Hindon	73	115	710	35,420	21	380	12	1,505	..	..	20	125	37,430
Tuapeka ..	325	910	1,835	17,700	435	9,500	313	7,200	..	..	..	..	34,400
Tapanui ..	4	6	8	110	3	30	2	30	..	..	..	..	170
Clyde, Alexandra, Black's, and Roxburgh	625	1,585	2,675	95,000	387	19,000	160	17,000	2	6,000	..	..	137,000
Arrow	97	176	196	13,971	132	4,773	25	1,400	..	..	..	..	20,144
Cromwell ..	545	1,431	2,173	101,868	298	14,640	233	11,990	..	..	..	..	127,998
Waikaia ..	230	440	900	40,000	200	2,000	120	2,000	..	..	20	800	44,800
Orepuki, Longwood, and Preservation	115	180	580	20,999	46	3,575	40	985	1	..	..	..	25,559
Queenstown ..	136	215	766	54,730	160	9,950	44	1,895	..	..	..	..	66,575
Naseby .. .. Kyeburn & Clarke's Hamilton's and Sowburn Hyde & Fullerton's Macrae's, Strath Taieri, and Shag Valley Serpentine .. St. Bathan's and Ida Valley	541	1,157	2,343	36,741	638	16,458	293	13,622	..	..	..	..	66,821
Wyndham ..	15	17	92	4,830	..	..	..	..	..	..	..	..	4,830
Gore	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals ..	2,706	6,232	12,278	420,869	2,320	80,306	1,242	57,627	3	6,000	40	925	565,727

SUMMARY.

Auckland	42	42	297	80,950	9	1,385	79	4,170	2	5,000	..	..	91,505
Marlborough ..	39	40	140	2,300	16	150	9	80	1	25	..	..	2,555
Nelson	2,025	1,152	10,496	553,405	1,842	189,284	2,199	89,871	..	..	93	430	832,990
Westland	1,321	1,147	4,018	296,825	1,497	37,143	1,782	28,958	21	9,000	38	5,400	377,326
Otago	2,706	6,232	12,278	420,869	2,320	80,306	1,242	57,627	3	6,000	40	925	565,727
Totals ..	6,133	8,613	27,229	1,354,349	5,684	308,268	5,311	180,706	27	20,025	171	6,755	1,870,103

No. 15.

RETURN of CASES in the WARDENS' COURTS, and COSTS AWARDED, for the Year ending 31st December, 1901.

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.		
AUCKLAND—		£ s. d.	£ s. d.	£ s. d.	
North Hauraki	47	..	..	44 9 6	..
South Hauraki	2	3,905 13 10	3,420 16 4	46 6 6	1
Te Aroha	19	115 17 0	86 7 0	11 11 0	..
Ohinemuri	52	1,017 17 6	328 4 8	76 3 6	..
MARLBOROUGH	10	78 10 0	38 10 0	6 11 0	..
NELSON—					
Collingwood	3	70 5 0	20 5 0	2 3 0	3
Inangahua	31	2,510 7 3	524 13 3	73 6 3	15
Lyell and Murchison	11	61 17 10	61 17 10	10 0 0	..
Westport	11	..	..	24 2 4	..
Charleston	..	..	..	..	..
Motueka	..	..	..	..	..
Takaka	..	..	..	..	..
WESTLAND—					
Kumara	12	278 3 9	237 15 0	1 2 0	..
Greymouth	22	445 0 6	445 0 6	6 15 0	15
Hokitika and Kanieri	6	..	..	5 8 0	..
Stafford	4	5 0 0	..	1 9 0	..
Ross	..	..	..	..	..
Ahaura	18	278 4 2	171 11 0	29 9 6	..
CANTERBURY—					
Ashburton	1	50 0 0	50 0 0	0 9 0	1
OTAGO—					
Tapanui	..	..	..	..	..
Hindon	..	..	..	..	..
Tuapeka	3	340 16 6	133 4 0	41 16 6	..
Cromwell	43	1,327 12 5	805 0 7	73 2 6	..
Roxburgh					
Black's	30	687 8 3	140 14 0	57 10 0	23
Clyde and Alexandra ..					
Waikaia	8	321 0 0	150 0 0	10 5 0	..
Orepuki, Longwood, and Riverton ..	30	288 2 11	151 17 8	22 1 6	..
Arrow (Wakatipu Goldfield) ..	30	1,654 16 7	543 2 10	108 6 8	..
Queenstown	19	271 0 8	173 10 8	31 14 0	6
Mount Ida	10	25 0 0	..	2 0 0	..
Gore	3	114 3 0	49 3 0	10 2 0	..
Totals	425	13,846 17 2	7,531 13 4	696 3 9	64

No. 16.

RETURN of the NUMBER of MINING LEASES or LICENSES in Force on the 31st March, 1902, the EXTENT of GROUND LEASED or held under LICENSE, and RENTAL per ANNUM.

Mining Leases.

Mining District.	No.	Gross Acreage.			Rental per Annum.		
		A.	R.	P.	£	s.	d.
AUCKLAND—							
Hauraki North	115	1,610	0	0	210	0	0
Hauraki South	135	5,799	0	18	1,363	14	0
Te Aroha	10	393	3	38	40	8	6
Ohinemuri	..	..			..		
Tauranga	20	1,706	1	11	121	7	6
MARLBOROUGH—							
Havelock	3	812	2	32	42	12	9
Blenheim	31	1,688	1	39	293	5	0
NELSON—							
Wangapeka	6	303	4	0	45	1	6
Inangahua	80	4,465	3	34	..		
Charleston	33	878	2	12	114	4	6
Ahaura	226	11,581	3	29	1,942	13	6
Lyell	47	1,814	0	0	288	10	0
Murchison	51	2,032	0	0	343	0	0
Westport	72	3,557	0	11	655	3	0
WESTLAND—							
Hokitika and Kanieri	118	4,913	0	0	620	0	0
Kumara	66	1,641	3	31	426	7	6
Greymouth	119	5,596	0	0	1,232	10	0
Ross	91	6,467	0	0	913	3	6
Okarito	20	870	0	0	110	17	0
OTAGO—							
Cromwell	14	757	0	0	334	0	0
Hindon	8	178	0	0	44	10	0
Black's	144	8,004	0	0	1,820	15	6
Clyde and Alexandra							
Roxburgh							
Naseby	133	2,516	3	7	691	12	6
Arrow (Wakatipu Goldfield) ..	602	4,490	1	16	777	7	6
Queenstown	567	4,730	1	37	663	0	0
Orepuki and Longwood	39	2,248	0	0	112	14	0
Totals	2,750	79,056	2	35	13,206	17	9

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
AUCKLAND DISTRICT.														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Broken Hill Gold-mining Co. (Ltd.)	8/1/95	13,500	2,760	..	90,000	0 0 8¼	84 15 0	143	2	..	..	3,503	..	..
Waihi Beach United Gold-mining Co. (No Liability)	12/10/98	6,375	1,063	3,188	127,500	6d. on 20,000	27 16 3	134	..	..	..	2,713	..	..
Maratoto Gold-mining Co. (Ltd.)	17/11/00	5,000	2,500	..	100,000	0 0 6	186 8 5	104	7	..	..	2,344	..	..
Thames Talisman Gold-mining Co. (Ltd.) ..	28/6/00	2,900	1,299	..	58,000	..	..	18	6	..	..	1,305	..	..
Pride of Waihi Gold-mining Co. (Ltd.) ..	18/1/01	50,000	1,250	1,250	100,000	0 0 6	..	152	..	..	..	816	..	..
Kuranui Gold-mining Co. (Ltd.)	12/9/95	15,000	4,096	..	56,950	..	71 5 0	55	7	..	594	4,833	..	235
Progress-Castle Rock Gold-mining Co. (No Liability)	19/9/95	11,179	4,547	..	28,614	..	40 18 4	53	4	480	1,282	6,475	..	101
Waihi Consols Gold-mining Co. (No Liability) ..	18/10/95	16,200	9,792	50	162,000	0 0 11½	..	117	3	..	..	9,751	..	58
Hauraki No. 2 Gold-mining Co. (No Liability) ..	10/7/95	12,000	6,887	..	80,000	0 2 3	53 18 3	23	2	..	281	6,987	..	17
Coromandel Freehold Proprietary Gold-mining Co. (No Liability)	11/11/95	18,750	10,313	..	150,000	0 0 0½	..	172	..	..	..	11,306	..	16
Imperial Gold-mining Co. (No Liability) ..	22/2/95	10,000	7,184	528	100,000	0 1 6	..	127	..	..	114	8,106	..	20
Kapowai Gold-mining Co. (No Liability) ..	19/6/00	5,000	2,720	250	100,000	0 0 7	..	70	2	180	421	3,402	..	329
Neville and Perkins Hydraulic Sluicing Co. (Ltd.)	6/2/01	10,000	6,250	3,750	10,000	1 0 0	..	17	20	..	30	8,507	..	2,063
Barrier Reefs Gold-mining Co. (Ltd.)	11/12/99	111,000	..	111,000	111,000	1 0 0	..	195	5	..	31,961	48,943	..	18,704
Eclipse (Ltd.)	19/11/98	7,500	6,750	750	150,000	0 1 0	..	7	33	..	10,825	17,942	..	95
Rising Sun Gold-mining Co. (No Liability) ..	16/10/95	18,000	3,348	1,900	89,484	0 1 0⅝	..	60	4	..	..	3,560	..	23
Waihi Consolidated (Ltd.)	23/3/00	25,000	1,042	1,500	100,000	0 3 2½	..	113	1	..	..	1,152	..	17
Puru Consolidated Gold-mining Co. (Ltd.) ..	17/7/97	24,563	8,904	7,915	65,500	0 5 5	920 18 3	134	4	..	760	9,890	..	472
Welcome Jack Gold-mining Co. (Ltd.).. ..	9/3/00	5,000	..	500	100,000	0 0 5	..	76	11	..	1,037	3,656	..	Nil.
New Alpha Gold-mining Co. (No Liability) ..	4/4/01	4,745	1,696	591	94,905	0 0 6	276 8 7	89	4	..	..	1,119	..	1,644
New Whau Gold-mining Co. (No Liability) ..	30/3/95	18,750	6,438	1,464	125,000	0 1 4¾	..	74	..	167	440	7,354	..	59
Bunker's Hill Gold-mining Co. (Ltd.)	21/6/95	17,572	10,286	6,000	77,145	5/ & 2/6	412 10 1	346	1	1,152	3,447	16,327	..	372
Waiotahi Gold-mining Co. (Ltd.)	1/8/71	18,000	15,000	..	6,000	2 10 0	..	46	17	65,137	181,514	147,443	38,400	42
Tairua Broken Hills..	12/7/99	12,403	11,929	..	124,032	0 1 11	474 12 2	88	40	2,383	3,250	13,472	..	2,833
New Four-in-hand	30/6/98	22,500	22,500	..	90,000	0 5 0	..	150	18	4,844	14,115	13,106	4,500	90
Big Beetle Gold-mining Co. (No Liability) ..	31/7/01	5,000	277	250	100,000	0 0 1	..	50	4	46	135	377	..	Nil.
May Queen Extended Gold-mining Co. (No Liability)	12/11/95	15,000	5,294	..	100,000	0 1 3⅘	..	62	6	..	406	5,704	..	525
Victoria Gold-mining Co. (No Liability) ..	2/9/90	25,600	15,027	1,600	128,000	0 3 1½	..	182	4	..	12,159	25,763	..	48
Chelmsford Gold-mining Co. (Ltd.)	28/9/99	8,000	4,265	1,000	80,000	0 1 4	402 1 8	102	28	810	1,444	6,623	..	1,130
Young New Zealand Gold-mining Co. (No Liability)	31/10/95	9,750	2,529	..	65,000	0 1 8½	43 5 0	18	4	..	106	4,902	..	107
New Alburnia Gold-mining Co. (Ltd.)	16/4/96	51,531	50,888	118,469	170,000	1 0 0	643 5 0	244	7	2,632	6,979	26,671	..	Nil.
Waihi Extended Gold-mining Co. (Ltd.) ..	12/8/95	149,967	9,609	5,498	149,967	0 2 1½	826 10 5	440	16	..	..	9,712	..	369
Taniwha Creek Gold-mining Co. (Ltd.) ..	12/9/01	8,000	219	..	41,000	0 0 2	122 6 0	38	6	34	83	281	..	304
Hauraki Freeholds (Ltd.)	25/1/99	18,300	..	..	366,000	..	..	213	..	..	42	..	..	Nil.
New Gloucester Gold-mining Co. (Ltd.) ..	29/3/01	2,000	498	1,250	80,000	0 0 4	2 1 8	40	4	102	306	614	..	Nil.
Queen of the North Gold-mining Co. (No Liability)	2/12/97	2,000	812	..	60,000	0 0 3¼	..	11	2	137	389	1,230	..	Nil.
Totals	..	756,085	237,972	268,703	3,636,097	..	4,589 0 1	3,963	272	78,104	272,120	435,889	42,900	29,673

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued*.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
NELSON DISTRICT (INCLUDING WEST COAST).														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Buller United Gold-mining and Dredging Co., No. 1, Ohika-iti Claim (Ltd.)	1/5/00	1,955	1,371	2,500	1,955	Various	400 7 6	317	..	..	..	427	..	..
Stony Creek Dredging Co. (Ltd.)	31/8/00	5,605	1,447	2,500	5,605	Various	634 4 6	304	..	..	..	784	..	..
Keep-it-Dark Quartz-mining Co. (Ltd.) ..	2/3/74	20,000	6,208	10,000	20,000	0 16 2½	..	50	54	79,200	306,119	333,832	122,417	..
Grey River No. 2 Gold-dredging Co. (Ltd.) ..	9/5/00	10,000	602	2,500	10,000	0 2 0	148 7 0	120	..	..	..	474	..	..
Maori Gully Gold-dredging Co. (Ltd.)	12/4/00	9,000	4,837	2,200	9,000	0 17 0	788 10 0	112	8	..	..	4,557	..	..
Grey River Dredging Co. (Ltd.)	10/3/99	8,500	6,500	2,000	8,500	1 0 0	..	198	9	1,275	4,848	10,486	1,063	..
Crœsus (Paparoa) Gold-mining Co. (Ltd.) ..	18/5/97	35,938	12,188	23,750	57,500	12/6 & 2/6	..	178	6	2,466	10,035	23,063	719	..
Taffy Gold-mining Co. (Ltd.)	27/1/99	7,000	1,466	..	28,000	0 1 1	23 6 8	37	..	395	1,593	3,423	..	..
Wareatea Gold-dredging Co. (Ltd.)	1/10/00	6,000	5,409	2,250	6,000	1 0 0	591 10 0	137	1	3	12	5,456	..	..
Trafalgar Gold-dredging Co. (Ltd.)	16/2/00	6,750	6,627	2,250	9,000	1 0 0	122 15 0	174	..	..	..	6,822	..	278
Victory Gold-dredging Co. (Ltd.)	14/5/00	7,050	6,820	1,950	9,000	1 0 0	230 2 6	219	..	..	..	6,332	..	875
Watterson's Consols Gold-dredging Co. (Ltd.) ..	22/2/00	6,650	6,366	2,000	8,650	1 0 0	292 10 0	178	6	..	..	5,756	..	407
Maori King Gold-dredging Co. (Ltd.)	30/3/00	5,500	3,496	1,500	5,500	0 18 6	1,591 5 0	105	1	..	..	3,172	..	22
Marsden No. 3 Gold-dredging Co. (Ltd.) ..	28/3/00	8,000	5,484	2,000	8,000	1 0 0	516 9 8	120	..	..	..	5,467	..	1,012
Ford's Creek Gold-dredging Co. (Ltd.) ..	15/9/99	6,202	5,862	1,500	7,702	1 0 0	340 7 6	131	7	223	869	8,548	..	1,913
Grey River Extended Gold-dredging Co. (Ltd.) ..	17/5/00	7,510	1,938	2,500	10,000	0 7 0	867 10 0	86	8	31	118	1,847	..	131
Montgomery's Terrace Hydraulic Sluicing Co. (Ltd.)	28/9/00	11,500	4,525	5,500	16,900	0 11 0	1,745 5 0	140	1	..	..	3,218	..	93
Hokitika Junction Dredging Co. (Ltd.) ..	23/5/00	9,000	3,236	3,000	12,000	0 10 0	1,264 10 0	128	..	..	..	2,463	..	390
Caledonia Gold-dredging Co. (Ltd.)	30/3/01	8,200	7,986	1,800	8,200	1 0 0	214 7 6	151	6	6	23	7,868	..	199
Fairdown Gold-dredging Co. (Ltd.)	19/11/00	6,100	3,935	2,150	6,100	1 0 0	2,165 0 0	112	..	..	..	3,845	..	1,365
Orwell Creek Gold-dredging Company (Ltd.) ..	29/9/99	8,500	8,496	3,500	12,000	1 0 0	4 0 0	253	8	..	..	9,476	..	1,223
Aldinga Gold-dredging Co. (Ltd.)	23/5/00	6,750	6,492	2,250	9,000	1 0 0	258 7 6	196	..	..	..	6,711	..	203
Shetland Terrace Sluicing Company (Ltd.) ..	18/6/01	5,875	2,044	1,750	5,875	0 12 0	1,481 5 0	63	..	..	..	1,686	..	Nil.
Ross Day Dawn Gold-dredging Co. (Ltd.) ..	27/3/00	7,000	5,878	2,000	9,000	1 0 0	1,122 5 0	82	..	..	..	5,635	..	1,328
Aylmer Lead Gold-dredging Co. (Ltd.)	16/12/99	6,000	3,676	1,500	7,500	0 17 0	1,424 1 0	90	..	..	..	2,701	..	1,231
No Town No. 2 Gold-dredging Co. (Ltd.) ..	8/5/00	7,400	3,803	2,600	10,000	1 0 0	3,597 0 0	72	..	..	..	3,647	..	4,119
No Town Creek Gold-dredging Co. (Ltd.) ..	9/3/00	8,500	8,043	3,500	11,950	1 0 0	407 0 0	134	1	..	..	7,179	..	1,589
Golden Banner Gold-dredging Co. (Ltd.) ..	9/10/99	5,500	4,962	1,600	7,100	1 0 0	538 10 0	154	..	..	..	5,951	..	191
Three-mile (Greenstone Creek) Dredging Co. (Ltd.)	15/9/99	6,500	6,480	1,500	8,000	1 0 0	20 0 0	101	9	409	1,603	7,916	..	313
Craig's Freehold Gold-dredging Co. (Ltd.) ..	20/8/00	13,000	1,079	8,000	21,000	0 4 0	1,520 14 0	98	..	..	394	1,442	..	4,814
Garibaldi Gold-dredging Co. (Ltd.)	15/1/00	6,000	5,703	2,000	7,850	1 0 0	297 0 0	116	..	..	..	5,965	..	276
Duke of Wellington Gold-dredging Co. (Ltd.) ..	27/3/00	6,500	5,025	2,000	8,475	1 0 0	1,451 5 0	146	..	..	..	6,551	..	1,522
Major Robin Gold-dredging Co. (Ltd.) ..	25/4/00	6,750	1,513	..	6,750	0 8 0	1,187 0 0	137	..	..	..	654	..	5
Lord Nelson Gold-dredging Co. (Ltd.)	15/6/00	6,750	898	..	5,780	0 4 0	257 15 0	92	..	..	..	500	..	4
Moonlight Gold-dredging Co. (Ltd.)	7/5/00	7,750	6,052	..	7,700	1 0 0	1,650 16 9	122	..	..	..	5,968	..	8
Grey River Consols Gold-dredging Company (Ltd.)	18/1/01	10,000	421	2,500	10,000	0 2 0	329 5 0	60	..	..	..	409	..	58
Reeves' Proprietary Gold-dredging Co. (Ltd.) ..	19/10/99	12,200	12,200	2,500	12,200	1 0 0	..	240	8	829	3,307	14,941	..	43
Commissioners' Flat Gold-dredging Co. (Ltd.) ..	3/4/00	13,500	6,191	3,000	13,500	0 15 0	2,271 5 0	86	..	..	..	5,481	..	2,559
Waiwhero Sluicing and Dredging Co. (Ltd.) ..	9/2/00	31,000	1,334	17,660	31,000	0 11 0	..	79	30	1,327	5,306	17,526	..	11,727
Aorere River Gold-dredging Co. (Ltd.) ..	8/3/01	8,428	2,377	2,000	8,428	0 10 0	858 10 0	167	..	..	..	547	..	100
Totara Flat Gold-dredging Co. (Ltd.)	26/4/00	8,940	7,030	1,800	8,940	1 0 0	110 10 0	67	7	6	24	8,092	..	2,100
Parapara Flat Gold-dredging Co. (Ltd.) ..	26/7/01	6,280	1,882	2,000	6,280	0 8 0	216 3 0	104	..	..	..	1,799	..	50
Kaituna River Gold-dredging Co. (Ltd.) ..	10/4/01	6,990	3,387	2,000	6,990	0 18 0	709 15 0	99	..	..	..	4,016	..	830

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued.*

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
NELSON DISTRICT (INCLUDING WEST COAST)—*continued.*														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Ruby Creek Gold-dredging Co. (Ltd.)	19/12/99	10,000	7,226	2,500	10,000	1 0 0	134 10 0	98	7	3	14	7,426	..	1,200
Kohinoor Gold-dredging Co. (Ltd.)	15/2/00	12,500	9,750	2,500	12,500	1 0 0	250 10 0	154	..	..	..	9,656	..	300
Hau Hau Creek Dredging Co. (Ltd.)	19/2/00	8,360	3,880	3,500	8,360	20/ & 10/	300 1 3	46	8	230	916	4,959	..	582
Rocklands Beach Gold-dredging Co. (Ltd.) ..	1/9/99	11,531	9,054	1,800	11,531	20/ & 12/6	88 5 0	126	8	179	703	10,712	..	974
Omdurman Gold-dredging Co. (Ltd.)	8/1/00	7,500	5,847	1,500	7,500	1 0 0	153 10 0	101	3	7	25	5,788	..	1,258
Premier (Buller) Gold-dredging Co. (Ltd.) ..	9/3/00	10,585	6,416	1,500	10,585	Various	783 19 6	154	8	5	20	6,331	..	230
Kangaroo Creek Gold-dredging Co. (Ltd.) ..	14/5/00	9,500	6,551	1,500	9,500	Various	1,449 8 9	128	..	..	..	5,743	..	169
Takaka Sluicing Co. (Ltd.)	28/1/01	5,395	4,835	3,725	9,120	Various	155 15 0	43	17	10	36	4,897	..	257
Greenstone Creek Gold-dredging Co. (Ltd) ..	10/10/99	9,000	8,537	2,000	10,976	1 0 0	439 2 6	158	7	248	970	9,429	..	356
Maori Queen Gold-dredging Co. (Ltd.)	10/7/00	9,750	7,135	2,600	9,750	1 0 0	15 10 0	104	9	293	1,149	9,631	..	1,468
Greenstone Junction Gold-dredging Co. (Ltd.) ..	22/9/99	7,500	7,500	1,500	12,000	0 15 0	..	142	8	747	2,912	11,116	..	1,964
Addison's Long Tunnel Gold-mining Co. (Ltd.) ..	24/9/98	841	546	..	..	Various	43 0 0	24	..	934	3,689	4,160	177	238
Britannia Gold-mining Co. (Ltd.)	3/3/99	10,000	1,434	..	..	0 6 7¾	..	16	..	1,192	4,662	3,753	2,258	Nil.
West Coast Mining Syndicate (Ltd.)	1/10/00	1,650	250	..	1,650	0 5 0	162 10 0	24	..	..	..	102	..	Nil.
Great Woodstock Gold-dredging Co. (Ltd.) ..	16/3/00	8,300	7,088	2,200	10,500	1 0 0	1,212 5 0	112	..	..	..	8,388	..	1,305
Woodstock Gold-dredging Co. (Ltd.)	22/2/00	12,000	8,783	3,000	12,000	1 0 0	217 10 0	94	..	..	..	6,713	..	452
Virgin Flat Gold-mining Co. (Ltd.)	19/12/98	15,000	14,276	10,000	15,150	Various	349 7 6	61	10	149	588	14,328	..	600
Bignell's No Town Gold-dredging Co. (Ltd.) ..	10/4/00	8,000	2,944	3,000	8,000	0 18 0	4,255 16 0	140	..	..	..	2,722	..	364
Leviathan Gold-dredging Co. (Ltd.)	3/10/99	12,000	10,478	3,000	24,000	20/ and 5/	1,522 10 0	354	8	866	3,324	14,494	..	1,946
Parapara Hydraulic Sluicing and Mining Co. (Ltd.)	18/6/92	50,600	26,360	20,000	40,600	Various	150 0 0	58	20	4,963	18,961	47,421	..	1,305
Slate River Sluicing Co. (Ltd.)	26/7/00	11,700	10,091	1,200	13,480	Various	211 4 0	85	46	11	..	7,770	..	2,500
Stafford-Waimea Gold-dredging Co. (Ltd.) ..	14/5/01	7,000	4,977	2,000	9,000	0 15 0	272 15 7	74	7	64	252	5,144	..	263
Blackwater River Gold-dredging Co. (Ltd.) ..	27/4/00	7,000	3,806	3,000	10,000	Various	1,444 5 3	120	..	..	..	1,064	..	Nil.
Cornwall Gold-dredging Co. (Ltd.)	18/6/00	9,800	9,322	..	9,800	Various	478 10 0	109	6	..	..	9,314	..	282
Feddersen Gold-dredging Co. (Ltd.)	5/3/01	11,000	3,147	200	11,000	Various	461 6 0	83	..	..	..	1,222	..	346
Great Lead Gold-dredging Co. (Ltd.)	11/9/99	5,500	5,373	..	5,500	Various	32 0 0	100	..	..	..	6,022	..	2,615
Nelson Creek Gold-dredging Co. (Ltd.) ..	1/7/99	6,000	6,000	2,500	8,500	1 0 0	..	99	7	1,956	7,647	13,376	2,550	341
Minerva Gold-mining Co. (Ltd.)	24/2/90	12,000	6,670	400	17,285	0 6 3	18 3 4	18	..	821	2,947	11,001	..	31
Prince of Wales Dredging Co. (Ltd.)	17/10/99	10,000	9,374	4,000	14,000	1 0 0	625 15 0	90	2	..	..	9,210	..	Nil.
Pride of Marlborough Gold-dredging Co. (Ltd.) ..	25/3/01	8,000	1,829	..	8,000	Various	1,429 4 10	130	8	..	..	1,765	..	1,343
Grey River Consolidated Dredging Co. (Ltd.) ..	22/9/99	7,500	7,493	2,500	15,000	0 10 0	7 0 0	253	1	256	987	9,217	..	1,391
Hokitika Extended Dredging Co. (Ltd.) ..	7/4/00	9,000	3,494	2,500	9,000	0 10 0	1,005 11 0	135	..	..	..	1,985	..	134
Mont d'Or Gold-mining and Water-race Co. (Ltd.)	25/7/82	12,000	10,800	..	12,000	0 18 0	..	28	21	25,918	99,370	75,670	36,600	Nil.
Jubilee Gold-mining Co. (Ltd.)	16/11/99	8,600	5,357	1,200	8,600	Various	289 0 0	143	18	249	903	5,096	..	1,128
Mosquito Gold-dredging Co. (Ltd.)	24/4/00	10,000	7,544	..	10,000	1 0 0	256 0 0	108	10	..	..	8,083	..	656
Ahaura River Gold-dredging Co. (Ltd.)	9/9/99	6,939	6,813	1,600	27,755	0 5 0	125 10 0	281	8	305	1,161	8,635	..	1,234
Red Jack's Gold-dredging Co. (Ltd.)	26/4/00	9,000	7,282	1,700	9,000	1 0 0	18 0 0	150	9	155	595	9,587	..	1,322
Wanganui-Wataroa Gold-dredging Co. (Ltd.) ..	22/6/01	7,000	..	..	6,925	0 6 0	485 15 0	131	..	..	..	615	..	Nil.
Welcome Gold-dredging Co. (Ltd.)	3/5/00	9,900	9,543	2,750	9,900	1 0 0	357 0 0	128	..	..	..	9,126	..	Nil.
Stillwater Creek Gold-dredging Co. (Ltd.) ..	2/4/00	4,661	730	..	4,661	0 6 0	670 17 0	93	..	..	..	670	..	3
Claughesy's Freehold Gold-dredging Co. (Ltd.) ..	26/4/01	8,700	2,080	1,600	8,700	0 12 0	2,179 16 0	122	..	..	..	1,749	..	82
Mosquito No. 2 Gold-dredging Co. (Ltd.) ..	24/4/01	8,000	500	3,000	11,000	0 2 0	300 0 0	10	..	..	..	493	..	Nil.
Westland Water-supply, Electric Power, and Gold-dredging Co. (Ltd.)	8/10/00	3,838	2,475	12,000	15,571	0 18 0	979 0 0	32	1	..	..	2,990	..	40

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued*.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
NELSON DISTRICT (INCLUDING WEST COAST)—*continued*.														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Victoria Range Gold-mining Co. (Ltd.) ..	4/2/01	20,000	833	..	40,000	0 0 5	..	24	..	..	..	..	..	Nil
Kirwan's Reward Gold-mining Co. (Ltd.) ..	8/3/98	56,000	3,092	..	56,000	0 1 1¼	..	67	25	4,163	16,637	11,933	6,300	158
Reefton United Gold dredging (Co. Ltd.) ..	19/5/00	9,750	3,587	1,500	15,000	0 6 0	..	133	..	..	..	763	..	29
Buller Dredges (Ltd.)	2/10/97	6,000	4,348	..	12,000	0 7 3	..	34	..	2,630	10,201	15,804	300	25
Callaghan's Creek Gold-dredging Co. (Ltd.) ..	25/5/00	7,500	5,566	1,875	12,500	0 11 6	183 15 0	75	1	..	..	4,894	..	839
Buller Junction Gold-dredging Co. (Ltd.) ..	8/6/99	8,125	7,656	1,250	12,500	0 14 3	..	130	8	1,169	4,525	11,815	938	220
Alpine Extended Gold-mining Co. (Ltd.) ..	25/8/97	25,000	5,358	..	50,000	0 2 2	58 8 8	172	17	8,039	31,083	37,989	..	110
Pactolus Gold-dredging Co. (Ltd.)	16/8/99	8,125	6,875	1,250	12,500	0 13 0	..	129	8	1,300	5,105	10,307	..	332
A1 Gold-dredging Co. (Ltd.)	13/11/99	8,500	6,668	..	8,500	1 0 0	31 17 0	141	7	908	3,576	10,244	425	Nil.
Hokitika River Gold-dredging Co. (Ltd.) ..	31/8/99	13,000	9,915	3,000	13,000	1 0 0	34 11 0	245	7	252	983	12,449	..	1,710
Daylight Gold-dredging Co. (Ltd.)	15/5/00	6,000	3,950	2,000	8,000	1 0 0	2,050 8 3	88	..	..	..	4,139	..	197
Erickson's Reward Gold dredging Co. (Ltd.) ..	24/10/99	7,255	6,806	2,000	9,255	20/ & 17/6	198 4 6	195	9	340	1,314	8,502	..	1,645
Pactolus No. 2 Gold-dredging Co. (Ltd.) ..	—/3/00	6,400	886	1,600	6,400	0 4 0	394 0 0	105	1	..	..	860	..	120
Jamieson's Reward Gold-dredging Co. (Ltd.) ..	—/7/01	7,500	716	2,500	7,500	0 2 0	28 15 0	72	1	..	..	704	..	15
Cameron's New River Gold-dredging Co. (Ltd.) ..	—/6/00	6,000	494	..	6,000	0 2 6	251 0 0	43	1	..	..	641	..	147
Leviathan Freeholds Gold dredging Co. (Ltd.) ..	—/10/00	10,000	4,943	4,000	10,000	0 14 0	1,742 0 0	112	1	..	..	5,323	..	380
Pactolus No. 3 Gold-dredging Co. (Ltd) ..	—/3/00	7,500	775	2,500	7,500	0 4 0	725 0 0	127	1	..	..	706	..	120
Wangapeka Gold-dredging Co. (Ltd.)	19/9/00	15,000	4,727	6,000	21,000	0 7 0	523 5 0	228	6	..	..	5,738	..	463
Golden United Gold-dredging Co. (Ltd.) ..	7/4/00	6,500	4,477	..	6,500	0 18 6	1,535 0 5	113	..	..	..	934	..	181
Sullivan's Lead Gold-dredging Co. (Ltd.) ..	8/5/00	10,000	5,816	400	10,400	0 18 6	3,434 8 0	169	1	46	180	5,013	..	34
Rocklands King Gold-dredging Co. (Ltd.) ..	27/8/00	11,000	133	3,000	11,000	0 0 4	6 13 3	18	..	..	..	122	..	Nil.
Saltwater Creek Gold-dredging Co. (Ltd.) ..	23/2/00	9,000	963	2,000	9,000	0 4 0	436 15 0	154	..	..	..	814	..	Nil.
Waipuna Creek Gold-dredging Co. (Ltd.) ..	23/5/00	6,000	569	2,000	..	..	631 4 4	60	..	..	..	568	..	45
Golden Lead Mining Company (Ltd.)	30/10/90	12,000	10,303	..	24,000	0 9 11	166 14 0	28	2	2,171	8,729	18,866	..	166
Big River Gold-mining Co. (Ltd.)	11/4/91	12,000	4,363	..	24,000	0 3 9	300 0 0	73	6	23,620	94,936	56,607	46,200	253
Old Diggings Gold-dredging Co. (Ltd.)	19/10/99	9,000	3,578	1,125	12,000	0 8 0	321 13 6	80	7	79	300	4,392	..	780
New Scotia Gold-mining Company (Ltd.) ..	22/5/00	12,000	3,110	3,000	24,000	0 3 6	189 17 6	75	5	1,124	3,533	6,676	..	283
Snowy Creek United Gold-mining Co. (Ltd.) ..	17/12/98	12,000	2,309	3,600	48,000	0 3 8	13 14 4	27	2	50	184	2,357	..	50
Consolidated Dredging Company (Ltd.) ..	18/1/99	6,000	5,400	600	12,000	0 10 0	..	42	..	533	2,084	7,898	..	40
Westland Gold-dredging Co. (Ltd.)	24/10/99	8,000	5,548	..	8,000	0 18 0	1,652 10 0	128	..	..	..	5,555	..	86
Wakamarina Golden Point Dredging Co. (Ltd.) ..	10/10/99	5,250	4,045	1,200	5,250	1 0 0	5 0 0	58	8	146	548	5,204	..	611
Grey Arnold No. 1 Gold-dredging Co. (Ltd.) ..	12/7/00	7,000	436	2,000	9,000	0 1 3	1 5 0	79	..	..	..	340	..	11
Perrett's Junction Lead Gold-dredging Co. (Ltd.)	9/5/00	17,600	3,069	..	17,600	0 6 0	2,211 15 0	203	..	..	..	2,517	..	93
Mokoia Gold-dredging Co. (Ltd.)	21/4/99	9,000	7,750	1,250	9,000	1 0 0	..	223	8	1,047	3,799	12,229	..	798
North Beach Gold-dredging Co. (Ltd)	27/2/00	6,225	6,213	1,800	8,025	1 0 0	12 10 0	93	8	284	1,065	8,114	..	1,584
El Dorado Gold-dredging Co. (Ltd.)	10/4/00	7,125	4,173	1,800	7,125	1 0 0	2,952 5 0	151	1	..	..	4,173	..	251
Amikitea Gold-dredging Company (Ltd) ..	20/3/01	10,000	2,533	2,500	12,500	Various	968 0 0	103	1	..	..	3,442	..	926
Kohikohi Gold-dredging Co. (Ltd.)	27/5/00	12,000	9,480	2,500	12,000	1 0 0	20 0 0	120	9	214	833	11,546	..	1,204
Kapai Gold-dredging Co. (Ltd.)	22/9/00	5,808	1,962	1,900	5,808	Various	1,532 16 0	166	..	..	..	1,898	..	2,300
Shellback Gold-dredging Co. (Ltd.)	18/5/00	7,500	3,907	2,500	10,000	0 16 6	2,197 10 3	87	..	..	..	3,584	..	Nil.
Greenstone Sluicing Co. (Ltd.)	12/7/89	4,700	2,703	2,300	4,700	0 11 6	..	30	..	4,036	15,868	19,011	1,925	..
Piccanini Gold-dredging Company (Ltd.) ..	18/1/01	7,100	286	1,900	7,100	0 1 6	236 5 0	21	..	..	..	351	..	85
Shrives Treasure Gold-dredging Company (Ltd.)	18/1/01	4,785	417	2,500	7,285	0 2 0	62 0 0	56	..	..	..	416	..	61
Murchison Gold-dredging Co. (Ltd.)	29/7/00	6,900	684	2,500	6,900	0 2 6	172 5 0	43	..	..	..	676	..	123
Waiho Gold-dredging Co. (Ltd.)	..	2,550	323	2,000	2,550	0 3 0	119 0 0	67	..	..	..	248	..	158
Totals	..	1,259,511	646,604	321,335	1,582,727	..	80,199 4 7	15,001	578	177,882	691,565	1,276,568	221,872	86,290

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued*.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
OTAGO DISTRICT.														
		£	£	£		£ s. d.	£ s. d.			Oz.		£	£	£
Winding Creek Gold-mining Co. (Ltd.)	5/2/98	14,167	8,000	6,167	14,167	1 0 0	..	20	10	1,409	5,452	11,693	..	125
Sailor's Gully (Waitahuna) Gold-mining Co. (Ltd.)	3/6/96	2,000	100	1,800	2,000	0 10 0	..	10	5	1,345	4,902	4,388	750	77
Ourawera Gold-mining Co. (Ltd.)	23/5/95	3,000	2,800	200	3,000	1 0 0	..	19	..	4,154	16,417	15,082	4,765	Nil
Golden Crescent Sluicing Co. (Ltd.)	26/11/98	3,500	3,500	..	3,500	1 0 0	..	26	9	1,169	4,498	7,037	778	..
Blue Spur and Gabriel's Gully Consolidated Gold Co. (Ltd.)	1/2/88	91,266	37,622	60,000	91,266	1 0 0	..	..	35	37,547	147,417	17,874	28,003	..
Harris Beach Gold-dredging Co. (Ltd.)	19/9/99	5,500	1,560	1,500	7,000	0 8 0	640 0 0	131	..	..	..	585	..	Nil
Eclipse Gold-dredging Co. (Ltd.)	4/8/99	7,201	6,392	1,500	8,701	20/ & 7/6	102 7 6	137	1	14	53	8,492	..	1,543
Scottish Chief Dredging Co. (Ltd.)	16/2/00	8,000	4,961	1,200	8,000	1 0 0	1,839 8 0	146	..	..	..	5,804	..	669
Evans Flat Dredging Co. (Ltd.)	14/8/97	3,200	2,400	800	3,200	1 0 0	..	61	7	2,299	8,856	9,590	2,310	118
Tuapeka Dredging Co. (Ltd.)	31/7/97	2,800	2,500	300	2,800	1 0 0	..	44	7	2,259	8,696	9,335	2,310	126
Zealandia Syndicate (Ltd.)	21/10/99	4,000	4,000	3,000	7,000	1 0 0	..	59	..	..	..	3,685	268	167
Diggers' Pride Gold-dredging Co. (Ltd.)	13/2/00	7,320	1,753	..	7,320	0 6 6	626 15 0	172	..	2	8	888	..	18
Smith Gold-mining Co. (Ltd.)	19/10/98	1,700	1,525	300	2,000	20/ & 13/	..	18	4	458	1,810	3,688	..	220
Reliance Gold-dredging Co. (Ltd.)	3/10/99	3,600	3,000	600	3,600	1 0 0	..	54	7	658	2,534	5,834	180	138
Main Lead Hercules Gold-dredging Co. (Ltd.)	3/1/00	7,700	6,883	1,800	9,500	1 0 0	817 0 0	157	..	..	..	6,811	..	2,438
Long Valley Gold-dredging Co. (Ltd.)	31/8/99	7,000	7,000	2,000	9,000	1 0 0	..	123	1	170	656	9,120	..	1,462
Moonlight No. 2 Sluicing Co. (Ltd.)	1/6/98	9,500	8,944	2,500	12,000	Various	553 0 0	98	10	154	593	10,518	..	1,572
Old Dunstan Gold-dredging Co. (Ltd.)	17/10/99	8,500	6,500	2,000	8,500	1 0 0	312 10 0	139	..	..	..	6,174	..	969
Junction Electric Gold-dredging Co. (Ltd.)	2/9/99	26,000	10	25,990	26,000	1 0 0	..	283	11	7,163	27,643	19,384	13,650	349
Electric Gold-dredging Co. (Ltd.)	2/9/99	26,000	10	25,990	26,000	1 0 0	..	274	10	11,811	46,279	9,146	35,100	1,000
Magnetic Gold-dredging Co. (Ltd.)	12/7/97	7,000	5,000	2,000	7,000	1 0 0	..	156	8	4,975	19,065	24,174	7,350	433
Naseby Dredging and Hydraulic Sluicing Co. (Limited)	16/10/97	5,000	2,288	2,000	5,000	0 15 3	..	23	6	2,235	8,648	11,451	1,250	..
Golden Chain Dredging Co. (Ltd.)	26/9/99	8,000	5,700	..	10,000	0 18 0	1,500 0 0	144	..	..	..	5,491	..	Nil
Naumai Gold-dredging Co. (Ltd.)	8/4/99	8,000	7,993	2,000	10,000	1 0 0	7 10 0	103	7	255	950	10,205	..	829
Otago Gold-dredging Co. (Ltd.)	20/5/95	4,000	2,000	2,000	4,000	1 0 0	..	52	8	5,354	20,464	13,991	6,000	50
Golden Treasure Dredging Co. (Ltd.)	11/7/93	1,500	1,384	1,500	3,000	1 0 0	..	46	..	8,395	32,318	19,893	14,596	172
Golden Gate Dredging Co. (Ltd.)	13/3/95	2,500	2,500	..	2,500	1 0 0	..	50	6	8,126	31,287	18,676	14,375	183
Ladysmith Gold-dredging Co. (Ltd.)	19/4/00	12,000	3,201	3,000	14,500	0 8 0	678 14 6	134	4	245	943	4,165	..	263
Endeavour Gold-dredging Co. (Ltd.)	24/8/99	10,000	7,981	2,000	10,000	1 0 0	19 8 0	205	8	240	925	9,245	..	1,025
Olrig Dredging Co. (Ltd.)	13/3/99	7,000	6,000	1,000	7,000	1 0 0	..	83	7	1,035	3,978	9,212	..	300
Hartley and Riley Beach Dredging Co. (Ltd.)	14/7/97	6,500	6,300	200	6,500	1 0 0	..	355	9	18,591	71,943	18,491	57,688	325
Upper Waipori Alluvial Gold-dredging Co. (Ltd.)	3/9/89	4,000	5,950	5,000	4,800	0 8 6	..	77	9	11,814	45,460	39,648	7,080	254
Unity Gold-dredging Co. (Ltd.)	8/8/00	4,200	4,200	..	10,500	1 0 0	..	35	8	1,078	4,134	4,079	..	65
Royal Sovereign Gold-dredging Co. (Ltd.)	23/1/01	5,750	2,020	..	8,250	0 7 6	455 0 0	127	1	..	..	2,042	..	101
Big Flat Dredging Co. (Ltd.)	21/12/99	7,050	6,309	1,700	8,725	1 0 0	716 15 1	110	7	..	..	7,138	..	853
Gabriel Gold-dredging Co. (Ltd.)	12/6/00	3,350	2,199	2,150	4,440	1 0 0	91 0 0	55	7	614	2,362	6,872	..	2,311
Empire Gold-dredging Co. (Ltd.)	13/7/97	5,000	5,000	..	5,000	1 0 0	..	40	15	6,192	24,142	19,138	8,135	404
Meg and Annie Gold-dredging Co. (Ltd.)	9/5/99	7,500	6,000	1,500	7,500	1 0 0	..	159	8	..	8,060	11,583	2,625	178
Golden Gravel Gold-dredging Co. (Ltd.)	29/8/99	6,000	5,929	1,500	7,500	Various	71 10 0	161	7	326	1,253	7,115	..	1,322
Golden Reward Gold-dredging Co. (Ltd.)	20/9/99	6,000	5,338	1,500	7,500	1 0 0	662 8 10	135	7	50	191	5,531	..	2,202
Leaning Rock Gold-dredging Co. (Ltd.)	7/10/99	7,000	6,948	1,500	10,738	1 0 0	52 10 0	263	9	164	633	9,548	..	651
Kia Ora Gold-dredging Co. (Ltd.)	21/9/99	7,900	7,433	1,600	9,500	1 0 0	466 10 3	145	8	..	..	7,070	..	430
Happy Valley Gold-dredging Co. (Ltd.)	24/2/00	5,050	4,558	2,450	5,050	1 0 0	492 5 0	99	7	280	1,070	5,561	..	1,985

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued.*

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
OTAGO DISTRICT—*continued.*														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Lower Enfield Gold-dredging Co. (Ltd.) ..	15/3/00	6,000	4,807	1,500	7,500	1 0 0	1,193 4 0	106	..	..	..	4,933	..	337
Ettrick Gold Steam-dredging Co. (Ltd.) ..	29/8/90	9,000	7,842	2,000	10,500	1 0 0	657 11 3	125	7	4,776	18,380	25,090	3,150	2,126
Golden Run Dredging Co. (Ltd.)	29/6/91	9,000	9,414	1,600	11,000	1 0 0	..	146	22	8,240	31,722	39,108	5,194	3,447
Roxburgh Amalgamated Mining and Sluicing Co. (Ltd.)	2/3/89	29,153	12,737	15,000	29,152	18/and 20/	..	158	22	17,468	67,815	61,926	18,585	Nil.
Glen-iti Gold-dredging Co. (Ltd.)	28/10/99	2,300	2,178	2,200	4,500	1 0 0	122 0 0	36	..	347	1,335	3,987	..	459
Oceanic Steam Gold-dredging Co. (Ltd.) ..	5/3/00	5,000	2,206	2,000	7,000	Various	918 16 10	86	..	..	..	2,217	..	134
Vulcan Gold-dredging Co. (Ltd.)	19/2/00	6,800	3,427	..	8,500	0 16 0	2,013 2 6	130	2	..	..	5,979	..	2,570
Lioness Gold-dredging Co. (Ltd.)	22/1/00	6,600	1,864	..	6,600	0 7 6	254 3 6	99	1	..	..	2,204	..	205
Prince Imperial Gold-dredging Co. (Ltd.) ..	17/1/00	6,700	2,013	..	6,700	0 7 6	172 16 0	91	1	..	..	2,068	..	64
Union Jack Gold-dredging Co. (Ltd.)	8/2/00	6,700	1,801	..	8,600	0 8 0	409 0 6	81	1	..	..	2,037	..	240
Britannia Gold-dredging Co. (Ltd.)	16/3/00	8,000	5,157	2,500	10,500	1 0 0	2,843 1 0	213	..	..	..	6,288	..	Nil.
Island Block Gold-dredging and Sluicing Co. (Ltd.)	26/2/00	25,000	10,529	12,000	25,000	0 18 0	1,171 0 0	79	15	613	2,364	11,030	..	2,108
Point d'Or Gold-dredging Co. (Ltd.)	26/3/00	11,700	2,174	2,700	11,700	0 8 0	1,426 10 0	167	8	..	..	2,103	..	81
Teviot Gold-dredging Co. (Ltd.)	4/1/00	8,000	7,708	2,000	10,000	1 0 0	292 10 0	173	7	240	922	9,168	..	1,557
Molyneux Kohinoor Dredging Co. (Ltd.) ..	27/1/00	8,250	2,919	2,250	10,005	0 11 0	1,243 7 6	160	7	..	..	3,901	..	898
Phœnix Water-race Co. (Registered)	12/10/67	1,500	1,500	..	1,000	1 10 0	..	17	..	..	..	..	6,850	Nil.
Galvanic Gold-dredging Co. (Ltd.)	22/6/99	6,000	6,000	1,500	7,500	1 0 0	..	177	1	5	18	7,713	..	2,243
Alexandra Eureka Gold-dredging Co. (Ltd.) ..	14/11/99	12,000	..	12,000	12,000	1 0 0	..	11	7	2,679	10,335	6,119	4,200	101
Manuherikia Gold-dredging Co. (Ltd.).. ..	1/8/99	6,000	6,000	6,000	12,000	1 0 0	..	176	9	3,032	11,494	14,241	2,400	144
Waimumu Gold-dredging Co. (Ltd.)	20/11/97	6,000	6,000	1,000	7,000	1 0 0	..	85	9	2,548	9,976	14,173	1,925	354
Boundary Creek Gold-dredging Co. (Ltd:) ..	7/9/99	8,000	7,925	2,000	10,000	1 0 0	75 0 0	197	1	13	49	7,940	..	986
Excelsior Gold-dredging Co. (Ltd.)	23/9/99	10,745	8,411	2,000	10,745	1 0 0	334 0 0	127	2	16	62	9,335	..	1,215
Champion Gold-mining Co. (Ltd.)	30/12/98	10,000	4,235	..	10,000	10/ & 8/	125 0 0	67	8	1,064	4,087	6,788	..	Nil.
Gow's Creek Gold-mining Co. (Ltd.)	7/12/00	3,000	2,800	200	3,000	1 0 0	..	12	33	..	..	3,166	..	171
Majestic Gold-dredging Co. (Ltd.)	31/7/99	6,500	5,700	800	6,500	1 0 0	..	106	7	736	2,826	8,881	..	324
Arrow Falls Gold-mining Co. (Ltd.)	4/4/98	30,000	1,875	27,750	30,000	20/ & 19/	..	33	..	629	2,427	3,943	..	77
Two Creeks Gold-dredging Co. (Ltd.)	16/6/00	4,800	2,109	2,400	4,800	1 0 0	291 0 0	45	..	..	..	2,025	..	39
McLean's Waimumu Freehold Gold-dredging Co. (Ltd.)	25/9/01	7,342	911	3,500	7,342	0 5 0	89 0 0	90	..	..	..	469	..	53
Rising Sun Gold-dredging Co. (Ltd.)	22/2/01	11,100	128	..	11,100	0 0 6	87 10 0	11	..	..	..	137	..	72
Waimumu Central Dredging Co. (Ltd.) ..	16/5/99	4,500	4,500	..	7,000	1 0 0	..	97	9	1,658	6,606	8,556	2,447	316
Waitahuna Cinnabar Co. (Ltd.)	3/8/00	1,500	793	..	1,500	0 14 0	257 8 6	53	..	..	..	695	..	13
United Morven Gold dredging Co. (Ltd.) ..	18/1/00	6,145	2,120	..	6,145	0 12 0	1,567 3 6	113	1	..	..	1,561	..	1,000
Nokomai Hydraulic Sluicing Co. (Ltd.) ..	26/3/98	22,850	5,850	17,000	2,285	10 0 0	1 5 0	26	38	5,895	22,596	17,279	9,095	643
Canadian Flat Hydraulic Sluicing and Electrical-power Transmission Co. (Ltd.)	10/7/00	4,375	2,536	2,000	6,375	1 0 0	1,839 10 0	70	8	..	..	2,740	..	371
Earnscleugh Gold-dredging Co. (Ltd.)	15/7/01	11,000	8	..	11,000	1 0 0	1 0 0	9	23	1,219	4,695	2,467	1,375	620
Ngapara No. 3 Gold-dredging Co. (Ltd.) ..	13/9/99	7,000	5,000	2,000	7,000	1 0 0	12 10 0	77	7	672	2,588	2,746	..	178
Monte Christo Dredging Company (Ltd.) ..	7/6/99	8,500	8,425	1,100	9,600	1 0 0	74 15 0	171	8	722	2,773	9,370	1,424	28
Chicago Gold-dredging Co. (Ltd.)	1/11/99	6,750	6,750	2,500	5,000	2 10 0	27 10 0	60	7	1,702	6,674	5,598	500	165
Mystery Flat Gold-dredging Co. (Ltd.) ..	16/7/00	4,900	3,363	1,000	4,900	0 15 0	155 1 0	118	7	..	..	2,832	..	2,250
Deep Stream Amalgamated Hydraulic Sluicing Co. (Ltd.)	4/2/97	8,500	8,500	3,500	12,000	1 0 0	..	60	16	3,729	14,364	24,163	5,050	204

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued*.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
OTAGO DISTRICT—*continued*.														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Royal Charlton Gold-dredging Co. (Ltd.) ..	31/10/00	5,400	451	..	5,400	Various	88 15 0	62	..	..	..	173	..	31
Lady Roxburgh Gold-dredging Co. (Ltd.)	3/3/00	9,000	2,516	2,000	11,000	Various	3,334 3 0	195	..	..	..	837	..	112
Central Charlton Dredging Co. (Ltd.)	8/12/99	5,300	5,300	1,700	5,300	1 0 0	..	126	8	727	2,729	8,838	..	1,236
Celtic Gold-dredging Co. (Ltd.)	21/11/99	3,000	3,000	1,000	4,000	1 0 0	..	29	8	136	543	5,021	..	1,510
Alexandra Lead Gold-dredging Co. (Ltd.) ..	26/7/99	17,521	13,739	3,000	17,521	Various	781 15 0	190	..	..	..	13,558	..	757
Central Mataura Gold-dredging Co. (Ltd.) ..	30/6/00	27,000	7,574	7,000	27,000	Various	235 8 0	225	9	628	2,422	12,951	..	4,110
Cairntrodlie Gold-dredging Co. (Ltd.)	27/3/00	4,000	683	2,000	4,000	0 4 0	117 1 0	65	1	..	..	468	..	75
Enterprise Hydraulic Sluicing Co. (Ltd.) ..	7/2/98	2,000	100	1,700	2,000	0 18 0	..	12	2	353	1,349	1,320	200	50
Dunstan Lead Gold-dredging Co. (Ltd.) ..	31/5/99	17,500	14,480	3,000	17,500	1 0 0	20 2 6	199	9	191	737	16,561	..	2,406
Davis Bend Dredging Co. (Ltd.)	1/5/00	11,000	1,369	2,500	11,000	Various	331 5 0	125	..	..	..	592	..	59
Golden River Gold-dredging Co. (Ltd.).. ..	7/8/99	10,000	8,400	1,600	40,000	0 5 0	..	333	7	345	1,329	9,004	..	66
Golden Vein Gold dredging Co. (Ltd)... ..	13/10/99	7,500	5,759	1,600	7,500	Various	133 10 0	129	..	..	..	6,929	..	22
Vincent Extended Gold-dredging Co. (Ltd.) ..	30/6/99	8,000	8,000	1,500	9,500	1 0 0	..	200	8	198	742	9,902	..	1,575
Bendigo Gold-dredging Co. (Ltd.)	9/10/99	11,000	8,498	2,500	11,000	1 0 0	2 0 0	240	1	59	228	8,796	..	282
Royal Maori Gold-dredging Co. (Ltd.)	20/10/99	6,000	6,000	2,000	8,000	1 0 0	..	141	8	562	2,145	7,843	..	1,186
ailor's Bend Dredging Co. (Ltd.)	1/9/99	8,000	6,500	1,500	8,000	1 0 0	..	209	9	717	2,783	8,774	..	78
Spec Gully Gold-dredging Co. (Ltd.)	28/6/99	8,000	5,400	1,600	6,000	1 0 0	..	90	9	565	2,220	8,133	..	548
Voltaic Prospecting and Dredging Co. (Ltd.) ..	26/10/99	5,000	1,188	2,500	5,000	Various	62 10 0	54	..	..	..	1,786	..	149
Waimumu Extended Dredging Co. (Ltd.) ..	25/4/99	6,500	2,000	4,500	6,500	1 0 0	..	52	8	1,481	5,786	6,970	485	207
Upper Clutha Gold-dredging Co. (Ltd.) ..	6/10/99	4,725	3,906	1,600	4,725	1 0 0	58 10 0	79	8	..	..	3,762	..	1,772
Golden Beach Hydraulic Elevating and Dredging Co. (Ltd.)	20/8/97	6,000	6,000	7,000	12,996	1 0 0	..	138	11	5,955	22,807	12,631	8,125	373
Golden Bed Dredging Co. (Ltd.)	5/5/99	11,000	9,669	2,000	12,794	20/ & 12/6	76 17 6	221	7	884	3,430	5,195	..	607
Gunton's Beach Amalgamated Gold-dredging Co. (Ltd.)	1/3/00	8,880	6,698	2,500	17,800	0 12 0	2,181 17 11	305	1	..	..	6,375	..	2,993
British Lion Gold-dredging Co. (Ltd.)	25/1/00	6,000	1,956	1,500	7,500	0 12 6	1,793 13 9	125	..	..	..	1,922	..	36
Gold Chair Gold-dredging Co. (Ltd.)	20/3/00	6,800	1,015	2,200	9,000	0 8 0	1,705 0 0	144	..	..	..	693	..	Nil.
Enterprise Water-race Company (Registered) ..	7/2/67	4,800	4,800	..	16	300 0 0	..	7	3	7,010	..	27,151	13,581	229
Golden Elbow Dredging Co. (Ltd.)	8/11/99	6,500	4,906	2,000	8,500	1 0 0	1,594 10 0	144	..	..	..	3,756	..	75
Enfield Gold-dredging Co. (Ltd.)	31/10/99	5,000	5,000	2,000	7,000	1 0 0	..	62	6	509	1,948	7,902	..	1,195
Golden Link Dredging Co. (Ltd.)	10/7/99	5,800	5,800	1,200	7,000	1 0 0	..	126	7	598	2,301	8,851	..	915
Piano Flat Hydraulic Gold-mining Co. (Ltd.) ..	10/10/98	3,725	2,356	1,000	3,725	1 0 0	50 0 0	23	9	..	21	4,155	..	1,778
Waipori Consolidated Gold Dredges (No Liability)	22/3/99	2,275	2,275	225	2,500	1 0 0	..	7	7	1,470	5,576	8,432	375	700
Round Hill Mining Co. (Ltd.)	30/7/92	28,225	6,753	21,472	5,649	5 0 0	..	180	25	14,894	58,847	73,691	..	Nil.
Perseverance Gold-dredging Co. (Ltd.) ..	19/4/99	14,000	13,886	6,000	14,000	50/and 20/	114 10 0	108	16	4,566	17,620	25,148	5,600	398
Nokomai Victory Gold-mining Co. (Ltd.) ..	2/11/99	2,000	1,500	500	2,000	10/and 20/	..	7	7	..	17	1,163	..	143
Golden Lion Mining Co. (Ltd.)	28/10/01	3,000	886	..	3,000	0 6 0	14 0 0	43	16	..	..	845	..	700
Electric Extended Gold-dredging Co. (Ltd.) ..	25/5/99	8,800	8,800	2,200	10,000	1 0 0	..	254	8	808	3,129	12,341	1,000	630
Jutland Hydraulic Dredging Co. (No Liability)..	28/6/01	4,100	2,788	900	5,000	Various	288 0 0	7	..	..	..	2,112	..	499
Pleasant Valley Gold-mining Co. (Ltd.) ..	4/3/95	700	630	300	1,000	0 18 0	..	30	6	1,947	7,497	5,799	1,750	Nil.
Bonanza Gold-dredging Co. (Ltd.)	20/2/00	6,350	786	..	6,350	0 3 6	325 1 6	127	..	..	..	554	..	Nil.
Cromwell Gold-dredging Co. (Ltd.)	10/10/98	5,300	5,300	1,700	7,000	1 0 0	..	160	8	3,657	14,147	13,882	4,375	71
Molyneux Hydraulic Dredging Co. (Ltd.) ..	25/5/00	5,896	5,896	..	5,896	1 0 0	..	95	7	1,652	6,410	6,798	295	494
Rise and Shine Gold-dredging Co. (Ltd.) ..	24/2/00	10,000	9,494	2,000	12,000	1 0 0	505 15 9	202	8	..	..	8,139	..	2,900
First Chance Gold-dredging Co. (Ltd.)	20/7/99	7,800	7,800	3,000	10,800	1 0 0	..	220	8	189	687	10,261	..	2,033

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued.*

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
OTAGO DISTRICT—*continued.*														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Alpine Consols Dredging Co. (Ltd.)	19/5/99	5,500	5,500	2,000	7,500	1 0 0	..	169	8	500	1,930	9,555	..	2,125
Bendigo Tailings Syndicate (No Liability) ..	5/12/01	12,000	140	7,033	12,000	0 19 0	..	6	3	..	..	130	..	100
Gold Deposit Dredging Co. (Ltd.)	14/12/99	6,800	6,055	1,800	6,800	Various	744 15 0	137	1	..	..	8,396	..	3,131
Lawrence Gold-dredging Co. (Ltd.)	11/10/99	450	450	1,050	1,500	1 0 0	..	21	7	1,234	4,758	4,641	825	106
Success Gold-dredging Co. (Ltd.)	16/7/97	2,400	2,400	..	2,400	1 0 0	..	23	7	4,755	18,327	13,282	6,720	179
Alpine No. 2 Gold-dredging Co. (Ltd.)	1/5/99	5,300	5,300	825	6,125	1 0 0	..	121	8	681	2,634	7,753	306	200
Golden Glen Dredging Co. (Ltd.)	23/2/00	10,000	7,319	2,000	12,000	1 0 0	2,680 14 0	160	..	..	..	7,287	..	11
Clyde Dredging Co. (Ltd.)	17/5/95	6,000	4,848	150	6,000	Various	554 10 0	81	8	8,894	34,342	16,708	16,100	208
Globe Gold-dredging Co. (Ltd.)	31/1/00	3,450	3,282	700	3,450	1 0 0	168 0 0	43	7	..	1,675	5,512	..	1,000
Charlton Valley Gold-dredging Co. (Ltd.) ..	7/4/00	6,000	3,817	1,000	6,000	1 0 0	1,138 9 8	130	..	..	..	3,598	..	950
Great Beach Gold-dredging Co. (Ltd.)	17/1/01	6,500	1,817	2,000	6,500	0 7 0	458 6 0	125	..	..	..	1,943	..	202
Waiora Gold-dredging Co. (Ltd.)	7/2/00	6,350	4,388	1,650	8,000	1 0 0	1,922 5 0	152	..	..	..	4,991	..	606
Big Beach Hydraulic Sluicing Co. (Ltd.) ..	3/10/99	750	550	600	1,350	0 10 0	125 5 0	26	6	273	1,053	1,755	..	312
Roxburgh Jubilee Dredging Co. (Ltd.)	22/11/99	8,500	8,293	3,500	12,000	1 0 0	206 16 1	212	..	..	..	6,680	..	95
Lafranchi's Freehold Gold-dredging Co. (Ltd.)	15/3/00	8,000	4,858	4,000	8,000	1 0 0	3,141 15 11	163	..	..	..	4,027	..	1,000
Kawarau Consolidated Gold-dredging Co. (Ltd.)	20/9/99	5,600	5,281	1,900	7,500	1 0 0	62 0 0	131	1	..	..	5,332	..	900
Upper Magnetic Gold-dredging Co. (Ltd.) ..	31/7/99	8,000	8,000	1,600	9,600	1 0 0	..	180	8	6	21	9,033	..	1,500
Waipori King Gold-dredging Co. (Ltd.) ..	10/7/00	5,000	1,922	..	5,000	Various	578 5 0	100	2	18	73	2,120	..	380
Golden Horseshoe Dredging Co. (Ltd.) ..	16/1/00	8,000	6,497	2,000	10,000	1 0 0	1,503 10 0	142	1	..	..	5,785	..	7
Morven Ferry Gold-dredging Co. (Ltd.) ..	11/1/00	7,000	6,031	2,000	9,000	1 0 0	136 5 9	118	..	..	..	5,703	..	165
Vinegar Hill Hydraulic Sluicing Co. (Ltd.) ..	23/9/00	6,000	6,000	..	6,000	1 0 0	..	10	9	..	..	145	..	541
Mount Buster Mining Co. (Ltd.)	20/4/96	6,480	..	4,320	216	20 0 0	..	13	5	1,436	5,529	2,314	3,456	508
New Half-way House Gold-dredging Co. (Ltd.) ..	25/11/01	4,000	3,594	..	4,000	1 0 0	406 0 0	136	1	..	..	3,251	..	20
Great Central Dredging Co. (Ltd.)	24/8/99	8,000	8,661	2,000	10,000	1 0 0	285 15 0	153	8	50	191	8,852	..	1,138
Manorburn Gold-dredging Co. (Ltd.)	28/1/96	3,000	3,000	..	3,000	1 0 0	..	7	1	3,634	14,497	16,286	2,250	1,342
Charlton Creek Gold-dredging Co. (Ltd.) ..	5/5/99	4,000	4,000	1,000	5,000	1 0 0	..	83	7	2,240	8,743	12,375	2,875	458
Enterprise Gold-dredging Co. (Ltd.)	24/8/91	7,000	3,500	3,500	7,000	1 0 0	..	142	14	8,580	33,091	26,733	8,213	267
Golden Ripple Gold-dredging Co. (Ltd.) ..	28/2/00	8,200	1,542	..	10,000	0 5 0	507 12 6	173	..	..	..	1,355	..	7
Earnscleugh No. 3 Dredging and Electric Power Co. (Ltd.)	10/3/99	19,585	19,120	3,500	23,085	1 0 0	465 9 0	139	15	..	..	23,056	..	1,025
Inch Valley Gold-dredging Co. (Ltd.)	15/9/98	2,600	2,600	2,400	5,000	1 0 0	..	46	7	1,854	7,140	7,854	1,500	194
Matau Dredging Co. (Ltd.)	16/10/97	6,200	6,200	..	7,000	1 0 0	..	123	8	5,643	21,768	14,437	11,725	256
Paul's Beach Gold-dredging Co. (Ltd.)	29/11/99	7,500	5,492	1,500	7,500	1 0 0	347 10 0	126	8	393	1,481	6,897	..	220
Inchdale Gold-dredging Co. (Ltd.)	8/2/00	5,500	4,842	1,500	7,000	1 0 0	180 0 0	104	7	272	1,045	6,338	..	1,252
Coal Creek Flat Dredging Co. (Ltd.)	18/9/99	7,000	6,896	2,000	9,000	1 0 0	104 0 0	180	1	..	..	11,889	..	228
Last Chance Hydraulic Sluicing, Elevating, and Dredging Co. (Ltd.)	27/7/99	7,833	4,427	3,300	9,775	0 14 0	..	103	14	808	3,141	3,779	..	53
Fourteen-mile Beach Gold-dredging Co. (Ltd.) ..	25/10/98	16,000	13,400	2,600	16,000	1 0 0	..	243	12	492	1,893	16,301	..	919
Waikaka United Gold-dredging Co. (Ltd.) ..	11/2/99	4,200	3,275	6,500	11,200	1 0 0	425 0 0	26	18	1,026	3,951	6,947	..	309
Gentle Annie Gold-dredging Co. (Ltd.) ..	4/10/99	6,900	6,893	1,600	8,500	1 0 0	7 10 0	182	..	..	..	6,519	..	44
Sandy Point Gold-dredging Co. (Ltd.)	31/10/99	7,000	7,000	700	7,700	1 0 0	..	14	10	..	5,996	6,623	..	7,096
Timaburn Gold-dredging Co. (Ltd.)	9/9/01	1,500	861	2,500	4,000	0 15 0	401 2 6	21	1	5	18	861	..	1,065
Sheddon's Waikaka Freehold Gold-dredging Co. (Ltd.)	26/4/00	4,318	3,801	2,182	6,500	1 0 0	517 7 0	25	..	417	1,524	5,139	..	1,863
Gibbston Gold-dredging Co. (Ltd.)	19/9/99	8,000	5,853	1,600	8,000	1 0 0	546 14 0	190	..	..	..	5,790	..	1,098

STATEMENT of AFFAIRS of MINING COMPANIES, as published in accordance with the Mining Companies Acts, 1891, 1894, and 1900—*continued*.

Name of Company.	Date of Registration.	Subscribed Capital.	Amount of Capital actually paid up.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares allotted.	Amount paid up per Share.	Arrears of Calls.	Number of Shareholders at present.	Number of Men employed.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid.	Amount of Debts owing by Company.
										Quantity.	Value.			
OTAGO DISTRICT—*continued*.														
		£	£	£		£ s. d.	£ s. d.			Oz.	£	£	£	£
Alexandra Bonanza Gold-dredging and Sluicing Co. (Ltd.)	5/9/99	27,000	9,987	3,000	21,393	12/ & 11/	1,131 16 0	148	60	..	..	11,587	..	916
Horseshoe Bend Gold-dredging Co. (Ltd.) ..	24/1/00	6,000	3,824	2,000	8,000	1 0 0	2,175 18 0	128	..	..	..	6,991	..	3,202
Skipper's Sluicing Company (Ltd.)	30/7/97	4,742	4,725	..	3,952	1 0 0	..	23	8	416	1,576	6,219	..	346
Gold King Dredging Co. (Ltd.)	22/1/00	8,000	7,276	2,500	10,500	1 0 0	724 5 0	230	8	66	255	7,473	..	409
Kelly and Casey Beach Dredging Co. (Ltd.) ..	15/9/99	8,295	8,263	2,200	10,495	1 0 0	32 10 0	215	8	41	164	9,292	..	655
Lady Charlton Gold-dredging Co. (Ltd.) ..	12/2/00	11,000	8,483	2,000	13,000	0 16 6	43 17 6	295	8	239	939	9,361	..	452
New Star Gold-mining Co. (Ltd.)	16/5/01	14,727	648	13,254	14,727	0 0 8	74 12 4	54	6	..	..	904	..	78
Sealer's Creek Gold-dredging Co. (Ltd.) ..	20/12/98	3,222	802	1,165	3,222	1 0 0	173 13 3	60	..	..	..	1,845	..	1,106
Glenrock Consolidated (Ltd.)	1/7/95	45,000	45,000	..	450,007	0 10 0	4,687 3 6	1,400	25	10,859	42,973	39,997	..	289
Bakery Flat Sluicing Co. (Ltd.)	10/9/96	2,500	1,888	300	2,500	0 17 6	..	29	16	1,929	7,319	8,108	1,063	413
South Island Prospecting Company (Ltd.) ..	16/6/00	2,500	1,634	2,500	5,000	0 15 0	240 12 6	41	..	..	..	1,911	..	132
Paterson's Freehold Gold-dredging Co. (Ltd.) ..	15/7/99	8,000	4,997	4,000	12,000	0 14 6	802 19 0	40	9	1,178	4,954	12,069	600	10,086
Broad Creek Gold-dredging Co. (Ltd.) ..	6/4/00	5,400	4,241	1,600	7,000	1 0 0	1,158 17 0	109	..	..	..	4,047	..	1,218
Pile-up Gold-dredging Co. (Ltd.)	13/9/00	5,200	2,961	1,800	7,000	0 17 0	1,459 1 6	105	..	..	..	2,573	..	1,040
River Molyneux Gold-dredging Co. (Ltd.) ..	14/10/99	11,000	8,953	2,000	11,000	1 0 0	47 10 0	203	1	9	34	8,981	..	269
Golden Mile Dredging Co. (Ltd.)	13/11/99	5,800	5,252	1,500	7,300	1 0 0	548 10 0	131	1	..	..	5,747	..	866
Shotover Quartz-mining Co. (No Liability) ..	9/3/98	6,000	4,500	1,500	24,000	0 5 0	..	38	11	361	1,375	5,669	..	202
Prince Arthur Gold-dredging Co. (Ltd.) ..	13/2/00	12,000	551	1,500	7,500	0 6 0	1,249 0 0	116	..	..	..	642	..	95
Riley's Beach Gold-dredging Co. (Ltd.) ..	22/2/01	7,875	4,075	4,500	9,000	1 7 0	2,092 15 0	72	..	..	..	4,919	..	915
Gold Queen Dredging Co. (Ltd.)	3/2/99	7,000	6,975	2,000	9,000	1 0 0	..	223	8	767	2,865	12,078	..	2,382
Prince Albert Gold-dredging Co. (Ltd.) ..	22/1/00	6,000	5,538	2,000	8,000	1 0 0	88 0 0	147	7	17	64	6,942	..	382
Golden Molyneux Gold-dredging Co. (Ltd.) ..	19/1/00	6,500	2,090	2,000	8,500	Various	1,485 10 0	126	3	..	..	2,676	..	1,300
Malone's Beach Dredging Co. (Ltd.)	3/4/00	8,500	1,639	2,000	10,500	0 12 0	3,486 5 0	118	1	..	..	649	..	26
Junction Waikaka Gold-dredging Co. (Ltd.) ..	10/10/00	5,100	1,653	..	5,100	0 12 0	1,407 10 0	42	..	..	..	751	..	529
Moonlight Sluicing Co. (Ltd.)	14/5/94	2,000	1,451	450	2,000	Various	98 15 0	26	4	1,055	4,067	4,104	1,100	474
Fraser River Gold-dredging Co. (Ltd.) ..	6/9/01	150	8	..	150	0 1 0	..	7	1	..	..	442	..	500
Ruby Gold-dredging Co. (Ltd.)	20/2/00	6,500	4,146	2,000	8,500	1 0 0	2,354 5 0	126	..	..	..	4,176	..	1,774
Local Industry Gold-mining Co. (Ltd.) ..	21/10/91	1,500	1,184	..	1,500	0 17 4	116 10 0	12	5	3,083	11,867	12,247	1,350	31
Extended Fourteen-mile Beach Gold-dredging Co. (Ltd.)	16/5/00	8,500	924	2,500	11,000	Various	776 0 0	105	2	..	..	611	..	Nil.
Maori Gold-dredging Company (Ltd.) ..	26/9/99	5,000	5,000	300	5,300	1 0 0	13 15 0	11	1	711	2,737	5,175	..	1,063
Cromwell Proprietary Gold-mining Company (Ltd.)	22/12/97	100,000	2,537	..	100,000	1 0 0	..	24	1	4,815	18,408	5,652	..	160
Central Electric Gold-dredging Company (Ltd.)	8/5/99	6,000	6,000	1,000	7,000	1 0 0	..	250	8	562	2,146	9,956	..	2,167
Waimumu Queen Dredging Company (Ltd) ..	21/6/99	5,200	4,517	1,800	5,200	Various	163 5 0	55	8	1,175	4,623	9,044	..	..
Waikaka Queen Gold-dredging Company (Ltd.) ..	6/7/99	5,510	5,439	1,050	5,510	Various	70 12 6	132	8	269	1,035	7,862	..	1,629
MacCharlton Gold-dredging Company (Ltd) ..	3/12/00	6,000	988	1,000	6,000	Various	1,112 10 0	51	..	..	..	994	..	1,461
Royal Waimumu Gold-dredging Company (Ltd.)	6/10/00	5,500	3,516	..	5,500	Various	608 15 0	62	..	..	..	3,701	..	2,511
Waikaka Gold-dredging Company (Ltd.) ..	9/5/00	4,900	4,476	1,600	4,900	Various	423 15 0	59	8	148	570	4,973	..	1,669
Victoria Waimumu Gold-dredging Company (Ltd.)	7/9/00	4,065	2,781	2,000	4,065	Various	673 18 0	52	1	..	..	2,693	..	2,063
Undaunted Gold-mining Company (Ltd.) ..	28/4/99	2,795	1,259	1,750	2,795	Various	730 15 0	75	..	443	1,737	7,700	..	4,264
Mataura Consolidated Gold-dredging Company (Ltd.)	15/1/01	1,345	566	4,650	5,995	Various	170 19 6	57	..	23	89	1,359	..	851
Maori Point Gold-dredging Company (Ltd.) ..	2/9/01	3,025	1,896	1,300	3,025	0 12 0	181 5 0	40	..	..	..	1,360	..	50
King Edward Gold-mining Company (Ltd.) ..	22/6/01	910	706	3,000	3,910	Various	43 15 0	31	9	11	44	1,122	..	283
Midas Gold-mining Company (Ltd.)	9/10/99	2,383	1,502	1,500	3,883	Various	220 16 8	89	..	..	..	1,489	..	153
Totals	..	1,749,921	1,022,319	570,473	2,350,208	..	90,098 8 10	23,912	1,271	320,073	1,229,860	1,735,500	363,277	165,611
Grand totals	..	3,765,517	1,906,895	1,160,511	7,569,032	..	174,886 13 6	42,876	2,121	576,059	2,193,545	3,447,957	628,049	281,574

STATEMENT of AFFAIRS of MINING COMPANIES, as defined by Section 2 of "The Mining Companies Acts Amendment Act, 1897," and published in accordance with "The Mining Companies Acts Amendment Act, 1897."

Name of Company.	Date of Registration of Office in Colony.	Subscribed Capital.	Amount of Capita actually paid up in Colony.	Value of Scrip given to Shareholders on which no Cash paid.	Number of Shares on Colonial Register.	Amount paid up per share: Colonial Register.	Arrears of Calls: Colonial Register.	Number of Shareholders on Colonial Register.	Number of Men employed in Colony.	Quantity and Value of Gold or Silver produced since Registration.		Total Expenditure since Registration.	Total Amount of Dividends paid in Colony.	Amount of Debts owing by Company.
										Quantity.	Value.			
AUCKLAND DISTRICT.														
		£	£	£	£	£ s. d.	£ s. d.			Oz.	£	£	£	£
Mahara Royal (Ltd.)	–/3/97	..	..	..	26,624	1 0 0	..	155	2	..	11,877	26,579	..	42
Karaka (Ltd.)	–/5/97	..	..	..	..	1 0 0	..	..	..	..	..	7,215	..	Nil
Thames-Hauraki Goldfields (Ltd.)	6/6/96	275,000	..	..	..	1 0 0	..	..	..	..	81	133,214	..	3,282
Union-Waihi Gold-mining Co. (Ltd.)	20/11/95	149,081	2,046	100,000	1,382	1 0 0	..	39	..	22,685	28,375	121,302	..	2,631
Ohinemuri Syndicate (Ltd.)	4/3/96	51,918	2,253	20,000	20,201	1 0 0	..	282	6	..	..	28,580	..	66
New Zealand Crown Mines Co. (Ltd.)	27/6/96	200,000	..	100,000	35,379	1 0 0	..	118	235	129,488	308,093	315,159	3,499	856
Waihi Grand Junction Gold Co. (Ltd.)	22/12/97	155,000	2,260	112,500	6,529	1 0 0	..	34	55	..	..	61,228	..	..
Golden Pah (Hauraki) (Ltd.)	7/8/96	59,727	..	22,500	..	..	..	..	14	490	1,513	24,164	..	..
Waitaia Gold-mines (Ltd.)	16/7/96	..	..	20,000	20,250	..	..	80	23	1,374	4,028	12,029	..	4
Hauraki Gold-mining Co.	2/4/95	40,000	..	8,750	700	0 2 6	..	2	50	91,399	279,225	114,685	..	Nil
Totals	..	930,726	6,559	383,750	111,065	..	..	710	385	245,436	633,192	844,155	3,499	6,881
NELSON DISTRICT (INCLUDING WEST COAST).														
Greymouth Lagoons Gold-dredging Co. (No. Liability)	–/7/01	17,325	22	8,000	2,630	4/ and 1/	..	5	9	..	..	7,362	..	307
Totals	..	17,325	22	8,000	2,630	..	..	5	9	..	..	7,362	..	307
OTAGO DISTRICT.														
O.P.Q. (Waipori) Gold-mines (Ltd)	1/4/97	..	..	..	..	..	..	..	2	3,920	14,754	44,356	..	835
Totals	..	..	..	..	..	..	..	..	2	3,920	14,754	44,356	..	835
Grand Totals	..	948,051	6,581	391,750	113,695	..	..	715	396	249,356	647,946	895,873	3,499	8,023

By Authority: JOHN MACKAY, Government Printer, Wellington.—1902.